

An Overview of Marine Social Science and Fisheries Management and Development

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ABSTRACT

Social scientists in various disciplines have worked on subjects related to fisheries and fishing communities around the world for decades. It is only fairly recently, however, that this work has been specifically directed towards the needs of fishery managers and development programs. There are several issues involved in the application of social science work to the fulfillment of these needs: What "data" are necessary? How must these data be documented? What is necessary to "translate" and format these data for use by managers and development agents, and for those in the fisheries constituencies themselves?

Using examples from around the world, and placing these examples in the context of the "sociology of fisheries management and development," this paper gives a broad overview of the issues raised by the application of social scientific data to the fisheries domain.

INTRODUCTION

In the last two decades there has been a resurgence of interest by sociologists, anthropologists and other social scientists in what is called 'applied social research' — taking the results of social scientific research and applying them to the needs of those outside of the research realm itself, in particular those in the area of public policy (van Willigen, 1986). One such public policy domain in which significant strides have been made is that of marine fisheries management.

It is rapidly becoming a worn phrase that, "One does not manage fish, one manages people." This phrase, however, captures the essential nature and challenge of fisheries management and policy-making — the elucidation of principles upon which individuals and groups may act to control and direct the interaction between humans and the physical environment — in this case fishery-related ecosystems — and the establishment of processes through which those principles may be applied.

Social science, here broadly defined as the perspectives and activities of any of a number of social science disciplines including sociology, anthropology, geography and others, lies by definition squarely in the domain of such application. Such sub-disciplines as maritime sociology and maritime anthropology are expressions of the desire of social scientists in these disciplines to apply their expertise in the analysis of fishery and other marine-related problems.

In this paper we will explore the relationship between social scientists and managers and policy-makers, and suggest some ways in which this relationship can be made stronger and more productive.

WHY SOCIAL SCIENTISTS IN FISHERIES MANAGEMENT?

There are two general rationales for the involvement of social scientists in fisheries policy and management, a phrase which we will use in this paper to include situations involving economic development and social change. The first is formal and legal; the second is informal and based on pragmatic judgement and common sense.

Formal Legal Mandates

Many of the local, state, national and international laws governing fisheries policy and management make specific reference to the use of social scientific work, either directly or in the form of requirements for the assessment of social and economic impacts of policies and regulations. Perhaps the strongest and most specific of these laws exist at the national level in the United States.

A myriad of federal laws in the United States call specifically for the participation of social scientists or the use of social scientific analysis in the policy-making process in the marine area (Cicin-Sain, 1982; Orbach, 1982). The National Environmental Policy Act of 1969 (NEPA), the Marine Mammal Protection Act of 1972, and most notably the Magnuson Fishery Conservation and Management Act of 1976 (MFCMA) all call for some form of social science research or application in their statutory mandate (Orbach and King, 1979).

The MFCMA, for example, contains two very significant sections with respect to social science: the definition of "Optimum Yield" (OY), the central policy and management concept of the Act, and the requirements for the consideration of "limited access", or limited entry systems under the Act. The Act states that fisheries shall be managed for OY, which is defined in part as the Maximum Sustainable Yield (MSY, a biological term) from any given fishery as modified by "any relevant social, economic or ecological factor" (Orbach, 1977a). In the sections of the Act that refer to limited entry, it is stated that any system of limited access must take into account, among other factors, "the social and cultural framework relevant to the fishery" (Orbach, 1980a). Both of these provisions of the MFCMA provide a clear requirement for the inclusion of social scientific data and analysis (Acheson, 1977).

As we move from the national level to the state level, the formal requirements for social science work get less specific, although the pragmatic need for such work does not decrease; that is, state-level fishery management systems are generally based on social and economic factors every bit as much as national-level systems, even though the laws themselves do not refer directly to those factors (Orbach, 1986). As we move in the other direction, towards international law, the situation is similar. Although the subject of social scientific work is less specifically addressed in international law, the place of social and economic factors in the international fishery policy and management process is clear and pervasive (see, for example, Joseph and Grennough, 1979).

Pragmatics and Common Sense

There is also, of course, a common sense mandate for social scientific work and analysis in fisheries policy and management. When an agency considers a regulation of fishing effort in order to rebuild a fish stock, for example, it is most often a clear case of tradeoffs between biological and economic or social impacts. If the regulations are more restrictive, the stock may rebuild faster but the social and economic impact of the regulation will be greater. If they are less

restrictive, the stock may rebuild more slowly but the social and economic impact of the regulations will be smaller. If the regulation simply results in small changes in costs or revenues, the impact may be principally economic. If, however, such changes are great enough to result in significant behavioral changes among the people involved in or dependent on the fishery, the impacts are clearly social and cultural as well.

The situation is similar in cases of economic development or social change. There is almost nothing that can be done in any significant way in terms of directed development or change that does not have a critical social component (Spicer, 1954; Dalton, 1971). This of course applies to fisheries, and is the principal reason that organizations such as the U.S. Agency for International Development (USAID) require some form of "social soundness analysis" for development projects which they sponsor in the fisheries sector (see, for example, Stoffle, 1986).

These situations can become quite complex and require detailed social scientific analysis in much the same way that natural or physical scientific analyses of the physical ecosystem can. There is usually not one homogeneous fishery constituency, but many commercial, recreational and subsistence users of different kinds and other multiple users such as coastal residents, tourists and marine-related businesses to consider as well. The costs and benefits of regulatory alternatives are split not only between the fish and the people, but among many different groups of people as well (Orbach, 1980b). In addition to social scientific work, direct public input and constituent input into the development of policy is important as well.

THE SOCIOLOGY OF THE SOCIAL SCIENCES IN FISHERIES MANAGEMENT AND DEVELOPMENT

As we noted above, social scientists have performed research in fishery and marine-related settings for decades. Beginning with Malinowski's voluminous study of the Tribri and Islanders in Melanesia in the early part of this century (Malinowski, 1922) and continuing through the work of Raymond Firth among Malay fishermen in the 1940's (Firth, 1946), Thomas Fraser among Thailand fisherman (Fraser, 1962), Jeremy Tunstall among English fishermen (Tunstall, 1962), in the 1960's and the present author with U.S. high-seas tuna fishermen in the 1970's (Orbach, 1977b) major ethnographic works have been produced by anthropologists and sociologists centered around fishermen and fishing communities and industries. Much of the work of this kind is collected in a number of edited volumes and reviews on fishermen and fishing communities (Smith, 1977; Maiolo and Orbach, 1982; Anderson and Wadel, 1972; Casteel and Quimby, 1975; Acheson, 1981). In addition there are a number of bibliographies which address works in the marine social sciences relevant to fisheries (Landberg, 1973; Orbach and Harper, 1979). Cited in these works is a tremendous volume of social science research on fishing and fishing communities.

However, most of the above references contain little or nothing about how to use the results of this research in policy and management. It is only since the 1970's that we find works produced that attempt to specifically address the question of how to use the results of social scientific work in policy and management (FAO, 1976; Acheson, 1977; Orbach, 1977a; Cato *et al.*, 1978; Centaur Associates, 1980; Pollnac and Littlefield, 1983). Some of these works

deal with fishery-specific situations of management or development, and others are more general in that they address social science data needs or ways to incorporate social science analysis into management. There are also works that address specific problems or issues in fisheries management or development such as the effects of regulations (Smith, 1977; Miller and van Maanen, 1979), fishing cooperatives (Poggie, 1980a; Poggie, 1980b), aquaculture (Smith and Peterson, 1982), recreational fisheries (Johnson and Griffith, 1985; Maiolo, 1983), or issues in political economy (Poggie, 1979; Orbach, 1980c; McCay, 1981).

There are three generic problems in the application of social science work to policy and management and development needs. The first of these is one of the critical mass of the available data itself, and the challenge of putting that data in a form usable to the manager or policy-maker. Although there is a fairly sizable literature in maritime sociology and anthropology, the geographical and subject area coverage is uneven. For example, there is a wealth of data on North Atlantic and U.S. Pacific Northwest fisheries, but little on Caribbean or African fisheries. Similarly, there is a great deal of data on the general subject of artisanal fisheries, but very little on industrialized, highly-capitalized fisheries. To be of use to policy-makers, the data often needs to be tailored to specific decision contexts.

The matter of obtaining data in a usable form is an important one. For example, much of the ethnographic data produced by traditional anthropological research and reported in lengthy monograph form is difficult for decision-makers to synthesize and use simply because of the bulk and relatively unconcise format of the data presentation. This is one of the principal reasons that economic data has been used far more extensively, even as a 'proxy' for social indicators — it is simply more easily summarized, particularly in numerical form, and synthesized into decision documents.

A second problem is related to this last point. What is often required for social science data to be used in the management or development process is someone inside the management process itself with social scientific background that they can use to 'translate' the data into usable information. The argument that biological background is necessary for fishery managers has been predominate in most fishery management agencies. If we want social scientific data to be used, we would logically follow an analogous line of reasoning: social science background is necessary for some of the fishery managers.

There are a number of places in the organizations involved in fishery management and development where professionals with this sort of background would be logical. One is in agency positions involving technical, research, staff and decision-making functions. The types of organizations where such background would be appropriate are many — federal fishery management agencies such as the National Marine Fisheries Service or the fishery agencies of smaller independent island nations, state fish and wildlife agencies in the U.S., international development agencies such as USAID, and regional or international fishery agencies such as the U.S. Regional Fishery Management Councils or the Inter-American Tropical Tuna Commission. A second place for social science presence is on the scientific review board such as the Scientific and Statistical Committees of the U.S. Regional Fishery Management Councils. A third is on work teams which actually develop or evaluate management or

development programs such as the Fishery Management Plans under the MFCMA or sector development programs under USAID. Social scientists have not, however, traditionally had a significant place in any of the above positions.

The third problem involves the perception of the social sciences by others. The social sciences suffer somewhat at the hands of the natural and physical scientists with a reputation for not being very 'scientific' at all, primarily owing to the lack of quantitative methodologies in many of the social science disciplines. This reputation is only partially founded in that there is a great deal of social science work that is indeed quantitative. The fact that social scientists steadfastly — and correctly — insist on the value and usefulness of qualitative research for policy purposes (Agar, 1980; Kirk and Miller, 1984) has led to an unfortunate situation with respect to the task of attempting to use social science data in policy and management. Instead of emphasizing the need for both quantitative and qualitative research and data, the discussion has focused on which of these is more useful at the expense of the other. And finally, each of us is a little bit of a social scientist. We all believe that we have some expertise in human behavior irrespective of our formal training, and of course we do. At the very least, however, specific social science expertise is necessary in the scientific collection and display of data on human behavior in order for this 'data' to have usefulness in decision-making.

It is also very important to note once again that social science research or data cannot take the place of the involvement of constituent groups in the fishery management and development process. While the social scientist is useful in summarizing many human variables for inclusion in the policy development or impact assessment process, the involvement of fishermen and fishing communities themselves in the policy development process in addition to the formal social science work is imperative (see, for example, Goodwin *et al.*, 1985).

MOVING FORWARD

So what do we do to address the need for more formal social scientific data and information in the fishery management and development process? We believe that there are three general areas for improvement.

First, social scientists must critically review their theories, methodologies, and patterns of research activity to assess whether or not they are structuring their research to meet the needs of managers and policy-makers. Historically, social science in the marine area has been driven more by the needs of the academic realm than by the needs of the public policy realm. "Basic" research, whose purpose is to advance the theory or methodology of the discipline, is of course necessary and it may be desirable for management or development agencies to become involved in some portion of this kind of work. By and large, however, the agencies are most interested in the applied results of such work, and social scientists themselves need to look critically at whether or not they are producing a product that is useful to policy-makers.

Second, the important 'translation' function must be accomplished. Once we know that a fishing community has a certain demographic profile, political structure or economic dependence pattern, what do we do with that information? Most fishery management or development agencies are better at dealing with technical or biological processes than with human ones. Social scientists must be

willing and able to take positions within the agencies and technical and advisory groups to perform these critical translation functions.

Finally, there is the question of the resources necessary to support the required research, data collection and application functions. Management and development agencies in the fisheries area have traditionally focused on the funding of technical work, although the international development agencies have devoted substantially more resources to social science than have the fishery management agencies. The financial support of social scientific work must be forthcoming if usable results are expected.

CONCLUSION

In summary, there has been a substantial amount of research in the social sciences among fishermen and fishing communities and industries. The geographical and subject matter coverage of this research is uneven, and much of the data embodied in the output of the research is not in a form which is immediately usable to fishery management and development agencies. The solution to this situation lies in a critical examination by social scientists themselves of the character and direction of their own work, and by the management agencies of the need to include funding and staffing in the social sciences as a more integral part of their policy and management programs.

Finally, we would note that the challenges cited in the last paragraph may not be as large as they seem. Headway has in fact been made in these areas in the last decade, certainly to the point where useful approaches have been demonstrated. We believe that the applied social researcher and the policy-maker and manager have the same objectives in mind: rational management regimes and productive, culturally-sensitive fisheries development. Our task is to build on this record.

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