Scoping Session on Innovative Research for the Conservation of Marine Resources, Habitats, and Ecosystems in the U.S. Caribbean Region

UNIVERSITY OF PUERTO RICO SEA GRANT PROGRAM
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Puerto Rico Sea Grant Program

INTRODUCTION

The University of Puerto Rico Sea Grant College Program (UPRSG) is participating in a national assessment to determine critical research and information needs. Our focus is on the conservation of coastal, marine, and oceanic resources related to US interests in the Caribbean (PR and the USVI). Consonant with the UNEP and NOAA definition, UPR Sea Grant also views the Caribbean region as a Large Marine Ecosystem (LME). Marine processes and resources are interlinked; therefore, surveying the regional international community of marine resource users is essential to an effective assessment of research needs.

The Gulf and Caribbean Fisheries Institute (GCFI) is an important regional not-for profit institution that annually gathers researchers and managers throughout the wider Caribbean, Central and South America. Founded in 1947, GCFI has encouraged the exchange of information among governmental, scientific, and commercial stakeholders in the fisheries industry and management. The GCFI annual meeting is well known for bringing together experts and stakeholders with the objective of discussing the new trends and concerns relating to fisheries by technical presentations, poster sessions, and workshops. Therefore, it is an excellent opportunity to interact with scientists, experts, managers, and students throughout the meeting to obtain their view of major concerns and issues relating to fisheries research and management.

With GCFI's assistance, UPRSG scheduled a discussion (scoping) session on November 13, 2008 at Le Gosier, Guadeloupe, French West Indies. Approximately 80 scientists, experts, and resource managers mainly involved in fisheries management attended the session. This group represents a broad, cross section of the 26 countries participating in the conference. Although most of the participants were from the Caribbean and adjacent countries (e.g., Mexico, Bahamas, Guadeloupe, Columbia, Venezuela, Cuba, St. Vincent and the Grenadines, St. Lucia, St. Martinique, Dominica, Dominican Republic, and the Cayman Islands), a few came from farther afield. Distant stakeholders were from China, Estonia, United Kingdom, Australia, Canada, and Brazil.

The discussion focused on addressing issues that are presently considered a concern among fisheries experts. UPRSG requested comments on four questions relating to short and long-term research needed for fisheries management, information that can be used by resource managers to become better decision-makers, and obstacles that are presently hindering research and/or assessments that can help improve fisheries management.

FUNDING AND SUPPORT

The NOAA award no. NA08OAR4170748 provided funding for travelling expenses, lodging, meals, and published announcements. Dr. Manuel Valdes-Pizzini (Associate Director-UPRSG), Dr. Kurt Grove (Research Coordinator), and Jasmine Seda (Research Assistant) coordinated this activity.

Dates and Venue

The scoping session was held at the Arawak Hotel located at Le Gosier, Guadeloupe of the French West Indies on Thursday, November 13, 2008 from 11:30 am to 1:00 pm. Participation consisted of scientists, experts, resource users and managers from various countries of the Caribbean that arrived to attend the GCFI annual meeting.

Goals of the Scoping Session

The main objectives of the discussion session were the following:

i) Assess research needs of resource users, managers, and scientists for the improvement and conservation of fisheries management on a short and long-term scale,
ii) Identify obstacles that may be hindering or delaying the development of research and strategies for fisheries management in the Caribbean, and
iii) Identify stakeholders and experts in fisheries management located in the Caribbean.

Discussion Questions and Feedback

The following questions were presented for discussion:

i) What type of research is presently required (short-term) in the region for fisheries management?

ii) What critical information is needed during the next 5–10 years (long-term research) in order to deal with fisheries management?
iii) What type of information can resource managers use in order to become better decision-makers?
iv) What obstacles are presently hindering research/assessments that can help improve fisheries management?

Marine fisheries experts, scientists, and managers, such as Dirk Zeller (Senior Research Fellow and Project Manager of the *SeaAroundUsProject*-Canada), Joe Kimmell (NOAA), Richard Nemeth (UVI-SG), Silvia Sala Marques (CINVESTAV Mexico), and Marco Antonio Romero Riera (Fundación Científica Los Roques–Venezuela), as well as an additional 20 participants provided valuable comments and insights during our scoping session.

Responses to the first question relating to the short-term research needed for fisheries management included:

i) Efforts to ensure an adequate understanding of the biology of important fish species (especially those considered to be undergoing overfishing – Nassau, goliath, yellowfin, red, and tiger grouper; silk, blackfin, and vermilion snapper; and parrotfish species), as well as efforts to obtain a regional baseline for managers by reviewing historic trends or patterns. This may reduce the inaccuracies caused by shifting benchmarks in most areas that have only sporadic stock assessments.
ii) Obtain reliable estimates of size and catch trends for commercial and recreational fisheries, to estimate catch per unit effort (CPUE) for each fishing gear, and to use this information to establish annual catch limits for each species or species group.
iii) Studies that incorporate adequate outreach activities that involve surveys and information from stakeholders and local fishermen to provide better fish stock assessments and help generate benchmarks in regions with little or no previous data. Encourage local participation for the development of a rapid, historical database of stock assessments that would help in establishing benchmarks.
iv) Studies on the importance of pelagic species are needed to better understand their biology, spatial-temporal distribution, and socio-economic impact. Strategies for resource use will greatly benefit from this information.
v) Assessment of the economic impact of management on commercial and recreational fisheries on a local and regional scale. There is an astounding amount of recreational fishing presently occurring that surpasses commercial fisheries and the economic impact of this is not known.
vi) Search for ways to improve the enforcement of management regulations, which requires better outreach and education measures. The lack of knowledge on the use and conservation of resources will detain the implementation of management strategies.
vii) Projects that evaluate the social, economic, and cultural impact of fisheries management in local communities. Fisheries assessments need to consider the anthropological aspects (ethics) of catch limits in order to successfully manage resources.
viii) Regional studies of spawning aggregation sites (SPAGs) are necessary to protect those resources from overexploitation. Confirmation of reported SPAGs and whether these documented sites have reliable data that can be used as existing baselines should to be evaluated. We also must prioritize research of overfished species and use this information to improve management.

Suggestions for long-term research required for effective fisheries management included:

i) Continued monitoring of fish populations (as noted above but for all commercially or recreationally important species) to determine catch and harvest trends, long term CPUE, and the effect of management on these populations. A good strategy for long-term monitoring would be to incorporate local communities and volunteers that are willing to be trained adequately and perform duties responsibly. Long-term monitoring is the only way to fully understand the impact/importance of each species and what effects will result from managing them.
ii) Determine the age distribution of species targeted by commercial and recreational fisheries. Research on the basic life history of commercially important species should be emphasized in order to establish spatial and temporal distribution patterns. Levels of self-recruitment and spawning aggregations are also needed. It is also imperative to obtain more statistical information concerning commercial species.
iii) Preparing for natural disasters, such as hurricanes, pathogenic diseases of reefs, changes in seawater temperature, and red tides, which are related to climate change. It is essential that we develop ways to predict their effect on pelagic and benthic species. Studies on the effect of natural threats are essential for predicting the ecosystem's response to these stresses and its survival. Education is also necessary at all levels in local communities so as to prepare for these changes on a social and economic level.
iv) Studies on the dynamics of population structure of existing fish stocks. Effective ecosystem-based management includes identifying and understanding the role of migratory species of fish stocks that do not recognize national boundaries.

v) Studies that establish a monetary value of each commercial species to calculate their gain or loss and understand their economic importance. The term 'value' does not constitute simply a market price, but takes into account their role in the environment and their importance for human well-being.

Types of information needed by resource managers in order to make better decisions in regard to conservation included:

i) Research that has been adapted for the use of working groups in resource management. Managers should be able to practice adaptive research so that their strategies are in accordance with recent developments in research. This approach also includes simplifying research vernacular in a manner that managers can understand and apply in their decision-making processes.
ii) Disseminate useful information through dialogues among managers, scientists, and fishers demonstrating the importance of fishery independent data for the purpose of achieving sustainable resource stocks. The dialogues should be expressed in a clear and concise manner that allows for local fishermen to actively participate.
iii) Encourage the sharing of information between resource managers of all types in the area to scope improved measures of conservation. Interconnectivity among other resource management sectors will significantly improve strategy development due to the overlapping of resources (e.g., sharing of information between coastal and fisheries management).
iv) Communicating valuable information from the local fishermen to the policy makers to help in the development of strategies that support sustainable resources and conservation.
v) Long-term records that provide information that can be used for resource evaluation. Communicating with local resource users sometimes is the only way to obtain this type of information. However, 'old' data can be unreliable and can make establishing benchmarks difficult. Research plays an active role in determining uncertainties in the data and the risks involved using ambiguous data. Therefore, benchmarks must be established using existing records, anecdotal information, and current users and stakeholders. Compliance on this issue depends on how the users will accept management decisions and how they are incorporated into the decision-making process.

The obstacles that are currently delaying the advancement of research and assessments that could help fisheries management include:

i) Lack of funding
ii) Insufficient trained and skilled personnel to replace anticipated retirements. Trained professionals are needed to take the role of federal government officials (e.g., NOAA) that are considering retirement. Immediate attention is required in order to address the long-term implications involved in administrative processes that may affect near-future research if replacement of these officials is not attended.
iii) Unwillingness of some researchers, fishers, and managers to share critical information about resources or fisheries, which can hinder effective management. Some scientists are precautious when disclosing their data and most decide to wait until publication to reveal that particular information, which can delay the development and implementation of management strategies.
iv) Sharing of critical information readily understood in layman's terms so as to create an impact on the general public and policy makers. Many government officials involved in policy making need to be educated that will make them realize the direct implications of not enforcing regulations. These officials need high quality executive summaries that explain in a clear, simple message about the importance of implementing fisheries management to conserve marine resources.
v) Training of volunteers for long-term monitoring is time consuming and requires lots of effort to maintain in accordance with changes in policies and regulations. We would also need more personnel to train volunteers.
vi) The shifting of benchmarks with a high uncertainty in the reliability of the data needs to be addressed. It is important that agencies report data in a standard form using specific formats so that it is clear, concise, and applicable in decision-making processes and management. Peer reviewed articles should not be the only information considered as high quality data.

SUGGESTIONS FOR IMPROVEMENT

We considered this a successful first intent in obtaining comments and concerns from scientists, managers, and experts associated with fisheries management. Most of the participants at the GCFI meeting were present at the scoping session, which indicates an interest in the topic and willingness to partake of the discussion. However, one of the obstacles in communication that was evident throughout the activity was the language. Although English was the dominant language spoken by a majority of the participants, Spanish and French were also spoken frequently. We observed that many of the participants preferred to express themselves in their native language and often did not join discussions/presentations where

they had to express themselves in English. Surprisingly, GCFI provided for interpreters that translated in all three languages during the meeting. Nonetheless, several people commented that the language was a hindrance for sessions that required an active participation.

During our discussion session, we made an extra effort to attend to the Spanish-speaking audience (which included local fishermen from Mexico and Venezuela) by encouraging their contributions in their native language. This action also motivated a French-speaking resource manager to comment in his native language. In an effort to encourage participation from all stakeholders and experts, we subsequently sent information about the project via e-mail in all three languages (English, Spanish, and French). We are grateful for those who participated despite the language barrier and expressed themselves in matters pertinent to their country's concerns.

For future scoping sessions, we plan to include a questionnaire designed to obtain detailed information from participants regarding concerns that may not have been addressed in the discussion. General information about the participant's educational and professional background will also be included in the questionnaire. We anticipate that the data generated from this questionnaire will provide us with a comprehensive feedback regarding critical areas of research for fisheries conservation and management.

FUTURE PLANS

We will be making efforts to attend the next GCFI annual meeting (2009), which will be held in Venezuela. UPR Sea Grant will also be organizing additional scoping sessions with groups of resource managers in Puerto Rico, USVI (St. Thomas and St. Croix), Dominican Republic, and Barbados. These sessions will encompass the participation of a more ample audience of resource managers, scientists, and users that pertain to fisheries management and other marine-related resources.