

# **Commonwealth of the Northern Mariana Islands Coral Reef Initiative Projects and Programs For Fiscal Years 2000 – 2005**

## **Introduction**

The Commonwealth of the Northern Mariana Islands (CNMI) Coral Reef Initiative has developed and matured in response to the tremendous growth and interest in the Coral Reef issues throughout the world. In partnership with the National Oceanic and Atmospheric Administration (NOAA) and the Department of Interior (DOI), the CNMI developed the 1997 U.S. Islands Coral Reef Initiative “Blue Book,” a Local Coral Reef Initiative for 1998, and a new set of projects and programs for years 2000 – 2005.

## **Development & Projects**

Several important events have influenced the CNMI’s Local Coral Reef Initiative. In 1997, Governor Froilan C. Tenorio proclaimed 1997 as the "Year of the Coral Reef" recognizing that the health of the coral reefs significantly influences the quality of life in the CNMI, and that preservation and protection of coral reefs was of paramount importance. Perhaps the most significant event was President Clinton's Executive Order on Coral Reefs and the creation of the U.S. Coral Reef Task Force (USCRTF). The Honorable Governor Pedro P. Tenorio along with the other islands governors were appointed as full members of the task force.

The CNMI developed a Local Coral Reef Initiative for fiscal year 1998, which has been funded by the DOI, Office of Insular Affairs (OIA). These projects include the development of culturally appropriate coral reef educational materials; support for the marine monitoring team; the development of an educational CD on coral reef ecosystems; support for the Coastal Resources Management Office (CRMO) travel to coral reef conferences; the conservation and placement of interpretive signs; and a small scale reef restoration and establishment project. Many of these projects are underway or will be initiated in the near future.

The CNMI has also achieved several coral reef related accomplishments on its own. These projects include the establishment and operation of the Marine Monitoring Team (MMT). The team monitors long term changes in the health of the coral reef at eight (8) fixed stations on Saipan, Tinian and Rota. Other significant coral reef related projects include the establishment of the first CNMI Non Government Organization (NGO) Coastal/Coral Reef Conservancy Group; the Coastal Resources Management Office sponsored a school poster contest on coral reefs; expeditions to the Northern Islands; and various training courses from the University of Guam Marine Laboratory on coral biology and monitoring techniques.

## **New Projects**

The recently completed set of Local Coral Reef Projects for the fiscal years 2000-2005 include several exciting and worthwhile projects including; the establishment and management of Marine Protected Areas (MPA's); a state of the reef report; and the protection of coral reef associated wildlife among other excellent projects.

## **Conclusion**

The Coastal Resources Management Office and the Office of the Governor will continue to work with National Atmospheric and Oceanic Administration and Department of the Interior to conserve and protect the CNMI's coral reef resources. The future holds great promise and only through a partnership can we ensure these resources will be available for futures generations to enjoy and admire.

**A. Project Name: Establish and Manage Marine Protected Areas (MPAs)**

**USCRTF Cross-reference:** Ecosystem Conservation

**Lead Agencies:** Department of Lands and Natural Resources (DLNR), Coastal Resources Management (CRMO), Division of Public Lands (Submerged Lands)(DPL)

**Priority:** High

**Length:** Ongoing (permanent)

**Project Description**

The intent of this project is to establish protected areas within the Commonwealth of the Northern Mariana Islands' territorial waters near Saipan, Tinian, and Rota to protect and manage important coral reef ecosystems. This project includes the formation of community-based Steering Committees on each island composed of representatives of various interest groups. Elements of the project include: defining compatible uses for protected areas; identifying criteria to select marine protection areas; surveying alternative sites (the federal mapping program could provide assistance for this step); delineating sites, legally designating and demarcating sites; preparing and implementing management plans; promulgating regulations for protected areas; conducting monitoring and maintenance activities; and, conducting education and enforcement activities.

The Commonwealth of the Northern Mariana Islands (CNMI) understands the benefits of employing a community-based approach to establish and manage marine protected areas. We also recognize the benefits of allowing multiple uses in protected areas rather than restricting access, so long as the uses are non-destructive. If a protected area is intended to change the behavior and values of the community, it is necessary for all stakeholders to be involved in the establishment and management of these areas. This allows the community to understand the need for restrictions, establishes sustainable use of resources, and limits access to protected areas and allows the community to take credit and develop a sense of ownership for the protected area. Community involvement ensures that all needs are considered and reduces the likelihood of future conflict.

The management plan would reflect the objectives prioritized by the steering committee for the marine protected area, relevant legislation, interagency agreements, and regulations which would be formulated by the Department of Lands and Natural Resources (with the assistance of outside consultants). Management plan programs for individual protected areas may include:

- **Baseline inventory:** Assess the status of natural resources, historical resources, level of resource extraction, cultural use, etc., for the protected area.



<b>B. Project Name:</b>	<b>CNMI <i>State of the Reef</i> Report</b>
<b>USCRTF Cross-reference:</b>	Ecosystem Conservation/Education and Outreach
<b>Lead Agencies:</b>	Coastal Resources Management (CRMO), Division of Environmental Quality (DEQ), Department of Lands and Natural Resources/Division of Fish and Wildlife (DLNR/DFW)
<b>Priority:</b>	High
<b>Length:</b>	Initial Research 2 years - Ongoing updates

### **Project Description**

The Commonwealth of the Northern Mariana Islands (CNMI) has developed a Long-Term Marine Monitoring Program that enables government agencies to monitor the coral reef ecosystems and to detect long-term changes in the reefs. This program is locally based and carried out by the technical staff of several CNMI agencies. The data collected are basic, and while useful, do not provide a definitive analysis state of the CNMI's reefs. This *State of the Reef* analysis and report will involve an analysis of historical and recently collected data, collection and analysis of supplemental data (not collected as a part of the existing Long-Term Marine Monitoring Program), and the development of a locally coordinated mapping program.

The *State of the Reef* report will enhance the exposure and knowledge of coral reef issues in the CNMI at the local, national, and international level. Issues include coral reef diseases and stresses, and regional and global effects (i.e., El Niño, global warming, and sea level rise), and the effects of overfishing. An initial report will be produced for policy-makers, government agencies, fisherman and anyone interested in the CNMI's coral reefs and who want to learn more about what needs to be done to protect them. The first report will serve as a baseline against which future research can be measured and will lay a foundation for future management and policy efforts. The report will outline specific strategies and recommend actions to protect the CNMI's reefs.

The first year's *State of the Reef* will focus on the nearshore reefs of the three populated southern islands (Saipan, Tinian, and Rota). Future year's reports will cover off-shore reefs and reefs surrounding the twelve remaining islands of the CNMI.

Analysis of historical and recent data will involve looking at:

- ◆ Department of Defense maps, bathymetry, studies.
- ◆ Data collected by University of Guam, University of Hawaii, and other research institutions as a part of regional or specific studies like EIA reports.
- ◆ Data collected through earlier CNMI agency efforts.

- ◆ Data collected by the Marine Monitoring Team (including water quality, sedimentation rates, broadscale surveys, Line Intercept Transects, Butterflyfish surveys, and Point Intercept Quadrats).
- ◆ Fishing Creel surveys.

New data that will be collected include, but are not limited to:

- ◆ Diseases of coral reef organisms.
- ◆ An analysis of anthropogenic stresses (including recreational activities, non-point source and point source pollution, and commercial and recreational reef fisheries).
- ◆ Coral recruitment.
- ◆ Measurement of typical coral growth rates for the region.
- ◆ An estimation of fish stocks and recruitment.
- ◆ Commercially important macro-invertebrates (incl. sea cucumbers and octopus).
- ◆ Monitoring strategies for these new efforts that can be implemented by the Marine Monitoring Team will be developed.

The mapping long-term monitoring program will include:

- ◆ Gathering existing data and maps (DOD, NOAA, Japan, etc.).
- ◆ Conducting baseline studies.
- ◆ Developing a standard methodology.
- ◆ Selecting sites and placing monitoring devices.

**Budget:** \$150,000

**C. Project Name:** **Coral Reef-Associated Wildlife Protection**

**USCRTF Cross-reference:** Legislation and Judiciary/Enforcement

**Lead Agencies:** Department of Lands and Natural Resources/Division of Fish and Wildlife (DLNR/DFW), Attorney General's Office (AG)

**Priority:** Medium

**Length:** 1 year

**Project Description**

This project intends to do the following:

- ◆ Bolster the capacity of the CNMI to implement and enforce existing regulations that protect coral reef organisms.
- ◆ Prevent overfishing of coral reef fish and other coral reef-associated animals.
- ◆ Develop a collaborative enforcement framework between relevant federal and CNMI enforcement agencies to implement CNMI and federal laws that protect coral reefs and associated organisms.
- ◆ Evaluate existing regulations.
- ◆ Develop new or modify existing regulations.
- ◆ Identify an implementation strategy.
- ◆ Bolster regulatory efforts and capabilities.

**Budget:** \$50,000

<b>D. Project Name:</b>	<b>Marine Monitoring Team Capabilities Upgrade</b>
<b>USCRTF Cross-reference:</b>	Ecosystem Conservation
<b>Lead Agencies:</b>	Coastal Resources Management (CRMO), Division of Environmental Quality (DEQ), Northern Marianas College (NMC)
<b>Priority:</b>	Medium
<b>Length:</b>	Long Term

### **Project Description**

The international community recognizes that the rapid decline of the world's coral reefs is a global problem that requires immediate action on a local, national, and international scale. Nearshore fisheries, shoreline protection, and tourism-based economies throughout the world are threatened by the destruction of coral reefs caused by climate change, sea level rise, pollution, and over-fishing. Researchers at the 1992 International Coral Reef Symposium held in Guam recognized the need for widespread monitoring of coral reefs and put out a call to develop standard monitoring techniques. Consequently, the Australian Institute for Marine Sciences (AIMS) developed standard techniques to monitor coral reefs (English, 1994). The Intergovernmental Oceanographic Commission (IOC) of UNESCO and the United Nations Environment Programme (UNEP) adopted the ASEAN-Australia method as the standard for global monitoring of coral reefs.

In 1996, the CNMI developed a Long-Term Marine Monitoring Program, based upon these internationally accepted standard techniques. The team has been conducting monitoring studies for the past three years and has accumulated a large collection of data and gained a more complete understanding of the CNMI's reefs. The data have been used in local permitting decisions, to help establish marine protected areas, for public education and awareness, and by international researchers. The CNMI's successful Long-Term Marine Monitoring Program is unique and can serve as a model for other US States and small island-nations.

Funding for the Long-Term Marine Monitoring Program is sporadic and from various sources. It relies upon staff members who are overextended on other projects. A grant from the Coral Reef Initiative can serve as a dedicated source of funding for the Marine Monitoring Team for the next five years. During this time, short- and long-term goals will be developed, and a continuous source of funding will be sought. Special projects and required quality control tasks will be conducted to improve the capabilities of the Marine Monitoring Team.

Tasks and other aspects of this project include:

- ◆ Additional training for new members and technique standardization from AIMS.
- ◆ Visits to similar countries conducting surveys using AIMS techniques to observe efforts and learn technique modifications.
- ◆ Archival of data (possibly in ICLARM or NODC) and training in database management and data analysis for team.
- ◆ Establishment of monitoring sites for Marine Protected Areas.
- ◆ Increased communication and support from area researchers (i.e., University of Guam, University of Hawaii, Palau Conservation Society)
- ◆ Participation in global Coral Reef meetings, such as the 2000 International Coral Reef Symposium.

**5-year budget estimate:**                    \$100,000

**E. Project Name:** **Marine Debris Removal**  
**USCRTF Cross-reference:** Coastal Uses  
**Lead Agencies:** Division of Environmental Quality (DEQ), Coastal Resources Management (CRMO), U.S. Coast Guard  
**Priority:** Medium  
**Length:** Long Term

**Project Description**

Funding for this project will help to remove marine debris, including net bundles, plastic garbage and other fishing lines from coastal areas of the Northern Islands. Research has found that net bundles, mainly trawl nets which are thought to originate primarily from the demersal trawl fisheries in the Bering Sea, become snagged on coral and continue to kill fish, damage the reef substrate, and kill marine mammals. Research also has shown that plastic objects, such as lighters, light-sticks, and toys are consumed by adult seabirds, and the parents in turn pass these objects on to chicks who succumb to the effects of toxins within the plastics or die when the plastic objects pierce their stomach or block their intestines.

Funds are needed to cover transportation and equipment costs. Efforts will be coordinated with NOAA and USCG.

**5-year budget estimate:** \$25,000

**F. Project Name:** **Research Coral Reef Recruitment**  
**USCRTF Cross-reference:** Ecosystem Conservation  
**Lead Agencies:** University of Guam (UOG), Division of Fish and Wildlife (DFW)  
**Priority:** Medium  
**Length:** Long Term

**Project Description**

The project team will conduct research to better understand coral recruitment. Researchers at the University of Guam are leading the international community in conducting coral reef recruitment studies, which include studies on the effects of pesticides on planular larvae settlement.

This grant will provide funding for direct assessments to be made in various locations throughout the CNMI, including the Northern Islands and surrounding large development projects in the southern islands. The results of the studies will be used by CNMI agencies to better enforce permit conditions that require large developments to more thoroughly analyze the effects of their projects on the future health of the nearshore environment.

**5-year budget estimate:** \$50,000

**G. Project Name:** **Nutrient Reduction Strategy for Nearshore Marine Waters**

**USCRTF Cross-Reference:** Water and Air Quality

**Lead Agencies:** Division of Environmental Quality (DEQ), Coastal Resources Management (CRM)

**Priority:** Medium

**Length:** Short Term (3 years)

**Project Description**

Nutrient loading on coral reefs can have a devastating effect on the ecosystem and lead to the loss of productive fisheries and the functional and scenic values of reefs. In 1997, the Commonwealth of the Northern Mariana Islands (CNMI) developed nutrient criteria for the Water Quality Standards. The criteria were not based on local data and may not be applicable for local situations or may not be protective of coral ecosystem health.

The Clean Water Action Plan, issued by Vice President Gore, recognized the need for research to improve the basis for understanding and assessing nutrient over-enrichment problems. Consequently, EPA developed a strategy to establish an objective, scientifically sound basis for assessing nutrient over-enrichment problems and is developing nutrient criteria on a regional basis. However, this strategy did not include the CNMI or other Western Pacific islands in their designated ecoregions.

The project team proposes to develop a strategy to assess nutrient levels in CNMI (including the Northern Islands), assess nutrient over-enrichment problems (including those from natural oceanographic processes), determine potential sources and strategies to eliminate anthropogenic these sources, and revise nutrient criteria if necessary. One objective is to develop a long-term monitoring and research program to relate nutrient enrichment to coral reef ecosystem dynamics.

**5-year budget estimate:** \$100,000