

A Summary of Views Presented during
the Caribbean Regional Roundtable

**Improving
Federal Fisheries Management
in the
Caribbean Region**

The H. John Heinz III Center
for Science, Economics and the Environment

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BACKGROUND

ABOUT THE HEINZ CENTER

Founded in 1995 to carry on the work of Senator John Heinz, The H. John Heinz III Center for Science, Economics and the Environment is a nonpartisan, nonprofit institution dedicated to improving the scientific and economic foundation for environmental policy through multisectoral collaboration. Focusing on issues that are likely to confront policymakers within two to five years, the Center fosters collaboration among industry, environmental organizations, academia, and government in each of its program areas and projects. It uses the best scientific and economic analyses to develop viable options for solving problems, and its findings and recommendations are widely disseminated to public and private sector decision makers, the scientific community, and the public.

ABOUT THE MANAGING U.S. MARINE FISHERIES PROGRAM

Initiated in March 1998, The Heinz Center's Managing U.S. Marine Fisheries program seeks to increase the effectiveness of U.S. fisheries management. A primary goal of the program is to identify present concerns and possible courses of action for key decisionmakers, especially as Congress considers amendments to the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA).

In addition to numerous documents and reports, the program has produced the book *Fishing Grounds: Defining a New Era for American Fisheries Management*, which is available through Island Press. Susan Hanna, Professor of Marine Economics at Oregon State University, led the program with support from Assistant Manager Heather Blough. Four senior advisors—Captain R. Barry Fisher of Midwater Trawlers Cooperative, D. Douglas Hopkins of Environmental Defense, Dr. Andrew A. Rosenberg of the National Marine Fisheries Service, and Professor Michael Orbach of Duke University—provided oversight to the program.

ABOUT THE REGIONAL ROUNDTABLE SERIES

The Heinz Center hosted eight roundtable meetings in the federal fishery management council regions between July and October 1999. The purpose of the meetings was to identify problems the councils have encountered in implementing the 1996 amendments to the MSFCMA and to solicit input on how fisheries management can be made more effective in the regions. The original intent was to focus on improvements to the system that could be made through congressional reauthorization. Participants also offered many ideas about administrative actions that the National Marine Fisheries Service (NMFS) and the regional fishery management councils could take to make the system work better.

The roundtable meetings were limited to a small number of participants to keep the discussion focused and productive. They were attended by industry members, environmentalists, fishery managers and scientists that participate in the fishery management system at the regional level. Assistance in identifying qualified participants was provided by council directors and leadership of the Marine Fish Conservation Network. Participants were familiar with the full range of issues facing their region, but practical limitations did not allow for representation from every fishery, gear type, or other specific interest group.

The booklet *Reauthorizing the Magnuson-Stevens Fishery Conservation and Management Act: A Handbook and Discussion Guide for Regional Fishery Management Councils*, produced during the first phase of The Heinz Center's Managing U.S. Marine Fisheries program, provided background for the regional roundtable discussions.

Each roundtable lasted two days and was guided by a similar agenda. The first day was devoted to discussing the implementation of four mandates added to the MSFCMA in 1996, including: (1) end overfishing and rebuild overfished stocks; (2) minimize bycatch; (3) identify and protect essential fish habitat; and (4) minimize adverse economic impacts to fishing communities. The second day's discussions were focused on identifying how the fisheries management system can be improved. They too were divided into four segments, including (1) background conditions; (2) decisionmaking; (3) management implementation and administration; and (4) "new" management tools.

ABOUT THE REGIONAL ROUNDTABLE REPORTS

Each roundtable discussion was recorded and transcribed by a professional reporting service. We then produced summary minutes from each transcript, which participants reviewed for accuracy. We incorporated these materials into a report for each region, which summarizes the discussions and outlines the participants' recommendations.

The Heinz Center's goal for the reports was to capture as much information as possible about federal fishery management problems and potential solutions in the various regions. Throughout the roundtable discussions, the knowledgeable and diverse participants identified many specific concerns and options for improving federal fisheries management. We did not attempt to evaluate, prioritize, or forge consensus on the issues and recommendations that were raised. We did, however, note areas of strong agreement or dissent. Although participants did not necessarily characterize proposed actions as most appropriate for Congress, NMFS, or the councils, we did so in the final reports in the interest of making the information more useful.

In addition to the regional reports, we produced a national summary, *Improving Federal Fisheries Management: A National Report*, which synthesizes information derived from the regional roundtable series. The handbook, regional and national reports, and other documents stemming from The Center's fisheries program are available online at www.heinzctr.org.

This report was prepared by Susan Hanna and Heather Blough. It summarizes views presented during the Caribbean Regional Roundtable held September 29-30, 1999, in San Juan, Puerto Rico.

ROUNDTABLE PARTICIPANTS

DISCUSSANTS

Richard Appeldoorn	Department of Marine Sciences, University of Puerto Rico
David J. Berry	M/V <i>Lady Lee</i> , commercial fisherman
Graciela García-Moliner	Caribbean Fishery Management Council
Joseph J. Kimmel	National Marine Fisheries Service, Southeast Regional Office
Monica M. Lester	Office Manager, Tropical Trappin'
Craig Lilyestrom	Marine Resources Division, Puerto Rico Department of Natural and Environmental Resources
Ken Lindeman	Coastal Research and Education, University of Miami
Lucia Roberts	Director, Department of Planning and Natural Resources, Division of Environmental Enforcement, U.S. Virgin Islands
Miguel A. Rolón	Caribbean Fishery Management Council
Miguel Sanabria	Chair, Caribbean Fishery Management Council
Patricia Skov	Vice Chair, Caribbean Fishery Management Council
Manuel Valdés-Pizzini	University of Puerto Rico, Sea Grant College Program
Hector M. Vega	Member, Advisory Panel, Caribbean Fishery Management Council

INVITED, UNABLE TO ATTEND

Laverne Ragster	Vice President, Research and Public Service, University of the Virgin Islands
Alex Stone	ReefKeeper International
Mussin Suárez	Commercial and recreational fisheries
William James Tobias	U.S.V.I. Fish and Wildlife

FACILITATOR:	Susan Hanna
ASSISTANT:	Heather Blough
RECORDER:	Diana Martino

EXECUTIVE SUMMARY

The Caribbean Fishery Management Council manages fisheries in federal waters off the coasts of Puerto Rico and the U.S. Virgin Islands. There are 179 fish stocks under its direct authority. The Council is tasked with implementing new fisheries management provisions added to the Magnuson-Stevens Fishery Conservation and Management Act through the Sustainable Fisheries Act of 1996. These provisions relate to ending overfishing and rebuilding overfished fisheries, minimizing bycatch, identifying and protecting essential fish habitat, and minimizing adverse impacts to fishing communities.

The Heinz Center convened a roundtable September 29-30, 1999, in San Juan, Puerto Rico, to identify problems the Caribbean Council is experiencing in implementing these new provisions and to solicit recommendations to improve fisheries management in the region. Participants included members of industry, environmental organizations, academia, and government agencies.

Roundtable participants recognized the following as primary problems the Caribbean Council faces in meeting the new provisions:

- inadequate attention to nonfishing impacts on stock status and marine habitat;
- insufficient flexibility in implementation;
- inadequate data and information;
- poor public understanding of bycatch;
- inadequate information on the effects of commercial and recreational fishing on essential fish habitat;
- inability to effectively participate in decisions that affect nonfishing impacts on essential fish habitat;
- insufficient information to assess the social and economic impacts of fishery regulations on fishing communities; and
- difficulty coordinating federal fisheries management with local governments.

The participants offered the following general recommendations for change:

- recognize the unique cultural and political context of the Caribbean region;
- improve the collection and analysis of scientific information;
- reconcile conflicting goals for marine resource and coastal zone management;
- increase training and education;
- reduce fishing capacity and provide transition assistance;
- coordinate local and federal fishery management goals;
- increase public participation in the process;
- simplify and streamline the administrative process;

- strengthen enforcement;
- monitor and evaluate the effectiveness of management measures; and
- increase funding.

The two-day discussions that led to the identification of these problems and recommendations are summarized in the following pages. A more comprehensive list of detailed actions that could be taken by Congress, NMFS, and the Caribbean Council to improve fisheries management in the region is included in the back of this report.

THE CARIBBEAN REGIONAL CONTEXT

The Caribbean Fishery Management Council manages fisheries in federal waters off the coasts of Puerto Rico and the U.S. Virgin Islands (U.S.V.I.). The Council has eight voting members—one from NMFS, three from the fishery agencies of the U.S.V.I. and Puerto Rico, and four public members appointed by the Secretary of Commerce. Through both larval dispersion and fish migration, fishery resources of the Caribbean region are shared among many nations.

Participants noted that the Caribbean has a unique cultural history. The small size of its islands puts the ocean within everyone's reach. Most island inhabitants have the skills to take from the ocean what they need and have been faced with few regulations in the past. Participants emphasized the region's dependence on marine resources—although local resources are fully utilized, 80 percent of the seafood consumed in the region is imported.

Participants described regional fisheries as biologically diverse, and the fishing industry as generally small-scale, versatile, and poorly organized. The majority of the work force consists of part-time, artisanal fishermen. They noted that these characteristics increase the difficulty of enforcing fishery regulations and sometimes make it difficult to conform regional fishery management to national policy.

Participants indicated that fishing pressure is largely driven by island economics, and increases as a form of subsistence and financial aid when economies are bad. Cultural differences between inhabitants of Puerto Rico and the U.S.V.I. are reflected in the techniques used and catch targeted in the fisheries of each. And language differences make communication between inhabitants of these islands difficult. The municipality of Cabo Rojo, Puerto Rico, is the highest-producing port area in the region, where about 768,000 pounds of fish valued at just under \$1.6 million were landed in 1998.¹

Island governments are interested in strengthening local economies and have chosen tourism as the principal means to do so. Participants said this has resulted in large-scale coastal development activities that are often in direct conflict with the conservation of coastal and marine resources—a conflict that is elevated in the Commonwealth of Puerto Rico, which is already much more industrialized than other Caribbean islands.

Finally, participants emphasized that views about the political status options of Puerto Rico strongly affect how federal fishery management is visualized in the region. They noted that these issues are intensified by the extended jurisdiction of Puerto Rico, which exempts fisheries within 9 nautical miles of the Commonwealth from federal regulation.

¹ Daniel Matos, Puerto Rico/NMFS Cooperative Fisheries Statistics Program. Personal communication.

**IMPLEMENTING PROVISIONS OF THE 1996
SUSTAINABLE FISHERIES ACT**

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The 1996 Sustainable Fisheries Act (SFA) added new provisions to the Magnuson-Stevens Fishery Conservation and Management Act. Four of these provisions contain significant new requirements for the Caribbean Fishery Management Council that relate to ending overfishing and rebuilding overfished stocks, minimizing bycatch, identifying and protecting essential fish habitat, and minimizing adverse impacts on fishing communities. Participants' views on challenges the region faces in implementing these provisions are summarized below.

1. OVERFISHING/REBUILDING

Background

The MSFCMA's overfishing/rebuilding provision requires that fishery management plans contain measurement criteria for overfishing, actions to prevent overfishing, and plans to rebuild overfished stocks. The Act defines both "overfishing" and "overfished" as "a rate or level of fishing mortality that jeopardizes the capacity of a fishery to produce the maximum sustainable yield on a continuing basis" (16 U.S.C. 1802(29)).

There are 179 fish stocks under the direct authority of the Caribbean Council. Of these, 3 are overfished, one is not overfished and 175 are of unknown status. Each is managed under the Caribbean Spiny Lobster, Caribbean Reef Fish, Caribbean Queen Conch, or Caribbean Corals fishery management plan.²

Landings peaked in the Caribbean region in 1979 and have been declining steadily ever since. Maximum species size has also declined substantially, and the composition of catch has changed over time, such that fish not utilized in the past are currently being sold at the market. Some participants believe that many stocks of unknown status are overfished. Others disagree that stocks are in poor condition, at least off the coast of the U.S.V.I.

Implementation Issues

Emphasis on Overfishing: Some participants indicated that the term "overfished" inappropriately implicates fishing as the sole cause of stock depletion. They said this leads to ever-tightening restrictions on the fishing industry while other more important factors, such as habitat condition, are left inadequately addressed. Participants noted that coastal development continues to grow unchecked in the Caribbean region, despite knowledge that more than half of the stocks managed by the Council are critically dependent on estuarine habitat. They said,

² NMFS, 1999. Report to Congress: Status of Fisheries of the United States. October.

while fishing may contribute to stock declines by extracting fish and disturbing their habitat, coastal development activities also contribute to fishery declines by altering and destroying critical estuarine habitat.

It is very difficult to separate overfishing/rebuilding issues from habitat issues in the Caribbean region. Some participants said that one cannot be solved without considering the other. For example, how can a rebuilt fish population be sustained if the system that once supported that population no longer exists? Some suggested that further restricting commercial catch without identifying and addressing other factors that contribute to overfishing, such as habitat destruction and recreational use, presents an issue of environmental justice. They pointed out that many commercial fishermen in the region feel that they are experiencing discrimination, and that responsibility for recovering the fisheries should be shared among all who contributed to their overfished status.

Reliance on Maximum Sustainable Yield: It was observed that fisheries are not generally pursued on a single-species basis in the Caribbean region and that the information necessary to examine them this way is rare. While recognizing that national rules that prohibit overfishing are essential, some participants argued for more flexibility in selecting the determining criteria. They believe that less information-intensive mechanisms of a broader scope would be more appropriate for the Caribbean region. Rather than trying to calculate stock production from the point of view of regulating catch, they suggested that managers should focus on maintaining fishery ecosystems and the productive capacity of the fisheries. This could be done by ensuring (1) that there are enough adults to produce offspring, (2) that healthy nursery areas are available, (3) that fishing methods are not damaging to fish habitat, and (4) that fishing effort is limited. Some participants indicated that, in addition to reducing information demands, selecting more simple management criteria and targets would also help all involved in the system to better understand the status of fish stocks and formulate opinions about future goals.

Local/Federal Coordination: Participants agreed that actions taken by the Caribbean Council to rebuild overfished stocks will have little impact unless compatible actions are taken by the island governments and applied to local waters. This is particularly true for the Commonwealth of Puerto Rico, where its 9-mile extended jurisdiction makes the coordination of local and federal fishery regulations critical.

Impact of Markets: Some participants noted that consumption and markets are key factors affecting the status of fisheries in the Caribbean region and must be acknowledged as such. Therefore, fishery managers must learn to make fishery regulations compatible with market trends and species availability.

Penalties for Inadequate Implementation: Some participants questioned whether the Council would be penalized if it failed to rebuild an overfished fishery within a specified time period.

Research and Data Needs: The MSFCMA requires that the status of all managed stocks be assessed. But some participants noted that the information necessary to do so is lacking, even for those stocks currently classified as overfished. In addition, they noted that analyses of existing catch data have been constrained by available funding. They believe that funding limitations and the localization of fishery resources, which makes it difficult to extrapolate the results of biological studies from another area to the Caribbean, will limit the region's ability to meet the overfishing directives. Some noted that NMFS has recognized these limitations and encouraged the Council to use a "reasonable proxy" to meet overfishing guidelines for queen conch. Others noted that the agency has not yet approved the resulting amendment.

Participants noted that information deficiencies also make it difficult for the Council to meet rebuilding directives. For example, although commercial and recreational fishing on Nassau grouper and jewfish is prohibited, the Council will have difficulty determining if this prohibition is sufficient to rebuild the fisheries within 10 years without additional scientific data.

All participants agreed that more information on the biology and life history of Caribbean species is needed. Some suggested that research should also focus on identifying multispecies indicators that can be used in ecosystem-based assessments. Others noted that the precautionary approach provides an opportunity to proceed with fishery management in spite of inadequate scientific information. They suggested that the Council adopt such an approach and adapt management measures accordingly when more information becomes available.

2. BYCATCH

Background

The MSFCMA's bycatch provision requires that fishery management plans establish standardized bycatch reporting methodology, as well as measures to minimize bycatch and bycatch mortality. The Act defines "bycatch" as "fish which are harvested in a fishery, but which are not sold or kept for personal use, [including] economic discards and regulatory discards." The legislative definition excludes "fish released alive under a recreational catch and release fishery management program" (16 U.S.C. 1802(2)).

The Caribbean's fisheries are small in scale, and all species caught are generally marketable, either as food or as bait. The presence of ciguatera in the region has caused a market for small fish to develop over the years due to the belief that small fish are less prone to be ciguatoxic and, thus, are safer to consume. Although some participants noted the occurrence of economic and regulatory discards, it was generally presumed that bycatch is not a problem in federal waters. But some disagreed, expressing particular concern about incidental catch in fish traps.

Implementation Issues

Need for Education: Many commercial fishermen are not familiar with the concept of bycatch because most commercial fishing occurs in fisheries under the jurisdiction of the Commonwealth of Puerto Rico, where bycatch regulations do not exist. Consequently, there is a great deal of confusion about what exactly constitutes bycatch. Participants suggested the need to widely distribute the MSFCMA to all commercial fishermen in the region to educate them about bycatch and other legislative requirements.

Regulatory Discards: Participants noted that the Caribbean Council has historically limited bycatch by implementing fishery management measures that do not promote regulatory discards, such as seasonal closures. They said total allowable catch quotas, which can result in regulatory discards, are not used in the region because managers lack the resources needed to monitor catch. Some suggested that the Council will eventually have to regulate catch through size and bag limits to prevent the take of undersized fish, and when they do, bycatch will increase.

3. ESSENTIAL FISH HABITAT

Background

The MSFCMA's habitat provision requires that fishery management plans describe and identify essential fish habitat, minimize fishing effects on habitat, and identify actions to encourage conservation and enhancement of habitat. The Act defines "essential fish habitat" as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity" (16 U.S.C. 1802(10)).

The Council's amendment that addresses adverse impacts on coral and other essential fish habitat has been partially approved by NMFS. Although the amendment does not specifically define essential fish habitat for all species, the designation is believed to be broad enough to cover all species managed under the Council's jurisdiction.

Participants noted that coral communities have been on the decline in the Caribbean region for years. Coral is vulnerable to disease and infection when damaged and requires a substantial period of time to regenerate. Because coral communities are fragile, activities that disturb them, such as land development, fishing and diving, cause damage.

Implementation Issues

Political Impacts: Participants noted that the federal designation of essential fish habitat in Commonwealth waters is a politically-charged issue, exacerbated by the U.S. Navy's use of Vieques Island as a firing range. Locals view federal interference in the management of habitat under the Commonwealth's jurisdiction as hypocritical, since the area being damaged from

naval operations on Vieques has been documented as important for sea turtles and is also believed to be essential to manatees and other endangered species. Studies show that some areas of Culebra Island (previously a target for this type of activity) have yet to recover after 20 years.

Fishing Impacts: Fish traps are the principal gear used within the Council’s jurisdiction and throughout the Caribbean region, although gillnet, hook and line, and demersal longline gear are also used. Participants noted that restricting the use of fish traps would have enormous political and social impacts and that, despite their widespread use, little scientific information exists related to their impacts on marine habitat. Some participants argued that damage is minimal when compared to the impacts of nonfishing activities, but others observed that both direct and indirect impacts from trap gear can be quite serious. They noted that, in addition to breaking off coral when deployed, traps provide a substrate for algal growth that may alter community structure and adversely affect coral. Having progressively fished down the food chain, traps were said to be currently removing herbivores in greater numbers, resulting in even greater algal growth and less coral.

Some participants believe that requirements to reduce fishing-related habitat impacts are biased against commercial gear. They pointed out that the fishing gear, anchors, and other equipment used by recreational-use groups can be very damaging to coral as well. In fact, many believe that the impacts of SCUBA and spearfishing on habitat are far greater than those of traditional commercial gear types. They argued that it is critical that managers begin to consider the cumulative effects of large-scale recreational use of regional fishery resources.

Nonfishing Impacts: Participants agreed that nonfishing-related activities present a tremendous threat to essential fish habitat in the Caribbean region, where coastal development is promoted at the expense of protecting marine resources and habitat. The extended jurisdiction of Puerto Rico (along with large-scale, “fast-track” development policies that allow developers to sidestep completion of full environmental impact statements) make council efforts to protect essential fish habitat in local waters unlikely to succeed.

Some participants said that, although consultation authority is a good starting point, it does not provide NMFS and the Council sufficient ammunition to take on powerful economic interests. Others believe that their authority could be strengthened by identifying habitat areas of particular concern, which would serve to elevate the level of risk posed by nonfishing activities. Some participants are hopeful that the consultation process will make fishery managers more effective participants in coastal zone management. They expressed more optimism in the power of consultation, noting that, at a minimum, it can be used to stop the U.S. Army Corps of Engineers (the Corps) from issuing “findings of no significant impact,” which will slow fast-track development. The Caribbean Council has met with the Corps several times to discuss the need to develop essential fish habitat assessment protocol, which the Corps could refer to when approving permit applications.

Regardless of its utility, participants noted that neither NMFS nor the Council has the infrastructure necessary to adequately implement the consultation aspect of the essential fish habitat provision in the Caribbean region. At present, consultations are handled through the NMFS Southeast Regional Office in Florida, which is also responsible for consultations in the Gulf and South Atlantic regions. Limited resources are forcing the agency to bundle essential fish habitat consultations into existing coastal construction permit review procedures mandated by the National Environmental Policy Act and the Clean Water Act (a practice that some participants believe will weaken the provision's effect).

Many emphasized the importance of having a consultative staff member in the region to examine and identify the cumulative impacts of coastal development projects. They said that cumulative reviews could be used to educate local governments about the big picture and counter the economic development argument. Some participants believe that the position should be staffed by NMFS, which has primary consultation authority under the MSFCMA. Others argued that someone should fill it from local government. Still others suggested that the Council hire an additional staff person to perform this function, or allocate cumulative review and consultation responsibilities to the Habitat Advisory Panel.

Several participants observed that integrating coastal and ocean management will be difficult, in part because the Puerto Rico Department of Natural and Environmental Resources (PR-DNER) coastal zone management program operates independently of the Caribbean Council. They believe that the activities of the coastal zone management program and the PR-DNER fisheries division could also be better coordinated. The recent collaboration to develop a marine reserve off Culebra Island provides a good example. Some participants suggested that coastal and ocean management could be better integrated by having coastal and fishery managers collaborate on activities to monitor sewage outfalls, gather water quality information, and produce scientific assessments. Others recommended that the Council be authorized to establish moratoria on the development of coastal areas adjacent to essential fish habitat (a suggestion that is likely to be highly controversial in Puerto Rico, where essential fish habitat lies almost entirely in commonwealth waters). Still others proposed that, at minimum, the Council should be authorized to regulate all vessels in federal waters designated as essential fish habitat.

Participants suggested that a public outreach and education campaign may help to conserve coastal habitat by improving public knowledge of (and participation in) the development debate. Some believe that the public is silent at present because they are unaware of any problems and the adverse effects of development on habitat are not visible. Others suggested that low self-esteem and lack of confidence in a participatory process stifle public participation.

Challenges: Participants believe that the essential fish habitat provision is likely to be challenged during MSFCMA reauthorization by a variety of nonfishing-related interest groups. Some noted the importance of NMFS, the regional fishery management councils, and other fishery stakeholders joining together in its defense.

Funding: All participants agreed that more funding will be required to adequately follow through on implementing the essential fish habitat provision.

Research and Data Needs: Participants noted that the essential fish habitat provision triggered research in a much-needed area. Aerial photographs have mapped Puerto Rico and U.S.V.I. shelves to high resolution. This information will soon be available on CD-ROM for Geographic Information Systems and will be accessible to all interested parties via the Internet. Some participants are hopeful that this information will help to bring federal and local managers together and provide a basis for better integrating coastal zone and fishery management. The mapping effort provides a good example, involving a collaboration of the NOAA's National Ocean Service, the PR-DNER, U.S.V.I. Department of Fish and Wildlife, the University of Puerto Rico, the University of the U.S.V.I., and many other agencies and organizations.

Present research priorities include improving understanding of species/habitat linkages and assessing the impacts of various commercial and recreational fishing gear on habitat.

4. COMMUNITIES

Background

The MSFCMA's communities provision requires that the effects of management measures on fishery participants, fishing communities, and fisheries in adjacent areas be assessed. The Act defines "fishing community" as "a community which is substantially dependent on or substantially engaged in the harvest or processing of fishery resources to meet social and economic needs, and includes fishing vessel owners, operators, and crew and United States fish processors that are based in such community" (16 U.S.C. 1802(16)).

Implementation Issues

Use of Socioeconomic Data and Analyses: Participants noted that social and economic information must be used more proactively in fishery management to enable managers to predict the socioeconomic impacts of fishery regulations before they are implemented. They believe that social scientists and community members should be more actively involved in designing and developing fishery management plans. They also noted that more foresight is needed in terms of social, cultural, and economic data needs and ways in which fishing community impacts can be better understood.

Need for Interdisciplinary Approach: Some participants observed that more interdisciplinary research and thinking will be required to fully implement the communities provision. Scientists of all disciplines must begin to look at the system more holistically to better understand the big picture.

Need for Oversight: Some participants pointed out that NMFS was not designed to manage socioeconomic issues. They believe that community impacts could be better assessed and considered in management decisions if a corresponding agency were established to deal with the social aspects of fishery management. They suggested that the MSFCMA mandate the design and development of such an agency, and provide the necessary funds.

Importance of Transition Assistance: The importance of fishing community impacts is elevated by the poor economic condition of the islands. Some participants expressed concern that low income levels and limited employment opportunities create the constant threat that those restricted by fishery regulations may turn to criminal activities as alternate sources of income. In cases where restrictive regulations result in economic hardships, it is important to provide socially acceptable alternatives.

Research and Data Needs: Participants noted that the social and economic data available to the Council to implement the communities provision are very limited. Funding limitations prevent NMFS and others in the region from collecting these data on a routine basis. They proposed that an ongoing, long-term social science research program be developed and implemented to provide managers with baseline information on coastal communities—information that will help to determine the effects of fishing regulations on communities independent of individual social impact analyses. They noted that the Council’s Scientific and Statistical Committee and the University of Puerto Rico’s Sea Grant College Program have repeatedly emphasized the importance of such a program and that enormous resource constraints persist.

Participants suggested that the social science research program should collect information on (1) fishing community infrastructure; (2) how fishermen learn and produce knowledge; (3) cultural perceptions; (4) the politics of fishing communities; (5) the socioeconomic development of communities; (6) gender issues; and (7) fishery histories, including information on ethnic diversity, background, rules and regulations, systems of jurisdiction that have formed over the years, and different conflicts that exist.

One participant noted that the requirements of the communities provision provide the Council with the opportunity to be innovative. Some suggested that social science researchers should use this opportunity to move away from surveys and that the Council should examine options for participatory research and involve fishermen more deeply in the process of data collection and assessment. It was suggested that partnerships with Sea Grant, the National Science Foundation, and NMFS should be considered.

Participants said that some data are collected through the Puerto Rico fisheries census, which provides information on the social, economic, and demographic characteristics of Puerto Rico’s commercial fishing population. This effort is part of a state/federal cooperative program that extends to the government of the U.S.V.I. as well. They noted that the U.S.V.I. has not duplicated the fisheries census as part of its program but instead collects some data and information on recreational fisheries. It was suggested that the data collection programs of these

two governments should be expanded so that each has both a commercial and a recreational component.

IMPROVING FISHERIES MANAGEMENT IN THE CARIBBEAN REGION

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Roundtable participants reviewed background conditions in the Caribbean region's fisheries, existing decisionmaking and implementation processes, and possible new tools to identify administrative and legislative actions for improving fisheries management in the region.

1. BACKGROUND CONDITIONS

Present-day fisheries are a product of their management history. Regional roundtable participants identified the following background conditions as important factors influencing the current state of fisheries and fisheries management in the Caribbean region. They also discussed how these conditions could be better addressed.

Overcapacity

Status: Participants observed that the capacity of fish trap gear in the Caribbean region is well beyond what fishery resources can sustain, and that few trap fishermen are able to earn adequate incomes under present conditions. Most participants believe both fishermen and fishery resources would benefit from addressing overcapacity.

Approach: Some participants suggested that limited-entry programs be implemented to reduce capacity. The entry of new participants could be limited by closing access to fisheries after a specified date. Current capacity levels could be reduced by defining eligibility criteria, such as prior history or economic dependence, that would allow only certain participants to continue fishing after a specified date. Some participants noted that capacity-reduction programs must be comprehensive to prevent excess fishing effort from simply being displaced from one fishery to another.

But, participants acknowledged that fisheries in the Caribbean region have been largely unregulated in the past and that access to them has never been limited. This will make limited-entry and capacity-reduction programs contentious and difficult to implement. It was suggested that the Council should take great care to communicate to the public the rationale behind such programs and the benefits of capacity reduction. The Council must also clearly communicate what criteria will be used to qualify participation in the fisheries and how such information will be acquired. Data on full- versus part-time participation in the fisheries are inadequate at present.

Participants noted the importance of providing those who want to leave the fisheries with socially acceptable alternatives. Exiting the fishery is a life change for some. At present, a 90 percent tax break and various other exemptions create incentives to continue fishing.

Local Capacity: There is general scientific agreement that regional fishery resources are overfished and that capacity must be reduced at both federal and local levels. Even so, local governments have developed incentive programs to promote and develop commercial fishing. In some cases, such as with the PR-DNER, these programs conflict with other programs within the same agency. The government itself does not share a unified vision of fishery status and goals.

Some participants said that it is important to remember that the response to federal regulation of local resources will always be influenced by regional politics. For this reason, some suggested that the timing of decisions related to addressing overcapacity is critical. Others countered that these decisions should not be delayed to avoid political problems. They proposed that, from a practical standpoint, managers should show the leadership necessary to move forward, rather than fall into a state of paralysis—even if timing and atmosphere are not perfect.

2. DECISIONMAKING

Decisionmaking is a key component of the fishery management system. All biological, ecological, social, and economic conditions in the fisheries are influenced by decisions made at the regional and federal levels that form the basis of fishery management plans and amendments. The discussion that follows summarizes the challenges and opportunities to improving decisionmaking identified by participants.

Council Advisors

Advisory bodies of the Caribbean Council include a Scientific and Statistical Committee, a Habitat Advisory Panel, and an Advisory Panel. Participants believe that more funding is needed to improve the utilization of these groups and ensure qualified participation. At present, diversity of participation is restricted by the small size of the region. Increased funds would provide the Council the travel monies needed to solicit the participation of scientists outside the region.

Some believe that the Advisory Panel, in particular, could be more effectively used. At present the group meets only twice a year, which makes it difficult for members to keep abreast of important issues. In addition, communication between this group and the Council is limited because meetings of the two are seldom coordinated. Some participants suggested that special funding be considered for improved utilization of the Advisory Panel. Others suggested that membership of the group be broadened to include a wider variety of interests.

Public Participation

Participants said the fishery management system at present generates minimal participation from fishermen, indicating that this is a common criticism in the Caribbean region. They noted that low

levels of participation (particularly in rule development) preclude the Council from obtaining important input and feedback throughout the process.

Some participants indicated that the Council works very hard to collaborate with the industry, but that fishermen are generally hesitant to become involved in the process until something threatens them directly. They suggested that the industry needs some form of leadership and organization.

Others suggested that the Council could improve its outreach efforts. They noted that regulations are still very new to fishermen in the region and that the regulatory process and language barriers intimidate many. Some pointed out that the Council is in a unique position to build trust and involve fishermen in management early on.

Participants said the delicate political climate in the region has affected how the public views the Caribbean Council. As a federal body, it tends to generate an additional level of animosity and tension that, they believe, probably does not exist in other council regions. They noted that the Council must understand this and work to present itself in a nonadversarial manner (i.e., as a participatory body). Some participants suggested that, although existing staff undertake outreach responsibilities, a full-time outreach position should be added to the present Council structure.

An alternate suggestion for increasing public participation in the process involved designing ways to involve the public outside of the adversarial process of public hearings and testimony. Some proposed that the Council organize small roundtables or focus groups designed to answer questions and provide educational information about the system, similar to the fact-finding meetings recently arranged by the Council.

Training and Education

Participants agreed that education is the foremost need in Puerto Rico and the U.S.V.I. in terms of fishery conservation. The public needs to better understand fishery rules and regulations, as well as the inner workings of the management system. They need to better understand the goals of fishery management and the science behind fishery management decisions. Even those participating in the system do not understand the process completely.

Some participants noted that council members feel unprepared for their role as decisionmakers. They find the formality of recorded meetings intimidating and the acronyms and terminology overwhelming. While the voluntary orientation program provided by NMFS is helpful in educating new participants about the administrative process, it falls short of adequately preparing them for the job. Council members would like further orientation in terms of meeting processes and the regional and national contexts of important issues that the Council is dealing with at the time of their appointment. This type of orientation program would be best designed and managed by the Council and should be extended to all involved in the system, including advisory groups and scientists.

Some participants noted that too much orientation and education may eliminate fresh perspectives, which are an important part of the council process. They suggested that care be taken not to reduce the objectivity of new members.

Science and Information

Participants said that scientific data and analyses are insufficient. Fishery managers are often unable to answer fundamental questions related to biological, social, or economic conditions in the fisheries.

Data Collection: Scientific information is generally based on fishery-dependent data derived from voluntary reports of fishermen. Because there are no central locations where scientists or managers can go to collect these data, they must go to sites where fish are sold to the general public and to restaurants. Consequently, data collection is fragmented and not statistically rigorous. Some participants suggested that establishing a few centralized “fish houses” would benefit scientists involved in data collection and fishermen trying to sell their catch. Fish houses would also provide a good forum for distributing educational and outreach materials.

Some also suggested that the data collection programs of the Puerto Rico and U.S.V.I. governments should be integrated. The two governments should collaborate to identify common information needs, design a data collection system that will work well for both, and establish a common training program for port agents. More funds should be allocated through these state/federal cooperative programs to expand these research programs. One participant noted that a recreational permitting system is being contemplated in the new Puerto Rico fisheries law and is detailed in the proposed regulations. It is believed that such a program would help managers to obtain information on the recreational sector, while generating revenue for the industry. If adopted, the impacts of recreational fisheries on essential fish habitat, capacity, and markets could be better understood.

The ComFin and RecFin are state/federal programs that were established to ensure that commercial and recreational data collection activities are conducted in similar ways throughout the southeastern United States and the Caribbean. The U.S.V.I. does not have a representative for those programs at present; it was suggested that one should be appointed.

The Marine Recreational Fisheries Statistical Survey has recently expanded to the Caribbean region. Participants said that the continuation of this program should be funded and encouraged, and that complaints about the quality of the surveys should be addressed.

Analysis: Under the present system, data collected locally in the region must be analyzed at the federal level. Although the Puerto Rican and the U.S.V.I. governments would like to analyze fishery data in-house, neither has the necessary personnel or expertise. Consequently, the Council has always taken the lead in fishery management and regulation. Many participants find

fault with this system, arguing that science should be a “bottom-up” rather than a “top-down” process. They suggested that local analysis is a necessary part of gaining much needed buy-in to scientific conclusions. Others noted that NMFS has failed to analyze all data collected because it lacks the funds necessary to do so. While it is generally believed that the commonwealth of Puerto Rico has enough resources to establish a program that would allow for the analysis of catch data at the local level, the government of the U.S.V.I. would require federal funding.

Cooperative Research: All participants appeared to agree that involving fishermen in data collection and research is essential. In addition to biological information derived from catch, they noted that fishermen can provide information on markets, enforcement, and socioeconomic impacts. Some said fishermen are reluctant to collaborate because they feel that catch report information is being used against them. They suggested that managers must take time to educate fishermen as to why data are needed and how the resulting information will benefit them over the long term. Others noted the importance of consistently providing fishermen with reports that show the results of data they supply. When working collaboratively with fishermen, it is important to keep them informed. It was also suggested that social scientific research examine innovative ways to more effectively incorporate fishermen in the management process.

3. MANAGEMENT IMPLEMENTATION AND ADMINISTRATION

The implementation of management decisions is an important part of the fishery management process. Roundtable participants exchanged views on management implementation and identified problems with the current system and how the process could be improved. Their discussion is summarized below.

Federal/Local Interface

Some participants recommended that fishery management regulations be unified across local and federal jurisdictions. They said voting council members who represent local governments should make it their responsibility to see that council decisions are followed through at the local level (i.e., that compatible rules are developed and implemented). Others noted that it is also important that the Council develop rules that are both practical and adoptable at the local level. They suggested that it is easy for the Council to make rules that are unpopular and difficult to enforce locally because they do not feel the impact of their rulings at that level.

Significant progress aligning federal and local fishery management goals was recently made when the PR-DNER initiated a new fisheries law that would require the commonwealth to adopt for its waters most of the fishery management measures implemented by the Caribbean Council. Although this is considered by many to be the most important turning point in the commonwealth’s fishery management process, the success of the effort is questionable. Its success to this point is attributed to the statehood stance of the party in power. But fishermen’s groups are already being organized by outside interests to challenge the legislation. Many participants questioned whether, if passed, the legislation would survive a change in party.

Federal/International Interface

Through larval dispersion and fish migration, fisheries of Puerto Rico and the U.S.V.I. benefit greatly from fisheries off the British Virgin Isles, which are believed to be fished less intensively and in better shape. To successfully manage resources in the Caribbean, participants said it is important to understand these ecological relationships and develop uniform management across international boundaries. It is also important to understand and acknowledge international market connections within the region.

The Caribbean Council has a close working relationship with other Caribbean nations. The MSFCMA authorizes the exchange of information and allocates money for the promotion of pan-Caribbean management. Participants noted that continued funding will be critical to maintaining communication, interaction, and scientific exchanges among regional management entities.

Administrative Process

Participants agreed that the fishery management plan and amendment review and approval process must be abbreviated. The administrative process should be scrutinized during MSFCMA reauthorization for ways to eliminate unnecessary review. NMFS and the Council have been meeting to discuss ways to streamline the process.

Enforcement

Participants agreed that enforcement in the Caribbean region is severely underfunded. The various enforcement authorities are working to form partnerships to make the best use of limited resources. But because personnel and equipment are limited, enforcement depends largely on voluntary compliance. For this reason, it is important to build trust and good working relationships with the fishing industry.

Fishery regulations must be enforceable to be effective. They must also be considerate of fishing operations. For example, closed areas will be difficult to avoid if fishermen do not have the equipment necessary to read coordinates. The Council should work to maintain constant communication with enforcement agents in the development of fishery management plans.

Multiple international boundaries make enforcement of federal regulations very difficult. It is important to integrate management measures across regions and governments to make them enforceable.

Some participants suggested that enforcement agents should be better trained to distinguish between different species and to use nautical equipment, such as Global Positioning Systems and nautical charts.

Monitoring and Evaluation

Participants strongly emphasized the importance of monitoring the effects of fishery management measures, arguing that managers must be able to report to fishermen whether fishery regulations are achieving intended objectives. They recommended that the Council incorporate measurable monitoring and evaluation criteria into fishery management plans and routinely evaluate the effects of those plans.

Funding

Participants said the Caribbean Council feels left out of the national funding cycle. Additional funds are needed to adequately perform scientific, monitoring, evaluation, and enforcement activities. Increases in funding would also allow the Council to make better use of advisory bodies, improve outreach and education, and establish a habitat expert in the region to follow through on the essential fish habitat consultation provision.

Highly Migratory Species Management

Regional fishery management councils on the Atlantic coast are no longer responsible for the management of highly migratory species. Participants noted that the transfer of this authority to NMFS has caused much hardship for fishermen in the Caribbean region who had traditionally depended on catch of some highly migratory species, not only as a source of income, but as common food items on local tables. National policies, such as that which allocated billfish to the recreational sector, do not appear to take into account the small-scale artisanal nature of fisheries in the Caribbean region. Although the billfish regulation includes a concession to islanders to catch by hand-line, doing so is impractical.

4. “NEW” MANAGEMENT TOOLS

Several tools and approaches not traditionally used in fishery management have been receiving increased attention across the nation for their potential to address problems associated with traditional management, such as overfishing, overcapacity, bycatch and habitat degradation. Roundtable participants discussed the regional application of each of the following fishery management tools and approaches.

Individual Fishing Quotas

Fisheries occur at a small scale in the Caribbean region, and participants indicated that individual fishing quotas are probably not an appropriate tool for regional fishery management at this time. Because individual fishing quota programs could be valuable in the future, most participants believe the Council should have the option to develop and implement such programs. They recommended that the moratorium on the development of individual fishing quota programs be rescinded. A few participants remain concerned about the potential impacts of individual fishing quota programs and fear that this tool could be abused by fishery managers.

Marine Protected Areas

Status: Two marine reserves exist in the Caribbean Council region at present: the Red Hind Bank closure and a reserve off the coast of Culebra Island. The development of a third reserve area in La Parguera is currently being negotiated. In addition, the PR-DNER has submitted a bill to the legislature that, if passed, will mandate 3 percent of the insular platform for marine reserves.

Views: Marine protected area management is viewed as widely applicable to fisheries in the Caribbean region. Some participants suggested that marine protected areas are a necessary component of successful fishery management because they can perform unique management functions, such as conserve spawning stock and biodiversity, provide insurance against management errors, and, most important, provide a controlled area for assessing fishing impacts. These proponents recommend that the MSFCMA mandate the establishment of no-take reserves over 20 percent of the U.S. continental shelf. But others disagreed. Marine protected areas present a fundamental paradigm shift in fishery management and, as such, it is believed that they are not yet fully appreciated by a majority of the fishery management community in the region.

Process: The process of designing and implementing marine protected areas will be critical to gaining buy-in and acceptance. All participants agreed that it must be a democratic and highly participatory procedure. Education and public community involvement will be key. The need for closures should be well communicated, and the input of participants should be used to determine appropriate sites. Some participants suggested that it is important to start off with small areas, and then increase them gradually to relieve the immediate burden on fishermen until the production benefits of reserves are well established. Others noted that reserves must be science-based, not arbitrary, to maintain credibility. Still others proposed that the time frame of closures should be limited so that those restricted can experience the benefits of the closure at a later date. Some participants cautioned that, in developing recommendations for new reserve areas, managers should rely on lessons learned in other regions, such as the Florida Keys.

Monitoring and Evaluation: Participants agreed that monitoring and evaluation must be a key component of marine protected area management.

Restrictions: Some participants stated that marine protected areas must restrict all types of users and activities, arguing that permitting conflicting activities to occur within a closed area will make enforcement difficult.

Marine Fisheries Commissions

Participants proposed that marine fisheries commissions should be formed in Puerto Rico and the U.S.V.I. as an alternative to the existing fishery management structure. The commissions would be modeled after those in the states and would allow more participation at the local level, from both local governments and industry. They believe that enhanced involvement at the local level would, in turn, result in more widespread acceptance of fishery management regulations. Because the establishment of these commissions would be politically complex, there would have to be a great deal of public involvement in their design and formation. Participants noted that such commissions would be unable to function independent of government and industry recognition and acceptance.

ACTIONS RECOMMENDED BY ROUNDTABLE PARTICIPANTS

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General recommendations offered by roundtable participants to assist the Caribbean Council with implementation of the 1996 amendments to the MSFCMA and to improve the effectiveness of fisheries management in the Caribbean region include:

- Recognize the unique cultural and political context of the Caribbean region.
- Improve the collection and analysis of scientific information.
- Reconcile conflicting goals for marine resource and coastal zone management.
- Increase training and education.
- Reduce fishing capacity and provide transition assistance.
- Coordinate local and federal fishery management goals.
- Increase public participation in the process.
- Simplify and streamline the administrative process.
- Strengthen enforcement.
- Monitor and evaluate the effectiveness of management measures.
- Increase funding.

Many specific actions to implement these recommendations were identified by participants throughout the roundtable discussion. Those with apparent support of the majority are listed below. Participants did not necessarily characterize proposed actions as most appropriate for Congress, NMFS, or the councils; we have done so here in the interest of making the information more useful. A more detailed discussion of the issues leading to these recommendations can be found in earlier sections of this report.

1. WHAT CONGRESS CAN DO

- Fund biological, ecological, social and economic data collection and analysis.
- Support the expansion of the Marine Recreational Fishery Statistical Survey to the Caribbean region.
- Fully fund mandates of the MSFCMA.
- Provide a mechanism to reconcile local and federal fishery management goals, standards, and requirements.
- Establish a more comprehensive approach to essential fish habitat protection.
- Provide NMFS the funding necessary to separately handle essential fish habitat consultations for the Caribbean region.
- Provide the Council authority to regulate all vessels in areas designated as essential fish habitat within federal waters.
- Fund communication, interaction, and scientific exchanges with other Caribbean nations.

- Streamline legislative requirements under the National Environmental Policy Act, the Regulatory Flexibility Act, the Administrative Procedures Act, and the MSFCMA.
- Incorporate enforcement funding into the MSFCMA.
- Build funding for routine monitoring and evaluation into the MSFCMA.

2. WHAT THE NATIONAL MARINE FISHERIES SERVICE CAN DO

- Collect more and better biological and ecological data.
- Improve analysis of existing catch data.
- Establish one or several commercial “fish houses” in Puerto Rico to better consolidate and coordinate commercial landings data.
- Support the adoption of the recreational permitting system proposed in Puerto Rico legislation.
- Improve the Marine Recreational Fishery Statistics Survey.
- Expand social science data collection and analysis.
- Design and implement transition assistance programs.
- Improve communication and collaboration with coastal zone managers.
- Assess the environmental impact of regional permits cumulatively, rather than individually.
- Look for ways to simplify the documentation process and reduce delays.
- Develop cooperative enforcement programs with local governments.
- Focus research on developing alternate, less information-intensive management mechanisms.

3. WHAT THE CARIBBEAN FISHERY MANAGEMENT COUNCIL CAN DO

- Establish one or several commercial “fish houses” in Puerto Rico to better consolidate and coordinate commercial landings data.
- Support the adoption of the recreational permitting system proposed in Puerto Rico legislation.
- Request help from Sea Grant extension agents and others in implementing an ongoing social science research program for the Caribbean region.
- Add social science staff to the Council or hire such staff on a consultation basis.
- Clearly communicate to fishermen the benefits of limited-entry and capacity-reduction programs.
- Design and implement transition assistance programs.
- Continue international communication and coordination.
- Designate habitat areas of particular concern to strengthen essential fish habitat recommendations.
- Train and orient new council members and advisors at the regional level.
- Improve public outreach and education.
- Widely distribute the MSFCMA to all fishermen in the region.
- Improve use of advisory bodies, including frequency, timing, and composition.

- Better consider the practicalities of enforcement when developing fishery management plans.
- Develop a framework for monitoring and evaluation.
- Develop measurable goals and objectives.
- Monitor and evaluate progress in meeting fishery management goals.
- Keep the public informed of progress.