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Proceedings of the Workshop on Fisheries Sociology April 26-27, 1985 Woods Hole Oceanographic Institution

by

**Conner Bailey, Craig Harris,
Clayton Heaton, and Rosamund Ladner**

September 1986

Technical Report

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PROCEEDINGS OF THE
WORKSHOP ON FISHERIES SOCIOLOGY

April 26-27, 1985
Woods Hole Oceanographic Institution

Edited by

Conner Bailey, Craig Harris, Clayton Heaton and Rosamund Ladner

Marine Policy and Ocean Management Center

September 1986

Technical Report

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FOREWORD

The idea for an Exploratory Workshop on Fisheries Sociology emerged from informal discussions held at the 1983 Rural Sociological Society meetings. Planning for the Exploratory Workshop was undertaken by the two of us (Bailey and Harris) with the assistance of Peter Sinclair and Christopher Vanderpool. We sought to identify persons working in different areas of the sociology of fisheries who could present review papers on their areas of inquiry. The papers in this volume are the result of that effort.

At the same time, we sought to identify persons who would be interested in attending such a workshop. By combining our personal networks, the mailing list of the Fisheries Anthropologist at the National Marine Fisheries Service (Peter Fricke), and the list of attendees at two sessions on fisheries organized by Bailey at the 1984 Rural Sociological Society meetings, we developed a mailing list of 83 sociologists working on some aspect of fisheries. Invitations to attend the workshop were sent to those persons.

In response to the invitation, 24 sociologists attended the Workshop. They came from eleven states, the District of Columbia and Puerto Rico, three provinces of Canada, and Norway. They represented work in both industrialized and developing nations, in subsistence, recreational and commercial fisheries, and in aquaculture. Appendix A includes a list of the participants in the Workshop.

The Workshop on Fisheries Sociology was held on Friday and Saturday, April 26 and 27, 1985, at the Woods Hole Oceanographic Institution (WHOI) in Woods Hole, Massachusetts. Appendix B contains the program for the Workshop. Friday morning's session consisted of the overview paper by Harris and the paper on theoretical orientations by Sinclair. Each paper was followed by a brief discussion, and the morning ended with a more general discussion. After lunch Vanderpool and Maril presented papers on methodological approaches in fisheries sociology. Following discussion and a break, Fricke presented an informal discussion of applied fisheries sociology.

Saturday morning's session consisted of papers by West and Bailey on ethical issues in fisheries sociology, focusing especially on Native American and developing country fisheries, respectively. After lunch each of the

persons attending the Workshop gave a brief presentation on his or her work in progress. The Workshop concluded with a discussion of future directions for the sociology of fisheries. We include an edited version of the various discussions in this Proceedings.

We would like to express our thanks to the American Sociological Association (ASA) and especially the Committee on Problems of the Discipline for our initial funding. We also wish to acknowledge with thanks additional support received from the Sea Grant Program and the Marine Policy and Ocean Management Center at WHOI. Sea Grant funding supplemented that made available by the ASA in helping to support travel costs of selected participants. Support from WHOI's Policy Center came in the form of staff support for local arrangements and publication of these Proceedings. We would also like to express our appreciation to the Woods Hole Oceanographic Institution for providing the facilities for the Workshop.

We are particularly grateful to Maria O. Mejorado at Michigan State University and Ellen Gately at WHOI for their assistance in preparing materials for these Proceedings.

Finally, we would like to express our great gratitude to Clayton Heaton and Rosamund Ladner, who were primarily responsible for recording and transcribing Workshop discussions and in many other ways helped to make the Workshop a success.

Organizing of the Workshop and preparation of these Proceedings have been very much a joint effort. Responsibility for planning and funding arrangements was shared by the two of us. Local arrangements for the Workshop were coordinated by Bailey with the assistance of Heaton and Ladner. Preparation of these Proceedings was supervised by Bailey with the assistance of Harris, Ladner and Heaton. To indicate the joint nature of these efforts, we have followed the convention of listing the authorship of the Proceedings, the Foreword and the summary chapter in alphabetical order.

Conner Bailey
Auburn University

Craig K. Harris
Michigan State University

I. THEORETICAL ORIENTATIONS

A. "Toward a Sociology of Fisheries"
Craig K. Harris

B. "Theoretical Issues in the Sociology of Fisheries"
Peter R. Sinclair

C. Discussion

TOWARD A SOCIOLOGY OF FISHERIES

Craig K. Harris
Michigan State University

What I want to do today is to outline, in a very preliminary way, the major themes that concern the sociology of fisheries. In doing so, I will be fairly eclectic in two respects. If a sociology of fisheries does exist, it consists largely of a fairly amorphous body of literature (Groth, 1984b; Hummel, 1983; Yetley, 1982). Fisheries sociology has no journal, no society, no annual meetings, any or all of which might serve the function of defining and delimiting the field.

The first respect in which my overview will be eclectic stems from the difficulty of delimiting sociology itself. Many books and papers exist which look at various social aspects of fishing. How is one to decide which of these are sociological? In preparing this overview of the emergent field, I have excluded those studies which are primarily economic, focusing on aggregate levels of income or employment (e.g., Arnold, 1936a, 1936b, 1936c; Cleland and Bishop, 1984; Huq and Hasey, 1973). To the extent that a study goes beyond these aggregate aspects and looks at the actual content of employment or social relations of production, I have included it. I have also excluded studies that are essentially geographic (Padgett, 1961; see also Ackerman, 1942; Lewis, 1966; Marts and Sewell, 1960; Morgan, 1956; and Padgett, 1963).

A more difficult distinction one might make is between sociology and anthropology. The recent emergence of a concern in anthropology for industrialized societies and the broadening of anthropology's paradigmatic focus beyond the traditional concern for culture have made significant parts of what is labelled anthropology indistinguishable from studies that are labelled sociology. For this reason, I have tended to ignore the label attached to a particular study, and instead have tried to include or exclude particular themes (cf. Acheson, 1981). Thus, for example, one of the concerns that I regard as generically anthropological is the role of kinship in the organization of fishing (e.g., Breton, 1973; Firestone, 1967; Jorion, 1976:2-3, 1982; Nemeč, 1972). Similarly, the study of the relationship between fishing, and ritual or magical beliefs, seems distinctively

anthropological (e.g., Jorion, 1976:10; Mullen, 1969, 1978; Poggie, 1977, 1978; Wilkinson, 1986; Zulaida, 1981). Finally, I have excluded those studies which are merely descriptive of fisheries or fishing communities (e.g., Bamford, 1921; Bartlett, 1977; Bertram, 1873; Brownell, 1977; Dewar *et. al.*, 1978; Faris, 1972, 1982; Groth, 1981, 1984a; Johnson, 1985; Lambert, 1975; Paine, 1960; Peffer, 1979; Poggie and Gersuny, 1974; Reid, 1975; Siemens and Forcese, 1964; Smith, 1971; Wilkinson, 1986) and which do not contribute to the development of any of the substantive lines of inquiry.

I have also excluded those studies which pertain more to political science than to sociology. For example, fisheries management in North America is characterized by a large degree of jurisdictional overlap. These overlaps occur both across hierarchical levels (states and provinces, nations, international commissions—cf. Gamble and Frankowska, 1983) and within those levels (e.g., between states and provinces, between federal courts and executive departments—cf. Busiahn [1986], Busiahn *et a.* [1985], and Eger [1985] specifically concerning Indian treaty fisheries). Although an organizational analysis of these complex arrangements and their effects is needed, it seems to me to belong more to the realm of political science. Similarly, one might study the organizational and political factors that affect the substance and efficiency of resource management at these various levels (Bailey, 1982b; Berkes *et al.*, 1987; Fricke, 1984, 1985; Gale, 1985a, 1986; Gale and Miller, 1985; Langenau and Ostrom, 1984; Miller and Gale, 1984), but again this seems to me to be more properly conceived as a topic for political science.

The second respect in which my overview will be eclectic stems from the range of activities that might be included in fisheries (Hewes, 1948). Although the distinction is sometimes hard to maintain, one might divide fisheries into commercial, recreational and subsistence. Indeed it is often situations where two or more of these activities occur simultaneously that are the most interesting sociologically (e.g., Bailey, 1982a; Graham, 1968; Hough *et al.*, 1982; Koester, n.d.; West, 1985). Second, one could distinguish between industrialized fisheries in developed countries and traditional fisheries in relatively underdeveloped societies. But again, it is often those situations where a transition is occurring from the latter to the former

that are most interesting sociologically (e.g., Alexander, 1975; Bailey, 1980, 1982c, 1984; Befu, 1980; Brox, 1982; Cordell, 1973; Lawson, 1977; Maiolo and Orbach, 1982; McCay, 1981; McGoodwin, 1980; Meltzoff and LiPuma, n.d.a).

Third, one might distinguish between the various sectors of fishery activities—the provision of inputs to the fishery, the actual fishing activity itself, and the processing and marketing and consumption of the fish produced. For purposes of this initial overview, I have not utilized any of these possible distinctions, and instead have included studies of all of these aspects. Nevertheless, I would note that the literature is characterized by a lack of attention to the sectors outside the actual fishing, especially processing (cf. Danowski, 1980; Sinclair, 1985) and consumption.

With these caveats, let me turn to a review of several themes in the sociology of fisheries literature. The first theme stems from the nature of the fishery as a common property resource. That is, although fish are a public resource, they are harvested by private entrepreneurial efforts. It has been argued (Gordon, 1954; Hardin, 1968; Scott, 1955) that, in the absence of regulation, the resource will be exploited to extinction. This argument has provided the basis for much of the management of fishery resources by governmental agencies. I would suggest that this situation leads to two questions of sociological interest. The first is, what are the social impacts of various management schemes? Since this will be discussed in the paper by Vanderpool, I will not elaborate it further (see also Acheson, 1977; Meltzoff and LiPuma, n.d.b; Pollnac and Littlefield, 1983; Smith, 1984; Warriner and Guppy, 1983).

The second question, and to my mind the more interesting, is, what forms of self-regulation, if any, develop among groups of fishers (Christy, 1982; Cordell, 1978, 1985)? Johannes (1978) has outlined the various devices used by Pacific islanders to regulate the exploitation of marine resources (see also Leyton, 1966). These include reef and lagoon tenure systems, subgroup taboos, areal exclusions, and seasonal and gear restrictions. Johannes argues that these traditional systems of self-regulation have declined under the impact of commercialization.

Berkes (1983; 1985a; see also Berkes and Pockock, 1981) has described the informal arrangements among Great Lakes fishers which allocate certain areas

to different types of fishing gear and avoid crowding within the types of gear. In addition, they discuss catch quotas and size limits which are established by fish processors rather than management agencies. Faris (1972) describes the way in which dock space limited fishing effort in Cat Harbour and the disruptive effects of an unsuccessful attempt by a fisheries management official to impose a different scheme (cf. Martin, 1973; Miller and Van Maanen, 1980). Andersen and Stiles (1973) describe the ways in which spatial access is managed by Newfoundland fishers, and suggest that when the variance in productivity across sites is high, fishers will favor a draw or some other annual reallocative mechanism rather than inheritance of sites. McCay (1980b) discusses the ways in which a fishermen's cooperative functions to limit fishing effort by New York whiting fishermen.

I would suggest that several aspects of self-regulation are interesting sociologically. To what extent do fishers have to receive a direct benefit from self-regulation for such a scheme to be successful (Acheson, 1975; Carrier and Carrier, 1985; McCay, 1980b)? How do mechanisms of self-regulation evolve, and how are they enforced? How may the various forms of self-regulation be incorporated into management schemes? Berkes (1985b) suggests that giving exclusivity and support to community-based, small-scale fisheries will reduce management costs.

The second theme I would identify in the fisheries sociology literature concerns the political economy of the fishery. Some studies in this vein look at the ways in which the fishery relates to state authority, both in terms of regulation (Berkes, 1982; Berkes et al., 1983; 1987; Berkes and Pocock, 1980; Gale, 1985c; Maril, 1984; Miller and Van Maanen, 1980) and in terms of benefits the industry receives from the state (Gunn, 1968b; Hamlin and Ordway, 1974:42-49; Harris, 1981; Sinclair, 1983, 1984, 1985). For example, Ilcan (1985) found that unemployment insurance benefits contribute to the maintenance of a female labor surplus that is available for employment at low wages in fish processing plants in Nova Scotia. Faris (1977; see also Antler and Faris, 1979) suggests that state intervention is necessary for capitalist penetration to occur in peasant fisheries.

Other studies focus on the relations between the different sectors of the industry -- input suppliers, boat owners, fishers, marketers, processors (Dewar et al., 1978; Maril, 1979, 1983; Paine, 1963; Peterson and Smith, 1979;

Tunstall, 1962, 1963, 1968; Van West, 1984). For example, Peter Fricke (personal communication) has suggested that to the extent that a fish is intended for fresh consumption, its fishery will be less likely to be vertically integrated. Guppy (1984) proposes that relationships with processors will affect the receptiveness of fishers to different management and development schemes (see also Berkes et al., 1983). Similarly, Sider (1980) argues that centuries of domination by the merchants that supplied their inputs and marketed their outputs have left the fishing households of Newfoundland unable to respond to the modernization of the fishery in a coherent, organized way (see also Jamieson and Gladstone, 1950). Ellis (1984c) suggests that fishing communities with loose gemeinschaft forms of organization will be able to adapt to change with less divisive conflict than communities with tight gemeinschaft organization (see also Ellis, 1984a). Napoli (1972) suggests that the exploitation of fishermen by dealers is one of the main motivations for the formation of cooperatives. Russell (1972) found that catfish processors felt that the industry's greatest need was for research that would improve the management and efficiency of producers and thus enable producers to supply catfish at lower prices. Since Sinclair is going to discuss many of the aspects of political economy in his paper, I will elaborate on only one part of this literature.

Within the rubric of political economy, some authors have looked at the work process and social relations of production (for a somewhat dated overview, see International Labour Office, 1952). For example, Norr and Norr (1974, 1976, 1977) have shown that constraints on the structure of work (physical risk, uncertainty, separation of work from residence, need for teamwork) lead to rationality of work organization and to worker ownership and control. Lummis (1985) suggests that when skippers and crew do not own the vessel and gear, they will take greater risks in fishing because they will share in the proceeds of any increased production while the owners will bear the costs of any damage to the equipment. Leyton (1970), however, has argued that it is the need to maintain their esteem in the perception of the boat owners that leads skippers to take unwarranted risks when skippers do not own their boats, as is the case with much of the British and American ocean fleet (cf. Peterson and Smith, 1979). Howden (1968) suggests that this situation has worsened in Britain as the industry has become more concentrated and the surplus of skippers has increased (see also Dean, n.d.).

Other research has investigated the social relations of production between operators in the same sector of the fishery. In contrast to the situation discussed above, Ward (1968) describes the collective decision making in a Spanish fishing village, which acts to restrain the more reckless captains. Similarly, Ellis (1985) discusses the ways in which communitarian controls, operating through a church, limit entrepreneurial excesses; she notes (1984a), however, that the impact of mainstream society is diminishing these controls. Gersuny and Poggie (1974a) have investigated the ways in which a fisheries cooperative acts to buffer, dampen and anticipate the uncertainties of the physical and social environment. Comitas (1962) found that, to be successful, the form of a cooperative and the goods and services it provides must be highly congruent with the needs of the potential members, which vary greatly with full-time or part-time involvement in the fishery (see also Davenport, 1956). Andersen (1972, 1979b) discusses the ways in which Newfoundland fishermen cooperate and compete in the finding of fish (see also Duncan, 1936; Gatewood, 1984; Gunn, 1968a; Johnson, 1979; Jorion, 1978; Martin, 1979; Paine, 1970; Stiles, 1972).

I would suggest that several aspects of the work process merit further investigation. First, how do work relations affect worker satisfaction (Meltzoff and LiPuma, 1983; Nix and Kim, 1982)? Apostle et al. (1983) find that fishers in southwest Nova Scotia are considerably more satisfied with all dimensions of their work than their United States counterparts (Poggie and Pollnac, 1978; Pollnac and Poggie, 1979). Second, how do work relations affect resource management and utilization? As suggested above, examples of self-regulation can be found in both petty capitalistic (Faris, 1972) and highly concentrated (Van West, 1984) fisheries. Third, the Fisheries Conservation and Management Act (FCMA) has stimulated the development of management plans for many United States fisheries. How have these management plans affected the division of labor, occupational structure and vertical integration of the fishing industry (cf. Meltzoff and LiPuma, n.d.b; Vanderpool, 1980; Warriner and Guppy, 1983)?

The third theme I would identify in the fisheries literature is the relationships that link fishing and family. Many authors (e.g., Danowski, 1980; Maril, 1983; Thompson et al., 1983; Tunstall, 1962; Zulaida, 1981) discuss the effects that are attributable to fishermen spending extended

periods at sea. In this situation, wives tend to expand their spheres of control in household and family matters (Tunstall, 1962), and their fertility is diminished (Okroku, 1975). Tiller (1958) has described the psychological effects on children of extended periods of father absence. Thompson et al. (1983) suggest that one effect on children is the development of attitudes of independence, adaptability and creativity. Thompson (1985) discusses the effects of extended absence on the sexual division of power, both in the home and in the community. Although much of the literature emphasizes the inheritance of occupation, Miller and Van Maanen (1982) suggest that this may be changing.

I would suggest that at least three of these lines of inquiry merit further investigation. First, the effect of husband transience on the role of wife needs more research. Very little of the work in this area is based on field ethnography of women by women (cf. Danowski, 1980; Ellis, 1984b), but this would seem to be crucially important (Faris, 1972; Knipe, 1984). Since length of absence varies across fisheries, this would seem to provide a fruitful basis for comparative studies of the effects of absence. As fishing is but one instance of an occupation requiring extended absence (e.g., travelling sales, construction equipment operation), it would seem that the research ought to be broadened to include these comparable situations.

Second, the question of occupational inheritance needs considerable elaboration. I would suggest that such a pattern of inheritance would be based on at least three factors. First, a child may be directly socialized into the skills and beliefs associated with an occupation and may come to expect to take up that occupation. Second, as Thompson et al. (1983; see also Lumis, 1985) have suggested, a child may be indirectly socialized into the values and attitudes which make the choice of a particular occupation more likely. Third, a child may receive from a parent entry to an occupation (in the form of an apprenticeship or union membership or sponsorship) or may receive the productive capital necessary for an occupation (boat, nets, dock). This elaboration suggests two approaches. First, within the context of fishing, we need to compare fisheries where the inheritance of capital is possible with those where it is not. Second, we need to expand our perspective beyond fisheries to include other occupations where similar socialization and inheritance are possible (e.g., agriculture, entrepreneurial professions, small businesses).

The third and final line of inquiry concerning the relationships between fishing and family, meriting further attention, is the role of the household in fishery production. In some fisheries, the household is almost completely involved in various fishery activities, such as catching or processing or marketing the fish, or making or repairing the gear (e.g., Harris, 1978a, 1982). In other situations the household and the fishery are virtually independent of each other (e.g., Horobin, 1957; Orbach, 1977; Peffer, 1979). In still other fisheries the household is a social sphere in almost total opposition to the fishery (e.g., Maril, 1983; Nix and Kim, 1982; Stiles, 1972). Again, two approaches would seem useful. First, within the context of fishing, we need comparative investigations to determine both what factors about fisheries lead to each of these relationships and what effects each of these relationships has on work satisfaction, marital stability, etc. Ellis (1984b) notes that these relationships are affected by the linkages between the fishing community and the larger society. Second, we need to explore these two questions in occupations other than fishing which are characterized by a variety of relationships with family and household. In both these approaches, the factors leading to the development of women's organizations merit attention.

The fourth theme I would identify in the fisheries literature is the role of values in individual behavior. Apart from the strictly economic concept of value, two aspects of value seem important for fisheries sociology. I would suggest that, for most people, one set of values determines what they want to receive from their fishing activity, and a second set of values governs how they will undertake that activity. These two value dimensions affect both the commercial and the recreational fisheries (see Brown, 1984).

Although a strictly economic analysis of commercial fishing assumes that profit is the only desired goal, a more well-rounded investigation will reveal that fishers also value the ability to be their own boss and the opportunity to work outdoors (Hawlin and Ordway, 1984:31; Harris, 1978a) or other social goods such as equity (Alexander, 1975; Carrier and Carrier, 1983; Jorion, 1984). They may believe that fishing provides an opportunity for advancement and ultimately ownership (Maril, 1983). Although some recreational anglers emphasize the importance of a fighting game fish, others place a higher value on filling their quota (Stoffle et al., 1984; cf. Bertrand, 1984:11; Jackson,

1985:14; KCA Research, n.d.:37-42). For most recreational anglers, fishing is a group activity involving family and/or friends (Dargitz, 1985a; Jackson, 1985:15; Jordan and Tallhelm, 1982:31; KCA Research, n.d.:25). Part of the value of the activity lies not in the fishing itself, but in the being together, in the sharing of the activity, and in the ancillary social activities that attend the fishing.

At the same time that fishers seek to maximize certain goals by their fishing activities, they do so within a set of constraints about "right" and "wrong" ways to fish (Jorion, 1976, 1979). Johannes (1978) and others mentioned above have described the ways in which values about harvesting practices function to regulate the exploitation of a fishery. The introduction of a new technology into a fishery or subsistence fishery is almost always the occasion for intense controversy about its potential effect on the natural resource (Gersuny and Poggie, 1974b). Similarly in recreational fishing, the conflict between democratic-inclusive values and elitist-exclusive values affects management decisions (Hummel and Foster, 1985; cf. Jackson, 1985:18). In the midwest, fish spearing and salmon snagging are currently highly controversial practices. Bryan (1979:28-47) has shown that equipment, orientation to fishing and to the natural resource, management philosophy and social setting all vary with degree of angling specialization. Dargitz (1985b) explores the ways in which angling specialization is related to occupational and job satisfaction.

The last theme in the fisheries sociology literature I want to discuss today is the ecological perspective on fisheries adaptation. The study by Gersuny and Poggie (1974a), noted above, analyzes the activities of a fishermen's cooperative from an open system or ecological perspective. Rawitscher and Mayer (1977) describe the energy inputs and nutritional outputs for various seafoods, and Upton (1979) discusses the impacts on the structure of the industry that may be expected to follow from changing energy availability. (See Farrell [1986] and Sikora and Sikora [1984] for a discussion of the relationship between commercial fishing and petroleum exploration and production.) Smith (1979) discusses the impact of human activities on the Great Lakes fishery.

In his study of a Scottish fishing village, Knipe (1984) proposes that the adaptive changes that have occurred can be understood as resulting from the

interactions among four sets of factors—natural environment, technology, boat organization, and markets. Knipe suggests that shifts in species availability and changes to more powerful boats and nets have been accompanied by greater involvement of government and financial institutions. The division of labor has become more differentiated and less egalitarian, and social relations have become more competitive.

In previous work (Harris, 1978a, 1984), I have elaborated an ecological model similar to Knipe's. Like him, I looked at the natural environment and technology as separate elements. However, I combined all aspects of organization, and added a fourth set of factors—population composition. Applying a model from theoretical biology enabled me to understand the importance of diversification or generalism as an adaptive strategy (see also Comitas, 1962; Smith and McKelvey, 1984). With this perspective I was able to anticipate the decisions the fishers made concerning the adoption of new gear (Harris, 1978b; cf. Spaulding, 1984). Berkes (1984) has analyzed the competition between commercial and sport fishermen in Lake Erie using models of interspecific competition from animal ecology. Chang (1971) emphasizes the role of a cooperative organization in the adoption of new technology. In contrast, McCay (1979) has shown that the adoption of an appropriate technological innovation and the formation of a cooperative were not mutually compatible in a situation where the fishery resource was inadequately managed.

The ecological model of fisheries adaptation has much unexplored potential (cf. McCay, 1978, 1980a; Pollnac, 1976). In conjunction with population biology and ecology, it has a theoretical basis for predictive explanation. It has the capability of bringing both environmental and social variables into our analyses (cf. Acheson, 1975; Lofgren, 1979; Paine, 1958; White, 1977). In order to understand the complexity of interactions within the model, considerably more comparative work is needed.

The five themes I have discussed in no way exhaust the scope of fisheries sociology. Many other topics properly fall within the rubric. One would certainly be racial and ethnic aspects of fisheries, which West will discuss in a later paper (see also Berkes and Pockock, 1983; Boxberger, 1984; Busiahn, 1985; Cattarinussi, 1973; Gale, 1985b; Maril, 1985). Another would be the sociology of science and the role of experts in management decisions. What do fishers regard as the proper role of such experts (see Stoffle et al., 1983)?

How do fishers and experts define their roles with respect to each other? A third topic would concern the sociology of food, both from marketing and consumption perspectives. A related topic is the perception of fisheries by society in general. In United States society at the moment, fish are "in" as a food item, for reasons both of nutrition and of fashion. One might wonder if working in the fisheries will be raised in prestige, through a "halo effect". Similarly, one might study the perception of fisheries by local communities where they are significant (e.g., Maril, 1983). Finally, I would suggest that in all our work, both on the five themes and on these additional topics, a long-term, historical perspective is needed, both to understand the forces and processes that have shaped the current situation (Lofgren, 1979), and to anticipate the likely effects of various interventions.

Although an emergent field, the sociology of fisheries is alive and swimming. I hope my remarks have suggested the potential for future growth and development.

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THEORETICAL ISSUES IN THE SOCIOLOGY OF FISHERIES

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These notes reflect my current view of some significant issues in the sociology of fisheries. I touch on a variety of topics, none in any detail. I recognize it is unlikely that others will share the same set of concerns, but I do hope that my comments will provide an adequate starting point for discussion. The paper begins with a short account of what is intended here by theory and proceeds with an examination of several central conceptual issues before raising a number of problems of explanation in fisheries sociology.

Theory as Structure of Explanation.

What is to count as theory? Among advocates of the competing conceptions are those who insist on a deductive propositional model, those who emphasize the identification of the meaning of action, advocates of causal models, and others who are satisfied with theory as a general orientation to the subject matter.

My own position is that theory is how we structure our explanations. No doubt this leaves a similar range of alternatives for what is to count as explanation, but I shall not attempt to evaluate the alternatives. Rather I shall present my own understanding of theory and thus of the issues that I feel are pertinent to the sociology of fisheries. I do of course accept that other models will produce different agendas and that I may be challenged for having ignored what some analysts will take to be central.

My understanding of theory as structure of explanation is that it should include concepts that specify the subject matter and statements that provide a causal account of whatever has been identified as problematic. Some studies are theoretical only in the sense that they are conceptual, i.e., they use concepts to describe a given state of affairs, but lack a sense of problem and therefore lack theoretical explanation as well. Yet the data presented in such reports may be useful to others in more theoretically oriented work. My concern here is with concepts, the issues and the appropriate form of explanation, e.g., theory grounded at the level of the actor's interpretation vs. structuralist accounts vs. some interaction of these polar positions.

I would like to avoid the distinction between theory and research in that it seems to invoke an unrealistic division of labour between theorists and researchers. Indeed, I have found it impossible to separate out from the sociology of fisheries something that may be considered theoretical and distinct from the substantive material that is then left behind. Any activity that is concerned with description and explanation is necessarily theoretical. Therefore, what I have done in this presentation is to select a number of topics which I feel are theoretical in this sense and worthy of our consideration.

Conceptual Issues

First, let me raise several conceptual issues, while recognizing that the selection is a product of my own experience and by no means comprehensive. There should be no problem in acknowledging that a sociology of fisheries is possible or that it will differ in certain respects from sociologies of other productive activities. Indeed, it is the particular dimensions of fishing, especially the fascinating complexity of social relations, that has led to the emergence of a group that identifies itself as engaged in the sociology of fisheries.

Nevertheless, I am forced immediately to question whether "fisherman" is a useful sociological category. In that people we study use the term as an important part of their language, it is often vital to grasp the meaning accorded to it and to incorporate it in that sense into our analysis. However, fisherman as a category is used too loosely by sociologists, who often fail to perceive that it includes too great a diversity of activities and class positions for it to retain theoretical value. Generalizations about fishermen are unlikely to be productive except where the author has implicitly limited the range of the concept by choosing to discuss only homogeneous inshore fishermen engaged in a particular fishery - or a similar group. That is, generalizations about fishermen are only likely to be validated by introducing a secondary classification scheme, but one that is not always visible to the author, let alone the reader.

It is therefore necessary to specify what is to count as a fisherman. A number of possibilities will no doubt be obvious.

1. Fishermen may be subsistence producers with varying degrees of dependence on fishing as an economic activity. In this sense, fishermen and fisherwomen are participants in a peasant mode of production. They own or rent the means of production and use family labour to produce means of subsistence. Commercial production is a secondary aspect of their labour, if present at all.

2. Fishermen may be domestic commodity producers. Domestic commodity production (DCP) is also called by such terms as simple, petty and independent commodity production. It signifies a form of production for market exchange in which the producer's household supplies the necessary labour and kinship relations overlap with those of work. In this context it is worth noting the value of the Marxist distinction between form and mode of production. As Harriet Friedmann (1978) has argued, DCP is not an independent mode of production capable of reproducing itself; rather it is best described as a form of production that always functions in a broader economic system. In the advanced capitalist context, the domestic commodity producer markets goods or services in order to acquire the means of subsistence and to ensure the simple reproduction of the producers' household enterprise. DCP does not involve the expanding cycles of accumulation that are inherent in the capitalist form of production. Accumulation of capital is not impossible in fortunate circumstances, but it is not the driving force of economic activity (for a fuller discussion see Sinclair, 1984; 1985).

3. Fishermen may be petty capitalists. Thus, my own research in northwest Newfoundland indicates a transition from DCP to small scale capitalism. About 1960, the isolated villages along the west coast of Newfoundland's Great Northern Peninsula were home to a relatively homogeneous but impoverished group of fishing families. Using small open boats they fished the inshore waters for cod, herring, lobster and salmon. In that the fishermen owned their means of production, utilized household labour wherever possible and sold most of what they produced, they are best considered as domestic commodity producers. Twenty-five years later, the majority remained in a similar situation,

but an elite group of skippers had become established in a new, more capital intensive fishery. Approximately 80 vessels formed a fleet of draggers, which fished for cod and shrimp in the Gulf of St. Lawrence. The average vessel in 1982 involved a capital investment of \$230,000. Most crews were composed of a skipper-owner plus two to four sharemen, often but not necessarily related to the owner. Thus, the dragger constituted a petty capitalist form of enterprise in a regional fishing fleet that was still characterized by domestic commodity production for the most part.

4. Fishermen are often wage workers (both as sharemen in small boats and as more conventional labourers on deep-sea vessels). It is remarkable how often the common involvement in fishing and the vernacular identification of all who fish as fishermen seems to lead social scientists to ignore the extent to which fishing is wage-labour and the differences of interest between those who are hired and those who own the vessels.
5. A final category of fisherman is the company skipper, who, following Wright's (1978) schema, shares the features of capitalists and workers. Controlling and sometimes hiring labour, in charge of the vessel's routine operation, the skipper enjoys the rights of capital to that degree. But the company skipper is not the owner of the property itself and, like workers, sells his labour.

What this rather obvious and simple review signifies to me is that the category of fisherman remains important, but generalizations about fishermen will be vacuous. What then should be our unit of analysis - classes, enterprises, commodity systems, fishing communities/settlements, or the fishing industry as a whole? The usual, easy answer is that the unit of analysis varies with the problem at hand, but the problem is often limited by how we conceive of our subject. Thus, if we think of participants in the industry as undifferentiated fishermen, we are unlikely to consider class relations within the productive enterprise as a problem. If we ignore fish production as a total production chain, we are unlikely to ask questions about

the presence or absence of forward and backward linkages. Our general theoretical orientations will influence our unit of analysis and choice of problem. It is possible that questions that cannot be resolved within our existing frame of reference may lead to a reconceptualization, but such open-mindedness is rare. I shall offer a few notes on each of the possibilities mentioned above.

Class

I shall refer to class in the Marxist sense as a group who share a common position with regard to ownership and control of production. For full development as an acting group, members of classes must be conscious of their common interests. Using class as our unit of analysis raises questions such as the following:

1. Do fishermen, plant workers, boat owners, etc. exhibit a class or occupational consciousness? What difference does this make to their behaviour?
2. Do participants in the fishing industry act as members of a class, that is, do they act collectively with an awareness of common interests? Why?
3. Under what conditions will they act as a class? Do the patterns of communication, work relations, ownership, education, etc., encourage or inhibit class action?
4. How can the class relations of participants in the fishing industry be transformed? Class relations are inherently antagonistic forms of relationship. To what extent is such conflict overt or submerged? Is there something special about the DCP fishing enterprise that inhibits class relationships?

Enterprise

An enterprise is an organization that may be formally incorporated and that takes part in economic activity. If enterprise is the unit of analysis, one can still inquire about the class structure of the enterprise, but one is

also likely to ask about how enterprises are formed, how they relate to other enterprises, and how labour is recruited in ways that need not recognize class issues as a central focus, certainly not the exclusive focus. To mention only the most obvious instances, gender, kinship and ethnicity may have an important part to play in the sociology of the fishing enterprise.

The Industry

A focus on the industry is compatible with both class and enterprise. Its value is that it forces attention to the interconnections or linkages among all components of the fisheries - forward and backward linkages from fishing or fish processing, which are the most common points of departure for students interested in fisheries. In my analysis of fisheries policy in Newfoundland, I have concluded that an important source of current regional underdevelopment has been the failure for the last century to consider fishing as a total industry. Oriented exclusively to catching or processing, the opportunity to promote an employment-generating capital goods sector has always been missed. Consequently, other sectors of the industry have been forced to carry an excessive burden. It is evident that to address this problem at all requires a unit of analysis that takes the interconnections of the industry as a whole into account.

Community

Now consider community. The concept of community contrasts with that of class in that it assumes a common identity, sometimes a common set of values, among those who inhabit a particular territory. Class analysis posits that class members may constitute a community, but points to structural conflict between classes as a fundamental feature of social life.

Is there a basis for community in fisheries other than class? In everyday English usage community is synonymous with settlement and in sociology there is a tendency to use it in the same way. The problem is that if we mean community in its sociological sense, there is often no congruence between social community and territorial settlement. What has to be demonstrated is too often assumed. A settlement, I would argue, is more often a configuration of communities than a single community in the sociological sense. I certainly see value in asking after the existence of community. For one thing, the existence of industry or occupational communities may be a major factor in the

extent of local level organization and an inhibitor of class action when it emphasizes what unites rather than what divides people. To focus on settlement may be more useful than community in that no social consensus is assumed or implied. The particular importance of this unit of analysis is that it encourages consideration of the interconnection between economic activity and other dimensions of local social life.

Commodity Systems

To focus on commodity systems is not quite the same as to focus on the industry. The commodity approach does require that the investigator consider the stages of production from raw material to final consumption, although normally only part of the linkage would be investigated. One valuable aspect of this approach is that fish products vary incredibly in the production and distribution process. Analysis by commodity forces attention to this significant factor in fisheries research. The production unit may be involved in a whole range of commodities with the result that attention to the vessels or plants is awkward to combine with a commodity analysis. This might be compared with similar problems in agricultural studies.

Theoretical Questions

Having considered a number of conceptual problems, I shall now raise a number of issues or problems that seem to me theoretical in the sense that I use the term. In line with the intent to promote discussion (and because I am usually uncertain) the questions lack answers.

Can fisheries development spark social development? This is a question that is of considerable theoretical interest and of the utmost practical importance. In this regard the example of Iceland is important. Although I have no wish to minimize the difficulties experienced in Iceland, that society's development has been based on the utilization of its fishing resources more than anything else. The export of fish products has been the stimulus to the development of a wide range of industrial activity oriented in some way to the fisheries and has generated a standard of living that is beyond what most peoples can reasonably aspire to at the present time. Iceland has its own specific environmental and social conditions that preclude the precise repetition of the Icelandic model elsewhere, but the experience in Iceland should provide encouragement to those who wish to foster a broadly based pattern of social change in fisheries dependent regions.

How are participants in fishing incorporated or linked to the wider capitalist economy? Students of agriculture have given much greater attention to this important question than have sociologists interested in fisheries (see, especially Buttel and Newby 1980). Need fishing take a capitalistic form at the level of production? Is DCP doomed to disappear or can it survive in a niche to which it is technologically and socially advantageous? Who benefits in either case?

The integration of DCP with capitalism is recognised by all theorists, but there is no agreement on its fate. One group draws on the classical Marxist writings and identifies an historical movement of internal differentiation, proletarianization, and drastic decline of DCP. DCP is thus perceived as a limited, transitory form of production (e.g., De Janvry 1980; Goss et al. 1980; Hedley 1981). Unable to compete with capitalist agribusiness, most farmers and fishermen would be squeezed off their land or pushed out of their boats, while a minority would be able to expand into small capitalist production.

A second group anticipate the survival of DCP in niches of capitalism with which it is functionally integrated. According to this theory, direct capitalist investment in food production is discouraged by technical conditions that make turnover slow and leave labour idle and unproductive for extensive periods.

Uncertain yields, the danger that commodities will spoil and the difficulty of supervising labour have also been said to impede capitalist expansion (Mann and Dickinson 1978). Although developed in relation to agriculture, the same arguments are plausible with reference to fisheries. It is furthermore argued that capitalists can profit more from primary production when they are not involved as direct investors. By controlling how primary producers relate to the wider economy, capitalists effect a transfer of resources from the primary sector and can also draw on it for cheap labour when needed (Vergopoulos 1978).

Finally, the smallest contingent suggests that differentiation will take place in some situations and be effectively resisted in others (see especially, Buttel 1982). This means that the fate of DCP depends on a combination of circumstances that shows no uniformity across time and space and we need to be sensitive to each possibility. My work on northwest Newfoundland points to the paradox of expansion of DCP and the emergence of capitalism at the same time.

This brings me to a further point. One reason for the persistence of DCP in certain fisheries has been state support in such forms as grants, low interest loans and price subsidies. How does one explain the expansion of state intervention and the form that it takes? The state has acted as regulator or manager of the fisheries, an assistant in capital accumulation and maintainer of incomes. Why? Are the various policies inconsistent? The debates that have raged in recent years on the theory of the state are directly relevant to the sociology of fisheries, because an understanding of state action is essential to the adequate explanation of social organization in the fishing industry. I leave the options for discussion.

How do individual biographies intersect with the structure of the fisheries? In what way does the fishing industry form an integrated system of employment? Such questions have been posed recently by Norwegian sociologists (Jentoft and Wadel 1984), who refer to such aspects of fishing as (a) long cycle patterns, including recruitment to and retiral from fishing; (b) short cycles, for example, seasonal participation in different types of fishing enterprise, possibly involving a change of class position when one moves from crewman on a larger vessel to operator of a single-man, inshore vessel; (c) the combination of fishing and non-fishing activities including agriculture, forestry and construction; (d) the relationship between employment, migration and settlement patterns.

The issues are hardly exhausted by the above. Gender has hardly been mentioned, but cannot be ignored in any comprehensive analysis. Class, gender and culture are the basic sources of cleavage in social formations. To what extent are such social divisions reflected in the social structure of the fishing industry? What new forms of productive organization are possible? Where does power lie in the determination of how people conduct themselves as participants in the industry?

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DISCUSSION ON FIRST SESSION PAPERS BY CRAIG HARRIS AND PETER SINCLAIR

Groth - It sounds as if Harris is characterizing the only role into which a woman would fall as that of "wife." I'm not so sure that one could document that as being true, and I think that it would be worthwhile to expand the possibilities to include the wife working in a processing plant.

Harris - I can see how the way that it's written does carry that tone ... I certainly don't intend to imply that. (Goes on to describe many of the other roles which women play in U.S. and international fisheries, such as processing, marketing, accounting, etc.)

McCay - The point is that in trying to define general topics for sociology, you are biased by your ethnographic knowledge in saying 'wife,' when you should be talking about the 'roles of women' or 'relationships of women.'

Sinclair - There is very little work done on fish processing plants, where a great deal of female labor exists, and not strictly the wives, but single persons, and daughters as well. We had nothing at all on Newfoundland until the last few months. We now have a substantial study underway investigating fish plants, as well as other work looking at related aspects of women's involvement in fisheries. This is a topic that has been neglected in my own brief comments as well.

Fricke - One of the things I think we have to recognize in talking about the sociology of fisheries in the United States is that we're talking about a domestic fishery which is almost entirely fished for fresh product. As a consequence, you won't find much vertical integration. It's only where the product is processed in some way that you find vertical integration. I think we haven't looked at that as a sociological entity because, by and large, we haven't been aware of it.

Sinclair - Though there are problems in using terms like "fishermen" and "fisherfolk," it is particularly important to refer to these terms as they are used by the people one is studying. That is, if the concept is important to the population we're investigating, then it should be understood by us and built into our analyses in some way. But that does not mean that I, the analyst, have to use the concept in the same way as it is used by the subjects.

Jentoft - I agree that the whole concept of what or who is a "fisherman" is becoming increasingly difficult. It has consequences as to how we go about research. But I also think that "what is a fisherman" is becoming a more difficult concept for the fishermen themselves. Their traditional bases for solidarity and unity, which affect organizational processes and their ability to be heard in public policy, are vanishing.

Sherar - Relative to the roles of wives when husbands are transient, I think it's important to distinguish among such cases as merchant seamen, fishermen, and truck drivers, where the relative lengths of time absent may be quite different. The responsibility of the wife will depend very much on the absence of the husband.

Szanton - Another point which has been rather implicit in our discussion so far is the importance of taking a historical view of these processes. It becomes all too easy to describe a community as it is at one point in time, when we happen to be doing our research there. Often the time horizon we're working with is only the last two, three, or five years, rather than twenty, thirty, or fifty years. Since communities change (shape, internal organization, technology, etc.), unless you have some sense of the long-term trajectory, you don't know what to make of the particular point in time you're looking at. So I would hope that you would make explicit in these (Harris') themes that they all have to be addressed in as much historical breadth as possible.

Koppel - Another area of interest included in the sociology of fisheries is the perception of fishermen by the general society. Are they seen as "old salts" worthy of our most romantic images? Are they seen as a vertically integrated agribusiness? Or as a bunch of incompetent, beer-drinking idiots who go out and endanger themselves as well as the resource? Or possibly, in a society like ours where fish are enjoying great press for being a healthy food item to consume, there might be some additional prestige or "halo effect" from being the providers of this resource.

McCay - It is also important to identify these perceptions for specific geographic and political areas (i.e., local community, county, etc.) because they are critical to what decisions are made on land use problems that certainly affect fishermen.

Vanderpool - I think that when we are talking about "fisheries sociology" we should be talking about "comparative fisheries sociology." Because, as you're discussing the different patterns of women's roles in the labor force, what we see are enormous variations within and across regions, cultures, and societies. To talk of the role of women in the fishing industry in Ghana is different from the role of women in the Philippines.

The question then becomes, how do we achieve equivalent units for examining them. I think the terms we are currently using are based primarily on fisheries sociology in the United States, Canada, Norway, and occasionally some other country abroad. We haven't systematically looked at both the methodological and theoretical issues involved in the formation of a unified fisheries sociology.

Vanderpool - Peter (Sinclair), what can you tell us about cross-commodity comparisons from your work ... for example, between fish production systems and small-scale agricultural systems?

Sinclair - I've found a great many common issues in my own work ... the small-scale fishermen and small-scale farmers in contemporary Canada occupy the same kind of position and are facing the same kinds of problems ... the details differ depending on the type of product, but the underlying pressures are very similar.

Szanton - From my own work in the Philippines there appear to be some distinct differences. Fishermen in the community I'm familiar with can expect a small cash income every day, which can be used for a variety of purposes (consumption, drinking with the boys, gambling, etc) ... as opposed to the adjacent farming community where income comes in large lumps twice a year at harvest time. That makes an enormous difference in the way those communities are structured.

Sinclair - My own initial comparison was between what is loosely called the "family farm" and small-scale, inshore fishing enterprises. Probably the most fundamental difference was that you cannot enclose the ocean in the same way that a farm is enclosed. But, nevertheless, the organizational structure of work, pattern of ownership, the problems of marketing, and the relationship to creditors and suppliers indicated that there were important common dimensions.

McCay - You mentioned a closure of the commons. One thing I've noticed in a New Jersey fishery that has experienced enclosure is increased similarities between fishermen and farmers. Now it is much more important to have a father who has a boat, because the value has escalated due to limited entry. Just to get a license costs \$80,000 and the total package is a half a million dollars now. This issue is increasingly important ... we're probably moving towards family capitalism in this fishery.

Fricke - I just wanted to pick up on several points relative to comparisons between small-scale fishermen and farmers, as well as Peter's comments on state intervention. It seems to me here that one of the keys to understanding problems in the U.S. is that where we see the small-scale operators, both fishermen and farmers, effectively involved in commodity production, what we're looking at really is a whole pattern of state subsidies. It might be something like the tobacco and soybean support schemes. It fits equally well in the fishing exercise when you look at quotas, allocations and government guaranteed loan systems. These policies make fishing attractive, and like many farmers, many fishermen have overcapitalized. Many of our resource problems are due to this, both in agriculture and fisheries. And yet, here is a point which we have not confronted. We have yet to really evaluate, from a sociological point of view, the impact of the state's intervention in a common property resource system, which effectively brings in a lot more people. Since the Magnuson Act (1976), the number of fishermen along the northeast coast has doubled. Investment in vessels has gone up by something like a factor of five. Programs like the Fishing Vessel Obligation Guarantee in effect provided a blank check. Any bank can go out and loan to a trawler, and come to the government and say "this is a risky mortgage," and the government will underwrite that mortgage. And that's really the story of overcapitalization in this area. Nobody paid attention to the cumulative effects that state programs were going to have on the fishery.

Sinclair - I have been looking at the impact of licensing policy on the northwest coast of Newfoundland. Certainly it has created at least two categories of fishermen in that area: those who have access, and those who do not. Those who have access have the most successful operations in the whole of Newfoundland at the moment. Those who do not have incomes that are approximately 10% of those who have been given the right to drag for cod and other finfish. That's rather fundamental.

In my own work, I'm trying to look at how the Norwegians, the British, and the Canadians have each, in their own way, attempted to cope with the problems of resource scarcity and overcapitalization. I want to look at the interest groups involved in each case, and group benefits from policy. I want to understand the policy formation process in relation to interest group activity.

Jentoft - Sinclair said his interest in fisheries sociology stems out of a general interest in "what causes social change." It is this general focus of sociology which makes the fishing industry interesting. After spending 10 years in a fishery institute doing fisheries sociology, I've become more and more skeptical about the whole concept of fisheries sociology. It seems the more organized and developed the field becomes in itself, the more weight is put on fisheries and less on sociology. It's very clear to see that, for instance, in the agricultural university now ... they no longer derive their ideas and interests from general sociology, as it used to be. They come more from within the agricultural industry itself ... and that is important, but there is a danger involved in that. I think it important to stress the discipline of sociology, and give it greater emphasis than fisheries itself. Otherwise, I think the quality of our work will suffer.

Harris - Certainly the danger you cite is there. There is an ongoing debate in the U.S. rural sociology literature on whether we have become too empirical or not. Are we just "farmer counting" and doing studies that don't contribute to basic understanding of social change and social process? However, I think there is also the counter danger of losing insights derived from applied work. These are useful for stimulating thought and research on fundamental social problems.

Jentoft - Yes, what you say is true ... and to support your point, if one becomes too theoretical, your work tends to be of little relevance or practical value to the fishing communities. However, it is also possible that, as time goes by, the more you define yourself as a "fisheries man," the more your work as a sociologist will be neglected. I see this as a dilemma with no easy answer. I've been involved in assembling a group of fisheries sociologists or social scientists, as well as allocating funds for fisheries sociology research projects. In both tasks, you need to develop criteria for including some and excluding others. I, myself, tend to be rather inclusive. I would have no problem in approving a project which involves fisheries, yet is directed towards studying something very general in society.

For example, suppose you had someone who was dissatisfied with microeconomic theory because it does not take into account the element of trust in financial transactions. He may want to test a theory which states that the greater the risks surrounding a transaction, the greater importance trust will have.

If he should then decide to test this in relation to the fishing industry, I would consider that a valid project. Not because it is fish, but because the risk factor is very high in fisheries. I think that it would be important not only in expanding microeconomic theory, but also in improving a middle-level theory of fisheries sociology.

McCay - By becoming knowledgeable about fisheries, it puts you into a better position to work in the policy process. It is very hard to achieve credibility unless you get involved in discussions on landings and stock assessments, etc. In the final analysis, I think applied work helps us do better theoretical work.

Koppel - The major limitations on us seem to be money and imagination. Most of the funding available is only for applied work which is relevant to current social problems. We have to use our imagination in order to propose studies which provide answers to these problems, yet at the same time will in some way address the meaningful theoretical issues of the field.

Szanton - As I think comparatively about fisheries as we've discussed them here, I'm struck that the basis for a sociology of fisheries is not this "common thing with fins" (the resource), but rather a diversity of experiences which we hear about from all over the world. It seems to me that the sociology of fisheries is perhaps best conceived of as starting with core relationships between human beings and a biological entity. I would like to see the definition of the sociology of fisheries start with this relationship between people and a biological resource, where both the people and resource can vary widely along their respective continuums.

Brian - What you are talking about is the sociology of resource management. We are looking at the social implications of resource usage and fish happen to be our topic. But it's an amazingly diverse area, and I think it important that we avoid assumptions of homogeneity.

Vanderpool - What I want to get at is the existence of a continuity with fishermen. Fishermen are hunters and gatherers, and all other hunters and gatherers have been virtually annihilated from the world. Fishermen have been pariah people, they have been outcasts of society. Suddenly we find fishermen in the United States, Canada, and elsewhere being centrally integrated in segments of their economies. Even in Bangladesh now, with the development of an export shrimp fishery, the same pattern is developing. That, I think, is a common theoretically based issue inside fisheries sociology.

Going further, one finds the emergence of the state as a steering mechanism ... which is increasingly trying to control and manage what is a hunting and gathering system. Maybe our appropriate comparison is not between farmers and fishermen, but between hunters and gatherers and fishermen.

Gutierrez - I think we might also want to study fishermen's organizations in different environments: how they form or mold the values and attitudes of the fishermen.

The same types of organizations which are present in developed societies may also exist in underdeveloped societies, and yet function in different ways. We can use these organizations as units of analysis, as well as the traditional units of individual fishermen, families, or communities.

The idea is that there is no simple hierarchy of formal organizations in the developing world. Many times we go there with the idea of transplanting or imposing a foreign organizational structure without having studied the existing structures.

Groth - In Craig Harris' paper he mentioned five themes of interest in fisheries sociology. To these I'd like to add two others. One would be the role of managers in fisheries management decisions. A second relates to the sociology of food. It concerns me a great deal that agricultural sociologists are often concerned only with production, and relegate consumers to second place. This is an error which I hope fisheries sociologists won't fall into.

West - I find this all very interesting, but all very general. I'd like to bring us back to some specific issues in relation to Peter Sinclair's paper. The particular area is middle-range theory, and how we might advance those theoretical agendas.

To use an example, Peter, where you talk about the difference between "domestic commodity producers" and small-scale capitalists, could you elaborate a little more on what economic and sociological forces contribute to the transition between them - or inhibit the transition? And to the extent that DCP remains a residual category, what social and economic forces allow them to participate in that form of production, given that very often it is not very economically profitable?

Sinclair - In the context of Newfoundland, there are at least two critical factors. One is the state policy on financial assistance which requires that a single individual be responsible for the loan. That's been one factor in breaking down common ownership to individual ownership.

The second factor would be the stage in the family cycle in which an individual is living at the time investment takes place. For example, on the northwest coast of Newfoundland, in the early 1960's, there was the introduction of what we call "longliners." They were introduced by several fishermen in their early 20's who had become dissatisfied with the poverty and the toil of working in small open boats. But they were also engaging in a high-risk activity, and their parent's and relatives disagreed with what they were doing. Therefore, in order to acquire crews to participate, they were forced to go outside the family structure. In this fishery, the time may be coming now for a change. As these skippers get into their 40's, and their sons are getting old enough to go on board boats, we may find some return to some form of common family ownership.

Michel - I'd like to second the importance of attending to hunters and gatherers, not merely as an added dimension for contrasting things. The Indians of central Alaska have not been annihilated, and the fisheries there are central to personal identity.

Looking at hunter-gatherers would also help us to clarify and perhaps fashion some of these categories you mentioned, Peter, because I find the fishery in the interior of Alaska does exhibit characteristics somewhere between "subsistence" and "domestic commodity producers."

Sinclair - Let me comment a little on the hunting and gathering situation. I agree that fishing is still a form of "hunting and gathering." However, when you have a limited entry scheme with individual property rights, where you are assured of receiving a certain quota, you know that no one else has the right to land them. Yes, you still have to go out and hunt for them, but surely that is a critical difference.

Harris - I don't see what you're seeing. Just because some management agency says you're entitled to harvest so much, doesn't change the importance of the hunting and the searching.

Sinclair - I think it does. There is a fundamental difference as to how the fishermen relate to one another when the resource is common property, and when there is limited entry.

Harris - Does it make the fishery more competitive? No? Then I'm afraid I still have problems with that. It seems to me that when you go to a quota, you might expect that the profit motives would come to the fore.

Jentoft - Competition in the fishery is not necessarily just from its common property aspects, but also from each fisherman trying to be best. And when you introduce quotas, if the fishermen know the prices they can expect, then they can calculate how much they will earn in the next three or four months. So the whole notion of hunting is changed.

Sinclair - It is not necessarily less competitive, but competitive in a different way. Some of the competition that would exist between fishermen with different sized vessels disappears. For example, in areas of very difficult winter conditions on the southwest coast of Newfoundland, small boat operators were frequently very resentful of larger boats because the small boat couldn't get out under certain conditions, where the larger one could. And therefore the small boat was suffering very badly when the quotas were taken very quickly by the larger vessels. You cut down competition of that nature when you have an individual quota system.

Harris - I wonder then if competition for production might not be replaced by a competition for profitability - who can catch the quota most cheaply.

Jentoft - I agree, but it's something quite different to have caught your quota at a slightly lower cost than your neighbor, than to rank your ability as a fisherman from how much fish you have been able to catch in a specific season. We can debate if the hunting or competitive aspects are still the same in specific cases, but I think quota systems change the nature of what fishing is all about in the fisherman's mind.

Vanderpool - However, if the state should end the quota system, then they could go back to the old common property resource provisions. You can't do that in agriculture anymore. And, in spite of the fact that hunters and gatherers still exist in Alaska or wherever, they are contained as museum pieces. They exist and function because we allow them to.

Michel - But you've got to give priority to certain fisheries. On Federal land, subsistence fisheries take priority. If there is competition for a resource, that fishery will be maintained. It's not just a fishing enterprise, it's a way of life.

Bailey - I would also interject that this talk about quotas is totally irrelevant to most of the world.

Harris - Speaking of hunting and gathering ... do you suppose we could hunt for some lunch?

END OF SESSION ONE

II. METHODOLOGICAL APPROACHES

A. "Social Impact Assessment and
Fishery Conservation and Management"
Christopher K. Vanderpool

B. "Methodological Approaches to the Study
of American Commercial Fishermen"
Robert Lee Maril

C. Discussion

SOCIAL IMPACT ASSESSMENT AND FISHERY
CONSERVATION AND MANAGEMENT

Christopher K. Vanderpool
Michigan State University

In 1976, the Magnuson Fishery Conservation and Management Act mandated that relevant economic, social, and ecological factors affecting a fishery be taken into account in devising the "optimum yield" (OY) of a fishery (U.S. Senate, 1976). A national conservation and management program -- to protect fishery resources from overexploitation by foreign and domestic fish catchers, to rebuild them, and to assist in the realization of their full potential as a source of employment, food supply, and revenue -- was to evolve through the complex institutional structure advocated by the Act. The Secretary of Commerce was given authority to implement the provisions of the Act. Conservation and management Plans were to be developed through that office and the National Marine Fisheries Service (NMFS) in conjunction with Regional Fishery Management Councils. These councils were designed to allow states, fishing-industry representatives, and consumer and environmental organizations to assist in the preparation, monitoring, and review of these plans and to take into account the relevant social and economic needs of the affected states.

Each fishery management plan was to contain a description of the fishery, including such characteristics as the type and quantity of gear used, species of fish involved and their location, management costs, actual and potential revenues, recreational interests, nature and extent of foreign fishing, and Indian Treaty rights. Sustaining the reproductive capacity of the fish stocks as well as protecting and enhancing the socio-economic well-being of individuals and groups dependent on fishing as a means of livelihood were to be the goals of the fisheries management (Anderson, 1976:71).

The sustainability of a fish stock was captured by the concept of "maximum sustainable yield" (MSY) -- the amount of a fish stock that can be harvested while allowing a capacity for the stock to renew itself. MSYs will differ from fishery to fishery because different fish stocks do not necessarily share the same sustainable yield characteristics due to differences among fish species and their migratory behavior (Christy, 1973).

MSY is seen as a basic component of determining what is the optimal catch level in each fishery. OY is the MSY modified by relevant economic, social, or ecological factors. Ecological factors refer to such elements as water quality, severe weather, destruction of breeding grounds, and so forth. Economic and social factors are the impacts of management options on commercial and sport fish catchers, food processors and consumers, marketing groups, fishing communities, and so forth. That portion of the OY not harvested by U.S. fish catchers was to be made available to foreign fish-catchers. The following factors were to be taken into account in limiting access to a fishery: historical fishing practices and dependence on a fishery, the capability of fishing vessels to be used in other fisheries, and the cultural and social framework relevant to the fishery.

Two principles are identified in the Act as being important in developing fishery conservation and management plans -- equity and efficiency. These principles are common to environmental policies in general. In terms of equity, the allocation or assignment of fishing privileges is to be "equitable and fair" among U.S. fish catchers, "reasonably calculated" to promote conservation, and implemented in such a way as to insure that "excessive" shares of fishing privileges are not given to any individual or corporation. Also, conservation and management plans will promote efficiency in the utilization of fishery resources, but a plan cannot have economic allocation as its sole purpose -- that is, it should take into account the social and cultural needs of fishermen and their communities as well as the economic efficiency of segments of fishing industry.

These objectives require extensive biological, ecological, economic, social, legal and historical information to implement fishery conservation and management plans and regulations. Social impact assessment can play a vital role in determining the potential social consequences of proposed plans, policies and regulations as specified by the Magnuson Act. This paper will explain the nature of social impact assessment, the types of methodology that are available for developing such assessments, and the problems posed by use of social impact assessments in fisheries conservation and management.

Nature of Social Impact Assessment

Social impact assessments (SIA) are designed to determine the costs and benefits of proposed courses of action that may be taken in implementing a public policy. Their secondary goal is to assist decision makers in the design and administration of policy. These tasks are accomplished through the development of a research design, the collection and analysis of appropriate data, and the interpretation and application of findings to policy recommendations (Finsterbusch, 1977).

The key term in SIA is impact, that is, the type of changes that are likely to occur in established economic, demographic, and social structures. The assessment of impacts anticipates changes that result from a proposed policy or project (Leistriz and Murdock, 1981: 16-17).

SIA can be compared to evaluation research. Evaluation research examines the consequences or impacts of an implemented policy, program, or project. It is an "after the fact" analysis of change or non-change in a policy targeted area. SIA, on the other hand, provides a prospective analysis of the potential consequences of a policy or program and of what the public wants or anticipates.

Both evaluation research and SIA are related to cost-benefit analysis. The determination of costs and benefits assumes the presence of a clear-cut normative framework that defines certain activities and their effects as being appropriate and beneficial or inappropriate and deleterious consequences of public and/or private decisions. In the social and cultural environment, the reaching of such specifications of costs and benefits is problematic given the complexity of social and cultural processes and the competing and often conflicting notions of what is normatively valued or disvalued. Because of this normative embeddedness, SIA has frequently become a replacement for cost-benefit analysis in those areas that have proved to be difficult to frame within standard cost-benefit models--that is, social and cultural environments in which given programs and projects are placed in operation (Mishan, 1976; Fitzsimmons and Wolff, 1977).

Social impact assessments, in short, anticipate changes in the social structure as a result of some planned intervention into ongoing social processes and includes an estimation of the positive or negative value of those changes. The anticipation of change requires parcelling out those

changes which are part of ongoing social processes and those which have resulted from a policy or program intrusion (Olsen, Melber, and Merwin, 1981: 43). Without such an analysis, it would be impossible to identify what impact a policy or program was having on a community, industry, or some segment of the population.

The estimation of the costs and benefits of a policy or program presumes a normative framework. Here the crucial question is whose values or norms are being used to identify impacts as positive and negative? Are they those of the researcher, the policy maker, the community elite, or the general public. SIAs address ideologically complicated questions because the issues raised in assessments cut across the vested interests of frequently competing power groups such as lawyers, resource economists, governmental experts and bureaucrats, resource exploiters, and consumers (Meidinger and Schnalberg, 1978a). Each of these groups have very well-developed ideological traditions defining what are or are not important impacts and what are beneficial or deleterious policy consequences (Vanderpool, 1981). The SIA expert is clearly walking in a policy minefield loaded with divergent ideological charges. It is essential that such an expert be constantly aware of the normative embeddedness of the process of impact assessment and the need to distinguish between policy impacts and ongoing social change in the target area.

Social Impact Assessment Methodology

The first step in the SIA process is to identify the unit of analysis. In most cases, the unit is some bounded geographical area usually comprised of a single community or set of communities. At times, it may even be a region or sets of regions. What determines the selection of this unit of analysis is a proposed policy or program which targets a community or region as the focal point for development or regulation. In the case of fisheries, the unit may be a set of fishing communities which may be affected by the implementation of a set of fisheries conservation and management plans. Usually, however, fisheries experts from NMFS as well as Regional Fishery Management Councils are less interested in potential impacts on fishing communities and are more concerned with impacts on the fishing industry per se. Even in this case, the focus is on the fishing enterprise itself and not on the entire range of socio-economic activities in the fishing industry, that is, from capture, to processing, to marketing and distribution.

Once the unit has been identified, the portrayal of the pre-impact state of the unit is necessary in order to clearly distinguish those changes which are a result of ongoing processes and those which are likely to emerge from the implementation of a policy or program. The pre-impact state also provides a baseline from which to judge the extent of impacts. The following pre-development factors or characteristics of an area should be taken into account (Leistritz and Murdock, 1981):

1. historical — the social, political, and economic history of the unit (e.g., the history of fishing patterns, the types of conservation and management plans that have been tried in the past including that impacts they had on the unit, etc.);
2. cultural— types of cultural norms and values, range of kinship patterns, existence of cultural minorities (e.g., types of norms which define patterns of territoriality in a fishery, kinship ownership of fishing vessels or processing plants, presence of Indian fishing groups, cultural conflict between fishermen in the definition of normatively approved patterns of fishing, etc.);
3. economic-ecological — extent of division of labor, degrees of capital and labor intensivity, seasonal variations in economic activities (e.g., the degree to which capitalization has affected labor utilization in the fishing industry, shifts of employment patterns in the division of labor in fisheries, seasonal patterns of fishing intensity, etc.);
4. demographic — population size, distribution, migration, fertility and mortality (e.g., rate of out-migration of youth from fishing communities, seasonal variations of migration, population density of fishing communities, etc.);
5. social — patterns of social interaction, social class structure, and social organizational networks and linkages (e.g., the relationship of religious institutions to the family in fishing communities, types of interaction patterns among captains of vessels, growing proletarianization of the fishing labor force, patterns of ownership in the fishing industry, the structure of the power elite in fishing community, etc.).

It should be clear that a range of methodological tools and strategies are required to ascertain the existing state of the impact unit. Historical factors are explored through archival research, oral histories, content analysis, and the like (Motz, 1983). Ethnographic techniques, field observations, and survey methodologies are used to determine the cultural base of a community or region (Roper, 1983). Economic patterns can be explored through a range of standard economic data techniques, e.g., revenue and cost assessments, capital and labor supply analysis, goods and services flows and transactions, etc. Ecological patterns, in the case of fisheries on the other hand, requires knowledge of the biomass, specific ecological conditions in a fishery, seasonal variations in fish migration. Here the tools of the marine biologist are called into play. Characteristics of the human population are explored through standard demographic techniques such as migration flow and pattern analysis, fertility and mortality analysis, population baseline analysis and the like. Social patterns require a mix of methods, e.g., field observation, surveys, and documentary analysis. The use of these methodologies provides a data baseline on the pre-development state of an impact unit prior to a social impact assessment.

The range of methods outlined above are also employed to project the impacts of a policy and program, but in this case the methods that are selected provide an estimation of the types of socio-economic conditions or states that are likely to result from a planned intervention.

The selection of methods is determined by a variety of factors. The time available for an assessment and the level of support provided to the social impact assessor limits the types of techniques that can be used. The specification of the unit of analysis also determines data gathering formats and tools. If the unit is defined as an entire community and region and its institutional base, a multimethod approach similar to the above will be required. If, on the other hand, a less than holistic analysis of the impact unit is needed, the selection may be more limited. For example, an analysis of the impact of proposed new policies on Indian fishing rights may require a focused approach using field observations and surveys to gauge the types of conflicts that are likely to emerge between Indian and commercial fish catchers. What is important, however, in the selection of methods is the identification of a method or methods which will yield the most valid and reliable information, given the constraints of time and support, to policy makers and the targeted impact population.

Several methodological strategies and models have been developed for SIA. Most of these have attempted to develop impact assessment techniques that are relevant for implementation of environmental resource development and management policies. In addition, many of them involve a range of methods including quantitative and qualitative measures as well as computer simulation modeling.

In an attempt to integrate quality of life and social impact studies, a value-based community assessment process has been developed by Olsen, Canan, and Hennessy (1985). This approach is specifically useful in ascertaining the types of basic values prevailing in a community and its various segments that are essential in gauging the costs and benefits of policy impacts. It assumes that different segments of a community may have highly divergent views of the quality of life in the area as well as differing perceptions of the consequences of a proposed innovation. A value-based community assessment process begins with a construction of a profile of the basic values in the community which is used to identify those aspects of the social structure and way of life of a community that the population believes are important for the maintenance and enhancement of its quality of life. Empirical indicators are selected and weights given to different desired states which reflect the basic values of the impact unit. The model also assumes that an assessment of the normative framework of a unit is necessary throughout the different stages of policy development, implementation, and evaluation; that is, policy makers, the elite of a community or region and its citizens use their respective value systems to interpret and assess what is happening in the planned introduction of change at each stage of policy process.

Carley (1983a, 1983b) and Murdock and Leistritz (1983) reviewed several quantitatively and computer-oriented SIA methodologies. The Water Resources Assessment Methodology (WRAM) was developed by researchers for the U.S. Army Corps of Engineers (Solomon, et al., 1977). A multidisciplinary team is used to select assessment variables and develop an environmental inventory. Four accounts are developed: environmental quality, economic development, social well-being, and regional development. On the basis of an analysis of these accounts, an impact prediction is made.

Argonne National Laboratory researchers have developed a computerized simulation model which estimates socio-economic changes accompanying energy and industrial developments (Stenehjem, 1978). This Social and Economic Assessment model (SEAM) provides a basis for data estimates for counties and regions in the following categories: population projections, primary and secondary employment requirements, available labor pool, number and type of households, housing needs, and public service requirements and costs due to additional population. A similar approach to SEAM using a large mathematical model in FORTRAN is the Community-Level Impacts Projection System (CLIPS) (Monts and Bareiss, 1979).

Another computer based approach using a simulated impact model (SIMFACT) developed by Arthur D. Little, Inc. is comprised of four interrelated models of the economic and demographic base, community planning, fiscal conditions, and the environmental context (Hutson and DeSouza, 1980). Each of these models involves a complex array of variables. The community planning model, for example, takes into account both the public and private infrastructure of a community. What is most interesting about SIMFACT is that it requires a division of labor between economists, sociologists, planners, engineers, and financial analysis. Such a multidisciplinary approach is quite essential in social impact assessments of fisheries.

There are about ten other computer-based models which have been developed by a variety of research teams in academia, private organizations, and government agencies (Murdock and Leistritz, 1983). Most of these models provide for data collection on the pre-development factors mentioned previously. What is striking, however, is the almost total lack of consideration given to the social and cultural dimensions of a community or region. The most easily quantifiable and the least sociological dimensions are the variables which receive most attention.

A clear exception to this norm is the Social Economic Accounts System (SEAS) developed by Fitzsimmons and Lavey (1976, 1977). Growing out of the social indicators movement, this system is comprised of 477 community-level indicators organized into 15 programmatic areas or sectors, e.g., health, education, welfare, etc. (Carley, 1983b). Indicators in these categories are organized into state, system, and condition variables. State variables characterize a population's quality of life at a given time period. System

variables provide descriptions of the institutional arrangements which affect the population's quality of life. Condition variables are state and system variables in other sectors which impact on the area under analysis. The indicators used in SEAS are both objective and subjective in nature.

In spite of the sophistication of these models and the increased reliability and validity of the methods used in data gathering on impact dimensions, numerous problems have plagued social impact assessments. Many of these problems also confront sociologists and other social scientists active in fisheries research.

Social Impact Assessment and Fisheries

In social impact assessments in other environmental areas such as water resource management, energy development, urban renewal projects, the resources given to SIA practitioners are limited in terms of money, personnel, and access to sites (Vanderpool, 1981). In addition, the time allotted to perform an assessment is seriously limited. Policy makers often assume the data already exist and all the SIA practitioner has to do is pull data off the shelf of some social impact library. In the rush to meet unreasonable deadlines, corners are cut in the design of the research model, readily available data is chosen over data generated by techniques that best fit the case at hand, and the easily quantifiable is selected over the least quantifiable.

Baseline data on important social groupings, communities, and value systems are usually absent or inadequate for assessment purposes. As a result, SIAs more than likely have to generate such data for the first time. They cannot build upon existing data sets for projection of impacts. Compounding these problems are difficulties in establishing the universe of study, in sampling procedures, in the measurement of error, and in constructing indicators for phenomena that are not easily quantifiable (Schnaiberg and Meidinger, 1978). In the end, these issues raise serious questions about the reliability and validity of social-impact assessments. The same questions can be raised about social impact assessments in fisheries.

Data normally examined by governmental officials and members of the fishery councils in the development of conservation and management plans are primarily biological and economic. Social and cultural data are largely

ignored. The result is that economic efficiency and biological sustainability take precedence over the distributional problems of equity in those plans.

Of course, even the economic and biological data base are inadequate. More information is needed on domestic-catch projections, harvest-sector efficiency, biological factors influencing the size and health of fish stocks, multispecies approaches to stock assessments, etc. (U.S. Office of Technology Assessment, 1977).

The estimation of the social and cultural impacts of conservation and management plans present even larger hurdles. Baseline data on pre-conservation and management factors (the pre-development factors mentioned previously), are either not available or inadequate. Moreover, attitudinal data on the acceptance of management plans and of technological changes in the fishing industry must be obtained to make the Magnuson Act work (*ibid.*). The social and cultural variables relevant to limited entry have not been isolated or extensively studied (Orbach, n.d.). In addition, the nature of social impacts on fishing communities or regions dependant upon fishing has to be determined in terms of whether or not they are direct or indirect, short or long term, extensive or focused, and evenly or unevenly distributed. There is also a need to consider if tradeoffs exist among a variety of management plans so as to locate the plan which best meets the OY condition. These problems clearly reveal how difficult it is to determine who benefits or suffers from the implementation of a conservation and management plan.

If NMFS has difficulty in providing basic biological and economic data, its problems are more so in the social impact area. NMFS and its predecessor, the Bureau of Commercial Fisheries, never have had a group of social scientists collecting information on fishermen and their communities. Such groups have been employed by the U.S. Forestry Service, U.S. Army Corps of Engineers, and a variety of energy-related national laboratories. Over the past several years, NMFS has employed one or two anthropologists or sociologists, but there remains a clear lack of experience in NMFS, and also in the fishery councils, in dealing with the types of problems in the design and interpretation of research characteristic of social impact assessments. At times, NMFS appears to have recognized these difficulties, but has yet to implement a program sufficient to meet the requirements of the Magnuson Act.

Social impact assessments provide a basis for specifying sociocultural objectives in developing the OY for fish stocks. The development of these objectives, including economic ones, may be too much to ask for sociologists and economists in light of the lack of an overall U.S. national ocean policy. The ocean policy that exists is an outcome to a cumulative process emerging in decisions made in legislation, executive directives, U.S. bilateral and multilateral agreements, and the reports of commissions and committees advisory to the U.S. on national policy on marine affairs and the oceans (e.g., the National Advisory Committee on Oceans and Atmosphere).

Further, government departments and agencies are constantly elaborating on these decisions. As a result, government control over the ocean environment has been extended without a clear sense of the direction or purposes of such control, and certainly without an understanding of its social impacts. The consensus-formation processes that have developed and enhanced this control (in particular, those evident in the fishery councils) have only served to underwrite a concern with rule creation, implementation, and management. Because of problems in developing adequate ecological, economic and social impact assessments, the assessments that are done cannot provide a quality scientific analysis of impact and surely cannot be a basis of specifying the norms and objectives of U.S. fishery conservation and management policies.

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METHODOLOGICAL APPROACHES TO THE STUDY
OF AMERICAN COMMERCIAL FISHERMEN

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My objective in these brief comments is to discuss a few of the methodological problems I have encountered in studying American commercial fishermen. In particular, I wish to focus on the use of the survey and the limitations of this particular methodological tool. In making these comments it will become evident that I do not exclusively identify with any particular theoretical perspective, but I do have a number of preconceived assumptions about how best to study American commercial fishermen.

When I first began studying Texas shrimpers in 1976, I was struck by how strange they were. I had never studied fishermen before. I had examined other middle income occupations and looked closely at low income Mexican Americans, but I was not prepared for the differences in behavior, work, and lifestyle exhibited by shrimpers. To be more precise, I was intellectually prepared, but not emotionally prepared. Gradually over a two year period I began to place fishermen within the "normal" framework of everyday society, once I was able to get past, both theoretically and personally, the sometimes major differences between fishermen and nonfishermen in my community. Now I stress less their aberrations, which seem very superficial to me, than the commonalities they share with others.

It was difficult to get past this first hurdle. I bought into the current values and beliefs of those around me, including other social scientists at my college. It was difficult to escape my own cultural biases which had labelled shrimpers in very strong and negative ways.

My major concern in systematically studying fishermen was that I be able to describe and analyze them in as complete and objective a fashion as possible. While I think this is a goal shared by all sociologists, it's not necessarily as easy to do this with fishermen, I found, as it may be with other occupational groups.

My concern, as well, was to analyze the problems and issues that fishermen must deal with in their daily lives and I wanted to put these issues within a larger frame of reference. I wanted to get their side of the story, but not

only their side. Again, while this may be self-evident, I was bothered, increasingly, by other studies I found on fishermen that seemed to adopt a theoretical perspective which went a long way towards predetermining what they found.

For instance, while I would agree that it is important to be concerned about National Marine Fisheries Service policies and how they might affect fishermen, to focus a study only on those concerns seems a waste of time and effort. Those who give us money to do research have their own specific needs. But there are a variety of other important and interesting issues to be studied that have little or nothing to do with the desires of specific grantors.

As a sociologist, I first want to find out what is going on within a specific occupation. Then, if I decide to continue the study, the needs of a particular funding institution can be considered. As basic as this is, it seems that few researchers follow this course. What I see are social scientists, money in hand, charging into studies that require them to uncover answers to specific questions dictated by funding agencies.

Before any surveys are concocted, I would suggest that it's first necessary to find out as much as possible about the study universe. We all learned this in graduate school, but it is a lesson usually honored in the breach. Libraries are not necessarily the best place to start. I have developed a healthy distrust of much of the existing literature on shrimpers, which I would generalize to other commercial fishermen. I am especially leery of historical and economic studies, not because I have any bias against the disciplines, but because I have found their work sometimes very misleading. Nonetheless, having a historical context in which to place your observations is crucial. If none exists, as was the case with Texas shrimpers, it is important to collect oral histories.

Participant-observation is an ideal way, in my opinion, to begin to establish the parameters of a study on fishermen. Spending intensive time with those you're going to survey provides knowledge of fishing techniques, understanding of the terminology that is used, and an awareness of the fishermen's daily lives.

In practice, this approach means taking out the old Jeans and T-shirt you might use only for chores around the house. This speaks, in and of itself, to

a major reason why many sociologists have not studied fishermen. We're afraid to get dirty. Fishing is dirty work, just like working on an oil rig or in a coal mine.

Living with and among the fishermen you are studying is, in my opinion, the ideal way in which to prepare for an eventual survey. The problem, of course, is that it is hard to get a chunk of time off to do this. The field experience of anthropologists has much to say for itself in studying fishermen. I see no reason why some of these same ethnographic techniques cannot be used by sociologists.

The drawback to participant-observation and generally just hanging out, as we all know, is that you've got to keep a perspective on what you study. This is certainly true of studying fishermen. The more one works with them, spends time away from the usual pressures of an academic life, the more attractive can seem their work and lifestyle. No classes, no department heads, no tenure just around the corner. And no grading.

It's very easy to slip into totally identifying with the needs of shrimpers, as well as to begin to romanticize their existence. For me that meant there was a time when I was very ready to sail off on a shrimp trawler for ports unknown, leaving behind my family and my students to fend for themselves. While this problem is not unique to studying fishermen, the attraction might be a little stronger. Most of us who study fishermen are, at least at some level, either serious fishermen, boaters, sun lovers, or some combination of all three. So the urge to turn in our lectures for rods already may be strong.

Having come this far, a survey now makes good sense. By now the work that the fishermen do will be well understood, one has an appreciation for the daily routines both on land and water of the fishermen under study, and undoubtedly some specific issues have naturally arisen which the researcher deems important.

Sampling is of major concern and is the area where you might have to compromise the most. Texas shrimpers, like many other commercial fishermen, are very mobile. They don't sit around waiting for researchers to come interview them. How does one select the best sample? It depends on the situation, of course. I started out with a number of methods I intended to

use to select a random stratified sample of shrimpers. But it didn't turn out to be that easy.

For starters, I thought all I had to do was get a list of the shrimp boat licenses in Texas. Then I planned to contact the owners, get the names and addresses of their crews, and track them down. It was a pipe dream, born of my lack of experience with state bureaucracies. Next, I tried the State shrimper's association. They had lists of their members, but their members were boat owners and, shrimpers being very independent, it was a very partial list. I searched for any directory or list of crews and found none.

What I finally settled on was a method to select as random and as representative a sample as was possible given time and other constraints. I selected four fishing communities, considering size of the community, size of the fleet, and a number of other variables. I then selected, at random, fish houses where shrimpers docked to unload their fish after their three week trips. Each day in a particular community, I drew from a hat the name of the fish house where I was going to conduct interviews. While I had to carefully qualify the findings because of the sample that was selected, the point here is that it was the best sample I could come up with. The constraints in sample selection when surveying commercial fishermen are not necessarily the same as when interviewing residents of a suburb. One has to be realistic.

No one, I know, doubts the value of a pretest, but it is especially useful in designing the best possible set of questions. Let me emphasize the importance of pretesting. Discard questions that get blank stares or data that don't make sense. Shrimpers have a low tolerance for being asked stupid questions, and are much less subtle about voicing their displeasure than other occupational groups I have encountered.

I did all the interviews myself, and I don't regret it one bit. I think assigning the majority of the work to graduate students or to professional interviewers is a mistake. There is much to be learned from doing the interviews oneself, the majority of which is not necessarily going to show up in the data. Again, I think that this is probably a point that most sociologists would agree on in theory, but rarely is it operationalized.

Whoever does the interviews must, of necessity, adjust his schedule to that of the fishermen and their convenience. I found it best to interview shrimpers when they returned from their trips at sea. Usually my work was

done by noon time which left the rest of the afternoon to clean up the data, code, etc. It also left time to explore the communities in which shrimpers reside and to focus on the families of shrimpers. Again, what we have intended to do as sociologists, with a few notable exceptions, is to study fishermen as if they were divorced from the communities in which they reside.

The hardest part of the interview for me was the initial permission to board the vessel. Once I selected the vessel in a random fashion, I had to walk up to the captain, who was usually ten feet above me in the pilot house, and quickly state my business and ask his permission to talk with him and his crew. Once on the boat, shrimpers were exceptionally friendly and open. But the problem was getting on the boat, that first contact. I got turned down quite a few times, but when this happened I always replied in a cheerful voice that I would return at the captain's convenience. Sometimes I came back a second, third, or even a fourth time, again always cheerful, understanding of the fact that I was interrupting their work, that they had enough problems without talking to some egghead from the university.

This technique of openness, sincerity, and willingness to structure my time around theirs worked also for interviewing undocumented workers, a significant segment of the labor force. This group, I was told, would be impossible to interview. This did not prove to be true. I was able to learn quite a lot about the shrimping industry from my interviews with Mexicans and Latin Americans. However, I always made a big deal out of asking to talk to the captain first, to get his answers. Then I worked down the status hierarchy until I reached those crew members at the bottom.

I tried to keep in mind constantly that the captain runs the vessel, and what he says goes. This was particularly true in interviewing undocumented workers. Usually they were quite willing to be interviewed; it was the captain, looking out for their welfare, who always told me he didn't think they would talk to me.

It is quite possible that the fishermen you interview have never been interviewed before, and may never again. When I interviewed shrimpers, I tried to keep this in mind. Many asked me why I was bothering to talk to them, ask their opinion. I also collected data that I didn't necessarily need, realizing that it would quite possibly be a long time before a sociologist came that way again. In particular, I tried to collect basic

demographic information not only of the fishermen, but of their families. I asked questions directly dealing with health, not just because I was concerned with it, but because we know so little about the health status of commercial fishermen. Similarly, I collected data on their attitudes about a variety of different subjects, from work to politics. If anything, I probably gathered too much, but I kept thinking that this was quite possibly the first and last time that someone was going to have the chance to interview them.

Next time I study fishermen, I will spend much less time talking to nonfishermen about fishermen. I learned very little, relatively speaking, about shrimpers talking to others who were supposed to know about them. I include marine agents in this category, as well as other white collar workers associated with fishermen. Of course there are exceptions. Those nonfishermen I learned most from were the dock workers and others who most closely associated with them on a daily basis. This, in the case of shrimpers, excluded boat owners and managers, fish house operators and workers, and many others who were in and around the shrimpers, but had little knowledge of their work at sea.

Having collected and analyzed the data, I felt a real need to go back to the shrimpers with some of the findings, especially the ones that were relevant to specific needs they had. This was done on an informal basis. I also began a campaign against the local newspaper, which had for years reified certain negative characteristics of shrimpers. I gave the publisher, who I knew on a personal basis, a copy of my report and, later, my book. I spent some time talking to him about how his paper affected shrimpers. Then I went to work on the reporters. It's a continuing battle, but basically what I am trying to do is educate reporters so that they present fishermen in an objective fashion in their stories. I have met with some success in this regard.

In short, I felt that I had and have certain responsibilities to the fishermen, having participated in their work, having hung out with them, having taken up their time. I have taken this obligation one step further by offering my services, when needed, to explain to juries and to judges the results of my study. I know that I would not feel this responsibility if I had just gone in and done a quick and dirty survey.

These brief comments are made in the hope that those who choose to study American commercial fishermen will benefit. I am suggesting nothing more than that the survey, which can be a very powerful tool, be used with some caution and restraint. In the end, the survey that one does will be more wisely utilized if it is preceded by participant-observation.

DISCUSSION OF SECOND SESSION PAPERS BY
CHRISTOPHER VANDERPOOL AND ROBERT LEE MARIL

Bailey - Have you looked at fishermen's families, talked to their wives and offspring? Or have you focused just on the operators?

Maril - I started out just trying to see what their work was like. Once you start that, it opens up other issues and questions. The problem I had from a theoretical perspective was limiting myself to certain issues and concerns, so that my study wouldn't last for the next 30 years. As an aside, I did look at families. Danowski's study had just come out, so I was aware of the importance of women's roles in the fishery.

Molner - Are there part-timers involved in fisheries? And does that affect their orientation to production?

Maril - Yes, definitely. In Texas there are the inshore part-timers versus the offshore full-time shrimpers. The conflict is between them as the resource becomes limited. The offshore people are trying to regulate the inshore people out of existence.

West - A lot of your (Maril) paper focused more on the sociology of fisherpersons, as opposed to the broader issue of sociology of fisheries. To the extent that we're talking about methodological approaches to the sociology of fisheries, we want to cast a broader net than simply the survey or the expansion of participant observation methods that tend to serve to social-psychologicalize our sociological analysis and to think more broadly about other methodologies that would address the sociology of fisheries in the broader structural and institutional context.

Maril - I would agree with that but my bias still is that the fishermen are the most important part of the fishery. In the approach that I use (it's not a social-psychological perspective), I spent quite a bit of time looking at fishermen and how they are integrated into the larger industry, which comes under the heading of political economy. How are the fishermen affected by different policies, and by stereotypes about their behavior. I see myself in Peter Fricke's categorization as someone interested in occupation/industrial sociology, this being one specific occupation. I'm interested in how fishermen fit into and are similar to other occupations in the advanced stages of capitalism.

Groth - Some may be upset by the stereotypes harbored by onshore people, but those stereotypes have had consequences. For instance the impression of some insurers is that the vessels are "jerryrigged." If I put myself in the position of fisherman's advocate, how do I answer this? Do I tell those insurers to insure the vessels anyway? What should I do?

Maril - There's a grain of truth in any stereotype or else it wouldn't be perpetuated. It's a complex issue, with a lot of implications. One of the intentions of my study was to break down those stereotypes. I wound up

testifying in court to break down stereotypes that jurors might have about shrimpers. For instance, one of the strongest stereotypes of commercial shrimpers and fishermen is that they have drinking problems. I was able to show that that is not true. But there are reasons why that stereotype persists which have to do with when shrimpers drink, the visibility of their drinking patterns, etc.

Stoefel - I think Lee has raised an important general point: the role of people in the research process. What are the legitimate sources of input in your study? If you're working with funded research, someone has set the basic parameters of the study and if you come out of the academy, the literature has already defined what is important for you to study. Lee is suggesting that we should not impose our ideas from the outside and that we begin to work with emicly derived categories and build them into the process conceptually.

We have to consider taking the next step beyond that. That is to really make the subjects partners, like the government funding officer is a partner in the sense of sharing information along the way. They have a right to see draft reports, etc. and give us critical reaction. We have worked with increasingly powerful groups, so now we won't do a project unless we build in the local people in a formal capacity. It's scary because it puts someone else into the research process. But it is important because knowledge is power, and people are often involved in competing with the agency or other people for access to information.

Bailey - I would like to ask Rick Stoefel to describe in more detail how he brought people into the process. How has this experience changed the shape of the preliminary and final draft reports?

Stoefel - I work with American Indians. There is a guideline in NEPA about American Indian participation in the EIS process. It says they should be knowledgable about a project while the issues are being formed; they should participate in the process during the research, see draft reports before they become public documents. We do this for all our clients. We meet with official representatives to find out who the "experts" are that they recommend. Then we derive the initial emic categories from these experts. Based on that, we develop the survey, mail it out and then we analyze those findings. Then we go back to the emic approach and take key experts into the field. And we always have an official representative. We think it is necessary to have dual community representation; a legitimate "official" leader and an "ethnic" expert. In our new project where we look at nuclear waste in Mississippi we're going to use this methodology and treat each village as a "tribe", using dual representation. We've got to build a system of trust on sensitive issues, often on short-term, and this is a mechanism that might be used.

McCay - I wish that we could formally have that sort of thing. I'm now doing a sub-rosa version of that, accepted by the funding agency, on the impact on a fishery community of the purchase of all the land on which the community relies by a developer for non-fishing purposes. In this case we must share knowledge with the people involved since the only thing they'll get out of it

is knowledge that they may use to protect themselves. Formally we collect the data for the agency and develop alternative courses of action, as if the public agency were going to act, when the only ones who are going to act are the fishermen.

Sinclair - I have two comments. First a technical comment: what does one do when several different techniques yield different answers? For example, in statements of attitudes and of what people do. When there is discontinuity between what people are doing and what they hope to be true, I go with participant observation results over the survey results. The other thing is Rick's point: what if you don't share the values of your subjects and they are making it difficult for you to do the research? Will this attitude of involving the research subjects cut this sort of research out altogether? If my ethical position requires me to share results, I'm inviting the door to be closed on me by the subjects.

Stoefel - I don't see that. I've been in some tough research situations. The toughest was at the Kikkoman factory. It was a very sensitive situation. We studied that environment and their values for a year before we went into the factory. We thought that sharing was essential, and it worked. The more we shared, even though we disagreed, the better it went. And sometimes we were wrong. But we had the broader trust that allowed the work to go on.

Sinclair - I can't quarrel with your specific example. I can give a more extreme example and that is a study I did of the Neo-Nazi right in Toronto; that research couldn't have been conducted openly. It's the ethical issue of disclosure: is it automatically ethically justified?

Maril - In fisheries we are going to come in contact with different governmental agencies. We come into contact with law enforcement. My attitude is to tell them what's going on. My experience is that agencies want to know. In the long run your information will be of benefit.

Fricke - Yes, we at the agencies do want that information. Let's take Lee Maril's paper on Texas shrimp enforcement for the Lacey Act. It made strong statements about procedures used by NMFS enforcement agents. I shared that with my bosses. The general consensus was 'why didn't we know about what was going on there', and that we could learn from it.

Stoefel - The other side of sharing is keeping. What is it that you don't tell the agency? We need to define what is proprietary information. I think that your field notes, raw surveys, and photographs are. The analysis itself is the public document that we contract for. I want to write that provision into the contracts I sign. There is a big legal debate on over whether we or the contracting agency have the right to keep our field notes.

Koppel - We all know the example of the Census Bureau in the 1940s giving information to the Army about Japanese-Americans. The national cost in legitimization since then has been billions. To have the possibility of legitimacy we must stand by our word to protect confidentiality. The first thing you can do is blind code your questionnaires, and throw away the key or guard it with your professional reputation.

The next point is methodological. I recently completed a study on marketing of the marine recreational charter/party boat industry in the Northeast for Saltonstall-Kennedy. I quadrupled my questionnaire response rate by speaking to an industry organization meeting and by getting verbal approval from the head of the organization. I had an 85% response rate, whereas when I go ahead with only a letter of approval, I get a 20% response rate. Also, if you promise to send summaries to respondents (it is important to do so), they are cooperative.

III. APPLIED FISHERIES SOCIOLOGY

Discussion

DISCUSSION OF PRESENTATION

MADE BY PETER FRICKE

EDITOR'S NOTE: An authorized written version of Peter Fricke's presentation was unavailable. The record of discussions which follows includes his verbal remarks and the comments of workshop participants.

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Fricke - I am the person responsible for social science input into fisheries management planning with the National Marine Fisheries Service.

I was asked earlier today exactly what I do. It is a little difficult to explain, so let me give you a few examples:

- review Sea Grant proposals
- all the usual staff meetings
- dealing with the American Indian fishing rights disputes
- various international fisheries disputes
- review of Fisheries Management Plans

About 40% of my time as the Agency's sociologist is spent working on fisheries management planning. I don't do the research. My job is to advise and consult at the beginning of the planning operation - with Councils and regional offices. However, the determination of whether social impact assessment is going to go ahead is a political decision made by individual Councils.

My second opportunity for input is when I assist in the review of draft Plans. I tend to mark them up rather extensively, making all sorts of comments, and send them back with a recommendation to the Region and Council as to whether I think they are suitable for acceptance as Fishery Management Plans. The comments will include very detailed recommendations on how they can improve it, or the type of work that must be done for it to be satisfactory in terms of the Magnuson Act.

The Councils may or may not accept my advice - just as the New England Council chose to ignore the advice we'd given them about social impacts from their proposed actions in the Scallop Plan.

The third opportunity for input is when my advice goes forward as part of the package to the Secretary of Commerce as to whether this Plan is sufficiently complete, accurate, and legal document for him to sign.

With the Scallop Plan, I said no. I made a series of arguments about not using the best scientific advice, not being fair and equitable, etc. The Secretary, in fact, refused to sign off on the Scallop Plan because of the social impacts that were not assessed in that Plan.

Another 40% of my time is spent as a communicator. Some of you are subjected to that via my Fisheries Social Science Network Newsletter. You talk to me on the telephone; I answer questions; I spend a lot of time in meetings at the National Marine Fisheries Service, etc.

Then 20% of my time is involved in policy development - and that could be almost anything.

So I've reached 100% of my time, and this doesn't take into account the extra days I spend on such things as budget officer for all fishery management activities of the agency. I'm either flat out or going slowly with something on the back burner.

Now, turning to the presentation today, I have to say the opinions expressed here are those of the speaker - and not those of the United States Government.

I think that sociologists and other social scientists have a tremendous role to play in the conservation and management of marine fisheries. Fishing, itself, is a social activity at all levels: harvesting, processing, marketing, and consuming. All involve social relationships between different people and groups within this hierarchy.

The infrastructure of fisheries conservation and management, the web of relationships between natural scientists, state and federal agencies, regional fisheries management councils, and sectors of the fishing industry, is a social system. It's a system which contains values, norms, and goals. We often don't understand what these are, or where the system is going.

Fishing activities and fisheries management are imbedded in the socio-cultural and socio-political systems of modern society. The relationships of activities of people in the coastal zone are worthy subjects of study themselves. One thing that we often forget is that the enabling legislation under which we work (NEPA and Magnuson Act) are both Nixon-era pieces of legislation. Presidents Ford and Carter might have signed off on them, but they have their pulse in the environmental movement of the late '60s and early '70s. One of the great ironies is that we're dealing with a conservative President now who is trying to dismantle the activities of the last great conservative President.

When Congress wrote the Magnuson Act, it was very specific about the use of sociological data in defining optimum yield. It was even more specific about the use of sociological and cultural data generally when it came to addressing the issue of limited entry. Section 303 of the Act says you can manage a fishery by limited entry, but if you do, you're going to have to meet all these criteria (historical, demographic, etc.).

So there is a legislated need for sociological inquiry in fisheries management - it is a recognized need which, in fact, has never been met. I think this need has been fudged because the consideration of social impacts is seen by Council appointees, the political people who are on those Councils, as being something that they don't care to recognize. It is not necessarily the

skills of the people who are doing the SIA, nor the skills of the people who are bureaucrats, or even the concerns of the fishermen that are being reflected. The final issue in this democracy of ours is a political judgement call by Councils on what is going to fly and what is not. And I suggest that when you read the final results of the New England Council Meeting on the multispecies groundfish plan, you'll find that they fudged it yet again. They did it on the basis of a political call, rather than any of the social, economic, or biological advice they received. In other words, they ignored some segments of their own advice and their own findings.

Now they're allowed to do that, and the Secretary then has to make up his mind whether the amount they fudged is sufficient to withdraw the Plan. He has 90 days from the day it is submitted to make that decision.

When I do the reviews on Final Draft Plans for social impact assessment, I have two and one-half days for each Plan. Period. The public, however, has 30 days in which to make written comments.

I would now like to talk a little about the research needs that I see as not being addressed. I have to emphasize that when I look at a piece of research, I look at it for its value in social impact assessment. I'm interested as a sociologist about the extension of theory, but I'm also looking at it to see how it's going to help me advise people on doing impact assessments.

For the purposes of social impact assessment to the proposed fishery regulations, the fisheries social scientist is interested in the following: demographics of the fishery, community systems, patterns of fishing and processing, including socio-technical systems and occupations, pluralism, and patterns of ownership.

Also of concern are the employability of fishermen and processors, leisure patterns associated with the fishery, ethnic and cultural diversity in the fishery, and secondary and tertiary activities associated with fishing.

Not all of these factors will be important in the analysis or assessment. Fisheries and the people involved vary, and management patterns suitable for one fishery usually cannot be transferred to another.

Now in looking at those various elements, I'd like to talk about each of them in turn, in a little more depth, and point out where I find problems.

As you all know, John Poggie, Dick Pollnac, and Jim Acheson did a super study of the New England fisheries. Unfortunately, it is not of much use for social impact assessment. The reason for this is that the data provided for the different ports do not compare. There are no cross-port comparisons that you can make from that data. And moreover, you can't compare it with the development sciences study carried out on the Mid-Atlantic fisheries, which also was published in 1980.

So we have two studies which are regional in scope, but are not comparable. The first thing that I would ask is that, in our methods, we consider developing comparable data bases.

McCay - I think that is totally irrelevant, given what in fact ends up in the socio-economic impact statements of the Plans that are approved. You have gross generalizations about fisheries, and I think that analyses such as the one that Rhode Island and Maine did should be used even if they are not comparable. They came up with some generalizations that are far better than the stuff that I've found in those Plans.

Fricke - I agree with you. And we're using as much of them as we can, but we would have been able to use a lot more if the data bases had been comparable.

McCay - You don't use data anyway.

Fricke - This is a chicken and egg problem, and I'm asking for data so I can improve the system. We certainly do need demographic data. We need to know how many fishermen there are.

Sinclair - Can't you use licenses?

Fricke - You can't count licenses. Most fishermen have six or seven licenses.

Maril - But wasn't Bonnie's question, what is the purpose of collecting data if the ultimate decision is a political one anyway?

Fricke - For the same reason that you made the argument earlier that you have to stand up and be counted, and start working on those stereotypes.

Maril - But my view of the Management Councils is that the problem is very specific in terms of composition and membership. I agree with Bonnie that you could give them "the definitive work" on any particular thing, and they're going to look at the politics of it and make their decision.

Fricke - I think the test on the matter will come up with the Surf Clam/Ocean Quahog Plan, where we might be sued by one group or another on the basis of unfairness. At that point, the data becomes the crucial factor in determining social impact in a court of law.

Brian - This social impact assessment is really a disclosure process. All things are political. I think people will use SIA information for political purposes, regardless. What bothered me before is that disclosure was very limited, and I think the real breakthrough in NEPA is that you have more disclosure than in the past. The powerful are still controlling things, but I think they are a little more accountable. I think we're beginning to see little bits and pieces of participatory democracy creep into this process.

I also think that there's almost an artificial distinction between ourselves and the so-called "real scientists" or "hard scientists" because of their use of quantification. Actually, quantification is more susceptible to manipulation than the qualitative stuff about values. I think the reason people who hold the cards don't like to discuss values is that they have nothing to gain. Before they had been passing along the hidden costs, and they are still able to do that through a lot of the numbers. But basic arguments about quality of data raise questions that are very difficult to ignore.

Jentoft - I'm not quite sure which role a sociologist should take to be most effective. Whether one should be playing the game, or be one of the audience shouting to the players. I'm not sure we have empirical data which says one role is more effective than the other. It is a paradox for me that in the Norwegian case, the most influential social scientist has been the one outside the whole political arena. Someone taking an independent position from a university setting. Who are the most frustrated after all these years of trying to influence decisions? I think it is the people who have been trying to join the system.

Fricke - (Continuing presentation) I was going to touch on the various data bases that we don't have. Community studies is one which I'd like to call to your attention. The Minerals Management Service has done some extremely detailed studies in the Northwest and off Alaska. They are up-dated every five years, and are among the best community data we have.

We don't have, however, community studies (kinship organization, single industry dependence, etc.) for anywhere else. The Gulf, for example, was grandfathered; they did not have to do those impact studies because the oil fields were there before NEPA came in. So we don't have much information on the Gulf states.

Studies of occupational pluralism, or the "seasonal round," are something we don't have very much of either. I think they are very important because they come down to the issue of employability.

Leisure patterns of marine angling fishermen have been relatively well explored. However, much work still needs to be done because we're now finding that our most politicized fisheries are those which have a very heavy recreational component. I don't know if you've followed the appointments in the Councils, but there was a huge fight in the Gulf. For the first time we had a Council, dominated by members of the commercial sector of the industry, switch to being dominated by members of the recreational side. And there have been increasing numbers of skirmishes between the two groups over competition for resources and the territories in which they are found. Recreational fishermen have had a number of successes lately. They've managed to get commercial striped bass fishing pretty well banned in most of the New England states. In Texas, the Redfish fishery as well as sea trout fishery have been reserved entirely for recreational purposes. We're not really looking at the dynamics of this competition.

These are what I refer to as "basic research issues." The type of stuff an academic researcher is interested in for other reasons.

My second category of action is that of sociologist as policy researcher. We're seeing a lot of interest by political scientists and anthropologists in the workings of the fishery management councils. However, we're not seeing very much work being carried out on the organizational patterns of management appropriate to fisheries systems. In other words, what is, for any given complex of fisheries, an appropriate management style? And what are the appropriate enforcement patterns for an area? When you've got a Plan in, how do you best develop the enforcement programs to make that Plan work?

Brian - Could you be a little more concrete about that. You're talking about "appropriate management styles" ... how about a good "for instance."

Fricke - A good "for instance" would be the fight we just had over the sablefish fishery in Alaska. That was a good example of how I can trip up when I get incomplete data, or data that I don't fully understand.

In essence, there were 190 longline vessels which depended substantially on the sablefish fishery there. Three converted crabbers came up from Seattle and harvested 20% of the entire OY in a period of 21 days. The longline fishermen flew a troop of people into Washington, D.C. asking that the fishery be restricted to longline gear alone. I had longliners coming out my ears for two days. Emergency legislation was passed to this effect on the basis of an unacceptable social impact upon the longline fishermen.

What we were never told, however, was that there were about 40 crawling vessels which also traditionally harvested these sablefish which were excluded by this legislation. We found out about them when we were sued. Fortunately, it was all settled out of court by changing about 3 paragraphs in the legislation.

Bailey - I'd like to tie in what you have said with comments made during Chris' talk. Chris made the point that we have all these legislated needs for information, but where are the resources to fill those needs?

Fricke - National Marine Fisheries Service last year spent \$110,000 on social science data gathering ... outside of Sea Grant. That included my salary. The Councils in their programmatic requests received approximately \$95,000 for direct social science programs, and another \$150,000 for socio-economic studies, most of which went to economists.

Jentoft - You're the only social anthropologist there?

Fricke - Yes. There are 25 economists, 40 lawyers, 800 biologists, and one social anthropologist.

Stoefel - I think that there are historical reasons which explain why we haven't been very effective in putting people permanently in the agencies and in making the argument that our resource findings are important in terms of policy.

We were in the agencies in the 40's and 50's, then university opportunities increased and everybody left. We simply left the agencies, and now we're suddenly trying to get back in and wondering why it is that we're marginally funded and marginally represented. I think we did it to ourselves.

Fricke - I think you're being a bit too pessimistic. Yes, to a certain extent it's the fault of sociologists and our predilection for "pure" research. It's also our fault that when opportunities were there, we never addressed them in a language that could be used.

Finally, the agencies haven't had very much space. They've been under cutbacks now since 1969 in terms of numbers of full time positions. So in order to create space for new people and handle new legislative mandates, people are being shuffled. Yes, we have 800 people trained as biologists. However of those, only about 400 practice as biologists. The others are in management of various kinds, working with budgets, and all sorts of things. They've had to adapt.

Stoefel - I'm not impressed with one person getting a job sometime when the money was more available. What I'm impressed with is that most of us are really polite. Most of us are really nice folks who sit down and say 'We do good work, we represent nice folks, and somebody ought to recognize how wonderful we are and I'm sorry that there is only \$12.40 out of a two million dollar budget, but I'll take it and do as much as I can.'

I think we have to realize the reasons why we represent an 800 to 1 minority. We need to systematically find the mechanism for putting ourselves in the agencies.

Koppel - To me, the more important thing than whether we should flail ourselves for our myopia, or flail the agencies for their myopia, is your earlier point. That sociologists have something very powerful to address: the economic/socio-political consequences, including the emotional and job-related consequences, of decisions going back to the 50's. The jobs that have long gone ... the whole communities that have died. All of these things happened without anybody with our perspective to study them.

Vanderpool - I would say that the actions of fishermen themselves often have created a forum for ourselves. But, we don't have a constituency. We haven't created one. We're all outside the system, except for Peter Fricke.

Sinclair - We ought to be outside the system. I can't speak for people in the United States, but I would suggest that generally, there are too few skilled people available to have all of them committing themselves to doing projects, the terms of which are defined by government agencies. We also need to be doing things that are defined by other people.

Fricke - There is an inherent problem with the National Marine Fisheries Service funding social impact studies of fishing operations. We then make the policy decisions - in that sense we are the judge, jury, and enforcer of the actual system.

I think the best approach would be funding of projects by Sea Grant, which, though it is also government funded, is an autonomous agency run through state programs at universities. Sea Grant is spending about 1.2 million dollars a year on social science research.

Stoefel - Which is less than they said they were going to when they created it. I think, though, that it is not necessarily their fault. It partly has to do with the fact they don't understand us very well. I was at a Sea Grant conference in Madison where, in very in-group fashion, one speaker said, "I know you, like me, were trained as fisheries biologists. We've spent all our

lives loving this little what-ever-it-was that we love so well ... and now we end up managing people instead of fish." The first lead-off statement was a plea on his part, followed by rousing applause by the crowd when he said, "My God, 90% of our job today is managing people and we don't know anything about them. We're all fisheries biologists - let us have some information from the social scientist."

I think that we do have a constituency out there. We speak for people ... and we speak to managers about those things.

West - I'm wondering if, at least temporarily, I could channel the discussion into a more substantial direction. (Bronx cheers from the audience.)

One of the reasons that we're not listened to is because we don't have a predictive science. The critical Achilles Heel of social impact analysis is the ability to predict what the impacts of any given act are going to be. That is a fundamental issue that I think we ought to be addressing here in relation to fisheries.

In that regard, I'd like to second the comments that both Chris and Peter made about the importance of: (1) comparable data bases, and (2) post-hoc studies. But we've got to do even more than that by building some middle-range theoretical constructions, so that we can know the general limits of particular kinds of data and make predictive statements. If we can develop a better predictive science, we're going to have a crystal ball, and once we get the crystal ball, the centers of power will respond in kind. Very much the way they now respect economics as having the crystal ball.

The central problem that is imposed upon us by NEPA is to predict. If we can do that job better, we'll be able to avoid negative impacts, and we'll be more listened to. Certainly predictability is not a thing that is totally achievable, but we can move in that direction and I think we ought to be focusing, at least partly, on substantive ways of approaching that very difficult problem.

Fricke - In our role as sociologists, we talk about probabilities. When it comes to Fishery Management Plans or social impact assessment, I feel the test of it comes in the eye of an administrative law judge. What you have to do is convince him that what you have put in there is based on the best available information, that you used your professional skills to analyze it, and that you're prepared to stand by it.

That's what I mean by a prediction and a forecast. We're not talking about something on the level of sociological/scientific probabilities. We're talking about something with which, in good faith, we make a forecast.

Brian - The term might even be "possibilities" rather than probabilities. You're talking about reasonable scenarios. Some people take the position (I don't - I like the traditional science view) that you can't really predict the future, therefore about all you can do is throw out these scenarios and shape your future through planning. I used to really resist that, but now I'm being pushed a little more in that direction.

Harris - But are you comfortable with that position? Because that seems to analogize the role of the fisheries social scientist to the forensic psychiatrist.

I'll rephrase that. Can a professional, in his or her best professional judgment, justify a conclusion? And so, in court, you have one psychiatrist who says, "Absolutely, by these 17 tests he is loony as a jay bird." And another equally reputable psychiatrist saying, "Not at all. Clearly, by all available indicators: totally sane."

Now that simply says that whichever social scientist happens to be hired to do the social impact analysis, so long that it is done credibly, will determine the analysis to underlie the Plan. It seems to me that this is precisely Chris Vanderpool's point: that the doing of the social impact assessment is ultimately a political process.

Fricke - Yes, ultimately it is, in the sense that the final judgment on what shape the Plan will take is made by a Council.

Harris - No, I'm saying that the judgment on the nature of the social data that underlies the Plan is a political process. Because if all you're asking for is plausibility, then the issue is use of the best available methods ("Did Harris take a random stratified sample? Did Harris do two follow-ups to his mail survey?")

I think that would be totally defensible to your administrative law judge. But Vanderpool could walk in there and use equally good methods, and come to a completely different conclusion.

Stoefel - So if you get cancer, you go to two different doctors for opinions. I don't have any trouble with that.

Harris - I guess the question I was trying to raise is this: is the legal standard of plausibility our highest standard, or do we as social scientists have a higher standard?

Stoefel - I think we have a higher standard. Most of us in here have already been in court, or will be in court. The reason is because we're working on important things, and we're going to be sued.

We're going to be sued for data, on the quality of our reports, on our findings, I've been to court three times this year. We're in court all the time. And across from us in every court case is somebody like us. Technically as good, in every case, they're always as good. It's judged on the quality of the final product. And I think that Peter has suggested an important cut point. The final product is still being judged out there. I think that is what you were going after: "Is there a higher level of evaluation?"

Harris - I guess I was asking a somewhat philosophical question: Is the goal of social impact assessment truth as opposed to credibility?

Fricke - Truth, but I think you missed the point of what I was driving at. That is that you need the good basic studies ... the baseline studies, the post-evaluation studies, all of those things.

But when you come to dealing with social impact statements, recognizing all the problems you have with predictions, you have to give it the best possible shot you can.

IV. ETHICAL ISSUES IN FISHERIES SOCIOLOGY

A. "Fisheries and Social Equity:
Provisional Perspectives for a Political Sociology
of the Indian Fishing Rights Conflict in the Michigan Great Lakes"
Patrick C. West

B. "Blue Revolution: The Impact of Technological Innovation
on Third World Fisheries"
Conner Bailey

C. Discussion

FISHERIES AND SOCIAL EQUITY: PROVISIONAL PERSPECTIVES FOR A
POLITICAL SOCIOLOGY OF THE INDIAN FISHING RIGHTS
CONFLICT IN THE MICHIGAN GREAT LAKES*

Patrick C. West
University of Michigan

This paper discusses provisional orientations for a research project on the political sociology of the Indian fishing rights conflict in Michigan. The paper discusses theoretical perspectives, methodological approaches and ethical issues and dilemmas in analyzing the influence of bureaucratic power on social equity in the distribution of access to fisheries resources in the Great Lakes of Michigan. Particular attention is given to the role of the Fisheries Division of the Michigan Department of Natural Resources as a primary actor in the conflict.

The conflict began when Michigan Indian tribes initiated legal action to assert treaty rights granted under the Treaty of Washington (see Fig. 1) to prevent the Department of Natural Resources from regulating their fishing activities in the Great Lakes. During the period of litigation the DNR worked actively to prevent a legal fishing right from being established. Once the legal fishing right was firmly established the DNR had to formally comply but has worked to mitigate the magnitude of the claimed right to protect the prerogatives of the sports fishing industry and sports fishermen in the state. The DNR has legitimized its actions on the basis of a need to retain full administrative control over the fishery to protect the ecological viability of fish populations, and on "economic efficiency claims" that favor the sport fishery.

*Seed money funding to initiate this research was provided by the School of Natural Resources. The author would like to express appreciation to the School of Natural Resources and the University of Michigan for supporting a half year sabbatical that has provided time to initiate the archival research phase of this research project. He would also like to acknowledge Dale Blahna for earlier contributions, especially to the chronology of events in section two of this paper.

This research will focus on the role of the DNR in the fishing rights dispute through an analysis of the institutional and power context in which it has operated. It is hypothesized that external sources of power in the sports fishing industry and sports fishermen organizations have interacted with an ideological orientation of DNR officials to create a system of "cooperative domination" that has placed the power resources of the DNR in opposition to the legally validated fishing rights of coastal Indian communities.

In the following description of the project I will present key theoretical perspectives that provide a preliminary orientation for the research. This will be followed by a more detailed overview summary of the fishing rights conflict case, methodological approaches and data sources, and theoretical, applied, and ethical implications of the study.

Theoretical Issues

Craig and Tester (1982:18) recently have analyzed the ineffectiveness of the standard social impact analysis process with respect to resource developments and policy decisions dealing with American Indian natural resources. They argue that a social impact analysis typically gathers information profiles about those impacted, but not about the impacting institutions. The development of a social impact analysis of those institutions, they argue, is an essential element in social impact analysis if it is to provide realistic potential for the mitigation of those impacts. They argue for a detailed analysis of the institutional structure of both government natural resource agencies and the context of powerful interest groups that shape key resource development and allocation decisions.

In my recent comparative study of the political sociology of natural resource bureaucracies I developed a model of power relations between resource bureaucracies and powerful constituencies that will be used in this study as a provisional theoretical orientation for an institutional analysis of the DNR's role in the Indian fishing rights controversy. For a detailed exposition of the theoretical formulation, literature review and historical and comparative evidence for this model see West, 1982a. The concluding thesis of this model was summarized as follows:

Variation in distributive equity in access to Public natural resource use depends in large part on the combination and interaction among the power balance, domination through constellation of interests, and

equity ideology. Relatively greater distributive equity depends on a power balance in favor of agency autonomy, low levels (or lack) of domination through constellation of interests, and the existence of at least a vague equity ideology in the guiding myths of the agency (West, 1982a: 113).

The power balance refers to standard political science analysis of the effect of external constituency power on agency policy (e.g. Simon et al., 1965; Freeman, 1965; Woll, 1963; Westin, 1962). For references in relation to fisheries management agencies see Cooley (1963), and for other natural resource agencies see for example Foss (1960), Selznick (1966); and Hardin (1967). Variations in the "dependency balance" (the relative dependence of interest groups on the agency in relation to the dependence of the agency on the constituencies) was found to strongly affect the degree of constituency group domination over agency action.

In addition to the standard analysis of power relations, Weber's distinction between power based domination and "domination through constellation of interests" became an important element in the causal model. Weber (1968: 943) defines this form of domination as:

influence derived exclusively through the possession of goods or marketable skills guaranteed in some way and acting upon the conduct of those dominated, who remain, however, formally free and are motivated simply in the pursuit of their own interests.

It is hypothesized that domination through constellation of interests may also be present in the Indian fishing rights controversy. The DNR has taken its position against Indian fishing rights, not solely out of political domination by sports fishing groups, but also because of perceived differences in efficient resource utilization. Also, the DNR budget is derived largely from the sale of sport fishing licenses so there may be a natural domination through constellation of interests that channels agency actions in the interests of sport fishermen. Evidence was found in my earlier comparative study that the presence of domination through constellation of interests enhances the efficiency of constituency power resources by increasing the dependence of the agency on its constituency (West, 1982a:30-31). This is hypothesized to be the case in the Indian fishing rights controversy.

The third factor in the causal model was the presence of "equity ideology" with respect to distributive issues in resource management:

The degree of distributive equity achieved depends also on the degree to which ideologies of distributive equity exist in agency myths and policies. [However] even vague and/or administratively rooted distributive ideologies can have an inertia effect beyond their limited power base due to the agency's need for rhetorical consistency with agency myths to sustain legitimacy (West, 1982a:112-113).

It is hypothesized that in the DNR's Fishery Division that there are no such equity goals. However, general bureaucratic mandates to comply with the law provide imposed equity goals that the agency must maintain formal allegiance to for the sake of its legitimacy. This has become particularly salient since the Indian fishing right has become firmly established in the Federal court decisions (see below). However as Bendix and Roth observe:

A government administration must be understood according to Weber, as part of a legal order that is sustained by a common belief in its legitimacy. That order is reflected in written regulations, such as enacted laws, administrative rules, court precedents etc. which govern the employment of officials and guide their administrative behavior. Such authoritative ordering of the bureaucracy is never more than a proximate achievement. (underlining added, Bendix and Roth, 1971: 130).

It is hypothesized that formally imposed equity ideology from the federal courts are opposed and partially eroded not simply from "goal displacement" that occurs because of a response to the external power equation in the DNR's environment but also due to the ideological orientation of DNR officials who are not simply neutral administrators responding to external political pressures, but rather active participants in a coalition with external interests.

As Lipset (1967:271-272) has observed:

For the most part [political scientists] have not raised questions about the social origins and values of government administrators and the relationship of such factors to government policy....There is little recognition that the behavior of government bureaucrats varies with the non-governmental social background and interests of those controlling the bureaucratic structure.

It is hypothesized that the majority of key administrators in the DNR fisheries division derive from social origins and relate to constituent "reference groups" that predispose them to favor white sport fishing interests over the interests of Indian subsistence and commercial fishermen. As Weber observed (1968:987), "bureaucracy is a power instrument of the first order for one who controls the bureaucratic apparatus" (underlining added). The control of the DNR administrative apparatus by those ideologically opposed to the assertion of Indian fishing rights in combination with tendencies towards constituency domination by sport fishing interests (as described above) is hypothesized to create a coalition of "cooperative domination" of the state level bureaucracy that is in tension and conflict with legal and court ordered mandates that formally protect Indian fishing rights. The ultimate resting point in this balance of forces will be determined in part by the degree to which this hypothesized structure of "cooperative domination" of the bureaucratic apparatus at the state level can divert, minimize, or diminish the legal mandate to guarantee the Indian fishing right. This struggle will be constrained by the need for formal compliance with judicial interpretations of treaty laws in the interests of maintaining "legitimacy" within the rational legal political order.

It should be emphasized that the above theoretical orientation is preliminary and subject to reformulation based on inductive empirical analysis of the data base described below. It is critical in objective sociological analysis that such provisional orientations not be used to shape data collection in such a way that preliminary hypotheses become self-confirming. This is particularly important in dealing with qualitative historical materials on a highly controversial subject.

Brief Synopsis of Indian Fishing Rights Issue

In the early 1970's, Chippewa fishermen from the Bay Mills and Sault Ste. Marie area of the upper peninsula became more heavily involved in subsistence and commercial fishing using primarily a gill net technology which had recently been banned for white commercial fishermen. In 1973 Albert LeBlanc was ticketed by the DNR and he initiated a court case (People of Michigan vs. A.B. LeBlanc). In 1976 the Michigan Supreme Court upheld Indian fishing rights in that case based on the 1836 Treaty of Washington (see Fig. 1). Subsequent

appeals in the Federal Court of Appeals in U.S. vs. Michigan ruled that the Treaty of 1836 guaranteed Indian fishing rights subject to state regulation only if "the state can prove tribal regulations are inadequate to protect the resource." The state failed to prove this to the satisfaction of the court, and in subsequent appeals to the U.S. Supreme Court the court refused to review U.S. vs. Michigan, (December 14, 1981), which made the Court of Appeals decision final.

During the period of litigation the DNR and a coalition of sport fishermen's groups worked actively to prevent the legal institutionalization of the Indian fishing right. The primary argument the DNR used was the usurpation of claimed state authority by federal agencies who entered the conflict in defense of the Indian fishing right (see e.g. U.S. Congressional Hearings, 1978:139-145). The DNR did not go as far as its sportsmen's constituency in pushing for a congressional abrogation of the fishing right, but they worked actively to keep it from becoming legally established during the period of litigation. In the post litigation period the DNR has had to formally acknowledge the fishing rights of Indians but has sought to limit their scope through subsequent negotiations that are still in progress.

Methods

The primary methodological approach in this study will be an historical case study drawing on archival materials and depth interviews with key participants. While acknowledging certain advantages of broader comparative analysis it is important to recognize the continuing value of organizational case studies. Weick (1976), March and Olsen (1976) have recently re-emphasized the continuing need for more comprehensive in-depth institutional case studies as a basis for sound comparative analysis. Also Lipset (1956) has emphasized certain advantages of institutional case studies in causal analysis:

Internal analysis has no great disadvantage with respect to comparative analysis. It may, in fact, have one important advantage: by taking simple comparative correlation out of the reach of the investigator, it focuses his attention upon the underlying processes which operate within the system. In this way, the internal analysis may lead to a deeper explanation of the phenomena and to generalization of a more fundamental kind.

While the primary emphasis will be on an in-depth case study, I will set the findings in limited comparative context using my previous comparative work on natural resource bureaucracies and distributive equity (West 1982a), other case study material on institutional analysis of Indian resource development conflicts (e.g. Geisler et al., 1982; Danziger, 1974; Philp, 1977; Cahn, 1969; Kickingbird and Ducheneaux, 1973; McNickle, 1975), and other case studies conducted specifically on Indian fishing rights controversies elsewhere (e.g. American Friends Service Committee, 1970; Cooley, 1963).

Approval has been gained from the DNR to conduct an "administrative history" of the conflict using the files in the Fisheries Division office in Lansing, Michigan. This comprises roughly 20 ft. of files. Other archival sources include records in the Michigan Library (the state government library) in Lansing, and the state government archives in Lansing which contain earlier records of the DNR fisheries division. Procedures for sampling archival data that I have utilized in previous archival research (West, 1982a:140-142) will be utilized. These include random sampling of archival material, theoretical sampling, and the use of "optimal time period" sampling (La Porte and Petras, 1969).

Depth interviews with key participants in the DNR's role in the conflict will be used to supplement the archival record and fill in gaps not available in the official files. These interviews will also be used to gather individual level data on the social origins, and ideological and reference group orientations of agency personnel needed to test the above hypotheses related to these factors.

Sociological Implications and Ethical Dilemmas

The foregoing has illustrated some theoretical and methodological approaches to an ethical issue of distributive justice in the allocation of fisheries resources among competing users. Yet it leaves dangling a number of ethical questions which may help guide our discussion of the interface of sociological and ethical analysis of fisheries issues.

The first question is, as always, the issue of the relation of "objective value neutral" scientific research to the realm of values and moral commitment in pursuing research. In addressing this question we should remember that Weber made a clear distinction between the objective, value neutral analysis

of social phenomena and the role, and indeed the moral responsibility, of the social scientist to explicitly employ personal values both in the selection of research problems, and in grappling with the ethical implications of research findings. Sidestepping the issue of whether this Weberian ideal is really possible, I would simply note that the words of C. Wright Mills have been my guide in this, and other research on social equity issues in natural resource and environmental affairs - "I have tried to be objective, I do not claim to be detached."

The second major ethical question is the more substantive issue of the implications of both the process of determining distributive outcomes, and the resulting allocation of resources and their resulting social consequences. With respect to process, there is no singular ethical interpretation, only conflicting claims to moral authority.

That the above system of "cooperative domination" over the state bureaucratic apparatus exists is fairly clear, even at this early stage of research. But this scientific finding renders no clear ethical judgement. To the Indians and committed advocates of Indian rights it implies at best a verdict of "shady conspiracy", and at worst a thinly veiled "institutional racism." But to the DNR professional, the average fisherman who only wants that 'big one that didn't get away', and the motel owner whose livelihood seems threatened, that same system of "cooperative domination" is simply the exercise of legitimate influence of the democratic majority, and the legitimate response of the bureaucracy to seriously consider the majority opinion gained through public participation, in the context of the wider institution of representative government reflecting the legitimate "will of the people."

With respect to the actual allocation outcomes, what begins for the committed liberal advocate as a clear moral imperative demanding justice for the Indian nation and the righting of past wrongs, soon becomes enmeshed in ethical dilemmas revealed in the sociological analysis of conflicting consequences. I have entered into this research with firm ethical concern for the legitimate treaty rights of the tribes and the moral imperative for social justice. And yet if the triumph of legal right and moral imperative should lead to the rapid disintegration of the rural tourism based economy, and attendant consequences leading to high unemployment, growing rural poverty,

and reactive interracial strife and violence, ethical imperative soon becomes enmeshed in a 'fish net' of ethical dilemma.

A better analysis of sociological consequences of different allocation and conservation outcomes only heightens our awareness of these ethical contradictions. Hopefully such an analysis might also lead to constructive alternatives and a search for balance. Yet even the staunchest Indian advocate, who might choose to ignore the cognitive dissonance generated by such an awareness, would do well to recall both the ethical and strategic implications of Max Weber's distinction between the "ethic of absolute ends" and the "ethic of responsibility" (Weber, 1958: 127).

Amidst this complex array of conflicting consequences, conflicting interpretations, and competing claims, the contending parties vie for the precious commodity of legitimate moral authority. If there is a flaw in the Indian's claim to legitimacy it may be in their failure to fully appreciate the necessary biological conditions to ensure sustained viability of the renewable resource they have suffered so much to claim. While, in the eyes of the Indians and Indian advocates, the actions of the DNR may seem totally antithetical to the interests of the tribes, the DNR and its rational-scientific capability may, amidst the heat of conflict, be playing a very important function in helping to ensure the conservation of the resource and thus the viability of the Indians' best long term interests. On the other hand, the flaw in the sportsmen's, the tourism industry's, and the DNR's claim to moral authority has been their often callous failure to give more than lip service to legitimate legal rights, and the moral outcry for social justice for a long oppressed minority that haunts the best ideals of the American conscience.

Update

As these proceedings go to press, an out-of-court settlement has been reached in this conflict. The draft agreement was signed by all parties but the Bay Lakes Tribe failed to ratify the agreement. They submitted an alternative settlement plan. U.S. District Judge Richard Ensen issued a final verdict upholding the original settlement which went into effect May 15, 1985. The plan involves a complex zoning system in which the tribes will receive 70% of commercial fish species including incidental lake trout.

Special protection zones are designated where no fishing (either sport or commercial) is allowed to help stimulate trout reproduction. The agreement assures the protection of the Indian fishing right with a minimum impact on the sport fishing and related tourism industry. Non-Indian commercial fishing will be curtailed under the agreement.

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FIGURE 1

**Land ceded by
Treaty of Washington
-1836-**



BLUE REVOLUTION: THE IMPACT OF TECHNOLOGICAL INNOVATION
ON THIRD WORLD FISHERIES

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The introduction of new fishing technologies over the past two decades has brought about a radical transformation of the fisheries sector in many Third World countries. The impact of this "Blue Revolution" has gone largely unnoticed by rural sociologists and other social scientists, who instead have focused attention on parallel and nearly simultaneous changes wrought by the Green Revolution.

This paper examines the impact of production-oriented development strategies as applied to marine fisheries resources. Data from a Philippine fishery will be used to illustrate the effect of technological innovation in the context of resource scarcity, a condition that characterizes most important Third World fisheries. The paper concludes by arguing the need for fisheries development strategies to be balanced by resource management policies that address issues of resource allocation and distributive equity. To this end, there is a clear need for policy-oriented social science research that, at present, is conspicuous by its near absence.

Fisheries Development as an Emerging Issue

Until recently, the rural development focus of national planners, international assistance agencies, and (consequently) social scientists has been on agriculture due to this sector's preeminent position in generating employment and basic food commodities. However, in part due to the success of the Green Revolution in increasing cereal grain supplies, both national and international development agencies have begun devoting increased attention to other sectors of the rural economy, including fisheries. The recent U.N. Conference on the Law of the Sea and the proclamation of 200 nautical mile Exclusive Economic Zones by virtually all coastal nations have heightened Third World awareness of the importance of fisheries resources to national development. As a result, many of these nations, supported by international aid agencies, have embarked on ambitious fisheries development programs which, like those of the Green Revolution, tend to emphasize production-oriented technologies.

Fisheries development is a matter of great concern to many Third World countries, where fish provides the most important source -- and for the poor the only affordable source -- of high quality protein. Fisheries products, particularly shrimp and tuna, also have become an important source of foreign exchange earnings.² The number of people directly employed as fishermen in Third World countries has been estimated (conservatively) at 15 million (FAO 1981); Smith (1979) reports that there are approximately 4 million fishermen in Southeast Asia alone.

Technological Innovation, Distributive Equity, and Resource Allocation

Both the Green and Blue Revolutions have been motivated by the desire to improve productivity and incomes of small-scale farmers and fishermen, to increase availability of food for domestic consumers, and, where possible, to produce a surplus available for export. Regarding agricultural development, frequently it has been observed that the introduction of Green Revolution technologies has tended to benefit primarily those with access to capital, fertile soil, and adequate water supply (Ashby 1982; Bailey 1982, 1983; Cohen 1975; George 1977; Kasryno 1981). Balanced against the resulting inequalities of income and wealth, tremendous increases in cereal grain production have been achieved (Chandler 1979; Hanson, Borlaug, and Anderson 1982).

In the case of fisheries, however, the introduction of more effective fishing units (i.e., larger boats equipped with more powerful engines and more effective nets) typically has not led to sustainable increases in total harvests, and in some cases has produced the opposite result (Marr 1976; Pauly 1979). Once the level of fishing effort has reached the point where maximum sustainable yields (MSYs) are achieved, an increase in fishing effort (e.g. the addition of a new fishing unit or the upgrading of an existing unit) does not result in sustainable increases in total landings. As the level of exploitation surpasses MSY, the regenerative capacity of the resource is insufficient to maintain peak stock densities and total harvests are likely to decline.

In social terms, the expanded use of capital intensive fishing technologies not only has increased economic inequalities, but also has had a direct negative impact on small-scale fishermen by reducing their ability to compete for a scarce common property resource (Bailey 1982, 1984a, 1984b;

Panayotou 1980; Smith 1979). Where fishery resources are fully exploited, competition between fishermen often resembles a "zero-sum game" in which technological advantages enjoyed by certain individuals or groups of fishermen have a direct negative effect on the catch and income of others. Where levels of exploitation exceed MSY, competition is heightened, leading to the elimination or marginalization of the least efficient producers, i.e., small-scale fishermen. These matters are of more than theoretical concern as the level of exploitation in many of the most important fishing grounds in the Third World already has reached, and in some cases has surpassed MSY (FAO 1984b; Marr 1976; Pauly 1979).

San Miguel Bay, Philippines

The example of San Miguel Bay, an important fishing ground in the Bicol Region on the southeast coast of Luzon Island, Philippines, is used to illustrate changes in resource allocation and income distribution caused by the introduction of new fishing technologies. These data are based on an intensive two year (1980-82) study by 17 researchers representing the disciplines of biology, economics, and sociology.³

Conditions in San Miguel Bay represent a microcosm of the problems affecting fisheries development in much of the Third World. The Bay's resources are fully exploited and those who fish there are engaged in the "zero-sum game" alluded to above. Moreover, the terms of this game are distinctly unequal due to the introduction in 1972 of highly efficient trawlers that operate in direct competition with local small-scale fishermen.

The trawlers of San Miguel Bay are small wooden boats displacing 3-10 gross tons powered by secondhand diesel truck engines and are equipped with a funnel-shaped net towed at or near the bottom. Investment costs for such trawlers in 1981 were approximately US\$10,000, ten times the cost of the most expensive small-scale fishing unit in that area.

By 1981 trawlers accounted for 47% of total landings but employed only 10% of the 5,600 active fishermen (Bailey 1982). Catch composition data collected by project biologists show that trawlers and small-scale fishermen operate in direct competition for most commercially important species, including high-valued shrimp (Pauly and Mines 1982). Data from project economists show that virtually all of the profit extracted from this fishery was earned by trawler owners (Smith and Mines 1982).

Ownership of these trawlers was controlled by 25 out of a total of 3,500 fishing households in the 44 communities surrounding the Bay. One man owned 24 trawlers, one-quarter of the entire fleet (which numbered 95). All of the trawler owners either came from other parts of the country or are local entrepreneurs whose primary economic interests are in other sectors of the economy.

As numbers of trawlers gradually increased during the 1970s, catches of small-scale fishermen declined (Yater 1982) despite government loan programs that encouraged increased use of motorized fishing boats and the adoption of more effective nylon netting. These well-meaning programs served to increase pressure on an already fully exploited resource. This problem was exacerbated when several trawler owners managed to gain access to this program to finance construction of additional trawlers. Only a small proportion of small-scale fishermen were able to obtain loans to upgrade their fishing technologies. This improved their competitive position relative to other small-scale fishermen, but did not seriously improve their ability to compete with trawlers.

Nonetheless, despite declining fortunes, numbers of small-scale fishermen have continued to increase. Between 1970 and 1980, the average annual rate of increase in numbers of fishermen (2%) was the same as in the preceding 31 years before the introduction of trawlers to San Miguel Bay (Bailey 1982). The obvious question is: why is this so?

The answer to this question is that there are few alternative employment opportunities available to fishermen. The surrounding agricultural hinterland, where lowland rice and various upland crops are grown, is characterized by high levels of underemployment. Local urban "growth centers" are economically stagnant and unable to absorb surplus labor from the largely agrarian Bicol Region.

Far from exhibiting an unbreakable "call of the sea," a large majority of the over 640 fishermen we interviewed expressed willingness to leave the fishery, their home community, and even their home province, if by so doing they could improve their standard of living (Bailey 1982). Our survey data show that these expressions are reflected in actual behavior, with Manila the most common destination. However, balanced against this out-migration is significant in-migration of others to coastal fishing villages of San Miguel

Bay, most notably landless agricultural workers. To this group, fishing represents an opportunity for economic improvement. Investment costs to become an owner of a small-scale fishing unit are far lower than those necessary to purchase a parcel of land sufficient to support a family. Moreover, average earnings by non-owning crewmen are higher than those of agricultural laborers in the San Miguel Bay area. As long as this is so, the number of fishermen will continue to grow (Bailey 1982; see also Smith 1979).

Resource Management and Allocation

The case of San Miguel Bay reflects common problems facing policymakers in the developing world: how to improve standards of living for small-scale fishermen when the resource upon which they depend is fully exploited, new entrants continue to swell the ranks of active fishermen, and technological innovations increase the fishing power available to a small group.

The simplest approach would be to take no action at all and allow the present pattern of resource allocation to evolve in favor of capital intensive types of fishing. There are, however, serious problems with this laissez faire approach. Biologically, the uncontrolled use of highly effective fishing technologies poses a serious risk to resource sustainability. In purely economic terms, the efficiency of capital intensive fishing units is a matter of debate.⁴ In social terms the implications are that small-scale fishermen gradually will be displaced or marginalized. In the absence of alternative employment opportunities this approach raises fundamental questions of economic justice. Emmerson (1980:20) notes that, in the context of fisheries development, "free-market forces may only reinforce absolute poverty and structural inequality in the name of economic efficiency...."

The laissez faire approach to fisheries management is a strawman, but one with a particularly strong grip. Virtually all Third World countries, the Philippines included, have enacted regulatory measures that restrict capital intensive fishing units to offshore waters beyond the reach of small-scale fishermen. Rarely have these measures been effectively enforced and therefore are largely ignored.⁵

Ultimately, fisheries management is a political issue concerning allocation of scarce resources among competing users. In this arena, small-scale fishermen have been far less influential than their more wealthy

and politically well-connected competitors. This, however, is changing. Non-governmental organizations have begun to mobilize political support for small-scale fishermen.⁶ More dramatically, small-scale fishermen are resorting to violence to protect their interests, increasing political pressure on governments to recognize the realities of resource scarcity and competition to take effective action to control conflict.⁷

The Sociology of Fisheries Management and Development

Unlike the bounded domain of agriculture, where clear and enforceable land rights exist, access to the fish in the sea is open to all with the means to catch them. Agricultural production often can be increased by irrigation and through the increased use of fertilizers, labor, and other inputs. The introduction of new fishing technologies, however, is likely to have the opposite result unless balanced by effective resource management policies.

Effective fisheries management and development policies require consideration of a wide range of biological, social, economic, and political variables. Understanding of the resource's biological parameters obviously is of fundamental importance in estimating what levels of exploitation are sustainable over time. Similarly, achieving an acceptable level of economic efficiency is a valid goal of fisheries management and development policies. However, the criteria of resource sustainability and economic efficiency, alone, provide little guidance regarding issues of resource allocation, income distribution, employment generation, or other broad societal goals.

In recent years international development assistance agencies and national policymakers in the Third World have shown an increased willingness to apply social as well as biological and economic variables in designing fisheries management and development programs. It is in addressing these issues that sociologists can make a major contribution to the design and implementation of effective fisheries policies. In particular, rural sociologists are well equipped by training and tradition to clarify the social impact of various policy options related to fisheries resource development and management.

The utility of applied sociological research in the fisheries field by no means is restricted to the Third World. Recent changes in U.S. fisheries management procedures dictated by the Magnuson Act of 1976, for example, explicitly include sociological factors in policy formulation. However, as is

true in the Third World, U.S. fisheries policymakers receive little input from sociologists (Fricke 1985). Beyond these direct policy applications, the sociology of fisheries easily falls within the realm of legitimate academic pursuit. Many of the unique features of fishing transcend national and cultural boundaries, including the issues of common property resource allocation and technological innovation, discussed above.

Rural sociologists have established a strong record in contributing to the literature on domestic and international agricultural development. We have become increasingly involved in natural resource issues, and have applied our theoretical perspectives and methodological skills to the task of policy formulation. Given these contributions, the near absence of rural sociologists in the literature pertaining to fisheries is puzzling.

NOTES

1 Preparation of this paper was supported by the Pew Memorial Trust, the Woods Hole Oceanographic Institution's Marine Policy & Ocean Management Center and the Department of Commerce, NOAA, National Sea Grant College Program under Grant No. NA84AA-D-00033 (R/S-12). Currently Assistant Professor of Rural Sociology at Auburn University.

2 In 1981 Third World countries exported a total of \$7.2 billion worth of fisheries products, primarily to economically developed nations (FAO 1984a).

3 The San Miguel Bay project was a cooperative research effort of the Institute for Fisheries Development and Research, College of Fisheries, University of the Philippines in the Visayas and the International Center for Living Aquatic Resources Management (ICLARM). The Project was supported in part by the United Nations University and the Philippine Council for Agriculture and Resources Research and Development. My participation as a member of the ICLARM staff was supported by a post-doctoral fellowship from the Rockefeller Foundation.

4 The question of economic efficiency is complex. In San Miguel Bay, for example, total investment in the trawler fleet was approximately half that within the small-scale fleet, yet the catch was nearly evenly divided (Bailey 1982). Moreover, the trawlers earned nearly all the net profit from the fishery. However, these profits were based on diesel fuel subsidies which, if eliminated, would have put trawlers out of business (Smith, Pauly, and Mines 1983). Small-scale fishermen using gasoline powered boats pay far higher fuel prices and do not benefit from such subsidies.

5 There are many reasons why fisheries regulations are imperfectly enforced. Among these are: overlapping jurisdictions and the consequent confusion of responsibilities; political influence; corruption; and the physical difficulties and costs (patrol boats, manpower) involved in enforcing fisheries management regulations over wide expanses of water.

6 In Malaysia, the Consumers' Association of Penang has been particularly active. In Indonesia, the All-Indonesia Association of Fishermen was instrumental in pressuring the government to impose a ban on trawling (see note 7). The Asian Cultural Forum on Development (Bangkok) and the Christian Conference on Asia Urban Rural Mission (Hong Kong) have sponsored conferences and published materials on problems faced by small-scale fishermen in South and Southeast Asia. During July 1984 an International Conference of Fishworkers and their Supporters was held in Rome simultaneously with the FAO's first World Conference of Fisheries Management and Development to call attention to these problems.

7 The most dramatic example of this occurred in Indonesia, where a series of unsuccessful attempts were made during the 1970s to prohibit trawlers from operating in coastal waters. Escalating violence forced the government to impose a near total ban on all trawling between 1981 and 1983 (Bailey 1984b).

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DISCUSSION OF FOURTH SESSION PAPERS BY PATRICK C. WEST
AND CONNER BAILEY

Starr - (to BAILEY) Who are the villains in your situation? Is it the international marketing system?

Bailey - I simplified by focusing only on the trawlers. They are the vanguard of "development". They are driven by shrimp, an export commodity. In that sense it is us, the shrimp consumers, who are at fault. Looking at the issue of trawlers: in the mid- to late- '50s, the German technical development agency introduced trawlers to Southeast Asia. That's where it started, and it was done with the best of intentions to develop the fisheries sector and increase production and profitability. Things got out of control. Some Malaysians saw what was happening, copied it, and recouped their initial investment in five months. Other local entrepreneurs invested; the fishery became overcapitalized quickly. In the absence of government controls, and despite the resource being biologically overexploited, the fishery remained profitable because of the international market for high valued shrimp.

Starr - It's a similar pattern in other areas of development... a sincere effort sets off a chain of things. After a while you cry for examples of successful development efforts. The literature is loaded with negative examples.

Jentoft - The example from India has become a scandal in Norway. We are still having seminars discussing it, fifteen years later. The Swedes and the Danes have the same problem in their development efforts. The result is that the Scandinavian fishery development agencies avoid development projects. It is easier for them to give funds to FAO for a research vessel doing surveys in Africa. Then there are no hard choices to make, no equity issues. Fisheries development is very difficult and this has to do with making hard choices between "good" and "good". Not only between export currency versus internal consumption, but also the choice of what region to locate a project. That may create inequities. If you want to increase income for fishermen, it may not be compatible with supplying the domestic market with a cheap food product. Increasing the number of fishermen may not bring more fish to the market for urban dwellers to eat. It may result in them fishing for subsistence which does not help the starving in the cities who may be worse off. At least subsistence fishermen can feed themselves.

There are a lot of hard choices to make. That's what makes fishery projects easy to attack, to criticize. Since there are many goals to fulfill at the same time which are internally incompatible, a project can never be fully successful. I guess that is why, at least in Scandinavia there is a lot of frustration and anxiety within the agencies, which makes them channel their funds into easy projects, like research on fish stocks, which can't do anyone any harm. That may be good in itself, but it does not foster development.

Bailey - Actually, fish surveys may not be value free. Such surveys paved the way to the introduction of trawlers in Southeast Asia, and they were planned to assess the feasibility of introducing that particular type of fishing unit.

Szanton - My part of the Philippines doesn't sound like your part of the Philippines. My area is almost a success story and I'm puzzled about what accounts for the difference. Your ethical concern for concentration of wealth and impoverishment at San Miguel Bay is an issue I worry about where I work in the central Philippines.

Where I worked, over the last 80 years there were eight complete changes in technology. Trawlers have not been one. The trend has been to capital intensity, but sometimes a new gear is less capital intensive and a lot of new population moves in rapidly. I see cycles in this capital intensity. Across the 80 years what I see continuously is population moving into the community because the income generated by an ordinary fisherman is higher than agricultural wages in surrounding areas. People are able to move up enough to generate capital to educate their children to get out of fishing. In some years the town has been generating income on changes in technology which have been increasingly capital intensive and has enabled people to live well. We haven't had trawlers, so maybe that is the difference, but I think there are other processes. I worry about characterizing the development process, as a whole on the basis of the trawler experience from what may be a down cycle with your trawler situation. For the Philippines it is still an open situation. I have no way of judging under what conditions my situation holds. Production levels are up and so are prices, at least in my area. I'd hate to see your situation taken as the characterization.

Bailey - Yes, tropical fisheries are varied and complex, and I would not want to generalize from the San Miguel Bay to all of the Philippines, but I can say, from the several countries that I have observed, that it is a significant pattern. The important commonality between our two areas is that fisheries absorb surplus labor in society, because it is an open access resource. People move into the sector and incomes are higher than agricultural wages. It is much easier to become an owner-operator with a small amount of capital, compared with the agricultural sector. Land prices reflect a scarcity value, and unless one inherits land it is difficult to become an owner-operator. You find that fisheries act as a safety valve for society by absorbing excess labor.

Fricke - I am concerned as a sociologist by the notion of preservation of community. Are we in favor of preserving because this is a stereotypical small-scale artisanal fishing lifestyle that "should" be there. I can't support that argument either as a scientist or as a fishery manager. What I have to do is see whether the fishery is able to give a good living to a group of people. Then I must decide how to allocate the stock among groups.

In the Michigan case I never hear about the loss of the commercial fishery to the white fishermen, a major group in the 1940s and 1950s who are now out of it completely. I hear nothing about support for them. Also, what about the Vietnamese in Texas, Louisiana, Florida and California. One major problem is what to do in the fishery management plan about the white fishermen who

have been displaced because they are not as hardworking and as efficient as the Vietnamese fisherman, but have a lot of political clout? Do we work in the system to preserve certain patterns because they are "good" social systems or do we work to effect some form of limited entry that permits fair and equitable harvesting of the resource in a way that is cost-effective?

Bryan - What is fair and equitable harvest of the resource? You have made a series of statements with implicit value stances. You mentioned community, and providing a good living for people. What about the recreational value? Is the value of providing a living for local people any better than the value to recreational fishermen? The thing that is missing in the Social Impact Assessment is an explicit statement of decision criteria which should be stated by politicians. We need a national natural resource policy. Allocation decisions can't be legitimately made by sociologists. We can advocate stances, but beyond that they are political decisions.

Our judgements creep into the discussion; we assume that Indian rights are "good." We can't look at the implications of any decision criteria unless they are explicitly stated.

West - One of the functions of sociology in the analysis of such conflicts is to highlight those moral dilemmas by pointing out the alternative negative consequences. My study is of the economic role of fisheries in the Great Lakes for the Indian tribes. It documents tremendous poverty in Indian communities. Alleviating this poverty is a moral imperative. We must also consider the attachment of these people to their traditional way of life.

The other question is whether there are viable economic alternatives for the white peripheral fisherman: who has better economic alternatives? The white commercial fishermen have more mobility, are more capitalized and could shift out into other activities. The Indians have little mobility to move into other sectors. So, when we look at these social and economic impacts, it certainly leads to hard choices, but it also leads to a choice in terms of the balancing of the relative impacts. If the Indians fishery were to be cut out, they would have been very severely impacted. This is not to say that the impact on the commercial fishermen would not be severe. When we come to these hard decisions "What is the greater impact?" is the question. From the pragmatic politics of the situation: looking at the history of the development of this conflict, the white commercial fishermen never developed a political strategy, never petitioned to intervene, never mobilized and got involved. They never pushed for representation in the negotiation process; they just weren't in the game. They nailed their own coffins shut.

Harris - Let me continue since my research was on the Great Lakes white commercial fishermen. In general it is correct that the white commercial fishermen have better employment alternatives than the Indian fishermen. Roughly half have other year-round employment and most have other sources of household income. There may be a danger in making that aggregate generalization because: 1) at the individual level, many white commercial fishermen don't have alternative sources of income. What will happen to them under such an aggregate settlement? And, 2) what about the community? I interviewed 110 Great Lakes commercial fishermen, approximately 30 of them

clustered in two communities that will be severely impacted by the proposed settlement. These communities derive much income from fishing activities. Also, the fishing industry attracts tourism, so the multiplier effect is high. We run roughshod over these distinctions by applying a single policy to the white commercial fisherman.

The third point, it is true that the Michigan commercial industry hasn't had the kind of organization that other fisheries have. The fishermen have never had a strong organization, though there is a weak state association. I think that they were blindsided by the decision. They never thought the court could order the denial of their livelihood without their involvement in the case. I think they will petition the court to have the decision thrown out on the grounds that it is denial of property.

Stoefel - I'd like to talk now of the most important people in this debate: "my people", the sports fishermen. Let me tell you about them. They should get precedence in Lake Michigan, numerically and economically. Lake Michigan has been a physical and psychological social security system for the industrial workers of southeast Wisconsin since the beginning of industry there in the late 1800s. When the terrible industrialists lay us off, we are subsistence harvesters of the lake. The Friday fish fry at the local bar is an important blue collar tradition. Fish was the sole source of protein for thousands of families during the Depression. Then the terrible capitalists killed the lake with their pollution. And the terrible commercial fishermen killed the fishery. The salmon were stocked and the lake cleaned up 15 years ago. My people rejoiced at the rebirth of the lake. They stocked the lake, and they paid for an inordinate percentage of the fish now in there. They raised them by hand in a fish pond and help tag and label them for the DNR. They nurtured their fish. The salmon have become a nutritional backstop for laid-off industrial workers, replacing the deer that used to be hunted. In addition, teams of fishermen contribute salmon to striking workers during industrial labor disputes.

When I began working for them I had an ethical problem because of how they feel about the Indians. They don't like the commercial fishermen either, for trying to reenter an artificially maintained fishery that belongs to them. They generate enormous negative feelings about someone killing the lake again. "My people" think of themselves as the ones who created it. What should the 3 of us do as researchers about the ethical debate of commitment to ethnic groups? Who do you join up with? Is it okay to disagree and go against each other? All three of these are "good" ethnic groups.

Harris - What we need to do in our work is to separate out and get beyond the mythical elements that go into these stereotypes. We must present in our work more objective potential impacts and alternative outcomes that would help in making policy. In disaggregating the groups and getting away from the myths, for instance, you would realize that not all sports fishermen are out of work and starving. You can deal with the commercial and the Indian fisheries in these disaggregated ways. It's that kind of management that good social science makes possible.

Fricke - But that kind of management places a great premium on regulation. And that is again an ethical problem. It means imposing more regulation.

Harris - Any group hates the existing regulation if they think it benefits someone else. I'm not sure that we really have a bias against regulation. Conner gave us a good description of what happens to a fishery with no regulations. Those with the most money who can take the quickest profit at whatever the cost to the natural resource will move in. I think that most of us have an ethical commitment against that and we are in favor of regulations that would keep that from happening.

Jentoft - One reason that we end up in a dilemma about equity is that we tend to believe that every problem that arises within the fishery must be solved within the fishery. That's the approach to the problem which we have with common property: regulation is always the answer. We see that problem not only in underdeveloped countries, but in our countries as well. Let me give you an example. In my experience in starting a development project in Nicaragua, agricultural workers can earn 40 cordobas per day while fishermen can earn 12-13 cordobas per pound of fish. You can quickly earn more than in agriculture. In this situation we tried to create fisheries development by introducing new equipment. I'm not saying that Nicaraguan fishermen are rich, but they are better off than agricultural workers. So, we introduced boats, which as a consequence increases income. You get an influx into the fishery. The way to resolve this problem could be that we could limit entry but another approach could be to do something with the agriculture to make it more attractive. To have a fisheries solution to coastal problems is too limited an approach. Instead of talking about fisheries development, talk about regional development with fisheries an integral part, but only one part.

Molnar - We have some countries pushing technology into the fisheries sector accelerating the use of high yield technology to pay for expenses in other sectors of the economy. The fisheries sector gets exploited because it can generate export dollars for the government.

Koppel - As sociologists we are not wedded to any one technology. In the Lake Michigan case we could develop a greater ethos of conservation among the groups, making cooperation easier. You could teach them an ecosystem viewpoint. You could get others interested in another fishery, or back into hunting deer. You could get fishermen involved in agricultural pollution problems that affect the lake. The idea of a regional perspective is a powerful one. A nonfishery solution to fishery problems.

Bailey - And consistent with whatever societal goals obtain. Are the goals of policy to be employment generation, income distribution or increasing income? Those are contextually determined goals.

Sinclair - I am interested to hear these dilemmas, but what is the point of this exercise? In discussing these ethical issues as if there is a sociological answer to the ethical question? I do not see it. It might be worthwhile, in the sense that it may force us to question some of the underlying assumptions that we have taken to our work.

I noticed there were a lot of nodding heads around the table when the suggestion was made that we don't want to be rural romantics, that we're not in the business of preserving rural communities. It occurred to me that possibly people in those communities wish them to be preserved. For example the Federal and provincial governments both had a policy of resettlement from 1951 to 1972. The administrators decided on the appropriate lifestyle for the people to improve their living conditions. Finally the program broke down partly because of inadequate alternative opportunities for the people who were to be moved and partly because of the resistance of the people who wished to preserve their pattern of life. I can't see why there should be automatic agreement by you all that we don't want to preserve communities.

Barrett - One place where I think this ethical debate leads to practice is in the social impact assessment. One problem of early social impact assessments is their almost complete lack of research on distributional issues. One reason that I am critical of demographic and economic projection models is that none do an adequate job of dealing with distributional impacts. It is important to develop and apply methods of impact assessment that integrate distributional issues. There has been a lot of talk about such aspects, but little evidence of their inclusion in social impact assessment.

Stoefel - We talked yesterday of the importance of involving the people in the research process. We even went to the advocacy role. We are very comfortable with that. The problem with the Lake Michigan case is that they're all good people and each of us is pulled into a natural advocacy position. All three of us could end up in court against each other. I'm suggesting we lay aside the good guy/bad guy roles. We should seek out what to do to bring together the groups. Maybe we should bring together the leaders and share information that would break down the stereotypes they hold about each other. Is this a role for us that derives from our profession and not from our personal ethics?

Sinclair - No. If it derives from your professional position then you wish to impose a certain standard of conduct on sociologists. If it is part of my obligation as a sociologist to do that, then I quit. No association can tell me how to conduct myself as a sociologist in terms of advocating one position or another. What must I do if every group seems to have a reasonable case to make? I may choose to do nothing, and I find that acceptable.

Vanderpool - The issue is a classic issue in sociology. Weber's essays on science as a vocation and politics as a vocation. We as sociologists have a moral obligation to say that when someone is not using data correctly or analyzing correctly then they are not being a sociologist. If you are using good sociology, I could disagree with you, but at least what you have said has been accurate and in that sense responsible.

West - I would like to say something about "my person" who is Max Weber. He initiated this debate in two famous essays. It is critical that we recognize Weber's clear distinction between objectivity and detachment. Weber said that when we do our research we must be objective, but he never said we must be detached. We must not be detached in the selection of our research topics or in grappling with the ethical implications of what we find. While we are doing our research we must be objective and not let the facts slant toward

"our people." We cannot be neutral. If we hide behind the mask of objectivity and detachment we are voting by not voting. We are more aware than the average citizen of the painful consequences of alternative tradeoffs. At some point we have to choose and say "Here I stand."

V. CONCLUDING DISCUSSIONS

A. Discussion

B. "Future Directions for Fisheries Sociology Research"
Conner Bailey, Craig K. Harris and Christopher K. Vanderpool

CONCLUDING DISCUSSIONS

Bailey - I want to elicit comments on two questions, phrased in terms of what people are doing. The two questions are: "Is there a sociology of fishing?" and "What are the emerging issues?" Since the people at the table represent a high proportion of the people doing fisheries sociology, the issues that we are working on may be, by definition, "the issues".

Molnar - My institutional location defines how I got into fisheries, specifically aquaculture. Auburn University has a Department of Fisheries and Allied Aquaculture which has 30 faculty members. Within that department is the International Center for Aquaculture. Auburn is a worldwide center for freshwater, warm water inland fisheries, with the largest network of research ponds in the world. At any one time, 100 to 150 graduate students are there; two-thirds of them are foreign. Many of the U.S. students are from the Peace Corps and have had contact with aquaculture in the developing world. Auburn also does quite a bit of training and project work throughout the world in developing aquaculture.

My involvement began when the Agency for International Development (AID), in a five year review, criticized Auburn for not having enough sociology and economics in their programs both in training students and in project work. We received a small amount of money as a strengthening grant and added two economists to our one. I teach extension methods, primarily from a technology transfer perspective. I've been to Panama on a short visit and to the International Rural Sociology Association meeting in Manila. I wrote "Aquaculture as a Farming System" for the meeting in Manila. It has to do with looking at the farming systems approach to development. Also, I have a paper coming out on "Cooperative Arrangements and Group Farming in Aquaculture." In a community-managed enterprise, there are questions about who makes the decisions; how rewards are distributed. My paper looks at the mechanisms which have been developed in dam groups, in community forestry, in irrigation schemes, and applies this to aquaculture, specifically a community development project in Panama developed last summer. The ponds are not only for fish, but also for stock watering and irrigation. They are a resource with multiple uses. The investment is justified beyond just the fish.

Stoefel - The project that I'm working on has a number of pieces. It started in 1979 in southeastern Wisconsin, called the "Reborn Lake" project. We were looking at a holistic assessment of the social, economic, psychological, and nutritional impacts of stocking salmonids and trout in Lake Michigan. We were hoping these would have policy implications. We created a relationship we called a "reciprocal development model" between ourselves, as faculty, the students, the community and the administrators, and the Wisconsin Department of Natural Resources. In this model we assume that each should participate because they get something out of it. Instead of getting paid, students get practical skills and publication credit. We also think that the local community should get something meaningful out of the research. They should reject us if they can't get anything out of it.

We have generated one of the largest Great Lakes freshwater databases. We were in the field for two and a half years, with from ten to thirty students participating. We began with participant observation. We spent one year in the field. Then we did intensive oral histories on key anglers. Now we try to tell people about the database and have them interact with us on it. Institutionally, the chancellor wanted this as a community service project, as a mechanism to help build bridges to the community from the university.

Barrett - I teach at a small university in Halifax. It has recently established a regional research center that conducts three or four research projects mostly on socio-economic aspects of fisheries. Now we are examining factors leading to the proliferation of "small capital" in fish processing and the interconnections between the processing sector and the harvesting sector as well as the connections between the processing and marketing sectors. We are trying to understand things that economists have ignored for years. In doing so we are critiquing both the traditional dualist approach to understanding the industry, which is the prevailing perspective of the government, as well as the orthodox Marxist orientation that argues that small capital is doomed to subsumption under increasing concentration.

It is a three year project. Last year we did 99 management interviews. The industry is peculiar because the area has roughly 100-150 very small independent companies that are the basis for the survival of 3,000 independent fishermen who do very well in some areas. We are trying to understand why. This year we are doing a study of port markets; a survey of 600 fishermen connected with those managers that we interviewed last year. Next year we will do a survey of fish plant workers to look at the labor market. Also, this year we are doing a study of brokers especially in New England. I'm also doing a study of women in fisheries.

We attempt to remain independent. One problem we have had with doing contract research for the government is that the government has exclusive control over not only your data, but also the reports and they won't release contract studies if they don't want to. We can't release the material or we will get sued. It is a major ethical problem for us doing that kind of work. Our reports on Georges Bank disclosed a high level of deception by fishermen in reporting data, which is embarrassing for the government. There is little tradition of grassroots input by people in Canada.

Sinclair - The Canadian council meetings are not open to the public, so it is not clear how the councils work. We see only summarized minutes of advisory council meetings. They include representatives of processors and of organized fishermen. Unorganized fishermen are not represented.

Gutierrez - My affiliation is with the University of Puerto Rico in Mayaguez. It is a Land Grant/Sea Grant College. I started in the sociology of fisheries when Sea Grant invited John Poggie and others to advise on what should be studied about the fishermen of Puerto Rico. We agreed that the way to start was to do an inventory of the existing literature about fishermen. I was in charge of doing that work. I produced an annotated bibliography of small scale fishing and fishing localities in Puerto Rico. There had not been many studies done.

The second thing we did was to submit a proposal to Sea Grant with Bonnie McCay for a cooperative study of fishing communities in Puerto Rico. We surveyed fifteen fishing communities. Unfortunately, the report was never published by Sea Grant.

At this moment I am writing a paper called "Fishermen Associations as Development Organizations" to be presented at a workshop on artisanal fishing to be held in Bogota, Colombia during the second week of July. There is interest in this because the government has pushed the idea of having fishermen organize. Through these organizations the government helps fishermen and has control over them politically. We have found that two of the most successful organizations, though headed by men, are controlled by their female accountants.

We have found that fishermen organizations are a training ground for entrepreneurs. Once they're successful, and can handle the marketing situation, they quit the coop.

Szanton - I am based at the Social Science Research Council in New York. I work with a series of interdisciplinary committees concerned with research generally on Southeast Asia, the Islamic world, and on New York City. My involvement in fish is personal. It goes back to my dissertation work in the Philippines in a town that was and is an important fishing town. I chose it because I was interested in rapid economic growth in rural areas, relatively independent of formal government participation and action. I found a boom town, and it turned out that the boom was based on fishing.

I've been interested in the process of long-term social change. I started the research in 1966-1968 and have been able to go back every six months to three years to see what changes have taken place. I've been back 15 times altogether. Initially there were one thousand households now there are fifteen hundred. My work is focused around four themes.

1) Changing technologies: there have been extraordinary technological changes as far as dominant types of gear and the simultaneity of different gears used. Often five types of gear are in use, with one or two gears dominant. I want to learn how and why these changes occur.

2) Economic organization of fishing enterprises, and entrepreneurs in general: the production side of fishing operations, their ownership, discipline and organization of labor and the commercial side of the industry.

3) Intergenerational changes in investment patterns: most recently, any local investment probably doesn't make sense compared to investing in educating your children to leave, even to leave the Philippines entirely. A price change or tariff policy or some outside change may destroy your investment, whereas if you put the money into the education of your children and turn them into professionals they have access to Europe, the U.S., the outside world. This is characteristic in, and contributes to, continued poverty in an area where there appear to be lots of resources and possibilities for development.

4) Tension between the classic patron/client relationship versus class formation, emergent class conflict which seems to rise once in a while and then dies: with the surveys now being collected, I hope to look at families across time. Generally, what's struck me is the extraordinary malleability of social forms within this community. I don't know how much this has to do with the fact that it is a fishing town. Whether this is the sociology of fisheries, I don't know. Some of the malleability derives from fishing. There are more opportunities for technological change, more cash flow into the town. Changes may take place faster than in an agriculturally-based town. That may be characteristic of a fishing town.

Is there a sociology of fisheries? My sense is that every fishery has a sociology, but each may be sufficiently distinct that I'm not sure they add up to a sociology of fisheries.

Jentoft - I come from the Institute of Fisheries at the University of Tromso, the northernmost university in the world. It is a multidisciplinary institute. We give a masters degree and a Ph.D. in fisheries science. We recruit people from the fishing industry. One of the requirements for being accepted as a student is that one must have at least one and a half years experience. We have ten to twelve people in the social sciences department.

I work at the local level studying organizational structure. Self-regulation has been one of my main topics. I've been working on several topics, including 1) employment system theory, and 2) family in the fisheries. I am now working on a small project in Halifax studying decisionmaking in the family on the question of whether sons should follow their fathers into fishing. The reason I've come to Canada is to broaden my perspective and to learn about Canadian fisheries, and about Norwegian fisheries from an overseas vantagepoint. In 1982 and 1983, I did some research in Nicaragua. It was the most important and useful thing I've done as a fisheries sociologist.

I am also interested in self-regulation and the tragedy-of-the-commons theory debate. I am dissatisfied with the solution of government regulation. I have tried to express the possibility that fishermen can regulate themselves. There's a whole field of game theory used to attack the assumptions of the tragedy-of-the-commons theory, which is basically a Prisoner's Dilemma. It's possible to transcend the dilemma. If you rely on active state involvement, you are not considering the many examples and much theory on transcending the dilemma.

Groth - I'm at a teaching institution that does not permit someone to seek project research. We have 2 year students only. I essentially have to play more of a role as a publicist and one who applies sociological theories and ideas to problems of interest to my students.

I became interested in using fisheries license data to establish baselines on historical participation to ground questions of equity in the fishery. This year I plan to obtain five years of licensing data from Texas Parks and Wildlife on out-of-state licensees, and do some historic comparison of migration of Texas shrimpers into Louisiana waters and vice versa. I'd like

to compare files across years for participation, to verify the utility of this information. I'm also looking at patterns of overlapping participation in fisheries, to show however much regulations may categorize people, they adapt to state policies and place themselves in whatever category benefits them. I hope a better policy of issuing licenses might come of this and maybe rationalize some of the discussion among fishermen about who is "invading" whose territory.

Koppel - My original involvement in the sociology of fisheries came from a Federal Register notice of a Saltonstall-Kennedy solicitation. I wrote a proposal about recreational fishing. It was about the charter boat industry, the party boat industry and the rental fishing boat industry from Maine to Virginia and how they were marketed.

Most of the owners have no idea of the larger tourist situation. One reason is because the Northeast region has so much to offer tourists, that the charter boat industry isn't seen; it remains a "hidden industry." We came up with the need to integrate the industry with the tourism industry. Most state tourism bureaus don't promote the industry. Yet, in New Jersey the charter/party boat industry is the third largest industry for tourism, after casinos and beaches. We wanted to work with tourist agencies and get baseline data to do an economic analysis of the industry.

One of the goals of the project was to help the industry market itself. To that end, we put together a kit of marketing techniques for the industry which is being distributed by the local NMFS director in Gloucester. We also tried to get the recreational fishermen to take a more ecological/conservationist ethos in their approach to have a sense of participating in a valuable resource which not only makes sense, but reduces conflict with the commercial fishermen. That became a primary thrust of our research. We were also concerned about the perception of recreational fishermen by the general public. This affects the amount of money a town will allocate to parking, wharf upkeep, etc.

Dietz - I am primarily an environmental sociologist and have been working on Social Impact Assessment. I am doing a post-hoc study on the effects of the decline of the Lake Erie fisheries from the 1920s through the 1960s. The other case is a study of environmental changes in the Chesapeake Bay. It's becoming clear that because of urban runoff, heavy levels of biological oxygen demand are reaching the deep channel of the Chesapeake, which is where the shellfish are. It's not clear how substantial the impact will be but some marine biologists predict disastrous effects in the next 5 to 10 years on the economically substantial fishery. We will monitor, in what I hope will be a three to five year project, the environmental changes with productivity changes, and the impact these changes have on the economic organization of the fishery. Right now, Federal environmental policy makers are my "people."

Van West - I try to make my living as a consultant to housing cooperatives, so my livelihood is not fisheries related, but I did my doctoral work on Port Dover, Lake Erie. That port has a trawler fleet of 35 or so vessels trawling since 1960, primarily for smelt. The principal area of my research has been to look at changing systems of production in Lake Erie's deep east basin. The

over-intensive commercial fishery has been blamed for the decline in valuable stocks and increased demand on the lesser stocks. I wanted to explore the assumption in that model that fishermen are inherently greedy and don't conserve the resource. I want to examine this in light of the Port Dover material.

I found that the resource was extensively harvested but for reasons other than what the economists espoused. Most of the fish were gillnetted, and shipped to the New York market, which is controlled by 40 merchants selling at auction. They controlled prices in various ways, always forcing prices down. As an unorganized producer group, the independent fishermen had no recourse but to intensify effort to maintain their incomes. That system of production became an institutionalized reaction to merchant control of the fishery. I documented this for a period of over 100 years. In 1960 the fishery changed with the decline of the target species. A fishery of rainbow smelt emerged with a different marketing structure.

Presently, I am working on the rise and fall of fishery cooperatives on the north shore of Lake Erie. I want to find out why they emerged in 1949 and collapsed in the mid-1960s. I'm also interested in "salvage ethnology" which is collecting the life histories of old timers. There's not much work being done to collect this kind of data. This is all done in my spare time.

Sherar - I am a maritime sociologist and my work has been especially on merchant seamen. My book was titled Shipping Out: Maritime Families and several articles followed from it. Currently I am working on 1) crews of cruise ships, and 2) seafarers of India.

I believe that the sociology of fisheries can be a field. Why is fishing unique? Besides the commodity itself (fish) you must take into account: the knowledge a fisherman needs of tides and weather, the fragility of ships, the water environment, the special tools and skills, and the special hardships. Secondly: families, the community, the region, social status, class/caste within the industry, the continuum of poverty to wealth. Also, values and lifestyle. The third area I see is the industry itself. The service groups related to it, the Coast Guard and the medical units. The ownership patterns of the industry. The scarcity of the resource. Fourth, the academic aspect: where are the grants, the facilities, the resources to investigate the area? Fifth, the political implications, the regulation of the industry, the international and national regulations and programs. Then, sixth, the historical perspective and finally, the fisherman in literature, both professional and other (novels and plays).

Michel - I am at the University of Alaska, Fairbanks. In the last several years, the Departments of Education and Sociology have merged for the education of the rural native populations of the state. There are ten of us in the division who live in the bush, off the road system. It's like an extension system. We circuit ride. My area of villages is about the size of Indiana.

I'd like to mention a couple of areas of importance to us. One is the role of fish in the economic development of rural native peoples of Alaska.

Unfortunately, commercial fishing on the river is becoming a less viable industry. The Division of State Fisheries has legislated subsistence fishermen, defined as those who live off the road system. There is increasing pressure on the resource by the recreational fishermen.

Another area of interest is the institutional context within which fish and wildlife decisions are made. Rural Alaskan natives are extremely isolated from the process. Although they have a formal role in it, they don't know at what stage their input is desired. I would like to use the management plans for wilderness areas to study alternatives, to get to know the issues and learn to get involved in the process. I have been personally involved in trying to develop an educational component for planning management of wildlife refuges. I would like to get communities to use these information systems.

I live on a river and I'm involved in the salmon fishery. It is a six-week season of summer chum that peaks in two weeks. The fishery is a camp-based, shore-based fishing system. We move from the village to a camp. The camps are based on family structures. Our gear is the fish wheel. The commercial product is the salmon roe. It's worth \$28 a pound in Japan, but the fishermen get \$2 a pound. The Japanese fly in to process it. A longterm desire of mine is to get the villagers to take over the processing but the system is well engrained and the Japanese have very stringent standards for the processed product.

FUTURE DIRECTIONS FOR FISHERIES
SOCIOLOGY RESEARCH

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The various formal and informal presentations at this Workshop demonstrate the validity of two points made in the opening paper by Harris. First, the sociology of fisheries is diverse, as diverse as the discipline itself. Second, fisheries sociology not only is thriving but continuing to grow and develop, albeit in a multitude of directions and somewhat amorphously.

These concluding remarks will not attempt to distill into a few tidy points each of the formal presentations and the ensuing discussions. Any such condensation would be highly artificial and unrepresentative of diversity in the field. Rather, on the basis of what transpired at the Workshop, we will focus here on what we see as important directions for future research in the sociology of fisheries.

1. Organization of fishery production systems.

Technological and structural changes have profoundly altered the organization of fishing industries throughout the world. The resulting alterations in social relations of production, especially the growing separation between capital and labor, is an important global phenomenon of potentially great interest to critical theorists. Case studies and comparative research on processes of proletarianization and class formation will enrich this important body of sociological theory. This line of inquiry also may provide insights useful to those concerned with the structural and distributional consequences of possible policy options.

Investigations of industry structure should include the organization of production from harvest and processing through marketing and distribution. Although the focus of the Workshop was on marine fisheries, we recognize that important research opportunities for sociologists exist in the field of aquaculture production. The insights that have been developed in farming systems research could be very relevant to these investigations.

2. Organization of recreational fisheries.

Although commercial and recreational fisheries share certain common features, significant differences exist such that they can and often should be considered separately. It is useful to look at the differing ways in which recreational and commercial fisheries are structured and integrated into the larger social system. This is a matter of importance for fisheries policy in the U.S., where it is clear that recreational fisheries interests have considerable political clout in determining resource management decisions. This appears to have been accomplished in large part through coalition building between recreational fisheries, restaurateurs, hotel and motel operators, and others within the travel and tourist industries. Commercial fishermen appear to have found it difficult to match the lobbying effectiveness of these combined interests.

3. Conflicts between subsistence, commercial and recreational fisheries.

Competition and conflict between different user groups is a common problem throughout the world. In the context of scarcity, resource management, in essence, becomes a question of allocation between competing users. Within the discipline of sociology, there is growing interest in the processes of conflict development and resolution, particularly as these apply to natural resources and the environment. The field of fisheries research provides ample opportunity to examine the economic, political and ethical dimensions of these issues and to contribute distinctive sociological insights. It would include research on the basis for conflicts and research on mechanisms for regulating conflicts and resolving disputes. It would include research on the various fishing rights controversies, although these are sometimes within one sector (e.g., Native Americans fishing commercially under a treaty right compete with commercial outfits licensed by a state). Research in this area would also include studies of conflicts between fisheries and other uses of water resources — transportation and navigation, water consumption for residences and industries, hydroelectric power, hydrocarbon exploration and production, irrigation, waste disposal, and recreation.

4. Territoriality and Property Rights.

Territorial divisions occur locally between fishermen, regionally between groups of fishermen, and globally between nations. Under this heading we would include research pertaining to mechanisms for territorial division, boundary maintenance and dispute resolution, the social organization of territoriality, and the implications of such organization for the regulation of fishing effort and for the maintenance and enhancement of the fishery resource.

The existence or absence of property rights over fisheries resources is a matter of fundamental importance in conceptualizing issues of resource allocation and management. Economists and biologists generally attribute problems of over-exploitation to the lack of clear property rights and the consequent efforts of individual fishermen to maximize benefits even at the expense of resource sustainability and long-term societal good.

Sociologists have yet to examine systematically the validity of this generalization or to explore the range of possible social constructs which would allow societies to break free from this bio-economic conundrum. For example, we know relatively little about how community-based common property systems operate or their potential role in resource management, but we do know that in certain conditions they represent low-cost and socially sound alternatives to bureaucratic intrusion.

5. Structure of fishing communities.

There is a need to increase our knowledge of community organization both to improve understanding of the social relations of production and marketing and to appreciate better the potential role of fishing communities in resource management. Research on community structure might include examination both of formally organized cooperatives and of informal modes of cooperation. We know very little regarding those factors which stimulate the development of fisheries cooperatives, the processes of cooperative formation, the factors which contribute to the success or failure of cooperatives, and the processes which characterize the decline of cooperation. This research would also include the effects of cooperation on the political economy of fisheries. Research on community structure might also involve studies of the effects of

different kinship systems, investigations of the age structure of fishing communities and of persons involved in a fishery, and studies of the effects of human migration both into and out of fisheries.

Related research needs fall within the sub-discipline of occupational sociology. How do the unique qualities of fishing as an occupation (e.g., competition or cooperation in pursuit of scarce resources, extended absences, etc.) affect community organization?

6. Role of women in fisheries.

At the outset of this Workshop, there was established a clear need to examine the roles women occupy in fishing, processing and marketing of fishery products, providing inputs to the fishing enterprises, as well as in managing fisheries enterprises. Research on these topics would include activities within the household, in wage labor outside the household, and the extent of women's political involvement both within fishing communities and as spokespersons for local interests at state, provincial, or national levels.

7. Impacts of fisheries policy on the organization and structure of fisheries.

Changing legal regimes at local, national and international levels are having profound consequences for the structure of fishing industries around the world. The Magnuson Act and the Law of the Sea Treaty are primary examples of these altered legal regimes. In the U.S., the central role of regional councils (primarily made up of industry representatives) in formulating policy provides considerable opportunity for research. There is a need to examine the social impacts of policy changes in specific cases. Closely related to this topic is the need to understand the policy process itself as a political and sociological phenomenon. In particular, given the importance of government in establishing policy, there is need to examine patterns of political participation and degree of social and political articulation between fishing communities and larger social systems.

8. Impacts of changes in marine science and technology on the organization and structure of fisheries.

Researchable questions under this heading include factors influencing the development of new technologies for catching and processing fish as well as factors which influence the adoption of innovations in local fisheries. In

addition we would include under this heading processes of technology transfer across national boundaries, the social impacts of new technologies on Third World nations, and research on appropriate technology in fisheries.

Sociologists also can contribute to understanding the impact of increases in human capacities to manipulate and exploit ecosystems, and to designing more effective resource management systems. Recognizing the fundamental importance of biologists in stock assessment, it must be remembered that what needs to be managed are not fish but people, and specifically the capacity of people to exploit a biologically-renewable resource.

9. Basic value systems of fishers and other persons involved in fisheries.

This would include value differences both among and between subsistence, commercial and recreational fishers. Differences between small and large scale enterprises, between inshore and offshore operations, and between enterprises using different technologies need to be studied, as do the differing value orientations of government officials, fishers, and the general public.

10. Historical studies of fisheries development.

Throughout the Workshop, it was noted that our research ought to pay attention to historical changes and processes. An understanding of the past is necessary to comprehend the present and often provides valuable insights for predicting the future. There is considerable need for systematic longitudinal studies of fishing, beginning with the gathering of baseline data that permit comparative analysis. Even where this is not possible or is beyond the scope of a particular research project, Workshop participants generally agreed that our sociological analyses would be enriched by incorporating historical materials wherever they are available.

11. Social impact assessment, evaluation research, and the role of sociologists in the policy process.

Sociologists in both academic and applied settings can play important roles in shaping fisheries policy. To do so, we need to demonstrate relevance to varied constituencies, including administrators and fishermen. This calls for continued refinements of SIA and evaluation methodologies, and the identification of sets of social indicators that are both sufficient and

efficient.

To be effective in the policy arena, sociologists need to understand the organization of the fisheries policy system, itself an important research topic. Within the U.S., the legislated need to conduct social impact assessments and evaluations of project impacts on target populations offers considerable potential for involvement in policy processes by sociologists and other social scientists. Many international development agencies also have begun to recognize advantages accruing from including sociologists and/or anthropologists as members of interdisciplinary teams at all stages of the project cycle.

Finally, there is a need to consider the proper role(s) of fisheries sociologists and the values which we bring to our work. During the Workshop, several participants referred to fishermen they had studied as "my people." These discussions raised the question of what responsibility the sociologist has for the welfare of the people studied.

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Our emphasis here on research is not intended to downplay the important role of sociologists in applied work at the level of community organizer or policy analyst within a natural resource agency. Indeed, discussions throughout this Workshop made clear a broad concern among those present with the application of sociological insights and methods of analysis to practical problems of resource allocation and management.

The above list of research opportunities is by no means exhaustive. Many of the issues raised here--industry structure, occupational sociology, community structure, women's roles, etc.--could be examined in a comparative study involving agriculture or other natural resource systems (e.g., forestry). Readers are urged to review the papers and discussions herein for elaborations on these topics and for other topics meriting investigation.

However incomplete, this list of research needs reflects what we feel to be the general consensus which emerged during the Workshop. More broadly, this outline of a research agenda conveys a sense of the potential contributions of fisheries sociology to the discipline, to our understanding of society and social behavior, and to the welfare of those who make their living as fishers. This was our intent for the Workshop.

APPENDICES

A. List of Participants

B. Program Agenda

LIST OF PARTICIPANTS

EXPLORATORY WORKSHOP ON FISHERIES SOCIOLOGY
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26-27 April 1985

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AGENDA

EXPLORATORY WORKSHOP ON FISHERIES SOCIOLOGY
26-27 April 1985

Friday, 26 April

- 9:00-9:15 Brief greetings by Conner Bailey & Craig Harris
- 9:15-11:30 Session I: Theoretical Orientations
Discussion papers by Peter Sinclair & Craig Harris
- 11:30-12:30 LUNCH
- 12:30-2:45 Session II: Methodological Approaches
Discussion papers by Chris Vanderpool & Lee Maril
- 2:45-3:00 Break
- 3:00-5:15 Session III: Applied Fisheries Sociology
Discussion paper by Peter Fricke

Saturday, 27 April

- 9:00-11:30 Session IV: Ethical Issues in Fisheries Sociology
Discussion papers by Conner Bailey & Pat West
- 11:30-1:00 LUNCH
- 1:00-4:00 Session V: Is There a Sociology of Fisheries?

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Lamont-Doherty Geological Observatory
Columbia University
Palisades, NY 10964

Library
Serials Department
Oregon State University
Corvallis, OR 97331

Pell Marine Science Library
University of Rhode Island
Narragansett Bay Campus
Narragansett, RI 02882

Working Collection
Texas A&M University
Dept. of Oceanography
College Station, TX 77843

Library
Virginia Institute of Marine Science
Gloucester Point, VA 23062

Fisheries-Oceanography Library
151 Oceanography Teaching Bldg.
University of Washington
Seattle, WA 98195

Library
R.S.M.A.S.
University of Miami
4600 Rickenbacker Causeway
Miami, FL 33149

Library
Naval Oceanographic Office
NSTL Station
Bay St. Louis, MA 39522
ATTN: Code 4601

