TERRITORIALITY IN THE GRAND MANAN LOBSTER FISHERY: A GAME THEORY ANALYSIS OF THE SELECTION AND USE OF FISHING LOCATIONS

CENTRE FOR NEWFOUNDLAND STUDIES

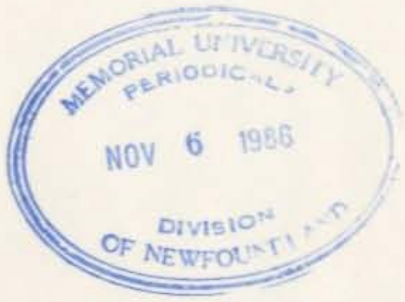
TOTAL OF 10 PAGES ONLY
MAY BE XEROXED

(Without Author's Permission)

ROBERT MERLIN PARKS

C0772


CENTRE FOR NFLD. STUDIES
NOV 8 1986
MEMORIAL UNIVERSITY
OF NEWFOUNDLAND


MEMORIAL UNIVERSITY
PERIODICALS
NOV 6 1986
DIVISION
OF NEWFOUNDLAND

CANADIAN THESES ON MICROFICHE

I.S.B.N:

THESES CANADIENNES SUR MICROFICHE

National Library of Canada
Collections Development Branch

Canadian Theses on
Microfiche Service

Ottawa, Canada
K1A 0N4

Bibliothèque nationale du Canada
Direction du développement des collections

Service des thèses canadiennes
sur microfiche

NOTICE

The quality of this microfiche is heavily dependent upon the quality of the original thesis submitted for microfilming. Every effort has been made to ensure the highest quality of reproduction possible.

If pages are missing, contact the university which granted the degree.

Some pages may have indistinct print especially if the original pages were typed with a poor typewriter ribbon or if the university sent us a poor photocopy.

Previously copyrighted materials (journal articles, published tests, etc.) are not filmed.

Reproduction in full or in part of this film is governed by the Canadian Copyright Act, R.S.C. 1970, c. C-30. Please read the authorization forms which accompany this thesis.

AVIS

La qualité de cette microfiche dépend grandement de la qualité de la thèse soumise au microfilmage. Nous avons tout fait pour assurer une qualité supérieure de reproduction.

S'il manque des pages, veuillez communiquer avec l'université qui a conféré le grade.

La qualité d'impression de certaines pages peut laisser à désirer, surtout si les pages originales ont été dactylographiées à l'aide d'un ruban usé ou si l'université nous a fait parvenir une photocopie de mauvaise qualité.

Les documents qui font déjà l'objet d'un droit d'auteur (articles de revue, examens publiés, etc.) ne sont pas microfilmés.

La reproduction, même partielle, de ce microfilm est soumise à la Loi canadienne sur le droit d'auteur, SRC 1970, c. C-30. Veuillez prendre connaissance des formules d'autorisation qui accompagnent cette thèse.

THIS DISSERTATION
HAS BEEN MICROFILMED
EXACTLY AS RECEIVED

LA THÈSE A ÉTÉ
MICROFILMÉE TELLE QUE
NOUS L'AVONS REÇUE

NL-339 (r. 82/08)

Canada

TERRITORIALITY IN THE GRAND MANAN LOBSTER FISHERY: A GAME THEORY ANALYSIS OF THE SELECTION AND USE OF FISHING LOCATIONS

by

© Robert Merlin Parks, B.T.

A Thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Arts

Department of Anthropology
Memorial University of Newfoundland
December 1974

St. John's Newfoundland

ABSTRACT

The interactions between members of a human population have long been the subject matter of anthropological studies. Much of the behavior involved in these interactions is learned behavior that is part of the extensive repertoire of suitable responses peculiar to an entire society, or part-society.

Initially, this thesis, which to some extent employs a technique for purposes of illustration and explanation similar to that of "thick description" (Geertz 1973: 3-30), is concerned with revealing those behavioral responses which are appropriate to the manner in which a group of contemporary inshore lobster fishermen perceive, organize, and manipulate fishing space.

Following this, the observations of spatial patterning which emerge from this investigation are placed within a more encompassing analytic framework, the Theory of Games. By using this analytic procedure to harness reality, as well as to depict the logic underlying that reality, it is intended that spatial patterning will be viewed as a function, not only of the cultural background of the people being studied, but also of the many relationships, activities, and emotions which develop in those situations characteristic of inshore lobster fishing operations.

Preface

The fieldwork on which this study is based (from April 1973 to September 1973) was carried out to partially fulfill the requirements of a Master's degree in social anthropology at Memorial University of Newfoundland.

The study was extensively supported by the Canadian Department of Fisheries with monies made available through the Social Sciences Research Branch. I would also like to acknowledge a small travel grant from the Institute of Social and Economic Research, Memorial University of Newfoundland.

I would like to thank Dr. R. D. S. McDonald, Atlantic Regional Director, Social Sciences Research Branch, Department of Fisheries, Halifax, Nova Scotia, for recognizing some value in this type of investigation, as well as for his patience and assistance while the study was being completed. Also, I want to thank Dr. Elliott Leyton, Acting Director (1972-73) of the Institute of Social and Economic Research, for making my field study less of a financial burden by providing travel funds.

I am grateful to Dr. Raoul Andersen, Mr. Louis Chiaramonte, and Dr. Richard K. Nelson for their

stimulation and support while I was a student at Memorial University. Not only did they expose me to the field of maritime studies, but to a great extent they helped focus my academic curiosities and pursuits.

I am deeply indebted to my close friend and advisor at Memorial University, Dr. Robert Barakat. Without his constant help, friendship, and encouragement, this study would have been a most difficult task.

Finally, this study could not have been possible without the cooperation of the Grand Manan people. I am especially indebted to Mr. J. W. Ingalls and his family for making my fieldwork both pleasurable and profitable. Also, special thanks are due the following Islanders: Gerald Ingalls, Henry Ingalls, Harry Johnson, Deverne Green, Howard Ingalls, and Jerome Gilmore.

TABLE OF CONTENTS

CHAPTER ONE

INTRODUCTION

The Problem

This study is principally concerned with describing and explaining how marine space is perceived, organized, and manipulated by the inshore lobster fishermen of Grand Manan, a small island community situated off the southwest coast of New Brunswick, Canada.

In the past, there have been a variety of approaches used to examine the perception, organization, and use of space. Generally, however, these investigative interests have been subsumed under the more popularized label of territoriality: a concept which refers to "those adaptive interactions between human ana non-human populations and their enviornments" (Carpenter 1958: 2). Regardless of such inclusive labeling, in view of the fact that this study is concerned with analytic methodology as well as with ethnography, it seems appropriate that some attention be given to existing investigations of territoriality. The rationale for introducing this study in such a manner is based on what appears to be Kuhn's (1962) suggestion that explanation implies process. Here, of course, reference is made, not only to the historical development of the empirical phenomenon under investigation,

but also to the developmental process(es) of the approach(es) used to investigate and analyse that phenomenon.

Previous Investigations of Territoriality

With these brief thoughts in mind, it is helpful to point out that some of the most useful sources of historical concepts concerning the nature of territoriality are the studies of early biologists (Carpenter 1958). In fact, it has been more specifically stated that, "It has been evident since the early 17th century that some animals possess and defend portions of their environments. It was not, however, until Eliot Howard published Territory in Bird Life (1920) that an entire work was given over completely to the study of territoriality" (Carpenter 1958: 2). Subsequent to Howard's classic study, additional reports were soon completed which offered explanations for the existence of similar traits exhibited by other species of non-human life (e.g. fish, deer, rodents, and reptiles).[1]

---

[1] cf Bradt (1938); Nissen (1951); Darling (1947).

Generally, studies carried out in this tradition placed considerable emphasis on the notion that "territoriality can be regarded as a means of relating the needs of non-human populations to their environments" (Carpenter 1958: 242). Consequently, it very often happened that these studies revealed a number of functions which are fulfilled due to the acceptance of certain territorial principles. For example, it seems that possession of a territory tends to allow for the balanced distribution of an animal population over its area of occupation (Carpenter 1958: 243). Similarly, it can also be demonstrated that a close correlation exists between adherence to territorial principles and the sexual behavior exhibited by various animal populations (Hediger 1961: 37). Also, it can be illustrated that a close relationship exists between territoriality and aggressive animal behavior (Carpenter 1958: 2).

Finally, in addition to revealing these and a variety of other relationships between non-human behavior and physical space, these early studies concluded that most animals structure space internally. That is, "The free movement of an animal . . . does not in fact occur even in the limited section of the field we call territory, nor is this individual living space homogeneous,

but highly differentiated" (Hediger 1950: 12). Quite simply, then, these early studies acknowledged that many animals have the ability to conceptually sub-divide their areas of occupation into several smaller, more functional units, such as sleeping locations, hunting areas, breeding grounds, and the like. Moreover, following these and similar findings, it was soon accepted that "the many functions served by the possession of territorial concepts are very important in maintaining the conditions which are necessary for species survival and an optimum dynamic stability of a population is a favourable condition for species survival" (Carpenter 1958: 244-45).

Needless to say, these valuable insights into the territorial behavior of non-human populations did not go unnoticed by other disciplines, particularly those interested in formulating explanations for human spatial behavior. For the most part, early investigation of human spatial behavior was started in the social sciences under the guidance of the so-called ecological school which subscribed to the principle that ". . . wherever in aboriginal America, a well marked ecological area can be delineated, there one will find a cultural area . . . . There then must be some determining condition that

produces this phenomenon of uniformity, some ecological relation here, and no doubt a mechanism involved, which when laid bare, will give an adequate scientific explanation of the phenomenon: (Wissler 1926: 216-17).

As a consequence of this ecological determinism, it happened that investigative approaches to territorial behavior took an abrupt turn. Instead of concentrating on the effects of the various interactions between populations and their environments, adherents to this ecological tradition placed increased emphasis on man-environment interactions per se. The end result of such deterministic attitudes saw the study of territoriality redefined to include the study of human spatial patterns as these are effected by environmental factors or, alternatively, as the study of the form and development of human communities. In fact, this new approach to territorial investigation was so readily accepted that "the culture-area concept was a community product of nearly the whole school of American anthropologists" (Kroeber 1931: 250).

From such early beginnings, it is possible to trace the history of this ecological interest in human spatial behavior from early determinism (Mason 1895) through possibilism (Goldenweiser 1933) to areal differentiation

(Steward 1955). Furthermore, given these developments within the ecological school itself, it followed that territoriality, one of this school's major investigative interests, was also heavily influenced by the theoretical and/or methodological prejudices peculiar to each stage of the school's development. For example, in formulating what has come to be called the law of limited possibilities, Goldenweiser (1933) noted that cultural form has limits set by natural conditions which make for certain resemblances. Also, and in a somewhat similar fashion, theoretical disputes, individual research interests, and cultural or racial biases have led to further divisions within the general field of sociological inquiry. As a result, new sub-disciplines such as psychology, geography, sociology, and anthropology have buried, perhaps unintentionally, the concept of territoriality under labels peculiar to their own interests.

In the field of psychological inquiry, for example, B. F. Skinner (1949) sought to explain human spatial behavior in terms of neural development. Although such an approach to human spatial patterning may have coincided nicely with contemporary evolutionist thinking and, in addition, may have been useful for cross-cultural comparisons, it remains that this approach did not always

point to a thourough understanding of the behavioral patterns being investigated. This deficiency is especially obvious since it can be demonstrated that very similar behavioral patterns can be related to entirely different anatomical entities. For example, it has been recognized that "when dealing with the use of space among Americans, it is important for the proxemicist to know as much as possible about the physiology of the eye. In contrast, when dealing with Arab subjects it is just as important to pay strict attention to olfaction" (Hall 1968: 84). Essentially, then, what was overlooked in this behaviorist approach to human spatial behavior was the fact that comparable physiological and anatomical structures can, and often do, lead to behavioral patterns which, on the surface, may not seem to share any common element. This gain, if indeed it is a gain, in the search for phylogenetic causes of human behavioral patterns resulted in a loss of understanding of the effects of these causes.

Geography is another discipline which wasted little time developing approaches directed toward the investigation of human territoriality. In fact, the theme cultural landscape, which refers to studies "concerned with how individuals perceive their environments and the

influence that historical, cultural, and physical factors exert over this perception" (Lowenthal 1967: 1-3) is one of the most enduring themes in geography. Basically, this cultural landscape theme developed out of two traditions in geography. The first tradition has its roots in the reports of early explorers and tends to be highly descriptive. Consequently, the majority of studies carried on in this tradition tended to emphasize "the concrete and the visible, the formation of the physical landscape, and the many varied patterns of man's activities within each environment" (English and Mayfield 1972: 3).

More recently, this cultural landscape theme has been associated with a tradition which is chiefly concerned with "man's role in changing the face of the earth, man-environment systems, and man's perception of his environment" (Lowenthal 1965: 3). Briefly, this more recent interpretation of the task of cultural landscape studies was introduced into American geography by Carl Sauer (1925) as a reasonable alternative to the then-popular notion that the environment is the active

agent in man-environment relations.[2] In effect, then, the new task of geographers was to observe the formation of cultural landscapes and, following Sauer, most geographers collected data on house types, barns, churches, fences, and technology. At the same time, many of these early landscape studies have been marked by an historical perspective with special emphasis placed on natural and/or cultural processes. It remains, nevertheless, that this approach still possesses certain weaknesses, the most important being its intense preoccupation with the visible landscape. That is, studies carried out in this tradition present a somewhat static view of reality since they emphasize form at the expense of process. In fact, this continuing attention to form can be regarded as one of the major influences behind "the neglect of those less obvious forces which, in many cases, form the very foundation for explanations of the spatial patterns resulting from human behavior" (English and

---

[2] Sauer's emphasis on the role of man in changing physical reality into cultural reality has a striking similarity to the then-popular notion that "the interactions of culture and environment become exceedingly complex when followed out . . . this complexity makes generalization very unprofitable, on the whole. In each situation or area, different natural factors are likely to be impinging on culture with different intensity" (Kroeber 1939: 205).

Mayfield 1972: 5-6).

Eventually, however, this excessive attention to form has been supplemented by efforts which place emphasis on making attempts to document the impact of various social, religious, and political forces on the physical appearance of the environment. In this way, this somewhat more aesthetic approach toward explaining human behavioral patterns can be regarded as a further attempt to integrate the physical and cultural environments. That is, this approach succeeded in providing valuable insights into human behavioral processes; it has illustrated and illuminated complex relationships which exist between man and his environment; it has provided documented evidence of man's preferences for specific natural surrounds. In summary, then, it seems that geography is no longer interested only in how man works within his environment; it is also interested in how man internalizes that environment.

Finally, a word of caution is necessary. Essentially, it must be noted that geographers who follow this latter approach may be, and often are, "referred to as being behavior-oriented" (Yi-Fu Tuan 1968: 176). As a result, the so-called behaviorists in geography must remain aware of the fact that "human behavior

patterns are the result of interactions with two environments: the physical non-reacting environment and the cultural or social reacting environment: (Kasperson 1971: 4). This point is especially important since many geographers, while they very likely recognize that human populations interact with their environments, do not have as their primary aim the analysis of human behavior. In fact, in recent years it often seems that many geographers have been more intent in reacting against the traditions of their discipline, rather than formulating hypotheses about human behavioral patterns. Granted, changes have occurred in geography, especially in the areas of quantitative methods, model building, cognitive analysis, and the degree of emphasis placed on the relationship between spatial form and behavior. At the same time, however, many geographers still utilize the stimulus-response model borrowed from psychology and, by doing this, have tended to stress the importance of phenomena which could be readily counted, classified, and analysed.[3] Now, it can be argued that such an approach does have its merits but, concurrently, it should

---

[3]Chorley and Haggett (1967) offer a thorough discussion concerning the use of stimulus-response models in geography.

also be recognized that geography has not made any substantial progress toward the formulation of general laws which possess cross-cultural applicability. Rather, the discipline has remained somewhat culture-bound, at least in a general sense. For example, it has usually happened that geographers, after recognizing that similar spatial arrangements existed in different cultural settings, explained the presence of those similarities as responses to similar environmental conditions.[4]

In more recent years, geography has reacted against this behaviorist tendency by seeking to participate within an interdisciplinary framework. Consequently, it is commonly accepted by many present-day geographers that the most detailed and profitable research into human spatial behavior lies, not in geography alone, but rather, in some kind of interdisciplinary composite called proxemics which is defined as "the study of man's use of space as a specialized elaboration of culture" (Hall 1966: 83). For geographers in this tradition, the main thrust of research has been, and continues to be, the demonstration that human spatial patterns vary cross-culturally or, in other words, that spatial behavior is

---

[4]Cf. Wagner and Mikesell (1962: 1-24).

culture-specific.

Turning now to the general field of sociological inquiry, it can be shown that anthropology and its sister science, sociology, have, from an historical perspective, approached the problem of human spatial behavior with methodological and theoretical biases not unlike those already associated with psychology and geography. For example, with their investigative roots firmly anchored in the highly deterministic attitudes fostered by culture-environment studies (e.g., Mason 1895), many early anthropologists focused their attention on the observed forms of human spatial behavior and the manner in which these have been affected by environmental conditions. Especially characteristic of this tradition in anthropology are the works of Kroeber (1932) and Wissler (1926). One very interesting consequence of this approach to human spatial behavior is the fact that any particular form of spatial patterning selected for analysis, although certainly dependent upon the society being investigated, was also felt to reflect that societies' evolutionary advances as well. For example, when discussing Kroeber's Cultural and Natural Areas of Native North America (1932), it is frequently pointed out that, for Kroeber, "The growth peak of a civilization

tends to coincide with a period of successful organization of culture content - that is, the organization of ideas, styles, and standards" (Singer 1963: vi). It remains, nevertheless, that regardless of its intent, this approach often presented a rigid and externalized view of human behavioral forms. Furthermore, these culture-environment studies have often resulted in a loss of much of the richness of human motivation and interaction.

Eventually, however, the tendency for many anthropologists (e.g., Boas, Radcliffe-Brown, and Malinowski) to carry on prolonged periods of fieldwork helped to shed new light on the intricate complexities peculiar to the social lives of the people being investigated. Through this, anthropologists came to appreciate the degree of interrelatedness between the many features which characterize the lives of any social group. Here, research was effectively conditioned by the notion that

> The discovery of the integrative function of an institution, usage, or belief is to be made through the observation of its effects on individuals, or their life, their thoughts, their emotions. Not all effects are significant, or at least equally so. Nor is it the immediate effects with which we are finally concerned, but the more remote effects upon the social cohesion and continuity.[5]

[5] Radcliffe-Brown 1932: x.

One early technique designed to gain this depth of understanding is found in close association with the early language studies of Sapir (1921) and Whorf (1936). Perhaps the most important feature inherent to this early technique is the increasing interest given to the possible relationship between human language and human thought and behavior. In other words, "We are thus introduced to a new principle of relativity, which holds that not all observers are led by the same physical evidence to the same picture of the universe, unless their linguistic backgrounds are similar" (Whorf 1936: v). Essentially, there appear to be basic hypotheses contained in Whorf's technique for language analysis: "First, that all higher levels of thinking are dependent upon language. Second, that the structure of the language one habitually uses influences the manner in which one is able to understand his environment. The picture of the universe shifts from tongue to tongue" (Chase 1956: vi).

Whorf's hypotheses encompass a more general theme which has been of interest to anthropologists for a number of years. Central to this theme is the notion of greater integration of the social sciences. In the field of education, for example, it has frequently been

pointed out that, "There is a great need for concepts in social science whose utility is not limited to a single discipline but which can be used by students of several social sciences in conceptual formulations of certain of their strategic problems" (Gross, Mason, and McEachern 1958: 325).

One recent, and perhaps major, contribution toward realizing such integration in the social sciences has been advanced by Pike (1958). Stimulated by the early language studies of Whorf and Sapir, Pike has very effectively combined several themes: (1) the difference between physical reality and the discrete classifications made of them by human beings; (2) the need to ground descriptions of cultural materials in terms relevant to these data; (3) the desire to employ the success of linguistic analyses in the analysis of other cultural data; and, (4) the need to fit both types of data into a common framework" (Pike 1958: 25-27). As a result of this contribution, Pike may be regarded as an instigator of one of the most thorough attempts so far toward a general understanding of human behavior. Furthermore, this approach, combined with an attention to proxemics (Hall 1968), promises the depth of analysis necessary to gain a more complete understanding of human spatial

patterning.

Turning now to recent investigations of human spatial behavior in maritime cultures, it appears that research has very often been carried out on two levels. First, research interest has focused on the question: Why do certain spatial patterns occur?[6] For the most part, studies which have attempted to answer this question have accepted the observed spatial patterns as givens and, following this, place greater emphasis on the discovery of those extra-environmental features (e.g., kinship ties, residence rules, marriage regulations, local history, technology, and others) which may be seen as affecting, to some extent, the spatial behavior exhibited by the society being investigated.

Second, it also frequently happens that investigations focus on the question: How do observed spatial patterns work? Here, several investigations[7] have attempted to determine the practical operation of observed spatial patterns by initiating their analyses from within

---

[6]This interest is especially evident in the works of Brox (1964); Edel (1967); Lofgren (1972); and, Ward (1967).

[7]Most notable of these are Davenport (1960); Forman (1970); Gould (1963); and Kozelka (1969).

the observed spatial patterns. The real value of this approach lies in the fact that it is possible to see that spatial patterning is a function, not only of the cultural background peculiar to any particular society, but also of the many relationships, activities, and emotions presented in any given situation (Hall 1968: 83-95). Furthermore, certain advocates of this latter approach, particularly Davenport (1960); Gould (1963); Kozelka (1969); and, Watt (1964), have attempted to fit their observations of human spatial patterning into a more encompassing theoretical framework, namely, the Theory of Games.[8]

Such an integrative approach to the analysis of human spatial behavior is an admorable undertaking and one which has been advocated for a number of years.[9] Today, such an approach is doubly important when consideration is given to the fact that "we live in a world of rapidly diminishing resources" (Erlich 1970: 2) where man's attention should be focused on the ef-

---

[8] The basic text, now revised, is John von Neumann and Oskar Morgenstern, Theory of Games and Economic Behavior (Princeton: Princeton University Press, 1953)

[9] cf., Levi-Straus (1953) where he suggests that the social sciences in general must become an integrated discipline.

fective management of the world's resources. Unfortunately, such reasoning does not always prevail, especially in maritime societies where it has often been noted that ". . . fishermen do not, as a rule, manage their resources, but rather manage space - that is, the points of privileged access to the resource" (Andersen and Stiles 1973: 34). At any rate, regardless of how any particular society manages its resources,

> In studying the social world we are in need of rigorous concepts. We must give precision to such terms as utility, information, proper behavior, strategy, equilibrium, payoff, bargaining, and many more. The theory of games develops rigorous notions for all of these and thus enables us to examine the bewildering complexities of society in an intirely new light.[10]

In summary, then, game theory was regarded by its originators as a mathematical technique especially designed for the quantification of social reality and social interaction, both of which involve, to some extent, competition.[11]

---

[10] Morgenstern 1969: vi.

[11] Unfortunately, this has not been the way game theory has been used in certain quarters. Rapoport (1962) offers an excellent explanation of the misuse of game theory.

The preceding discussion was intended as a means of acquainting the reader with some of the concepts which notions of territoriality invoke; the varied theoretical and methodological approaches used to investigate problems of territoriality; and, finally, some of the limitations peculiar to these varied approaches. Unfortunately, as I have tried to indicate, many social scientists, after collecting the necessary culturally relevant facts, have often lacked, or have failed to consider, conceptual frameworks of theory in which to examine man's adaptations to his environment, the alternative choices available to man, the manner in which certain alternatives are selected to the exclusion of certain others, and the logic behind these selections. The following discussion briefly outlines a course of inquiry and analysis for problems of territoriality - an integrative approach which has as its aim, not simply the disclosure of culturally relevant factors, but also the explanation, from within a broader theoretical framework, of the logic underlying the actual operationalization of those culturally relevant factors.

An Integrative Approach to Territoriality

Basically, the approach advanced here for the investigation of territoriality among lobster fishermen of Grand Manan Island is a composite which unites the findings of two seemingly disparate disciplines, linguistics and economics. Prior to any discussion concerning the actual application of this composite approach, it is necessary to establish the parameters within which each of the two disciplines will operate. By doing this, it is hoped that a much clearer picture of what is being attempted will emerge.

Unquestionably, language is one of the most important and characteristic forms of human behavior and, accordingly, it has always had a place in the academic world. As the social sciences developed, they often encountered language problems within their domains. Sociology and anthropology have each investigated language as one type of human activity and as a system interacting with society or culture. Today, as a result of these investigations, there are well-established techniques designed for the description and analysis of speech. Insofar as this study is concerned, any emphasis on the contribution made by linguistics could

be misleading. Actually, what is meant here is that the rigorous methodology used in semantic analysis will be put to use in the elicitation and organization of data peculiar to another human behavioral form - territoriality.[12] It should be recognized, however, that this linguistic approach to what might be described as extra-linguistic forms of human behavior is not, by any means, novel. In fact, this approach is commonly associated with the so-called new ethnography[13] whose practitioners advocate an approach to human behavioral forms which shares structural similarities with approaches already used for the study of languages.

Essentially, in the formulation of the linguistic approach to extra-linguistic forms of human behavior, the following principles derived from formal semantic

---

[12] Since the methodology inherent to formal semantic analysis, insofar as it applies to this study, is regarded solely as a means of acquiring and/or ordering data relevant to territoriality, little attention is given to the central topics of formal language analysis. At the same time, I wish to emphasize the importance of these topics and, with this in mind, refer the reader to the following works: Fries (1952); Gleason (1961); and, Pike (1954, 1958).

[13] Representative of the new ethnography are the works of: Conklin (1955); Frake (1961); Hymes (1962); and, Goodenough (1956).

analysis are regarded as significant:

> (1) phonology passes from the study of conscious linguistic phenomena to that of the underlying unconscious structure; (2) it refuses to take terms as independent entities, rather, it takes the relations between terms as the basis of analysis; (3) it introduces the notion of system and desplays its structure; (4) it aims at the discovery of general laws.[14]

In addition to this, Pike (1958) also has made a substantial contribution to the study of language by postulating a physical base for every linguistic event and, further, that each linguistic event is discretely structured in terms of smaller unitary events, or emic units.[15]

Using these principles for language analysis, it is felt that, in another order of reality, one phenomenon of non-verbal behavior -- territoriality -- is a phenomenon of the same type as linguistic phenomena.[16]

---

[14] Cf., Troubetzkoy (1933: 243).

[15] It is important to realize that "emic units refer to logico-empirical systems whose phenomenal distinctions . . . are built up out of contrasts and discriminations significant, real, accurate, or in some fashion regarded as appropriate by the actors themselves" (Harris 1968: 571).

[16] This notion will be treated in depth in Chapter 2.

The second portion of the composite approach advanced in this study advocates the use of the theory of games. Now, at first glance, game theory may not appear to have any value for investigations of territoriality. In fact, it would be presumptuous to argue that social or cultural forms of behavior contain any mathematical truths. On the other hand, it is not presumptuous to recognize that mathematics has, for several sciences, become a very useful tool in the conceptualization of the real world. With this in mind, I wish to point out that the mathematical techniques of game theory will be used only to harness reality and, in effect, have only to do with the models which can be derived from that reality.[17] Now, without going to great lengths to explain the models and mechanics of game theory,[18] the question may still remain: What makes game theory, or its models, applicable to territorial situations common to the Grand Manan lobster fishery or, for that

---

[17] That is, "The highest possible and conscious degree to which . . . chaos may be reduced" (Sturtevant (1964: 100).

[18] Since such an explanation would very likely be a study in itself, the models and mechanics of game theory will be presented only as they apply to relevant empirical facts within the framework of this study.

matter, to any other fishery?

In order to effectively answer this question, it must first be pointed out that "the theory of games was originally created to provide a new approach to economic problems" (David 1970: viii). Next, it must also be recognized that my study is written on the assumption that all Western fishermen, regardless of their cultural background or technological ability, are engaged in an economic activity. Consequently, although it has been pointed out that "anthropologists often disagree as to what constitutes an economic activity" (Salisbury 1968: 427), my study conforms to the notion that "stress must be placed on the means-strategy-end relationship" (LeClair 1964: 1179-1203).

Finally, as a supplement to my integrative approach for ordering and analysing data relevant to territoriality among the Grand Manan lobster fishermen, I have given particular attention to the chronological ordering of the contents of my study. This arrangement and its significance is as follows. First, attention is given to a variety of approaches which have been used to investigate the problem of territoriality in other empirical situations. As I have already indicated earlier, this section is included to make the reader cognizant of

certain significant factors which have contributed to my own approach. Second, consideration is given to the historical development of Grand Manan's lobster fishery. Here, I hope to offer the reader some understanding of events leading up to contemporary territorial behavior in the Grand Manan lobster fishery. Third, the reader is offered a reasonably inclusive ethnographic statement concerning the modern lobster fishing experience. Here, information is presented in the order in which it becomes significant to the Island fishermen during the course of their lobster fishing operations. This style of presenting factual data, aside from depicting lobster fishing from the point of view of the fishermen which, by itself is valuable, should also help to avoid any confusion between reality and explanation insofar as this study is concerned.

Fourth, the model(s) of game theory will be used to explain the logic which underlies the territorial behavior of the Grand Manan lobster fishermen. While I recognize that any analysis can be accomplished simultaneously with the presentation of ethnographic facts, I have chosen to include my analysis in a separate section. Essentially, there are two reasons for this approach: (1) I want to avoid any unnecessary connection

between game theory and lobster fishing, especially the notion that a knowledge of game theory can improve the success of fishermen; and, (2) I wish to emphasize that the correct application of game theory will not reveal the optimal course of action that an Island lobster fisherman should take when interacting with his total environment.

Finally, it should be recognized that my study assumes that fishermen, as exemplified by the Grand Manan lobster fishermen, during the course of their everyday activities, make the best possible use of the various means at their disposal in order to attain a desired end which, in the case of Western fishing people, is monetary gain. Needless to say, such gains imply success and, as this study will point out, territoriality plays a significant role in determining the level of success for each lobster fisherman on Grand Manan Island.

The Setting With an Historical Sketch of the Grand Manan Lobster Fishery

Grand Manan Island, the largest island in the Grand Manan archipelago, is situated in New Brunswick's Bay of Fundy at longitude 60° 45' West and latitude 45° 45'

North. The Island is 15.31 statute miles long and 6.7 miles wide and has a total land area of 60 square miles or 38,000 acres. In addition, Grand Manan is located approximately 6 miles from the southeast coast of the State of Maine, U.S.A., and some 26 miles from mainland New Brunswick, Canada.[19]

During the research period, i.e., the spring and summer of 1973, the population of Grand Manan Island was approximately 2500. This population, the majority of which is descended from the early Penobscot Loyalists who fled the American Colonies in the 18th century, is almost equally distributed among the Island's six fishing villages: North Head, Castalia, Woodward's Cove, Grand Harbour, Ingall's Head, and Seal Cove.[20]

The Early Lobster Fishery on Grand Manan Island

Historically, the residents of Grand Manan have always been involved in the lobster fishery. One account of the Islander's early involvement with lobster fishing

---

[19] The Canadian Hydrographic Service, Marine Sciences Branch, Department of Energy, Mines, and Resources, Ottawa, 1970.

[20] See map, Appendix A.

points out that

> Lobster fishing has provided at least half of the total income for the fishermen of Grand Manan for nearly half a century, and was an important food source from the earliest beginning of the community . . . Herring may come and go, groundfish may disappear for a season, but somehow lobsters continue, year after year, to sustain a large segment of Island activity . . . Throughout the earliest years of the lobster fishery, and as late as the 1850's, lobsters were so plentiful . . . that almost anybody could go wading at low water and pick up enough for dinner. No great value was placed on the fish . . . It was not uncommon for whole cartloads to be hauled up on the fields for fertilizer, after storms had driven them onto the beaches in great windrows.[21]

Unfortunately, this abundance of lobsters did not persist. The increasing demands of markets located primarily in the New York and Boston areas made lobster fishing on Grand Manan a lucrative business and by 1864 lobster canning factories were being built on the Island (Ingersol 1970: 8). This was soon followed by a succession of other plants that operated throughout the Bay of Fundy region, well into the present century. Needless to say, due to the increasing demand for the Island's lobsters, many new fishermen entered the Grand

---

[21] Ingersol 1970: 6-8.

Manan lobster fishery during this period. Gradually, it followed that this increased fishing effort reduced the Island's lobster stocks to the point where, in order to meet market demands, the first crude lobster traps were used in the Island's fishery during the late 1870's.[22] Normally, these early traps, the prototype of the trap(s) being used today, were baited with fresh or salted herring, crabs, sculpins, and other available fish, which was suspended in the traps in an attempt to lure the lobsters inside.

Now, at this time, although Grand Manan's lobster fishery was characterized by increased exploitative efforts, it remained that the early trap fishery was a lucrative endeavour. One Island lobster fisherman, testifying before a government commission on the state of Grand Manan's lobster fishery during the period from 1870-1900, reported that

> I have taken 80 of those old-fashioned traps and set them out in the morning,

---

[22] See Plate 1, Appendix 2. Also, while there is no documented evidence for the origin of the lobster trap in eastern Canada, it appears that the first traps used on Grand Manan were introduced from Nova Scotia (Ingersoll, personal communication).

> and hauled them at 11 o'clock that day, and I have taken 1,400 large lobsters out of them. There were no small ones; all our small ones would be 'counters'[23] now. Then I have had my dinner and gone out in the afternoon and hauled again and took 1,400 more lobsters out of the traps, making 2,800[24] in one day.[25]

In the wake of this successful trap fishery, lobster canning factories on Grand Manan once again did a flourishing business and, in 1885, the largest catch of lobsters ever made in Grand Manan waters, a total of 1,792,000 pounds, was processed on the Island (Ingersol 1970: 9). Once again, however, this high level of fishing success did not persist and, by 1918, the Grand Manan fishermen, as well as federal fisheries authorities, were very much concerned over the dwindling lobster catches.[26] Consequently, in an attempt

---

[23] Following Faris (1972), words, phrases, idioms, and sentences in single quotation marks are of Grand Manan usage. The term 'counter', refers to a legal-sized lobster in accordance with federal fisheries regulations.

[24] Compared with the average weight (1-1½ pounds) of a legal-sized lobster caught today, this man probably caught the equivalent of three tons of lobsters in a single day.

[25] Ingerson 1970: 10.

[26] In fact, as a result of this concern, experimental lobster hatcheries were constructed in the Maritimes until, by 1918, there were 14 in operation, though the success of this venture was quite limited and by 1923 all had been closed (Ingersoll 1970: 12).

to protect this valuable resource, canning operations on Grand Manan were curtailed,[27] the length of the lobster fishing season was regulated, size limits were imposed, and fisheries officers were hired to police the industry. In addition, lobster pounds were constructed as a means of storing live lobsters while waiting for shipment to market or, in some instances, while waiting for prices to improve. The fact remains, nevertheless, that even at this early stage of Grand Manan's lobster fishery, attention was being given to the need for effective management of the Island's lobster stocks.

Intermediate Years

The intervening period between the traditional Grand Manan lobster fishery and the contemporary fishery can, perhaps, be more fully appreciated by separating this period into two distinctive innovative

---

[27] While there are no documented reasons which clearly indicate why the Grand Manan canning plants were closed down, several Island residents suggest that the fact that little regard was given to the size of lobsters being used for canning purposes was a major reason.

eras.[28]

The first innovative era, which coincided with rapidly diminishing lobster catches and subsequent need for improved fishing methods, is distinguished by the introduction of the gasoline engine, adapted for marine use, to the Grand Manan lobster fishery.[29] Although "some of the old seamen, fishermen who had been brought up to handle canvas and who thought it the natural way to move small vessels, looked upon the first engines as works of the devil" (Ingersoll 1970: 14), it was eventually accepted by the Islanders that marine engines would give increased mobility to the lobster fishermen without their depending upon winds and tides. In fact, as one informant pointed out, "Oh, it (the marine engine)

---

[28] Although I have already indicated that, traditionally, emphasis was placed on the effective management and protection of Island lobster stocks, it appears that the so-called intermediate years are characterized by efforts which (consciously or unconsciously) seriously restricted continuing attempts to effectively manage Grand Manan's lobster stocks.

[29] According to several Island fishermen, the marine engine was first used in lobster boats during the First World War and, interestingly enough, these early engines were not suitably designed to allow boats to operate in reverse.

was a great thing! There wasn't so much work to fishing after that. Why, before, you never knew when you'd be getting 'in'.[30] Of course, there was a lot more breakdowns after that but, everybody soon learned how to take care of an engine" (M.I., personal communication).[31] In addition, it should be noted that the gasoline engine influenced a sudden change in the style of boats used in the lobster fishery.[32]

The major consequence of this change to larger, engine-driven lobster boats is the fact that the Island lobster fishermen were almost simultaneously forced to change their fishing strategies. Essentially, these changes consisted of setting out a greater number of lobster traps; the ability to exploit a larger marine area; and, the increased capacity to shift lobster traps from one location to another, depending on the movements of the Island lobster stocks.

---

[30]Like the majority of Western fishermen, the Islanders used the term 'in' to refer to their home port, community, or land in general.

[31]For purposes of anonimity, fictitious initials are used throughout this study to refer to particular informants.

[32]This change is evident when comparing Plates 1 and 5.

Ostensibly, these changes in fishing strategy can also be regarded as changes in the mobility of the Island lobster fishermen. This being the case, one interesting consequence of these changes in mobility is the fact that a high level of community consensus was soon reached regarding the need for restrictions limiting the movements of Island fishing boats. The need for such consensus should be obvious in light of the following remarks made by a fisherman who was active in the lobster fishery during this period,

> It (lobster fishing) was crazy when we first got engines in our boats. You'd always be running over somebody else's 'gear'[33] and you have to remember that everybody used tarred, hemp lines in those days. There'd be nothing but a mess when you 'fetched up'[34] in lines like that. Something had to be done, you see . . . I guess everybody just ended up fishing 'around home'[35] that seemed to work pretty good.[36]

---

[33] Although the term 'gear' is all-inclusive when used in reference to land-based activities, when it is used in situations similar to that described above, it refers specifically to trap lines which connect the buoy to the trap.

[34] Generally, this term implies tangled, snarled, knotted, and so on.

[35] A definite marine area over which members of a specific community held exclusive fishing rights.

[36] H.I., personal communication.

Now, in light of the preceding remarks, it might appear that the Island fishermen were simply indicating their concern for the decreasing lobster stocks and, consequently, were initiating local conservation procedures. However, such was not the case. Rather, restrictions on mobility were implemented as a reaction to exploitative activities which were physically, economically, and cognitively threatening. That is, increased mobility, as well as more sophisticated, efficient, and expensive technology, forced the Island lobster fishermen to range farther afield during their fishing activities. Naturally, this meant that certain portions of the Island's waters which had traditionally 'belonged' to residents of a particular community were now being exploited by fishermen from other parts of the Island, something which was practically unheard of in earlier days. Furthermore, this increased mobility, in conjunction with the fishermen's new-found mechanical advantages, caused significant disruptions in the social patterns common to the traditional lobster fishery. Essentially, this involved a lessening of inter-community dependencies which, until then, were of utmost importance in lobster fishing. For example, members of the same community no longer had to rely on their fellows for

help in setting or landing the heavy lobster traps. Similarly, men from the same community lost the security of fishing beside their neighbours as a defense against men from other communities. Conversely, members of the same community also lost the security of being able to observe the behavior of their neighbours.[37]

In effect, then, restrictions were placed on mobility in order to eliminate the possibility of economic aggression. Moreover, given the oft-expressed notion that things were better in the old days, it seems that, regardless of the restraints the Islanders placed on their newly-acquired technological means, these lobster fishermen were highly motivated toward perfected behavior and predictable responses which, from an economic and social point of view, make good survival sense. In fact, as one Island lobster fisherman pointed out,

> You'd be alright as long as you fished 'close to home' where your traps could be

---

[37] Observation is important in lobster fishing, either as a means of determining where the best stocks are located, or as a means of preventing other fishermen from removing lobsters from one's own traps.

> 'tended'.[38] If you started setting your 'gear' too close to . . . (a nearby community), for example, you'd be sure to lose it. . . Yes, everybody fished 'around home' in those days. It's different now, though. Everybody's into it (lobster fishing) and you really have to chase the lobsters to make a dollar . . . Well, mainly because you've got so much money tied up in it (fishing), I guess.[39]

Historically, it seems that the other so-called innovative era coincides with the years immediately prior to, as well as shortly after, the Second World War. During this period, particularly the years between 1938 and 1942, lobster landings on Grand Manan Island gradually decreased[40] while, at the same time,

---

[38] While the term 'tend' carries its normal meaning(s), it is also used by the Grand Manan lobster fishermen in referring to a particular class of people. For example, during the traditional lobster fishing period, members of one's own community, particularly kinsmen, could be counted on to 'tend' one's traps in the event that the owner was occupied elsewhere. Today, as well as during the years following the Second World War, kinsmen, neighbours, close friends, and others, regardless of their place of residence, will 'tend' one's traps. Of course, willingness or efficiency toward 'tending' another's traps is dependent upon individual motives, either good or bad. This latter point will be thoroughly discussed in Chapter 2.

[39] H.I. personal communication.

[40] Fisheries Statistics of Canada (1962) reported a catch of 241,000 pounds of lobsters taken in Grand Manan waters during 1938. This was regarded as a significant decrease when compared with the 363,000 pounds of lobsters landed during the previous year.

market demands remained high. It should be noted, however, that during this period, a large number of fishermen left the lobster fishery to serve in various branches of the armed services. In fact, during 1942 there was only half the number of lobster traps set in comparison to the number set the previous year.[41] Also, in somewhat the same fashion, the Island's herring and groundfish industries suffered similar reductions in manpower and production.

In order to overcome this sudden decrease in fisheries-related products and, at the same time, meet the increasing demands of international markets, federal and provincial fisheries authorities made rapid strides toward introducing marine-related technological innovations to Canada's fisheries. For the Grand Manan fisheries, and lobster fishing in particular, many of these technological changes offered very little in terms of production increases. For example, as one lobster fisherman pointed out, "There was a lot of talk about radar then, but not too many boats (men) could afford it.

---

[41] During 1941, there were approximately 31,000 lobster traps set around Grand Manan. The next year, 1942, there were only 17,000 traps set and a lot of men were missing when the season opened (J. D., personal communication).

Besides, radar can't help a man find lobsters . . . It's the same thing with depth-recorders; you can always find out what the bottom's like but you're not going to find any lobsters" (W. I., personal communication). Regardless of whatever contribution these technological changes did, or did not, make on the Island lobster fishery, it is of further significance that these innovations were completely financed by the fishermen themselves. At best then, new or changed technology was only available to those fishermen who had accumulated, or had access to, sufficient capital which they could invest in their operations, regardless of whether or not they felt that such changes were a worthwhile investment.

Immediately following the Second World War, however, the Fisherman's Loan Board[42] was established and this organization gave the lobster fishery the impetus

---

[42] According to C. D., a provincial director of the Fisheries Loan Board, this directorate was established in 1946 as a means of assisting fishermen in the purchase of costly boats and fishing equipment. Normally, funding is available to fishermen through their local banks at low interest rates with the New Brunswick government acting as guarantor of the loans. At the same time, government regarded this program as a means of enabling local fishermen to compete with foreign fishing fleets on the international lobster market.

it apparently needed. Generally, the market for lobsters was good during the post-war years and, with the re-entry of many fishermen into the lobster industry under the auspices of the Fisheries Loan Board, the period from 1945 - 1958 was marked by a steady rise in lobster catches for the Grand Manan area. It is interesting to note that, during this same period, the Grand Manan lobster fishermen began to exploit greater expanses of marine space. That is, in local terms, they began to fish 'offshore', as well as 'inshore'.[43]

This gradual shift towards increased mobility, accompanied eventually by more sophisticated exploitation methods, had an interesting effect on the Grand Manan fishermen's previously accepted notion that the most satisfactory returns could be realized by restricting one's fishing efforts to so-called community-exclusive portions of the Island's waters. Basically, the major effect which, as I have already indicated,

---

[43] These terms do not refer to distance in the general sense. Rather, they refer to specific regions of the Bay of Fundy which are seasonally inhabited by lobsters. A more precise understanding of these terms, at least in the geographic sense, can be gained by referring to the map, Appendix B.

was primarily due to the additional burden of having to repay substantial debts incurred while improving individual exploitative capabilities, was the fact that the Grand Manan lobster fishermen were forced to substantially increase the size of their yearly catch. Naturally, such increases could not be realized while continuing to operate within restricting community-exclusive waters. This is especially true when consideration is given to the fact that these fishermen now had access to larger boats; their mobility on water had improved substantially; and their fishing equipment was becoming highly sophisticated. As a result, the recognition of community-exclusive rights to certain portions of the Grand Manan waters, as well as any penalties imposed for disregarding those rights, ceased to exist in order that these fishermen could make maximum use of the technological means at their disposal. One fisherman, reflecting on this particular issue, pointed out that

> Things were pretty bad at first. There was all that gear in the water and everybody was getting 'fetched up' . . . You couldn't fish that way and expect to make any money. It straightened itself out after awhile, though. When everybody had that kind of money tied up in fishing, you couldn't afford to bother

> a man's 'gear' because he could always do the same to you sometime. Besides, you had to live with those people, you know.[44]

Quite simply, then, the Grand Manan lobster fishermen adapted to these innovations by emphasizing the utilization of their technological capabilities over all the Island's exploitable waters, a trend which was somewhat indirectly supported by several demographic features, namely, inter-community marriage, random residence patterns, localized services, and so on. For example, an individual who had married and taken up residence outside his natal community would, after a short time, become an integral part of that community. At the same time, however, he would retain his kin and friendship ties with members of his natal community which, to a great extent, allowed him the right of access to their waters without the penalty for aggressive economic behavior.

In summary, then, the Grand Manan lobster fishery can be seen as progressing through various stages. The first, the traditional stage, was characterized by an

---

[44] H.I., personal communication.

abundance of lobsters being exploited by means of labour-intensive efforts which, if for nothing but practical purposes; required a good deal of community solidarity. The second stage, which covers the period surrounding the two World Wars, retained much the same resource base which was characteristic of the traditional period. At the same time, however, the exploitation process developed into what may be described as being technology-intensive with a high degree of specialization in lobster fishing.[45]

It is with this historical background in mind that we now turn to a discussion which offers an in-depth view of the contemporary Grand Manan lobster fishery. The facts, as they are presented, reflect the manner in which the Island fisherman views his industry, the range of significant problems with which these fishermen are confronted while performing their daily tasks, and the manner in which they resolve these problems to their own satisfaction and to the satisfaction of others.

---

[45] Cf., Emile Durkheim (G. Simpson, trans.), The Division of Labour in Society (Glencoe, Ill: The Free Press, 1933). Also, Robert Redfield, "The Folk Society", American Journal of Sociology (1947), 52: 4, 293-311.

CHAPTER TWO

THE CONTEMPORARY LOBSTER FISHERY

The Local View of Lobster Fishing

Lobster fishing on Grand Manan Island is normally regarded, by fishermen and non-fishermen alike, as a single, unbroken activity which focuses on the relatively simple process of exploiting the Islands' available lobster stocks.[1] Perhaps the most obvious reflection of this simplistic attitude is seen in the fact that, unlike their counterparts employed in highly technical, land-based occupations, Island lobster fishermen are seldom the recipients of public recognition for their individual penchants toward certain tasks associated with lobster fishing.[2] For example, although such may

[1] Pike (1964: 54) raises a similar issue when he points out that native speakers tend to regard speech as a simple, verbal continuum. Further, this simplistic attitude which the Islanders have is not peculiar to lobster fishing alone. In fact, they usually refer to other fishing methods, some of which are more technically involved than lobster fishing, e.g., seining, scalloping, trawling, weir fishing, and others, as single activities.

[2] There is one notable exception. Men who are no longer actively engaged in lobster fishing are sometimes singled out for their ability to perform certain tasks in a more than adequate fashion.

be the case, it infrequently happens that lobster fishermen on Grand Manan are recognized for their special talents in performing such lobster fishing activities as: building, setting, or hauling traps; locating lobsters; using sea charts; operating fishing equipment; making repairs to fishing gear; selling their catch; and so on. Instead, these fishermen are likely to receive a more general type of public aclaim, if it can be called this, which closely approximates their present or past success in catching lobsters. That is, individuals who have had comparatively good success are simply referred to as 'highliners'.[3] At the same time, fishermen who have not had much success receive little or no public recognition. That is, they are not subjected to any sort of typological classification. Rather, people will simply remark that such an individual 'had a poor season'[4] or, 'They (the lobsters) just weren't

---

[3] A successful lobster fisherman, either at the community of Island level. In addition, the term 'highliner' can refer to success on a daily, weekly, or seasonal basis.

[4] That is, an individual's catch (1) did not compare favorably with others; (2) did not meet with his own or others expectations; (3) was severaly restricted by unforseen technical or environmental factors.

crawling for . . . this year'.[5]

Undoubtly, there are countless arguments which can justify the Islander's avoidance of publicly directing critical remarks at an individual's fishing ability. Generally, however, it seems valid to posit that such an avoidance guarantees acceptable and effective participation with others in the lobster industry. The truth of this statement is borne out by the fact that most Island fishermen readily agree that, "you can't tell about lobsters; some years they'll come and some years they don't. One year the lobsters were crawling to mud bottom and a lot of men 'had a poor season'. You just can't tell how many (lobsters) you're going to catch" (W.I., personal communication).[6] Furthermore, given the insularity of Grand Manan Island, the many varied intra- and inter-community relationships which exist due to such demographic features as marriage and residence patterns, plus the locally-held notion that

---

[5]This type of remark can be a subtle reference to a man's fishing ability since it carries the implication that others were successful. However, direct criticism is avoided by placing emphasis on 'they'.

[6]1966 was such a year when several long-time fishermen refused to depart from normal fishing procedure and, as a result, had a 'poor season'.

fishing is very often a somewhat precarious occupation, it does not seem unreasonable to assume that Island fishermen are aware of the many social, political, or economic repercussions which can possibly develop due to the public criticism of others.

This argument, of course, does not imply that any mysterious group consciousness exist for the Island fishermen. Rather, if there is any special formula governing their public behavior, it is no more than simply playing the game of life. In fact, as one fisherman was quick to point out, "It's hard to say too much about a man, you know. You can never tell when you might want him to do you a favor . . . You might want your engine overhauled, some traps brought in, or something else. You can't tell" (W.I., personal communication). Similarly, another fisherman noted that "You can't be too quick to criticise. You can't be certain what kind of season you'll have yourself. Besides, when you start talking that way, you'll have everybody on the Island fishing beside you . . . Well, they'll figure that you must be getting some lobsters if you can affort to talk that way" (G.I., personal communication).

Following this, there appear to be strong notions of self-interest attached to the avoidance of public

attacks on the fishing ability of others. That is, such avoidance is baited with premiums. For example, it is locally understood that when a fisherman makes derogatory comments about the fishing efforts of others he is, at the same time, saying something about the quality of his own efforts. Now, since all Island lobster fishermen are competing for a common resource, it is crucial that each man not disclose the particulars of his exploitative operations - this is especially so when those operations are successful. Moreover, since these fishermen usually carry on their lobster fishing activities in full view of each other, simple observation will soon determine whether or not such critical comments are warranted. If they are, the chances are that the outspoken fisherman's efforts will be duplicated by others and sharply increase. This being the case, it should be obvious that any outright criticism of others can only serve to attract unwanted attention to oneself - a situation which most certainly is not conducive to individual gain. In fact, as many fishermen readily point out, "you've got to be careful about what you say. If you start talking too much, you'll have half the Island fishing beside you". Furthermore, regardless of whether or not such criticism is warranted, it frequently happens

that fishermen who persist in exhibiting this type of behavior risk the public disapproval of others. Here, it most frequently happens that the everyday favors which Island lobster fishermen expect from their fellows will be withdrawn. More specifically, these fishermen-critics will not be in a position to enjoy such niceties of fishing life as: a guaranteed share of scarce lobster bait; the return of missing lobster traps or buoys; assistance in making mechanical repairs; access to conversations surrounding various aspects of the lobster fishery; and others.

Finally, this notion of lobster fishing as a single, rather simple activity receives reinforcement from the Island fishermen who frequently maintain that, "There's nothing to it (lobster fishing). It's just playing around . . . Anybody can lobster fish. All you need is a boat and a few traps".[7]

Congruent with their idea that lobster fishing is

---

[7] Most non-fishermen would interpret this kind of remark as being evasive or, at the very least, noncommital. For the Island fishermen, however, such a remark says much about how they regard their industry. That is, what might be called evasiveness has a definite purpose for these people - a point which will become clear further on in this section.

a single activity based on a rather simple exploitation process, the Grand Manan fishermen also expose their lobster industry as a highly complex activity which can be separated into several interrelated phases, each of which penetrates various levels of Island life.[8] Following this observation, it appears that these congruent views which the Island fishermen seem to have on their lobster fishery represent a disparate dichotomy which must be resolved. In fact, this issue is especially significant since the lobster fishermen themselves are not consciously aware of any apparent conflict arising as a result of their having a simplistic/complex view of their industry. In effect, then, this so-called disparity between the simple and complex nature of lobster fishing exists only at the level of analysis. At the level of reality, on the other hand, complexity blends with simplicity to lend a certain stability to lobster fishing. In order to shed some light on this problem,

---

[8] By drawing an analogy between speech and lobster fishing, my analysis will follow Pike's (1964) hypothesis that it is possible to postulate an underlying physical base for any verbal continuum. That is, the physical base of a sentence is revealed in its grammatical ordering of words, phrases, and clauses, each of which has its own distinct structure consisting of syllables, vowels, and consonants.

the complex side of lobster fishing must be discussed.

Insofar as the Grand Manan lobster fishery is concerned, notions of complexity only become aroused subsequent to close observation and comparison of the fisherman's verbal and nonverbal behavior. More specifically, after comparing what these fishermen say they do with what they actually practice, my argument for complexity derives from what first appears to be discrepencies between these two behavioral forms. For example, when consideration is given to the fact that the Islanders readily point out that, 'Nobody owns the water around here. We can fish where we please', the following implications about the Island's lobster fishery seem to apply: (1) no individual, or group of individuals, has exclusive rights over any portion of the Island's waters; and (2) agonistic behavior does not restrict the exploitative activities of these fishermen.

Keeping this response in mind, it is interesting to note that these fishermen do not enjoy the exploitative freedom that they imply they do. More to the point, fishermen are frequently observed avoiding certain fishing locations, regardless of the fact that other fishermen are obviously enjoying some measure of success in those same locations. Similarly, when asked to list

the more profitable fishing locations at any one time, most fishermen will cite certain locations and exclude others. In addition, it also happens that the use and/or perception of these profitable fishing locations varies from individual to individual, regardless of the fact that they are able to observe where the lobsters are most abundant. The following table represents a comparison between the locations which three fishermen perceive to be profitable and the locations where they actually set their traps:

TABLE 1.

Informant	Most Profitable Locations (perceived)	Locations Used
A	1, 3, 4, 7*	1, 3, 4, 8, 9
B	1, 3, 7, 10	1, 2, 4, 7
C	3, 4, 7	3, 4, 7, 8, 10

*Numerals refer to locations outlined on the map, Appendix A.

Closely associated with this distinction between use and perception, lobster fishermen very often will give a wide range of responses when asked where one of their fellows can be expected to set his lobster traps. That

is, at any one point in time, the responses of various fishermen will lack any degree of consistency; or more precisely, no two fishermen have mental images of how another man will behave which completely overlap. The information provided in Table 2 is a sample of such mental variability derived from the responses of three lobster fishermen who were asked to list the fishing locations where a particular fisherman might set his traps:

TABLE 2.

Informant	Locations Cited
A	1, 2, 3, 4
B	1, 2, 3, 5, 8
C	1, 2, 3, 8, 9, 10

It should be noted, however, that the set of assignments outlined above in Table 2 does not represent an inclusive list of all the locations this particular lobster fisherman can be expected to exploit. Rather, it is representative of the locations which three of his fellows consider accessible to him. An all-inclusive list can

only be obtained by questioning all the Island fishermen. Furthermore, the locations cited in Table 2 should not be regarded as the "correct" answers since each fisherman is basing his predictions on his own perception of the state of the Island's fishery, as well as generally observable facts. That is, one can assume that a particular fisherman will exploit a specific location but, at the same time, certain unknown factors might exist which make such exploitation rather dubious, if not impossible.

Given this set of circumstances, then, the questions remain: Why do these fishermen avoid exploiting obviously profitable fishing locations when they maintain that they are free to fish anywhere? and, Why is there such a degree of variability in the assignment of individuals to fishing locations?

It is difficult to itemize adequate rules for the Islander's dual and seemingly incongruous approach to lobster fishing. Essentially, however, such complexity and its rules derive from the fishermen's distinction between two spheres of the lobster fishing continuum, each of which is at once separate and related. Here, reference is made to the public and private nature of the lobster fishery. For purposes of clarity, it should

be recognized that these terms hold special meaning for the Grand Manan lobster fishermen. That is, in conversation, these terms reflect the speaker's perception of his own, and other's relationship(s) with those to whom he is speaking or refering. Now, since lobster fishing is primarily an individual effort heavily influenced by competition, the terms public and private are analogous to what has already been described as the fishermen's simplistic and complex attitudes toward the fishery. As such, it is my hypothesis that these two terms can be adequately employed to distinguish between two separate, but not unrelated, orders of fishing reality. On the one hand, the simple, public opinion which the fishermen share represents the manner in which they believe lobster fishing activities should be conducted. That is, simplicity reflects the ideal or normative model of Island lobster fishing. On the other hand, the more complex private opinions, which frequently vary from man to man, represent the manner in which lobster fishing is actually conducted on Grand Manan within the parameters of the shared, normative model. In other words, complexity (or variability) reflects the real or cognitive model(s) which each lobster fisherman

has of his industry.[9]

Given this understanding of the situation, then, simplistic and/or complex attitudes toward lobster fishing define the industry at the level of acceptable behavior. More to the point, Islanders can fish where they please because over the course of an entire fishing season such action is highly likely to occur. That is, at one time or another, each fisherman will very likely exploit all the available fishing locations. At the same time, however, certain fishing locations will be avoided, for a number of reasons, by particular fishermen during various times of the season. That is, all lobster fishermen do not share the same cognitive map of the fishery at the same point in time. In fact, it is essential that they do not. This is especially true since the sharing of a single cognitive model would make it necessary for all the Island fishermen to exploit the same fishing locations at the same time - a condition which, needless to say, would be neither physically nor economically possible. Essentially, then, what has,

---

[9]There is the possibility of a third view, that of the anthropologist which permits the building of a third model - one which exposes lobster fishing as a system in which all the fishermen participate.

at least up to this point, been referred to as the complexity of lobster fishing is, instead, a small portion of the many varied strategies which, in toto, combine to constitute the entire lobster fishing system at the level of rules of acceptability.

Following this, any simplicity or complexity which the Island fishermen appear to attach to their lobster industry can be regarded as a consequence of their actual, or expected, success as fishermen. For this reason, given the competitive nature of the fishery, it is not unreasonable to expect these fishermen to appear evasive or noncommital when they are publicly discussing lobster fishing. Similarly, it should also be expected that the complexities of the fishery will only be discussed privately, at some point removed from those individuals who are regarded as a threat to one's success. In addition, this reasoning also accounts for the fact that not all fishermen are aware of all the complexities of lobster fishing at the same time, as was evidenced by the data presented in Table 2 (p. 54). As a result, there is considerable justification for arguing that the lobster fishing continuum, like speech, is reacted to in a peculiar fashion. That is, lobster fishing is viewed by the Islanders as a sequence of separate events

but, at the same time, these same fishermen tend to ignore, for strategic purposes, the transition states between activities.[10] This observation, combined with the notion that "the most fruitful results are obtained by recognizing systems that cut across levels" (Duncan 1961), seem most appropriate for an analysis of the perception, organization, and manipulation of fishing space. As a result, Grand Manan's lobster fishery is presented as a system whose data can be organized according to three levels: (1) the normative; (2) the perceptual; and (3) the observational.[11] Furthermore, once one is cognizant of the principles by which the Islanders perceive and construe their world, it should be possible to reveal how they segment the significant from the insignificant, how they anticipate certain events, and how they delimit their strategies and select among them - each of which has a direct influence on

[10] Pike (1954) offers a complete discussion on the relationship between language and nonverbal behavior.

[11] Levi-Strauss (1953) points out that data at the normative and perceptual levels can collectively constitute a "folk" model and, as a result, it is difficult, if not impossible, to separate the two. My discussion is not concerned with any such separation. Instead, I employ these two levels of description to illustrate that consensual reality can be manipulated by individuals without transcending the norms of their culture.

their success as lobster fishermen.

With this in mind, the remainder of this chapter presents lobster fishing as a segmented form of behavior which cuts across the normative and perceptual levels of the industry. That is, lobster fishing is presented as an activity in which all the fishermen share the knowledge of the different phases of the industry, the criteria which determine the components fitted into each phase, sufficient understanding of these components to permit their being used to advantage, and the range of situations which permit individual fishermen to emphasize or ignore certain criteria or, in some instances, to emphasize or ignore entire phases.

Phase 1 - Entry into the Island Lobster Fishery

Normally, entry into the Grand Manan lobster fishery can be accomplished by satisfying two criteria. First, an aspirant must assure himself that a legitimate vacancy exists for him in the Island's fishery. Essentially, this requirement is due to the fact that the federal government, in attempting to maintain an exploitable lobster base in the Bay of Fundy, has discontinued its policy of issuing new lobster fishing licenses for the Grand Manan region. As a result, there are presently only two lawful ways in which an individual can enter the lobster fishery: (1) he can purchase a lobster fishing license from somebody who is retiring from the fishery; or (2) in some cases, he can inherit a lobster fishing license. Moreover, regardless of how a license is acquired, it frequently happens that Islanders also get the necessary lobster fishing equipment[12] along with their licence. In cases where this is not possible, or is not worthwhile due to the condition of the

[12] Since this equipment is fairly standard across the Island, no special attention will be given to individual items at this time. Instead, complete descriptions are presented in Appendix C.

equipment, an entering fisherman can make the necessary arrangements to procure his equipment elsewhere. For example, there are several Island residents who build lobster traps and knit fish-ways which are sold to the fishermen at a reasonable price. In addition, there are retail outlets located on the Island which sell lines, buoys, twine, etc., all of which are needed to completely outfit the lobster traps. It should be pointed out, however, that most of the Grand Manan fishermen simply purchase the rough materials and build their own traps, making any repairs when necessary.

When a fisherman does not have sufficient funds to purchase a large quantity of fishing equipment, he can very often make arrangements for financing with the local bank, or through a resident lobster buyer. In special cases when a large amount of capital is required to finance the purchase of a boat, most fishermen will take advantage of the services of the Provincial Fisheries Loan Board.[13] Here, low-interest loans are secured through the local bank and guaranteed by the Provincial government. In those cases when an individ-

---

[13]See footnote, p. 40, Chapter One.

ual avails himself of the services of the local bank, either with or without government approval, he is required to make no more than the normal commitment to repay the loan with interest. On the other hand, when financial assistance is secured from one of the Island's lobster buyers, the fishermen are expected not only to repay the loan but, also, to sell their catch to that buyer at the market price.

While such an agreement presents no financial threat to the fishermen, there are certain disadvantages which can accrue to them as a result of this lending practice. For example, it sometimes occurs that a buyer will finance the fishing operations of an individual who, for one reason or another, does not abide by the rules of lobster fishing. In the case of one such man, it was the shared opinion of the majority of the fishermen that,

> . . .(a local buyer) made a big mistake when he 'backed' . . . (an entering fisherman). He's put a full scale-basket of undersized lobsters 'ashore' every day. That's no good, you know. You're hurting yourself and everybody else when you start doing that.

Here, the fishermen who, as a rule, recognize the need

to protect the Island's lobster stocks, are expressing their dissatisfaction over the fact that a man who needed to be 'backed' (financed) was also keeping immature lobsters for his personal use. As a matter of fact, this particular incident was regarded with such seriousness that one fisherman actually confronted the culprit about the seriousness of his acts. It should be pointed out, however, that this confrontation took place during a "drinking" episode and, as such, can be regarded as a sanctioned deviation from the normal order of Island life. Moreover, this confrontation received additional sanction due to the fact that the outspoken fisherman is regarded as a 'real Grand Mananer', the kind of person who "seeks the rewards of membership in the local community" (Faris 1972: 106). Aside from the fishermen's concern for the protection of immature lobsters, there is another concern being expressed through this confrontation. Since many of the Island fishermen, at one time or another, exploit small numbers of immature lobsters, they are also expressing their dissatisfaction with the fact that this individual's acts might attract considerable attention to the behavior of the fleet as a whole. This is essentially important since the exploitation of immature

lobsters constitutes a criminal offense and, as such, is punishable by law. Usually, individuals convicted of this offense are prohibited from fishing lobsters during the first two weeks of the Fall season.[14] Since this period is the most lucrative of the entire fishing season, conviction could imply heavy financial losses for those concerned.

A similar disadvantage can be readily observed in the case of another individual who failed to abide by the rules which, in the case to be presented, are peculiar to the perceptual order of fishing life and, as such, impinge more directly on the fishing success of others, particularly on a day-to-day basis. In this instance, several fishermen frequently remarked that,

> I don't know why . . . (a buyer) put good money into running that boat . . . (a fisherman) hasn't been away from the breakwater all spring. When he was, it was just long enough to drop a gang of traps on top of somebody else's. That's all that guy's good for - chasing somebody else around.

Here, the fishermen's concern is not so much for the fact that the individual in question did not make a

---

[14] Normally from November 14 to 28.

concerted effort to go fishing and, hence, wasted the money loaned to him. Instead, this individual, when he did go fishing, did so without personally accumulating any knowledge about how the Island's lobster stocks were migrating. As a result, he was simply setting his lobster traps in locations where other men had already set theirs. Since the Islanders readily point out that, in order to be a good lobster fisherman, "You've got to 'tend'[15] your traps every day", this individual was viewed as violating the moral order of the fishing fleet. That is, by staying on the community 'breakwater' (wharf) a good deal of the time, this man took unfair advantage of his position to make observations of the size of other fishermen's lobster catches being sold to the buyers.

This type of knowledge, plus the fact that most lobster fishing operations can be readily observed from shore, enabled this so-called violator to base his fishing decisions on certain information to which he would not ordinarily have access if he fished on a regular, daily basis. More specifically, his rather

---

[15] i.e., attend to

irregular fishing behavior enabled him to correlate the size of other's fishing catches with specific fishing locations, an event which caused much concern among those fishermen who felt they were being unfairly observed. This point is most important since, as I will demonstrate further on in this chapter, many fishing decisions are based on observations made of other's fishing actions, regardless of whether or not any attempts are made to mask, or even conceal, these actions for strategic purposes. Of even further importance, however, is the fact that these observations are deemed most appropriate to the moral order of Island lobster fishing when they are made within the context of regularized fishing behavior. That is, by 'going to traps' every day, weather permitting.[16]

Finally, in connection with this particular violator's behavior, which might be termed parasitical, it should be recognized that such behavior can be regarded as deviant for the simple reason that it does

---

[16] Individuals who fail to exhibit acceptable fishing behavior are often referred to as 'Two-Islanders', an Island-wide term used to describe most forms of deviant behavior. Such usage conforms to Durbin's (1970) concept of language performance, as well as Faris's (1972) notion concerning outsiders being synonymous with deviants.

not add to the pool of lobster fishing information available to the rest of the fishermen.

At this juncture, it should be apparent that this violator is not conforming to the set of rules established by the majority of the fishermen. At the same time, nevertheless, it does seem that he is acting within a set of greater rules which are rather undefined in terms of the Island lobster fishery. In fact, this notion seems especially applicable since the violator is not punished for his actions. Now, while there are probably a great many explanations for the apparent acceptance of this individual's behavior, it is my contention that such acceptance is grounded in the competitive nature of the lobster fishery. This being the case, the violator's actions should be regarded as part of a behavioral continuum peculiar to lobster fishing. Essentially, this continuum consists of behavior ranging from the "ideal" or public, through the "normative" or private, to cases of actual unacceptable behavior.

Given this behavioral continuum, it is argued that the so-called violator, because of his method of acquiring information, is regarded by most fishermen as operating almost entirely at the public level. That

is, by operating from the 'breakwater', this individual is behaving somewhat like an "outsider".[17] As a result, most fishermen have a low opinion of his knowledge concerning day-to-day occurrences within the lobster fishery. This is due to the fact that, first, he lacks the practical knowledge which can best be obtained by facing first-hand the lobster fishing experience. Second, his land-oriented behavior is not thought to give the violator any particular advantage since, at best, his conclusions are based on what is very likely to be deceptive information. In this regard, one fisherman offered the following summary opinion, "If . . . (the violator) wants to hang around the 'breakwater' all day like . . . (a local fisheries officer), that's all right with me. He's not going to cause (me) any trouble there."[18] Similarly, another fisherman noted that, "Sure, I don't like it when . . . (the violator) follows me around like that. If I have to,

---

[17] As such, he is comparable to most outsiders who, the Islanders feel, know very little about lobster fishing.

[18] Like one particular fisheries officer who very seldom goes to sea in the patrol boat, this violator does not present a threat if his behavior is consistent.

I'll lead him around all day. He'll soon find out that you can't catch many lobsters that way . . . As long as he stays on the 'breakwater', I don't care what he does".

Simultaneously, however, since this violator has deep roots in the lobster fishing tradition, most fishermen are cognizant of his ability to gain access to the private sphere of lobster fishing. Furthermore, since such a move on the violator's part would constitute an increase in competition for a scarce resource, it is to the other fishermen's advantage not to publicly criticize his behavior. As one fisherman pointed out, "A lot of men will complain (privately) but, when it comes right down to really doing something about it, nobody says a thing . . . That's just the way people are. Everybody's just like a 'pack of gulls'[19]; they want everything for themselves". By taking this stance which, in effect, constitutes the sanctioning of deviant behavior, the rest of the fishermen may possibly increase their chances to exploit a larger share of the Island's lobster stocks. In effect, then, what might first appear to constitute a sense of community solidarity toward one

[19]Greed is synonymous with the behavior of sea-gulls.

of their members is, in reality, an adaptation to unconventional, but acceptable, behavior. Of course, the success of such an adaptation is dependent, not only on the increase in individual catches resulting from such sanctioning, but also, on the goals of those individuals being sanctioned. That is, the very act of increasing catches on the part of the fishermen may unleash feedback from the violator which creates instability in the lobster fishery. For this very reason, the ultimate stability of the lobster fishery depends upon the passivity or militancy of the majority of the lobster fishing community.

With this thought in mind, it is important to note that there is a point on what has been described as the behavioral continuum where deviant behavior does not go unpunished. In terms of the model presented in this discussion, it happens that punishment and/or corrective mechanisms are warranted when any divergence from normative behavior threatens specific fishermen. For example, where it is perfectly acceptable for an individual to <u>publicly</u> observe other fishermen selling their catch, it is potentially dangerous to make one's observations in an explicit manner. That is, it is perfectly all right to observe another's catch from a distance. On the other hand, fishermen do not attempt to handle another's catch, check the weight of a catch

openly, and so on. To exhibit such unlicensed behavior invites almost total exclusion from the lobster fishing fraternity. Essentially, exclusion for the Grand Manan lobster fishermen consists of non-cooperation which, at least in regards to the cases I am familiar with, seems to be sufficient to bring about the required change(s) in behavior. Here, individuals upon whom such non-cooperation is employed as a corrective mechanism are, until they adjust, denied the niceties of fishing life.[20]

Next, given these "ideal" criteria surrounding entry into Grand Manan's lobster fishery, plus some information regarding the fishermen's "normative" adaptations to these criteria, it remains that this entry phase has another component which complements the acquisition of a legal place in the Island's lobster industry. In fact, the existence of this second component should be evident from the fishermen's oft-heard remark that, "You just can't put your traps in the water and expect them to 'fish' (catch lobsters). You've got to 'tend' them too". Following this, it should be apparent that not only must each fisherman acquire a legal place in this fishery, but also each man must have some assurance that his entry offers him the

---

[20] Several manifestations of non-cooperative behavior have already been mentioned on p. 50, Chapter One.

possibility of realizing some economic gain. More to the point, since lobsters can be regarded as a means to this economic gain (i.e., financial profit), each fisherman must be in a position to make good use of the actions devoted exclusively to making lobsters available. In other words, each fisherman must have space in which to fish, regardless of the competitive patterns he ultimately establishes with other fishermen.

Traditionally, as I have noted in Chapter One, the Grand Manan lobster fishermen divided the Island's coastal waters into areas where exclusive fishing rights were held by the residents of particular communities.[21] Furthermore, men did not enter the lobster fishery unless they intended to operate in those waters allocated to the community in which they were residents. In the words of one fisherman who was self-employed in the industry over thirty years ago,

> "You didn't fish too far from home in those days. Everybody was kind of touchy about what they felt was rightfully theirs; they didn't want anybody cutting in. If you did, chance's were that somebody'd let you know about it . . . Why, they'd most likely cut off some of your traps just to let you know they meant business. If that didn't work,

---

[21] See map, Appendix A.

> they'd cut off all your traps. You'd know for certain then! . . . You'd never see traps from Grand Harbour set in Seal Cove Sound in those days - at least not like you do now. Things were a lot different then."

During more recent years, it seems that the economic risks peculiar to participation in a highly mechanized industry, plus the fact that inter-community relationships were increased, have brought an almost complete breakdown of these community-exclusive lobster fishing territories.[22] As one fisherman reasoned, "With all the gear and expenses we've got today, a man just can't afford to . . . around like they used to. You've got to be able to set your traps where the lobsters are. The fish (lobsters) won't come to you, you know. Not like they used to!" Further, another man pointed out that "the lobsters'll be out there. You've just got to go out and catch them. You won't get any lobsters around the 'breakwater'".[23] The real significance of these remarks is the fact that, while lobster fishing

---

[22] Today, some elderly lobster fishermen still abide by the traditional fishing boundaries. This fact has a functional consequence for others and will be discussed later in this chapter.

[23] In this context, 'breakwater' refers to the general area in close proximity to one's home port.

rights are no longer openly defended on a community basis, these fishermen are inferring that they still maintain "rights of a kind" over portions of their marine space. Moreover, the fact that spatial control is presently found in the form of highly mobile, individually controlled rights of usufruct is of little apparent consequence to the Islander's more fundamental concern that catching lobsters precedes economic gain. As a matter of fact, these present-day usufructuary rights, although publicly applicable to all the Island's coastal waters, prove to be somewhat restricted when viewed at a private level.

When the problem of spatial access (or the establishment of rights of usufruct) is considered together with the added problem of entry, it is essential to realize that one's intra- and inter-community relationships play an important role in determining one's port of entry, as well as his subsequent fishing success.[24] For example, it is still of some value for a lobster fisherman to operate from the same community in which he has established his place of residence. In cases

---

[24] This notion, which will be fully developed further on in this chapter, has already been alluded to on p. 52, Chapter One.

where this is not possible, for whatever reason, it is just as beneficial for a fisherman to be a former resident of that community or, in some cases, to at least have some kin or friendship ties there. By meeting any of these criteria, an entering fisherman has some assurance of being more readily accepted by the fishermen who are already established in that community's lobster industry. Very often, one's early, public acceptance finds form in the following ways: (1) the availability of practicable wharf space; (2) the capacity for selling lobsters to, or getting financial assistance from, one of that community's lobster buyers; (3) the opportunity to purchase lobster bait, especially during the Spring fishery when herring are scarce; (4) the return of missing lobster traps and buoys; (5) assistance in making repairs to fishing equipment; and others.

The existence of intra- or inter-community ties should not convey the notion that acceptance into a community's lobster fishing circle is an easy matter. Nor should it imply that, once public acceptance is established, a fisherman will necessarily be successful. One fisherman, in discussing the problems of entering the lobster fishery, noted that established lobster

fishermen will

> . . . talk a lot among themselves and maybe somebody'll say something to you. That's probably all it'll amount to. Once they see that you're not going to bother them they'll leave you alone. Some of the older men might say something; that's just the way they are. They usually come around after awhile. Take . . . (a new fisherman), for example. He had it hard when . . . (his father-in-law) first got him to come down here and fish. He's doing all right now. It's just a lot of talk mostly.

Usually, once an entering fisherman has made his intentions known, the more established fishermen will "try" this new man in order to determine his worth. For instance, such a test might simply consist of an established fisherman purposely tangling his trap lines with those of the new man. If the new man takes the time and patience required to untangle the lines without molesting the other's traps, he is making progress toward being accepted both <u>publicly</u> and <u>privately</u>. That is, his behavior indicates his willingness to act in a "normative" fashion by not disturbing the traps belonging to others from his community. In fact, most of the Islanders feel so strongly about this that they completely avoid removing another's trap from the water while in the process of untangling lines. "It doesn't matter

what you're doing. You don't get caught with another man's trap or buoy 'over your washboard'".[25] Furthermore, since this action will very likely be mentioned by that fisherman once he returns to shore, he can be viewed as verbally reinforcing his claim for acceptance. More to the point, he is telling those significant others that his fishing success will not abnormally affect theirs or, if it does, he will use more subtle and acceptable means.[26]

On the other hand, when a man interprets tangled trap lines as inefficiency on the part of others, he is inviting personal difficulty, especially if he proceeds to cut off the other's traps. Initially, his action might be subtly rewarded by a slight withdrawal of those daily favors which most fishermen come to expect. If he persists in exhibiting this kind of behavior, his reward will not be quite so subtle. Here, he can expect to find four or five of his own traps missing. In the event that there is any reason to

---

[25] On the deck of one's boat.

[26] Raiding another's traps for lobsters is sometimes used as a means to supplement one's own catch. The manner in which such piracy is carried on will be discussed later in this chapter.

suspect that his apparent aggression was accidental, the lobsters will be removed from a few of his traps but no damage will be done.

At this point, it should be noted that, should a man's public acceptance be guaranteed because of his relationships within a particular community, it does not always follow that he can expect to be similarly accepted on a private basis. Fishermen who openly attempt to profit from their community ties, while simultaneously violating local norms, can expect to meet with considerable opposition. That is, there is usually somebody in that community's lobster fishery who is in a position to very effectively limit the violator's chances of success. As one such individual pointed out,

> They'd better not start that business (raiding or destroying traps) around me. For every trap of mine they bothered, I'd be after two of theirs. I wouldn't care how far I had to take things. . . . If I had to, I keep on until there wasn't a . . . . trap left in the water! It's (fishing) hard enough (to make money) without that kind of thing going on.

Finally, once a man is accepted into a particular community's lobster fishery, it is generally understood by all the Islanders that he is in a position to gain

some return for his exploitative efforts. This being the case, it is similarly understood that he, because of his public association with that community, has no reason to further improve his chances for fishing success by privately, or surreptitiously, taking advantage of any existing ties in other communities. At one level of analysis, it can be seen that this understanding is closely associated with the more general notion of "an insufficiency of means without choice" (Polanyi 1978: 243).[3] For example, given the situation where lobster bait is scarce, plus the fact that one is dependent upon his ties in the community from which he fishes, it makes good survival sense to share one's abundance of lobster bait with men from one's own community.

At a second level of analysis, however, it appears that this concept of community-specific associative behavior is more closely linked with the notion of "a choice of means without insufficiency" (Polanyi 1958: 245). Before proceeding further, it is essential to note that, given the number of lobster traps (approximately 180) which each man sets and the wide geographic area over which these traps are distributed, it is virtually impossible for any fisherman to maintain constant and

effective visual contact with all of his traps at any one time. As a result, it frequently happens that two or more fishermen will establish "working" relationships with one another. This means that, when conditions warrant it[27], men will 'tend' each other's traps. In one such instance, a fisherman noted that, "I don't have to worry about anybody . . . around with my traps on the Wooster Shoal today . . . is fishing out there and he'll 'tend' them for me". Similarly, another fisherman related that, "I often call . . . on the radio and have him get my bait for me. It saves me a long trip in (to the wharf) and, just maybe, a few lobsters".[28]

Although these so-called 'tending' agreements normally occur between men from the same community, it also happens that men from different communities will establish similar relationships. Here while such behavior between men from the same community is commonly regarded as part of their public association with their fellows, such is not the case for relationships between

---

[27] That is, fear of raiding.

[28] Regardless of who the individuals are, these arrangements serve a functional purpose in terms of reduced labor and added security.

men from different communities, even though the end result may be the same. It is at this point that the notion of "a choice of means with insufficiency" becomes empirically grounded in Grand Manan's lobster fishery.[29]

As I have already indicated, spatial access must preceed economic gain in the lobster fishing continuum. However, at the same time, it is important not to lose sight of the fact that the transition between these two aspects of the fishery is based on the successful exploitation of lobsters. With this in mind, there are several reasons why Island fishermen are justifiably concerned about the development of inter-community 'tending' relationships. First, the most crucial factor restricting the exploitation of lobsters in obviously profitable fishing areas is the fact that traps cannot be properly attended to. For this reason, otherwise lucrative fishing locations are often avoided. However, once "working" relationships are established, this problem of 'tending' traps is removed. Furthermore,

---

[29] Depending on one's position in the fishery, the reality of this analytical construct can have advantages or disadvantages.

when these "working" relationships transcend community boundaries, it means that individuals are able to take exploitative advantage of areas which they would normally avoid. That is, as I see the situation, these relationships permit certain fishermen to gain a public foothold in another community's sphere of activity without first going through the normal stages of entry. Just as important is the fact that, if "outsiders" gain access to areas which they would normally avoid, they will very likely decrease the chances for fishing success by those fishermen already operating there. As one man noted, "We had good fishing in Two Island Harbour until . . . brought that fellow down. He dumped so many traps in there that you could hardly move (your boat) . . . What can you do? By the time you see what's happening, they're (the outsider's traps) gone and so are the lobsters". Similarly, another disgruntled fisherman pointed out that, "You wouldn't mind too much if they just set a few traps. Then, you'd be able to go about your 'business'[30]. It's when your own

[30]This man is expressing concern over the fact that he is unable to raid the "outsider's" traps, rather than that the traps are actually set where he is fishing.

neighbour is 'tending' them - that's what makes it hard (difficult)".

Second, depending on the migration patterns of the lobsters, it sometimes happens that, comparatively, certain inter-community relationships are more valuable than those existing at the intra-community level. When this happens, fishermen not suffering the same advantage often feel that those involved are making a profit at their expense. As one such unfortunate fisherman remarked, "I don't see why I should bother to get bait for that son of a . . . He's always hanging around Seal Cove. If you wanted something from him, you wouldn't be able to find him". It should be pointed out, however, that this same man had also established "working" ties with men in another community. The difference, as he saw it, lay in the fact that his relationships were not proving to be very profitable at the time.

These 'tending' agreements aside, the mere fact that an individual has inter-community ties and takes less-obvious advantage of them will often cause concern among other fishermen. Generally, the simple sharing of social amenities or mechanical expertise will be sufficient to raise the concern of others. One fisherman,

who took his boat to his brother's community for much-needed repairs, was greeted with, "You're a long way from Ingalls Head, aren't you? You won't get too many lobsters in here". However, as this individual later pointed out, these men were not overly concerned that he was using their wharf space or, more important, that he might decide to set some traps where his brother could 'tend' them. In his words, "That's just a lot of talk. They always carry on like that. There isn't much they could do if I decided to set some traps right beside their breakwater". Still later, however, this same individual noted that, "They really don't like anybody (from outside) coming around like that. They know what goes on and they're just giving fair warning. Besides, they know what traps I can 'tend'". In addition, this man related an incident, "When . . . gave me some of his old traps, he warned me that he didn't want to see any of them set in Seal Cove Sound". Following this, he went on to point out that, "The others (in the donor's community) wouldn't like that. They don't mind giving some traps away to an outsider but, they sure don't want to have to watch them (the traps) 'fish'[31]".

---

[31] That is, catching lobsters for an outsider when, under "ideal" circumstances, this would not be possible.

Given the distinctions which fishermen make between proper and improper "working" relationships and my subsequent analysis of each, it should not be assumed that such heterogeneity implies community solidarity. In fact, since the social anthropologist "is never justified in interpreting action as unambiguously directed toward any one particular end" (Leach 1954: 10), it is just as likely that the Islanders' emphasis on "community" or, more specifically, the public sphere of activity means just the opposite. More to the point, by sometimes discouraging "working" relationships from transcending community boundaries, these fishermen employ a "shifting" mode of production which permits them to more readily adapt to the national view of modern-day fisheries - one which regards lobster fishing as based on an individual mode of production operating within a free enterprise, market economy. At the same time, as I have previously indicated (on page 71), these fishermen recognize that the principles of free enterprise are somewhat dysfunctional in terms of catching lobsters (or making pecuniary gains). That is, while the imposed rationale of the market system may have simplified production, it very often has a disturbing effect on Island labor relations. Consequently,

any attempts by these fishermen to privately employ a wide range of social, political, environmental, and historical means can be regarded as adaptive "shifts" in an attempt to instill stability in their lobster fishing system.

Following this, however, the Islanders realize that intense preoccupation with these Island-specific means leads to the achievement of one set of goals (spatial access, increased fishing possibilities, larger lobster catches, etc.) by some members of the industry while, simultaneously, denying goal realization (pecuniary gain, government subsidies, improved technology, etc.) for others. Moreover, it is my opinion that this realization is accurately reflected in the Islander's attention to the public and private spheres of lobster fishing. This being the case, there seems to be considerable justification for stating that these fishermen sanction and/or disfranchise "private" working relationships. The mere fact that these relationships cross community boundaries is not singularly important. Rather, the additional fact that this type of behavior can be controlled within the framework of the public sphere of lobster fishing is also significant. Concurrent with their "shifting" mode of production,

the Island fishermen are also able to restrain the efforts of individual fishermen. The need for such control is best viewed in light of the assumption which Leach presents in his book, Political Systems of Highland Burma. In his attempt to combine the notion of maximization with a general theory of society, Leach points out:

> . . . I consider it necessary and justifiable to assume that a conscious or unconscious wish to gain power is a very general motive in human affairs. Accordingly, I assume that individuals faced with a choice of action will commonly use such choice so as to gain power (Leach 1954: 10).

Now, when taken superficially, power can be used to describe any individual fisherman's motives for establishing either inter- or intra-community "working" relationships (and, hence, economic gain). Consequently, the decision by other fishermen whether or not to sanction these relationships assures, as much as possible, the ultimate stability[32] of the Island's lobster fishing system.

---

[32] Note that the word stability here is used to refer to moving equilibrium as distinguished from the state form.

Given these criteria surrounding entry into Grand Manan's lobster fishery and the fishermen's manipulation of each, the following section presents a detailed account of the exploitation process.

Phase Two - The Exploitation Process

Once an individual obtains legal and community approval to participate in the Grand Manan lobster fishery, his paramount concern is with fishing efficiently and successfully.[1] Toward these ends, as I have already indicated in the previous section, each fisherman takes what he considers to be optimum advantage of his ability to manipulate consensual reality without exceeding the norms of Island society. For this reason, the following description of how lobsters are exploited, although it derives from both the "normative" and "perceptual" levels of fishing life, should be regarded as constituting a "folk" model.

Prior to this description, however, summary attention must be given to the relationship between efficiency and success in the Island lobster fishery. Essentially, this is important since it will empirically validate the need for individual manipulation mentioned above.

The Grand Manan lobster fishermen, like most contemporary peoples who competitively exploit marine re-

---

[1] It is important to realize, as I will point out later, that efficiency and success vary from man to man.

sources, have access to various mechanical means which supplement their culturally-acquired knowledge about lobsters and the surrounding marine environment.[2] Now, when this fishery is viewed in its purest economic form (by showing an interest in how the fishermen make the most intelligent use of the means available), it seems reasonable to assume that the correct combinations of mechanical expertise and local knowledge should assure each fisherman of a level of exploitative success which is directly proportional to the quality of lobsters inhabiting Grand Manan's coastal waters. Furthermore, when the density of the Island's lobster stocks remains constant on a seasonal basis, each individual's fishing success should be inversely proportional to the total number of fishermen participating in the exploitation process. That is, any increase in exploitative strength will correspondingly reduce the size of individual lobster catches. For example, during the spring of 1973, 145 lobster fishermen landed a catch totalling 250,000 pounds. On the average, this amounted to approximately 1,725 pounds of lobster per fisherman. Now,

---

[2]Ideally, all fishermen have access to mechanical technology and local knowledge.

given the economic premises just outlined above, if the number of participating fishermen is doubled, the average catch per fisherman will be reduced to one-half the original amount, or 863 pounds per man. Finally, since there has been no recent significant increase in the number of men participating in Grand Manan's lobster fishery plus the fact that it is virtually impossible to determine the density of the Island's lobster stocks, it should also follow that any notable rise or decline in individual catches can be directly attributed to each fisherman's overall effectiveness in combining mechanical expertise with local knowledge.[3]

Interestingly enough, while the hypotheses outlined above have considerable validity when deliberated over from within the framework of a national fisheries policy, it remains that these same hypotheses cannot effectively deal with the specific problems of production (or exploitation) at the level of Grand Manan's local lobster

---

[3]These same economic premises underly part of the federal government's policy regarding lobster fishing. That is, since federal authorities feel that improved technology, while helping to meet rising market demands, also can be partially to blame for declining lobster catches, certain steps are being taken in order to maintain an adequate resource base. Generally, this involves a limit placed on manpower, technology, length of season, and so on.

fishery. Very briefly, I would argue that this deficiency derives from attempts made by the national "polity" to posit a relationship between the livelihood process (lobster fishing) and a type of rationality (economizing) which I feel is not inherent.[4] To illustrate this deficiency, it can first be pointed out that any undue emphasis placed on the correct combination of mechanical means with locally-shared fishing knowledge also carries the implication that the Island fishermen are analogous to "hands on an assembly line". Now, although such an analogy might be appropriate when the Islanders are placed in some kind of national "collective" with other contributions to the Canadian economy, such is not the case when this fishery is viewed in isolation. For example, if one ignores the effects which natural conditions have on the density of the Island's lobster stocks, it remains that individual fishermen do not have the same degree of fishing success, either on a daily or seasonal basis. This fact is readily attested

---

[4] Pearson (1958: 307-318) makes a similar point when he states that ". . . the source of the error lies in having confused the functional requirement of adaptation to environment . . . with one of the modes of adaptation, namely, economizing".

to by the fishermen who frequently remark that, "It's difficult to say what kind of fishing you'll have. Some days you might have a big catch; some days you mightn't catch enough to eat". Furthermore, it must be noted that, should local fishing knowledge be distributed equally by all fishermen, any subsequent increase in the amount of technical means available does not, by itself, offer the guarantee of a corresponding increase in individual lobster catches. In fact, the fishermen who continue to set between 150 and 200 lobster traps (regardless of the fact that the legal limit is 375) are usually the most successful. At the same time, however, when some of these fishermen have comparatively poor catches, it must not be assumed that they have suffered a loss in technical expertise or local fishing knowledge.

Regarding these particular circumstances, most Islanders will readily agree that mechanical technology and local fishing knowledge have certain <u>functional limitations</u> and, as a result, cannot guarantee an equitable share of the Island's lobsters to each fisherman. For example, in one specific case, an Island fisherman remarked that

> Poor . . . has had some of his traps set around those rocks for the last three days

> and hasn't caught enough (lobsters) to make a decent meal . . . It's crazy, you know. . . . (another man) put a few traps almost in the same place and had real good fishing. You never know what to expect after you put your traps in the water. Sometimes they'll fish; sometimes they won't.

Of course, in this particular case, the speaker is assuming that both fishermen concerned have equal ability to 'tend' their traps - a fact that may, or may not, be true.

Turning once more to the second economic hypothesis which, after discounting the possible effects that natural conditions have on the density of the Island's lobster stocks, maintains that any increase in exploitative strength will result in a corresponding decrease in the size of individual catches, it must be emphasized that such an assumption cannot be applied indiscriminately. Moreover, this is especially true in the case of Grand Manan's lobster fishery where the exploitation process is not a mirror-image of production-line activities. For example, consider the following description of a situation in which the overall exploitative strength is significantly increased but, at the level of individual success (or production) there is very little, if any, change in the amount of lobsters caught.

During the latter part of May and throughout the month of June, most Island fishermen begin to make a concerted effort to move their lobster traps close to shore in order to take full advantage of their understanding of the migration patterns of lobsters. Generally, this collective behavior culminates in large numbers of lobster traps being placed in geographically small portions of the Island's coastal area. In fact, when this mass movement of lobster traps occurs, the fishermen will often exclaim that, "There's so many traps in there (along the shore) that you can almost walk to shore on the buoys!". Although, as I intend to point out later on in this section, such an intense concentration of traps in a small area is a sudden departure from the manner in which traps are normally distributed, it does not necessarily mean that individual fishermen will suffer from decreasing catches. In order to clarify this seemingly paradoxical situation, it is necessary that consideration be given to the following conditions which precede this mass movement of lobster traps.

First, since this congestion of lobster traps only occurs during the latter stages of the spring fishery, many of the Islanders have, by that time, adopted the attitude that, "It's just about time for the

traps to be 'up' (ashore)". Now, while rapidly dwindling catches commonly associated with the last few weeks of June are partially responsible for this attitude, it was also noted by several fishermen that

> A lot of the men just get tired of going out (to their traps) every day . . . They've made all the money they're going to for a while and they just want to get away from it (fishing) . . . Maybe they'll go to the mainland for a holiday, or something . . . A lot of the wives like to get away and spend some money . . . Besides, a few of the men like to take their families to Beulah (a religious camp located near Sussex, N. B.) for a few weeks.

In any case, regardless of the reasons, by moving the majority of their traps closer to shore, these fishermen are able to "get a few lobsters, if there're any to be caught"[5] and, at the same time, when the traps "aren't too far offshore, it doesn't take very long to get them 'up'"[6]. Furthermore, when these close-to-shore efforts result in very small catches,

---

[5]That is, the lobsters which have escaped the initial fishing efforts further offshore.

[6]Here, if lobsters happen to be in abundance, traps can be left in the water longer without worrying about getting them out before the season officially closes.

most men are of the opinion that they "missed them (the lobsters) anyway. All the lobsters are hidden in the rocks where you can't get at them with a boat" or "It's still too early. The lobsters still haven't started to crawl (inshore) yet". As a rule, any or all of these conditions preclude any intensification of the fishing effort. Generally, most fishermen turn to 'tending' their traps only two or three times a week. Moreover, some fishermen will even begin to remove their traps from the water during this period, regardless of how much success others are having.

Next, and often closely linked with the conditions described above, it should be recognized that, since many lobster fishermen take on another form of employment once the lobster season closes, each man must seriously consider the value of continuing to fish lobsters. For example, several Island lobster fishermen own shares in very lucrative herring weirs and cannot afford the luxury of wasting valuable time in an unprofitable lobster fishery. If they do, they increase the risk of not having their weirs prepared for the herring migration. As one such individual indicated, "At this time of the year, everybody's trying to get

a 'driver'[7] to their weir; out cutting weir stakes and brush; knitting the twine for their weirs; and so on. If you want the work done, you can't fool around".[8] Similarly, other individuals faced with the opportunity of obtaining employment in such areas as: the offshore fishery, local canning plants, the government ferry, machine shops and garages, and others, must also consider how worthwhile it is for them to continue lobster fishing.

Given these conditions which become most obvious during the latter stages of the lobster season, each fisherman is faced with the problem of making one of the following decisions: (1) he can take all of his traps ashore and commence his new occupation; (2) he can begin his new occupation and fish his traps part-time; or, (3) he can continue lobster fishing on a full-time basis. Now, while it should be obvious what effect departure from the lobster fishery during this

---

[7] A pile driver used to sink weir stakes into the ocean floor. During the spring of 1973, there were two 'drivers' on the Island.

[8] This is especially true since there are approximately 200 weirs around Grand Manan and a shortage of 'good' help.

stage will have on the overall success of those remaining, the same prediction cannot be made in the case of those fishermen who continue operating on a part-time basis. That is, it does not necessarily follow (from the second hypothesis outlined on page 92) that full-time fishermen will increase their production (or success) in direct proportion to any decrease in exploitative strength by part-time fishermen.

Here, it is important to realize that all fishermen who make the decision to continue fishing during the last two weeks of the season are risking being hampered by adverse weather conditions. Generally, this means being forced to remain ashore due to heavy fog conditions in the Bay of Fundy. As a result, fishermen are unable to: remove and catch from their traps; re-bait their traps; repair any broken traps; and so on. On the other hand, when fog limits the exploitation process, this can very often work to the advantage of the fishermen. That is, since federal regulations stipulate that lobster fishermen must have a "reasonable" (3 - 5 days) period of time for taking 'up' traps, the appearance of fog during the last week of the season almost guarantees these fishermen an extension of the season. Moreover, this extra week's fishing also offers

the possibility of catching lobsters. This being the case, regardless of the high concentration of lobster traps, or the departure of some men from the fishery, full-time fishermen have a definite advantage over those fishing part-time. Essentially, this advantage stems from their ability to closely observe the lobster migrations. As one fisherman pointed out, "It doesn't always pay to take your traps up too soon. Sometimes the lobsters'll just start to move inshore when the season's closing. . . If a man spends too much time working around his weir, or somewhere else, he might miss them (the lobsters)". Here, the individual in question could be hampered in two ways: (1) his other duties might prevent him from determining exactly how the lobsters are moving over the Island's shoal areas or, (2) if he is able to determine these migration patterns, his other duties may prevent him from regularly 'tending' his traps. In the latter case, 'tending' can refer to actually moving the traps to the best fishing locations or, in some cases, not being able to prevent other fishermen from raiding his traps.

The preceding discussion is not intended to suggest that all part-time fishermen risk diminished catches during this period of concentrated fishing

effort. As a matter of fact, some part-time fishermen are noted for making substantial increases in their catches during this time. For example, when referring to a certain part-time fisherman, another man pointed out that, " . . .'s had his best fishing during the last two weeks (of June). He's been going out early (approximately 4 - 5 a.m.) and hauling traps before he goes to his weir". Here, it should be recognized that the man in question is not only taking his own catch, but also helping himself to lobsters from other men's traps. This second kind of action is especially easy since very few men are on the water in the early morning hours. If they are, they would very likely be working at their weirs or, in some cases, fishing their traps some distance removed from this particular fisherman. That is, raiding would only be carried on against traps outside of the area of concentrated effort.

In summary, when the above circumstances, and others,[9] are fully accounted for, it remains that a concentrated fishing effort does not guarantee a decline in individual production. Unlike the assembly

---

[9]These "others" will be discussed later on in this chapter.

line where, given a consistent quantity of raw materials, any increase in production strength will cause subsequent decline in individual production, these fishermen are able to continue manipulating certain features of reality to their own advantage.[10]

Given this brief description of how the Grand Manan lobster fishermen uncharacteristically (in terms of federal economic policy) translate efficiency into success, attention will now be given to the various stages of the exploitation process.

---

[10]The fact that some fishermen increase production, while others do not, is the real "economic" issue here since total production means very little to the Island fisherman unless, of course, he is part of a group seeking concessions from the government, or some other outside agency.

Stage 1. Setting Lobster Traps

Generally, lobster traps are distributed over Grand Manan's coastal shoals in individually-owned 'gangs' which consist of from 5 to 30 traps each, depending on the expected productivity of each shoal area and each fisherman's exploitative abilities. In addition, since these traps must be placed on the ocean bottom, each is fitted with a 'trap line' which connects it to a highly personalized[11] polyethylene buoy floating on the surface. During the traditional fishery, these 'trap lines' were made exclusively from hemp which rotted easily, and as a result required frequent applications of tar. Similarly, the traditional wooden buoys soon became water-logged and usually had to be replaced at the end of each fishing season. Today, all the Islanders use the more durable nylon 'trap line'. The upper portion (the first 3 fathoms nearest the buoy) of this nyloy 'trap line' is lead-lined which reduces the tendency for trap lines to become entangled due to tidal action. Furthermore, since this lead-

---

[11]Each Island fisherman paints his buoys with a distinctive color.

lined portion sinks in the water, there is less danger that 'trap lines' will 'get caught up' in the 'wheels' (propellers) of fishing boats and cause unnecessary delays. The remaining portion of the 'trap line', which can be from 15 to 25 fathoms long[12], is pulled well below the surface by the trap's weight and does not present any danger. It should be noted, however, that when lengthy 'trap lines' are used on traps which are set in shallow water, the fishermen will coil up much of the lower portion of this line and attach it to the trap. By doing this, they avoid any possible obstruction from floating lines.

When placing their traps on the shoal, each fisherman 'runs a gang of traps out in a string'. That is, traps are set in an almost straight line between two land-based 'marks' (reference points)[13]. One so-called 'mark' is always kept directly over the 'stern' (bow) of one's boat and the other is kept in line with the stern. Furthermore, the traps are usually placed

---

[12] This variation reflects the varying depths of the shoals which these fishermen exploit.

[13] Trees, buildings, radio towers, harbour buoys, and so on, each of which holds a similar significance for all fishermen.

between 25 and 30 feet apart causing the buoys floating on the surface to be similarly placed. This kind of pattern has a two-fold purpose. On one hand, it can be seen as an attempt to take advantage of the fact that lobsters migrate in 'bunches' and, this being the case, it would be foolhardy to place one's traps too close together. On the other hand, this same pattern facilitates the actual hauling of traps which takes place later on. That is, since the buoys 'run' (float) with the tides, it is very important that they are placed in such a manner so as to reduce the possibility of the lines becoming entangled. Not only will this present a problem but, when traps are placed too close together, the fishing boats will be sailing over one buoy while in the process of hauling another. When this happens, it presents a time-consuming problem since traps can only be hauled from one side of the boat and any interference with the buoys will often lead to a fisherman having to make a complete circle in order to properly align his boat with the next buoy. Needless to say, this will cause a good deal of delay, to say nothing of one's possible losses in terms of production. This is especially true of those situations where a man's time is at a premium in regard to certain

shoals. For example, when traps are located in what is locally regarded as 'deep' (over 20 fathoms) water, the buoys for these traps are often pushed beneath the surface by the incoming tide and, as a result, are impossible to locate. As most fishermen readily point out,

> When you've got your traps set in water like that, you've got to be sure that you 'run your string' just right. Otherwise, you'll spend most of your time running around looking for buoys that are under water. . . Well, at best, you'll only have until half-flood[14] to find those traps and, very often, that's just how long it'll take. You can't spend time chasing buoys around!

Since individual fishermen do not have exclusive fishing rights to any of the Island's shoal areas, it usually happens that two or more men will have 'strings' of traps set in close proximity to each other. When this occurs, deliberate attempts are made to set one's traps in such a way as not to allow one's buoys to interfere with those attached to somebody else's traps. Here, the normal procedure is to leave a space equivalent to a boat's length between each so-called 'string'. Of

---

[14] That point in time when the incoming tide is half-way to reaching its greatest depth.

course, there are times when the fishermen find it impossible to follow such a pattern. This is usually due to any one of the following conditions: (1) the shoal area being exploited is small; (2) the fact that certain shoals are very rocky requires that traps be set in anything but a straight line, a procedure that minimizes the possibility of trap breakage; and, (3) a large number of fishermen decide to set traps on the same shoal.

In any case, regardless of the reasons which might underly this somewhat unconventional pattern of trap setting, when such action is necessary the Island fishermen adjust adequately, at least in a technical sense[15], to the situation. Essentially, this adjustment takes one of two forms. First, when overcrowding is a problem, those fishermen who arrive on the scene first will begin 'fishing' their traps by starting at different ends of their respective 'strings'. By doing this, they minimize the possibility of getting in each other's way. Second, in situations where the preceding

---

[15] As I have already indicated in the preceding chapter, those adjustments which have sociopolitical overtones are not always regarded as adequate but, rather, are simply the "best" one can expect under the particular circumstances.

action is regarded as insufficient, usually due to the fact that many fishermen have 'strings' of traps set very close together, latecomers to the scene will arbitrarily decide not to 'fish' their traps in that particular area, at least for the time being. This kind of decision is facilitated by the fact that, given the number of fishermen already in the area, no single individual has any reason to believe that his traps might be violated. Also, this type of crowding normally occurs only in those areas which are located close to shore and, as such, very seldom present any kind of problem as far as one's technical abilities are concerned. That is, one can fish in these areas without being overly concerned about tidal action, fog, dangerous rocks, and so on. This being the case, it is often to a man's advantage to leave 'fishing' in such areas until later and, instead, operate in areas which are less readily accessible.

In addition to the fact that the Grand Manan fishermen follow a common technical procedure while setting their lobster traps, it should also be recognized that they share a generalized knowledge of their lobster fishing universe. Furthermore, the possibility of success rests on each fisherman's ability to locate

and exploit lobsters during the regular fishing season which extends from November 14 to June 25. Toward these closely related ends, each fisherman sets his lobster traps on the basis of his accumulated knowledge pertaining to a variety of ecological and sociopolitical features peculiar to the local fishery.

On the ecological side of the ledger, each man possesses considerable knowledge concerning each of the following environmental features: (1) the location of each of the Island's coastal shoals; (2) the varying effects which certain ecological conditions have on the productivity of each shoal; and, (3) the migratory behavior of the Island's lobster stocks in relation to these shoals.[16]

With respect to the location of these shoal areas, a system of naming (see Map, Appendix A) is employed in order to distinguish one shoal from another. In addition, land-based reference 'marks' are frequently used as a means of determining the exact location of specific portions of any shoal. For example,

---

[16] Wilder (1957) has compiled a comprehensive report on the importance of these features with respect to the Island fishery.

> If (I) want to set a few traps along the northern edge of the Whooster Shoal, I just line 'my' bow up with the steel roof on the White Head church and keep those three trees on Two Island on 'my' stern . . . Oh yes, everybody does it pretty much the same way. You see, there's only so many 'marks' that you can use when you're out here. Besides, it doesn't really matter what marks you use since everybody can see where you're fishing. The main thing is to be able to get your traps set and catch a few lobsters before the next man!

Generally, the significance of using these 'marks' lies in the fact that they assure the fishermen of setting their traps only on the shoals. This is important since many shoals have deep troughs along their outer edges which can enclose a trap and prevent the lobsters from entering or, worse still, hold the trap and hinder its being hauled. More specifically, some fishermen use these 'marks' to identify 'slopes' (inclines) on certain shoals. This is important since the fishermen feel that lobsters, given the opportunity, "will always crawl 'uphill'"[17] and, as a result, most men try to set their traps along these 'slopes'.

---

[17] This notion finds support in the fact that lobsters, when dropped through the floor boards of a lobster boat, will make their way through the bildge water to the bow section - an uphill journey.

The facility with which this kind of knowledge is acquired is due to two aspects of Island fishing life. First, given the highly technical means (radar, sonar, depth recorders, echo sounders) which are available to many Islanders, it is an easy task for a man to accumulate this kind of knowledge. Furthermore, since many lobster fishermen have some experience in other types of fishing (seining, hand-lining, stern trawling, etc.), it often happens that many men bring knowledge acquired elsewhere to the lobster fishery. In fact, one informant noted that, "If I hadn't spent a lot of time 'fish-dragging' (stern trawling) around here, I'd have been 'lost' when I first started lobster fishing".

Second, regardless of whatever contribution technology has made toward locating shoal areas, it must be pointed out that over 80 per cent of the Island's lobster fishermen have carried on this type of work for at least 15 years. This being the case, it does not seem unreasonable to posit that those reasonably static features of their physical environment are firmly etched in their minds. Furthermore, given the geographical and social insularity of Grand Manan, all the lobster fishermen are native born, long-time residents of the

Island. This, plus the fact that entry into the fishery is restricted by government policy which makes inheritance singularly important as far as gaining a position in the fishery is concerned, ensures that much fisheries-related knowledge is transmitted over generations. As one fisherman indicated:

> Most of us got our start while we were still in school. Our old man'd give us a few traps and we'd set them around the shore. It was great sport; sometimes we'd even catch a few lobsters! . . . Oh yes, it's the best way to learn. You've got to like it when you're young. . . . Well, you learn all sorts of things: where the good places to fish are; what kind of bait 'fishes' best; when to move your traps around; and so on. . . . Later on, when we got older, most of us went with our old man, or got our own boat. Yes, I guess that's the way most men around here get their 'start'.

Not only is this environmental knowledge transmitted over generations but, in a sense, it is often somewhat restricted to certain groups of people which can have an effect on trap setting. Here, it is important to note that, from a total of 90 fishermen engaged in the Island's lobster fishery, over 60 belong to one or more of 14 extended families which are fairly evenly distributed among the Island's six communities. Ideally, residence in a community where one's kinsmen reside and

fish is the best guarantee of gaining access to environmental knowledge. The presence of significance of this type of behavior is especially evident in the words of one fisherman who, while remarking on the entry of a man from another community into his own community's lobster fishery, pointed out that

> The only reason he's (the entering fisherman) able to find his way around down here is because L..k (the man's father-in-law) lets him fish along beside him. . . . Sure, everywhere you look they've got traps set together. If he had to 'get by' on his own, he'd still be trying to find out where to set his traps. . . . Well, mainly because he's never spent much time around here before and wouldn't really know where to go. Learning that sort of thing takes time, you know. You just don't go out and learn everything there is to know in one day! That's just not the way things are done.

Here, it must be noted that this informant's remarks have a double meaning. First, he is drawing attention to the fact that the fisherman in question, who was already established in another community's communication network, is accumulating knowledge which is normally transmitted only within the informant's community. That is, while "you can't really keep a man out (of your community's fishery) but, at the same time, you don't have to make things too easy for him

either!". Furthermore, "Nobody'll say much to him (the newcomer) but they won't like it either. It's hard enough to make a living without everybody fishing 'right on top of you'!".

Second, and just as important, is the fact that, regardless of whatever knowledge this newcomer accumulates, the mere fact that he has established a very obvious "working" relationship with his wife's father increases his chances for successful fishing. Not only that, but the father-in-law is also increasing his chances for success. At the level of intra-community behavior, such relationships are regarded as unnecessary since, "Everybody's pretty much fishing in the same places anyway and, if a man needs help, he'll get it. When you start chasing somebody around though . . . . Well, people just don't like it". Here, the implication is that "when a man needs help, he'll get it", particularly when this help is of the technical variety. However, when two or more men are frequently observed making regular contact, either by radio or boat, during the course of their fishing operations, it is often felt by those outside this network of communication that more than simple technical aid is being exchanged. More to the point, there is every reason to believe that

these men are 'tending' one another's traps.

Following such a conclusion, it happens that a more thorough observation of the situation can lead to one of two interpretations, each of which has an effect on the trap-setting practices of others. First, men who 'tend' each others traps do so because they fear that their traps might be violated and, second, some men adopt this so-called 'tending' practice in order to less-dangerously violate traps which belong to others. In either case, the location of the traps being 'tended' has a good deal to do with one's interpretation of such behavior. For example, when 'tending' occurs in areas which are being exploited solely by men from one of the Island's communities, it is interpreted as a serious breach of conduct only by the men from that community who are not part of the 'tending' agreement. That is, since it is locally understood that "everybody (from the same community) will give a man (from that community) help, if he needs it"[18], there really isn't any reason to "keep chasing a man around". Moreover, when this happens, it is often thought that when men 'pair off'

---

[18]This notion has already been discussed in Chapter Two, pp. 50-52.

this way, they are ready to 'tend' any traps they can 'get their hands on'. In one such situation, a fisherman who had traps set in an area where two other fishermen were believed to be 'tending' each others traps showed his concern by noting that, "I don't trust either one of those b.....s! When they start acting like that, it's pretty hard to watch both of them and they know it. It's bad enough keeping 'track' of some of those S... C..... (men from another community) without having to worry about 'your own'".

The second interpretation of such 'tending' behavior is usually made when men from different communities exploit the same areas. In this case, the need for, as well as the danger from, 'tending' practices develops out of a fear that one's traps might be easily violated by others from one's own, or another, community. This fear is essentially due to the fact that most lobster fishermen have no public ties which, as far as lobster fishing is concerned, transcend community boundaries. As a result, "When you start setting your traps too far from home (i.e., where others from your community are fishing), you always run the risk that somebody's going to 'tend' them for you".

This lack of public cooperation at the inter-community level, and its effect on trap setting practices, reveals itself in other areas of the lobster fishery. For example, it sometimes happens that men from one Island community suffer a shortage of lobster bait. Now, when this occurs, men from that community very seldom take advantage of their ties (kinship or otherwise) in order to acquire sufficient bait. Rather, they conform to whatever their fellows do in the face of this shortage. Once, when such a shortage was inevitable, a man was offered some excellent bait by his niece's husband, a man who resided in another community. His response to this offer was, "Well, that's real nice of you, W..... I'd really like to have some good bait, but most of the men 'down here' (in his community) are going to use 'cuttings'[19] so, I guess I'll do the same". It should be noted that this refusal was made despite the fact that 'cuttings' are normally regarded as poor bait, plus the added fact that the man who refused the offer had caught very few lobsters during the past few days. Moreover, the man who made this offer later

---

[19] The heads and tails of herring which have been used for sardines.

remarked that, "Poor H...., He'd like to have that bait, but he wouldn't take it to save his soul . . . Well, he just wouldn't want anybody else (in his community) to think that he was getting ahead (of them)".

At any rate, when lobster traps are set in locations where they might be susceptible to intra- or inter-community violations[20], it is important that the owners of these traps have some assurance that their traps will be properly 'tended', either by themselves or by another fisherman with whom some kind of "working" relationship has been established. When intra-community violation is thought to be a threat, it is vital that any suspecting fisherman set his traps in such a way as to negate or, at least, minimize this threat. In an ideal fashion, this would best be achieved by avoiding those areas where a suspected violator is already fishing. Of course, this is not always possible since those areas are often regarded as being highly productive. When this happens, it is important that fishermen haul their traps in those areas first.[21] By doing this, although

---

[20]The fishermen do not discriminate in this regard.

[21]See this chapter, Section 3.

they might be wasting valuable time which could be put to use in other fishing areas, they effectively reduce the opportunities for other fishermen to violate their traps. Also, when they are seen to follow this kind of pattern over time, one of two messages is being transmitted to any potential violator. First, it would make little sense to violate traps which have already been hauled since the catch, if any, has been removed. Second, when only a few men have traps set in a particular area and one man follows the pattern described above for any length of time, it is possible that his actions serve to communicate his awareness of possible trap violations, as well as his intention to curtail such activity. Of course, there is considerable ambiguity in this kind of pattern since it can also mean that the solitary fisherman is assuming the role of violator.[22]

Finally, since these shoals are located fairly close to each other, plus the fact that these fishermen distribute their traps over as many shoals as possible, it usually happens that more than one man will be op-

---

[22]Since this meaning is most closely tied in with hauling traps, it will be more appropriately discussed in this chapter, Section 3.

erating in the same, or a nearby, area at the same time. This, in itself, does not remove the possibility that one's traps might be raided since there are ways in which trap violators can be disquised, especially during that period when only one or two men are hauling traps in the same area. In addition, however, each community has a group of fishermen who, unconsciously, limit the opportunities for trap violations. These are older men with a long history in the fishery who, on the whole, tend to limit their exploitative activities to those areas which traditionally were associated with their community. By doing this, they reduce the opportunity for a man to operate in those areas by himself. One fisherman who was exploiting waters close to his community with a good deal of success remarked that

> Well, I don't have to worry about those traps I've got set at Grand Hargour. I set them close enough (to home) so that I can just about count on somebody keeping 'an eye' on them for me. . . Well, mainly because three or four (older) men have been fishing there all spring and, this morning, the tide's just right for them to go in there and haul those traps. They'll have enough work there to last them most of the morning. That'll give me a chance to get out to some of my other traps and, by this afternoon, I'll have time to get those traps in Grand Harbour . . . Oh

> yes, there's always a few men (from one's own community) that you have to watch out for. That'll happen no matter where you fish. Most of the men down here are pretty good though. They won't bother you if you just fish away and mind your own business. It's not like that when you start setting your traps further out (from your community) though. Then you really have to be around to 'tend' your gear!

Next, as I have previously mentioned, since individual men are never publicly prohibited from fishing in specific portions of the Island's coastal waters, it frequently happens that competition cuts across community boundaries. Furthermore, given the peculiar nature of this fishery[23], Island lobster fishermen are actually faced with two types of competition. On the one hand, and closely paralleling circumstances in those areas close to their communities, each fisherman must remain cognizant of the fact that whatever area he is exploiting is also accessible to others. That is, everybody is competing for a common resource. On the other hand, given this ready access, each fisherman must also compete with certain others for the lobsters which his traps have already caught. That is, each man can

---

[23] See above, pp. 45-60.

not be assured of a catch until that catch is actually on his boat. It is at this point that one becomes especially aware of the insufficiency of the fishermen's accumulated environmental knowledge insofar as fishing success is concerned. In order to overcome this apparent deficiency, each fisherman must give close attention, on an almost daily basis, to the many, varying socio-political features peculiar to this fishery. By taking this kind of approach, although competition is not removed from the fishery, there is some assurance that it will be more equally distributed among all the fishermen, particularly those men from different communities who exploit the same fishing areas. Prior to any further discussion on this matter of competition, it is necessary to pay particular attention to another feature common to trap setting.

Since lobster fishermen are never really certain about the migration patterns of lobsters, traps are set, or re-arranged, on the basis of one's previous experience(s). Furthermore, since each fisherman is initially concerned with the resource, they normally will set their traps in areas which <u>should</u> be productive. Usually this is done by correlating one's past success(es) with specific shoal areas and, following

this, traps are distributed in direct proportion to one's correlations. That is, areas which were highly productive will receive a substantial number of traps, those less productive will receive fewer traps, and so on.[24] Moreover, when an area which is highly regarded is unproductive over a period of two or three days, it is usually abandoned. Similarly, when an area produces less than what was expected, exploitative efforts in that area are reduced, if not terminated. In any case, "If your traps aren't 'fishing' (catching lobsters), it's time to start moving them around. Sometimes, just moving a few traps from each 'string' is enough to make a difference!".

With this general pattern for distributing lobster traps in mind, and returning to the first form of competition mentioned above, it must be pointed out that the Islanders take certain steps which are designed to conceal correlative fishing knowledge. That is, given the limited number of shoal areas which are conducive to good fishing, plus the added fact that these fishermen frequently operate within visual range of each other, when the need for concealment (or the fear of competition) develops,

[24]These correlations will be quantified in Chapter Three.

most fishermen will "try to keep the others guessing (as to where lobsters are plentiful) even though everybody probably has a pretty good idea about what's going on".

There are several ways in which this kind of knowledge can be concealed (or managed) within the framework of setting lobster traps. First, when consideration is given to the fact that lobsters move in a very random fashion over a number of widely distributed shoal areas, it is important that the fishermen parcel out their traps over as many shoals as possible. When this happens, especially in conjunction with the added fact that it is difficult for several lobster boats to operate efficiently on the same shoal at the same time, it follows that the majority of fishermen who have traps set in the same shoal area, or nearby, are often prevented from directly observing the operations of significant others. That is, they do not have the advantage of watching a man add to, or subtract from, his 'string' of traps; place his lobsters in his catch barrel; and so on. More to the point, competition from such fishermen is minimized since they are forced to rely solely on their own correlative

knowledge or, at best, they can only estimate how successful another man is. This last point is especially important since, in many cases, two or more men who have traps set side by side very often do not share the same degree of fishing success. This being so, it also happens that they will not share the same cognitive map of that area, at least not in terms of correlative knowledge relative to productivity. In fact, many fishermen emphasize that

> Sometimes, it's better not to haul traps right beside another man. Suppose you get real good fishing and he gets 'skunked', the next thing you know he's going to dump a 'gang' of traps right on top of yours. I've seen that happen lots of times. Worse still, depending on who the man is and the kind of chances he gets, you might find out that he's fishing your traps too. Either way, you're not going to make much money.

Second, since perceptual estimates regarding the potential productivity of specific fishing areas usually vary from man to man, it often happens that, regardless of whether or not two or more men have traps set in the same area, they do not fish these traps at the same time. In part, this is due to technological differences. For example, consider the case where two men have traps set in a deep shoal area. One man might be using 15

fathoms of line on his traps while the other man is only using 10 fathoms of line. This being the case, it would be impractical for the latter fisherman to attempt to fish his traps in this area at high tide since his buoys will be 'running under' the surface. Following this, the two men in question will not have the opportunity to observe each other if the man using long trap lines chooses to haul his traps at high tide. Furthermore, many men will take advantage of tidal action to add to the number of traps in a 'string'. By doing this, they are, for a time, minimizing competition in that area. For example, one fisherman who employed this tactic noted that

> S... would just love to be able to find out if I'm catching any lobsters around The Hoss (a shoal), but I always make sure that I got out there when the tide's running at half-flood. That way, his buoys are all under water and he can't find them. . . . Well, there really isn't any excuse for him to 'hang around' if he can't find his buoys, is there? Besides, he can't afford to waste the time - those aren't the only traps he's got in the water!

Third, several fishermen operate from comparatively small fishing boats.[25] As a result, these men have

---

[25] Island lobster boats range in size from the 14ft. dory to the highly sophisticated 45ft. 'lobster' boat.

access to those shoals which are located very close to shore and are practically inaccessible to regular-sized boats. One man who fishes from a 24ft. boat noted that, "Sometimes I fish right in the 'woods'[26]. You don't have to worry about too many people bothering you there because there's always the chance that the tide'll push those bigger boats ashore". Also, in connection with what might be described as "technical limitations", there are several fishermen who persist in using hemp, or floating, trap lines. Now, as I have already indicated (p. 105), this presents certain hazards to boats. More specifically, "It just isn't worth running through that kind of mess and risk getting rope in your 'wheel' for a few lobsters. You'll just end up losing a day's work". In effect, then, what might be described as a less-sophisticated form of technology serves the highly useful purpose of limiting the observations of other fishermen.

Finally, given that lobster traps are normally distributed over as many shoal areas as possible in a deliberate attempt to take maximum advantage of the

---

[26]This term is synonymous with rock-strewn, coastal stretches of water.

lobsters unpredictable, migratory behavior, it also happens that these fishermen should and do vary, almost on a daily basis, the intensity with which they exploit any fishing area. In one sense, this practice is reasonable because it gives the fishermen some assurance that they ". . . won't miss them all, no matter how they're (the lobsters) crawling". However, when this practice of distributing traps is viewed in the context of the conditions described above, it also gives each fisherman some assurance that whatever knowledge he has accumulated regarding the productivity of specific shoals will be concealed from others for a short period of time, normally one or two days. As a matter of fact, most fishermen will readily agree that

> It's an easy matter just to pick up a few traps in those places where the fishing's been poor and put them on 'your' stern. After that, you can 'dump' (set) them when and where you please. . . . Well, some men'll set them on their way 'in' (to shore). Others'll just set them as soon as they find a place where they'll fish. It depends. Either way, you want to make sure that there aren't too many boats around when you do it. You don't want somebody 'steaming' along behind you doing the same thing! . . . Oh sure, there's plenty of men who'd do that. As soon as they see somebody adding a few traps to a 'string', they'll plug a bunch of their own traps in the same place.

Up to this point, I have dealt exclusively with how the Grand Manan lobster fishermen, by means of a variety of technologically-oriented, nonverbal gestures, or strategies, are able to conceal or manage individually-accumulated knowledge dealing with their correlations productivity. It remains, nevertheless, that competition also occurs during other stages of the fishery; and, this being the case, it is important to recognize that some of the strategies already mentioned above will be used during these other stages. In addition, since these other stages are conducive to face-to-face encounters, it frequently happens that verbal techniques are used to conceal fishing knowledge or, more specifically, to minimize competition.

With this in mind, attention will now be given to the second[27] stage of the lobster fishery.

---

[27] The word "second" is somewhat arbitrary since it has nothing to do with a fisherman's total exploitation process. Rather, it reflects a transition from one activity to another during that time when a man is operating in one fishing area. In fact, it should be noted that the first three stages of this fishery are repeated as a fisherman moves from area to area during his working day.

Stage 2. Hauling Lobster Traps

Like other stages of this fishery, trap hauling has certain mechanical means, each of which is designed to make human labor as easy and efficient as possible. For most Island fishermen[28], this technology includes a winch powered by the boat's engine, a single pulley, and a gaff. Furthermore, each piece of equipment serves a distinct, but related, purpose. More to the point, the gaff is used to pull the buoys from the water up to the 'washboard' (side) of the boat where the fisherman is able to handle them; the pulley, which is suspended from the boats' 'awning' (roof) directly over the 'washboard' and just in front of the winch, is used to keep the trap line from tangling; and, finally, the power winch is used to haul the heavy (50 - 75 lb.) traps up from the underwater shoals. Now, given this level of technology, it must be recognized that each fisherman follows a definite procedure when putting these mechanical means to work.

---

[28] Men who fish lobsters from a dory do not use a winch, rather they haul their traps by hand through a pulley. This is due to the fact that most dorys are powered by a small outboard engine which cannot power a winch.

The first contact that a fisherman makes with a lobster trap is through the buoy floating at the end of the trap line. This is done by means of the hand-held gaff hooking the buoy subsequent to a series of highly coordinated movements. Generally, since buoys, due to their lightness, tend to drift with the currents, it is important that they be approached by 'running' (sailing) against the tide. Not only is this a good way to make sure that the buoy is not going to drift out of reach of the gaff (which is from 6 - 8 ft. long), it also gives the fishermen some degree of certitude that they "won't be 'running' over buoys that haven't been hauled yet".

In any case, fishermen manoeuver their boats up beside a floating buoy, disengage the boat's clutch, and reach over the 'washboard' and gaff the buoy just at the point where trap line and buoy join together. When this is accomplished, the engine is set at 'fast-idle' (an increase in r.p.m.'s when compared with neutral) and the trap line is passed through the overhead pulley. In order to do this, the buoy and the first 2 fathoms of line are placed on the 'washboard', out of the way. Next, one 'turn' of the trap line is taken around the grooved wheel of the winch. As soon as this is done,

the weight of the sunken trap is enough to prevent the boat from drifting away from the 'string'. Sometimes, however, when the wind and current are particularly strong, the engine must be kept in gear. This prevents the boat from drifting and dragging the trap with it. This can be dangerous since the trap might get caught in some rocks or, worse still, the line might 'part' (break) and the trap will be lost completely.

Next, once the trap line has been placed on the winch, the trap will be pulled to the surface. As this happens, the men make certain that, as the line is pulled in, it is coiled on the deck where it will be unable to interfere with the trap. As soon as the trap comes to the surface, the fishermen begin to slowly engage the brake on the winch while, at the same time, decreasing the engine's speed. This is done in order to prevent the trap from crashing into the side of the boat.

Once the trap comes within reach, it is a simple matter to lean over the 'washboard', grab the 'becket' (a contrivance for securing the line to the trap) and, finally, pull the trap up over the 'washboard'. When doing the latter, special care is often taken to prevent the top of the trap from scraping along the side of the

boat. This is done for two reasons: (1) to prevent the 'door' (the hinged hatch) from being damaged or, worse still, to prevent this 'door' from opening and allowing the catch (if any) to escape; and, (2) "When traps are hauled upside-down, you always have to turn them over to get the 'door' open". Needless to say, when this happens there is some extra work involved, as well as a good deal of fishing time wasted.

Once a trap is 'landed' on the boat, its 'door' is opened and the catch, bait 'pockets' (mesh bags filled with herring and suspended in the traps to attract lobsters), and other accompanying marine life[29] are removed. As far as the catch is concerned, any lobster which does not measure the legal size (3 3/16 in.) is returned to the water. Similarly, female lobsters which are 'berried' (carrying spawn on their undersides) never constitute part of a fisherman's catch.[30] Usually, most fishermen can tell at a glance whether or not a lobster is a 'counter' (legal sized). Those which are doubtful are measured. In any case, once a lobster

---

[29] Kelp, sea-urchins, sculpins, periwinkles, dulse, and others.

[30] See the accompanying photographs in Appendix B.

becomes part of a catch, its crusher claw (usually the left) is closed by inserting a small wooden plug into the joint. This prevents the lobsters from mutilating each other while they are confined in the catch-barrel. Finally, once lobsters have been measured, plugged, and placed in the catch-barrel, it is important that they be covered with sea-water. This keeps them fresh until they can be sold later in the day to one of the local lobster buyers.

Bait 'pockets', whether or not they still contain bait when hauled, are always replaced by 'pockets' which contain newer bait. In most cases, these replacement 'pockets' are filled with bait at the end of the previous days' fishing. In addition, these used bait 'pockets' are always placed in a container, or thrown on the boats' deck, and will be cleaned and refilled later. Used bait from these 'pockets' is never thrown on the fishing grounds. Instead, it is accumulated during the day and discarded in an area where traps are not set. This practice is strictly followed because, "You don't want the lobsters going after your old bait. You want them going to your traps!".

The various types of marine life which often accompany lobsters into the traps can be categorized in

terms of their functional value to the fishermen. Useful types of marine life, which include crabs, sculpins, small codfish, and others, are used to supplement herring as lobster bait. In fact, during the traditional lobster fishery, there was a good market for many of these marine species. One older fisherman remembered, "One time, men used to buy crabs by the bucket for lobster bait. They'd go 'across' (to Maine) and buy them for fifty cents a bucket". Usually, when crabs are used as bait, they are simply cracked against the side of the trap and then dropped inside. In a somewhat similar manner, sculpins and codfish are cut several times and then dropped into the trap, although some men do prefer to put this type of bait in a 'pocket'. At any rate, the logic which prevails is that, "It's good to let the blood out so the lobsters will get a smell of it".

On the other hand, it is locally understood that kelp, dulse, and sea-urchins have no functional value as far as lobster fishing is concerned. This is due mainly to the fact that all three forms of marine life can very effectively "plug the 'fishways' (openings in the trap where lobsters can enter)", as well as add a good deal of weight to the trap. At any rate, regardless of the fact that most fishermen will agree that, "It's a waste

of time setting traps in that 'garbage'", it should be noted that such areas very often offer good fishing. In fact, during the spring of 1973, one man had his most productive week's fishing in an area where his traps were always covered with kelp. Of course, this individual complained of the extra work involved but, at the same time, he very logically pointed out, "You've got to take them (lobsters) anyplace you can find them!".

Normally, this very simple task of hauling, emptying, baiting, and re-setting a lobster trap takes a fisherman no longer than one minute to complete. It would be incorrect, however, to assume that the speed with which these tasks are completed has any direct relationship to their importance within the lobster fishing continuum. Rather, it will be argued that these tasks give the fishermen their only real opportunity to test the validity of their accumulated environmental knowledge. Furthermore, it will also be argued that the significance of these tasks is empirically grounded in the rather elaborate classificatory systems which these fishermen use to describe lobsters and bait during this stage of the fishery. The data presented in Tables 1 and 2 is systematic arrangement of these classificatory terms.

TABLE 1.

Lobsters

	1.	2.		3.
Location	In Water		On Boat	In Catch-Barrel
Referent term(s)	lobster	Legal	lobster counter marker 'money' couche* groundskeeper**	lobster counter marker 'money' couche groundskeeper
		Illegal	bob short rattler*** berried female****	

*A lobster which is missing one or both claws.

**A lobster which is much larger than average, usually weighing in excess of 10 lbs.

***A lobster which is just slightly less than the legal length (3 3/16 in.), hence the metal measuring device "rattles" when placed along its shell.

****A spawn-covered lobster.

From the arrangement of classificatory terms presented above in Table 1, it should be obvious that the Islanders distinguish lobsters on the basis of certain physical characteristics (viz., length, weight, sex, and loss of claws). More specifically, since traps cannot be observed while they are submerged in the water, any catch which the fishermen expect to get is simply referred to as "lobsters" (Column One). Once a trap is hauled and its 'door' is opened, visual perception permits them to characterize lobsters according to the various physical attributes mentioned above (Column Two). Essentially, such characterizations lead to the selection of legal-sized lobsters which constitute one's catch. Ideally, all other lobsters are returned to the water. Interestingly enough, it sometimes happens that the so-called 'rattlers' (Column Two, Part 4) are included in the catch. While this practice does not occur on a regular basis, some men will put between three and five of these lobsters in their catch-barrel. This is normally done only when the following conditions prevail. First, a fisherman must have a large enough catch (approximately 50 lbs.) so that these 'rattlers' will not be easily recognized by the buyer. Second, it is also important for the buyer to be the

kind of individual who "doesn't pay close attention to the lobsters he's buying". In the words of one man, "It's usually all right to put a few 'rattlers' in your barrel if you're selling to F.... . He doesn't pay much attention to what he's getting". Similarly, another fisherman noted that, "There's a few men who always put a few 'rattlers' in their barrels. It's okay for them; they're selling to their nephew and there's no way he's going to say anything to them!".

In fact, then, these groupings of classificatory terms can be regarded as contrasting semantic domains, each of which reflects productivity, or the lack of it. It is important, however, to point out that the significance of these classificatory terms (or domains) does not end here. This is especially true because the Islanders tend to associate the physical characteristics of lobsters with their migratory behavior. Countless times during the spring of 1973, men were heard remarking that, "It's a waste of time for me to set traps in <u>that</u> area; all I've caught there is a lot of 'bobs'"; "I'm going to move my traps from Green Island shoal. There's only 'bobs' and 'whore's eggs' (sea-urchins) there"; and, "It's really not worthwhile putting a lot of traps at Grand Harbour. As soon as you catch the

'groundskeepers', there's nothing left". Similarly, fishermen recognize that, after having caught a substantial number of 'couches', "The lobsters are striking" or, "They're finally starting to move inshore". Here, the logic is that intra-specific mutilation occurs when large numbers of average-sized lobsters are migrating together.

Following this, many fishermen openly express the opinion that, "You'll never find a lot of 'counters' and 'groundskeepers' in the same place". Also, "There's never many 'counters' where there's a lot of 'bobs'". Generally speaking then, these fishermen subscribe to the theory that lobsters, while migrating, tend to segregate themselves according to size. Furthermore, they maintain that this segregation is due to intra-specific predation. Such a theory finds considerable support in the fact that claw mutilation very seldom occurs when 'bobs' and 'groundskeepers' are caught together. On the other hand, such mutilations are very prevalent when large numbers of 'counters' are occupying the same marine area.

Keeping this local theory concerning the intra-specific segregation patterns of lobsters in mind, it happens that the many classificatory terms used to

describe lobsters are, in fact, also used by the Islanders as a strategic means of avoiding the disclosure of pertinent information concerning a body of locally-shared, but continually changing, environmental knowledge. That is, while every fisherman is aware of the fact that lobsters tend to segregate themselves in the manner described above, it also happens that not all fishermen are cognizant of <u>when</u> and <u>where</u> such segregation takes place. This is evident since two or more fishermen can exploit the same general area with varying measures of success. Furthermore, since the trap hauling stage is one of the few times when fishing boats are stationary, a condition which invites face-to-face verbal encounters, it is not unreasonable to postulate that the terminology presented above is purposely used to distort privately accumulated, environmental knowledge. The following verbal exchange depicts such distortion:

1st Man: How're they (lobsters) crawling today, John?

2nd Man: Oh, I guess the same as they are everywhere else.

1st Man: Yes. You're getting a few lobsters, are you?

2nd Man: Well, I wouldn't say I was getting <u>too</u> many lobsters. There's lots of 'bobs' around though. It seems that

every time I haul a trap there's a bunch of those little b.....s in it!

1st Man: Yes, sometimes that's the way it (fishing) goes. How'd you make out with those traps you've got set at Grand Harbour? I got a few lobsters in mine.

2nd Man: Yes, but as soon as you catch up the few 'groundskeepers' in there, there's nothing left to fish.

1st Man: Yes, that's probably so. There's an awful lot of kelp in there. Well, I've got work to do. I'll see you later.

In the brief conversation presented above, the precision with which lobsters can be readily categorized proves very convenient to the 2nd fisherman. By quickly changing the focus of attention from the general (lobsters) to specific ('bobs' and 'groundskeepers'), this man is, in effect, giving the first fisherman extra, unwanted information. At least, it should be unwanted since it will very likely be construed mistakenly as pertinent information. That is, if the first fisherman accepts these specific remarks as being valid, it is also likely that he will avoid exploiting, or avoid continuing to exploit, the areas being discussed. Similarly, if he chooses to interpret these same specific remarks as

purposeful distortions of the truth, he might very unwisely decide to exploit those areas. In any case, whatever the purpose behind the second fisherman's remarks, a more exact interpretation can only be made by closely observing his non-verbal behavior. Of course, this activity can also be used to distort information which might be communicated. In fact, one fisherman who expected a verbal confrontation similar to the one presented above remarked that

> Every time H.... and I are hauling in the same area, I know very well that he's going to come alongside (my boat) and try to find out if I've been catching any lobsters. . . Well, if he's been around (in the same area) for awhile, I sometimes leave all my 'counters' right in the traps and throw the 'bobs' overboard. After he's gone, I'll pull the traps and take out the 'counters'. . . No, of course you can't afford to waste time like that too often. Sometimes, when he's just about alongside, I'll throw a bunch of 'bobs' on his deck. . . Well, he can take it any way he wants to. I just hope he thinks that's all I'm catching!

In connection with the same problem, another fisherman remarked that

> I remember when I was fishing those traps at Grand Harbour last week; everybody figured that I was just fishing in there to clean up on the 'groundskeepers'. Well, if that's what they want to think, it's fine with me. What they don't know won't hurt

> them! . . . Oh yes, a few men asked me what kind of fishing I was getting. I told them just what they wanted to hear - that I was catching a few 'groundskeepers'. Just the same though, I was bringing in about 100 lbs. of lobsters every day and about half of them were caught at Grand Harbour! If they want to think I was catching those lobsters someplace else, that's their business. They can keep right on chasing around after lobsters and I won't mind.

In this latter case, it is important to recognize that most fishermen are of the opinion that these so-called 'groundskeepers' are found in such small numbers that they are hardly worthwhile exploiting. Furthermore, since these lobsters are normally found very close to shore (in places like Grand Harbour), most men feel that to exploit such areas is "like fishing in the woods".[31] As a result of this attitude, the fisherman in question took advantage of what might be described as the local logic of criteriality which distinguishes experiences on certain agreed-upon terms. That is, since it was already locally accepted that the presence

---

[31] Sometimes, a reference to the 'groundskeepers' in a man's catch reflects the low opinion others' have of his fishing abilities. This is especially true in the case of those few men who operate from dorys. For example, it frequently happens that when such an observation is made, somebody will laughingly remark, "I see you're catching up all the 'groundskeepers'. You're a 'mighty' (poor) fisherman!".

of 'groundskeepers' in the Grand Harbour area ruled out a profitable stock of 'counters', this man's remarks simply reinforced what others felt to be true. On a more general level, his continued association of 'groundskeepers' with Grand Harbour satisfied the fishermen's need for discreteness and specific differentiation.

Proceeding from this discussion concerning the significance of the various classificatory terms used to distinguish lobsters, it must be pointed out that the contrasting terms (Good vs Poor) used to classify lobster bait (Table 2.) serve a similar strategic purpose. With this in mind, it should first be recognized that the Islanders prefer to always use fresh bait in their traps "because it goes out (of the traps) faster". When asked to explain this more fully, the reply is usually to the effect that, "If the bait's not staying in the traps, it must be doing some good?'. Furthermore, when older bait is used, it usually lasts much longer in the traps. In fact, it is not uncommon to haul traps in which old bait has been used and find the bait 'pockets' almost full. Following this, however, it must also be noted that it is virtually impossible to correlate fishing success with type of bait used. During one

TABLE 2.

Lobster Bait

Species	Herring							
Perceived Quality	Fresh				Old			
Expected Behavior	Stays in Trap		Goes Out of Trap		Stays in Trap		Goes Out of Trap	
Expected Value	Poor		Good		Poor		Good	
Actual Behavior	Goes Out of Trap		Stays in Trap		Goes out of Trap		Stays in Trap	
Level of Success	Catch	No Catch	Catch	No Catch	Catch	No Catch	Catch	No Catch
Actual Value	Good	Poor	Good	Poor	Good	Poor	Good	Poor

entire week in the spring of 1973, fresh herring was impossible to get but the fishermen, all of whom were using old, salted herring for bait, did not suffer a decrease in their catches. This raises considerable doubt as to whether or not bait actually serves any useful purpose in lobster fishing, at least insofar as attracting lobsters is concerned.[32]

There are two reasons for this doubt. First, it is the opinion of many fishermen that, "The lobsters don't get much of a chance to eat the bait anyway. The sea-fleas always get it first". Second, many fishermen subscribe to the theory that lobsters only enter the traps to avoid intra-specific predation, a point that has already been hinted at above (p. 142). There seems to be some truth in this last theory since, although fishermen frequently forget to bait one or more of their traps each day, they do not appear to suffer any subsequent loss in production because of this. For example, in one particular case, a fisherman neglected to bait

---

[32] This notion finds support in the fact that some lobster fishermen along the eastern sea-board of the United States do not use any bait in their traps. Also, during the traditional Island fishery, most traps were baited with a single herring which, needless to say, did not remain in the trap for very long given the action of the tides and the sea-fleas.

two of his traps and, during the next day's fishing, caught more lobsters (four) in these two traps than he did in any other combination of two traps. Of course, when the suggestion is made to any of these men that they might be able to fish successfully without using any bait whatsoever, their usual comment is, "There's no way I'm going to take a chance like that. Besides, everybody'd think I was crazy. No sir, I'll just keep on fishing the way I am and take my chances".

Following this, the dichotomous terms "Good" and "Poor" serve two separate strategic purposes. First, since most fishing activities are based on prior experiences, plus the fact that lobster bait is a costly item (herring sold for 14 dollars per barrel in 1973), most men replenish their 'pockets' according to how the bait acted during the previous day. That is, if, in any particular area, fresh bait stayed in the traps and the catch in that area was poor, the bait will be classed as "poor" and, in preparation for the next day's fishing in that same area, 'pockets' will not be completely filled. Of course, when the perceived value of bait is "poor" but the catch is good, this bait will be re-evaluated as "good" and the 'pockets' will be filled again. Similarly, this kind of logic also applies to

old bait, or to any other species of marine life being used for bait. By making this association between bait and fishing success, fishermen are not only able to determine how much bait they must put in their traps, but also which areas are most productive and, as a result, should perhaps be 'tended' first. These facts are evident in the words of one informant who noted, "I don't think I'll put too much bait in those traps on the Wooster Shoal. The bait hasn't been going out there at all. Besides, I haven't been catching that many lobsters there, either": At the same time, however, it is very possible that another fisherman, when discussing his activities in the same area, might decide, "I don't think I have to put too much bait in those traps. They've been fishing pretty good the way they are". In any case, if production in this area goes above average (usually 1 lb. of lobsters per trap), both men will very likely decide to put "some extra bait in those traps since they've been fishing so good lately". Following this then, the "Good" - "Poor" dichotomy which describes lobster bait is based on production, as well as on whether or not the bait 'goes out' of the traps.

This distinction leads to the second strategic purpose for classifying lobster bait. More to the point, since individuals are very frequently asked about how their bait is 'working' (behaving), they must be especially careful that whatever response they make does not reveal their level of production. That is, if fresh bait can be correlated with success, most men, when asked, will reply, "Well, the bait seems to be going out of the traps, but the lobsters aren't too plentiful" or, "I don't know if that bait's as good as it should be. It doesn't seem to be going out of my traps very fast". Similarly, if old bait is being used, men will often remark that, "Oh, my bait's not too good. Just about every trap I've hauled has had about half a 'pocket' of bait still in it" or, "I'd like to get my hands on some fresh bait. This stuff isn't 'working' (going out) at all!".

With this in mind, it seems that the ambiguous fashion with which the terms "good" and "poor" are used really acts in much the same manner as static between a radio transmitter and a receiver. That is, since these terms are subject to continually changing, semantic interpretation, they are very influential in confusing a fisherman's interpretation of a situation. This is

especially so since fishermen very seldom ask a direct question and, moreover, very seldom give a direct answer. Consider the following exchange,

1st Man: Hauling a few traps, are you, Bill?

2nd Man: Yes, just working along. I've still got a few traps left to haul, though.

1st Man: How's that (fresh) bait seem to be working? Pretty good, isn't it?

2nd Man: Well, I don't know. It seems to be going out of the traps, but the lobsters aren't crawling.

1st Man: Yes, you can't tell how it'll (the bait) work.

In the preceding brief conversation, it is important to recognize that the first fisherman did not mention how the baited was 'working' in any specific area, although it <u>is</u> implied that he is concerned with the area where the second man is operating. As a result of this minimal inquiry, the second fisherman is able to make a very general response. That is, no mention is made about where the bait is 'going out'; nor is any mention made as to where this can be associated with poor fishing. The fact that the terms "good" and "poor" can also be used with a good deal of freedom of

choice permits each man to retain some control over his accumulated environmental knowledge. Of course, when a fisherman is confronted with a situation like the one presented above where he must choose to conceal, or reveal, his knowledge, it is important that the information he chooses to communicate is associated with unity. More to the point, the concept of information insofar as these fishermen are concerned applies not to individual messages (lobsters, bait, and so on), but rather to the situation as a whole (the entire lobster fishing process). Consequently, when it is a man's intention to conceal information, he must be careful to make the correct correlation between bait and production. If he is using fresh bait, which <u>should</u> be "good" since it 'goes out of the traps', he can do one of two things. First, he can confirm the freshness of the bait while, at the same time, bemoan the fact that he is not having much success. Second, he can continue to confirm that the bait is fresh, but he can also mention that it doesn't seem to be 'going out' of his traps. By doing this he is implying that the bait is not 'working'. Naturally, the same choices are present when old bait is the topic of conversation.

One might suspect that there is a degree of randomness in selecting this type of response. However, such is not the case. Since most fishermen very often operate within full view of each other, as well as having limited visual access to each others' fishing activities during conversations, it is important that each man give thorough consideration to whom he is speaking before giving out any information. For example, it would be disastrous to maintain that one's bait wasn't 'going out' if empty 'pockets' were left in full view. Similarly, one would never say that he was not being successful if others were able to observe him putting lobsters in his catch-barrel.

Following this stage of the fishery, each man sells his catch to one of the local buyers.

Stage 3. Selling the Catch

All lobsters caught in Grand Manan waters are sold to local buyers[33] who operate from lobster 'cars' (Appendix C) situated in the harbours of the various Island communities. Furthermore, each fisherman follows a pattern of selling exclusively to one buyer, usually a man who has established himself in the same community as the fisherman. There are three reasons for this. First, since every fisherman returns to his home port at the end of a day's fishing, there are very practical reasons why a man sells his catch there. For example, by doing this, the fishermen avoid any unnecessary sailing between communities. In the words of one man, "After fishing hard all day, you just don't want to have to chase all over the place trying to sell your lobsters. Besides, your day isn't over when you stop fishing. You still have to 'gas up' your boat, bait your 'pockets' for the next day, and so on".

Second, there are some fishermen who sell only to one buyer for more personal reasons. As one fisherman

---

[33] During the spring of 1973, there were seven lobster buyers on Grand Manan.

remarked, "I sell my lobsters to N..... because he's my nephew. I'd look kind of foolish if I sold to somebody else, wouldn't I? It's as simple as that". Similarly, there is a group of fishermen who sell their catch to one particular buyer because of their past association with this man in a local co-operative venture.

Third, some fishermen sell exclusively to one buyer because of an informal understanding which accompanies all financial agreements between fisherman and buyers. More to the point, when a fisherman establishes credit with a buyer, it is understood by both parties that the fisherman will sell his daily catch to that buyer.

Finally, it should be mentioned that the social and political nature of this fishery (which has already been described in the preceding stages) also has an effect on the selling patterns of these fishermen. For example, consider the case of a fisherman who is successfully exploiting an area which is very readily accessible to men from another community. If this man exhibits his success in this other community by selling to one of its buyers, he may very well be inviting economic disaster. This is especially true since several fishermen from that community might decide to intensively exploit that

area. By doing this, they would make it unprofitable for the fisherman to continue setting traps there. In addition, if circumstances permitted, these other fishermen might raid his traps, especially if he does not have a worthwhile 'tending' relationship with somebody in their community.

Similarly, even within one's own community, it is important for a man to sell his catch to a buyer who will not, either intentionally or unintentionally, reveal his success. As one fisherman pointed out, "I'm still selling my lobsters to N..... but, if M..... (the buyers brother) keeps hanging around the 'car', I'll have to stop. . . . Well, he watches every lobster I sell; then next day, he's out there setting traps right on top of mine".

At any rate, regardless of which buyer a fisherman sells his catch to, the price paid for lobsters always remains seasonally constant right across the Island.[34] At the same time, however, it can happen that these buyers indirectly influence the amount of a fisherman's

---

[34] During the winter months, the price increases because the demand for fresh lobsters is high and fewer Islanders are fishing.

profits. For example, one fisherman remarked that

> You know, I really don't mind helping R..... (a buyer) out by selling my lobsters to him. The thing is though, he's hardly ever around when you want him or, if he is around, he's not going to be much help to you. . . Well, I can't just stop fishing and come in to the 'car' when he wants me to. Besides, if you can catch him at the 'car', chances are he'll be out of gas or plugs; he won't have any bait; or something'll happen. No, there's just no way I'm going to chase around after him. When you start doing that, you're going to lose money.

Similarly, another fisherman pointed out:

> Well, it doesn't really matter who I sell my lobsters to, but take a buyer like N...., he'll always give you that extra quarter-pound or half-pound to even off (the weight of) your catch. There's lots of others who won't do that. . . . No, it doesn't make much difference when you look at things on a daily basis but, over the course of a whole season, that extra weight might add up to another unemployment stamp. . . If a man's just sitting around the house all winter, that extra stamp can mean a few more dollars coming in every week. Sometimes, those few dollars can make quite a difference.

Once the fishermen decide who they will sell to, they bring their catch to their buyers' lobster 'car' where it is weighed. Each buyer keeps a record of each man's catch and, at the end of a two-week period, the fishermen are paid. Here, each fisherman receives the

'going rate' ($1.30 per pound during the spring of 1973) for his lobsters. Of course, since most fishermen buy their bait, plugs, and gasoline on credit from their buyers, these expenses are always deducted from their gross earnings. Also, those fishermen who receive financial assistance toward the purchase of capital equipment (boats, traps, engines, and so on), will have a portion of this loan deducted from these earnings. It is interesting that this 'settling' of accounts, like most other features of the lobster fishery, is considered by the Islanders as a private matter. Following this, most men will park their cars in a line along the community wharf and wait in them alone until their buyer comes to pay them. In fact, some men would rather not do this. Instead, they wait until evening and then go to their buyers' home to 'settle up'.[35]

Finally, it should be mentioned that once lobsters are in the possession of a buyer, there are two ways in which they can be marketed. First, buyers who operate on a comparatively small scale place their daily pur-

---

[35] This low degree of tolerance of possible income inequalities coincides with the competitive nature of the actual fishing process.

chases in crates. These crates, each of which holds approximately 100 pounds of lobsters, are stored in sea-water under the lobster 'car'. As soon as a buyer has accumulated enough full crates to fill a 5 - 10 ton truck, the lobsters are shipped fresh to mainland markets, usually in New York or Boston.

Second, buyers who operate on a somewhat larger scale, which means having a 'pound' (Appendix C) where lobsters can be stored alive for long periods of time, will often keep some of the lobsters they purchase. The rationale here is that these 'pound' lobsters can be put on the market at a later date when they will command a higher price. Given this brief picture of the lobster buyers, the question very likely remains: Why do these fishermen need these buyers? or, more specifically: Why don't the fishermen market their lobsters themselves? The answer to this question lies in the very nature of the Island's fishery. First, buying lobsters has become a tradition with certain Island families. Consequently, members of these families, unlike others in the industry, have been able to accumulate the financial resources, as well as the market contacts on the mainland, which are necessary to carry on this type of enterprise.

Second, buying lobsters is a full-time occupation and, given the fact that most fishermen have a higher regard for fishing as opposed to a 'job on shore', very few fishermen ever become buyers. As one fisherman pointed out, "You can't buy lobsters and fish at the same time. Look at M....., he tried to do it and failed. . . . Why, he was chasing all over the place for everybody else and never had a chance to 'tend' his gear. There's no money in that".

Third, since any increase in the number of men buying lobsters on Grand Manan could very well mean a loss in income for those buyers who are presently operating there, it has happened that attempts by fishermen to market their own lobsters have been very effectively stopped. While the means for doing this can be many and varied, the following description of one such episode should serve as a case in point:

> Back in the early 1960s, two fellows and I decided to get together and market lobsters ourselves. By doing this, we felt we could sell to the mainland markets at a lower price and, at the same time, still make a pretty good profit. Of course, it would help that we'd be selling our own lobsters too. Well, the first thing we had to do was make sure that the markets were there. To do this, B... (one of the fishermen involved) got on the phone and called a few

> people he figured would take our lobsters. After they'd talked a bit about prices and how we'd get these lobsters to them, they said that they'd take all the lobsters we could ship. Well, we figured it would be 'clear sailing' after that but, by J....., I bet it wasn't two days later that those same men were calling us back and saying that our prices were too high. . . There wasn't one d... thing we could do. If we dropped our price any lower, we'd be losing money so we just gave up the whole idea. . . Come to find out later on, Mrs. H..... (a local buyers' wife) was the telephone operator when B... made all his calls. . . Sure, as soon as she heard what we were going to do, she told her husband and he got on the phone and undercut our price. . . No, that was it right there. There wasn't a thing we could do. If we'd had a 'bunch' of money, we might have been able to fight the b..... for a while.

Now, with this description of the various stages of the lobster fishery in mind which, it should be emphasized, involves the perception, organization, and manipulation of marine space, the following chapter attempts to show how the models and the mechanics of game theory can be used to harness the logic behind the empirical reality of the Grand Manan fishermen's territorial (or strategic) behavior.

CHAPTER THREE

The Selection and Use of Island Lobster Fishing Areas: A Game Theory Analysis

Very briefly, this section of my report attempts to offer a precise mathematical formalization of how lobster fishing areas are selected by the Grand Manan fishermen. Now, since substantive data peculiar to this fishery are regarded as a framework within which the mathematical apparatus of game theory can be made to fit, some attention must be given to the parameters of the games (conflicts) which exist in this fishery. This is especially important since, "Hypotheses are stated in mathematical theorems for the simple reason that they delineate the range in which a theorem is valid" (Read and Read, 1970: 351). Moreover, when the Island's lobster fishery is viewed in light of the various game theory hypotheses, there is every indication that two basic games of conflict characterize this industry.[1] First, and most obvious, is the fact that conflict (competition) occurs between each Island fisher-

---

[1] This proposition is directly opposed to Davenport's (1960) early assumption that this type of fishery is characterized by only one form of conflict, the two-person, zero-sum game.

man and the resource base which he is exploiting or, more specifically, a predator-prey game. Second, given the very active competition which frequently occurs between these fishermen while they exploit a commonly-shared resource, it appears that predator-predator conflicts are also characteristic of this fishery. Of course, it must be emphasized that this latter form of competition always takes place within the context of the former.

Following the empirical data already presented in the preceding chapters, there are several facts which emerge in support of this distinction and, as such, actually delineate the parameters of the two conflicts in question. Moreover, these facts, as they are presented below, are also congruent with the mathematical hypotheses which are used to explain them.

Predator-Prey Conflicts

First, in connection with this type of conflict, it should be noted that the Island's lobster stocks (the prey) act independent of whatever behavior the fishermen choose. That is, regardless of whether or not the Islanders fish, these lobsters will migrate

inshore during the spring and summer and move offshore during the fall and winter months.

Second, when the question is asked: Why do lobsters fall prey to the fishermen's traps?, there is considerable justification for arguing that lobsters and fishermen do not necessarily have opposed interests with respect to the outcome of the game. This argument finds some support in the fact that, while fishermen have no means of making visual contact with lobsters, it does seem that the lobsters have some facility for recognizing traps (R. Brinkhurst, personal communication).

Third, although it may not be presumptuous to assume that the fishermen regard their exploitative gains as a loss to the lobster stocks, there is a good deal of difficulty in substantiating the same premise with respect to lobsters. Given this, there is very little scientific basis for proposing a predicable two-way correlation between the actions of fishermen and the behavior of lobsters, at least insofar as game theory is concerned. Rather, it seems more likely that the behavioral activities of lobsters are predicated on a variety of biological and environmental factors such as: moulting periods; variations in water temperature;

ocean currents; inter and intraspecific predation; the search for food; and so on. This being the case, it is equally difficult to imagine that lobsters consider the alternative actions of the fishermen prior to choosing their own course(s) of action.[2]

In view of this, when consideration is given to the fact that von Neumann and Morgenstern (1953) clearly point out that the task of game theory is to expose the logic which underlies the selection of strategies in conflict situations, it is debatable whether or not the fisherman and the lobsters are even playing the same game. Instead, I would prefer to think that what has already been described as a predator-prey conflict is characteristic of the simplest game of all, the one-person game.

At this point, it must be clearly understood that there is very little that game theory can contribute in terms of a formalized solution for games of this type. The main reason for this inability to contribute lies in the fact that, while game theory can effectively

---

[2]Once again, this condition denies the possibility of characterizing such competition as a two-person, zero-sum game.

express the possible or probable consequences of a fisherman's actions, it is also a fact that the strategies which these fishermen employ against lobsters are made in ignorance of those consequences. That is, although the Islanders are certainly aware of the many courses of action available to them, they are unable to accurately estimate the payoffs resulting from those actions. Indeed, they are prone to generalizing about these payoffs. For example, "If they're (lobsters) crawling, these traps should fish" or, "I caught eight lobsters in these traps yesterday; I hope they fish as good today".

Under these circumstances, it appears that the basic philosophy behind playing this one-person game is determined by each fisherman: he can choose to view a fishing situation with optimism; he can choose to expect the worst; or, he can view the situation from somewhere in between. Furthermore, the ambiguous fashion with these fishermen regard bait[3] and lobsters[4] serves to support this notion of individual option.

---

[3]Table 2, p.148.

[4]Table 1, p.139.

At the same time, however, it should be noted that these ambiguous attitudes do not detract from the notion that, in order to play this game, each man must continually update his knowledge of specific fishing situations and select his fishing strategies accordingly. Nor should this apparent insufficiency of knowledge lead to the assumption that the fishermen possess little accurate information about their fishery. Rather, it simply implies that any assumptions they make concerning the payoffs of these one-person games lack consistency over any period of time. The evidence of this is found in the fact that fishermen will frequently add to the number of traps they already have in a profitable fishing location without any corresponding increase in their payoff. In other words, more intense fishing effort does not gruarantee larger catches. Now, when these inconsistencies are viewed in the context of one-person games, it is my hypothesis that they are supportive of the notion that the laws of chance play a major role in determining the payoffs in these conflicts. That is, the fishermen choose their strategies first and chance determines the rest, although each fisherman is aware of the relative possibilities in advance.

The problem still remains, however, to determine the manner in which these Islanders estimate the possible payoffs which might accrue to them as a result of selecting certain fishing strategies. As Davis (1970: 52) points out, "What is needed here is a mechanism that relates the goals of the players, whatever they are, to the behavior that will enable them to reach these goals. In short, a theory of utility". Essentially, such a theory of utility involves the use of utility functions (measured in utiles) which reflect the value a person assigns to an item relative to all other similar items.

In the Island lobster fishery, these utility functions are assigned to fishing locations and, since these utility functions reflect the fishermen's performences for various locations, they are revealed in the following form: number of traps per fishing location. Furthermore, these utility functions are purely arbitrary values as far as the fishermen are concerned and, as such, vary from man to man. In addition, these varying utility functions depend on each man's ability to take maximum advantage of his available means. Usually, when given the opportunity to exploit a particular

location, each man considers the following: his previous fishing success in that location; the intensity with which that location is presently being exploited by himself and others; the effectiveness of his various mechanical means; environmental conditions in that location; and so on. For example, a man with a small, manoeuvrable fishing boat would assign a higher utility function to an extreme inshore location than would a man with a larger, unwieldy boat when all other conditions are equal. Similarly, a fisherman who has had recent success in a particular location would very likely assign a higher utility function to that location than would a man who had recently been unsuccessful in the same location. Very simply then, when a man sets more traps in one fishing location than he does in another, it can be assumed that he is assigning a higher utility function to the first location. Of course, the conditions which give rise to this variation in utiles can have varying degrees of importance from location to location. That is, previous success might account for a higher utility being assigned to one location while, at the same time, a very rocky ocean bottom might force a fisherman to assign a smaller

utility function to another location.

It is important to recognize, however, that unlike the utility functions commonly associated with prizes awarded in an ordinary lottery, these utility functions which fishermen use have an intransitive quality about them. That is, fishermen are not restricted to assigning the same utility functions to the same locations each time they participate in this one-person game. This does not restrict the use of utility theory in explaining how the fishermen choose their fishing strategies, however. This is especially true since the fishermen have considerable control over the rank-ordering of their preferences, rather than having them ordered by some external power as is the case in a lottery.

By drawing on actual observations on one man's trap-setting operations over the course of two days' fishing, the tables presented below are a reflection of his expected payoffs in six locations, each of which is situated in one of two general fishing areas (see Map, Appendix A).

TABLE 1.

Area "A"

Location	Utiles
1.	6
2.	4
3.	2

TABLE 2.

Area "B"

Location	Utiles
1.	8
2.	4
3.	2

Now, since the data in these tables is drawn from actual fishing behavior, it is important to point out exactly what this behavior consists of. Initially, the fisherman in question was observed distributing a total of 50 traps in the two areas. In addition, it happened that 23 of these traps were set in Area "A", while the

remaining 27 traps were set in Area "B". Accordingly, this distribution pattern, which expresses an obvious preference for fishing in Area 'B", can be rewritten mathematically as the ratio 4½ : 5½. This ratio represents the weighted average utility function of the two fishing areas. That is, given the fisherman's knowledge of the situation, plus the role played by chance in these one-person games, there is a 50 percent chance of him being successful in Location 1, Area "A" (which has a utility function of 6). In addition, his pattern of distributing traps also shows a 25 percent chance of being successful in Locations 2 and 3 of Area "A", which have utility functions of 4 and 2 respectively. When the utility functions for these three locations are considered together, the utility of Area "A" is 4½. Similarly, the utility of Area 'B" is 5½. Following this, it remains to be shown how this fisherman distributes each areal allotment over the available fishing locations in each area.

Once again, this locational distribution pattern reflects the fisherman's expectations (preferences); however, this pattern can be more precisely formalized. For example, when distributing his 23 traps in Area "A", the fisherman set 11 traps in Location 1; 8 traps in

Location 2; and, 4 traps in Location 3. Similarly, when distributing his 27 traps in Area "B", this same man set 15 traps in Location 1; 8 traps in Location 2; and, 4 traps in Location 3. Now, insofar as these two areal patterns are concerned, the first can be expressed as the ratio 6 : 4 : 2 and the second as the ratio 8 : 4 : 2.

Given these distribution patterns, plus the fact that the Islanders normally expect to get a payoff of approximately one-half pound of lobsters per trap, the following payoff matrices represent this fisherman's expected outcomes when he fishes in Areas "A" and "B". Furthermore, although I have already argued against the possibility of lobsters playing the same game as the fishermen (p. 167), I have, nevertheless, considered the fact that they do affect the outcome of these one-person games. This is represented by the presence or absence of lobsters in each payoff matrix.

Area "A"

TABLE 3.

Fisherman	Lobsters	No Lobsters
Fishes	11½ ± n	- 11½
Does Not Fish	- 11½	n

TABLE 4.

Area "B"

		Lobsters	No Lobsters
Fisherman	Fishes	$13\frac{1}{2} \pm n$	$-13\frac{1}{2}$
	Does not Fish	$-13\frac{1}{2}$	n

When attention is given to the payoff matrices shown above, it is obvious that outcomes are represented as either negative or indeterminate sums. This is done for the following reasons. First, since the laws of chance play a major role in determining the payoffs in these one-person games against nature, there is no accurate method for estimating how much a fisherman gains by not fishing in an area where he does not expect to catch lobsters. Hence, payoffs under these circumstances are represented by n.

Second, when lobsters are present in an area where a man sets his traps, the same indeterminateness exists. As a result, his payoff here will be represented by his expected outcome ($11\frac{1}{2}$, $13\frac{1}{2}$) plus or minus n.

Third, when a fisherman sets traps in an area (or

location) despite the fact that he does not expect immediate success, it can only be assumed that he will lose according to his expectations. In Tables 3 and 4, these losses are represented as -11½ and - 13½.

Finally, when a fisherman's payoffs differ significantly from what he expected, it is necessary for him to re-evaluate his situation(s) and act accordingly. Of course, this means that he will arbitrarily assign new utility functions to his fishing locations and, this being the case, his trap-setting patterns will change. Consequently, it can also be expected that a mathematical formalization of his new strategy selections will change proportionately. For example, consider the case where the fisherman in question exceeds his expected payoff in Area "A" by catching 14 pounds of lobsters while, at the same time, fails to get his expected payoff in Area "B" by catching only 11 pounds. Furthermore, let us suppose that Location 1 in each area is responsible for these differences.

Given these outcomes, the preference for Area "A" over Area "B" can now be represented by a ratio 5½ : 4½. That is, from his total of 50 traps, the fisherman now sets 27 traps in Area "A" and 23 traps in Area "B". In addition, the areal allotments will be distributed in

the ratio 8 : 4 : 2 and 6 : 4 : 2, respectively.

Following this, the payoff matrices shown below represent the fisherman's new expected outcomes:

TABLE 5.

Area "A"

Fisherman	Lobsters	No Lobsters
Fishes	$13\frac{1}{2} \pm n$	$-13\frac{1}{2}$
Does Not Fish	$-13\frac{1}{2}$	n

TABLE 6.

Area "B"

Fisherman	Lobsters	No Lobsters
Fishes	$11\frac{1}{2} \pm n$	$-11\frac{1}{2}$
Does Not Fish	$-11\frac{1}{2}$	n

Naturally, situations in the Island lobster fishery are not always this simple. Very often, these fishermen discover that many of their expected payoffs are incorrect. When this happens, they compensate by removing

traps from unproductive locations (or areas) and setting them where they expect to have more successful fishing. As a result, payoff matrices which represent the possible outcomes for these strategy selections undergo continual quantitative changes in direct proportion to the changing utility functions which each fisherman assigns to his areas of exploitation.

Predator-Predator Conflicts

These competitive situations which occur in the Island's lobster fishery are not unlike the much-celebrated prisoner's dilemma (Luce and Raiffa 1957) which can be more precisely described as a two-person, non-zero sum game. Essentially, players engaged in this type of conflict must decide whether or not to cooperate with their opponent. More to the point, when two fishermen (or two coalitions of fishermen) compete for lobsters in the same fishing area, each must decide whether or not he will raid the other person's traps. Usually, there are four significant variables that determine how a fisherman will act in this kind of situation: (1) the estimated size of his payoff; (2) the way his opponent acts; (3) the ability and the

opportunity for the competitors to communicate while fishing; and, (4) the perceived personality of one's opponent.

Depending on each competitor's ability to maximize these variables,[5] there are two courses of action open to them. First, they can act cooperatively and, second, they can choose to act uncooperatively. The matrix below gives the outcomes[6] for both possibilities when the fisherman whose single-person game payoffs have already been discussed (p. 178, Table 6) is faced with competition from another fisherman in Area "B".[7]

---

[5]The manner in which these four variables are put to maximum use has already been discussed at some length: the first variable in the first section of this chapter; the second, third, and fourth variables in Chapter Two. Also, since the Island fishermen often avoid discussing these variables, the sample predator-predator conflict which follows assumes that both fishermen maximize these variables in the same manner.

[6]The left entry in each cell of this matrix represents the payoff for Player (fisherman) 1; the right entry represents the payoff for Player 2.

[7]Since most Island fishermen do not openly discuss how they rank-order their fishing areas, or whether or not they raid traps, it is assumed that Player 2 assigns a utility function to Area "B" which is double that assigned by Player 1. As a result, the payoffs for Player 2 are simple multiples of those expected by Player 1. For the same reason, it is also assumed that both fishermen have an equal ability and opportunity for raiding traps. In this example, 5 pounds of lobsters represents a man's gain from trap raiding.

TABLE 7.

		Player 2: Raids	Player 2: Does not Raid
Player 1	Raids	$11\frac{1}{2} \pm n$, $23 \pm n$	$16\frac{1}{2} \pm n$, $18 \pm n$
	Does not Raid	$6\frac{1}{2} \pm n$, $28 \pm n$	$11\frac{1}{2} \pm n$, $23 \pm n$

Usually, when such competitive situations develop, a man who is limited in his ability to maximize the variables mentioned above (p. 179-180) will behave in a cooperative manner. By doing this, he avoids getting his least preferred payoff which, in this example, is either $6\frac{1}{2} \pm n$, or $18 \pm n$. When lobster fishing is viewed in this light, it should be apparent that there is a close relationship between the fishermen's normative view of fishing and their more realistic, perceptual view of what actually goes on. That is, saying that they "don't bother another man's traps" while, in reality, actually doing so are not necessarily incongruous acts. Rather, as far as these fishermen are concerned, this kind of behavior is the one way in which they can be assured of getting their most preferred

payoffs, $11\frac{1}{2} \pm n$ or $23 \pm n$.[8]

The predator-predator conflicts where it is impossible for a player to exhibit cooperative behavior, usually because he does not have a clear understanding of what is happening[9], he can choose one of two options: (1) he can remove himself from the competitive situation; or (2) he can form a coalition with another fisherman which will allow him to act cooperatively. That is, if he still desires to cooperate. Interestingly enough, cooperative behavior in these predator-predator conflicts usually occurs when the end of competition cannot be predicted. For example, traps are almost always raided when "you're getting some lobsters in your own traps. That way, a fellow might take some time to catch on (to what is happening)". By taking this approach to selecting their strategies in predator-predator games, these fishermen make the conflict seem to be one of indefinite duration, as well as one in which their competitors are able to continue playing. This is done in two ways:

---

[8]There is considerable support for such cooperation in the fact that, over the course of the 1973 season, there was only a 200 lb. difference between the best and the poorest catch.

[9]See Chapter Two, p. 105-156.

First, given the unpredictable behavior of the lobsters, there is always a chance that a man whose traps are being raided will continue "playing" in the hope that the lobsters will 'strike' his traps. Second, since raiding can only be discovered after it has taken place and after the raider has taken the lobsters from his own traps, the competitors will determine the nature of their cooperation during their subsequent fishing activities. For example, if both men haul their traps at the same time in an area where they are competing, the situation demands that they both refrain from raiding. On the other hand, should they continue to haul these traps at different times, one man will have the advantage of being able to behave uncooperatively. If he chooses to raid, his payoff could be 28 $\pm$ n (Table 7, p. 181). If he decides not to raid, his payoff could, ideally, be what he expected. Similarly, if the other competitor is able to haul his traps in the area first, he can raid and get a payoff of 16½ $\pm$ n or, he can choose not to raid and settle for whatever payoff he gets, possibly 11½ $\pm$ n.

At any rate, since these fishermen must 'tend' more than one 'string' of traps, plus the fact that each man might be participating in as many as fifteen predator-predator games on any given day with as many opponents,

it is to each fisherman's advantage to behave cooperatively in situations of this kind. Of course, it must be emphasized that this kind of strategy selection can only be described as cooperative when each game is viewed over time. That is, cooperative behavior is completely dependent on whether or not competitors are able to successfully 'play the game" relative to each other's daily fishing activities. For example, if each man is able, at least every second day, to hail his traps in the 'gaming' area without his opponent being present, each man will behave cooperatively by raiding his opponent every second day. On the other hand, if the competitors maintain contact with each other insofar as the area of competition is concerned[10], they will cooperate by not raiding each other's traps.

From the preceding discussion, it should be apparent that uncooperative play usually accompanies games of a more definite duration. That is, when one competitor is able to arbitrarily establish when competition begins and ends, he opens the door to uncooperative behavior. For example, should a man compete in an area

---

[10]This kind of contact can be maintained by means of a 'tending' agreement with another fisherman.

without raiding his opponent's traps, this game can extend into the following day(s) when his opponent, by beginning "play" without him, can choose to select an uncooperative strategy, raiding. When this happens, the fisherman whose traps have been raided must make every effort (1) either to begin "play" at the same time as his opponent; or (2) to begin "play" in the absence of this oponent. When the decision is made to "play" early and raid an opponent's traps, the opponent is forced to act uncooperatively by not raiding. Essentially, this is due to the fact that "there isn't much point in hauling a man's traps if he's already hauled them. There won't be anything to take!". Similarly, when a fisherman begins "play" early but chooses not to raid his competitor's traps, he is actually extending the length of the game into the next day and, as a result, given his competitor an opportunity to choose an uncooperative strategy, raiding.

It is important to recognize, however, that not only are these strategy selections dependent on "playing" time and each fisherman's ability to maximize certain variables relative to each predator-predator conflict but, when this fishery is viewed in its entirety, there are indications that the nature of competition is heavily

influenced by certain ecological factors. First, there is every reason to suspect that the inconsistency of lobster migration patterns serves to minimize uncooperative strategy selections. That is, since the fishermen can never actually predict where lobsters can be profitably exploited, they are forced to destribute their traps over as many fishing areas as possible. Naturally, this means that a constant moving of traps from area to area during the entire season. At the same time, however, it also means that the fishermen can never accurately predict when one of their fellows will stop, or decrease, his fishing activities in one of these areas. As a result, each predator-predator conflict is of an indefinite duration, a condition which necessitates cooperative strategy selections if these fishermen hope to make a profit.

Second, given the social organization, demographic features, and geo-physical conditions which characterize this fishery, it is important that each fisherman compete with others on the basis that each conflict situation demands its own peculiar strategy selection. That is, while some predator-predator games can be predicted to last for a definite length of time, others do not lend

themselves to the same kind of accurate predictions. For example, as I have previously indicated (p. 81), some fishermen are able to very effectively limit raids on their traps. This, plus the fact that they also decide under such conditions when it is no longer profitable to compete against the resource, allows them some control over deciding how long they will compete with others in the same area. Consequently, when a man finds himself with this advantage, he also finds himself with a choice of strategy. In most situations like this, if a fisherman has previously had his traps raided by his competitor, he will very likely choose the most profitable, uncooperative strategy. That is, he will raid his opponent's traps. Normally, this will continue until the opponent chooses one of the two options mentioned previously (p. 179-180). Then, the situation is no longer competitive, or both fishermen will opt for a cooperative strategy selection. I should point out that, when two fishermen compete in more than one area, strategy selections in one of these areas can very often affect the selection of strategies in the other(s). That is, since neither fisherman can be certain when competition between them will stop, observation has shown that they will almost always cooperate in their

selection of strategies.

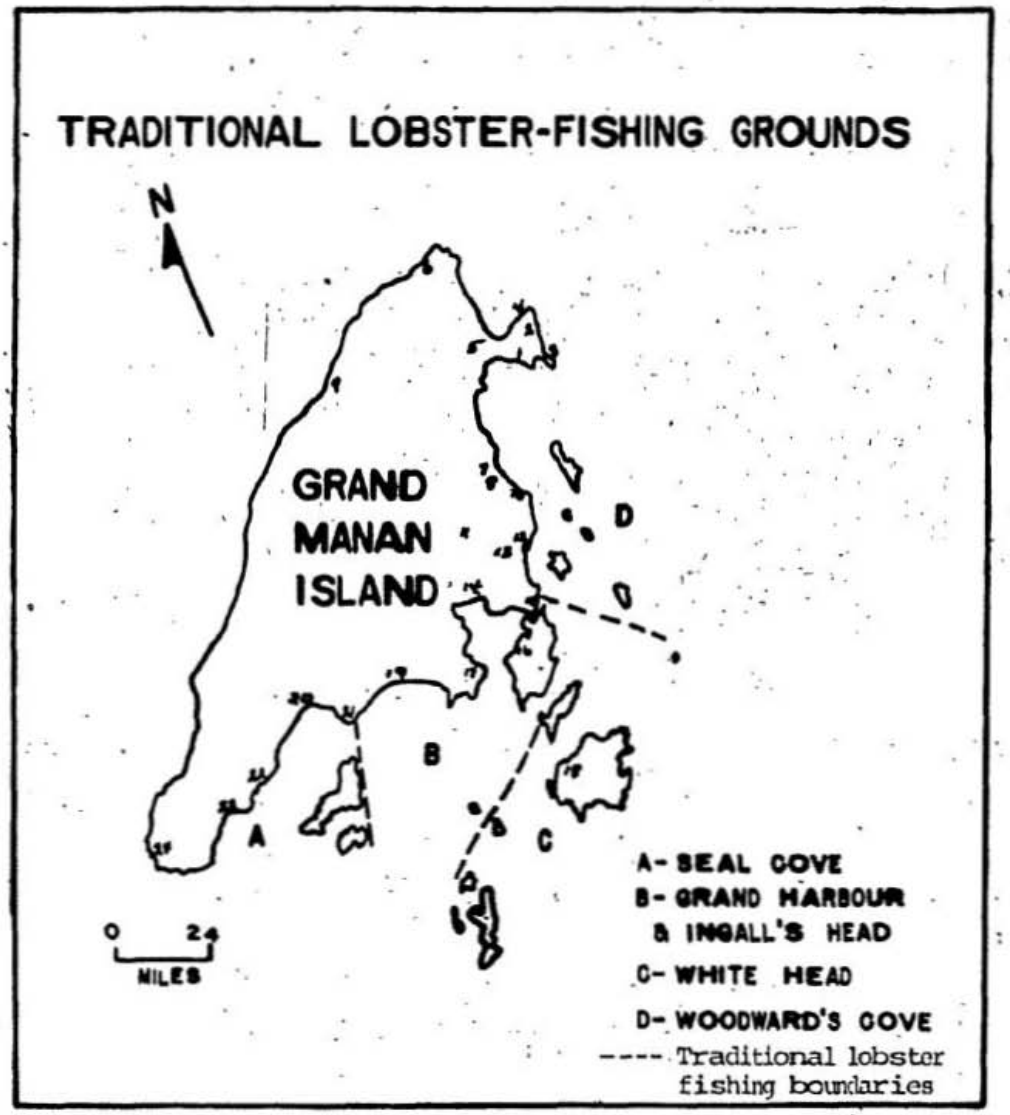
Third, and finally, the fact that the Islanders separate the industry into a spring season and a fall season seems to offer some explanation for their overall strategy selection pattern. More to the point, since the spring fishery normally ends on June 25, this very possibly accounts for the fact that uncooperative behavior is characteristic of this period. As the fishermen often point out, "Everybody knows when the season is going to close; so they try to get everything they can". Naturally, if this means raiding somebody who very likely will not, or cannot, raid in return, there is no reason to cooperate. Similarly, during the fall, "You can never tell when the weather's going to turn bad and you'll have to stop fishing. Besides, during the fall, you're catching so many lobsters that nobody has time to bother your traps". Consequently, there seems to be a close correlation between the indefinite length of the fall season (and its accompanying predator-predator conflicts) and the fishermen's general tendency toward choosing a cooperative strategy, not raiding each other's traps. Similarly, there is every reason to believe that the same relationship exists between the short spring season and uncooperative strategy selections.

In summary, the perception, organization, and use of marine fishing space by these Islanders are revealed through the process of strategy selection. On one hand, strategies are chosen which enable the fishermen to collectively deal with their natural surroundings. On the other hand, strategies are also chosen in order for individual fishermen to cope with an outside, highly competitive, economic system without violating the norms of his Island society. This should not, however, imply a process of strategy selection of the uni-directional variety where behavior is repressed by local pressure. Instead, this process of strategy selection should be viewed as a successful adaptation marked by feedback between the local and national sectors. The strong pressures of obligations which exist at the local level serve to reinforce these patterns of strategy selection while, at the same time, limiting any economic conflict with the larger, market-orientated economy and its supposedly different organization, policies, and value system.[11]

---

[11] The serious shortcomings of viewing the process of strategy selection in the fishery in a uni-directional manner has already been discussed more fully in Chapter Two, pp. 92-104.

APPENDIX A


TRADITIONAL LOBSTER-FISHING GROUNDS
N
GRAND
MANAN
ISLAND
A
B
C
D
0 2 4
MILES
A- SEAL COVE
B- GRAND HARBOUR
& INGALL'S HEAD
C- WHITE HEAD
D- WOODWARD'S COVE
---- Traditional lobster
fishing boundaries

MAP DIRECTORY

1. Grand Manan ferry wharf
2. Airport
3. Swallowtail lighthouse
4. 'Hole in the Wall' rock formation
5. North Head village
6. Long Eddy Point lighthouse
7. Castalia village
8. Federal and provincial government buildings
9. Lake Dark Harbour (center of the Island's dulse industry)
10. The Marsh provincial park
11. 'Beech Hill' (a scenic lookout)
12. Woodward's Cove village
13. Curling rink
14. Grand Harbour village
15. 'The Thoroughfare'
16. Ross Island (site of the first permanent settlement on Grand Manan in 1784 by United Empire Loyalists)
17. Ingall's Head village
18. White Head village
19. The Anchorage provincial park and bird sanctuary
20. Seal Cove village
21. Red Point (a diagonal geological contact which has volcanic rock on the left and sedimentary rock on the right.

MAP DIRECTORY (cont'd)

22. Deep Cove village
23. Deep Cove beach and camping area
24. Southwest Head lighthouse
25. Bowdoin College scientific station (gull nesting area)

APPENDIX B

LIST OF PLATES

PLATE # 1. Traditional lobster boat and trap

PLATE #2. A 'gang' of traps piled on shore

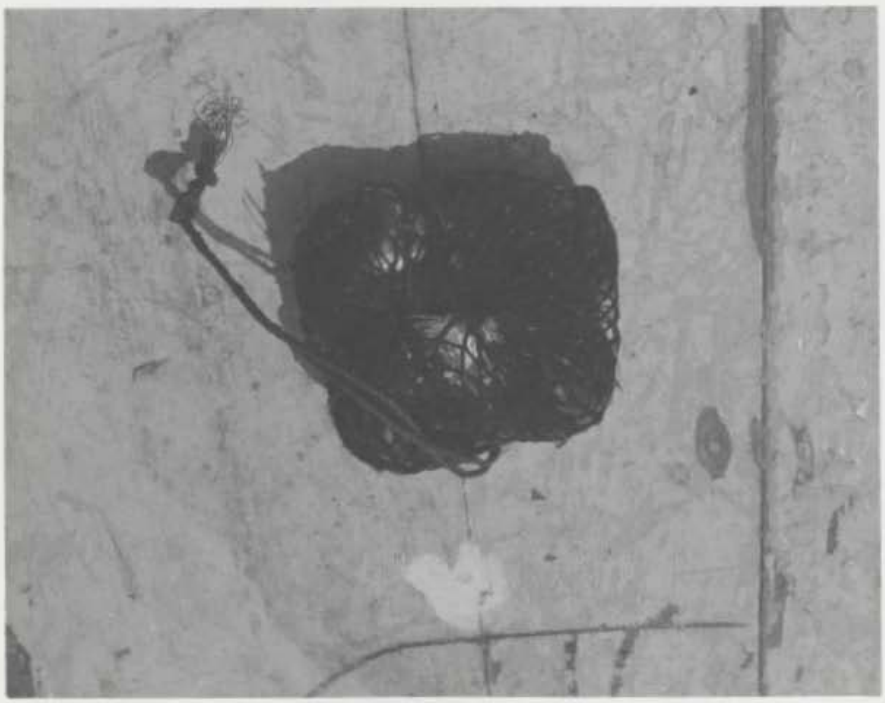


PLATE #3. A bait 'pocket'

PLATE # 4. A 'berried' (female) lobster

PLATE # 5. Contemporary lobster boats

PLATE # 6. Buoy

PLATE # 7. Lobster 'car' at Ingall's Head, Grand Manan.

PLATE # 8. Trap being landed on a lobster boat

PLATE # 9. View from inside a lobster pound at The Thoroughfare, Grand Manan

APPENDIX C

Equipment Used in the Contemporary Grand Manan Lobster Fishery

1. Boats

These are made exclusively from wood and range in length from between 28 and 45 ft. Each vessel is powered by a marine gasoline engine which, in most instances, is capable of driving a lobster boat at speeds of from between 10 and 15 knots.

2. Winch

This trap-hauling device is powered by the boats' engine and is fitted with a mechanical brake which, when activated, permits a fisherman to halt the upward progress of a trap.

3. Gaff

This piece of equipment, consisting of a slim wooden pole with a metal hook attached to one end, is used to snare the buoys and bring them to within easy reach of the fisherman.

APPENDIX C (cont'd)

4. Buoy

Used to indicate where lobster traps are set, as well as facilitating their retrieval, these items are extremely light and durable which enables them to float on the surface of the water and withstand daily handling by the fishermen. In addition, buoys are always painted by each fisherman with a distinctive marking in order that traps will not be mistakenly hauled.

5. Line(s)

Two types of lines are commonly used on Island lobster traps. The first 3-5 fathoms (beginning at the buoy) is normally of the nylon variety with a thin strip of lead interwoven in its' fabric.

This type of line, because it sinks in the water and maintains an almost vertical position, prevents the lines of different traps from becoming entangled.

The remainder of the trap line can be either nylon (unleaded) or rope, depending on how much an individual fisherman is willing to invest to cover the cost of 'rigging' a trap. In the short term, rope is

APPENDIX C (Cont'd)

less expensive, however, it is more susceptible to rotting and, for this reason, nylon line is almost always used.

6. Traps

Lobster traps used by the Island fishermen are either semi-cylindrical or rectangular and the selection of one style over the other is a matter of personal preference. Each trap is approximately 35 in. in length and 25 in. in width at its' base. A 2 ft. 'becket' is attached in one end of each trap and it is to this that the trap line is fixed. Each trap has a 'door' on its top which measures 8½ in. by 33 in. It is through this 'door' that a fisherman removes his catch, cleans his trap, and replaces his bait. Usually, each trap is a framework of lathes placed approximately 2 in. apart. In some cases, fishermen will use nylon mesh (2 $in.^2$) at the ends of the trap, rather than the more easily damaged lathes. In addition, each trap has two mesh 'fishways' (funnel-shaped openings) on opposite sides of its structure. These 'fishways' are approximately 7 in. high and 19 in. wide. These 'fishways' extend into the trap a distance of almost 9 in. where they are attached to

APPENDIX C (cont'd)

the mesh 'head'. This 'head' is smaller in size and shape to a 'fishway' and serves to direct lobsters to the 'parlour' (back portion of the trap) from which there is no escape. Finally, it should be noted that each trap has a false bottom where balast (rocks or cement) is placed in order to make the trap sink in the water.

7. Lobster Measure

This is a brass, hand-held item used to determine the size of lobsters. The measure is 3 3/16 in. long (inside dimensions) and must fit snugly between the lobsters' eye and the end of its body. Any lobster which does not fit this measure is undersized and must be returned to the water.

8. Bait 'Pocket"

Bait is placed in this mesh (1 $in.^2$) bag which is then suspended inside the trap. Normally, 'pockets' are emptied and refilled each day.

APPENDIX C (cont'd)

9. Lobster "Plugs"

These are small, sharpened pieces of wood which are jammed behind the joint on a lobster's crusher claw. These 'plugs' prevent the lobsters from mutilating each other while in the catch-barrel.

10. Catch-barrel

This is normally a 50 - 100 gallon wooden cask placed within easy reach of the fisherman. The catch-barrel usually contains enough seawater to cover whatever lobsters the fisherman has and, in this way, prevents them from smothering.

BIBLIOGRAPHY

Books

Andersen, R. and Stiles, G. (eds.)
1971 Man and the Sea: Human Factors in Marine Environments. New York: Simon and Shuster.

Andersen, R. and Stiles, G.
1973 "Resource Management and Spatial Competition in Newfoundland Fishing", in Seafarer and Community. Edited by P. Fricke, pp. 33-66. London: Croom Helm.

Andersen, R. and Wadel, C. (eds.)
1972 North Atlantic Fishermen. St. John's, Newfoundland: Memorial University of Newfoundland.

Barth, F.
1964 "Competition and Symbiosis in North East Daluchistan". Folk, Vol. 6, pp. 15-22.

Boas, F.
1940 Race, Language, and Culture. New York: Macmillan Company.

Bradt, G. W.
1938 "A Study of Beaver Colonies in Michigan". Journal of Mammals, pp. 14-27.

Brox, O.
1964 "Natural Conditions, Inheritance and Marriage in a North Norwegian Fjord". Folk, vol. 6, no. 1. pp. 35-45.

Carpenter, C. R.
1958 "Tentative Generalizations on Grouping Behavior on Non-human Primates". Human Biology, vol. 26.

Chang, Kenne, H-K.
1971 "Institutional Changes and Development of the Fishing Industry in a Japanese Island Community". Human Organization, vol. 30, no. 2, pp. 158-169.

Chase, R.
1956 The Proper Study of Mankind. New York: Harper and Row.

Chorley, R. J. and Haggett, P. (eds.)
1967 Integrated Models in Geography. London: Mathuen Press.

BIBLIOGRAPHY (cont'd)

Conklin, H. C.
1955 "Hanuneo Color Categories". Southwestern Journal of Anthropology, 11 (4), pp. 339-344.

Cook, Joseph J.
1972 The Nocturnal World of the Lobster. New York: Dodd, Mead and Company.

Darling, F. F.
1947 "The Life History of the Atlantic Grey Seal". Natural History in the Highlands and Islands. London: Collins Press, pp. 20-34.

Davenport, W.
1960 "Jamaican Fishing: A Game Theory Analysis". Yale University Publications in Anthropology, vol. 59, New Haven: Yale University Press.

Davies, D. I. and Herman, K. (eds.)
1971 Social Space: Canadian Perspectives. Toronto: New Press.

Davis, M. D.
1970 Game Theory: A Nontechnical Introduction. New York: Basic Books Inc.

Durbin, M.
1966 "The Goals of Ethnoscience", Anthropological Linguistics, 8, 8, pp. 22-41.

Durkheim, E.
1933 The Division of Labour in Society, G. Simpson (trans.), Glencoe, Illinois: The Free Press.

Edel, M.
1947 "Jamaican Fishermen: Two Approaches in Economic Anthropology". Social and Economic Studies, 16 (4), St. John's, Newfoundland: Memorial University of Newfoundland, pp. 432-439.

English, P. W. and Mayfield, R. C.
1972 Man, Space, and Environment. Toronto: Oxford University Press.

BIBLIOGRAPHY (cont'd)

Faris, J.
1972 Cat Harbour: A Newfoundland Fishing Settlement. St. John's, Newfoundland: Memorial University of Newfoundland.

Forman, S.
1970 The Raft Fishermen. Bloomington: Indiana University Press.

Frake, C. O.
1961 "The Diagnosis of Disease Among the Subanum of Mindanao". American Anthropologist, 63 (1), pp. 113-132.

Fries, C. C.
1952 The Structure of English: An Introduction to the Construction of English Sentences. New York: Harcourt, Brace and World.

Geertz, C.
1973 "Thick Description: Toward an Interpretative Theory of Culture", in The Interpretation of Cultures, C. Geertz (ed.), New York: Basic Books.

Gleason, M. A.
1955 An Introduction to Descriptive Linguistics. Toronto: Holt, Rinehart, and Winston.

Goldenweiser, A.
1933 History, Psychology, and Culture. New York: Knopf Press.

Goodenough, W.
1956 "Componential Analysis of the Study of Meaning". Language, vol. 57, pp. 77-83.

Gould, P.
1963 "Man Against His Environment: A Game Theoretic Framework". Annals of the Association of American Geographers, vol. 53, pp. 290-297.

Gross, J., Mason, E., and McEachern, T.
1958 The Need for Unifying Concepts on the Social Sciences, New York: Hold Rinehart and Winston.

BIBLIOGRAPHY (cont'd)

Hall, E. T.
1966 The Silent Language. Garden City: Doubleday Press.

1968 "Proxemics". Current Anthropology, vol. 9, nos. 2-3, pp. 83-106.

Harris, M.
1968 The Rise of Anthropological Theory. New York: Thomas Y. Crowell.

Howard, Eliot.
1920 Territory in Bird Life. London: John Murray and Company.

Hymes, D.
1962 "The Ethnography of Speaking". Anthropology and Human Behavior, T. Galdwin and W. Sturtevant (eds.), Washington, D. C.: Anthropological Society of Washington.

Ingersoll, L. D.
1970 "Lobsters Galore: A Brief Historical Sketch of an Important Island Fishery". Grand Manan Historian, no. 14, St. Stephen, New Brunswick: Courier Press.

Ingersoll, L. K. and Wilcox, E.
1959 Grand Manan. St. Stephen, New Brunswick: Courier Press.

Kuhn, T. S.
1962 The Structure of Scientific Revolutions. Chicago: University of Chicago Press.

Kasperson, R. E.
1971 The Dodecanese: Diversity and Unity in Island Politics. Department of Geography Paper no. 108, Chicago: University of Chicago Press.

Kozelka, R.
1969 "A Bayesian Approach to Jamaican Fishing". Game Theory in the Behavioral Sciences, I. Buchler and H. Nutini (eds.), Pittsburg: University of Pittsburg Press.

BIBLIOGRAPHY (cont'd)

Kroeber, A. L.
1931 "The Culture-area and Age-area Concepts of Clark Wissler". Methods in Social Science, S. Rice (ed.), Chicago: University of Chicago Press.

1932 "Quantitative Expression of Culture Relationships". University of California Publications in American Archaeology and Ethnology, no. 29, pp. 253-423.

1939 "Cultural and Natural Areas of Native North America". University of California Publications in American Archaeology and Ethnology, vol. 38, pp. 171-186.

Leach, E.
1954 Political Systems of Highland Burma. Cambridge, Massachusetts: Harvard University Press.

LeClair, E. E.
1964 "Economic Theory and Economic Anthropology". American Anthropologist, vol. 64, pp. 1179-1203.

LeClair, E. E. and Schneifer, H. K. (eds.)
1968 Economic Anthropology: Readings in Theory and Analysis. New York: Holt, Rinehart and Winston, Inc.

Lee, R. B. and Devore, I. (eds.)
1968 Man the Hunter. Chicago: Aldine Press.

Levi-Strauss, C.
1953. "Social Structure". Anthropology Today, A. L. Kroeber (ed.). Chicago: University of Chicago Press, pp. 524-553.

Lofgren, O.
1972 "Resource Management and Family Firms: Swedish West Coast Fishermen", in North Atlantic Fishermen. R. Andersen and C. Wadel, eds., pp. 82-103. St. John's: Institute of Social and Economic Research, Memorial University of Newfoundland.

Lorimer, J. G.
1876 History of Islands and Islets in the Bay of Fundy, Charlotte Co., New Brunswick. St. Stephen, New Brunswick: The St. Croix Courier.

BIBLIOGRAPHY (Cont'd)

Lowenthal, D. (ed.)
1967 Environmental Perception and Behavior. Department of Geography Paper no. 109, Chicato: University of Chacago Press.

Luce, D. R. and Raiffa, H.
1957 Games and Decisions. New York: John Wiley and Sons, Inc.

Margaleff, R.
1968 Perspectives in Ecological Theory. Chicago: University of Chicago Press.

Mason, O. T.
1895 "Influence of Environment upon Human Industries or Arts". Annual Report of the Smithsonian Institution, pp. 639-665.

Morgenstern, O
1969 "Forward". Game Theory. M. D. Davis, New York: Basic Books, Inc.

Nelson, R. K.
1969 Hunters of the Northern Ice. Chicago: University of Chicago Press.

Nissen, H. W.
1951 "Social Behavior of Primates": Comparative Psychology, New York: Prentice-Hall, pp. 60-81.

Pearson, H. W.
1958 "Parsons and Smelser on the Economy". Trade and Markets in the Early Empires, K. Polanyi, C. Arensberg, and H. Pearson (eds.). New York: The Free Press.

Pike, K. L.
1958 "Language and Lift". Bibliotheca Sacra, 114: 141-156.

1954-60. Language in Relation to a Unified Theory of the Structure of Human Behavior, Parts I, II, and III (Preliminary ed.). Glendale, California: Summer Institute of Linguistics.

BIBLIOGRAPHY (cont'd)

Pike, K. L. (cont'd)
"Towards a Theory of the Structure of Human Behavior". Language in Culture and Society, Dell Hymes (ed.). New York: Harper and Row.

Polanyi, K.
1958 "The Economy as Instituted Process". Trade and Markets in the Early Empires, K. Polanyi, C. Arensberg, and H. Pearson (eds.), New York: The Free Press.

Radcliffe-Brown, A. R.
1932 The Andaman Islanders. New York: The Free Press.

Rapoport, A.
1962 "The Use and Misuse of Game Theory". Scientific American, vol. 207, no. 6, pp. 108-118.

Redfield, R.
1947 "The Folk Society". American Journal of Sociology, vol. 52, no. 4.

Salisbury, R. F.
1968 "Anthropology and Economics". Anthropology and the Neighboring Disciplines. O. von Mearing and L. Kasdan (eds.). Pittsburg: University of Pittsburg Press.

Sapir, E.
1921 Language. New York: Harcourt, Brace and World

Sauer, C.
1925 The Morphology of Landscape. Berkeley, University of California Press.

Singer, M.
1963 A. Kroeber, An Anthropologist Looks at History. Berkeley: University of California Press.

Skinner, B. F.
1947 The Analysis of Behavior. New York: McGraw-Hill.

BIBLIOGRAPHY (cont'd)

Steward, J.
1955 Theory of Culture Change. Urbana: University of Illinois Press.

Sturtevant, W.
1964 "Studies in Ethnoscience". American Anthropologist, vol. 66, no. 2, pp. 99-131.

Troubetzkoy, N. S.
1933 "La Phonologie actuelle". Psychologie du language, Pierre Janet and Georges Dumas (eds.), Paris: Alcan.

Von Neumann, J. and Morgenstern, O.
1953 Theory of Games and Economic Behavior. Princeton: Princeton University Press.

Wagner, P. L. and Mikesell, M. W, (eds.)
1962 Readings in Cultural Geography. Chicago: University of Chicago Press.

Ward, B.
1965 "Varieties of the Conscious Model: The Fishermen of South China". The Relevance of Models for Social Anthropology, M. Banton (ed.), A.S.A. Monograph no. 1, London: Tavistock Publications.

Watt, K. E. F.
1964 "Computers and the Evaluation of Resource Management Strategies". American Scientist, vol. 52, pp. 408-418.

Whorf, B. L.
1936 "The Classification of the Sonoran Languages". Essays in anthropology in honor of Alfred Louis Kroeber. Berkeley: University of California Press.

1956 Language, Thought, and Reality. John B. Carroll (ed.), Cambridge, Massachusetts: M.I.T. Press.

Wissler, C.
1923 Man and Culture. New York: Thomas Y. Crowell.

BIBLIOGRAPHY (cont'd)

Wissler, C. (cont'd)
1926 The Relation of Nature to Man in Aboriginal America. New York: Oxford University Press.

Yi-Fu Tuan.
1968 "Attitudes Toward Environment: Themes and Approaches". Environmental Perception and Behavior; D. Lowenthal (ed.), Department of Geography Paper no. 109, Chicago: University of Chicago Press.

Periodicals

Fisheries Statistics of Canada. Ottawa: Queen's Printer, 1962.

Publication of the Canadian Hydrographic Service, Marine Sciences Branch, Ottawa: Queen's Printer, 1970.

"Wanted Dead or Alive". Fisheries Research Board of Canada Publication, Ottawa: Queen's Printer.