

# **Applied Social Research and Recreational Fisheries and Tourism Development in PR/USVI: A Marine Extension Experience**

**RUPERTO CHAPARRO<sup>1</sup> and MANUEL VALDES-PIZZINI<sup>2</sup>**

*University of Puerto Rico  
RUM-UPR P.O. Box 5000  
Mayaguez, Puerto Rico 00709*

*<sup>1</sup>Sea Grant Program*

*<sup>2</sup>Department of Social Sciences*

## **ABSTRACT**

This paper discusses the uses of marine extension and the approaches of social sciences in the planning and development of projects aimed toward the enhancement of marine recreational opportunities. These projects, funded by the National Marine Fisheries Service, carried by the University of Puerto Rico Sea Grant College Program Marine Advisory Services, jointly with the Institute for Coastal and Marine Resources and North Carolina Sea Grant studied various key aspects of the Marine Recreational Fisheries "industry", namely:

- marine recreational fishing infrastructure and services
- social composition of the recreational fishermen
- marketing strategies of the MRF sector
- the structure conflict between commercial and leisure users of the marine resources, and the potential for mitigation

The data collected in these projects has been utilized in the design, planning, and development of government and private projects for marine recreational fishing enhancement. Here, the authors present the key findings of the projects, how the information was used in technology transfer, and their successful outcome. Examples of extension products are discussed. This paper shows the benefits of multiple approaches and applied social sciences in the fields of marine resources and tourism development. It also addresses potential areas for research/extension development.

## **INTRODUCTION**

Application of coastal recreation research in extension projects for the development of Marine Recreational Fishing (MRF) 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 College Program (UPRSGCP) Marine Advisory Services (MAS). The main objective of MAS, in terms of coastal recreation, is to promote expansion, quality, and variety of coastal tourism and marine recreational industries and opportunities through extension and education projects for the vast range of recreational resource users. These projects have been supported by the National Marine Fisheries Service (NMFS) under the Saltonstall-Kennedy Funds.

Prior to the studies funded by the NMFS and carried out by the UPRSGCPMAS, jointly with the Institute for Coastal Marine Resources (ICMR) of East Carolina University and North Carolina Sea Grant Program, MRF in Puerto Rico and the United States Virgin Islands (PR/USVI) had been studied in a fragmented way and based on impressions instead of facts, generating information that has been difficult to apply to problems facing MRF development. This is unfortunate in light of the utility of MRF as a means of enhancing the U.S. Caribbean territories as tourist destinations and as a way of generating increased investment opportunities, income and employment. This paper discusses the uses of marine extension and the approaches of the social sciences in the planning and development of projects aimed toward the enhancement of marine recreational opportunities. These projects funded by the NMFS studied various key aspects of the "industry":

- Assessment of Access and Infrastructure Needs of PR/USVI in Order to Support Increased MRF;
- Developing Marine Recreational Fishing in PR/USVI;
- Developing Strategies to Enhance Charter and Headboat Fishing Operations in PR/USVI;
- Understanding Commercial - Recreational Fishermen User Conflicts in PR/USVI.

**EXTENSION APPROACHES TOWARD MITIGATION AND RESOLUTION  
Assessment of Access and Infrastructure Needs of PR/USVI, In Order to  
Support Increased MRF by Dr. Manuel Valdes Pizzini, Ruperto Chaparro  
and Dr. Jaime Gutierrez**

This project gathered information on the infrastructure (facilities) and services serving marine recreational fishing (MRF) in Puerto Rico and the United States Virgin Islands (PR/USVI). The information was gathered through field observations, on-site assessments, structured interviews with owners and managers, unstructured interviews with government officials, users of facilities and fishery resources, and members of organized groups. The information collected included location, type of structure, availability of ramps, piers and services, people in charge, usage patterns, development plans, sponsorship of activities, jobs generated, and dimensions of facilities, among others.

The findings of this project are divided into a statistical portrait of the regions studied. The statistical portrait provides graphic and tabular representations of the distribution of organizations (marinas, fishing and yachting clubs), facilities (infrastructure) and services in PR/USVI, and an analysis of their frequencies and regional distribution in relation with MRF development. The qualitative portrait features lengthy descriptions of the regions examined and an assessment of the current use of MRF related infrastructure

and the development potential for each region.

The main conclusion of this project was that MRF infrastructure supply cannot cope with the current demand for facilities. In terms of businesses, these are increasing in number and variety, are well located, and satisfy local demand for goods and services. Guidelines for the appropriate development of MRF infrastructure are recommended, and potential regions highlighted.

Commercial diversification for the economic survival and profitability of landing centers was recommended. One of the areas recommended was the opening of facilities and services to the MRF clientele. One of the services that could be developed is the fishing charter operations. In addition to marinas, ramps, boat parks, and storage areas there is a need for facilities, service, or infrastructure to provide access to the water to persons who don't have a boat. This facilities include fishing piers, jetties, waterfronts, and charter boat services. The USVI is an area that should seriously consider this alternative.

Copies of this report and the information gathered in the inventory have been distributed to many groups including government officials, recreationists, business people, tourists, planners, and the general public. This project also trained MAS personnel about the MRF industry and its components. Municipalities are discovering the benefits of developing MRF and have contacted MAS at the UPRSGCP for advice on how to develop that industry. Various government offices have also contacted MAS services in order to get the information gathered during the project which will be very helpful in managing the resources and future development.

The potential areas of research addressed are; an inventory update on a periodical basis, an assessment of the economic impact and opportunities provided by the MRF service sector (income, direct and indirect jobs generated, sales volume, multiplier effect in economy), a precise identification of the universe of MRF resource users in PR/USVI, and a socio-economic study of the impact of SCUBA diving and spearfishing.

The general objectives of the MAS extension project developed from this study are to satisfy the need for information by marine recreational fishery managers, MRF/tourism industry, and the MRF constituency on available infrastructure and services, and to disseminate the information to anglers, MRF business people, resource managers, Department of Natural Resources (DNR) personnel, and researchers.

**Developing MRF in PR/USVI by Dr. David Griffith, Dr. Jeffrey C. Johnson, Dr. Manuel Valdes Pizzini, Ruperto Chaparro and James D. Murray**

This report synthesizes, interprets, and presents information on three components of the MRF industry in PR/USVI:

- the behaviors and preferences of native and tourist recreational fishermen;
- the ways in which small-scale commercial fishermen may be incorporated into the MRF industry, particularly in the context of fishing charter;
- the attitudes of U.S. travel agents toward PR/USVI in relation to other islands of the Caribbean and as MRF destinations.

From this information, we have produced:

- a comprehensive report concerning the status of the MRF industry which can be used by MAS and tourist industry personnel for developing the islands' MRF industry;
- a brochure, printed in Spanish and English, aimed at educating small-scale commercial fishermen about ways they can enter the MRF industry;
- a brochure for U.S. travel agents that clears up misconceptions about PR and promotes PR as an MRF destination.

Our investigation revealed, first, that the USVI need little MRF development since they are already popular, even infamous, MRF destinations. It is clear from this research that the USVI have no image problem among travel agents. The USVI are already viewed as a prime vacation spot that is noted for its sport fishing, water sports, shopping, accessibility, and friendliness. Promoting MRF in St. Thomas would probably generate more conflicts than investment opportunities or jobs, given that the island's MRF industry is already sophisticated and, if anything, overdeveloped.

On the other hand, our investigations revealed that the MRF industry in PR currently suffers from a state of underdevelopment, largely due to the overwhelming predominance of San Juan in Puerto Rican tourism, a predominance gained at the expense of the rest of the island municipalities. The influence of San Juan is typical of the influence of concentrated capital investments in a region which underlies the underdeveloped condition. San Juan's preeminence in the landscape of Puerto Rican tourism has hindered the image of PR among tourists from the mainland, and it has contributed to the uneven character of MRF development outside San Juan. This is not to say, however, that there are no MRF facilities outside San Juan, but that those that are outside San Juan tend to suffer from problems that hinder their growth.

In terms of specific findings, we found that those fishermen with boats less than 23' in length, as compared to those with boats greater than 23' and those with no boats, tended to exhibit the most highly variable of behavior; this group of recreational fishermen are most likely to provide the greatest demand for

some features of MRF development, particularly for new boat launching and boat storage facilities, as well as less expensive marina services than those currently available. We concur with the Valdes *et al.* (1988) study that the current supply of MRF services, organizations, and facilities are inadequate to meet the growing MRF demand.

We found, in addition, that over 40% of native recreational fishermen already utilize the services of small-scale fishermen, suggesting that commercial fishermen have already established a foothold in the MRF industry and thus present both inclination and ability to enhance the growing need for MRF services, organizations, and facilities. Presently, however, small-scale commercial fishermen remain confined to providing a relatively limited set of services such as bait sales, and some effort could be devoted to incorporating them further into the industry as guides, expert mates on charter boats, and charter boat captains.

Our study also revealed that fishing charters in PR demonstrate highly variable development, with the most sophisticated charters arranged out of San Juan and those in other municipalities ranging from large, expensive charters to small, informal, unlicensed, and uninsured vessels. There are currently no "party boats" operating on the island, although one individual has been investigating the possibility of starting a party boat operation that leaves from the western side of the island to fish the Mona Passage.

Finally, it is our general conclusion that the variable nature of the charter boat industry, coupled with the highly variable nature of native and tourist recreational fishermen, suggests many avenues to pursue in terms of incorporating small-scale fishermen into MRF industry and enhancing the tourist's image of PR as an MRF destination.

In addition to the promotion of San Juan at the expense of the rest of the island and the problems of incorporating small-scale commercial fishermen into the MRF industry, more basic sociodemographic data is necessary on the full contingent of fishermen. Information is needed in terms of the exploitation of the marine environment by commercial and recreational fishermen (Griffith *et al.*, 1988)

A MAS project directed at incorporating small-scale commercial fishermen into the MRF industry has been developed from this research project. MAS is working with the Fishermen Congress of PR distributing information and offering talks around the island in order to offer these services as an income alternative.

The next two projects are currently underway, and for this reason conclusions and recommendations are not offered. An explanation of the goals and objectives is given.

**Developing Strategies to Enhance Charter and Headboat Fishing Operations in PR/USVI by Ruperto Chaparro**

Charter and headboat operators are two important components of the MRF industry and make major economic contributions to their home port areas. Despite their positive economic contribution, charter headboat operators currently face a number of potentially debilitating problems. These problems include high turnover rates caused by high start-up costs and low profit margins, the absence of strong linkages with other components in the travel and tourism industries, and regulatory impacts associated with stressed species. Currently, there is a lack of information on the scope of these problems as well as mitigation strategies. Without new techniques for shifting charter fishing demands, better linkages within the tourism industry and new marketing strategies, the charter and headboat industry as we know it today could cease to exist.

The primary goal of this project is to assist charter and headboat operators in PR/USVI to become better integrated into existing coastal tourism systems in order to better manage fishing demand and enhance the industry's economic vitality.

The following objectives will be addressed:

- contact a sample of charter/headboat operators regarding perceived problems, needed action and information requirements;
- contact businesses, communities and tourism promotion groups to ascertain the extent of linkages with charter/headboat operators;
- complete a mail survey of charter and headboat fishermen to learn more about them as consumers, including socio-demographic characteristics, desired trip outcomes (motivations), willingness to pay for desired outcomes, and sources of information;
- evaluate strategies for improving operators linkages with other elements of the tourism industry and for managing fishing demand through various pricing strategies;
- provide operators with a source of information about their customers, as well as feedback to others involved in the tourism industry.

Because of the small-business nature of the charter/headboat industry, information and insights to help them be more competitive and enhance their chances for economic survival will be provided. The Final Report will bring together all information collected in PR/USVI into a standardized format which addresses strategies that will assist charter/headboat operators. Findings and recommendations will be made available to charter/headboat services, charter associations, trade publications, and tourism promotion organizations throughout PR/USVI.

**Understanding Commercial - Recreational Fishermen User Conflicts in PR/USVI: Extension Approaches Toward Mitigation and Resolution by Dr. Manuel Valdes Pizzini**

Developers, managers and planners must 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 positive economic effects, development plans also trigger processes that are detrimental to coastal populations. Processes that bolster the recreational sector also stimulate competition for coastal resources. The following examples illustrate the situation.

An MAS survey of recreational anglers in southwest Puerto Rico (Valdes-Pizzini, 1987) showed that recreational fishermen utilize, to a great extent, the inshore/reef resources that are the base of the small-scale commercial operations. These fishermen also compete 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 the recreational and commercial fishing sectors. Rapid development of coastal recreational activities appears to be correlated to coastal gentrification and user 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.

The primary goal of this exploratory research and extension project is to assess and analyze the existing information (and potential sources) on commercial/recreational fishermen conflicts for PR/USVI, in order to provide fishery managers and resource users with a set of guidelines for the mitigation and solution of conflicts. Through the use of the Delphi Technique, this project also provides a "bottom up" approach to policy making and resource management, by which public participation is employed. In the Delphi Technique a panel of experts (resource users and managers) is consulted on problem configuration and solutions.

**RESULTS OF PROJECTS**

The adoption of applied social research in the management of MRF resources in PR/USVI is a pioneer work realized by the UPRSGCP MAS. This commitment resulted in a series of benefits to the MRF industry and the users of the resource. Among the benefits derived by these research projects funded by the NMFS are:

- the training of students who worked as research assistants and are now doing research on their own;
- the training of MAS personnel in MRF resources, infrastructure, and resource users in PR/USVI;

- the development of extension projects based on information produced by these research projects;
- production of information on MRF;
- development of educational activities directed to educate the clientele with the information produced.

The information produced by these projects has been translated into concrete transfer of information to the clientele, including government officials, resource managers, resource users, and the media. Some examples are "Sport Fishing in the Shining Star Of the Caribbean: The Travel Agent's Point of View"; "Opportunities for Commercial Fishermen in the Marine Recreational Industry"; "Renovation of Waterfront, Port and Coastal Areas"; and "Inventory of MRF Infrastructure: Organizations, Facilities and Services". A series of workshops and symposia were organized with the purpose of transferring the information produced in these projects to social scientists, municipal officials, marine science students and faculty, resource managers, and planners.

The result from this transfer of technology is a change in attitudes and practices of various groups targeted. Still to be assessed is the impact on commercial fishermen. But in terms of the other groups reached we have evidence of changes such as:

- increased solicitation of MAS personnel in coastal development projects by the Department of Natural Resources of PR, municipal governments, and government agencies;
- local level use (municipal governments) of the data for planning purposes;
- the Senate of PR used the data in their House research for Senate Bill No. 96 aimed to develop port activities in municipalities outside of the San Juan metropolitan area;
- increased solicitation of MAS personnel in coastal resource user conflict mitigation;
- private sector use of inventory;
- increased use of social science data by resource managers;
- numerous letters from travel agents asking for MRF information.

#### CONCLUSION

The UPRSGCP MAS expects to continue promoting the link between marine extension and applied social science research and the increased involvement of marine scientists and managers in the understanding of social issues related to coastal and marine resource utilization. A more detailed understanding of the complex interactions (social, economic, and political) between commercial and recreational/sport fishermen is needed in order to



successfully manage the resource.

Hopefully the information produced from the two projects that are currently underway will help us to understand some of the social issues affecting MRF. A mitigation manual for fishery resource users and managers will be based on information produced by the project "Understanding Commercial-Recreational Fishermen User Conflicts in PR/USVI: Extension Approaches Toward Mitigation and Resolution" and a booklet with information about customers of charter/party boats (socio-demographic characteristics, desired trip outcomes, willingness to pay for desired outcomes and sources of information) as well as feedback to others involved in the tourism industry. This booklet will be based on information produced by the project "Developing Strategies to Enhance Charter and Headboat Fishing Operations In PR/USVI" and will be distributed among charter/headboat operators and tourism officials.

#### FUTURE TRENDS

In spite of concerted and expensive efforts at managing water quality, our changing coast continues to suffer problems. Good water quality is fundamental to the coastal economy, especially to seafood production and to MRF. As the Sea Grant Association elucidates in the publication "Coastal Change: The Sea Grant Response" we need a stronger research base to explore the relationship between natural processes and man-induced changes. We need to determine the sources and fates of toxins, nutrients, and pathogens in our coastal waters and sediments and the effects of environmental change on coastal productivity. To meet these challenges, we recommend a carefully targeted initiative aimed at transferring technology and initiating new research on water quality, with associated efforts in coastal processes and technology application.

Land commoditization, as indicated by the influx of people and capital into the coastal zone, has the socio-political effects of stimulating coastal gentrification, a process by which local settlers are socially displaced by "outsiders", usually from higher socio-economic segments or classes. To meet this challenge we recommend initiating research that can describe and analyze these processes and predict their socio-political outcome in the coastal municipalities.

If the nation is to meet the challenge of managing the coastal ocean for optimal, sustained yield and a healthy environment, research in water quality and coastal gentrification is crucial to explore the relationship between natural processes and man-induced changes. These are interrelated issues, however, and should be addressed in an integrated fashion.

#### LITERATURE CITED

- Griffith, D. C., J. Johnson, R. Chaparro, M. Valdes, and J. Murray. 1988. Developing Marine Recreational Fishing in Puerto Rico and the United

- States Virgin Islands. Final Report for NOAA/NMFS (S/K) Grant Number: NA86WC-H-06108
- Pi-Sunyer, O. 1976. The Anatomy of Conflict in a Catalan Maritime Community. Pages 60-68 in J. Aceves *et al.*, *Economic Transformation and Study State Values*. Queens College Press Publications in Anthropology, No. 2.
- Valdes, M., R. Chaparro, and J. Gutierrez. 1988. Assessment of Access and Infrastructure Needs of Puerto Rico and the United States Virgin Islands, In Order to Support Increased Marine Recreational Fishing. Final Report for NOAA/NMFS (SK) Grant Number: NA86-WC-06109
- Valdés-Pizzini, M. 1987. La Pesca Recreativa en Puerto Rico. Boletín Marino, UPRSGP Publications, April-May.