



## **Coral Ecosystem & Marine Resource Initiative (T/E & Sensitive Species)**

06-306

### **Background:**

DoD promotes sustainable use of all its ranges and operational areas, including in-water areas in the south Atlantic, Caribbean, Gulf of Mexico, and Pacific Ocean. Protected marine species and associated benthic/marine habitat, known collectively as coral reef ecosystems, occur within locations used by DoD. Range managers must comply with an array of federal resource protection laws and regulations as well as a DoD and Service-specific resource conservation measures. Development of programmatic DoD-wide management recommendations and strategic planning objectives to protect sensitive coral reef ecosystems will improve consistency in applying DoD policy and resource protection measures while reducing resource management costs. This project supports a DoD-wide programmatic approach to sustainable management of marine ranges and operating areas, as well as promotes participation in international conservation efforts.

### **Objective:**

The objective of this project is to develop tools for consistent management and conservation of DoD-protected marine species and associated benthic/marine habitat (coral reef ecosystems), including endangered, threatened and sensitive resources/habitat. The goals of this project are to: coordinate a comprehensive program to assess protected marine resources; develop a strategy and objectives for DoD coral reef conservation research; and, foster international cooperation for marine resource conservation and sustainable use of in-water operational and training areas

### **Summary of Approach:**

To achieve the goals and objectives, several individual tasks were developed using combinations of five elements. These elements each leverage with the others for efficiencies in meeting budget requirements and integrating the products.

Element 1 is expanded development of in-house (IH) resources in the knowledge needed to locate underwater resources and identify potential impacts related to mission needs, operations and facilities development projects, especially coral reef ecosystems. With this training, IH resources will be able to record and evaluate coral reef monitoring data, and plan both on-shore and at-sea

activities so as to minimize the potential to adversely impact coral reefs.

Element 2 involves gathering available coral reef maps/data for DoD installations from IH and external sources, and disseminating the data to DoD resource managers and installation commanders. DoD will also encourage cooperative efforts by making the non-secure, non-sensitive information about marine resources accessible to other users with an accredited interest in coral reef ecology.

Element 3 addresses developing: a DoD Research & Management Strategy Plan to guide future decision making regarding programmatic and DoD-wide coral reef conservation efforts. The DoD Research & Management Strategy Plan will be based on the National Strategic Plan.

Element 4 involves identifying a technical expert to: support Pacific region DoD resource managers with the best available information regarding coral reef ecology; provide input to the development of DoD strategies and procedures; and, keep DoD resource managers up to date with academic research.

Element 5 includes modeling the applicability of cooperative conservation to DoD facilities through development of a cooperative plan for protection of marine resources at Johnston Atoll. The model application will establish processes and lines of communication necessary for this type of action, as well as identify benefits and costs associated with this type of action.

### **Benefits:**

As a result of this project, DoD planners and managers will have access to better marine resource information to use in decision-making for both on-shore and near-shore activities. This will enable them to manage their assets so as to maintain military readiness with minimal adverse impact to the marine environment. By increasing the in-house resources available for locating marine resources and identifying potential impacts related to mission needs, operations and facilities development projects, DoD will reduce the costs for planning efforts. The increased awareness among DoD personnel will lead to improved long-term conservation of resources under DoD management.

## Accomplishments:

The status of the resource management tools being developed under this project is summarized below. All of the tools are being made available by way of the Coral Reef Assessment Team (CRAT) website located at <https://clients.emainc.com/dcs/coralreef/default.asp>.

1. Improve the utility of the CRAT website: The CRAT website has been streamlined and made more user-friendly based on input from users. New features include a matrix of “data sources vs. coral reef locations” to provide web site users with a cross reference of all the data available on the website, and a document sharing utility allows users to post large documents from their personal computers to an area of the CRAT website for review and comment without the limitations of the e-mail system. It is anticipated that RSS feeds from journal publishers will be added to the web site to provide summaries of academic research related to coral reefs. A login ID and password are required for use of the website.
2. Collect available external data for coral reefs in proximity to DoD facilities: Geospatial data was acquired from NOAA, the World Resource Institute, and The Nature Conservancy. This data was used to create ten new regional maps in JPEG and Adobe PDF electronic file format depicting coral reefs in the vicinity of military installations. These maps are currently available for use on the CRAT website.

In addition, a working draft library of scientific literature related to coral reefs and searchable by DoD facility location was prepared. This database is presented in stand-alone web-based format and is in beta version as of December 2006. A list of references along with links to the actual document is given for each specific site. This program does not require internet access or special software to run. It provides stand-alone and immediate access to the important scientific and other coral reef related publications. This data will be added to the CRAT website in 2007.

3. Collect available internal data for coral reefs in proximity to DoD facilities: All available marine resource assessments of coral reef ecosystems in proximity to DoD facilities were collected and made available through the CRAT website. In the future, the specific data from these assessments will be linked to geospatial data as practical to provide enhanced resource mapping.

The applicability of specific oceanographic electronic equipment, scuba diving tools and underwater mapping technologies for coral reef studies was also evaluated. The focus was on the assembly and

operation of oceanographic survey tools for coral reef mapping with data integration into GIS and other databases. Testing and integrating new diving and underwater equipment for the purpose of conducting coral reef monitoring and assessment studies at DoD coral reef locations will continue into 2007.

4. Develop guidance for consistent collection of coral reef data in the future: Guidance for conducting future marine resources assessments and monitoring in a uniform manner, titled “U.S. Department of Navy Standard Marine Resources Assessment and Monitoring Protocol,” was developed to assist all in-house resources conducting or contracting for marine resources assessments. This document is currently available for use on the CRAT website.
5. Develop a strategic plan to guide future decision making: A draft “Department of Defense Strategic Plan for Coral Reef Protection” was developed in conjunction with core members of CRAT, and has been endorsed for wider circulation. The draft has been posted to the CRAT website for wider review and comment and will be finalized in 2007.
6. Cooperative Conservation Model: Due to war-time commitments, the field training program was not presented to military dive teams. However, the program was adapted for use by Belizean scientific divers in cooperation with Conservation International, the University of Belize, the Belize Department of Fisheries and Friends of Nature (Belize).

In 2007, this collaboration will conduct a coral reef mapping project in the Meso-American Barrier Reef System of Belize. The resulting information will be used to define the impacts of marine area management practices and potential adverse ecological effects of coastal developments. DoD will use the opportunity to field test the new diving and mapping technologies to map marine habitats, oceanographic currents and biotic complexity of complex coral reef areas.

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