



Reef Environmental Education Foundation

Conserving Marine Ecosystems by Enlisting Divers as Active Stewards and Citizen Scientists

Final Report: Southeast Peninsula Marine Ecosystem Survey Week April 24-29, 2007

Introduction

The Reef Environmental Education Foundation (REEF) is an international non-profit organization that coordinates grassroots projects to educate and engage local communities in marine conservation activities. Our flagship project, the Volunteer Fish Survey Project (VFSP), links the diving community with scientists, resource managers and conservationists through marine life data collection. Since the Project's inception in 1993, REEF has trained and enlisted more than 10,000 volunteer divers and snorkelers to collect population and distribution data of fish, invertebrates and sea turtles, resulting in one of the largest marine life databases in the world, with more than 100,000 surveys conducted to date. Resource agencies and scientists increasingly use these data to address a variety of management questions.

VFSP participants use the Roving Diver Technique (RDT), a non-point visual survey method specifically designed to generate a comprehensive species list along with frequency and abundance estimates. REEF surveys can be conducted by scuba divers and snorkelers anywhere within REEF's survey regions, which include the tropical western Atlantic (Caribbean, Bahamas and Florida), all of coastal North America, Hawaii and the tropical eastern Pacific. Surveyors use standardized survey and training materials, including a data entry scanform, underwater survey paper, waterproof identification cards, and image-based training curricula. REEF processes and error-checks incoming survey data using an integrated data management system and the REEF database interface on the REEF Website (www.reef.org) enables visitors to generate a variety of summary reports including geographic area reports, species distribution reports, comparison reports, and surveyor reports.

St. Kitts Survey Week

At the invitation of The Ocean Foundation and its partner, the St. Kitts Foundation, REEF participated in the first Southeast Peninsula Marine Ecosystem Survey Week on the island of St. Kitts, West Indies. Leda Cunningham lead classroom and in-water training sessions in fish identification and survey methodology to more than 100 island residents, including university students and professors, dive operators, tourism officials, representatives from the Department of Fisheries, and others. In conjunction with Reef Relief and Earth Echo International, the team

spent four days surveying reefs that have already been impacted from human and natural causes, and are close to proposed development areas.

The workshop was designed to provide baseline coral reef ecosystem data to KHT Landholdings Limited - a partnership comprised of Kiawah Island, Auberge Resorts and J.B. Turbidity that will soon break ground on the Southeast Peninsula - while training local stakeholders to continue data collection for long-term monitoring efforts. Volunteer surveying outcomes include:

1. 52 fish surveys were conducted;
2. 125 species of fish and 2 species of sea turtle were documented;
3. the existing St. Kitts (REEF) data set increased by 25 percent (only 200 surveys had historically been conducted in St. Kitts and Nevis);
4. 8 sites were surveyed: 6 by scuba, 2 by snorkel; and
5. 5 new survey sites were added to the REEF database (previously not assigned a zone code and/or included in regional data analysis).

In general, the reefs exhibited high macro-algal and low coral cover; the fish assemblage was dominated by herbivores with few top predators such as grouper and snapper. This is likely due to a combination of overfishing and heavy siltation caused in part by overgrazing of feral goats on the island; lack of harvesting restrictions and unregulated run-off from land may also contribute to poor reef health.

The St. Kitts Week was the first in a series of steps to implement long-term sustainable development and promote community-based conservation and sound management of the island's natural resources. The collaboration forged between KHT Landholdings Limited, The Ocean Foundation and partners like REEF represents a new model for eco-tourism in the Caribbean, a project for which REEF is pleased to have been included in the planning and initial implementation. Successes of the week include:

1. Capacity building for the VFSP in St. Kitts and Nevis to help build a locally sustainable fish monitoring program;
2. Identification of key partners (dive shop owners, university students, active local divers and snorkelers) to locally spearhead the VFSP, including organizing survey trips, maintaining contact with local volunteers, serving as on-island contacts for REEF staff;
3. Initiation of dialogue about discrepancies in fish names and role of language in a sustainable monitoring plan (more detail in next section);
4. General community education about marine life identification and ecology, survey techniques and marine conservation in general.

Recommendations

Based on this workshop, REEF recommends the following:

1. Develop a prototype fishing no-take zone similar to the fenced-in “no goat zone” terrestrial model already established by the St. Kitts Foundation to monitor the effects of extraction on fish assemblage.
2. Work with key contacts (Dive St. Kitts, Dr. Rafaela Stimmelmayer, Professors Diamond, Naraine, and Pemberton, e.g.) to establish a local fish survey club to survey on a regular basis. Make it fun! Our experience has shown that groups of friends who survey together stick with the project longer because surveying becomes as much a social as a citizen science activity.
3. Secure funding and logistical support for a week-long REEF training course in advanced fish identification and surveying. There are 5 levels of expertise in the VFSP through which volunteers test up and conduct minimum numbers of surveys. Level 4 and 5 are considered “expert” surveyors and are invited to join the REEF Advanced Assessment Team, providing an incentive for volunteers to increase their fish ID and surveying skills.
4. Identify key data users (government ministries, scientists, funders, etc.) and which research questions they are trying to answer. REEF data can answer a variety of questions (but not all); it will be important for managers to have a clear picture of the scientific problem before determining how and where to use REEF data (REEF Science Director Dr. Christy Pattengill-Semmens is available to assist with this process.)
5. Secure funding for snorkel and scuba gear and/or scuba certification to encourage broad participation in survey efforts.
6. Work with Ministry of Fisheries to develop a comprehensive species list that reconciles REEF names (we use American Fisheries Society taxonomy) with local names. In speaking with Ministry officials, it appears that there is significant discrepancy in English names used by REEF and those used by locals, occasionally to the extent that two taxonomically distinct species are called by the same name (mullet, e.g.). Engaging Kittitian citizens in the community is important to the sustainability of monitoring efforts, therefore care should be taken to bridge any language barrier that may hinder such efforts.

Conclusions and Future Work

This workshop was a well-organized first step toward incorporating environmental and conservation considerations into commercial development on St. Kitts. Results such as diverse participation, an infrastructure for project monitoring and evaluation and strategic alliances between partners with genuine concern for local communities bode well for the success of the project. The current unhealthy condition of the reef in the area sited for development could deteriorate further if mitigation measures aren't taken in the planning phase of development. Ongoing surveying will be necessary to monitor any changes in the fish assemblage or other reef biota, likewise ongoing support of local surveying efforts.

REEF hopes to incorporate St. Kitts into its 2009 Field Survey schedule. We run 12 week-long trips to locations within our survey regions during which 10-24 REEF volunteers receive intensive fish identification and surveying training while conducting 2-3 surveys per day. A Field Survey would be a great opportunity to bring an experienced group of REEF surveyors to St. Kitts to further the data collection, monitoring and conservation goals begun during the recent Southeast Peninsula Marine Ecosystem Survey Week.