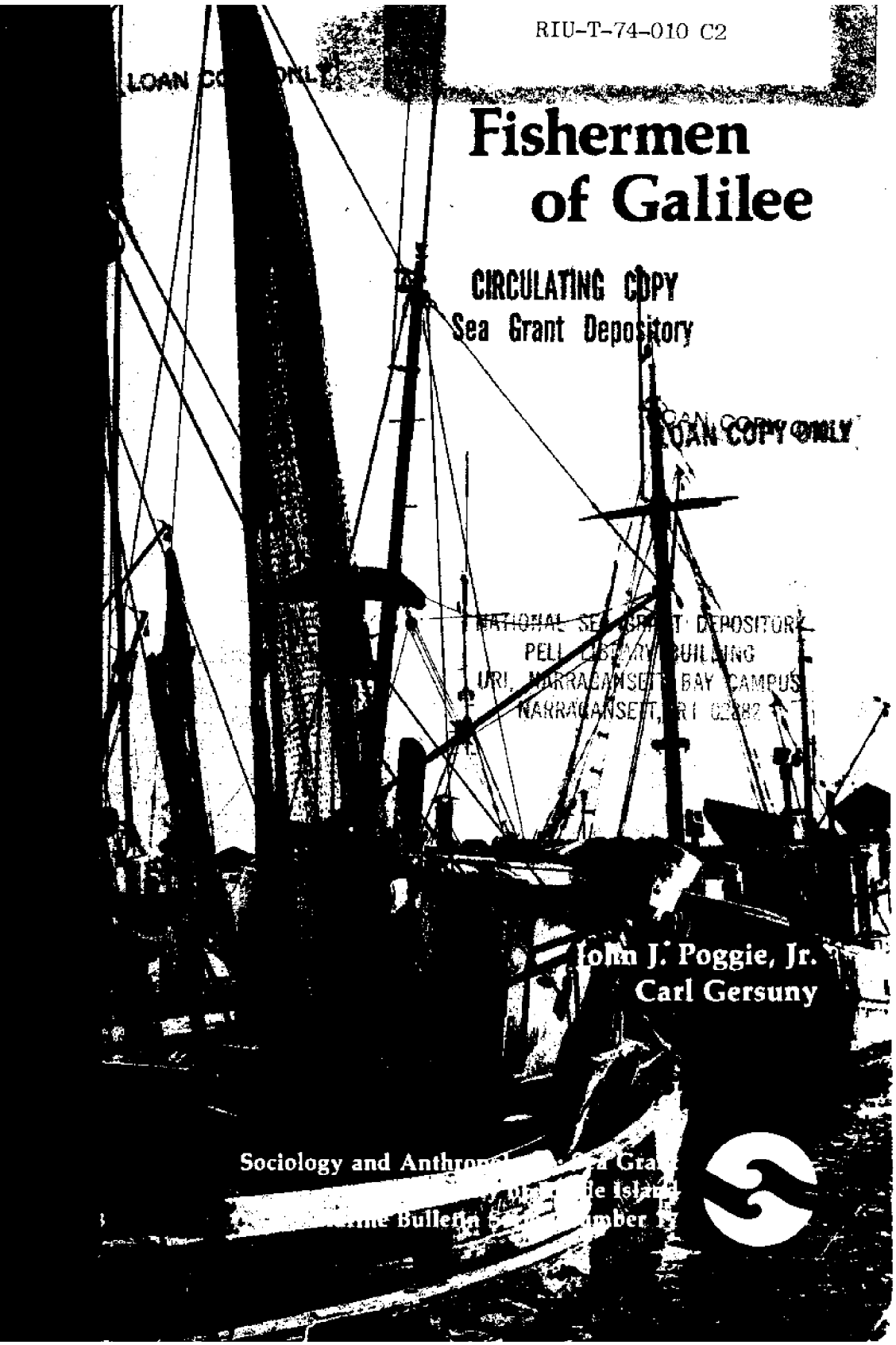
Fishermen of Galilee



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Fishermen of Galilee

the human ecology of a New England coastal community

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To our friend,
Jacob J. Dykstra

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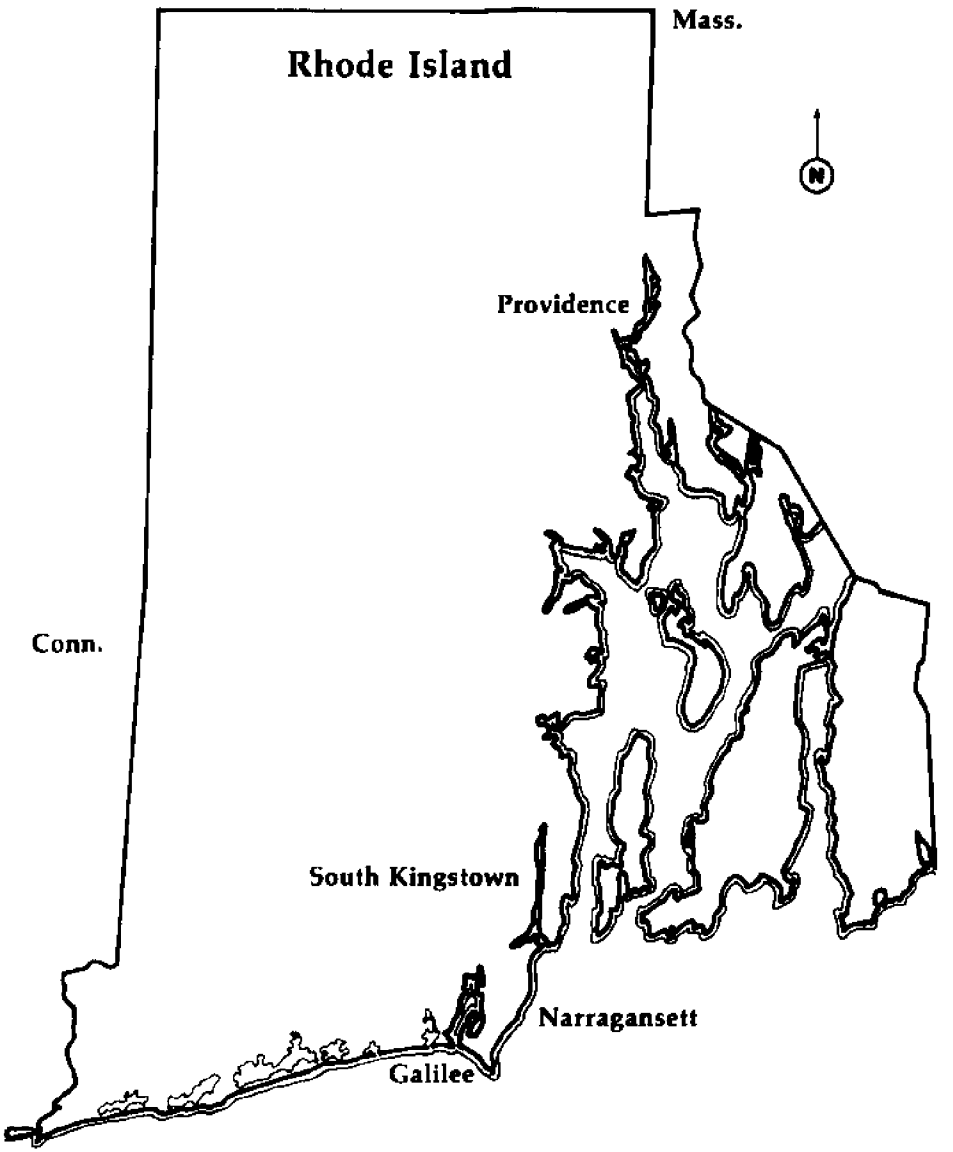
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1

Fishing at Galilee: Introduction and Theoretical Perspective

Continuity and change are interwoven in the life of mankind, and one of the longest threads from the dim past when our forebears obtained their subsistence by hunting and gathering is in the work of fishermen. Whether in an industrial or pre-industrial society and whether equipped with advanced or primitive technology, fishermen engage in the prototypical mode of economic activity of our species: they hunt and gather aquatic creatures in a variety of ways. All of these ways bear the stamp of pre-agricultural life and thus make the heritage of the fisherman one of the most ancient of all.

Fishing is pursued in a variety of ways: on a scale from small to large, in vessels ranging from dugout canoes to huge factory ships, at various depths and in the rivers, lakes and far-flung oceans of the world. One of the more successful fisheries in the United States has its base of operation in the port of Galilee, located in Narragansett, Rhode Island, and the home port for some 40 trawlers and other vessels. While many larger ports face serious problems of decline, this small fishery continues to flourish. Why it can continue to prosper and how its participants live are interesting questions, both as ends in themselves and because the answers may be instructive for those concerned with commercial fishing in other places. In this book, we offer the findings of our research and elaborations upon these findings in answer to these questions.

We can distinguish four main kinds of fishing at Galilee. The distinctions are based on gear and prey on the one hand, and on distance from shore on the other.

Table 1.1. Relationship of gear, prey and distance.

Distance	*Trawling*	*Pot lobstering*
Nearer	Day boats	Inshore
Farther	Trip boats	Offshore

About 40 vessels pursue ground fish; the majority of these ships are side trawlers, while the remainder are stern trawlers. These also can be divided on the basis of trip duration, with the majority being day boats and setting out for their fishing grounds before dawn and returning to port in the afternoon of the same day. A few serve as trip boats with some of these remaining at sea for as long as a week to 11 days.

Most of the lobstermen set their pots along the shore, but a few have acquired the equipment necessary for offshore lobstering on the continental shelf in water up to 50 fathoms deep.

While trawling for ground fish and lobstering are the principal pursuits in this fishery, they are not the only ones. Clams are gathered, both by the traditional handrake method and by modern dredges. Swordfish and tuna are hunted, although the former is proscribed because of mercury levels and the latter is left largely to the sport fishermen. There are a few haul seiners left in the area. However, the main body of fishermen are associated with the dragger fleet and lobstering.

The draggers are small trawling vessels averaging 50 to 60 feet in length with an average crew of three. Their catch includes such food fish as flounder, whiting, scup, butterfish, cod, hake and herring, and other species lumped under the category of industrial fish, which are converted into poultry feed, fish oil, fertilizer and other products.

The success of this fleet has been attributed to Galilee's nearness to the fishing grounds and the capacity of the vessels to bring in their catch quickly for efficient processing and marketing. The most successful vessels at Galilee, in terms of income, have been those with the most costly engines (the average is about 200 horsepower) and the highest number of fishing days per year (see Holmsen, 1967). These two reasons are not unrelated, because a captain with a powerful engine will risk rougher seas and more uncertain weather than one with a less powerful engine. The fishermen who get to market first with the most fish will, of course, derive a competitive advantage, and consequently smaller vessels with more powerful engines give the fishermen of Galilee an edge over fishermen from such nearby ports as Newport, Rhode Island, and Stonington, Connecticut.

The inshore lobstermen use a variety of small craft to tend their pots, while the offshore pot lobstermen employ bigger, more seaworthy vessels, some with steel hulls. Both the draggers and the offshore lobster boats are usually equipped with radios and electronic navigational devices.

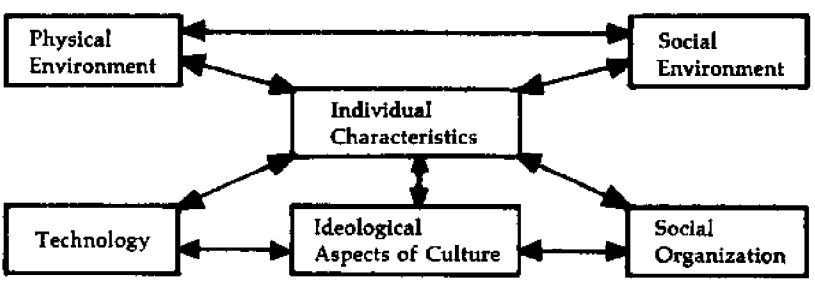
Theoretical background

Even though fishermen ply their trade away from the workaday world of landlubbers, their comings and goings are highly visible in many coastal

communities. Their adventures and perils excite the imagination of many who, perhaps, lead more pedestrian lives ashore. The pattern of their daily lives is sometimes envied, sometimes depreciated, but always considered interesting because it is so different from the "nine to five" or "seven to three" routine of shore-side white collar and blue collar workers.

Why is it different? A plausible, common sense answer is "Because the ocean is different from the land." However, common sense yields plausible explanations of many statements, false as well as true. But, objective data collection and analysis of the results have greater explanatory utility than facile generalizations based on casual impressions. This is what makes social science research worthwhile. Careful documentation of fact based on an *explicit theoretical perspective* can help clarify differences and similarities between the lives of fishermen and those who work on land. We therefore precede presentation of what we have learned with a brief explanation of the theoretical perspective which guided our research.

The understanding of collective human life, be it of a nation, a region, or a community, is facilitated by viewing this collective life as a sociocultural system. This assumption, one of the fundamental ideas of social science, includes the belief that similarities and differences in patterns of human behavior can be understood only as they operate in a total system involving the environment, the social organization and ideology. The approach of this book is based on what we call the model of human ecology. We will be dealing with the life ways of people in a New England fishing community, and we will try to understand how the pursuits of fishing and a comparable landbound occupational activity are related to the domains that form the total context of the model of human ecology. We will conceptualize our data and try to order it according to the model, pictured below.



We note that individuals form the "core" of the model and that the several domains of the model are interrelated. This interrelatedness indicates *functional unity* of the system. In other words, we have assumed that the components of the model are connected and influence one another in varying degrees.

The several other domains of the model include physical environment, technology, social environment, social organization and ideological aspects of culture. The physical environment includes such forces as climate, landform and biota with which a social system interacts. The importance of the *physical environment*—often neglected by social scientists who are, perhaps, reacting against geographic determinism—is great in all sociocultural systems. But Forde has pointed out that:

> Physical conditions enter intimately into every cultural development and pattern, not excluding the most abstract and non-material; they enter not as determinants, however, but as one category of the raw material of cultural elaboration. The study of the relations between cultural patterns and physical conditions is of the greatest importance for an understanding of human society. (1934:464)

The human ecology approach has an advantage over other frames of reference in that it puts environmental factors into proper perspective, thus avoiding:

> . . . the reductionism of behavioral concepts and the etherialism of the "value-pattern" concepts of some culture theorists. (Duncan and Schnore 1959:135)

Meggers (1954) has stated that the most direct influence of environment on social life is in the realm of subsistence activities, and she has developed a taxonomy of environments based on agricultural potential. Unfortunately, she leaves out marine environments, and one of the objectives of our study is to correct this omission.

Related to the physical environment in our model and part of the total environment of any population are its demographic characteristics (size, density, distribution), as well as those of nearby populations with which it interacts. The potential of the physical environment has to be seen in the perspective of how many people are seeking subsistence from it in terms of both internal and external competition.

Technology refers to the material items and information which mediate a population's interactions with its total environment. It includes the

knowledge and tools brought to bear on subsistence and other transformations of the physical environment. Conversely, technology also can be assessed in terms of how it tends to make environments uninhabitable, a fact that requires no elaboration in an age of sophisticated bombing systems and defoliants, as well as of a multitude of pollutants. In our systemic model, this refers to the effects of technology on the physical environment.

Social organization, on the other hand, refers to all those elements of human life that affect the maintenance of order in the areas of reproduction, child rearing, production and distribution, as well as making behavior in general reasonably predictable. This includes such institutions as family, kinship, work, and social control groups.

Ideology, as defined in this context, has to do with socially-patterned thought. These thought patterns refer to such cognitive forms as values, opinions, goals, understandings of nature and technological knowledge, as well as ideas that explain or justify the social structure.

Although the type of specific influence that exists between any two components of the model may vary depending on the social system being discussed, many social theorists have emphasized the universal importance of techno-environmental and techno-economic reciprocal influences (Harris, 1971). In fact, much of the impetus of general human cultural evolution can be understood as the results of techno-environmental and techno-economic shifts. Without trying to downgrade the importance of ideology as a "causal" factor in specific aspects of human affairs, the big picture of human cultural life leads us to conclude that ideology is secondary to the material forces, both techno-environmental and techno-economic, which are operative.

The task of any researcher using the model of human ecology is to state clearly the rules he is following in using it and to describe the "loadings" between components in the particular sociocultural system under analysis. It is our intention to describe some of the salient interrelationships of the components that make up the present way of life in the community we have studied, particularly as it exists among the fishermen there. Further we intend to show how techno-environmental and techno-economic changes have altered the configuration of the system. We also will demonstrate how fishermen, who are operating in a relatively unique techno-environmental and techno-economic setting, differ markedly from an otherwise comparable

landbound occupation in the community. To do this we will make comparisons between the two occupations on a number of socio-cultural patterns. But first, we must consider some of the general features of working in a maritime setting as compared to working in a land setting. This will lead us to further premises about applying our human ecology model to the maritime environment.

Maritime human ecology

Man's first efforts to utilize the sea for resource exploitation and transport are lost in the remoteness of prehistory. It may be assumed that the sea has been a workplace as long as humans have inhabited coastal areas. Although there is little available evidence, some social scientists believe that fishing has even played an important role in the evolution of our species (Sauer, 1963). However, there certainly is evidence of a long and continuous utilization of this environment by prehistoric and historic peoples. It has been surmised that boats developed from the experiences of men who, to aid them in their clumsy swimming efforts, learned to hold on to floating objects to support themselves in the water (Derry and Williams 1960:191). Direct attack by hand or spear was probably the earliest fishing technique, extending back to the Paleolithic, while it is believed that the net was in use as early as the Mesolithic. Drying, salting and smoking of fish were already practiced during the Bronze Age (Derry and Williams, 1960).

One of the early discoveries of cultural anthropology was of an ecological relationship in the realm of maritime activity. Malinowski's observations on the more extensive use of magic in offshore fishing compared to its use in inshore fishing among the Trobriand Islanders was clearly ecological in nature. Yet, since that ecological relationship was documented, there has been but sporadic development of research and theory on the human ecology of maritime activities. Relatively little is known about the full range of sociocultural, technological and economic factors involved in man's adaptation to the ocean.

It is our belief that a human ecology perspective is useful in understanding maritime cultures. This perspective is particularly relevant in ocean studies because man is a terrestrial species whose relationships to

marine environments are in general more complex and problematic than to land environments.

Thus, as a work setting the sea has always differed in kind from land work settings and from this basic distinction the *ecological constants* of maritime occupations arise. Differences among marine work sites as to such factors as distance from shore, water depth, currents and geomorphological features of the ocean bottom represent the *ecological variables* of maritime occupations. We shall briefly consider some aspects of these constants and variables in terms of our human ecology model.

Maritime ecological constants and ecological variables

Amos Hawley reminds us that the word ecology is "derived from the Greek *oikos*—a house or place to live. . . ." (1950:3) Yet for man the sea is but a precarious place to live, and then only if he brings a "floating house" or erects one on stilts resting on the ocean floor. Ecological relationships between humans and the ocean are, thus, in many ways unique. Because man is a terrestrial mammal, his adaptation to marine habitats has to be mediated by a fairly complex technology even to begin with, because part of the terrestrial environment has to be taken out to sea. Despite the great ingenuity brought to bear on using it, the marine habitat is one of the most challenging and in many ways the most inhospitable to man.

Archimedes' famous aphorism, "Give me a place to stand and I will move the world," may be paraphrased for the realm of maritime adaptation: "Give me a place to stand and I will move the world of work to sea." The need to transport shoreside artifacts to the ocean work site is clearly one of the constants of this adaptation.

The fluid nature of the work environment is also a constant; vessels sink and men drown. Motion is yet another of the ecological constants of ocean work sites compared to land sites. Six forms of ship motion are distinguishable, and these combine in various proportions to make work at sea different from work on solid ground: rolling, pitching, heaving, yawing, surging, and swaying. Among their effects are capsizing, shifting of cargo, damage to vessel and equipment and seasickness. Oil rigs for example are subjected to these motions during transport from one drilling site to another, when many losses occur, as well as while they are in place. This

continuous, basic instability, arising from the physical environment, is generally absent from landbound work.

Sociocultural, economic, and technological factors in human exploitation of the oceans are affected by variations in the maritime environment. These variations do not comprise mutually exclusive categories and, thus, they separately and jointly affect the work of man. For example, fishing and oil drilling are limited by the depth of the water. Distance from shore is a factor in social relationships between marine workers and the shoreside groups with which they interact, especially their families. It also influences equipment needs. Currents may jeopardize fishing gear, as may rock outcrops on the ocean floor. Sediments on the ocean bottom may contribute to the collapse of drilling platforms and other structures, and reefs and breakwaters affect the impact of wave action on work sites. In short, while maritime occupations are pursued in environments that share common distinctions from all land environments, differences among these environments have important effects that must be considered as well.

Impact of ecological factors on fishermen

Gordon Hewes points out that "the habitat of the quarry . . . is the decisive factor which sets 'fishing' apart from other forms of hunting and gathering," (1948:238) and he identifies two aspects of this habitat as important. The first is the effect of such factors as buoyancy, turbulence and solubility on objects in water. The second is the added dimension—land creatures move in two dimensions, water dwellers in three.

Fishing technology must take into account these ecological characteristics, according to Hewes, who notes:

> Since most fishing devices must be placed, inserted or thrust in and out of water, their construction and materials must be adapted to aquatic conditions. The tendency for dense objects to sink, and light objects to come to the surface, for certain substances to dissolve, for loosely anchored structures to be swept away by the current, and for submerged objects seen from outside the water to appear misplaced or distorted—all have to be taken into account in designing fishing gear. (1948:238-239)

We also will cite other ecological variables, which affect the sociocultural patterns of fisheries in a variety of ways. Physical environment, fish-

ing gear technology, the mode of work and the life styles of fishermen are inextricably intertwined. Depth of water, distance from shore, currents, sheltered-versus-open waters, and other factors all have an impact on the sociocultural aspects of this hunting and gathering activity.

For example, distance from shore is first reflected in vessel size and duration of trips. Distant water fishermen are away from home for long periods—an average of three weeks per trip is reported for the Hull trawlermen by Tunstall (1962:270). Firth records the reluctance of Malay fishermen to fish in distant waters, as contrasted with Chinese and Japanese fishermen who go on long trips.

> Malays, though excellent fishermen with a variety of techniques, do not like spending the long periods away from home which are common—indeed, almost necessary—in true pelagic fishing. (A reason they sometimes give is that they do not know what their wives are doing in their absence.) Nor with the limited capital at the command of most of them can they afford unaided the larger boats and more expensive equipment required for fishing in more distant waters. (1968:30)

Distance from shore, translated into time away from home, is a major factor in the social life of fishermen. An old Massachusetts trawler crew member reported to Arbuckle, "The hardest part is I've spent two-thirds of the last forty-five years away from my wife and family" (1970:32). Liguori makes a case that the more distant the fishery, the more at odds are the value systems of New Jersey fishermen with the dominant values of shoreside society (1968:198).

Occupational hazards stemming from the physical environment are ever present in fishing. While there is less danger in protected waters than on the open sea, there is always some element of peril. The ecological difference between sheltered and exposed fisheries was seen by Malinowski as an explanation for a difference in the use of magic:

> It is most significant that in the lagoon fishing, where man can rely completely upon his knowledge and skill, magic does not exist, while in the open-sea fishing, full of danger and uncertainty, there is extensive magical ritual to secure safety and good results. (1948:31)

Firth (1968:123-124) discusses ritual practices of Malay fishermen for placating sea spirits. Moreover, the "blessing of the fleet" persists in some fishing communities in industrial societies, where the blessing of looms

and assembly lines would be considered ridiculous. These ritual practices are clearly related to physical attributes of the marine environment.

Sheltered water and open-sea differentials are discussed by Davenport. In his game theory analysis of the spreading of risks between fishing inside and outside banks by Jamaican fishermen, he finds this ecological variable is crucial (1960:4). In the outside banks fishery, the catch is greater but unexpected currents cause extensive loss of equipment; in the sheltered water of the inside banks losses of gear are unlikely, but fishing is less rewarding as to size and varieties of fish caught. Thus, fishermen use different strategies of fishing depending on the ecological setting in order to maximize their catch and minimize loss of gear.

Aronoff (1967:41) points out that the sheltered-open sea ecological factor is important to St. Kitts fishermen. Between Christmas and the beginning of March, fishing is restricted to the harbor because of rough seas. One of the findings from research among Rhode Island fishermen points to differences in the definition of weather prospects as a major factor in the success of fishermen (Holmsen:1967). Each day captains must evaluate the forecast and decide whether to venture out or continue fishing if they are already out. Irrespective of size, the most financially successful vessels are those with the most days of fishing; this indicates that willingness to brave the hazards of the physical environment is involved in success. Cautious skippers may be poorer in the short run than daring ones, but the latter are more likely in the long run to lose everything, including their lives.

Fishing captains not only have broad discretion as to when and where to fish, but in common with the masters of all ships at sea, they have sweeping authority over their crews. This authority has no parallel in civilian managerial roles on shore. The reason for this is again rooted in the ecological setting: ships at sea are isolated from shoreside agencies of social control. In the days of sailing ships this isolation was far greater and for much longer periods of time; but, even now, the captain's authority is reinforced by the nature of the environment.

In Firth's accounting of fishing time lost in one Malay fishery, ecological factors accounted for 69 percent of the potential fishing days not used. Reasons under this category included rough weather, lack of wind and strong currents. Sociocultural factors such as disagreements within the work group and Moslem religious observances accounted for 29 percent,

while technological factors such as disrepair of nets accounted for only two percent (1968:94). In a study of modern Canadian fishermen, an enumeration was made of factors fishermen *disliked most* about their occupation. At least 80 percent of the responses are directly related to ecological variables (Proskie and Adams 1969:96). Thus, if we could derive the general model of human ecology for fishing cultures, there would be heavy loading between environment and the other domains of the model, particularly technology, ideology and social organization.

Conclusion

The deterioration of terrestrial environments because of overcrowding, pollution and depletion of resources may lead to a growing need for exploitation of maritime environments, although these also are being degraded through misuse. Because of physical factors the cultural extension of human societies into these environments cannot but remain complex and highly tenuous. Virtually all occupational roles need a place to stand for their performance; the exceptions are negligible. Thus replicas of land environments must be transported to sea, where they are susceptible to the turbulence of wind and wave.

Each adaptation to this inhospitable environment creates new problems (new loadings on the model) for the men engaged in maritime occupations: these might include life style, health, kinship and other social ties, as well as the obvious strains on technological adaptation. The greater the distance from land, the greater the social dislocations from the landbound normative pattern.

Oceanographers, engineers and practitioners of other disciplines with a scientific or technological orientation are increasingly concerned with problems of the sea. Yet a ship without a crew is chimerical and in the final analysis use of the sea is a problem of human ecology. Our purpose is to point out types of ecological relationships in this area, for we believe that further elaboration of these is the most useful approach to understanding maritime occupational cultures in all parts of the world. We contend that human ecologists should devote more attention than they have to man's adaptation to the earth's last and largest frontier. In this monograph we shall deal with the adaptation of one group—the fishermen of Galilee.

2

Profile of a Community: Narragansett-South Kingstown

Narragansett and South Kingstown are now separate, neighboring towns in Rhode Island. At one time they were one town, and in this study we refer to them as one community because ecologically as well as historically they are a single community, and the port of Galilee has been and is an important place on the map of that community.

Social scientists reporting on a community study usually do not begin a description of their study locale by stating that it is a beautiful place. However, this is not the usual community study and Narragansett-South Kingstown has remained, in spite of the pressures of megalopolis, in many respects a beautiful place.

Its green hills and valleys are blessed by a relatively mild climate. It is dotted by numerous freshwater ponds and crossed by several streams. Its littoral is the interface between pleasant landscapes and majestic seascapes, with miles of rockbound coast as well as clean, sandy beaches.

Some of its populated places are marked by well-preserved examples of colonial architecture, which add to the charm of the surroundings. Others are marked by solid 19th century stone buildings which serve as memorials to the textile magnates for whom they were built. An attractive university campus is another feature.

However, beauty is in the eye of the beholder and such esthetic value judgments do not suffice to describe the setting for a human ecology study. We need to outline some more objective materials to describe the community.

Basically, human ecology focuses on what people do in a given environment. The succession of dominant activities in this area during the more than 300 years since the first European settlement reflects Colin Clark's (1951) model of economic development. From its inception in the middle of the 17th century and throughout the 18th, it was exclusively a farming community. The textile industry, which began in 1802, rose to dominance during the second half of the 19th century. The present century has been marked by the decline of both the primary sector (agriculture) and the secondary sector (manufacturing) in the local economy. In their place what Clark (1951) calls the tertiary sector (services) has become dominant, as evidenced by the fact that combined agricultural and manufacturing employment is exceeded by employment in education alone. Education and other service areas such as health care, retail trade, transporta-

tion and recreation now account for 64 percent of the total labor force.

One exception to this developmental process as formulated by Clark stands out. Fishing, as an extractive industry, belongs to the primary sector along with agriculture. While economic activity in the community has followed the classic pattern from agriculture to manufacturing to services, fishing is a primary-sector activity which has advanced while other primary and secondary activities have declined (see table 2.1). The shaping of technology and social organization which contributed to this seeming exception to the "rules" of economic development is one of the principal themes of this book.

Geography

Located in the southeastern corner of the portion of Rhode Island that lies just west of Narragansett Bay, the community is bordered on the east by the Bay, on the south by Block Island Sound, on the west by the towns of Richmond and Charlestown, and on the north by the towns of Exeter and North Kingstown. The fact that the area abuts on two large bodies of water not only gives its fishermen easy access to marine resources, but affects the area's climate. The area has a mean temperature of approximately 30°F in January and 73°F in July. The mean annual precipitation is

Table 2.1. Washington County distribution of labor force by sectors.

Year	*Primary*		*Secondary*		*Tertiary*	
1930	1,791	15.35%	5,385	46.17%	4,486	38.46%
1940	1,082	9.68%	5,159	47.50%	4,648	42.80%
1950	979	7.02%	5,841	41.90%	7,119	51.07%
1960	843	4.85%	7,250	41.77%	9,263	53.37%
1970	647	2.39%	9,102	33.65%	17,293	63.94%

Year	*Agriculture*	*Fishing*	*Public Education*
1930	1,388	178	
1940	847	128	
1950	742	197	459
1960	582	240	1,727
1970	304	327	3,731

Source: Applicable census reports.

about 39 inches, consisting mainly of rain. The mean annual temperature range (seasonal variation) of 43 degrees is 13 degrees less than the average seasonal variation for the state as a whole. Both the temperature range and the amount of precipitation that falls as snow are moderated by proximity of the area to the ocean and Bay.

The total area is 80.6 square miles, of which 70.7 square miles is land area and 9.9 inland water. The total is divided between South Kingstown and Narragansett with 62.3 square miles in the former and 18.3 in the latter. The elevation ranges from sea level to 251 feet, with most of the land below the 200-foot contour line.

Demographic and economic profile

The territory described above was the ancestral home of Indians belonging to the Algonquian group, who hunted, fished and cultivated in this coastal region until they were dispossessed by the European colonists. Descendents of these original inhabitants still live in the area. The Pettaquamscutt Purchase in 1658 was the first land acquisition by whites in the area; a large tract was purchased for 16 pounds from three sachems of the Narragansett (Cole 1889:484). In 1660 another tract was purchased for 135 pounds, but in 1662 a protest was lodged by the Indians with authorities in Massachusetts against settlers who forceably seized and claimed land in the Point Judith-Galilee area along the south beach (Cole 1889:486).

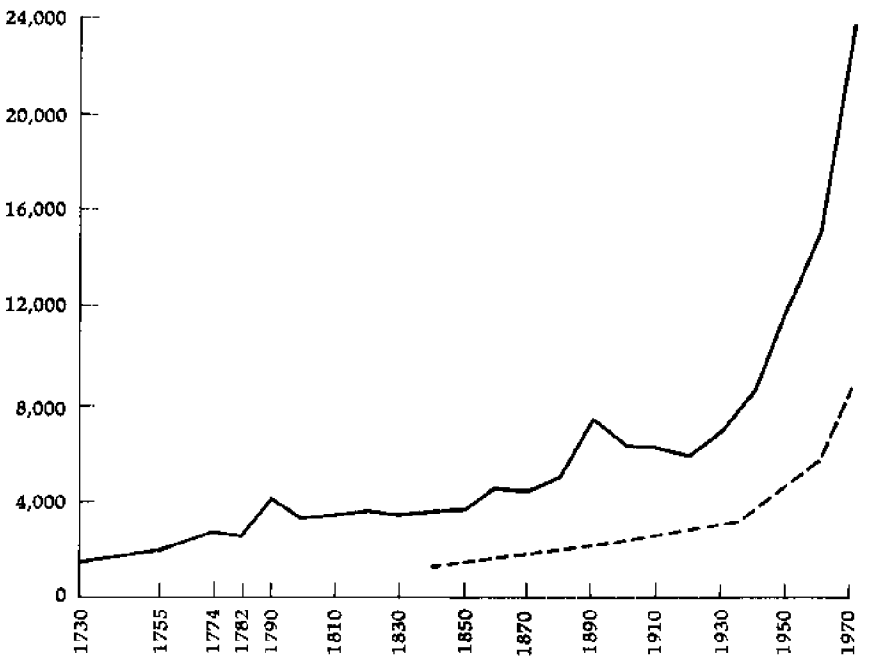
The original purchasers and others who joined them came to be known as Narragansett planters. They dominated the settlement from its inception, and their successors were influential in the community so long as agriculture remained an important economic activity. Their estates were relatively large, averaging about 300 acres, and were worked by Negro slaves and white indentured servants. As elsewhere, attempts to enslave Indians for agricultural labor failed. Corn, cheese and wool were produced and horses were raised on these farms.

In deference to the British sovereign, the community was first named King's Towne, but its expanse was unmanageable and in 1723 it was divided into two parts, with the northern part incorporated as North Kingstown and the remainder as South Kingstown. (The latter is our study site,

and we treat it as a single entity even though the present town of Narragansett split off in 1888 and was incorporated in 1901.)

From the time of the Pettaquamscutt Purchase to the first known enumeration of the population in 1730, this agricultural community had grown to 1,523 inhabitants. By the time of the last colonial census in 1774 the population had increased by 86 percent over a 44-year span, and from the last pre-revolutionary enumeration until the first census of the United States, it increased 45 percent in the short period of 16 years. This was in effect the last period of agricultural expansion, because all of the arable land was occupied by that time.

The 60 years from the first census to 1850 was a period of population decline. The closure of farm land and the slow growth of alternative eco-



Population of Narragansett-South Kingstown, 1730-1970 (. . . = Labor Force).

nomic opportunities evidently led to out-migration from the community, so that by the time of the seventh census, the population was 7.8 percent smaller than it had been during the first. From 1850 to 1890 there was a continuous growth of the textile industry and this 40-year span saw a doubling of the population, from 3,807 to 7,639.

This period of growth was followed by another period of decline, attributable perhaps to a new wave of out-migration to more urbanized areas because agriculture here had long since passed its peak and because further industrialization bypassed this somnolent community. However difficult it may be to attribute causes, it is a startling fact that from 1890 to 1920, the population declined by 19.2 percent.

The 1920s saw a reversal of the previous population trend, with an increase of 17.7 percent and, paradoxically, the Depression years, during which employment in the county diminished, were marked by a 21.6 percent increase in population. After 1940, the sky-rocketing population graph no longer contributes to an analysis of the ecohistory of the community for two reasons. First, the inclusion of college students in the decennial enumeration, while it may be justifiable on other grounds, is an obstacle to the use of census materials in a study of human ecology, because most of the students are transients who are not part of the ecological community. Second, the advancing pattern of suburbanization has made the community part of the commuter zone of the Providence metropolitan area, which makes it a domicile for persons who do not figure in its ongoing economic life except as consumers.

Perhaps a more accurate picture of the growth of Narragansett-South Kingstown can be gleaned from a list of the number of people employed:

1840—1,344 *1895*—2,371 *1936*—3,224 *1960*—5,752 *1970*—8,834*

This tabulation of the labor force, albeit fragmentary, may be a better indicator of the actual growth of the community than the population figures, because it does not take on the inflated proportions of the latter since the inclusion of college students in the decennial enumeration.

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* *Includes residents of the community employed elsewhere.*

Table 2.2. Population growth in Narragansett-South Kingstown, 1730-1970.

1730	1,523	*1870*	4,493	
1755	1,913	*1880*	5,114	
1774	2,835	*1890*	7,639	(6,231 + 1,408)*
1782	2,675	*1900*	6,495	(4,972 + 1,523)
1790	4,131	*1910*	6,426	(5,176 + 1,250)
1800	3,438	*1920*	6,174	(5,181 + 993)
1810	3,500	*1930*	7,268	(6,010 + 1,258)
1820	3,723	*1940*	8,842	(7,282 + 1,560)
1830	3,663	*1950*	12,436	(10,148 + 2,288)
1840	3,717	*1960*	15,386	(11,942 + 3,444)
1850	3,807	*1970*	24,051	(16,913 + 7,138)
1860	4,717			

Source: Various census reports.

* *The first figure in parentheses is the South Kingstown population, the second Narragansett. The two towns split in 1890, but are still the same ecological community.*

Another important variable in the social-demographic history of a community is the changing age composition of the population. Inconsistency in the reporting categories over the past two centuries makes the analysis less clear-cut than we would desire, but sufficient data are available to indicate the trend in this community.

To begin with, in 1774 (and for some time thereafter) the age composition displayed the same pattern that is found in underdeveloped countries today, namely a high proportion of young people. This last prerevolutionary census indicated that 49.8 percent of the population was under the age of 16, while 50.2 percent was 16 and older.

The second census of the United States in 1800 indicated an even larger proportion of the population under the age of 16—54.1 percent, reflecting continued high fertility and perhaps a decline in infant mortality. In the 15-44 age bracket were 33.6 percent, and 12.3 percent were aged 45 and over. This latter age bracket has shifted as follows:

Year	*Percentage Aged 45 and Above*
1800	12.3
1895	24.6
1930	33.6
1940	33.9
1970	24.7

This tabulation indicates a peculiarity of the community's age distribution, in that since 1950 college students have been enumerated in the decennial censuses, making the data on age distribution irrelevant to a study of the life cycle of the indigenous population. With this in mind, we limit ourselves to a tabulation of age composition for the century from 1840 to 1940, which reveals the following pattern:

1840	*Under 15:* 40%	*15-59:* 53%	*60 & over:* 7%
1895	*Under 15:* 25.8%	*15-59:* 63.9%	*60 & over:* 10.3%
1930	*Under 15:* 24.5%	*15-64:* 65.5%	*65 & over:* 10.0%
1940	*Under 15:* 22.7%	*15-64:* 67%	*65 & over:* 10.3%

This indicates that in Narragansett-South Kingstown, as in all communities passing through a process of industrialization and going beyond into a service society, there has been an aging of the population with a declining proportion in a condition of youth dependency and an increasing proportion in the oldest age brackets.

The race or color distribution of this community reflects a long-range decline in the proportion of non-white inhabitants. This has resulted from the disappearance of the colonial plantation economy, the scarcity of alternative work opportunities, and the low proportion of non-whites in the state as a whole. The plantation economy rested to a great extent on the employment of black slaves, and while an emancipation law enacted in 1784 curtailed slavery, there were still 175 slaves in the community at the time of the first census of the United States in 1790, and 44 slaves in 1800.

Year	*Percent White*	*Percent Non-white*
1800	87.8	12.2
1840	93.2	6.8
1895	92.5	7.5
1930	94.6	5.4
1970	95.6	4.4

With respect to ethnicity, from its inception until the middle of the 19th century, the community was almost exclusively an Anglo-Saxon "Yankee" town. The appropriation of the available farm land by the early settlers and the slow growth of non-agricultural pursuits during the first two centuries of the town's development effectively limited the influx of

other ethnic groups. This was to change to some extent with the expansion of the textile industry, for the labor requirements of the mill could not be satisfied through exclusive reliance on the indigenous population.

In 1857 about 100 Irish immigrants were employed in the woolen mill. Generally, during the second half of the 19th century, the Irish comprised the predominant portion of foreign stock in the community. This, of course, changed not only the ethnic composition of the community, but its religious life as well.

From its inception, it had been a Protestant community. The oldest Congregational church in the town had called its first minister in 1695 (Cole 1889:614). The Episcopal church recruited its first pastor in 1706 (Cole 1889:585), and the first Baptist church came into existence in 1725 (Cole 1889:591). However, the onset of Irish immigration created a Roman Catholic congregation, for whom the Mass was celebrated for the first time in 1852 by a visiting priest, while a church was established in 1854. By 1889 this parish numbered about 500. In addition a Roman Catholic church was established at Narragansett Pier in 1884 to accommodate summer visitors (Cole 1889:598).

In 1865 there were 396 persons of Irish parentage in the town and by 1895 this number had risen to 554, including 296 born in the United States of Irish-born parents and 258 who had been born in Ireland. Other countries of origin among the foreign-born in the community in 1895 included England, 199; Scotland, 53; Germany, 34; English Canada, 32; French Canada, 24; Sweden, 23, and Italy, 16.

In 1895 there were 516 woolen and worsted mill employees and 36 fishermen in the community, with 117 (22.7 percent) of the former and only one (2.8 percent) of the latter foreign-born. Of the mill workers, 62 were born in England, 27 in Ireland, 21 in other parts of the British Empire and 7 in Germany. The one foreign-born fisherman was from England. By 1920 Italians were to be the largest group among the foreign-born, but in 1895 there were but 16 natives of Italy in the community.

A marked change in the ethnic composition of the population is associated with the first major strike at the woolen mill in 1906. From its beginning in 1802, the company had been managed in a paternalistic style, but by the beginning of the 20th century overt elements of conflict entered the employer-employee relationship, culminating in a bitter and

protracted strike. During this conflict, Italians and members of other ethnic groups new to the town were recruited as strikebreakers (Stewart 1962: 129); some remained in the town after the strike ended.

Some indication of the town's ethnic composition at the present time can be gleaned from the 1970 census report on the countries of origin of the foreign-born and second generation population. There were 4,029 residents of foreign stock, with origins in the following places: Canada, 19.1%; Italy, 18.5%; United Kingdom, 16.5%; Scandinavia, 8.6%; Ireland, 7.6%, and Germany, 4.1%; with the remainder distributed over the rest of the world.

Another indicator of the growth of the community, and its major directions may be seen in the data on housing units. Over a 95-year span, the number of occupied dwellings increased over sevenfold, from 844 in 1875 to 6,346 in 1970. However, the fact that during 1970 there were an additional 3,741 dwelling units (34.6 percent) defined as "seasonal" indicates the extent to which tourism and the recreation of summer residents contributes to the economy of the community, particularly of Narragansett, where 42 percent of the housing is seasonal. Thus, despite the decline of Narragansett as a fashionable resort, its proximity to beaches and the ocean continue to shape the use of the area as a vacation center.

In 1832 the community had seven woolen mills, which employed 120 workers. They contained 1,080 spindles, and 44 looms, as well as seven cards, and represented $97,500 in capital (Coleman 1963:98).

According to the 1840 United States census, employment in manufactures and trades, which included mill work as well as such traditional craft occupations as carpentry, blacksmithing, painting and stonemasonry, was listed only 174. Distribution was as follows:

Occupational Category	*Number of Workers*	*Percent*
Agriculture	1,099	81.8
Commerce	46	3.4
Manufacturers and trades	174	12.9
Navigation	6	0.4
Learned professions and engineers	19	1.4
	1,344	99.9

The period of 1840 to 1860 was one of industrial expansion. The year 1837 had marked the coming of the railroad to Rhode Island, which connected the town's economy with wider markets (Cole 1889:618). In 1850, industrial capital totalled $251,600 in the community; 98.6 percent was in textiles (Coleman 1963:153). Seven woolen mills with a total of 205 workers accounted for most of the industrial activity at mid-century (Coleman 1963:137).

The development of manufacturing in the town can be seen from data in the 1875 state census:

	All Branches	*Woolen Goods*
Number of establishments	30	3
Capital	$453,000	$370,000 (81.6%)
Steam engines	4	3
Steam boilers	6	5
Water wheels	12	6
Employees	480	429 (89.4%)
Total wages	$166,331	$140,346 (84.4%)
Value of materials	$586,544	$495,369 (84.4%)
Value of all products	$854,866	$721,500 (84.4%)

From the same source, we can also obtain a picture of the composition and compensation of woolen mill workers in the mid-1870s:

Age	*Sex*	*Number of Workers*	*Average Daily Wages*
Under 15	Male	38	$0.775
15 and over	Male	225	$1.41
Under 15	Female	26	$0.60
15 and over	Female	140	$1.08

For full-time workers, this involved a 60-hour week. In terms of purchasing power, such wages provided for a modest level of living at best.

Twenty years later the woolen mill labor force had grown to 516, and comprised more than half of the workers classified under "manufactures and mechanics." The 1895 labor force of the community, excluding housewives, was distributed as follows:

Occupational Category	*Number*	*Percent*
Government	83	3.5
Professional	55	2.3
Personal service	35	1.5
Trade	225	9.5
Transportation	147	6.2
Agriculture	673	28.4
Fisheries	36	1.5
Manufacturing and mechanics	1,020	43.0
Laborers and apprentices	64	2.7
Not classified	33	1.4
	2,371	100.0

The 55-year span from 1840 to 1895 can be seen, then, as a period of population growth and agricultural decline; a 76 percent increase in the labor force was accompanied by a 39 percent decline in employment in farming. Farm labor declined from 81.8 percent of the labor force to 28.4 percent, while employment in manufacturing and mechanics increased by 486 percent from 174 to 1,020.

In turn, the 75-year span from 1895 to 1970 was marked by a shifting of the community labor force mainly into the service sector, with 74.7 percent in various professional, white collar, and service pursuits, 24.2 percent in material goods-producing occupations, and only 1.1 percent in agriculture. In South Kingstown by itself, to cite but one example, employment in public elementary and secondary schools and colleges was 1,597, while the total employment in manufacturing was 903 (including 244 in textiles), and agriculture provided a livelihood for only 93 persons in the labor force. This reflects in part the fact that the state university has become the community's biggest "industry," but more generally, it shows the development of a small town in a service society (see table 2.3).

The occupational structure of the community in 1970 was overwhelmingly skewed toward services:

Primary sector	3.6 percent
Secondary sector	19.2 percent
Tertiary sector	77.2 percent

Table 2.3. Narragansett-South Kingstown, 1970 labor force distribution.*

	Number	*Percent*
Professional, technical and kindred workers	2,157	24.3
Managers and administrators	650	7.3
Sales workers	560	6.3
Clerical and kindred workers	1,414	16.0
Craftsmen, foremen and kindred workers	1,107	12.5
Operatives, except transport	612	6.9
Transport equipment operatives	146	1.7
Laborers, except farm	428	4.8
Farmers and farm managers	55	0.6
Farm laborers and farm foremen	45	0.5
Service workers	1,543	17.4
Private household workers	152	1.7
	8,863	100.0

* *Includes residents of the two towns employed elsewhere.*

Employment in the primary sector included about 174 fishermen and about 100 persons in agriculture. The secondary sector included 478 construction employees and 1,222 in manufacturing. Manufacturing accounts for 13.8 percent of the labor force, as contrasted with education, which provides 28.3 percent of the town's employment (see table 2.4).

The dramatic decline of agriculture from 81.8 percent to 1.1 percent of the labor force in 130 years is well known. While not so dramatic, the decline of textile employment over a 30-year span from 1941, when there were 950 workers in just one mill, to fewer than 300 in the whole town, is also a clearcut indicator of the shifting opportunity structure. Of all the primary and secondary sector pursuits, only fishing has held its own, while the greatest growth has been in the services, particularly education.

From the post-Civil War period until shortly after World War Two, one of the labels that fit the community was that of "mill town," but the decline of textile employment over the past quarter century has made such a designation an anachronism. Employment in the textile industry has decreased dramatically:

1943—953; 1946—886; 1948—515; 1950—447; 1953—374; 1960—213; 1970—278

Table 2.4. Total employed, 16-years-old and over, Narragansett-South Kingstown, 1970.*

Agriculture, forestry, and fisheries	311
Mining	7
Construction	478
Manufacturing	1,222
Furniture, lumber and wood products (42)	
Metal industries (65)	
Machinery, except electrical (114)	
Electrical machinery, equipment and supplies (94)	
Transportation equipment (169)	
Other durable goods (123)	
Food and kindred products (81)	
Textiles and fabricated textile products (278)	
Printing, publishing and allied industries (55)	
Chemicals and allied products (48)	
Other nondurable goods (153)	
Railroads and Railway Express service	9
Trucking service and warehousing	70
Other transportation	41
Communications	84
Utilities and sanitary services	84
Wholesale trade	110
Food, bakery and dairy stores	139
Eating and drinking places	278
General merchandise retailing	157
Motor vehicle retailing and service stations	157
Other retail trade	738
Banking and credit agencies	66
Insurance, real estate and other finance	86
Business and repair services	243
Private households	141
Other personal services	213
Entertainment and recreation services	90
Hospitals	225
Health services except hospitals	216
Elementary and secondary schools and colleges, public	2,324
Elementary and secondary schools and colleges, private	149
Other educational and kindred services	29
Welfare, religious and nonprofit membership organizations	112
Legal, engineering and miscellaneous professional services	525
Public administration	530
Total	8,834

Source: 1970 Census—Fourth Count, R.I. Census Tracts *512-515.*
* *Includes residents of the two towns employed elsewhere.*

In describing the community, information about income distribution is also a relevant body of data, but unfortunately we lack early materials on this subject. Nevertheless, some contemporary data are available (table 2.5), and we shall show later that the fishermen in our study are, on the average, better rewarded than factory workers.

Table 2.5. Narragansett-South Kingstown income distribution, 1970.

Family Income	*Number of Families*	*Percent*
$0-3,999	507	10.2
$4,000-5,999	614	12.3
$6,000-7,999	601	12.1
$8,000-9,999	772	15.5
$10,000-11,999	607	12.2
$12,000-14,999	716	14.4
$15,000-24,999	912	18.3
$25,000 & over	251	5.0

Total families = 4,980
Median family income (approximate) = $10,004

The median family income was about $270 higher than the state median. Individual income data for employed males are also descriptive of the community, indicating that opportunities in farming and industry are not only few in number, but poorly remunerated as well (see table 2.6).

Table 2.6. Approximate median incomes, males 16-years-old and over in the experienced civilian labor force, Narragansett-South Kingstown, 1970.

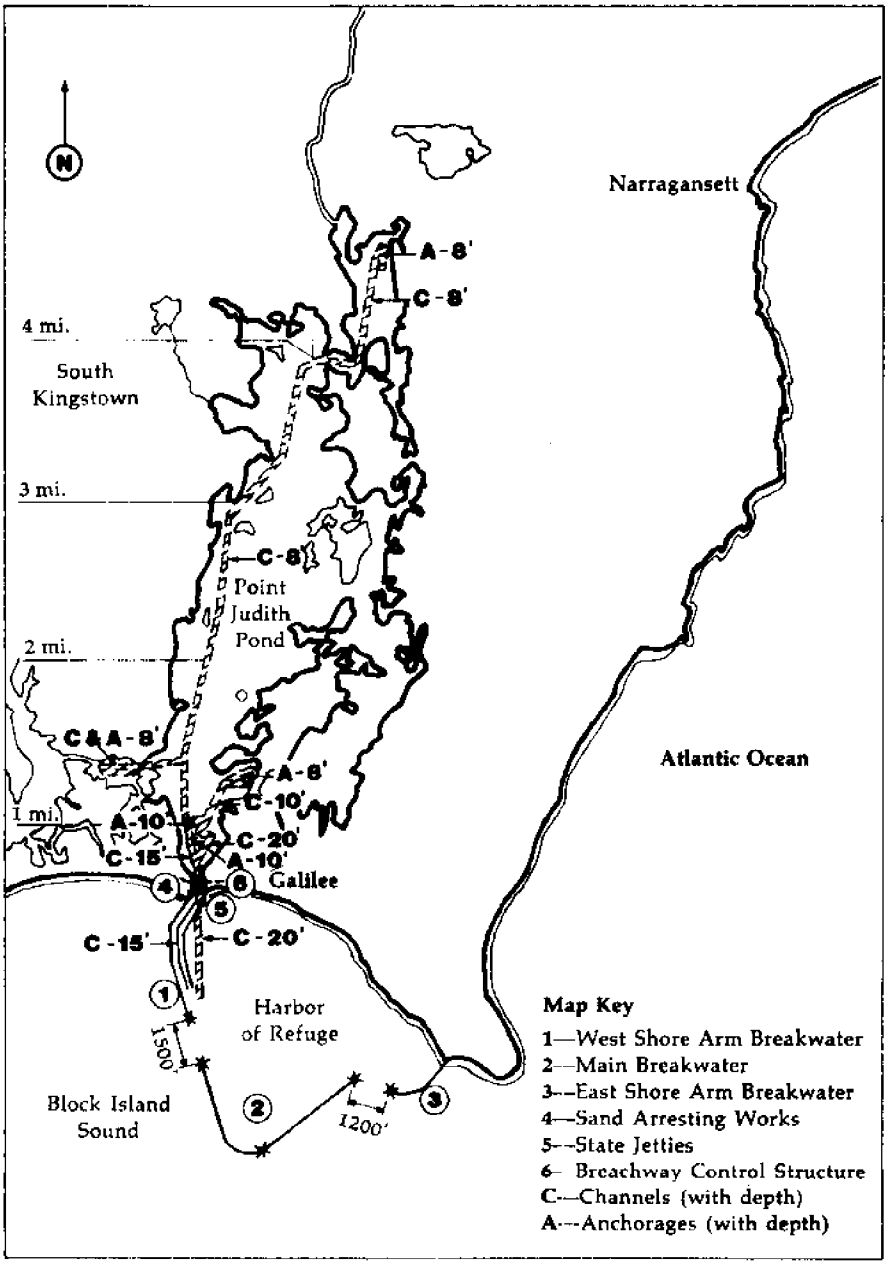
Occupational Group	*Approximate Median Income*
Professionals	$10,800
Craftsmen	7,500
Operatives	6,000
Laborers	4,400
Farmers	4,600
Farm laborers	4,200

Education has become the principal industry of the community, but neither in the past nor in the present has its product been evenly distributed.

In 1865 the town's illiteracy rate was about 11 percent overall for the population aged 15 and over, while it was 7 percent for the native white residents, 28 percent for Irish immigrants and about 29 percent for the non-white members of the community. During that year, 93 percent of children between 5 and 15 years of age attended school, at least for part of the year. The data on school attendance do not indicate the extent of education; we do know that some of the mill children went to school three months of the year and to work nine months (see Stewart 1962:70).

By 1970 the median years of schooling completed by the adult population had reached 12.5 years, and about 62.5 percent of the people aged 25 and above were high school graduates. The median educational attainment was 0.3 year above the national average, which may be a reflection of the high proportion of teachers in the labor force.

In this chapter we have attempted to describe the setting of our inquiry. Other social-historical materials throughout the remainder of this work will supplement this overview.


N
Narragansett
A-8'
C-8'
4 mi.
South
Kingstown
3 mi.
C-8'
Point
Judith
Pond
2 mi.
C&A-8'
A-8'
C-10'
1 mi.
A-10'
C-20'
C-15'
A-10'
Galilee
4
6
5
C-15'
C-20'
1
Harbor
of Refuge
1500'
Block Island
Sound
2
1200'
3
Atlantic Ocean
Map Key
1—West Shore Arm Breakwater
2—Main Breakwater
3—East Shore Arm Breakwater
4—Sand Arresting Works
5—State Jetties
6— Breachway Control Structure
C—Channels (with depth)
A—Anchorages (with depth)

3

Coping With the Physical Environment: Harbor Improvements

The physical environment is an important determinant of the limits of economic activity in a community. Ordinarily, physical environment is considered as a constant, and within the limits of its potential, its use is increased by increasingly effective technology. This applies to the harvesting of aquatic creatures as well as other forms of economic activity. More effective gear and better vessels are associated with more efficient exploitation of resources.

However, the dynamic view of human ecology focuses on man's ability to alter the physical environment and thereby change the limits of other aspects of the system, including economic activity. Dams and irrigation works are obvious examples of such an impact on the physical environment. In the community under study here, man-made changes in the coastal environment are of major importance in the emergence of an ocean fishery. Neither better vessels and gear nor the social innovation of a cooperative association could have been applied effectively in this community without the construction work which altered the physical environment and created a safe harbor where by nature none had existed. The engineering modifications of Point Judith harbor and in the entrance to Point Judith Pond were necessary prerequisites for the kind of vessel fishery that superseded the shore fishery that dates back to the dominance of the Indians in the pre-colonial period.

In this shore fishery, hook and line fishing as well as trap and net fishing were carried on from the shore with the aid of row boats and an occasional sailboat. The works of construction central to this chapter made possible the development of a vessel fishery using a medium-sized trawler technology which could greatly exceed the shore fishery in productivity. What kind of fishing was carried on before the man-made harbor was established, how the works of construction were carried out between 1892 and 1935, and what impact these works had on commercial fishing are the concerns of this chapter.

Before harbor construction began, trap fishing and lobstering were the principal fishing methods in the area. Trap fishing had superseded hook and line fishing in the middle of the 19th century. After a breakwater at Point Judith was built a beginning was made in the development of a vessel fishery, but prior to completion of improvements in 1935, only an "insignificant tonnage of fish and shellfish" (Senate Document 15, 1948:11) was

landed by a handful of fishermen. After the state piers were built and the anchorage was dredged in 1935, Point Judith surpassed the other fisheries in the state, and by 1970 it had progressed from insignificance to a business on the order of $4 million per year.

Before the coming of European settlers, Indians harvested marine fauna to provide an important part of their food supply (Gleeson 1957:18). The early settlers followed suit. The first law on fishing was passed by the colony in 1640 and the King Charles Charter of 1663 granted to the King's subjects "full and free power and liberty to continue and use the trade of fishing" (Haley 1931:57), while the 1842 State Constitution reaffirmed "the rights of fishery and the privileges of the shore."

The 1790 census for South Kingstown lists but one head of household, John Gardner, as a fisherman, but fishing was nevertheless practiced as a part-time subsistence activity by many farmers in the community because it fit into the slack periods of their agricultural labors.

The shore fishery was conducted with a rather simple technology. Seine fishermen would run out into the water with their net, leave it for about one hour and then pull it up on the beach. In the 1880s men could earn income on the order of $100 per month this way.

Some fishermen seined menhaden from the beach, using a whale boat with four men rowing and two men throwing net over the stern. Then, 16 men were needed to haul the seine ashore. Neighbors would help in these labors in exchange for a share of the catch. Fish spotters on horseback were used. They rode along the beach and signalled the location of fish by means of flags on long poles. In that period, menhaden sold at $1 per 1,000 for fertilizer, and as many as 100,000 fish were caught in one haul (Browning 1970).

Seining for bass from the shore is reported from 1867 on (Whaley 1939:4). For example, on October 31, 1869, George A. Griffin, Cranston Tucker, Carder Sherman, James Brown, Charles Wright and William Sheldon caught over two tons of bass in one haul. The various fishing gangs during this period had fish houses along the beach with bunks in which they slept until it was time to fish. Each gang had two boats and a seine. This type of fishing was carried on by various groups of men from the town throughout the period of construction of harbor improvements, but by 1940 it had virtually ceased.

At the January session of 1870, the Rhode Island General Assembly appointed a special committee to investigate the fisheries of Narragansett Bay. The document published by this committee illuminates the clash between different technologies and the displacement of the less productive by the more productive ones.

The theme of the investigation was the allegation of hook and line fishermen that numerous species formerly caught in abundance in the waters of Narragansett Bay had diminished or disappeared. This was attributed to the increasing use of new fishing techniques. Witnesses claimed that interception of fish by traps and seines would soon lead to the extinction of various species. The committee received testimony from 39 witnesses, of whom all but two were hook and line fishermen with a vested interest in reducing the incursions of a more effective technology. Hence these witnesses supported the placing of restrictions on the fish catching methods of competitors using traps and seines.

Three of the witnesses were from South Kingstown. John T. Anthony gave his occupation as a farmer and stated that he engaged in hook and line fishing three months of the year. He claimed that since 1853 fish had been constantly decreasing in numbers and size, and he attributed this trend to the practice of trapping. "I think that if traps were abolished, fish would become numerous again" (Rhode Island 1870:53). Another witness from the town was Jeremiah B. Whaley, an 84-year-old hook and line fisherman who had been fishing in the area since 1805. He also asserted that fish traps had ruined the hook and line fishery and wanted the legislature to "prohibit all kinds of trapping and seining except, perhaps, gill nets" (Rhode Island 1870:153f).

Some 70 years later, the trap fishermen in their turn attributed the decline of their trade to the superior effectiveness of trawling by vessel fishermen. For example, in an interview with one of the last of the traditional shore fishermen, Captain J. E. Clark, it was reported that trap fishing was on the way out. "The reason for the decline? Capt. Clark gives that in one word—'draggers'" (*Providence Journal*, 4/17/1940:12). This, of course, tends to be the fate of every technology in the face of more productive innovations.

Here is where the importance of harbor construction becomes clear. Steamships were used in some Rhode Island fisheries long before harbor

construction made possible the transformation of the rowboat-and-seine fishery at Point Judith into a successful vessel fishery.

Introduction of the steamship into Rhode Island fisheries took place during the last quarter of the 19th century. The technology of power boats was available, but its distribution, not surprisingly, depended on environmental factors. First and foremost of these was the existence of harbor facilities. The distribution of vessels powered by steam in 1885 and 1895 is set forth in Table 3.1.

Table 3.1. Distribution of steam vessels.

Town	*Number of Steamships in Fleet*	
	*1885**	*1895†*
Cranston	0	1
Warren	0	2
New Shoreham	4	12
Portsmouth	1	2
Tiverton	8	11
Providence	1	3
Warwick	0	1
Newport	0	1
South Kingstown	0	0
Total	14	33

* *1885 R.I. Census, pp. 590-591;* † *1895 R.I. Census, p. 865.*

During this time only rowboats and sailboats were utilized by South Kingstown fishermen for tending their seines, traps and pots, as well as for hook and line fishing. In 1885 these boats included two sailboats and 131 rowboats, while in 1895 14 sailboats and 131 rowboats were reported. In both census years, the number of boats used for fishing purposes far exceeds the number of persons reporting fishing as their full-time occupation—36 in 1885 and 41 in 1895—indicating that much of the fishing was carried on by farmers and others in the community whose primary occupations were on land.

The state census reports for 1865, 1875, 1885 and 1895 provide substantial details on the fishing activities of the Point Judith area. In the 1885 census report there was a footnote indicating that, of soft-shelled crabs

valued at $466, "a little girl ten years old collected $89 worth." This betokens a census official with an eye for human interest stories and a small-scale fishery in which such a detail only could be recorded.

In addition to fish consumed locally, there were several routes to more distant markets. One outlet was widely used when overnight steamship service was available from Newport to New York. Point Judith fishermen hauled their catch to Newport to be shipped on consignment to the New York fish market for sale the following morning. Another route was to transport wagonloads of fish to the railroad station.

Much of the fish was salted, because of the rapid spoilage of fresh fish and the unavailability of refrigeration. There was some use of ice, but it was limited because of the cost. Early evidence of artificially produced ice in the community dates from 1900:

> The plant will have a capacity of twenty tons of ice per day. . . . The failure to harvest any ice here this past winter has induced Messrs. Griffin and Browning to put in the plant. . . . Herman S. Caswell of Wakefield has been engaged to have charge of the plant which will require the services of several men. . . . (*Narragansett Times* 3/23/1900:5)

Nevertheless, salting continued to be a major technique of fish preservation with about one bushel of salt (70 pounds) per barrel of fish (150 pounds) being used in the process.

After the offshore breakwater was completed in 1906, some fishing vessels used the harbor of refuge as an anchorage. In 1907 a wireless station with an antenna 200 feet tall was installed, but there is no evidence that any local fishing vessels were equipped with radio in that period.

In 1895, when the construction of the offshore breakwater had still not progressed very far (it was not completed until 1906), the reported landings of fish at Point Judith were on the order of 300 tons. This included a reported 542,310 pounds of food fish valued at $18,980 and 63,000 pounds of fish "for guano" valued at $126 (Tiepke 1898:867).

At this point the long upward climb toward big-time commercial fishing began. The reason for this development can be attributed in large measure to the success of various interests who had long agitated for construction of two improvements at this location, a harbor of refuge consisting of rock jetties and improvements in the pond entrance.

Point Judith had long been one of the most serious hazards to coastal shipping between New York and Boston. Between 1883 and 1902, 92 vessels had been lost there (*Narragansett Times*, 2/12/1902:5), and these casualties motivated advocates for construction of a refuge in which coastal vessels could ride out the frequent dangerous storms.

As for the pond, it had been for a long time inaccessible to fishing vessels and other shipping because of shifting sand deposits at its outlet to the sea. This gave impetus to interests seeking the dredging of a permanent channel.

Both the local community and such shipping interests as the Maritime Association of the Port of New York supported works of improvement for the anchorage. After a series of negative recommendations from the U.S. Army Corps of Engineers, the federal project for a harbor of refuge was adopted in 1889.

> The approved project of 1889 provides for the construction of a national harbor of refuge nearly a mile square at this point by means of stone breakwaters, planned so as to give protection against eastern, southerly and westerly storms, the mainland itself forming a protection on the north, all at a total cost estimated in 1889 at $1,250,000 of which $75,000 was appropriated prior to the commencement of the fiscal year. By the Act of July 13, 1892, authority was given to the Secretary of War to make contracts for the completion of the project. . . . At the adoption of the project this point was a specially dangerous place for boats and tows to pass during storms and even ordinarily bad weather. (U.S. Congress 1893:65)

The first structure to be built, during the years 1892-1906, was a v-shaped detached breakwater, 6,970 feet in length, consisting of about a million tons of stone. During 1907-1909, the eastern shore breakwater was constructed; it extended 2,240 feet from land and comprised about 110,000 tons of stone. Finally from 1912 to 1915 the western shore arm breakwater, 3,640 feet in length and containing about 307,000 tons of stone, was installed. A harbor entrance of 1,200 feet was left between the eastern shore arm and the main breakwater, and an entrance of 1,500 feet was left between the western shore arm and the main breakwater.

Even before its completion, the harbor served as a refuge for many ships. For example, 513 vessels took shelter there from rough seas during the year which ended June 30, 1911. (*Narragansett Times* 10/27/1911:5)

Financing these structures by the U.S. Congress was justified on the grounds that a general or national interest was served, rather than a strictly local interest. As to the improvement of the pond entrance, the Corps of Engineers maintained for many years that it was too costly and not worthwhile because of its limited and strictly local benefit.

Point Judith Pond is more a pond than a bay because ocean waves have deposited a barrier beach at its entrance. Through this beach there had been in the past an outlet, shifting in location and varying in width and depth. Marked changes took place in the pond during the 19th century. The great September gale of 1815 closed the then existing opening into Sand Hill Cove and formed a new outlet when the water level rose in the pond. While formerly vessels of five to 20 tons could enter the pond, the new entrance was filled with sand in the late 1860s and an engineer's report in 1895 indicated that the breachway then in existence could be easily forded by ox teams.

Manufacturing and fishing interests favored dredging a navigable channel from the ocean to the head of the pond in Wakefield, the former to escape the high freight charges of the Providence and Stonington Railroad and the latter to improve the productivity of their fishery. Later the emergence of highway motor transport eliminated the support of manufacturing interests.

While these improvements were desired by various groups in South Kingstown, the Corps of Engineers did not look upon the project with favor. A long series of adverse reports preceded the actual initiation of dredging.

These negative reports must have been disheartening to local interests seeking a federal project for the improvement of the pond. The first rejection in effect told the residents that their idea might have merit in New York, but not in South Kingstown. In the words of General G. K. Warren of the Corps of Engineers after a survey in 1873:

> To secure any artificial enlargement of the outlet, extensive stone jetties would be required on each side to prevent the opening being filled with sand, and even these, unless of very great extent, would be of doubtful effect, for the beach is composed of shifting sand, exposed to the full force of the ocean waves.
>
> The village of Wakefield is situated at the head of this pond, and if vessels of moderate draught could be made to reach it, the people would be much bene-

> fitted; but the cost of making suitable works would be so great that nothing but the commerce of a great city like New York would justify the attempt. There an artificial harbor costing millions could be afforded, and only under its shelter could the beach be kept permanently open. I therefore submit no estimate for improvement. (U.S. Congress 1874:287)

In 1888 there was another survey of the pond entrance by the Corps of Engineers. "In my opinion," wrote Captain Thomas L. Casey, "the entrance to Point Judith Pond . . . is not worthy of improvement. . . ." Even after Congress had approved the harbor of refuge, a project costing millions of dollars, on the grounds that it served a general interest, improvement of the pond entrance continued to be rejected. In 1892, Congress appropriated $7,500 to dredge the channel into the pond, but the Corps advised against spending the money which had been appropriated.

In 1896 the Chief of Engineers reported that:

> The benefits to be secured would be small, local in their nature, and insufficient to justify expenditure of the money made available by the act. The Secretary of War accordingly directed that action be delayed until the subject can be again considered by Congress with the additional information furnished by this survey. . . . This locality having been frequently reported as unworthy of improvement by the United States, no further appropriations are considered advisable. (U.S. Congress 1896:Vol. 2:66)

While the federal authorities continued to reject the entrance to the pond as an object of construction, rapid strides were made in building the main breakwall of the harbor of refuge. In a series of appropriations from 1890 to 1897, $1,250,000 had been voted by the Congress for this work, which though still far from completion, had begun to protect the beach from the full force of the waves. This protection was not only desired by shipping interests seeking a place of refuge, but was necessary for any improvements in the pond entrance. Thus, while the Corps of Engineers continued to report adversely on the entrance project, the massive works offshore in effect made the opening of the breachway more feasible.

The scene of action then shifted from the bureaucracy of the Corps of Engineers to the popular democracy of the New England town meeting. If the federal government would not undertake the desired improvements, the Town of South Kingstown was to do so, later with state assistance.

On February 19, 1901, South Kingstown appropriated $12,500 to open the breachway from Point Judith Pond to the ocean. On March 19, 1901, a taxpayers' town meeting passed a resolution by a vote of 49 to 37 to empower a committee consisting of William C. Clarke, William C. Greene and Carder H. Tucker to "effect the opening of a permanent breachway connecting . . . Point Judith Pond with the sea." (Narragansett Times 3/22/1901:8)

The meeting was the occasion for considerable debate. Henry Whaley opposed the project on the grounds that it could not be finished for less than $50,000 and the breachway would kill the fishing interest. (The increased salinity did in fact eliminate certain types of fishing from the pond.)

N. C. Peckham voiced opposition to the undertaking because the town was already burdened with an indebtedness of $160,000 and the breachway at Block Island had cost $250,000.

J. G. Peckham proposed an amendment to limit the expenditure for dredging to the $12,500 already appropriated, and this was accepted. Thus the opening of the pond was initiated.

Part of the pond was situated in the "district" of Narragansett, which by then had split off from South Kingstown. A taxpayers' meeting in Narragansett was called for the purpose of considering an equal contribution to the project. The Narragansett committee promoting the issue consisted of J. C. Cross, E. D. Taylor and T. G. Hazard, Jr. At the meeting, on March 18, 1901, the opposition prevailed. Edgar W. Watts said it would be like throwing money into the sea. Thomas T. Tucker claimed that it would cost $200,000 to open the breachway and even then it might not be permanent. Charles T. Tucker moved a resolution to appropriate $12,500, which was defeated by a vote of 14 for and 33 against. The meeting then voted to lease the rights to the pond to South Kingstown for 50 years. Thus the project was carried on by only one of the towns in which the pond was located.

The Rhode Island General Assembly passed an enabling act on March 23, 1901, authorizing South Kingstown to open the breachway. In addition to authorizing the town to dredge an outlet to the ocean, the state legislature appropriated $10,000 in 1902 and the same amount in 1903 to augment the town funds for the project. The state funds were used to build two jetties to protect the breachway. With these state and town funds, a chan-

nel 75 feet wide with a seven-foot depth at mean low water was constructed from the head of the pond to the sea. All told, during the initial improvement of the outlet and pond between 1902 and 1910, $44,242.89 was expended by the state and town on the project. (U.S. Congress 1948: 15:9). One consequence of the prosecution of this work by local interests was a change in the posture of the Corps of Engineers. In the 1904 report of the Chief of Engineers the ongoing work was noted and, in recognition of local efforts, a federal contribution of $10,000 for extension of jetties or dredging was recommended.

The most significant improvements in Point Judith Pond were not to come until the Depression years of 1934 and 1935, during a period when public works were widely promoted to stimulate the economy. At that time the state of Rhode Island spent $227,281 in state funds and a $77,000 grant from the Public Works Administration to build two state piers—one at Galilee and one at Jerusalem—dredge a 35-acre anchorage basin just inside the pond entrance and to make for other improvements. This massive program of improvement of the mid-1930s represents the take-off point for the growth of commercial fishing at Point Judith.

After the turn of the century, the first vessels were introduced into what had previously been exclusively a shore fishery of rowboats and a few sailboats. After the harbor of refuge was constructed, these early vessels were brought to Point Judith, but they had to be anchored outside the pond in the protected waters encompassed by the rock breakwaters. Even without the state piers and the anchorage basin, the initial works of construction were sufficient to permit substantial expansion of fishing activities. The increase in landings from 300 tons in 1895 to about 3,000 tons in 1935, an average annual increase of 22.5 percent per year, clearly could not have occurred without the building of the harbor of refuge. However, after the major construction of 1934-1935, the growth rate shot up dramatically. The increase in fish landings from about 3,000 tons in 1935 to 17,000 tons in 1945 (U.S. Congress 1947:15:17) represents an average growth rate of 46.6 percent per year, all the more remarkable since it took place first during the waning years of the Depression when capital for investment in new equipment was scarce, and after that during World War Two with its attendant shortages of manpower and materials. Since 1945 still further increases have been made in the catch and earnings of the Galilee fisher-

men. The tonnage landed reached 50,000 in 1959, valued at about $2 million. While depletion of fish populations and other factors, such as foreign competition, reduced the tonnage landed, price increases resulted in a 1970 production total of some 30,000 tons valued at about $4 million.

In addition to keeping the harbor of refuge under repair, the federal authorities have, since this major improvement of the pond by the state, contributed the following projects:

1950-1951 Sand arresting works construction at the entrance to the pond by placing about 9,500 tons of stone. Improvement dredging in the channels and anchorage.

1956 Maintenance dredging of entrance channel and pond channel.

1959 Maintenance dredging.

1963 Maintenance dredging for removal of 47,000 cubic yards of shoaled material.

1971 Maintenance dredging for removal of 25,000 cubic yards of shoaled material.

Clearly, the phenomenal growth of fishing in Galilee cannot be attributed only to the engineering works of the harbor of refuge and the entrance to Point Judith Pond. Other factors enter, such as the organization of the fishermen's cooperative, which will be discussed in the next chapter.

However, without the alterations in the physical environment accomplished between 1892 and 1935, none of the other factors to be discussed could have entered the ecosystem. The man-made changes in the geography of this part of Rhode Island were necessary conditions for the development of commercial fishing to its present state there.

4

Coping With the Social Environment: A Fishermen's Cooperative

Harbor improvements, as well as the development of vessel and gear technology, have aided the fishermen of Galilee in dealing with the physical environment. However, the physical environment is not alone in being resistant to the efforts of fishermen. In many ways parts of the social environment are as recalcitrant as the physical. To better adapt their life to the hostile aspects of the world of man, the fishermen in this community have created a social organization for the protection of their interests. And through this organization, the members are able to obtain the services of specialists beyond the reach of individual fishermen. They are able to improve their position in dealing with various groups, and more generally, they are able to cope more effectively with the economic uncertainties that beset them. The organization is known as the Point Judith Fishermen's Cooperative Association.*

Fishing cooperatives

There are about 80 cooperative associations in the commercial fisheries of the United States and, of these, the Point Judith Fishermen's Cooperative Association is one of the most successful. Fishermen are motivated to band together in such organizations by the payment of low prices by fish dealers, by high individual costs in getting the fish to market, by the inordinate expense of money and time in obtaining equipment on a retail, individual basis and by an unsatisfactory supply of producer services beneficial to fishing.

By joining a cooperative and pooling their resources, members can obtain a combination of one or more of the following services: (1) trucking for taking their catch to markets or processing plants; (2) repair facilities and vessel and gear services for fishermen as employers rather than clients; (3) pooling of their catch and employing of marketing specialists to sell more advantageously than they could do individually; (4) supply and equipment purchasing on a wholesale basis; (5) competent representation

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* *Except when other sources are cited, the description of this organization is based on conversations with its president, Jacob J. Dykstra, and on an unpublished manuscript by David Raboy, a fisherman and former instructor at Rhode Island College.*

in dealing with banks and other financial institutions, e.g., assisting members in obtaining loans; (6) operation of retail stores, freezing plants and cold storage warehouses on behalf of the cooperating fishermen; (7) dock facilities; (8) operation of processing plants (filleting rooms, etc.) and ice plants; (9) business record services and market research inaccessible to the unaffiliated individual, and (10) easier contacts with state and federal agencies on behalf of members, e.g. legislative lobbying, contact with the National Marine Fisheries Service.

These services of fishing cooperatives are primarily ways for coming to grips with the social environment by means more advantageous than those available to unaffiliated fishermen. Fishery cooperatives in the United States have been classified by the U.S. Department of Commerce (Fisheries of the United States, Washington: U.S. Government Printing Office 1971, p. 72) according to the functions they perform for their members. The distribution of functions among the 80 cooperatives is as follows:

	Number	*Percent*
Marketing and purchasing	27	35.75
Marketing exclusively	25	31.25
Collective bargaining exclusively	9	11.25
Purchasing exclusively	5	6.25
Marketing, purchasing, and collective bargaining	8	10.00
Other (docking facilities, marine insurance, production)	6	7.50
	80	100.00

The potential benefits of collective action, when such programs are perceived and implemented, have been realized with varying degrees of success. It is the marketing-purchasing organization of the Galilee fishermen which has made it one of the most effective fishing cooperatives in the United States.

The Point Judith Fishermen's Cooperative Association

Prior to completion of the harbor improvements, fishing was the principal occupation of but very few in the local labor force. As detailed in the previous chapter Galilee's was a shore fishery as distinct from a vessel

fishery. After the completion of the jetties and piers in 1935, the harvesting of marine life entered a "take-off stage" and a vessel fishery emerged.

> Soon thereafter private interests established wholesale fish-receiving and packing houses and inaugurated fast refrigerated truck service to the metropolitan markets. . . . (U.S. Congress, 1948:16)

These middlemen entered the process of fish marketing to the detriment of the fishermen and charged them high prices for packing and transporting fish to the urban brokerage houses. By paying the lowest possible prices for the fish and deducting the highest possible prices for packing and shipping, these "private interests" were operated to the disadvantage of the primary producers. The buyers acted in collusion and the sellers, because they were not organized, lacked the capacity to seek alternative outlets for their fish. The purchasing of gear and supplies was on an individual, retail basis too, and this also entailed serious problems for the fishermen.

There had been discussion of forming an association for some time before this development actually took place, but its initiation was discouraged by the antipathy of local business, fear of failure on the part of the concerned fishermen and insufficient information. However, in 1947, after some of the younger fishermen returned from military service, the idea was revived. Stock was sold and in April of 1948 the cooperative began operation with about 65 members and 20 vessels. During its first quarter century, it doubled in both number of members and vessels.

Today the members meet annually to elect officers. Each member has one vote, regardless of the number of shares he owns. The organization hires a manager who operates the shoreside facilities, as well as two marketing agents. These marketing agents work with the catch of from 40-45 vessels and, through negotiations in a farflung network of markets, obtain far better returns than was the case when individual fishermen were dependent on two local buyers.

The function of the marketing agents is reflected in the fact that one of the most important expenditures of the organization is its telephone bill. Dependence on local wholesalers was broken by communicating with markets up and down the East Coast, making it possible to sell under the most advantageous conditions.

The cooperative is financed through an assessment based on the selling price of the fish. A stockroom is maintained with an inventory of equipment and supplies, such as line, wire, boots and gloves, as well as replacement parts for the vessels. This saves the members not only money but valuable time, particularly during the summer months when fishing reaches its peak. Fuel is also sold through the organization, as well as ice manufactured in the co-op's own ice plant. Thus boats can be restocked at the same time that they are being unloaded.

A welfare fund is maintained for members, supported by a one percent assessment on gross stock. This pays fishermen $49 per week up to one year if they are unable to fish due to illness or vessel breakdown, and $98 per week if they are hospitalized. In addition, members receive health and accident insurance, and vessel insurance through the organization.

Before the cooperative established unloading facilities, the fishermen had to unload their catch at facilities belonging to a middleman who collected packing and transport charges as well as brokers' commissions, all of which were deducted before the primary producers received any return for their labor and investment. With the cooperative, there is no outside middleman for filleting, packing and shipping, nor are the fishermen restricted to selling in one market.

In addition to the tangible economic benefits of the organization, it is also a source of intangible social benefits. For example, by selling advantageously in their home port instead of discharging their catch in some distant place, fishermen are able to spend more time with their families. And the organization is also a source of pride and solidarity among its members.

Under the aegis of the cooperative, fish landings at first rose rapidly. We have seen that thanks to harbor improvements, the catch at Galilee rose from 3,000 tons in 1935 to 17,000 tons in 1945. During the first 12 years of the cooperative, the increase in catch was dramatic, reaching 51,000 tons by 1959. Since that time, because of depletion of many species, the tonnage has declined, but rising prices have provided higher income. For example, in 1969, a total of 37,000 tons yielded a return of $3,400,000, while in 1970 the catch declined to 29,500 tons but brought in $3,900,000. Throughout this period, the cooperative has been instrumental in helping fishermen maximize their returns in a changing situation.

Reducing uncertainty through organization

One way to understand the functioning of the cooperative association in the context of our model of human ecology is to examine its effects on uncertainties that confront fishermen. "The central problem of complex organizations is to cope with uncertainty," (Thompson 1967:13), and organizations are much better equipped for this task than unaffiliated individuals. Thompson discusses a variety of strategies by means of which organizations meet social environmental challenges to rationality, i.e., to the orderly proceeding from means to ends.

First, he argues that organizations "seek to seal off core technologies from environmental influences" (Thompson 1967:19). In the case of the organization we are discussing here, "core technology" means the technology and work involved in catching fish. Environmental influences include all the aspects of the social environment which impinge on the fishing effort. Sealing off the fishing process from environmental factors entails acquiring the means to produce certain services and obtain certain goods from *within* the organization instead of getting them from the outside social environment. Whether the activity involved is making ice or providing market information, it is clearly beneficial to the fishermen to have their own ice plant and their own marketing agents.

Second, organizations "buffer environmental influences by surrounding their technical cores with input and output components" (Thompson 1967: 20). The co-op does this by activities like operating a storeroom to furnish needed supplies at lower cost (input component). Again, the actual fishing activity is buffered from social environment uncertainties by ending dependence on outside agencies for necessary supporting services.

Third, organizations "seek to smooth out input and output transactions" (Thompson 1967:21). The co-op does this for fishermen by trying to maneuver their marketing and other efforts against fluctuations in the price of various input and output factors. By providing more adequate supply-and-demand information, the organization enables its members to shift their fishing from one species to another, as well as from one market to another, on a more rational basis. The organization can also cope with fluctuations by freezing some of the members' catch to keep it off the market when prices are lower and to sell it later if prices go up.

Fourth, "organizations seek to anticipate and adapt to environmental changes which cannot be buffered or leveled" (Thompson 1967:21). By improving the fishermen's information-gathering capacity, the co-op makes them less vulnerable to surprising developments for which they are unprepared. As a collectivity, the fishermen can command the expertise of specialists in various fields, thus enhancing their predictive capacity.

By pooling their resources, the fishermen can obtain benefits of certain other specializations, which are unobtainable by individuals. The business and technical specialists retained by the organization are also bulwarks against the social environment. An individual fisherman who spends all of his waking hours in pursuit of fish cannot also be an expert in keeping business records and in manipulating market situations. Through organization, a collectivity of fishermen can become the employer of the needed specialists. They, thus, avoid some of the disadvantages of always being the clients of outside interests.

In effect the cooperative has altered the balance of power between the individual fishermen and elements in their social environment. By pooling their resources and forming an organization, the fishermen created a more favorable situation for themselves in relation to various groups with which they have to deal in pursuing their occupation. When the cooperative was formed, the dependence on the local fish buyers was eliminated, and dependence is the essence of being powerless (see Emerson 1962:33). In the same way, they were able to end their dependence on retail sellers of gear and supplies.

The alteration in the balance of power also resulted in more effective dealings with governmental agencies and legislative bodies, which are more attentive to well-organized constituencies with articulate spokesmen than to unorganized, inarticulate individuals. Whether negotiating loans for members or lobbying for legislation, the cooperative association has enhanced the power position of fishermen.

Other unresolved problems

Controlling the social environment is always an imperfectly realized goal. Some of the problems of control are more intractable than those that can be solved by building an ice plant or hiring marketing experts.

The most salient and difficult element for fishermen is the matter of dealing with competitors in the exploitation of an open access resource. There are numerous competitors, and many, particularly those flying foreign flags, are beyond the reach of the Galilee fishermen's influence. The huge trawlers and factory ships of heavily subsidized foreign fishing fleets are potent competitors, and lobbying for federal legislation to extend United States territorial waters to the 200 mile limit is an attempt to meet this challenge. The state legislature's enactment of a 200 mile limit for state jurisdiction is patently unenforceable by a local police boat. Thus Russian and other foreign fishermen are viewed as rivals, whose massive operations are "sweeping the ocean clean" and threatening the livelihood of the fishermen of Galilee.

Although they are circumspect in talking about them, commercial fishermen also have to contend with sports fishermen and pleasure boating enthusiasts as competitors in the social environment. Inshore pot lobstermen in particular view these groups as their enemies, as human predators who interfere with their livelihood. Pleasure boaters frequently violate the rules of the road and damage fishing gear, as well as compete for scarce dock space. They are also perennial suspects in thefts from lobster pots (and one of our informants reported that on one occasion such a predator left a six-pack of beer in one of his lobster pots in exchange for the stolen lobsters). Lobstermen have been known to put razor blades on their traps or even shoot at those who pilfer their traps.

Another source of difficulty in the social environment is the clash between users of stationary and movable gear, mainly between users of lobster pots—which are being set in deeper waters than ever before—and trawlers. This is most dramatically publicized when Russians trawl through offshore lobster pots, but it arises within, as well as across, nationality lines, because North Carolinians have also run afoul of deep-sea lobster gear and Galilee boats have been accused of severing a trans-Atlantic telephone cable.

Increasing control over the social environment also entails future measures to limit access to the fishery by licensure and other means in order to restrict competition for scarce resources. Various fishing interests and governmental agencies are contemplating such measures in order to forestall the future extinction of some species of food fish because of overfishing. Solu-

tions of this type would, however, create other problems in social relationships. As we point out elsewhere, kinship plays an important part in recruitment of fishermen. If entry into the occupation is limited in order to forestall overfishing, problems of blocked succession will have to be dealt with. A son's right to follow in his father's footsteps, hitherto unchallenged, would be impaired for some young men. This is an example of the process whereby solutions of old problems produce new problems.

Water pollution and other forms of degradation of the physical environment must also be viewed as problems of the social environment for the fishermen whose livelihood depends upon keeping a clean habitat for their aquatic products. The reason for this is the obvious one of rival users (or abusers) of the environment restricting the fishermen's potential catch.

As far as fishermen's productivity is concerned, rival uses of the aquatic environment which reduce the quantity of fish and shellfish have a long history in the state. Early on, "the Indians objected to the wallowing of Englishmen's hogs" in their clam beds (Gleeson 1957:122). In 1785 a dispute over fishing rights involving Rhode Island and Connecticut fishermen was resolved by the demise of the fish as a result of rival users of the streams building dams and water wheels and discharging mill effluents into the water:

> . . . a group of Rhode Islanders drove a Connecticut captain and his men to Stonington and mobbed them. . . . However, before anything could be decided, the fish all died, causing the death of the issue as well. This was a direct result of the increase of manufacturing and the consequent building of dams. Ever since 1735, the colonists had become reconciled to such encroachments of their fishing privileges, due to the greater revenue from manufacturing. . . . (Haley 1931:II:58)

In 1870, during a legislative inquiry into the conditions of the fisheries of Narragansett Bay, one of the questions pursued dealt with water pollution:

> Is it or not your opinion that the scarcity of scup and other fish is owing in part or wholly to the impurity of water?
>
> State fully the reasons that formed this opinion, the facts that lead you to these reasons, and explain the idea which you entertain as to the operation of such causes upon the fish, if such be your opinion.

> State whether, in your opinion, the impurities coming into the waters at Fall River, Pawtucket, Providence, Pawtuxet and East Greenwich affect the waters of the Seconnet River, Warren River, the West Passage, and the waters on the coast from Fort Adams to Sachuest Point. . .
>
> Whether the impurities from print, chemical or gas works are greater now than either five, ten, fifteen, twenty or twenty-five years ago, and that the impurities are those that affect deleteriously the fish? (Rhode Island General Assembly, 1870:47-48)

Only one of the 39 fishermen who responded to this inquiry attributed the decline of fish landings to water pollution. "The inquiries falling into the bay are hardly more noticeable than a drop of ink in a hogshead of water," asserted one, and another expressed the opinion that there was "not enough offal to affect the water."

A century later the proportion of fishermen perceiving water pollution as a problem would have been reversed, if indeed there were even one who didn't recognize the deterioration of water quality. Today, frequent suspension of shell fishing because of high bacteria counts in coastal waters, proscription of swordfish because of dangerous mercury levels, and official scrutiny of lobsters—the green gold of this fishery—for levels of toxicity, have made fishermen painfully aware that competing groups in the social environment are fouling their hunting grounds and prey.

In 1961 a major outbreak of hepatitis in Rhode Island was traced to polluted clams (Bailey 1968), and millions of bushels of this valuable shellfish were rendered unfit because the marine environment was used as a sewer by shoreside society. As for swordfish, this species had been declining as part of the Rhode Island fisheries' catch, from 472,000 pounds in 1929 to 67,000 pounds in 1949, and the discovery of mercury in the tissue of the fish virtually destroyed the livelihood of the men who pursued this prey.

Conclusion

The problems of coping with the social environment must thus be seen as every bit as complex and difficult to man as those of dealing with the physical environment. While neither competing fishing interests who deplete the stocks of the open-access resources nor shoreside interests who

control or degrade marine resources in pursuits other than fishing have been brought under control, the Galilee fishermen have taken a giant step in the direction of coping with the social environment through formation of their cooperative association.

While the cooperative has not been a panacea for the fishermen of Galilee, it has nevertheless dramatically improved their short-term chances in an occupation beset with numerous uncertainties. It has also altered their life style, not only through stabilized and increased income, but in the more elusive but nevertheless important social dimension of prestige. Before the inception of the co-op, fishing was considered to be a disreputable calling by many in their community, and children were reluctant to admit that their fathers were fishermen. Partly as a by-product of the improved economic picture in fishing under the co-op, and partly because this greater affluence was accompanied by greater stability, fishing has also become more reputable. This too is a form of relationship with the social environment, because social status entails having one's claim for honor and feelings of success validated in the community.

Thus in the same way that the many thousands of tons of stone, steel and wood in harbor improvements stand as a mark of the efforts to cope with the physical environment, the fishermen's cooperative association stands as a mark of the efforts to control the social environment. It has done so by giving fishermen as a group control over processes that were formerly part of the outside world, by giving them greater leverage in the market place, by increasing the information to which they have access and by improving their status in the social environment. Both the income and status honor of fishermen have been increased through organization, enabling them better to cope with various elements in the social environment.

5

Ideology: The Ideas Behind the Sub-Culture

Although our main concern is to construct a model of human ecology to aid in the analysis of the social life of the fishermen of Galilee, it is often useful to contrast one cultural group with another as a means of learning how such configurations differ and why. Thus, in this and the next two chapters we shall learn more about the fishermen population by contrasting fishermen and a comparable landbound occupational group, the mill workers who live and work in the community. Our intent here is to make a *controlled* comparison of fishermen with mill workers in order to find which characteristics of fishermen are strikingly different from those of a *comparable landbound* occupational group. Using this comparison, we will be able to isolate factors that are most relevant for understanding the fishermen population.

We selected mill workers as our comparison group because they are of similar socioeconomic status, they live in the same region of southern New England, and their educational, ethnic and age characteristics are similar to those of the fishermen of the community. We shall examine some of the social and demographic characteristics of the two sample groups in order to ascertain how closely the two groups are controlled, or matched. The intent in working with an experimental group would be to match our comparison groups for *all* characteristics except occupational roles; however, this is impossible in a "real life" setting.

This method of controlled comparison has been described by Eggan (1954) as a naturalistic experimental technique for testing hypotheses and for descriptive comparison of cultural and other categories of people. Eggan describes it as follows:

> My own preference is for the utilization of the comparative method on a smaller scale and with as much control over the frame of comparison as it is possible to secure. It has seemed natural to utilize regions of relatively homogeneous culture or to work within social or cultural types, and to further control the ecology and historical factors so far as it is possible to do so. (1954:747)

The workers from whom we obtained data for our comparison are employees of a textile mill in the community. The 29 workers whom we interviewed represent nearly the entire labor force of the small mill; the sample includes all production personnel and some of the technical personnel and foremen. These workers were interviewed in the factory setting

by our field assistants during a single day in the presence of company officials. The sample of 29 fishermen represents approximately 10 percent of the fishermen in the port of Galilee. We drew our sample from the membership list of the fishermen's cooperative in Galilee, as well as from a listing of fishermen who were not members, but who held lobster licenses for the year 1970-1971. The sample is stratified in the sense that we wished to obtain a quota of lobstermen, day fishermen, and trippers. The number of refusals which we experienced in both groups was strikingly low with only seven out of 58 interviews. We also interviewed the wives of the fishermen in their homes. The mill workers' wives were likewise interviewed. Unfortunately, time and shortage of personnel did not permit us to obtain more than a very small sample (7) of the latter. This small sample, however, at least gives us some indication of the nature of the responses of wives of these workers.

Turning now to the demographic characteristics of the two samples, we note in table 5.1 that the two groups are quite similar in terms of age and educational characteristics. The factory workers have a mean age of 37.5 years and an average educational attainment of 11 years. The fishermen have a mean age of 40 years, or 2.5 years higher than the factory workers. Their educational attainment figure is higher on the average, with a mean of 11.9 years, although the median educational level of the adult population of the community as a whole is 12.5 years. The fishermen are slightly "better educated" than the mill workers in the community as evidenced by the fact that nearly three-quarters of the fishermen have at least a high school education, whereas slightly less than half of the factory workers do. However, overall the distribution of age and educational attainment among the two groups is similar enough to make comparisons between the two groups with the reasonable expectation that age and educational attainment do not profoundly affect the results.

As a measure of the ethnicity of the two groups, we asked whether or not the individuals in our sample spoke a foreign language, and whether or not their fathers or mothers spoke a foreign language. Foreign languages can be learned in a school context, but we believe this is a rare occurrence and in the more usual case the foreign language is passed down in the context of an ethnic family setting. Table 5.2 shows that there is somewhat more non-Anglo Saxon ethnicity among the factory workers than among

Table 5.1. Age and education.

Factory Workers

Age	21	22	23	24	28	30	31	32	34	35	39	41
Frequency	1	2	2	1	1	4	1	1	2	2	1	1
Age	43	44	48	50	53	54	56	60	63			
Frequency	1	2	1	1	1	1	1	1	1			
Education (years)	6	8	9	10	11	12	13	15	16			
Frequency	1	4	4	3	3	9	1	1	3			

Mean age = 37.5 years; mean education = 11 years

Fishermen

Age	22	23	24	26	27	28	30	33	34	35	38	39
Frequency	1	1	1	1	1	1	1	1	3	1	1	2
Age	41	42	44	45	47	51	55	65	76			
Frequency	1	1	1	1	4	2	2	1	1			
Education (years)	8	9	10	11	12	14	16	17				
Frequency	3	2	2	2	14	4	1	1				

Mean age = 40 years; mean education = 11.9 years.

the fishermen; seven factory workers speak a foreign language as compared to three fishermen. Seventeen mothers or fathers of factory workers speak a foreign language while there are 11 fathers and mothers of fishermen who do. The fishermen are slightly more "Yankee" than the factory workers in terms of ethnicity, but the two groups are not profoundly different in terms of this particular characteristic.

Table 5.2. Ethnicity—speak a foreign language.

Factory Workers	Self—7*	Mother—8	Father—9
Fishermen	Self—3†	Mother—4	Father—7

* *1 French, 1 Polish, 1 German, 3 Italian, 1 Spanish.*
† *2 German, 1 French.*

When one examines the information on religion (table 5.3), the essentially "Yankee" character of both populations becomes more apparent.

The predominant religion of both groups is Protestant; Catholicism is the religion of 31 percent of the factory workers and 20 percent of the fishermen.

Table 5.3. Religion.

Factory Workers	Protestant—13	Catholic—9	None—7
Fishermen	Protestant—15	Catholic—6	None—9

We looked at other kinds of demographic variables which might have differed sharply in our two occupational groups, and which might have confounded our comparison. We wished to determine for example, to what degree each sample population was indeed from the local area. We asked our respondents where they were born and where they grew up. As shown in table 5.4, the vast proportion of respondents in both groups were born in Rhode Island. The factory workers appear to be slightly less "local" in the sense that three of them were born outside the northeastern United States, and two were born outside the United States. No fishermen were born outside the United States, while only one fisherman was born outside the northeast. The locations in which our respondents grew up are quite similar to the distributional pattern for birthplaces; that is, the preponderance of both samples grew up in Rhode Island, with only a small minority having grown up outside the northeast.

Table 5.4. Places of birth and growing up.

Place of Birth	*Place of Growing Up*
Factory Workers	Factory Workers
Rhode Island: 18	Rhode Island: 19
Northeast: 6	Northeast: 5
Outside northeast: 3	Outside northeast: 3
Outside U.S.A.: 2	Outside U.S.A.: 2
Fishermen	Fishermen
Rhode Island: 21	Rhode Island: 22
Northeast: 8	Northeast: 7
Outside northeast: 1	Outside northeast: 1
Outside U.S.A.: 0	Outside U.S.A.: 0

In looking at these demographic characteristics of the two populations, we can reach the conclusion that only some minor quantitative differences distinguish the two populations. None of the differences encountered reach what can be considered significant proportions. Thus, in comparing mill workers and the fishermen, we may assume that the significant differences between them are most likely related to their occupational differences.

Ideational characteristics

According to Goodenough, culture may be defined to include a phenomenal and an ideological, or as he calls it, ideational domain. The phenomenal domain, he says, ". . . is a property of the community as a material system of people, their surroundings, and their behavior."

He goes on to describe the ideational domain:

> The ideational order is a property not of the community but of its members. It is their organization of their experience within the phenomenal order, a product of cognitive and instrumental (habit formation) learning. The ideational order, unlike the statistical order, is nonmaterial, being composed of ideal forms as they exist in people's minds, propositions about their interrelationships, preference ratings regarding them, and recipes for their mutual ordering as means to desired ends (1964:11).

This distinction between phenomenal and ideational domains is applicable to the model of human ecology with which we are working as indicated in the schematic diagram of the model (see page 3), and it can be applied to our two occupational sub-cultures.

Perceptions of occupation

In order to elicit ideational materials related to the respective occupations, we asked our samples of fishermen and mill workers to respond to certain questions. For example, we asked, "What are the most important things *to you* about your job? That is, what do you think you get from your job in comparison to other types of work you could do?" With this question we hoped to elicit cognitively salient ideational characteristics related to work. We have used a method of content analysis to analyze responses and

these are tabulated according to the number of times various themes were mentioned for each group.

The results, depicted in table 5.5, show that there are indeed striking differences between what fishermen and mill workers feel they get from their work. The fishermen, taken as a whole, responded most frequently with themes related to independence, challenge, work outdoors, lack of regimentation and satisfaction. They also seem to have more definite ideas about what their work means to them; they responded with 63 mentions of themes, while the mill workers responded with only 37. The mill workers collectively consider satisfaction, good earnings, regular hours, steady work and challenge as the main items of importance derived from their work. However, four mill workers reported that they feel they get "nothing special" out of their work.

Table 5.5. Ideational themes of fishermen and mill workers.

Themes	*Fishermen N = 27* *Frequency*	*Mill workers N = 29* *Frequency*
Independence	16	0
Work with others	1	1
Away from people	2	0
Good earnings	7	5
Challenge	12	4
Satisfaction	8	7
Security	0	2
Fringe benefits	0	3
Hard work	1	0
Regular hours	0	5
Lack of regimentation	8	0
Outdoors	9	0
Variety in work	4	0
Don't have to work hard	0	1
Steady work	0	5
"Nothing special"	0	4
Total	63	37

In considering these results, we must keep in mind that these two groups have comparable socioeconomic standing. They are both involved in what sociologists call "blue collar" occupations. However, fishermen earn considerably more money than do the mill workers, which leads to

the possibility that the difference in income is the prime factor in understanding why fishermen respond differently than do mill workers.

We attempted to find out if this is the case by obtaining ideational data from students in Rhode Island who are training to go into fishing and from otherwise comparable students planning to go into jobs as technicians on land. The students in the samples are enrolled in two-year technical programs either for fishing or for technical factory occupations. These individuals have elected to enter these occupations out of preference for them. As yet they are not actually engaged in the occupations nor are they earning any income from them. Thus by determining their ideational characteristics we were able to determine if the occupation itself, and *not* difference in income after becoming actually employed, is the salient feature affecting ideology.

In order to obtain these data we asked our sample of 27 fishing technology students and 34 factory technology students to respond to this question: "Briefly describe what you expect from the job you will likely have once you finish your present course of study. (Indicate the nature of the work, earning opportunities, and anything else that you think is important to you about this type of job.)" We analyzed the responses to this question for themes related to the work respondents intended to go into.

We note again in these results, shown in table 5.6, a striking difference between fishermen and factory groups. The one item that stands out is again the theme of independence. Nineteen of the 27 fishing-oriented students expect to gain independence from their prospective occupation, while not one of the factory-bound students mentioned this theme. Other items that differentiate the two samples are fair earnings, benefits and outdoor job. These results show that income differences between actual fishermen and factory workers are probably not the chief reason for the ideational differences we recorded for these two populations. Although these results do not prove conclusively that individuals with particular psychological characteristics select these occupations, they do lend strong support to that hypothesis.

To further check the hypothesis, we asked a sample of high school seniors from the community to indicate what the two occupations of textile workers and fishermen are like. We wished to obtain their perception of these occupations in order to see if the ideational characteristics that we

Table 5.6. Ideational themes of fishing and factory-bound technical students.

Themes	*Fishing Students Frequency*	*Factory Students Frequency*
Independence	19	0
Work with others	1	5
Good earnings	15	10
Fair earnings	1	14
Challenge	9	9
Satisfying	10	8
Opportunity	4	11
Job security	3	1
Benefits	0	8
Hard work	2	1
Regular time schedule	1	0
Lack of regimentation	3	0
Prestige	1	0
Travel	0	1
Good working conditions	0	3
Outdoor job	6	1
Variety in work	1	0
Don't work hard	0	1

found for persons actually employed in them and students are part of the general cultural definition of these occupations. Our tabulation of the themes reported by the high school students, indicated in table 5.7, mention the theme of independence (the trait that most differentiates the two previous samples) only once for fishing. This indicates to us that this theme is not part of the cultural definition of the occupation and lends further support to the hypothesis that there is a selection process whereby individuals with this psychological characteristic seek out fishing and other "independent" occupations. This is in contrast to a process of "acculturated" change in individuals' ideational characteristics once they find themselves in fishing as an occupation. We do not deny that there may be an acculturation effect influencing the students of these two occupations, but the main point we wish to emphasize is that the two populations of *working* fishermen and mill employees see themselves quite differently in relationship to their occupations. The differences are related to aspects of the occupations themselves rather than to income or factors defined by the culture.

Table 5.7. Occupational themes selected by high school students.

Textile Themes (frequency of mention)	*Fishing Themes (frequency of mention)*
Boring (12)	Good money (14)
Poor pay (11)	Hard work (12)
Hot (10)	Outdoors work good (6)
Dirty (7)	Long hours (5)
No advancement (6)	Fluctuating pay (4)
Hard work (6)	Dangerous (3)
Good pay (4)	Smelly (3)
Horrible job (4)	Requires knowledge (2)
Good pay with overtime (2)	Rotten (1)
Easy entry (1)	Independent, own boss (1)
Long hours (1)	Interesting (1)
Dangerous (1)	Healthful (1)
	Rewarding (1)
	Handed down from father to son (1)

"Best and worst thing that could happen to you"

As a further way of eliciting some of the ideational characteristics of our two occupational groups, we asked our respondents in each group to indicate what would be the best thing that could happen to them, and what would be the worst thing. This is a type of projective technique in which a person's ideas and values presumably are expressed in his answer. Table 5.8 shows considerable difference between the two groups in their responses to the projective questions. Whereas, the mill workers consider acquiring a lot of money to be the best thing that could happen to them (this was their most frequent response), only two fishermen responded to the question in the same way. The most frequent responses for the fishermen were in terms of successful fishing and the possibility of obtaining money for investing in fishing equipment. Collapsing the categories of "successful fishing" and "money for fishing equipment," which is really a means to further success in fishing operations, 16 fishermen responded this way. It would appear that the fishermen consider success and advancement in their occupation to be the main source of reward in their life, whereas the sense of the mill workers' responses indicates that they would like to have enough money to be free of their occupation.

Table 5.8. What is the best thing that could happen to you?

Fishermen's Responses (frequency of mention)	*Mill Workers' Responses (frequency of mention)*
Successful fishing (9)	Money (16)
Money for fishing equipment (7)	Health (6)
Health (5)	New job (3)
Money (2)	Happiness (1)
Get house finished (1)	Better apartment (1)
Get kids raised (1)	Son back from Viet Nam (1)
Get married again (1)	Trip (1)
Be happy (1)	
Get time off (1)	

In terms of the "worst thing that could happen to you," table 5.9 shows that a high proportion of both groups consider loss of health or death to be the worst thing that could happen to them. For both groups, this category was the most frequent response; 20 fishermen and 18 mill workers gave this answer. The importance of their boat to the fishermen is indicated by the fact that next to their own death or illness loss of boat received the most frequent mention, whereas the mill workers' second most frequent response was the loss of their wife. Thus it would seem that occupational role is salient among fishermen, indicated by the fact that occupational items entered more into fishermen's responses regarding best and worst things that could happen than they did into the mill workers' responses.

Table 5.9. What is the worst thing that could happen to you?

Fishermen's Responses (frequency of mention)	*Mill Workers' Responses (frequency of mention)*
Lose health or die (20)	Lose health or die (18)
Lose boat (8)	Lose wife (7)
Lose wife (3)	Lose job (2)
Business failure (2)	Lose belongings (2)
Catastrophe in family (2)	Get into trouble (1)
Unhappy (1)	

Again, indicating the ideational commitment of fishermen to their occupation are the results to the question which asked what they would do if they could no longer fish. The results (table 5.10) show a very strong orientation toward continuing some sort of shoreside or other maritime-

related kind of occupation such as running a yacht, being skipper of a tugboat or coastal tanker, or working in boat construction and repair. This was the predominant type of response from the sample of fishermen, with 11 answering the question in this way. Four indicated that they could go into carpentry, which is a skill that fishermen apparently have learned through working on their vessels. Six fishermen said they did not know what they would do, indicating that they did not feel that they could "live with" any other kind of occupation. Thus these data seem to show a very strong personal commitment to the occupation. This occupation is not simply considered a means to gaining money, but is a personally fulfilling activity to these men.

Table 5.10. What kind of work would you do if you could no longer fish?

Work (frequency of mention)

Farmer (2)
Fishing-related or ocean-related* (11)
Don't know (6)
Miscellaneous (6)
Carpenter (4)

* *Build nets or lobster pots, yachting, merchant marine, run a yacht, run boat, work inside boat yard, boatyard work, tugboat or coastal tanker, start fish market, something on water, sell supplies to boatmen.*

What do you like and dislike about your job?

We do not intend to portray the fishermen's occupation as totally satisfying, and we shall deal with what these men consider to be the positive and negative aspects of their work in this section. There was a wide range of answers on the question of what is liked and disliked from both fishermen and mill workers (table 5.11); however, there is some clear patterning in these responses. The factors which fishermen indicated they dislike most frequently are external to individuals and are part of the ecological setting in which the work takes place. Because fishermen necessarily have to travel some distance to and from their fishing grounds, the hours that fishermen put in are long and continuous, particularly in the summer months when the fishing is steadiest. We note that the most frequent item

of dislike mentioned by fishermen is the hours that they must put in and second is weather conditions, and third is fluctuations in income. The most frequent response by mill workers was "nothing," that is, mill workers seemed to indicate a much lesser degree of dislike for aspects of their work. We do note that mill workers were interviewed in the presence of management personnel; this factor may have influenced their responses or possibly this response is an indication of the fact that their work is carried out in a sheltered environment inside the mill in which weather conditions and hours and ecological factors do not influence them as directly as they do the fishermen. Nonetheless, the micro-environment in which they work is not completely benign; heat and smell are items of dislike for the mill workers.

Table 5.11. What do you dislike most about your job?

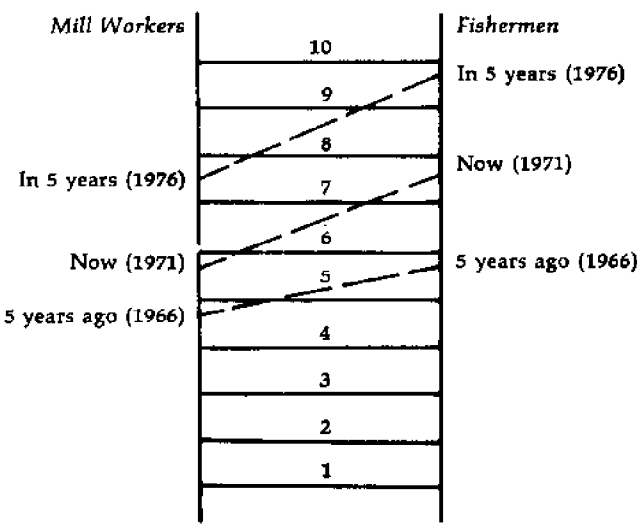
Fishermen's Dislike (frequency of mention)	*Mill Workers' Dislike (frequency of mention)*
The hours (7)	Nothing (7)
The weather (6)	The heat (2)
Fluctuations in income (5)	The smell (2)
Uncertain future of fishing (4)	Degrading (1)
Foreign fishing boats (3)	Second shift (1)
Maintaining boat (3)	Dangerous—get hurt (1)
Nothing (3)	Seasonal work (1)
Business headaches (2)	Rush jobs (1)
Not able to make plans (2)	Hours (1)
Seasonal work (1)	Things go wrong (1)
Competitive (1)	Boring (1)
Crew problems (1)	Dirty (1)
Crewmen taken advantage of by captain (1)	Wet (1)
Taxes (1)	
Bad luck, lose something (1)	
Unloading (1)	
Marketing fish (1)	
Government rules and regulations (1)	
Waiting to go out (1)	

Optimism

Cantril (1963) has devised a "self-anchoring" scale for measuring the relative optimism of individuals. The scale is a ten-step ladder which is

numbered from 1 through 10 (see table 5.12). The respondents are told that they should visualize the top of the ladder, that is, rung 10, as the best possible life for them, and rung 1 as the worst possible life for them. They are then instructed to indicate where they feel they stand on the ladder at the present time, and where they feel they were five years ago and where they feel they will be in five years. The scale is self-anchoring in that each person locates himself at the present time and then indicates a certain direction or degree of change from five years ago and the expectation for change toward the best possible life or toward the worst possible life for him five years from now. Table 5.12, which is a tabulation of the mean response for each of the occupational groups for the three categories (now, five years ago, and in five years) shows a very clear systematic difference between the two groups. Fishermen, on the average, at the present (1971) feel that they are three-quarters of the way up the scale toward the best possible life (7.5), and in five years they will be even closer to the top of the scale (9.8). Moreover, they feel that they have come a long way from five years ago—when the mean rung was 5.5.

Table 5.12. Self-anchoring scale of optimism.



These means may be compared to a national survey asking the same question carried out by the Potomac Associates, Inc. The American national mean for 1972 was 6.4; for "five years ago," 5.5, and for "five years from now," 7.6 (Watts and Free 1973). We note that the fishing population was on the average more optimistic in 1971 than the nation as a whole was in 1972, and they were also more optimistic about the future. Mill workers were well below the national mean for 1972 both in their responses to the "right now" (5.7) and "five years ago" (4.7) questions, while with a mean of 7.4 they were only slightly below the national mean for "five years from now." We note that there is a year's difference in time between these two surveys, but we feel they do give a good indication of how fishermen and mill workers compare to the national population as a whole.

Looking at the mill workers, we note that they too seem to feel they have made considerable progress in five years and will have made further progress in the next five years. Yet their scale of optimism is somewhat less extensive than is that of the fishermen ranging from 5.7 at the present to 7.4 in five years, a figure lower than the fishermen gave as a mean attainment *at the present*. Thus we may conclude that on the basis of this scale, the fishermen do feel that they have obtained a much higher level of the good life, as they define it, for themselves at the present time and will go on in the future to obtain even higher levels than do the factory workers.

These results, however, do not indicate the nature of the influences which the two groups feel impinge upon their attaining the best possible life. We might surmise, however, that greater cash income has a good deal to do with the greater optimism expressed by fishermen over their factory worker counterparts. This relationship of optimism to cash income has been discovered by other researchers working in other parts of the United States. For example, Schensul and his associates (1968) working in northern Minnesota have found that people in that region generally feel more optimistic in direct relationship to the amount of cash income that they are receiving.

Although we do not have a direct measure of cash income for our respective samples, we do have an indirect measure, the level of material style of life derived from the scale we described in chapter 7. (In fact, we do have indications that the yearly income of many fishermen is higher than the median income of professionals in the town.) Thus, the mean figures of

optimism can be compared with the ranking of the two groups on the material style of life scale. As indicated in table 5.13 we have computed the mean ladder question score for fishermen and a very small sample of mill workers in order to determine if there is a relationship between high material style of life and a high degree of feeling successful on the Cantril ladder question. We did this by dividing the material style of life scale into two parts, steps 1-5 being considered a low material style of life and steps 6-9 being considered a high material style of life. As indicated in table 5.13, for fishermen there seems to be an inverse relationship between feeling successful and material style of life; that is, the fishermen who fall into a low category of material style of life have the higher mean score on the ladder question (8.2). Those fishermen who fall into the high material style of life category have a mean score of 7.5. This difference is only slight, but it appears to indicate that fishermen did not give their answers to the "best possible life for me" questions on the basis of material possessions alone. Thus, the nature of their work, their sense of fulfillment and the feeling of independence in their work would appear to influence their responses to this question. Looking now at the mill worker data (with a very small sample as we have emphasized), the relationship between high material style of life and high sense of accomplishment as measured by the Cantril scale is apparent; that is, those two factory workers with high material style of life have a mean ladder question score of 8.4, as compared to a mean ladder question score of 6.0 for the four factory workers who have a low material style of life. Thus the relationship that other researchers have found between material style of life and optimism (Schensul et al. 1968) appears to hold true for the mill workers, but not for the fishermen.

Table 5.13. Relationship between material style of life and feeling successful as found in the mean score on the self-anchoring scale of optimism.

Fishermen: Number Responding	*Material Style of Life*	*Mean Ladder Scale Score*	*Mill Workers: Number Responding*	*Material Style of Life*	*Mean Ladder Scale Score*
N = 14	High (steps 6-9)	7.5	N = 2	High (steps 6-9)	8.4
N = 10	Low (steps 1-5)	8.2	N = 4	Low (steps 1-5)	6.0

Conclusion

The results discussed in this chapter support the conclusion that fishermen look upon their occupation and gain satisfaction from it in a much different way than do comparable landbound workers. These ideational findings add further support to our contention that fishing is not simply an occupation, but a way of life, having more influence on the feelings of individuals and being more pervasive in their lives than most landbound occupations. There are good reasons for the differences between fishermen and mill workers in ideational characteristics. The nature of the work and the work environment create the necessary conditions for the constellation of ideational characteristics that are manifested by the two groups.

Fishing as it is carried out at Galilee is a much more individualistic, independent work activity than is textile mill work. Fishing operations most often involve three or four men carrying out their task independently on board a boat far removed physically, and economically through the cooperative, from the landbound society. When we accompanied a crew of fishermen to study their work behavior, one of the things which we both recorded in our notes was the virtual lack of verbal communication among the three fishermen we observed. Furthermore, working out on the ocean in the Galilee area is undoubtedly more exhilarating and satisfying than working in a noisy textile factory. Likewise (see chapters 2 and 4), financial rewards from fishing, due to harbor improvements, cooperative marketing and other activities, as well as the rising price of fish, are real and form one of the necessary conditions for job satisfaction and optimism. On the other hand, the textile industry in New England has been in a general state of decline for the past few decades. That fishermen in Galilee have a very personal stake in the success of their equipment as compared to the mill workers' impersonal relationship with theirs is another condition influencing the responses given to the questions, "What is the best, and what is the worst thing that could happen to you?"

Thus without exhausting the interrelationships with other aspects of the total life situation of the two groups, it becomes clear that ideational patterns are understandable in the context of our model of human ecology as the ideas that are logical concomitants to the other domains of the model. That is, they are the ideas behind the sub-cultures.

6

Continuity: The Role of Kinship

In our preliminary fieldwork, we were impressed by what appeared to us to be a very high number of kinship ties among fishermen in our sample population. Furthermore, there appeared to be a patrilateral skewing in the ties we observed; that is, fishermen appear to be related to each other predominantly along agnatic lines. Also apparent was a high degree of father-son occupational succession. Systematic data collection confirmed these early impressions.

Fishing, as a form of hunting activity, is almost universally a male activity. Thus a patrilateral skewing in this domain of social life would appear to be related ultimately to sex-linked occupational role behavior. This behavior mainly takes the form of father-to-son transmission of occupational information, attitudes, rights and equipment.

Parsons (1951:49) has distinguished between instrumental and expressive roles. Instrumental roles are related mainly to achieving tasks, making "big" decisions, being the ultimate disciplinarian, and taking responsibility for economic security. Expressive roles, on the other hand, are concerned with nurturance plus the emotional aspects of nurturant tasks. On a worldwide scale, men tend to dominate in instrumental roles, females in expressive ones (Zelditch 1955). Thus, in Parsonian terms there is considerable "instrumental loading" on kinship among fishermen all over the world. Since this is predominantly a male activity all over the world, a skewing of kinship ties and solidarity of fishermen toward the patrilateral side of the kinship system can be expected. This patrilateral orientation is no doubt most characteristic of simple to moderately complex fishing technologies, and would probably be less characteristic of the most modern fishing technologies (large trawler fleets) where ownership is corporate or state, and labor has become highly differentiated.

This patrilaterally-skewed pattern of kinship ties for males appears to be characteristic of fishermen populations in bilateral kinship systems in many areas of the world and among different types of societies. Evidence on the importance of kinship among fishermen in different parts of the world comes from a variety of previous studies carried out in widely separated fishing communities.

In a study of Canada's Atlantic Coast offshore fisheries, Proskie and Adams (1969:82) reported that 86 percent of fishermen have relatives who are or were fishermen, distributed as follows: grandfather: 46 percent;

father: 64 percent; brother: 64 percent; brother-in-law: 40 percent; uncle: 56 percent; cousin: 5 percent; son: 9 percent; son-in-law: 5 percent, and nephew: 3 percent. Although Proskie and Adams have unfortunately not reported the laterality of the uncle and cousin categories, the fact that 64 percent of these fishermen had fathers and brothers who were also fishermen is clear evidence of patrilateral succession. Also from Canada in a study of a Newfoundland Irish fishery, Nemic reports that ". . . agnatic ties, in particular, constitute the primary structural bases of joint economic activity at sea" (1971:17).

Liguori, in his monograph on New Jersey fishermen, supports the argument that family ties provide the main avenue of occupational succession:

> The process of imparting skills and knowledge, values and norms requisite to successful pursuit of commercial fishing is diffuse and extensive; it traditionally commences early in childhood. Kinship models are paramount. (1968:189)

Aronoff's study of fishermen in a peasant society in the West Indies demonstrates a similar pattern. He discusses the kinship basis of the St. Kitts fishing crews as follows:

> One of the important aspects of the crew appears to be kinship ties, as most of the fishermen have close relatives in fishing. . . . (1967:119)

Aronoff attributes the predominance of kinship in the fishery he studied to out-group hostility. A stranger will have great difficulty in learning to fish and "fishing is a family affair" because the secrets of the trade are most likely to be imparted to a relative by blood or marriage.

The only contrary assertion we have found, namely the claim that patrilateral kinship is not central to recruitment and ongoing participation in fishing, is in Tunstall's (1962) study of the Hull trawler fleet. But Tunstall seems to base his argument on a distorted conceptualization of occupational succession.

He refers to "the myth of a family tradition in fishing" and asserts that "I have sometimes had difficulty in trying to convince fishermen that there is no family tradition in fishing" (1962:106). His argument is that since employment in the Hull fishery diminished by half from the 1930s to

the 1960s, and since fishermen come from large families, occupational succession is unimportant. This confuses the distinction between the proportion of present-day fishermen who are descendents of fishermen, with the proportion of descendents of past generations of fishermen who are in that occupation. The latter view of occupational succession would necessitate the opportunity structure in an occupation keeping pace with the net reproduction rate of its practitioners. Surely he would not assert that succession was a myth because the younger sons of the landed gentry in Britain went into army, church, or civil service and only the eldest succeeded to the title.

Kinship in the Galilee fishery

There is, on the other hand, considerable evidence that kinship among people in the landbound industrial societies functions more as an expressive than an instrumental institution. In this case kinship ties would come mostly into play at such times as Christmas, Easter, anniversaries and other expressive celebrations. A predominantly expressive orientation in kinship function is apparent in Sweetser's (1966) finding that in general, intergenerational kinship solidarity in the United States, Japan, Finland and England is skewed toward the matrilateral, or mother's, side of nuclear families. Poggie and Pelto (1969) have presented evidence from non-fishing families in the United States that shows that matrilateral skewing of kinship ties is part of the domain of expressive action. It is clear that among the fishermen of Galilee kinship takes on an important function in the transmission of fishing activities over time, and that the high proportion of patrilateral kinship ties we have observed is a reflection of the process of continuity. Father-son and other types of patrilateral kinship ties are paramount in occupational succession in this port.

The long-standing continuity of kinship ties and occupational succession among Galilee fishermen was established statistically before interviews were begun with the respondents in our sample survey. In a comparison that spans nearly two centuries it was found that 51 percent of the fishermen active in 1971 had surnames that are found in the 1774 colonial census of the town, as contrasted with 28 percent of the textile workers. This difference is statistically significant. Within the sample of fishermen there

is some variation; 57 percent of lobstermen and 47 percent of trawlermen have surnames found in the colonial census (Census of Rhode Island, 1969:84ff).

Another historical example in this vein is in a report on a small neighboring community where:

> There are eleven men, all of them named King, who follow fishing as a business. Two of them are hand-liners and lobster catchers, two hand-liners and pilots and the other seven, trappers. (Rhode Island Commissioners of Inland Fisheries, 1881:13)

In 1971 in the fishing cooperative at Galilee there were nine men with one surname who were active participants and all related to one another. The first recorded use of seines in the community is attributed to one of their ancestors in 1793. Another patrilateral line of one family, represented by four members in the cooperative association today, has been active continuously in this fishery since 1845.

Today, among the 116 members of the fishermen's cooperative, 18 surnames account for 47 percent of the members, while nine family names, represented by three or more fishermen each, account for 32 percent of the members. Most of these family names go back for three or more generations in the area's fishing chronicles. Thus it is clear that patrilateral kinship ties have a long history of importance as an instrumental link among the fishermen of Galilee.

Kinship behavior

In order to obtain comparative quantitative data on the type of kinship patterning that exists and the influence of kinsmen on occupational choice, we asked a series of questions of our two study groups. When we asked fishermen how they were introduced into the occupation, the predominant answers were "by my father" and "I grew up in it" (see table 6.1). These answers indicate a patrilateral pattern, for the former explicitly and the latter implicitly indicate early participation in the father's economic activity. Furthermore, 73 percent of this same group said that they have one or more of their relatives in fishing, while only 16 percent reported one or more of their wife's relatives in fishing.

Table 6.1. Who taught you how to fish?

Person (frequency of mention)
Father (12)
Grew up in it, on the job (5)
Self (3)
Matrilateral uncle (2)
Family (1)
Brother (1)
Patrilateral great-grandfather (1)
Wife's parents (1)

Added documentation of the differing importance of fathers in occupational selection between the two groups is the information we collected on father's occupations for the two groups. As seen in table 6.2, a total of 14 of the 30 fishermen we interviewed are sons of fishermen, whereas only five of the 27 mill workers have fathers who could be considered involved explicitly in textile mill work.

Table 6.2. Father's occupation.

Fishermen		*Mill Workers*	
Fishermen	14	Other factory	7
Engineer	3	Textile mill	5
Electrician	2	Farmer	5
Storekeeper	2	Judge	1
Real estate	1	Mechanic	1
Pharmacist	1	Optician	1
Painter	1	Dental technician	1
Factory work	1	Executive	1
Telegraph operator	1	Appliance repairman	1
Contractor	1	Carpenter	1
Superintendent of roads	1	Lumberjack	1
Truck driver	1	Machinist	1
Farmer	1	Watchman	1

As yet a further indication of the influence of patrilateral kin, particularly the father, in the lives of these fishermen, we asked both fishermen and mill workers to indicate who most influenced them in their lives. Again, as seen in table 6.3, there is a powerful indication of father's influence upon our fishing population; 14 of the 30 fishermen responded that their fathers most influenced them in their lives, with the category, "nobody,"

the second most frequent. Looking at the responses from mill workers on this question, we notice that the importance of father as an influential figure is considerably less, with only five of the 29 mill workers stating that their fathers most influenced them in their lives. The category of mother as most influential figure among the fishermen had one entry, whereas five of the mill workers indicated that their mother most influenced them. The category of "nobody" is mentioned most frequently by mill workers, indicating, we suggest, a generally low level of kinship involvement in an important area of their lives—occupational role. Contrasting patrilateral (including brother) with "other kin" shows, as noted in table 6.3, a highly significant statistical difference between the two occupational groups.

Table 6.3. Who most influenced you in your life?

Fishermen		*Mill Workers*	
Father	14	Nobody	8
Nobody	11	Father	5
Mother	2	Mother	5
FaMo*	2	MoBr	2
Brother	1	Brother	2
FaFa	1	Sister	2
FaBr	1	MoSi	2
MoMo	1	MoMo	1
		FaBr	1
		SiHusband	1
		FaGrandmother	1

	Father and Other Patrilateral Kin including Brother	*Other Kin*
Fishermen	19	3
Mill workers	8	13

("nobody" excluded)
$X^2 = 10.87$ $p < .001$ (1 tail test)

* *Laterality of kinsmen is indicated by the standard abbreviations for kin terms (first two letters of term). Thus patrilateral grandmother = FaMo, matrilateral uncle = MoBr.*

Kinship solidarity

Up to this point we have been dealing with behavioral items (Who taught you how to fish? Who most influenced you in your life? and Father's occupation?) as measures of the importance of kinship ties in occupational succession. We now wish to measure a different dimension of kinship ties —solidarity, or, the degree to which a person *feels* close to and in concert with particular kinsmen. We suggest that fishermen's feelings of solidarity should follow the same contours as do behavioral ties and provide another example of patrilateral skewing. On the other hand, where there is little kinship involvement in occupation, the patterning of solidarity will follow, we are predicting, the general matrilateral bias of the American middle class.

As a measure of kinship solidarity, we asked our respondents to indicate to which kinsman they feel closest. The results from this question showed mill workers and fishermen to be somewhat different in their feelings of solidarity toward particular kinsmen. Looking at table 6.4, we note that the fishermen feel equally close to father, mother and brother; that is, the nuclear family appears to be the strongest among fishermen as far as kinship solidarity is concerned. The one exception to this is the fact that sister is not a close tie to the fishermen, with only one fisherman indicating he feels closest to his sister, whereas six fishermen indicated that they feel closest to brother, six to father, and six to mother. Considering the responses from the mill workers, on the other hand, we note that the most frequent response was that of mother, with brother the second most frequent. We feel that it is significant that father is not among the leading kinsmen to whom our mill respondents feel closest. We note that there appears to be a solidarity bias within the nuclear family toward the mother, and outside the nuclear family toward mother's kinsmen rather than toward the father and father's kinsmen. Among the fishermen, we note that kinsmen outside the nuclear family to whom our respondents feel closest are divided among patrilateral uncle, two; matrilateral aunt, two, and matrilateral uncle, one. The test of significance of these results does not reach the usually accepted significant level of .05, but the results, when examined in detail, do indicate a somewhat differing pattern of solidarity. However, feelings of solidarity may be more expressive than instrumental in nature, thus

weakening the patrilateral bias in fishermen's responses. This expressive-instrumental contrast as it relates to kinship will be discussed further.

Table 6.4. To what relative do you feel closest?

Fishermen		*Mill Workers*	
Father	6	Mother	9
Mother	6	Brother	6
Brother	6	MoSi	4
None	5	Father	3
MoSi	2	None	2
FaBr	2	Sister	2
Sister	1	FaBr	1
MoBr	1	MoBr	1
Wife's family	1	FaMo	1
		Fa-in-law	1

	Father, Brother Patrilateral Kin	*Other Kin*
Fishermen	14	10
Mill workers	11	17

$X^2 = 1.88$ $p > .05 < .10$ (1 tail test)

As a more general measure of kinship solidarity, we asked our respondents to indicate whether they feel closer to their mother's relatives or to their father's relatives. Although the difference is not great, we note in table 6.5 that again the patterning parallels that from the first set of data related to kinship solidarity. Thus although fishermen's answers indicate a slight tendency toward a general matrilateral preference, 14 to 12, they are not nearly as skewed toward matrilateral kinsmen as are those of the mill workers who indicate a three to one (18 to 6) matrilateral preference.

Table 6.5. To whom do you feel closest: mother's relatives or father's?

	Fishermen	*Mill Workers*
Mother's relatives	14	18
Father's relatives	12	6
Feel the same towards both	4	4

$X^2 = 2.42$ $p = > .10 < .15$ (1 tail test)

This matrilateral preference can be explained if one understands that in landbound populations, kinship does not generally function as part of the instrumental domain. Instead, it is "released" to the women as an expressive dimension in interactional patterns. In a sense the kinship system in the landbound case is removed from the sphere of instrumental behavior and becomes the choice of women who through preference for their own consanguineal relatives (and their affines) skew the family's interactional patterns and solidarity to the matrilateral side. In the case of the fishermen, however, fishermen learn skills of the trade and follow the trade of their fathers, thus putting a different kind of function (instrumental) on the existing kinship system. As an indication of how the instrumental function affects the preference of males in fishing families for their patrilateral kinsmen in many cases, we note that the wives of the fishermen have a pattern of preference much like that of the factory workers; that is, their preference is 17 to 5 in favor of matrilateral kinsmen, which is almost exactly the same pattern as the male mill workers indicated. (See table 6.6.)

Table 6.6. To whom do you feel closest: mother's relatives or father's?

	Matrilateral	*Patrilateral*	*Neither*	*Both*
Fishermen's Wives	17	5	2	3

Fathers, sons, and occupational succession

Another part of our research related to occupational choice and succession included a survey of high school students' perception of various occupations in the community, and fishermen's feelings concerning the possibility of their sons going into fishing as an occupation. By presenting data on these domains we hope to convey some of the perceptions of fishing as a kinship-linked occupation in this community.

High school seniors in the general curriculum, i.e., those not preparing for college, were questioned about their ideas about construction trades, textile mills, and the commercial fishery as types of work. In our initial sample we found the responses of four sons of fishermen to be highly pertinent to the issue of kinship in commercial fishing. Their responses to two questions, "What is it like to make a living by working on a fishing

vessel?" and "What kind of a job would you like to have after you leave school?" are below.

> Work is hard. Early hours and late nights. Work is divided among four men and plenty for all. Pays good. It's the only job I know that if a person gets behind in bills, say $300 or so, he could catch up in one good trip and still have money for food, etc. It has its ups and downs.
>
> This respondent wants to go into fishing "because I love outdoor work as well as the ocean. After school I have a job commercial fishing out of Point Judith."
>
> To make a living on a fishing vessel the captain must know at all possible times where the fish are. The work is strenuous in many ways. There is good money, however, but a lot of people go to the bars after they have been lumped out. Family life isn't so great either. I know. My father's a fisherman. You [have to] be physically fit in every way to be a fisherman and to have patience.
>
> This respondent planned to become a truck driver instead of going into fishing.
>
> It is a very hard job. The hours are long and sometimes you are not home for a week. But this is a job where you can make good money and have quite a bit of time off. This job is important because you are helping to feed the country.
>
> This respondent wants to go into fishing. "I have done this all my life and I will stick with it because I like the sea and the money you make."
>
> Working on a fishing vessel is very hard work. You have to be up at four or five in the morning and sometimes you never get home till twelve that night. But the pay is very good if you care to work hard for it. Most people like it because it's an independent job. You have to enjoy working to like it.
>
> I plan to be a professional guitar player. I have a group. We play mostly blues but this is a hell of a paying job if you can get some company to cut a record for you and if it does all right on the charts.

Half of these boys want to become fishermen and the one who dreams of making big money in the world of entertainment is as likely to become a fisherman as not. Sons of fishermen accompany their fathers from an early age. They are engaged in this socialization process not only during school vacations, but as one teacher complained, some sons of distant-water fishermen occasionally miss a week of school to go on a trip with their fathers.

Some data on fathers' feelings toward their sons entering fishing as an occupation were obtained from our interviews with fishing captains. The predominant answer to the question, "Would you like your son to go

into fishing?" was, "Yes, if he wants to." Only two of 18 respondents stated that they do not want their sons to become fishermen. Among skippers, at least, there is no indication of the coal miners' and assembly line workers' determination to keep their sons from following in their occupational footsteps.

In the responses of our larger sample of fishermen (including skippers and deck hands) and factory workers to the question "What occupation would you like for your sons?" the results (table 6.7) are consistent with the pattern of occupational succession among fishermen.

Table 6.7. What occupation would you like for your sons?

Fishermen		*Mill Workers*	
Fishing	12	They decide*	12
They decide	9	Professional	4
Professional	1	Office work	1
College	1	Mechanic	1
		Scientific work	1
		Do better than me	1
		Same as me	1

	Same as Father	*Other than Father*
Fishermen	12	11
Mill workers	1	20

Fisher's Exact Probability $p = .0005$

** Of these, two said "but not factory" and three said "with some education."*

Conclusions

In this chapter we have been able to show that kinship is an important factor in the structure and activities of fishing in Galilee. Not only are kinship ties pervasive among the fishermen of this community, but they are skewed toward the patrilateral side. Thus we maintain that kinship takes on an important instrumental function in this setting in marked contrast to its more expressive function in the landbound society. The instrumental loading of kinship ties in the fishermen's kinship system is believed to be a function of the fact that fishing is male work and that much of the

information and capital equipment involved is most likely handed down from father to son or from one patrilateral kinsman to another. This information and equipment are not openly accessible to the population as a whole, and are not known to the population as a whole. Probably very few individuals from the interior as close as 50 miles inland from the coast anywhere in the United States generally think of fishing as a possible occupation for themselves. With this in mind, we begin to see the fishing population of Galilee as an occupational culture distinct from the shoreside world of work in which it is located.

We are dealing with a fleet of medium-sized vessels at Galilee, and the possibility exists that the patterns we have uncovered are not as characteristic of large-sized "proletarianized" fleets. However, our preliminary analysis of data from the large-trawler port of New Bedford, Massachusetts, and the small-trawler fleet of Stonington, Connecticut, indicates that kinship functions instrumentally in other fishing populations as well. The pattern in Galilee and elsewhere leads us to conclude that in many areas fishing is a hunting-gathering activity which displays some of the social and cultural patterns generally associated with "androcentric" hunting-gathering societies. Of these patterns, a patri-orientation of kinship systems stands out as very relevant to the activities of the fishermen of Galilee.

7

Family: The Landbound Activities

Of fundamental importance in human social life is the family. This institution and the related one of kinship form the backbone of social structure in all types of human societies. Thus, in our analysis of the social structure of Galilee fishermen we wish to pay particular attention to family and kinship. It is quite clear that in many ways they must function quite differently among fishermen than among land people; this is in no small part related to the different work environments, or ecological settings, in which the men of these families carry out their occupational activities. This, in turn, influences interrelationships of such other factors as wife's perception of her husband's work, kinship ties to wife's or husband's relatives and occupational succession. Thus, we shall examine the configuration of certain aspects of family structure of our two populations in this chapter, while having dealt with kinship in chapter 6. Our aim will be to illustrate how these institutions, as basic parts of social structure, function in our model of human ecology.

In many ways we would expect that family life among fishermen and mill workers to be quite similar. Since family life takes place in the landbound setting (Galilee fishermen do not take their families to sea), we can expect that some of the patterning of fishermen's family life would follow the middle class suburban American model. We find, for example, that on the average fishermen and our landbound mill workers have the same number of children; both groups have an average of 2.4 per family. On the other hand, earnings, the regimen of work and time off, as well as the regimen of presence and absence of the husband/father in the household, skew certain aspects of family life from this middle class model.

Aside from lobster traps, boats and other gear which is often stored in a fisherman's yard, the appearance of fishermen's houses blends with that of neighbors. There is, however, a tendency for fishermen to live nearer the ocean; this seems to be a matter of convenience. Several fishermen are actually able to dock their boats in their "back yards" and walk home.

Material style of life

Since the economic return from fishing has become quite good in the past few decades, we suspected that fishermen on the average are able to live at a material style of life which is quite high. With this in mind, we

collected data with which we could measure and compare the material style of living of fishermen and factory workers. We asked respondents several things: whether or not they have a number of items in the home such as a television set (color and/or black and white), freezer, washing machine, and radio; how many bathrooms they have and other things, such as age of house, that reflect material style of life. We obtained these data from the full sample of fishermen's wives and from our small sample (seven) of wives of factory workers. However, these data give an excellent indication of the life style of the fishermen, as well as a suggestion of how they compare as a group with textile workers.

We found, as expected, a quite high level of material style of life among the fishermen, with most of them owning the majority of the items which we included on our checklist. These items form a nine-step Guttman scale of material style of life, forming a single dimension which is scalable (see table 7.1). From the sample of mill workers we note greater variability: that is, only two of the sample of 29 fishermen do not own their houses, whereas three of the seven mill workers do not. In fact, there is other variability among the textile workers with three of them displaying a very high material style of life—as high as that of the "highest living" fishermen—whereas the other three mill workers fall into a fairly low level of material style of life. Only one mill worker household falls in the middle range of the scale. Looking at these differences in terms of means, the mean scale step for fishermen is 5.6, while that for textile workers is 4.4. We suspect that this is not due to the smallness of our sample, but rather to the fact that high incomes are not as available in a factory setting as in fishing in Narragansett-South Kingstown.

Another measure of how well the two groups are doing financially is seen in the comparison of the two groups' answers to the hypothetical questions, "If you were to suddenly inherit $2,000 what would you do with it?" As indicated in table 7.2, we recorded very marked differentiation in the kinds of responses from the two groups. The most frequent response from fishermen to this question was, "Put it in the bank." Thirteen, or about 40 percent, of the fishermen gave this answer. The most frequent response from mill workers was to buy something or some sort of service—14, or 43 percent, of the mill workers responded in this way. It is difficult to know exactly what these responses mean in terms of different ideational

Table 7.1. Guttman scale of material style of life applied to fishermen and mill workers.

Respondent Number	*Telephone*	*Washer*	*TV*	*Radio*	*Homeowner*	*Hi Fi*	*Lawn mower*	*Dryer*	*Color TV*	*Dish washer*	*Freezer*	*2 or more baths*	*Air conditioning*	*Swimming pool*	*8 or more rooms*
53	X	X	X	X				X		X	X				
*15	X	X	X	X	1										
*17	X	X	X	X											
*23	X	X	X	X	0	X	X	2							
56	X	X	X	X	X	X	X	X			X		X		
37	X	X	X	X	X	X	X	X	3			X			X
34	X	X	X	X	X	X	X	X							
*18	X	X	X	X	X	X	X	0	X			X			
36	X	X	X	X	X	X	X	0	X			X			
43	X	X	X	X	X	0	X	0	X	4					
44	X	X	X	X	X	X	X	X	X						
47	X	X	X	X	X	X	X	X	X						
58	X	X	X	X	X	X	0	X	X	X					
54	X	X	X	X	X	X	X	X	X	X			X		
45	X	X	X	X	X	X	X	X	X	X	5		X		
39	X	X	X	X	X	X	0	X	X	X					
*16	X	X	X	X	X	X	X	X	X	0	X				
32	X	X	X	X	X	X	X	X	X	0	X				
50	X	X	X	X	X	X	X	X	X	X	X	6			
38	X	X	X	X	X	X	X	X	X	0	X				
59	X	X	X	X	X	0	X	X	0	X	X				
60	X	X	X	X	X	X	X	X	0	X	X	X			
52	X	X	X	X	X	X	X	X	X	X	X	X			
51	X	X	X	X	X	X	0	X	X	X	X	X			X
46	X	X	X	X	X	X	X	X	X	X	X	X	7		
42	X	X	X	X	X	0	X	X	X	X	X	X			
40	X	X	X	X	X	X	X	X	X	X	X	X			X
55	X	X	X	X	X	X	X	X	X	X	X	0	X	X	
35	X	X	X	X	X	X	X	X	X	X	X	0	X	X	
31	X	X	X	X	0	X	X	X	X	X	X	X	0	X	8
*19	X	X	X	X	X	X	X	X	X	X	X	X	0	X	
49	X	X	X	X	X	X	X	X	X	X	0	X	X	0	X
41	X	X	X	X	X	X	X	X	X	X	X	0	X	0	X
33	X	X	X	X	X	X	X	X	X	X	X	X	0	X	X 9
*20	X	X	X	X	X	X	X	X	X	X	X	0	X	X	X

Coefficient of reproducibility = .93 *Scale errors = 39* * = *Mill workers.*

or value orientations reflected, but our interpretation is that the mill workers feel more materially-deprived than do the fishermen and that a "windfall" could best satisfy their need to acquire particular goods or services. The fishermen, as we have already seen, appear to have a higher standard of living and thus are not deprived of goods or services for which they would need a windfall to purchase.

Table 7.2. What would you do if you suddenly inherited $2,000?

Fishermen's Response (frequency of mention)	*Mill Workers' Response (frequency of mention)*
Put it in the bank (13)	Buy goods or services (14)
Put it into fishing equipment (6)	Pay bills (7)
Pay bills (5)	Put it in the bank (5)
Buy goods or services (4)	Invest it (2)
Give it to somebody (2)	Son's education (2)
Invest it (2)	Give it to somebody (2)

Hobbies and family "togetherness"

As an indication of how fishermen and factory workers compare in other aspects of home life, we asked our respondents to list their hobbies as well as activities their families do together on weekends.

Twelve percent of the fishermen lack hobbies (see table 7.3) while 29 percent of the factory workers stated they have *no* hobbies. This seems to indicate a somewhat more passive orientation to the world on the part of mill workers, paralleling the data obtained from the ideational domain.

Table 7.3. "No hobbies at all."

Factory Workers	4 of 18 (29%)
Fishermen	3 of 28 (12%)

The two groups seem to show no significant difference in choice between indoor or outdoor hobbies (table 7.4). The two groups were also compared in terms of the competitive and non-competitive nature of their hobbies. The criterion used to define a competitive hobby was that the participant does the hobby for a score himself (golf and bowling, etc.), or to win against another individual or team (baseball, football, etc.). Here

Table 7.4. Indoor and outdoor hobbies.

	Factory Workers	*Fishermen*
Indoor Hobbies	27%	33⅓%
Outdoor Hobbies	73%	66⅔%

again we see no significant difference between fishermen and mill workers. We see in table 7.5 that the largest percentage of both fishermen and mill workers prefer non-competitive hobbies to competitive ones.

Table 7.5. Competitive versus non-competitive hobbies.

	Factory Workers	*Fishermen*
Competitive Hobbies	36%	25%
Non-competitive Hobbies	64%	75%

Using criteria for the classification of types of hobbies according to Mulac (1959:36), we divided them as follows:

1. Making hobbies—any of the arts and crafts such as woodworking, carving or photography.
2. Learning hobbies—astronomy, law, medicine, writing, foreign languages study, history, Braille, etc.
3. Doing hobbies—reading, travelling, playing games of all kinds, gardening, singing, playing a musical instrument, etc.
4. Collecting hobbies—miniatures, rocks and minerals, coins, stamps, autographs, etc.

This method of hobby classification clearly shows that the hobbies of most of the fishermen and factory workers are in the "doing" category (tables 7.6 and 7.7). Twenty-five percent of the fishermen have "making" hobbies, mainly carpentry, while the mill workers indicate no interest in these. This is another area besides their overall greater involvement in hobbies that possibly shows greater activism among the fishermen.

The collecting hobbies were represented by only one interviewee, a mill worker who collects stamps. No one in either group has a hobby in the "learning" category.

The types of activities that families do together, we note in table 7.8, are quite similar for the two groups. There is a tendency for fishermen's

Table 7.6. Types of hobbies.

	Factory Workers	*Fishermen*
Making Hobbies	0	25%
Learning Hobbies	0	0
Doing Hobbies	93%	75%
Collecting Hobbies	7%	0

Table 7.7. Percentage of each group in a particular hobby.

Hobby	*Factory Workers*	*Fishermen*
Boating	1 (7%)	0
Bowling	0	1 (4%)
Building model boats	0	1 (4%)
Sport fishing	2 (14%)	2 (8%)
Flying airplane	0	1 (4%)
Gardening	2 (14%)	2 (8%)
Golfing	3 (21%)	1 (4%)
Hunting	0	2 (7%)
Motorcycling	0	1 (4%)
Raising animals	2 (14%)	0
Skiing	0	1 (4%)
Snowmobiling	0	1 (4%)
Sports (spectator and participant)	2 (14%)	2 (8%)
Stamp collecting	1 (7%)	0
Target shooting	0	1 (4%)
Traveling	0	1 (4%)
Water sports	0	2 (8%)
Welding	0	1 (4%)
Woodworking	0	4 (17%)
Working on cars	1 (7%)	0

families to be more "active" in that they carry out an average of 2.4 different activities per family while mill worker families do only 1.8 different activities per family. The other striking difference between the two groups is the much greater amount of visiting fishermen families do.

The results of this section of our interviews with fishermen show a considerable similarity between the two groups in hobbies and family activities. Their choice in indoor and outdoor activities is not significantly different. The largest majority of both fishermen and mill workers prefer noncompetitive hobbies to competitive hobbies, and most of both groups engage in recreational activities in the "doing" category.

Table 7.8. Activities families do together.

Activity	*Fishermen (N = 30)*	*Factory (N = 6)*
Outdoor activities (sports, camping, picnics)	30	4
Take trips	12	3
Indoor activities (TV, cards)	12	1
Visit	10	1
Car rides	4	1
Eat out	1	1
Movies	2	0
Church	1	0
Shopping	1	0
Average per family	2.4	1.8

The general similarities between the two groups in their hobby and family activities suggest that in the landbound setting fishermen and mill workers are much alike. It is when fishermen are in their maritime work setting or carrying out activity highly related to their work (taboos on board or kinship instrumental behavior) that they differ most from their neighbors who work in the mill.

The areas we have looked at where fishermen and mill workers differ the most in their hobbies and family activities can be understood as a product of the kind of active-versus-passive personality difference between the two groups which we discussed in chapter 5.

Wives' perceptions of their husbands' occupation

In our general discussions with fishermen and others about family life among fishermen, one of the most often mentioned and most emphasized points was the wife's attitude toward her husband's occupation. Many fishermen said that the success of a fisherman often depends on "what kind of wife he has." While this bit of folk wisdom is often applied to landbound occupations as well, it is clear that the wife's attitude toward her husband's work is very important for fishermen mainly because a fishing family is forced to adjust to the absence of the father/husband during many family activities. The work regime of fishermen is in marked contrast to the middle

class American pattern of "eight to five and home by six o'clock." Even day fishermen, who do return home each night, spend up to 15 or 18 hours away from home each day. Although radio communications are possible in an emergency, his absence is relatively complete compared to the land-bound worker who may come home for lunch or telephone home almost at any time. Short-trip fishermen may be away from home two or three days and offshore fishermen, ten days to two weeks.

There are advantages to the type of work regime followed by fishermen. All fishermen may take off extended time beyond the customary three full days that they routinely take off between trips. With this in mind, we asked our sample of fishermen's wives and textile worker wives what they like and dislike about their husbands' work. We also asked them if they wish their husbands would take another job and why.

The pattern of responses to this question (shown in table 7.9) is informative in that it shows fishermen's wives have a very positive attitude toward their husbands' work. "Good money" and "he likes it" form the two most frequently mentioned "best aspects" of fishermen's work as seen by their wives, while "good hours," "good money" and "Blue Cross benefits" are the most frequently given best aspects by mill workers' wives. Only one of the mill worker wives mentioned that her husband likes his job, while 13, or 46 percent, of the fishermen's wives mentioned this. When we look at the dislike category we note yet further differences in the two groups. Although the wives in both groups find the hours their husbands work the most disagreeable aspect of the jobs, we note that the fishermen's wives mentioned several other dislikes. Danger, stress on health, can't make plans, doesn't see children much, pay unpredictable, and loneliness are among their dislikes, and these dislikes are clearly related to the environmental setting of the work. Furthermore, we must keep in mind the quantitative difference between fishermen's long hours and the "night shift" hours that mill workers' wives dislike.

If we can generalize from our mill worker sample, there is also a sharp difference between the two groups of wives in terms of whether or not they would like their husbands to take another job. Fishermen's wives are strongly committed to their husbands' work; only five of the 27 (18 percent) indicated they would like their husbands to change jobs. Two of

Table 7.9. Attitudes concerning husband's work.

Fishermen Wives	
Like best about his work (frequency of mention)	*Dislike about his work (frequency of mention)*
He likes it (13)	Long hours (14)
Good money (13)	Danger (5)
Independence (5)	Stress on health (3)
Can take off when he wants (3)	Can't make plans (3)
	Doesn't see children much (3)
	Pay unpredictable (3)
	Lonely (2)

Would you like him to take another job? *No:* 22 *Yes:* 5

If yes, what job?
A shore job; go back into Coast Guard; welding because he enjoys it, but he wouldn't be happy; on land but he wouldn't be happy.

Mill Worker Wives	
Like best about his work (frequency of mention)	*Dislike about his work (frequency of mention)*
Good hours (2)	Hours (4)
Good money (2)	Nothing (2)
Blue Cross (2)	No response (1)
He likes it (1)	
Paid holidays (1)	
Proximity to house (1)	
Nothing (1)	

Would you like him to take another job? *No:* 4 *Yes:* 2 *No response:* 1

If yes, what job?
Day job; office or sales job.

those indicating yes, added the comment: "He wouldn't be happy working on land." On the other hand, two of five, or 40 percent, of the mill workers' wives indicated they would like their husbands to take another job. One would prefer day work over night, another an office or sales job over factory.

There is a clear indication that fishermen's wives view their husbands' job quite differently than do mill workers' wives. The fishermen's wives seem to recognize and respect the commitment their husbands have to their

work, as well as the dangers and other mentioned drawbacks. They also seem to appreciate the material and personal rewards of their husbands' work much more than do the mill worker wives. We would suggest that fishermen's wives are as different from their "landbound" counterparts as are fishermen themselves.

8

Coping With the Irreducible

We have looked at several facets of the model of human ecology as they apply to the fishermen of Galilee. The problems in the domains we have discussed thus far have potential solutions. However, since man is mortal and conscious of his mortality, there remains a domain of the irreducible, a range of contingencies beyond the reach of technological or organizational solution. Coping with hazards to life and limb, especially in so hostile an environment as the ocean, to a terrestrial species is to cope with the irreducible and, thus, often involves the use of ritual magic. We know that among certain groups and in certain behavioral settings in the United States there seems to be a greater use of such magic than is generally characteristic of the society as a whole. Coal mining, fishing, gambling and rodeos are examples of occupations and situations said to be replete with ritual magic; these have in common a generally high degree of uncertainty associated with them. The "retention" of rituals in these cases in an otherwise highly secularized society functions to help manage such uncertainties, according to Malinowski's theoretical formulation.

In a study of fishing activities among the Trobriand Islanders, Malinowski first related magic with different types of risks associated with an interrelationship of technology and habitat. He states that:

> While in the villages on the inner lagoon fishing is done in an easy and absolutely reliable manner by the method of poisoning, yielding abundant results without danger and uncertainty, there are on the shores of the open sea dangerous modes of fishing and also certain types in which the yield greatly varies according to whether shoals of fish appear beforehand or not. It is most significant that in the lagoon fishing, where man can rely completely upon his knowledge and skill, magic does not exist, while in the open-sea fishing, full of danger and uncertainty, there is extensive magical ritual to secure safety and good results. (1948:30f)

It is interesting to note in Malinowski's discussion there are two elements of unpredictability to which he refers, the question of relative certainty or uncertainty of the *catch*, and the uncertainty or danger to the *fishermen themselves*. This same distinction would appear to apply to such activities in the United States as gambling versus rodeo riding, where the risks are related most predominantly to "production" and "person" respectively. We feel that there is an important conceptual distinction between these two types of uncertainty involved in "risk taking" activities. This dis-

tinction appears to be important in understanding why ritual is more prevalent in certain occupational groups and behavior settings than it is in others.

While it is true that man has continually increased his control over and predictability of the process of production, there has not been a comparable increase in technological control over the elements that endanger his life and limb. Man can never reach the degree of confidence in his capacity to preserve his mortal self through rational technology that he has in his ability to control his external environment.

We thus wish to emphasize the distinction between ritual association with *production* and ritual associated with *protection of life and limb.* We are hypothesizing that the rate of retention of ritual associated with these two types of risk differs. Production is much more secularized than the contemplation of mortality. This hypothesis applies to production domains where man has been able to apply technological innovation, not to activities where the technology is purposely primitive (gambling, rodeo riding).

The special case of medical science is an example of an area in which great technological innovation has taken place, and the practice of medicine itself is largely devoid of ritual. On the other hand, when medical technology fails (as it always does in the end), it is a ritual practitioner and not the medical doctor who "takes care" of most of us.

We have collected material on ritual from the fishermen and mill workers in our study population. Personal risk is higher for fishermen than for mill workers due to the differences in their working environments, and fishing is innately the more dangerous because even to begin, it requires a technological coping with a marine environment by a terrestrial species.

Precisely how dangerous fishing is as an occupation can be seen from a comparison of data on fatalities in commercial fisheries and coal mining, the most dangerous of land occupations. In 1965 the commercial fisheries of the United States recorded 21.4 deaths per million man-days, while coal mining reported 8.3. In marked contrast is the rate of fatal accidents in textile mills in the United States which is 0.8 per million man-days.*

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* *Fatalities in fishing cited in Office of Merchant Marine Safety,* A Cost-Benefit Analysis of Alternative Safety Programs for U.S. Commercial Fishing Vessels *(Washington, D.C., 1971); in coal mining, U.S. Bureau of the Census,* Statistical Abstract of the United States, *91st ed. (Washington, D.C., 1970); in textile mills, Bureau of Labor Statistics,* Injury Rates by Industry—1969 *(Washington, D.C., 1971).*

A comparison of the rituals of fishermen and textile workers will be the basis of testing the above hypothesis.

Danger and rituals of avoidance

Ritual, according to Leach, involves "non-instinctive predictable action . . . that cannot be justified by a 'rational' means-to-ends type of explanation." (1968:520f.) In dangerous situations, especially where the perils besetting men are not susceptible to abatement by "rational" means, ritual is more likely to be developed than in safe and rationally controllable contexts. Avoidance rituals or taboos are thus an integral part of behavioral response to perceived danger.

Radcliffe-Brown (1965:134) referred to taboo as a "ritual prohibition" whose infraction results in undesirable change. Taboo and danger are closely related, although in some cases the perception of danger arises from the taboo (as in the case of mother-in-law avoidance, perhaps, and certain food taboos), while in others it may be presumed that taboos arise in response to perils for which no technological remedy is known. Danger may thus be either the independent or the dependent variable in connection with taboo.

> So far as ritual avoidances are concerned, the reasons for them may vary from a very vague idea that some sort of misfortune or ill-luck, not defined as to its kind, is likely to befall anyone who fails to observe the taboo, to a belief that non-observance will produce some quite specific and undesirable result. (Radcliffe-Brown 1965:142)

Steiner also elaborates in his definition of taboo on the theme of danger:

> Taboo is concerned (1) with all the social mechanisms of obedience which have ritual significance; (2) with specific and restrictive behavior in dangerous situations. One might say that taboo deals with the sociology of danger itself, for it is concerned (3) with the protection of individuals who are in danger, and (4) with the protection of society from those endangered—and therefore dangerous—persons. . . . Taboo is an element of all those situations in which attitudes to values are expressed in terms of danger behavior. (1956:20)

The perils of the sea, compounded by the hazards of the labors peculiar to fishing, create a context we feel that is conducive to the survival of

taboos even in a society in which among its dominant values rationality ranks very high.

Procedures and findings

In order to obtain information on frequency and types of ritual associated with our two occupational groups, we included in our interview schedule the following question on "superstition":*

> Practically everyone has some superstitions such as walking under a ladder or knocking on wood. Are there any superstitions that are related to your type of work? If so, please describe as many as you can think of.

We have indicated that there are three main types of fishing technology in Galilee: pot lobster boats that work during the day, draggers that return to port each day, and draggers that stay out for several days at a time. We surmised that these types of fishing may vary in risk, pot lobstering being the least dangerous because it is mainly an inshore, daytime activity and multiple day trip fishing being the most hazardous because it takes the men away from protected waters out of reach of rapid assistance. One-day dragging would fall between the two because it is carried out in offshore waters, but only on a daytime basis. Thus, not only could we compare factory workers with fishermen, but we also could compare different types of fishermen. There is no corresponding variation in personal risk among the mill workers.

The results of our interviews are tabulated in table 8.1 where it is particularly significant to note that of the 29 factory workers interviewed *only* one gave what he considered to be a superstition associated with his work. His response, that "I am afraid of getting my arms caught on something," appears to be more an expression of a realistic precaution than a ritual avoidance. On the other hand, the fishermen responded with numerous reports of superstitions associated with their work, and only one of 27 fishermen reported that there were no superstitions associated with his

* *Superstition is the term used by fishermen and mill workers themselves to describe ritual beliefs and behaviors.*

work. The types of superstitions and their frequency of mention are in table 8.1.

A striking pattern in these results is that the vast majority of the rituals are *proscriptive* in nature; that is to say, most of the ritual implies that misfortune will befall the actor if he does not avoid the proscribed behavior.

Discussion

The general hypothesis of this aspect of our research is confirmed in that there is indeed considerably more ritual reported among the high risk fishermen than among the low risk mill workers. We argue that these differences are related to the differences in predictability and certainty of bodily integrity associated with these two occupational cultures. The mill workers are operating in a relatively safe environment, while the fishermen are operating in a hazardous one.

We have noted in our data that there is a preponderance of proscriptive norms or taboos reported by the fishermen. These beliefs deal with avoiding particular acts and are related to danger coming in the form of harm to the individual or his vessel. This is in contrast to *prescriptive* kinds of magic which dictate the necessary behavior in order to catch fish in this case or to produce some other result. We are arguing that there is no logical connection between the clearly proscriptive types of ritual which were reported by our respondents and predictability in the catch. Rather, the types of ritual reported to us are strictly related to preservation of bodily self and its extensions.

It can be argued that the value system of the large society in which this fishing sub-culture operates places great stress on technological rationality. The notion that technology can overcome the constraints of the environment is pervasive in all sectors of American society. To a great extent this value system is consistent with the reality of technological competence that has been brought to bear in catching fish. The fishermen we have studied have at their disposal such efficient fish tracking systems as sonar, aircraft for spotting schools of fish, as well as other devices which indicate the presence of particular species. Also at their disposal are the ecological data that deal with distribution of fish populations over the yearly cycle and that make locating fish a highly predictable operation.

Table 8.1. Fishermen's taboos.

(N = 28; 6 pot lobstermen, 13 day fishermen, 9 trippers)

Frequency of mention by all groups	*Taboo*
23	Don't turn hatch cover upside down—bad luck 9—day; 8—tripper; 6—lobstermen
8	Don't whistle because it "whistles up a breeze" 6—day; 2—tripper; 0—lobstermen
7	Don't mention pig on board 4—day; 2—tripper; 1—lobstermen
4	Don't shave on a trip 2—day; 1—tripper; 1—lobstermen
4	Don't turn against the sun, always into it 0—day; 3—tripper; 1—lobstermen
4	Don't allow a man with a black bag aboard 1—day; 1—tripper; 2—lobstermen
4	Don't serve beef stew aboard, it brings on a gale 2—day; 2—tripper; 0—lobstermen
3	Don't bring women out on a trip 1—day; 0—tripper; 2–lobstermen
3	Don't leave for trip on Friday 2—day; 1—tripper; 0—lobstermen
3	Don't return a knife in any other way than the way it was given, open or closed 1—day; 2—tripper; 0—lobstermen
3	Knock on wood for good luck 1—day; 0—tripper; 2—lobstermen
2	Don't put hat in bunk 2—day; 0—tripper; 0—lobstermen
Mentioned once by day fishermen:	
	Don't wash inside of wheelhouse windows Don't wear a new hat—bad luck No two dollar bills—bad luck No women on first trip of new boat Don't wear yellow southwesters on board Don't bring pork on board Don't brag, it brings bad luck

Mentioned once by trippers:

Only coil a rope in the direction of the sun's path
Don't change name of boat
Don't leave dock twice in the same day

Mentioned once by lobstermen:

Don't wear black sweater
Red sky in the morning–warning of bad weather
Calm before the storm, perfect day, be apprehensive
See rat leaving the boat—don't sail
Never use the number 13 in speech
13 pot trawls—bad luck
Metal boats sink
Always refer to boat as "she"

Thus, we argue in Malinowski's terms that the uncertainty factor of the catch has been subjected to some extent to technological remedies. Although it is possible for a fisherman from Galilee to return to port after a day's work with few fish, it is unlikely for a fisherman to return with no fish. Furthermore, fishermen who do not come back with a large catch in any one day have the prospect of a large catch another day to make up for the deficiency. The fact is that over the course of the year, fishermen do indeed bring home large quantities of fish and realize a relatively high economic return for their efforts, at least in this community.

Let us now consider the part of the environment with which the ritual reported to us is believed to be associated. Although it can be argued that man has brought great ingenuity and technological competence to bear on overcoming the hazards of venturing out into the open ocean, it is an objective fact that fishermen because of their occupation, do lose their lives and do receive injury at a high rate. In contrast to a day with a poor catch, there is no second chance in losing one's life or sustaining permanent injury. Thus, there is great risk involved in a man going out into the water to catch fish—more risk to his personal self than to his economic self. The risk that we are talking about is characteristic of man's use of the marine environment. Man is extending himself considerably by simply going out into the water to carry out his work activities. This is in contrast to a factory environment where man does not need to build an artificial land environment (boat or platform) under himself before he can even begin his

activities. It is not only the artificial land environment that man has made, but it is the medium in which this artificial land environment operates that makes for considerable hazard to the fisherman. Storms, rough seas, obstructions in the water, sudden changes in weather conditions, and other factors of the macro-environment along with the remote location of the work reduce predictability.

We had hypothesized that there would be a distinction between the rituals reported by pot lobstermen and those reported by day fishermen and multiple day fishermen. The results, however, do not confirm this hypothesis. Each of the groups average about the same number of ritual beliefs, but there are certain specialized ones for particular types of fishing. Trippers, who are out for several days, have peculiar to their set of ritual beliefs items concerning serving of food on board the boat and others related to the sleeping arrangements. The pot lobstermen who do not usually prepare food or sleep on board do not mention these items.

Although we do not have the data necessary to prove why this pattern occurs, the suggestion exists that the risks involved for each of the three types of fishing are equalized more or less. The pot lobstermen who generally do not venture out as far into the ocean nor stay out overnight in the darkness are often operating in congested inshore waters devoid of ship-to-shore radio, radar, sonar and other safety features that are a standard part of day and trip boats. Even though safety technology may tend to equalize risk between inshore and offshore fishing, it does not remove the basic fear which is, according to our view, the basis of taboo associated with man's occupancy of the sea.

In our interviews with fishermen concerning their ritual beliefs, they expressed a degree of embarrassment. Many times our respondents would disclaim believing in these "superstitions" but would often admit that they dared not "break the rule" of the superstitions aboard their own boats. The embarrassment, or ambivalence as Goffman (1967:179) calls it associated with reporting about superstitions is, we feel, a manifestation of the divergence between the larger landbound culture which the interviewers represented and the occupational sub-culture of fishermen. Fishermen who are part of both cultures are sensitive to the values of general secularization that persists in the land setting. Nevertheless, while they are at sea they do observe the proscriptions of the taboos that embarrass them on shore.

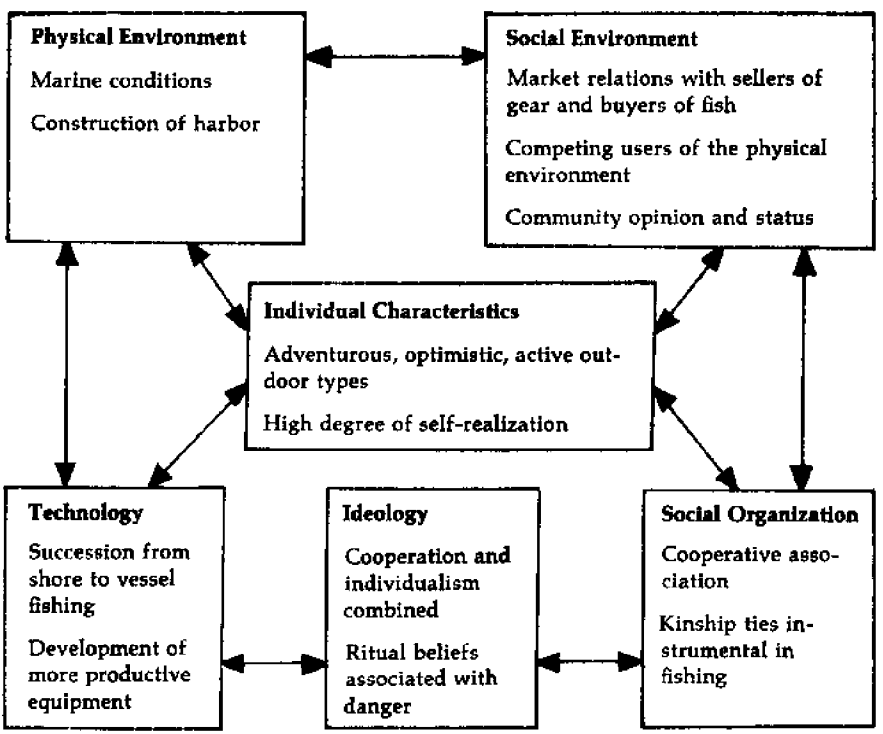
It can be argued that the persistence of "superstitions" among fishermen is a relic of the past, coming from a time when fishing was much more hazardous than it is today. The wide distribution of the taboos reported would seem to support this hypothesis (cf. Frazer 1890; Dorson 1964; Creighton 1950; and Mullen 1969). However, this particular view of the "persistence of relics" says nothing about the functional nature of sociocultural traits. It can be argued that there is no such thing as a functionless trait and that relics of the past have contemporary functions. We have argued that even though their form may be widespread, the contemporary function of these rituals that are part of fishermen's folklore is essentially the same as it was in the past—to help man cope with the uncertainties of operating in a personally hazardous environment.

9

Some Conclusions

As indicated in the discussion of our theoretical perspective, we are concerned with the interrelationships between the several domains of a sociocultural system, and we have now seen how these several interrelated domains are part of the lives of the fishermen of Galilee. At this point it would be useful to summarize the general configuration of the model of human ecology as it applies specifically to our research community. Thus, figure 9.1 shows the model of human ecology for the fishing community of Galilee. This model has the same characteristics as the idealized general model of human ecology, but there are certain amplifications that change its general shape in keeping with the reality of the local situation. We particularly wish to portray the fishermen's cooperative as a structured buffer between individual fishermen and the social environment.

Figure 9.1. Human ecology model applied to the Galilee fishing community.



Needless to say, the social theory which can "explain everything" has yet to be developed, and in applying the model of human ecology we are only approximating the total reality of the situation we have examined. However, the aspects we emphasized in our model appear to us to be the salient ones in the patterning of life among fishermen.

We believe that our use of the model of human ecology is strengthened and augmented by our historical view of the community which delineates some of the changes among the various elements in the model of human ecology over a relatively long period of time. Change at various rates is an ever-present feature of all social systems. To ignore change is to distort this aspect of reality. In this respect we were fortunate to find a rich lode of historical information. Thus, we have a general picture of changes in fishing technology in this community from pre-colonial times to the present, as well as a picture of the changes in the physical environment that were wrought over many decades by application of engineering technology.

Another part of the reality of any social system and the interrelationships among its parts is that action goes on simultaneously within and between the several domains of the system. It is impossible to recapture these simultaneous interrelationships, and in this summary and conclusion we will necessarily deal with the interrelationship of parts of the model in a sequential way.

Physical environment

We found that fishing from pre-colonial times in the Galilee-Point Judith area was narrowly circumscribed by conditions of the physical environment. The absence of a natural harbor meant this could be at first only a shore fishery in which the fishermen relied on the use of rowboats, hook-and-line, and haul seines. After the Civil War, there was a surge of interest in the community for the construction of an artificial harbor, which was the beginning of the massive man-made changes in the physical environment. As a consequence of engineering works which began in 1892 the nature of the physical environment and its impact on this fishery were drastically altered. This is a classic example of how man has changed his environment—by building a harbor where none had previously existed making possible the development of a vessel fishery whose productivity

far exceeds the capacity of the shore fishery which preceded it. In this way we see that transformation of the physical environment at the hand of man has made a profound difference in the functioning of the total system.

Another way the physical environment emerges as important is in relation to the ideational realm. We have found that many of the dislikes that fishermen express about their work such as long hours and bad weather are direct reflections of the particular physical environment in which they ply their trade. The other side of this coin, of course, is that many of the aspects defined as favorable by the fishermen, such as the beauty of the sea and their freedom from many shoreside constraints, are also related to the ocean environment. Some of the personality characteristics that we described for members of our study population are also associated with the physical environment. The activist spirit of the hunter which characterizes the men who pursue this occupation at sea seems also to be reflected in fishermen's shoreside behavior which is less passive and routinized than their "landbound" counterparts.

Social environment

The inputs from the social environment are also salient in this particular model of human ecology. In terms of harbor improvements, for example, it is not sufficient to focus on the changes in the physical environment alone, but it is also necessary to look at the groups—forces in the social environment—which contended over the issue of whether or not these improvements should be made. The Corps of Engineers for a long time resisted harbor improvements and particularly those for the pond entrance. At the inception of the project there was a great deal of support from textile interests who viewed the harbor improvements as a needed alternative to their dependence on railroads. There was also support from coastal shipping interests. From the historical perspective, we see that some of the group that supported the fishermen later withdrew because of the emergence of highway truck transportation as a substitute for coastal shipping. On another level we see that within the social environment, one town bordering on the pond at Galilee opposed the project while the other town supported it. Subsequently even the state legislature was drawn into the controversy so that there was clearly an interplay of a variety of social

forces coming to grips in the political arena and influencing the potential for fishing from the port.

Furthermore we have seen that the social environment impinges on fishermen as buyers and sellers in their various market relationships. Fishermen have had to cope with elements in the social environment when they buy gear and when they sell fish, and one of the most important alterations of their social organization was their pooling of resources in dealing with these elements in the social environment, thus providing themselves with a buffer against some of them. Other impinging elements in the social environment are government agencies and rival users of the ocean, whether industrial polluters or foreign factory ships. The rival users of the environment often degrade it through pollution, wasteful exploitation and overexploitation, and yet as part of the social environment, they must be coped with by means of formal and informal arrangements.

We have also seen the impact of groups in the social environment in the more elusive but nevertheless real, element of social status. For example status accorded to fishermen in the community is a matter of public opinion among various elements in the social environment. We have seen a marked change in the social ranking of fishermen from an occupation (in pre-Co-operative days) where sons were ashamed to mention their father's calling, to the present-day situation where fishermen enjoy high social status and are the center of attention of politicians as well as technical aid agents in government. This transformation can be traced to a sequence of interrelationships in the model beginning with man-made changes in the physical environment (harbor improvements) which provided the necessary conditions for a more productive fishing technology as well as the incorporation of an effective organizational device for marketing and supplying (the Co-operative). This sequence of interrelationships resulted in the fishermen's greater economic success and heightened social status within their total social environment.

Technology

Reference has been made to the effects of technological innovation in our discussion of the physical environment, but it should also be emphasized that technology is one of the most important "shapers" of the con-

figuration of the social structures with which we are dealing. Technology in no small way has directed many of the processes in the model that we can talk about, and indeed, one can attribute to technological change the role of a prime molder of social systems. Use of the ecological setting has depended upon technology from the very beginning; for example, we have seen how, in pre-colonial times, Indians exploited the fishery with primitive technological tools including traps, weirs and hooks, and how colonists in the same setting did the same initially with a similar type of primitive technology. The introduction of more productive technology in the form of haul seines increased productivity somewhat, but the exploitation of the environment to its full capacity depended upon the introduction of motor-driven vessels and use of otter trawl technology. With this shift in technology from "primitive" to "modern" we see also a concomitant shift from part-time fishing by farmers to full-time pursuit of this occupation by commercial fishermen. However, as we have noted earlier, even today in spite of modern technology fishing cannot be carried on each day. The forces of nature, especially the weather, exceed man's technological control over the environment and keep the fleet tied up in harbor on about half of the days in an average year.

Among other findings on the influence of technology, one that bears mention in this recapitulation is the fact that the biggest yields and, thus, income and prestige go to the fishermen whose vessels have the most powerful engines. The smallest yields and their concomitants go to those whose vessels have the least powerful engines. This too clearly indicates the importance of technology in the exploitation of the environment and maintenance of social position.

Ideology and ritual

We also have analyzed a realm which begins where technology ends, the area of ritual beliefs which mediate dangers such as the ever-present threat of fatal accident and other problems of the physical environment which are not amenable to technological solutions. Carrying out activities in an aquatic medium puts strains on man's technology and his control over the physical environment. This results in a type of relationship with the environment thought of by many as primitive. However, man's use of

magic and ritual is certainly not confined to pre-industrial societies and peoples, but is characteristic of mankind as a whole. It is only the degree to which man uses non-technological and non-rational approaches to coping with the environment which changes from one context to another.

In the realm of ideology we are struck by the readiness with which seemingly individualistic fishermen seize upon the idea that cooperation in some domains is more effective than solitary effort. But in order to adapt to their physical and social environment, autonomous fishermen are clearly able to perceive the benefit of cooperation as a way to retain their individuality against the constraints of these environments. It is not inconsistent for them to support the concept of a cooperative effort. Individualism as an ideological stance or a psychological mode may be well adapted to the contingencies of working in very small groups on small boats pursuing a perilous occupation in a competitive context. On the other hand, a cooperative stance against the contingencies of the social environment that impinge upon all fishermen of the port makes equally good adaptive sense. These two positions are both consistent with the constraints and pressures of the physical and social environments with which individuals, and individuals collectively, must cope. These two ideological positions indicate that some aspects of ideology depend on situational factors and cannot be imputed to be prime movers of the system.

Also in the realm of ideology the fisherman's perception of self, his sense of worth and belief in his occupation, are reinforced by landbound definitions of success and social status. The independence, earning capacity, and style of life of fishermen tend to reinforce these ideas.

Among the other ideas we have discussed are taboos, ideational mechanisms for coping with insurmountable danger in the marine environment. Fishermen avoided mentioning danger, but the fishermen's wives were quite explicit in their apprehensiveness. The fishermen's omission of reference to this as part of their occupational world seems to be accounted for by their substitution of the ritual magic of avoidance.

Social organization

The social structure in which fishing is carried on is marked today by the prominence of the Fishermen's Cooperative Association which through

the pooling of resources alters the power relationship between the fishermen and the various elements in the external social environment. The resources and organization of the Cooperative are bases of power which enable the fishermen to improve their standing vis-à-vis the constraints of the social environment.

In addition to the Cooperative, which is explicitly a fishing organization, we also noted the importance of an implicit social structure of fishing which is seen in the realm of kinship. We noted the role of kinship ties in recruitment, socialization and actual cooperation in fishing and the prevalence of kinship-centered instrumental activities.

Another important consideration is that social structures have boundaries. In addition to keeping outsiders under control (dealing with market relationships), there is also a need to exercise social control inside the boundaries of the social structure. Thus, we foresee constraints to control group size through limitation of access. By making the boundaries of the social structure more difficult to penetrate, the fishing community may solve such problems as over-exploitation of the resource, but this may in turn create new problems, such as blocked succession. Thus some sons who would in the ordinary course of events have followed in their father's footsteps will have to turn elsewhere in looking for their life's work.

Individual characteristics

We turn now to a consideration of characteristics of individuals and how they in turn interrelate with other aspects of the system. As we have seen in chapter 5 there appears to be a marked difference in level of self-realization and psychological functioning between fishermen and our comparison group of mill workers. We have shown that these characteristics are in good part related to the occupations themselves. There are the specific and striking differences between the types of people psychologically-speaking. Independence, challenge, disdain for regimentation and love of the outdoors are highly valued and often mentioned by fishermen. By contrast, mill workers concern themselves with the steadiness of their work, the regularity of their hours and the security promised by retirement plans. It is this contrast in individual psychology and group patterning which gives fishermen their reputation for "saltiness," and of being different from their

more regimented landside counterparts. It is probably why landbound people are often fascinated and curious about the work and life style of fishermen. We perceive this as a clear continuity between man the primitive hunter and man the modern hunter. In a sense fishing is indeed a modern version of the primordial life way of our species—the hunting and gathering way of life. Perhaps in many ways man is structured to be a hunter more than he is to be part of bureaucratized life in urban industrial society. In part, our own enthusiasm for this study may reflect the fact that the excitement and tension of the hunt are contagious.

An important individual difference between the fishermen and mill workers with whom we talked is in their experience of alienation. One type of alienation stresses the separation between the worker and his work (see Blauner 1964), and/or between the producer and his product. By all accounts the fisherman who is present when the nets are hauled up and who empties his lobster pots is much closer to his product than the mill worker and therefore less alienated. While the experienced fisherman may be quite matter-of-fact about what to him is a routine experience, the visitor aboard a fishing vessel experiences a thrill when at the end of a trawl the nets, bulging with three to four tons of fish, are dumped on the deck. While the fishermen are matter-of-fact when they pursue their work, they are firm in their enthusiasm for their work when asked what they would do if they could no longer fish. There is no analogous experience in the work of a textile mill employee. We perceive his closeness to the "finished" product as part of the experience of a fisherman which makes him less alienated than the shoreside factory worker. Another expression of this relates to the values of fishermen. We found in our interviews that fishermen tend to worry more about losing their boats than losing their wives, while, on the contrary, the mill workers worry more about losing their wives than about losing their jobs. It seems that self-realization is associated more with work than with family life *per se* among the fishermen than among the mill workers. This idea of a strong commitment to work as a central life interest among the fishermen in our population is part of the complex of their individual characteristics.

Why else might there be a difference between fishermen and mill workers in the degree of alienation? Perhaps a salient contrast between them in this connection is in the realm of capital investment. In a small-

vessel fishery it is plausible for an individual fisherman to aspire to ownership of his own boat. On the other hand, in the textile industry no worker realistically expects to own his own mill. This basic distinction does point out a dimension in which our two study groups, strictly speaking, are not comparable.

We feel that the optimism expressed by fishermen is related to the open access of the resource which they exploit, as well as to their success in increasing their income even in the face of declining fish stocks. Whether their optimism will change to pessimism at the point where fish stocks are subjected to outside managerial control falls within the realm of speculation. However, at the time of the interviews one of the most striking individual characteristics of fishermen in this port was their glowing optimism.

Beyond the data

One of the risks at the conclusion of a study such as ours is to make generalizations not supported by the data. However, while it is prudent to be cautious, we would like to draw certain conclusions that do go beyond the data. We find, for example, that the fishery at Galilee is much smaller than the fisheries in such nearby ports as New Bedford, Gloucester and Boston, but the technology at Galilee has a better fit with the physical environment than the much larger vessels of fleets elsewhere. A fleet of small, fast vessels close to their markets and to their fishing grounds has been able to flourish in the face of all the difficulties encountered by larger, more cumbersome fleets which fish in distant waters, spend a large proportion of their time at sea steaming to and from the fishing grounds and carry a massive technology now threatening to overkill the resource which is their livelihood. However, despite the good fit between the Galilee fishermen's technology and the resource which they are exploiting, they do not function in isolation from a *world* system which is increasingly impinging upon their resource in ways that may in the future destroy this flourishing fishery.

This world system (ably analyzed by Meadows et al. 1972), which entails the interdependence of all mankind, may be threatened by collapse unless the exponential increase in population, resource depletion and pollution are halted. This apocalypse of the eco-system, irrespective as to

whether its projection in the 22nd century is too early or too late, will not spare the fishery at Galilee. In fact, the example cited by Meadows et al. (1972:152) of the modern whaling industry provides warning for fisheries of all kinds, including the one we have studied. Whaling is a hunting activity in which depletion of the quarry led to introduction of more powerful technology, the better to pursue the remaining herds and to destroy smaller species. The alternative to such technological overkill, which threatens extinction of the resource, would be to establish social controls to limit the hunt and preserve the resource. Such controls of the social environment and the social structure of the Galilee fishery are necessary for its survival, but will in turn create new problems such as the blocked succession already mentioned.

However, there may be hope. The evolution of culture has meant that man has risen above many aspects of his divisiveness and has managed to establish adaptive, albeit antagonistic, cooperation. By the same token it is necessary, and may even be possible, to prevent the ruination of the planet by further overcoming human divisiveness and cooperating to manage and preserve at the level of sustainable yields the world's marine and other renewable resources.

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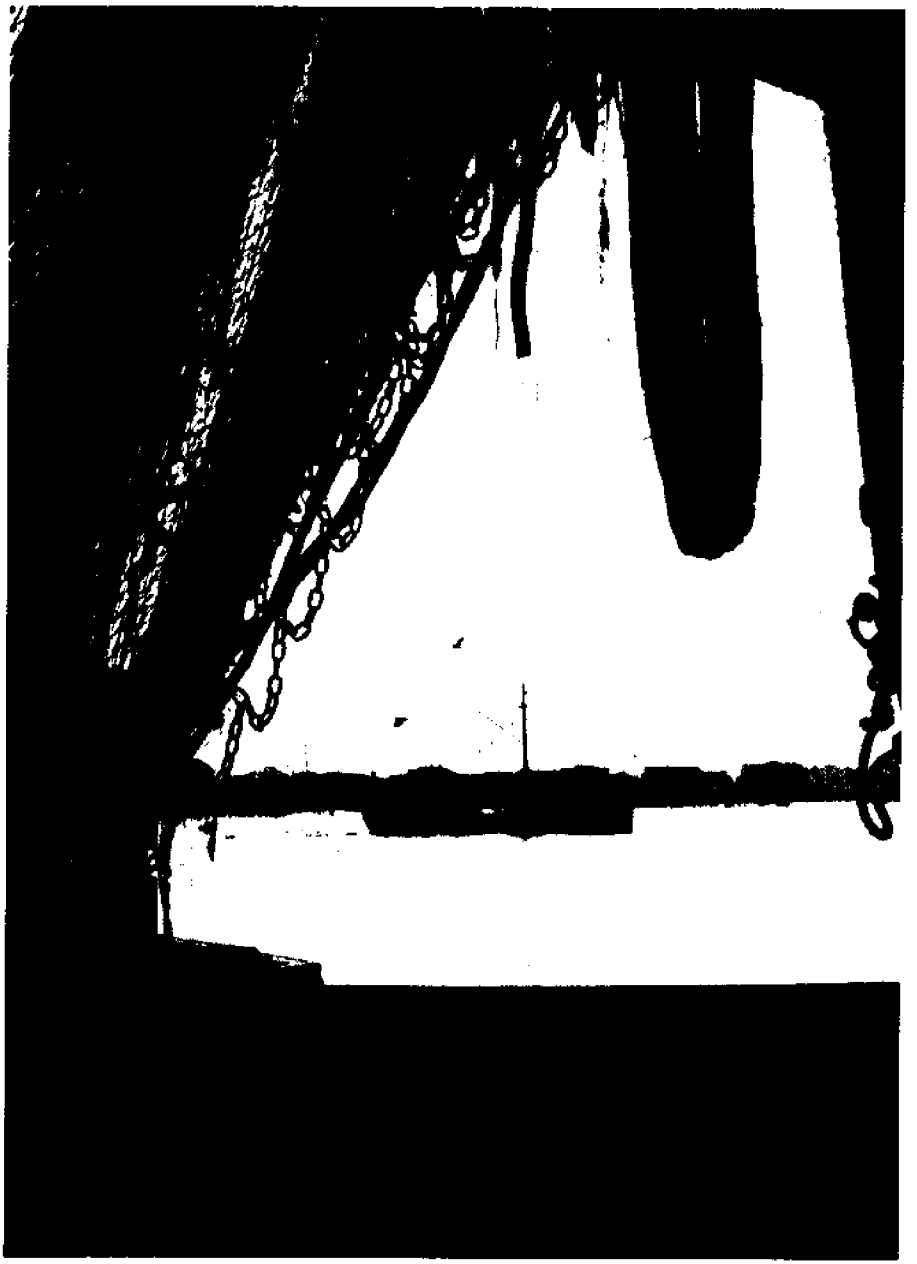

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