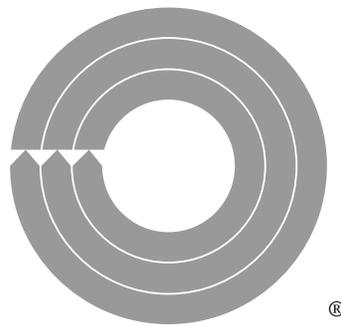


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Building Capacity for Coastal Solutions

RENEWABLE NATURAL RESOURCES FOUNDATION

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Executive Summary

Introduction

The coasts are a vital ecologic and economic resource. Coastal wetlands and estuaries are essential spawning, feeding, and nursery areas for fish and other marine life. Wetlands act as natural filters to reduce contaminants. One out of six U.S. jobs is marine-related, and one-third of the Gross Domestic Product is produced in coastal counties. The 180 million Americans and international visitors who enjoy coastal areas and coral reefs each year account for 85 percent of U.S. tourism revenues. International shipping brings more than \$700 billion in goods to our ports.

Yet, coastal resources are under increasing pressure. While coastal counties comprise only 17 percent of the U.S. contiguous land area, more than half the population lives in these areas. Coastal population increases by 3,600 people per day—a rate of growth that may result in an additional 27 million residents by 2015. Along with increasing populations come increased land consumption and automobile use. Nonpoint source water pollution and erosion from agriculture, forestry, and urban and suburban areas have further contributed to stress of coastal ecosystems. Critical habitat, including estuaries and coastal marshes, is being modified or destroyed as coastal devel-

opment increases. Invasive species are out-competing native species. Pollution from neighboring and distant countries can greatly impact near-shore marine resources. Other pressures include:

- Point and nonpoint source pollution: regularly more than 5,000 square miles of hypoxic waters appear in the Gulf of Mexico in the summer.
- Overfishing: despite the recovery of some fish stocks, for stocks with known status in 2001, 30 percent were experiencing overfishing, were overfished, or both.
- Invasive species: the rate of marine introductions has risen exponentially over the past 200 years and shows no sign of leveling off.
- Harmful algal blooms: outbreaks in the Chesapeake Bay in 1997 cost the Maryland seafood and recreational fishing industry more than \$50 million in lost harvest, jobs, and sales.
- Coastal-dependant commerce: 90 percent of international trade is carried out by sea.
- Recreational use: 75 million Americans were directly involved in on-the-water activities in 1998.
- Costs of hazards: 2004 was the costliest U.S. hurricane season on record with an estimated damage of \$42 billion and 59 U.S. deaths from nine hurricanes and seven tropical storms.

While the effects of these and other coastal resource problems are most dramatic along the coasts, the causes can develop far inland. Building capacity to address these issues—from local communities (both coastal and inland)

to federal agencies—is critical to finding and implementing solutions.

Two national commissions, the Pew Oceans Commission and the U.S. Commission on Ocean Policy, identified many concerns regarding our oceans, but also left unresolved questions about implementation and action (see text box on page 10 for more information on the two commissions). Directors of the Renewable Natural Resources Foundation decided that this consortium of professional, scientific, and educational organizations needed to enthusiastically support the extraordinary work of both commissions.

RNRF's "Congress on Building Capacity for Coastal Solutions" brought together a select group of professionals from its member organizations and leaders from government, industry, academia, and nongovernmental organizations (Appendix A). Delegates met December 5–6, 2004, at the headquarters of the American Geophysical Union in Washington, D.C. (See Appendix B for a copy of the Congress program).

The specific goals of the congress were to consider findings and recommendations of the commissions, and to identify other high priority activities for early action.

Following discussions of the objectives and background information in plenary sessions, delegates were divided into small working groups. These working groups examined the issues and possible solutions in greater depth. The findings and recommendations of congress delegates do not necessarily reflect policies and views of RNRF, its

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member organizations, or the sponsoring agencies.

Complexities in Ocean and Coastal Governance

The current approach to ocean and coastal governance is crisis-driven resulting in a failure to develop a long-term holistic policy approach. The myriad of ad hoc laws (about 145 federal statutes) and federal agencies (more than half of the 15 existing federal cabinet level departments plus several independent agencies) pertaining to ocean and coastal policy add to the confusion.

- Greater collaboration and consultation across natural resource agencies, including state agencies, will allow for a more comprehensive management approach.
- An ecosystem-based approach to management—rather than existing piecemeal species-by-species management—allows for the integration of complexities inherent in natural systems.
 - Adaptive management should be used in these efforts, but steps should be taken to overcome current agency rules and regulations that prevent its widespread use.
- Establishing regional commissions or councils based on watersheds or ecosystems will provide the most promising path to comprehensive and integrated management of coastal resources.
 - Such councils must have effective leadership and direction from federal and state agencies along with continuity in service by council members and program funding. The Atlantic States Marine Fisheries Commission can serve as a model for a starting point.

- An international effort to protect the oceans as a common resource is necessary. The U.S. can be a leader in this effort, but first must join the international community and ratify the United Nations Convention on the Law of the Sea.

Information Technology and Science Capacity

Effective governance strategies depend on understanding coastal resources, the impacts they face, and the success of existing efforts. Information technology and science provide part of the basis for this understanding. However, significant barriers to data sharing, integration, and communication exist. These include the sheer volume of data, real or perceived security issues, complexities associated with regional integration, and technology gaps between users and providers.

- Developing information technology standards is necessary for effective communication. They allow data users and providers to overcome technology gaps. They also would allow development of a national data framework.
- Overcoming agency cultures and structures that inhibit sharing is crucial—government managers should be rewarded for collaborating.
 - A forum of representatives from federal agencies, state and local government, universities, industry, and community organizations should be convened to discuss the development of standards and opportunities for data sharing.
- A culture of linked portals, openness, and interoperability must be fostered.

- An urgent research and development effort is necessary to advance technologies in collecting biological and habitat data. Ocean science also needs better landscape-level science and planning to include synergistic effects, multi-stressor issues, and matters of scale.
- Delegates expressed concern about the decreasing availability of discretionary spending—particularly for monitoring and research programs. Consistent funding is crucial as data becomes more valuable the longer that it is collected.
- Educating the public on the availability and use of data, and how it is used by agencies, could lead to greater support.
 - Building scientific literacy and capacity in all communities including the general public and policymakers is crucial—an expanded coastal education program is necessary.

Mobilizing and Empowering Communities

Local communities have the greatest opportunity to address coastal issues, but they need the necessary knowledge and desire to actively engage. To effect change, the coastal community must include not only those who live on the coast, but also all those who live in the greater watersheds. Everyone lives in a coastal watershed and should recognize how they impact the coasts and how the coasts impact them. Coastal solutions require a mix of national and local efforts.

- The scientific community must look beyond the biophysical environment, and interact with constituents and organizations interested in public policy and management in order to implement effective ocean governance. Social and cultural analyses are necessary.

- Good communication and education are essential to empowering a community.
 - Policy makers and scientists must listen, build trust, and communicate openly. Knowledge of alternatives to, and potential impacts of, a given proposal is crucial. Equally important are clear objectives and consideration of the proposal's costs and benefits. Connecting individual actions to environmental impacts is vital.
- The professional and scientific community has an obligation to provide citizens with the tools, education, and technical assistance necessary to become active and effective participants.
 - Scientists must be more engaged with the community. Fostering scientific and environmental literacy will increase interest and grassroots efforts in governance at all levels. Educational programs should be created for citizens upstream from the coast.

Next Steps

Over the past two years, people who care for the coasts (shouldn't that be everyone?) have witnessed the first comprehensive reviews of coastal and ocean policy in more than 30 years. It happened because the need is great and the risk of loss is certain. The coasts and oceans have never been under greater pressure—and it's more than they can sustainably bear.

And what a challenging time it is for our greatest common resources to suffer such threats. The United States, historically a world leader in many endeavors, faces unprecedented deficits and, thus, little discretionary funding to meet coastal and ocean program needs. The tragedy of deficits has been compounded by the loss of U.S. Senator Fritz Hollings' leadership. He was for many years the champion of coasts and oceans. His successor in mission is not yet apparent.

So what will become of the commissions' work—the many excellent findings and recommendations? Many delegates to the RNRFC congress have observed that President Bush's response,

an initiative to be directed by the Council on Environmental Quality, is not a substantive step toward resolving the threats faced by coasts and oceans.

Clearly, more must be done and advocates are needed. Will commissioners of the Pew Oceans Commission and the U.S. Commission on Ocean Policy continue their efforts on behalf of the coasts and oceans? Will they be encouraged and joined by leaders in state and federal government? Will the professional, scientific, and educational communities more actively join the debate? Finally, will champions on Capitol Hill emerge?

An obvious need and first step is to organize and coordinate efforts on behalf of the coasts. A forum should be convened and include federal and state agency leaders; ocean commission members; and representatives of professional, scientific, educational, community, academic, and industry organizations. Forum outcomes could be a strategic plan to implement recommendations of the commissions, and to support funding for ocean and coastal science and management.

The case for action is compelling.