

COMPONENT 2A - Project 2A2
Knowledge, monitoring, management and
beneficial use of coral reef ecosystems

April 2008



REEF MONITORING

SOLOMON ISLANDS **TRIP REPORT**

30th July - 10th August 2007



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CRISP



Coral Reef InitiativeS for the Pacific
Initiatives Corail pour le Pacifique



The CRISP programme is implemented as part of the policy developed by the Secretariat of the Pacific Regional Environment Programme for a contribution to conservation and sustainable development of coral reefs in the Pacific

The Initiative for the Protection and Management of Coral Reefs in the Pacific (CRISP), sponsored by France and prepared by the French Development Agency (AFD) as part of an inter-ministerial project from 2002 onwards, aims to develop a vision for the future of these unique eco-systems and the communities that depend on them and to introduce strategies and projects to conserve their biodiversity, while developing the economic and environmental services that they provide both locally and globally. Also, it is designed as a factor for integration between developed countries (Australia, New Zealand, Japan, USA), French overseas territories and Pacific Island developing countries.

The CRISP Programme comprises three major components, which are:

Component 1A: Integrated Coastal Management and watershed management

- 1A1: Marine biodiversity conservation planning
- 1A2: Marine Protected Areas
- 1A3: Institutional strengthening and networking
- 1A4: Integrated coastal reef zone and watershed management

Component 2: Development of Coral Ecosystems

- 2A: Knowledge, monitoring and management of coral reef ecosystems
- 2B: Reef rehabilitation
- 2C: Development of active marine substances
- 2D: Development of regional data base (ReefBase Pacific)

Component 3: Programme Coordination and Development

- 3A: Capitalisation, value-adding and extension of CRISP Programme activities
- 3B: Coordination, promotion and development of CRISP Programme

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COMPONENT 2A

Knowledge, monitoring and management of coral reef ecosystems

■ **PROJECT 2A-1 :**

Postlarvae (fish and crustacean) capture and culture for aquarium trade and restocking

■ **PROJECT 2A-2:**

Improvement of knowledge and capacity for a better management of reef ecosystems

■ **PROJECT 2A-3 :**

Synopsis and extension work on indicators for monitoring the health of coral ecosystems and developing a remote sensing tool

■ **PROJECT 2A-4 :**

Testing of novel information feedback methods for local communities and users of reef and lagoon resources

■ **PROJECT 2A-5 :**

Specific studies on i) the effects on the increase in atmospheric CO₂ on the health of coral formation and ii) the development of eco-tourism

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This CRISP component is funded by the following agency:



Introduction

Solomon Islands is one of the seven countries of the South West Pacific Node of the Global Coral Reef Monitoring Network (GCRMN). The country coordination is carried out by the World Wild Fund for Nature (WWF) Gizo Office in the Western Province. All coral reef monitoring activities are carried out by WWF Gizo staff with very little interaction with other stakeholders in way of information sharing.

The purpose of this trip which was funded by CRISP was to:

- 1) assist the country coordinator collate information for the 2007 status report
- 2) gather information about the post-tsunami assessment conducted by the World Fish Center (WFC) and WWF
- 3) consult various stakeholders to lobby for contribution of information to the Solomon 2007 Status of the Coral Reef Report

Activities

- 1) Obtained an electronic copy of the Solomon Islands Marine Assessment Report published by The Nature Conservancy (TNC) (See Appendix 1 for summary) and indicated that key findings of the main life-form categories could be included into the 2007 status report.
- 2) The following information was gathered on the post-tsunami assessment carried out in the Western province: (Source: WFC_WWF-SI Draft Report on post-tsunami fisheries livelihoods, 2007)
 - the assessment was focused on the immediate damage to and short-term and long-term needs of the coastal fisheries, including environment and infrastructure
 - habitat surveys (up to four sites at each location) with group discussions and one-on-one fisher interviews in 29 locations were visited, 12 by WWF-SI and 17 by WorldFish Center
 - assessments were carried out between 25 May and 12 June 2007, approximately two months after the event. WWF-SI sites were those where they had previously undertaken underwater surveys; there is no pre-event reef survey data available for the sites WorldFish surveyed
 - results indicated that damage to marine habitats varied from location to location and island to island and the most dramatic effects were at sites where the earthquake had uplifted islands and where previously immersed areas are now emerged especially seagrass, mangroves and coral reef habitats. This has adversely affected fisheries productivity and fishers reported a loss of gleaning areas, but long-term effects remain unclear at this stage. In terms of fishers' equipment, villagers noted that loss of houses meant loss of fishing equipment stored there. A significant loss of fishing infrastructure was of paddle canoes and fishing lines (line fishing is the dominant method in Western Province)
 - recommendations included, replacement of fishing equipment needs and development of proposals to address different needs of the five identified groups
 - key issues for future work included, collapse of traditional tambu systems in most places except in the Shortland Islands and a poor understanding of fisheries/resource management issues or national regulations, loss of community control of fisheries, enforcement of fisheries regulations is relatively difficult because of extensive coastlines, marine resource management needs are more long term in nature rather

than related to immediate food security, not all communities are equally dependent on the marine environment.

- 3) Consultations were held with the following stakeholders to encourage them to do more effective networking especially with regards to contributing to the 2007 Solomon Coral Reef Status Report which they all agreed to:

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- 4) Other Consultations were as follows:

i) review of concept paper by WWF Gizo for further funding -

The concept paper titled, "Post Disaster Fisheries and Marine Conservation Recovery Activities in the Western Province, Solomon Islands", was aimed at marine conservation and fisheries recovery to assist fishers to resume to pre-tsunami activities. The proposal involved three key activities: reef restoration trials, supporting and expanding the effort of villagers currently engaging in mangrove replanting, and the assessment of suitability for, and if appropriate, deployment of Fish Aggregating Devices (FADS) in key locations where traditional fishing grounds have been uplifted. The project duration would be 2 years, consisting of implementing and establishing trials followed by regular monitoring including GCRMN surveys in the affected areas. Comparison of pre and post-disaster data held by WWF Gizo will be invaluable for monitoring reef and fish recovery rates.

ii) review progress of the project , "sustainable livelihoods through culture of marine ornamentals" of which the key issues included, the sustainability of the depot operations beyond life of the project, production of cultured organisms must match demand, products must be of high value, retention of the correct number and quality of growers and retention of technical support.

Follow Up

- Obtain final copy of WFC_WWF post-tsunami fisheries livelihood report
- Obtain country report for 2007 status of the coral reefs in the Solomon Islands under auspices of SW Pacific GCRMN node

Appendix 1

Executive Summary of the Solomon Islands marine Assessment Report . 2006. Green, A., P. Lokani, W. Atu, P. Ramohia, P. Thomas and J. Almany (eds.) Solomon Islands Marine Assessment: Technical report of survey conducted May 13 to June 17, 2004. TNC Pacific Island Countries Report No. 1/06.

The Solomon Islands Marine Assessment represents the first broad scale survey of marine resources in the Solomon Islands. The survey was conducted over a five-week period from May 13 to June 17 2004, covering a distance of almost 2000-nm and encompassing seven of the nine provinces. The survey team comprised an international team of scientists and managers, including some of the world's experts of coral reefs and associated habitats. The survey provided an assessment of the biodiversity and status of coral reefs, seagrass beds, oceanic cetaceans, reef food fish, commercial invertebrates and associated habitats, and recommendations for their conservation and management.

The marine assessment demonstrated that the Solomon Islands is an area of high conservation value where marine diversity is exceptionally high, marine habitats are in good condition, and current threats are low. The diversity of marine life, condition of marine habitats, and the attractiveness of rainforest-dominated islands combine to create coastal settings seldom seen in today's over-populated and over-exploited world. However, there is some concern regarding increasing threats to marine habitats, particularly from fishing and poor land use practices.

The Solomon Islands has one of the highest diversities of corals anywhere in the world. A total of 494 species were recorded on this survey: 485 known species and nine that were unknown to the coral experts, which may be new species. This extraordinarily high diversity of coral species is the second highest in the world, second only to the Raja Ampat Islands of eastern Indonesia. Of the described species, 122 species have their known ranges extended by this study.

The survey also confirmed that the Solomon Islands possess one of the richest concentrations of reef fishes in the world. A total of 1019 fish species were recorded, of which 786 were observed during the survey and the rest were found from museum collections. A formula for predicting the total reef fish fauna indicates that at least 1,159 species can be expected to occur in the Solomon Islands. Forty-seven new distributional records were obtained, including at least one new species of cardinalfish. The number of species visually surveyed at each site ranged from 100 to 279, with an average of 184.7. Two hundred or more species per site is considered the benchmark for an excellent fish count, and this figure was achieved at 37 percent of the sites in the Solomon Islands. One site (Njari Island, Gizo) was the fourth highest fish count ever recorded for a single dive, surpassed only by three sites in the Raja Ampat Islands.

Seagrass biodiversity is also high. Ten species of seagrass were identified, which represents 80% of the known seagrass species in the Indo-Pacific Region. The most extensive seagrass meadows were found in Malaita Province, where there were some very large meadows, including one that was more than 1000 hectares in size. Seagrass meadows were associated with a high biodiversity of fauna including dugong, fish, sea cucumbers, seastars, algae and coral. These highly productive seagrass meadows are often located on the fringe of coastal communities and support important fisheries and provide extensive nursery areas for juvenile fish.

A relatively low species diversity and abundance of cetaceans (whales and dolphins) was recorded throughout most of the Solomon Islands with spinner and spotted dolphins locally abundant in some areas. Ten species of cetaceans were sighted, including spinner, pantropical spotted, Risso's, common bottlenose, Indo-Pacific bottlenose and rough-toothed dolphins, a Bryde's or Sei whale, orca and beaked whales. Sperm whales were also identified acoustically.

The Indispensable Strait region and some other narrow, deep passages in the Solomon Seas were tentatively identified as important migratory corridors. This survey has shown that the Solomon Islands are clearly part of the global centre of marine diversity, known as the Coral Triangle, which also includes parts of the Philippines, Indonesia, Malaysia (Sabah), East Timor and Papua New Guinea. The primary reason for this extraordinary biodiversity is the wide range of marine habitats. Virtually every situation is represented from highly protected, silt-laden embayments around larger islands to clear-water oceanic atolls situated well offshore. In some areas, the coastlines are exceptionally convoluted with many fjord-like embayments, narrow straits and island clusters, all set in very wide ranges of bathymetry and current regimes. In other areas, the coastlines are dominated by reefs exposed to high-energy wave action (including barrier reefs of many types). Other coastlines have very extensive mangrove forests, seagrass meadows and other soft substrate habitats. There are also vertical walls exposed to currents and dominated by sea fans, sponges and crinoids, and islands with enclosed lagoons with steeply sloping sides and clear deep water. When combined, this array of habitats creates a range of environments seldom seen in other regions of comparable size.

Unfortunately it was not possible to include the remote outer islands and reefs in the Solomon Islands (Ontong Java atoll, Rennel Island, Indispensable reefs and Santa Cruz Islands) in this survey. These areas are geologically, oceanographically and climatologically different from the rest of the Solomon Islands, and are therefore expected to support different coral reef communities. The full extent of the biodiversity of the Solomon Islands will not be understood until similar surveys have been completed in these areas.

A significant component of the survey was an assessment of key fisheries resources, which are vitally important to the livelihood of the Solomon Island people. Healthy populations of reef fishes were observed in more remote areas (particularly Choiseul, Isabel and Western Provinces), although there was some evidence of overfishing in provinces close to major population centres in Guadalcanal and Malaita. There was also evidence of overfishing of large, vulnerable reef fishes and commercially important invertebrates (particularly trochus, sea cucumbers and giant clams) throughout most of the Solomon Islands. In contrast, these species were still abundant in the Arnavon Community Marine Conservation Area (ACMCA) where commercial fishing and collecting is banned and only subsistence collecting of some reef fish species is allowed. These results show that after more than 10 years of protection, the ACMCA has been successful in achieving its goal of protecting important fisheries species.

Finally, reflecting their concern and that of the community representatives who participated in the survey, the survey team has offered a range of recommendations for the conservation and sustainable use of these globally, nationally and locally important marine habitats and resources. These include specific recommendations for the establishment of networks of locally managed marine areas, the management of important reef fisheries, the protection of key habitats (coral reefs, seagrasses and mangroves), and the conservation of oceanic cetaceans and associated habitats.

Photos from post-tsunami survey around the Western Province
Credit: Nelly Kere, WWF Gizo

