Project Brief:

Sustainable Coastal Communities and Ecosystems: in Four Large Estuarine Areas in Nicaragua

This is the story of four estuarine areas and associated watersheds forming the land-seascape along the northwest coast of Nicaragua—the Padre Ramos and Estero Real protected areas and the Aserradores and Realejo—and the impoverished communities living there. These communities depend on the coastal resources for food and income, yet an array of physical, social, and economic factors threaten the health and sustainability of these resources. The SUCCESS Program and these communities are monitoring the ecosystems, developing alternative livelihoods, and managing aquaculture and natural resources using approaches to restore them to their former richness and improve community quality of life.

At Issue

The issues in each area differ. In Estero Real, a major watershed with an extensive mangrove system and high biodiversity—and also the location of most of Nicaragua's shrimp ponds—physical changes to the estuary brought about by Hurricane Mitch have had a devastating effect on the local and national economy and recovery still is not complete. In Padre Ramos, a large coastal lagoon where communities depend on fishing, cockle gathering and related activities, a protected area management plan has restricted access to some of these traditional livelihoods. Because the area is in an extremely isolated location, the community also lacks access to services, markets, or other opportunities for alternative income-generation. In areas surrounding the Aserradores and El Realejo estuaries, overfishing, removal of mangroves by wood-cutting, the commercialization of shrimp farms, land use conflicts, increased population growth, a high level of literacy, and the lack of an adequate management regime are major problems. Of particular interest is the black cockle fishery, (often a key target species for women fishers), an important resource base, and a source of income and food protein for the protein-poor diet here.

Partners

To achieve sustainable coastal communities and ecosystems in these four estuarine areas, SUCCESS Nicaragua supports the efforts of local and national partners:

Implementing Partners

- CIDEA (Center for Aquatic Ecosystems Research at Central American University)
- ANDA (National Association of Aquaculturists)
- MARENA (Ministry of the Environment and Natural Resources)

USAID
FROM THE AMERICAN PEOPLE

PROGRAM GOALS

SUCCESS and its partners are building local and institutional capacity to manage and conserve the once-rich natural resource base of these four estuaries and their watersheds. The goals are to evaluate the potential of alternative, livelihoods; promote best management practices for shrimp mariculture; test co-management and other governance regimes; experiment with alternative, low cost-low-tech mariculture options; and develop institutional ties and agreements for coordinated strategies and actions.

Promote sustainable, low-technology mariculture practices as diversified livelihoods

SUCCESS is testing alternative livelihoods and best practices in order to raise household incomes and increase food security. The first focus is on improving small-scale shrimp farming. SUCCESS is working with farmers to identify better practices (e.g., tracking key parameters such as water quality, pond and effluent, growth rates) as a way to improve profits of small-scale shrimp farming. The second focus in on piloting alternative mariculture activities. One example is conducting tilapia culture trials in shrimp ponds. Tilapia is a high-value, easy-to-culture alternative for the small-scale shrimp farmer and has many marketing channels locally and for export.

Promote community-based and municipality-scale resource management

SUCCESS supports improved cockle fisheries management, as the black cockle is one important source of income and food. This includes collecting basic biological data on bivalves for more science-based management. It includes evaluating co-management strategies, since current laws create economic hardships on poor, female-dominant cockle gatherers. A management committee in Aserradores and the cockle gatherers are testing a new management approach—having small, permanently closed areas adjacent to open areas. Communities and university scientists are monitoring this regime and evaluating it as an alternative to total seasonal closures—a situation that creates hardships and loss of income for gatherers for several months out of each year.

Community members, including children, monitor no-take zones for experiments with cockle management

Science for management: informing decision-making for cockle fisheries management

Although cockles are a major protein source for the local populace, they and other bivalves are significant sources of bacterial and viral gastrointestinal illness, including *Hepatitis A, Salmonella, Vibrio spp, and E. coli.* SUCCESS is monitoring the most commonly consumed cockles in the area for these diseases in these same species. This will help inform decision-making on instituting water quality management policies.

For additional information contact: Brian Crawford, Program Director, Sustainable Coastal Communities and Ecosystems (SUCCESS), Coastal Resources Center, University of Rhode Island. Email: brian@crc.uri.edu