

# **Marine Recreational Fisheries Development in Puerto Rico and the U. S. Virgin Islands: Strategy and Current Approaches**

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## **INTRODUCTION**

Application of coastal recreation research in extension projects for the marine recreational fisheries (MRF) clientele is currently underway in Puerto Rico and the United States Virgin Islands (PR/USVI). One of the institutions leading that process is the University of Puerto Rico Sea Grant Program (UPRSGP) Marine Advisory Services (MAS). MAS's main objective, in terms of coastal recreation, is to promote the expansion, quality, and variety of coastal tourism and marine recreation industries and opportunities through extension and education projects for the vast range of recreational resource users.

This paper will briefly present and discuss the needs, objectives, and methodologies of two research/extension projects in which the UPRSGP combines efforts with the University of North Carolina Sea Grant (UNCSSG) and the Institute for Coastal and Marine Resources (ICMR) from East Carolina University. The main goal of both projects is to help develop MRF through the assessment of the clientele needs, the elaboration of an inventory of the available infrastructure and facilities, and the development of an extension program for the actual and potential clientele. These projects have been funded by the National Marine Fisheries Service (NMFS), under the Saltonstall Kennedy Funds. Information for the preparation of the projects came from fieldwork in coastal maritime communities, extensive extension and educational work in the islands, and survey research of the recreational fishermen of the southwest coast of Puerto Rico (MAS, 1986) and the southeast coast of the United States (Johnson and Griffith, 1985).

## **BACKGROUND**

Marine recreational activities are growing at a fast rate in PR/USVI. The number of boats is increasing, and most marinas are expanding their facilities (cf. Peter 1986). In Puerto Rico, for example, there are 43,945 boats (10,000 more than in 1984) used by 118,813 boaters that spend an estimate of 15 million dollars which enters the Puerto Rican economy (Nauticon, 1985). Despite the demand, the supply of facilities and services, by both the public and private sectors, remains inadequate and in some cases, disorganized. Indicators of that increasing demand/disorganized supply are: the increasing number of "informal" piers, ramps, launching facilities, and sportfishing clubs; the increasing number of coastal settlers (mostly low income) that rent or lease water access and pier space to boaters and recreational fishermen; and the number of fishing villages (or landing centers) providing recreational services as a sideline.

Puerto Rico and the U.S. Virgin Islands, as well as many other islands and nations in the Caribbean, are becoming increasingly dependent on their coastal recreation and tourism base. Marine recreational fishing and the adequate development of a related infrastructure in boating facilities, lodging, and services are becoming vital for the development of these activities.

#### MRF NEEDS AND DEVELOPMENT STRATEGIES FOR PR/USVI

Development of recreational fisheries in the Caribbean must depend on the assessment of the following factors:

1. The resource base.
2. The resource users.
3. The MRF and tourism support industries and infrastructure.
4. The public and private organizations that influence this "industry" (Ditton, 1983; Schmied, 1983).

Consonant with the historical trend of fisheries-related research, most of the current investigations are being conducted in terms of the fishery resources (cf. Olsen and Wood, 1983). A number of agencies in PR/USVI such as the Fish and Wildlife Division from the USVI, Corporation for the Development of Marine, Riverine and Lacustrine Resources (CODREMAR), Department of natural Resources (DNR), Food and Agriculture Organization of the United Nations (FAO), and the Caribbean Fisheries Management Council (CFMC) are assessing the resource, experimenting with technical improvements (such as fish aggregating devices or FADS), and attempting to measure the effect of MRF on the maximum sustainable yield. Research in this area appears to be abundant and promising.

Information on resource users, which fisheries biologists require for effective management, is lacking. The projects conducted by MAS, UNCSG, and ICMS are studying the social and economic dimension of the "MRF-industry" (resource users, infrastructure, and organizations). Information derived from research on the resource base, combined with data from the human dimension of recreational fisheries, will allow resource managers and policy makers to have an accurate portrait of the "industry", and thus develop policies and management plans that are in accordance with the social, cultural, and economic parameters of the fishery.

The main strategy:

Robert L. Ditton and Marc L. Miller have cogently outlined the fundamentals for coastal recreation research (Ditton and Miller, 1986). These may also be applied to extension activities as well. To a great extent our projects follow the recommendations given by the authors. These are:

1. An interdisciplinary approach is highly encouraged. The principal investigators of the MRF development projects are anthropologists interested in coastal affairs. The staff is composed of professionals with training in rural sociology, resource management (specialized in coastal recreation), marine affairs, and extension.

2. Multi-institutional cooperation is needed; networked projects can document what is known and transferable. Both projects are different in scope and administrative arrangements. However, in terms of their goals (development of MRF in PR/USVI) and research strategies, the projects are fully networked, and considered to be one that explores two variants of the MRF industry. In this one project, the UNCSG, UPRSG, and ICMR are collaborating

in every phase; from the basic research and fact finding activities, to the development of extension products, services, and activities.

## DESCRIPTION OF THE MRF DEVELOPMENT PROJECTS

### Project: MRF Clientele Needs Assessment

Understanding the social parameters and needs of resource users is a necessary first step towards elaboration of extension programs. Hence, the primary objective of this project is "to develop Marine Recreational Fishing (MRF) in Puerto Rico and the U.S. Virgin Islands by assessing its problems, identifying local human resources for MRF development, producing educational materials designed for MRF administrative and industry personnel, and stimulating MRF consumer demand" (Griffith, 1986). In terms of methodology and extension planning, this particular project will (verbatim from Griffith, 1986):

1. Identify current MRF user groups.
2. Coordinate the needs of the MRF consumers with the capabilities of the small-scale fishermen to provide MRF services.
3. Identify current providers of MRF services.
4. Design a development program, based on current patterns of MRF use, that will aid small-scale fishermen entering the MRF industry.

One of the basic needs in a development strategy (along with information on the resource base) is the knowledge of the resource users, expenditures, diversity, attitudes, and perceived needs. Whereas in other areas (e.g. the continental United States) most of these efforts have been completed, they are still essential in order to start building knowledge on the behavior of recreational fishermen. In PR/USVI the literature on that topic is scant. There is a study on household participation in fishing activities (Department of Natural Resources, 1975), and a report by Clapp and Maine for CODREMAR on gear, boat, and time effort of recreational fishermen (Clapp and Maine, 1979).

The poor status of information resources on the MRF clientele in PR/USVI, is detrimental to the development of management plans and policies in those islands, as well as the allocation of funds and resources. In that context MRF is thought, by managers and policy makers, to encompass leisure activities fully supported by private enterprises and capital. Such misconceptions on the "industry" are often translated into a lackadaisical attitude towards its development and sustenance. For local government agencies involved in fisheries development, MRF is basically composed of sportfishermen, who are located at the upper segments of the socioeconomic ladder. MAS research indicates that MRF is also composed of members of the lower and middle socioeconomic segments (MAS, 1986). All segments combined create a situation of demand for infrastructure, information, and services, which more than often is not satisfied by local businesses, municipalities or by the government.

In assessing the needs of the clientele, their demands, the research/extension team is incorporating and stimulating public participation in the planning process, and designing a development program that "builds on the existing MRF industry and its history rather than replacing it with a model derived from the U.S. southeast or another area. Such a development program will thus identify and build on such factors as native incentives, patterns of entry and expansion that have characterized fishermen who have entered the MRF industry,

perceived needs of tourist and native recreational fishermen, fishing stocks and seasonal schedules of fishermen, and commitments of time and economic resources by incipient and potential MRF industry personnel" (Griffith, 1986).

### **Project: Infrastructure and Facilities Assessment**

The main objective of this project is to satisfy the need for information by marine recreational fishery managers, MRF/tourism industry, and the MRF constituency through the evaluation of access and infrastructure needs in PR/USVI and the output of an inventory/data base of MRF facilities and operations. Results of this project will serve to promote MRF by serving as a masterplan for the development of infrastructure for recreational fishermen.

For this project, two categories of sources are being inventoried:

1. Directly-related such as guides, tournaments, taxidermists, fishing clubs, charter and party boats, marinas, boat rental, launch ramps, fishing piers, artificial reefs, and bait and tackle shops.
2. Indirectly-related infrastructure adjacent to fishing areas such as hotels, motels, transportation, campgrounds, and restaurants.

Information will be transferred to the public and the clientele through conferences, workshops, publications, and computer information.

Marine recreational fishing means jobs and business opportunities for coastal communities in PR/USVI. But due to the lack of information, data base products, and research, this activity and its constituent groups remain "invisible" to economists, planners, investors, and government officials, thus limiting its development potential. In PR/USVI, the formal assessment of needs within MRF is practically non-existent, and as such requires the full support of concerned government agencies in order to develop and promote those activities.

In the specific case of Puerto Rico, the moment appears to be ripe for such development. Municipal and state officials are becoming conscientious of the importance of having an "ecological tourism", that is tourism outside the traditional tourist market of San Juan, in which coastal (and inland) natural, cultural, and historical resources are used as the main attraction (Report of the Commonwealth of Puerto Rico Senate 1985: 2-3). The interest of government officials in the development of a data base for this "ecological tourism" is a major change from the municipal "ballpark syndrome" (if the people need recreation, let's build them a ballpark!) that dominated allocation of funds and resources in recreation in the past (cf. Office of Coastal Zone Management, 1978: 191-192).

### **PRESENT AND FUTURE POLITICS OF MRF**

Development programs (and managers) often linger on the unexpected consequences they spur. One should not be overly optimistic about MRF developments in PR/USVI, mainly due to the social, economic, and political side effects that such development creates. Along with the desired and expected economic effects, development plans also trigger processes that could be detrimental to coastal populations. Processes that bolster the recreational sector, also stimulate competition for coastal resources. The following examples illustrate the situation.

The MAS survey showed that recreational fishermen utilize, to a great extent, the inshore/reef resources that are the base of small-scale operations.

According to results of this survey in a low income, non representative, rural setting, recreational fishermen estimated their monthly catch as 88.7 pounds. If we use these fishermen as representative of the island's recreational fishermen, and the total fishermen population is calculated at 5,000, this may represent an annual catch of 5,323,752 pounds. This amount is higher than the official estimate of 3,311,046 pounds for the annual commercial catch in 1985 (Source: CODREMAR).

One specific group of recreational fishermen, the sportfishermen (those who participate in organized fishing tournaments), with high income/high levels of education, are an important political force with lobbying power in the government agencies for the defense of their legitimate interests. In PR/USVI, they have been a major political force against the fishing activities of longliners (U.S. and foreign) in the Caribbean Exclusive Economic Zone. They have opposed the longliners in CFMC fact finding meetings, and in the press (cf. Martin and Wood, 1986a,b).

The expenditure levels of marine recreational fishermen also give weight to their impact in the political arena. Our pilot survey showed that each fisherman spent \$2,586 a year in fuel, transportation, food, marinas, hotels/motels, gear, maintenance, and bait. For Puerto Rico, this could represent an estimate of 13 million dollars into the economy. However, a correct estimate should exceed 25 million dollars annually.

The recreational fishermen are also expected to exert pressure, through service requests, to the government agencies. In their view, the government should be more involved with recreational fisheries by satisfying current needs such as public ramps and private marinas. They also want proper management of the species that compose the resource, licensing systems, surveillance, and better use of transportation taxes from fuel and boats. Soon, these fishermen will be competing with the commercial sector for the allocation of funds and services from the concerned government agencies.

Coastal access is another crucial area of conflict between recreational and commercial fishing sectors. Rapid development of coastal recreational activities appears to be correlated to coastal gentrification and users conflicts (cf. Pi-Sunyer, 1976). In Puerto Rico, there are various well documented cases in which construction and utilization of recreational infrastructure, by both the public and private sector, have undermined community relations (Rodriguez, 1980).

Commercial and recreational fishermen have been crossing each other's turf during the last decade, but up to this moment, both groups have avoided a face-to-face confrontation in the political arena. Nonetheless, all indicators point to an unavoidable confrontation of these two groups with political power, push and experience, specially the commercial group (Gutierrez *et al.*, 1985). Planners, managers, researchers, and extension agents should be prepared to face such events.

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LITERATURE CITED

- Clapp and Mayne, Inc. 1979. *Fishermen in Puerto Rico-Socio Economic Profile*. Report prepared for NOAA.
- Department of Natural Resources (DNR). 1975. Survey of wildlife-oriented recreation in the Commonwealth of Puerto Rico, D.N.R. Vol. 1 Prepared by School of Business Administration, Georgia State University, Atlanta, Georgia.
- Ditton, R. B. 1983. Information and data needs for marine recreational fisheries development in the Caribbean. *Proc. Gulf Carib. Fish. Inst.* 35: 144-151.
- , R. B. and M. L. Miller. 1986. Coastal recreation: An emerging area of managerial concern and research opportunity. *J. Leisure Res.* 8 (3):223-240.
- Griffith, D. 1986. Developing marine recreational fishing in Puerto Rico and the U.S. Virgin Islands. Institute for Coastal and Marine Resources, Proposal submitted to NMFS.
- Gutierrez, J., B. McCay and M. Valdes. 1985. *La Pesca Artesanal y las Asociaciones de Pescadores en Puerto Rico*. University of Puerto Rico Sea Grant Publications, Res. Rep. PRU-SG-85-003.
- Johnson, J. C. and D. Griffith. 1985. Perceptions and preferences for marine fish: A study of recreational fishermen in the southeast. UNC Sea Grant Publication UNC-SG-85-01.
- Marine Advisory Services (MAS). 1986. Pilot survey on recreational fishermen of the southwest coast of Puerto Rico. (In Preparation).
- Martin, J. and B. Wood. 1986a. Longliners hurt local fishery. *The San Juan Star*, Sunday, February 2, 1986.
- , J. and B. Wood. 1986b. Longliners' tentacles spread far. *The San Juan Star*, Sunday, April 13, 1986.
- Nauticon. 1985. Cuadro Comparativo entre embarcaciones de recreacion en Puerto Rico y Estados Unidos. August, p. 22.
- Office of Coastal Zone Management. 1978. Programa de Manejo de la Zona Costanera de Puerto Rico y Declaracion de Impacto Ambiental Preliminar. Department of Commerce.
- Olsen, D. A. and R. S. Wood. 1983. The marine resource base for marine recreational fisheries development in the Caribbean. *Proc. Gulf Carib. Fish. Inst.* 35:152-160.
- Peter, N. 1986. U.S. Virgin Islands marine recreation services and facilities directory. University of Puerto Rico Sea Grant Program Publications (In Press).
- Pi-Sunyer, O. 1976. The anatomy of conflict in a Catalan Maritime Community. In: Aceves, J. et al., *Economic Transformation and Steady State Values*. Queens College Press Publications in Anthropology, No. 2, pp. 60-68.
- Rodriguez, L. R. 1980. Estudio Etnografico de la Calle el Pescao de Arroyo; Los Pescadores y la Actividad Productiva Pesquera. Monografia Inédita.
- Schmied, R. L. 1983. Marine recreational fisheries: What are they? *Proc. Gulf Carib. Fish. Inst.* 35:136-140.
- Senado de Puerto Rico. 1986. Informe: Inventario de facilidades recreativas. San Juan, Puerto Rico.