

## 12. STATUS OF THE CORAL REEFS IN THE SOUTH WEST PACIFIC: FIJI, NEW CALEDONIA, SAMOA, SOLOMON ISLANDS, TUVALU AND VANUATU

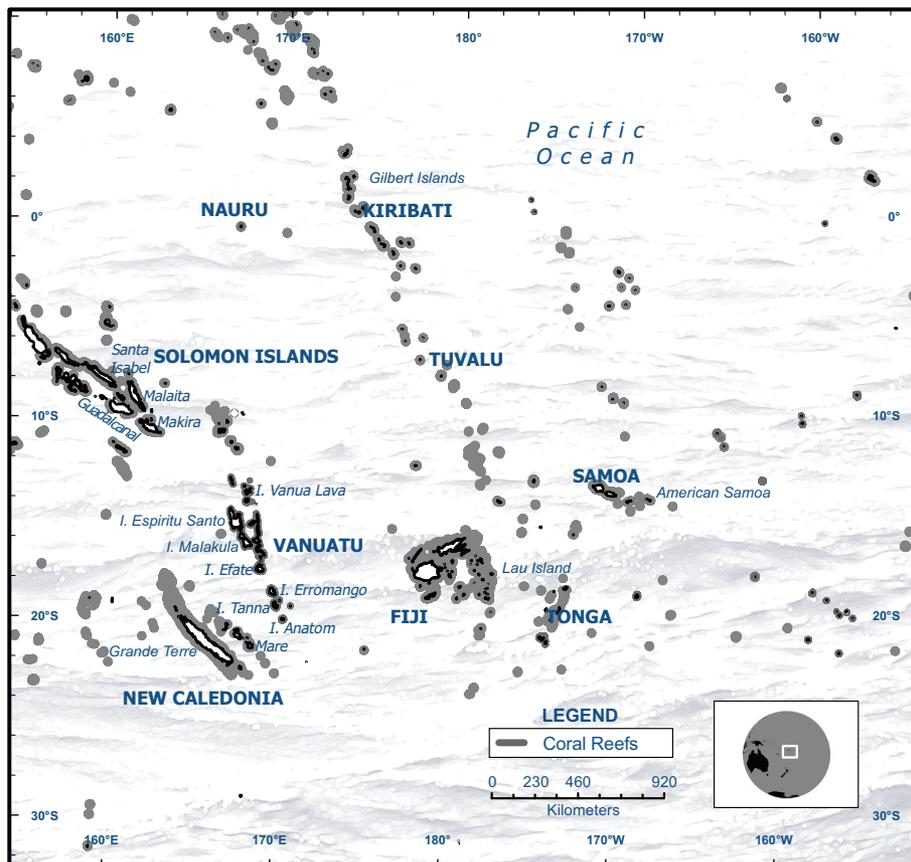
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### ABSTRACT

- Fiji, New Caledonia, Vanuatu, Solomon Islands, Samoa and Tuvalu report monitoring data for this report, with data from a broad range of observers (scientists, students, dive guides and communities); Nauru has not conducted recent monitoring;
- Coral cover has changed since the 2004 report due to effective management (positive), or local disturbances, coral predation and natural disasters (negative). Average coral cover at monitoring sites was 45% in Fiji; 27% in New Caledonia; 43% in Samoa; 30% in Solomon Islands; 65% in Tuvalu; and 26% in Vanuatu;
- Monitoring observations over 9–10 years in Fiji and New Caledonia indicate that these reefs have coped reasonably well with natural and human stressors without catastrophic changes;
- Densities of edible fish and invertebrates remained generally low (0–10/100m<sup>2</sup>) in 4 countries reflecting high subsistence and commercial fishing pressure. Butterflyfish, parrotfish, surgeonfish and damselfish were generally most dominant. High densities of parrotfish were reported from 4 countries;
- Socioeconomic monitoring is conducted in Fiji, Samoa and Solomon Islands. Greatest activity is by the Fiji Locally Marine Managed Area (FLMMA) network at 270 villages across all Fiji provinces. Most households harvest marine resources for subsistence and partially for sale, with few commercial fishers. In Samoa, more people eat canned fish than fresh fish, possibly because of decreased fish stocks in the last 10 years. In the Solomon Islands, some traditional managed systems have collapsed due to poor understanding of fisheries and resource management issues or poor national regulations. Mangrove destruction and greater fishing pressure are reducing family incomes;

- A network of temperature loggers has been established within the Node to collect long-term data on temperature relationships with coral bleaching;
- Reef related ecosystems (mangroves and seagrass) are considered important for food security, biodiversity conservation and coastal protection but less so for tourism. Seagrasses are important feeding grounds for turtles which have great traditional significance;
- There are multiple ‘natural’ stressors, including coral predation, temperature variation, coral bleaching, cyclones, tsunamis and earthquakes. An earthquake and tsunami in April 2007 damaged reefs and other coastal habitats in the Solomon Islands; most dramatic was uplifting of coral reef flats and exposing them to the air.
- The major human disturbances are over-fishing, pollution, sedimentation, eutrophication and coastal development;
- In response, communities, NGOs, researchers and resort owners are managing local marine areas as partnerships such that coral health and fish populations are improving;
- There is a need for long-term monitoring to understand the changes in reefs. Most monitoring is coordinated by Fisheries Departments without sufficient resources, capacity or funding. There are no recent data from Nauru as an example.



## INTRODUCTION

**General features of reefs:** Reefs throughout the South West Pacific Node are diverse and include, fringing, barrier, double barrier, submerged barrier, platform, patch, oceanic ribbon, mid ocean, atolls, oceanic atoll and near-atoll reefs; all with an estimated area of 28 364 km<sup>2</sup>. Fiji has the largest coral reef area spanning more than 10 020 km<sup>2</sup> followed by New Caledonia with 7284 km<sup>2</sup>; Solomon Islands 5750 km<sup>2</sup>; Vanuatu 4110 km<sup>2</sup>; Tuvalu 710 km<sup>2</sup>; and Samoa 490 km<sup>2</sup>. However these estimates of area vary, depending on whether just coral growth is measured, or corals plus associated lagoons.

**Importance of reefs and how they are used:** Reefs continue to play an integral part in the lives of the people of the South Pacific where coastal communities depend on them for subsistence, coastal protection and income generation. Most of the South West Pacific economies are dependant to a large extent on coral reefs, especially through the tourism sector, as detailed in the ESCAP statistical yearbook for Asia and the Pacific, 2007.

The inshore fishery is primarily carried out within coral reefs and lagoons. It is a complex, multi-species, multi-gear fishery and 70–100% of Pacific Islanders participate in reef harvesting. At least 100–400 species of fish, invertebrates and seaweeds are harvested frequently and fish consumption is high, ranging from 25–113 kg per head per year, with an average of 45 kg per head.

Men, women and children of coastal communities are involved in harvesting marine resources for food and cash income. However, commercial pressures and opportunities are overwhelming customary tenure of inshore marine resources in many areas and greater numbers of 'outsiders' (people who have no traditional connection to these resources) are increasingly harvesting coral reef resources. These include coral reef users from the tourism industry, aquarium trade and commercial fishery. This information is summarized in ReefBase Pacific ([www.reefbase.org/pacific/database.aspx](http://www.reefbase.org/pacific/database.aspx)).

Coral reef extraction activities, in addition to subsistence uses, include game fishing, decorative shell collection for ornaments/jewelry and seafood for the tourism trade; and live coral, fish, rock and invertebrates for the aquarium trade. Other extraction activities reported to impact reef status within the Node are sand and rock for construction, coral for lime (used for betel-nut chewing in the Solomon Islands) and bioactive compounds for medicine.

## STATUS OF REEFS TO 2004

There was extensive coral bleaching during 2000–2002 which affected most countries. Since then coral reefs have shown highly variable recovery with some reefs recovering fully to pre-bleaching levels of live coral cover; whereas others have shown virtually no recovery. Nauru reported coral bleaching and mass fish kills in October–December 2003, possibly due to unusually high sea surface temperatures. All countries reported that the greatest threats to coral reefs of the region continued to be human activities and cyclones, with reefs of New Caledonia, Samoa, Solomon Islands and Vanuatu having been damaged by cyclones since the 2004 status report. Cyclone Erica in 2003 destroyed 10–80% of live coral cover on New Caledonia and cyclone Heta struck Samoa in 2004 damaging 13% of the coral reefs. In mid-2004 an unprecedented number of seabirds were found dead on Nauru of unknown causes.

Momentum for the protection and conservation of coral reefs in the region has been boosted by increased participation of governments, NGOs, scientists, volunteers and local communities, especially in the implementation of resource management strategies to mitigate human pressure. Many damaging events (such as bleaching, crown-of-thorns starfish (COTS), diseases and cyclones) in the past 10 years have generated a greater awareness of the need to conserve coral reefs. Coral reef monitoring is expanding, but lacks sustainable funding and support.

**Primary threats:** These countries continue to report similar major threats in 2008 as reported in 2004. These include 'natural' disturbances such as coral predation, temperature variation, coral bleaching, cyclones; and local-scale human disturbances such as over-fishing, pollution, sedimentation, eutrophication and coastal development.

### STATUS OF CORAL REEFS: 2008

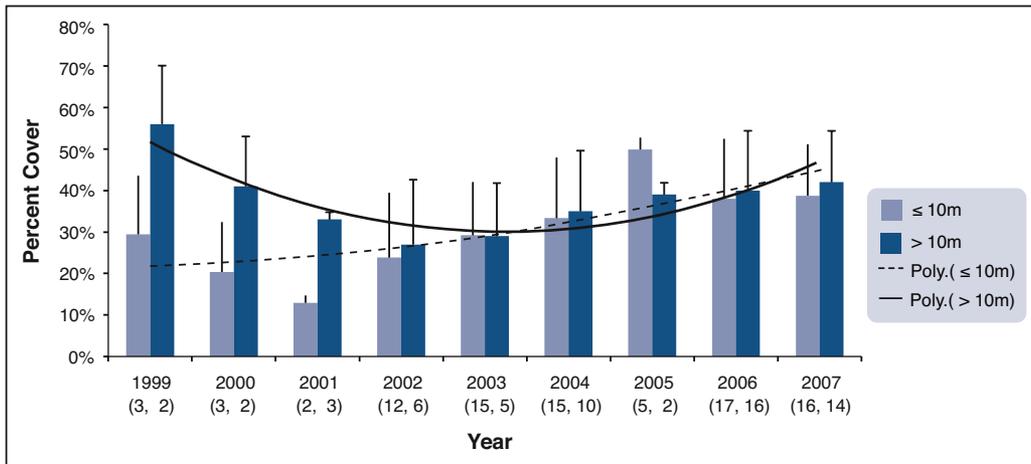
The scattered nature of islands in the South West Pacific Node provides a characteristic challenge in monitoring and conservation for the countries. Therefore, it is particularly difficult to extrapolate observations from a limited number of monitoring sites to report the status of the reefs across entire countries. For example, the reports from the Solomon Islands represent the Western Province only. Monitoring results following are grouped by region (Fiji, New Caledonia, Vanuatu and Solomon Islands); whereas Samoa and Tuvalu report status based on one monitoring location. Often the results from several monitoring teams are reported by national coordinators.

From 2003–2007 there were slight changes in substrate cover in Node countries mainly due to local impacts. For example, 2 islands with high coral cover included managed sites (North Efate in Vanuatu and Namena in Fiji). Regions with low coral cover included sites which were affected by predation of the COTS (Maitre in New Caledonia and Mamanuca in Fiji).

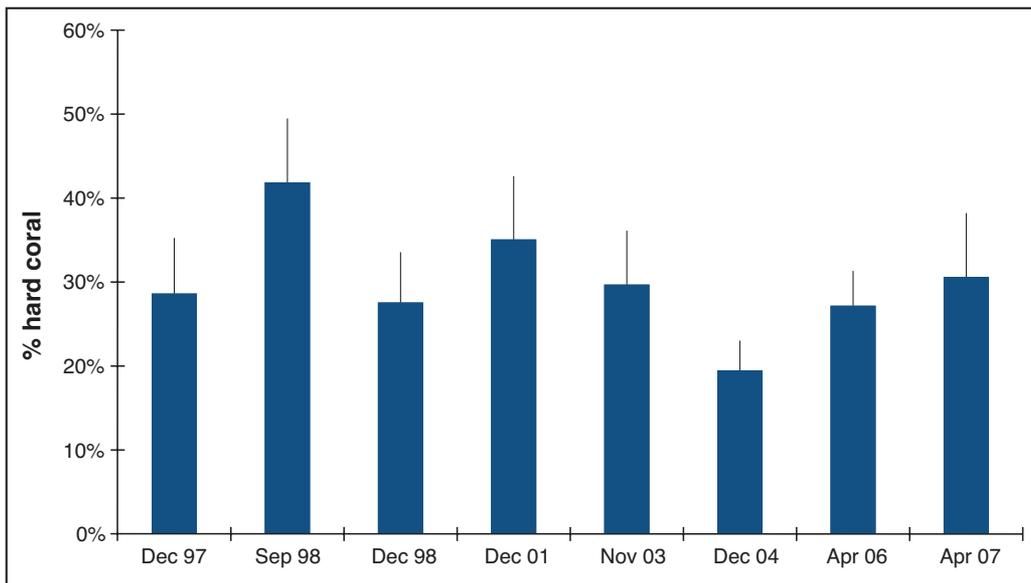
Reported coral cover in Fiji and Samoa was similar: an average of 45% across 13 sites in Fiji (range 18–62%), 8 sites in Samoa had an average of 43% (range 20–66%). Similar results were obtained from Vanuatu and New Caledonia: an average of 25% was found across 11 sites in Vanuatu (range 2–50%), and in New Caledonia the average was 27% (range 5–48%) at 10 sites. The range of coral cover in Tuvalu was similarly large with an average of 65% (range 55–98%), to that found in Fiji and Samoa, but the average was higher. Coral cover reported in the Solomon Islands (average 30%, range of 20–38%) spanned a narrower range than in Vanuatu and New Caledonia.

There were medium to high densities of parrotfish herbivores in 4 countries: 388/100m<sup>2</sup> in Samoa; 36/100m<sup>2</sup> in Tuvalu; 32/100m<sup>2</sup> in Solomon Islands; and 25/100m<sup>2</sup> in New Caledonia. Fiji and Vanuatu reported low densities of 5/100m<sup>2</sup> and 3/100 m<sup>2</sup> respectively. However, overall densities of edible fish remained generally low in all Node countries, although the most dominant indicator fish families included butterflyfish, parrotfish, surgeonfish and damselfish.

Edible invertebrates (sea cucumbers or beche-de-mer, giant clams, trochus) were also generally low across all countries reflecting the high fishing pressure for subsistence and commercial purposes. Invertebrate density was 0–1/100m<sup>2</sup> in New Caledonia and Vanuatu (with the exception of one region in Vanuatu), 0–3/100m<sup>2</sup> in Fiji and Samoa, and 1–10/100m<sup>2</sup> (with the exception of clams) in Tuvalu. No data were available from Solomon Islands.



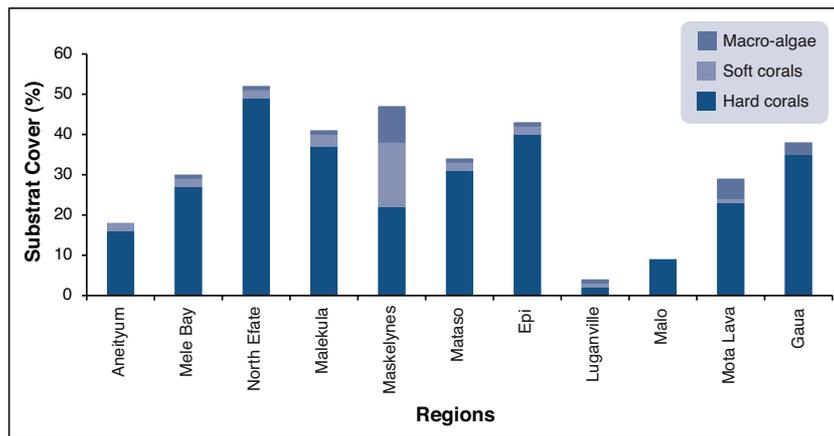
*This graph presents average coral cover from all core survey sites on reefs for 2 depth categories across Fiji. There is a clear trend of recovery following losses from bleaching and crown-of-thorns starfish, although the large standard deviations reflect the considerable variation in reef types. The lines are polynomial statistical analyses showing the trends of coral cover, and the number of sites monitored each year are presented in parentheses below the year.*



*Coral cover in New Caledonia shows considerable variation since 1997 at 6 sites around Nouméa although generally remaining healthy (at 20–40%). One site at Maitre, however, had much lower coral cover.*

Monitoring has attempted to correlate sea surface temperatures and the extent of coral bleaching events in Fiji from 1999 to 2007. The longest periods with consecutive days of temperatures over 29°C were during the years 2000, 2002 and 2005 which corresponded with the years where fully bleached and partly bleached corals were observed (2000, 2001, 2002 and 2006).

Reefs remain under human pressures (over-fishing, pollution, sedimentation, eutrophication, coastal development) as well as natural events (cyclones, tsunamis, earthquakes, coral bleaching and predation). A catastrophic event hit the Solomon Islands on 2 April 2007 when a large earthquake lifted reefs out of the water and the subsequent tsunami waves caused varying degrees of damage and disruption to coastal communities in the western Solomon Islands. The most dramatic effect was the lifting of some islands by 3 m including some major fringing reefs and also mangroves and seagrasses. These resources are no longer available to these communities which once fished and gleaned over these now dead reefs. WWF-Solomon Islands assessed the damaged sites and showed that corals were dislodged, overturned and broken in



***These data from 57 survey sites in all 11 regions of Vanuatu in 2006–2007 show that coral cover varies considerably from a low at Luganville of less than 5% to more than 50% at North Efate. The number of monitoring sites is: Aneityum (3); Mele Bay (3); North Efate (13); Malekula (7); Maskelynes (2); Mataso (2); Epi (3); Luganville (1); Malo (2); Mota Lava (3); Gaua (19).***

shallow depths, and underwater landslides cleared many steep slopes. The end result is that the affected communities have reduced shallow reef gleaning and fishing areas; although recent reports are that fish catches have not changed radically.

Recognition of degraded coral reef habitats has led to the establishment of locally managed marine areas by communities and resort owners. All countries reported an increase in the number of protected areas since 2004 and monitoring has shown that coral health and fish populations have increased in some managed areas. Vanuatu presents an interesting case study on monitoring of managed areas, which revealed that both permanent and periodic closures resulted in a higher biomass of indicator fish inside than outside the reserve. This suggests that small-scale, village-based reserves are effective resource management tools and that opening a reserve temporarily for harvest to meet occasional community needs may be compatible with conservation goals.

## SOCIOECONOMIC RESULTS

**Fiji:** The Fiji Locally Managed Marine Area (FLMMA) network consists of marine resource practitioners from government, non-governmental organizations and communities. FLMMA was established in 2001 and formally registered in 2004 and is now working in approximately 270 villages across all provinces in Fiji. Socioeconomic surveys, by the Institute of Applied Science at 29 sites, reported that the average number of houses in a village was 54, with an average household size of 5 in villages averaging 312 people. Average monthly income for all 29 villages was FJD636 (USD400), which was mainly from selling root crops (kava, yaqona, taro, etc.) and marine resources (fish, sea cucumbers), and other paid employment. Most households harvested marine resources for home consumption and some for sale, whilst a small number of people in a community are commercial fishers. The main gear used by men includes spears and nets, while women mainly used nets, fishing lines and gleaning on the reef. A major threat to fishing grounds noted in village management plans included over-fishing, as a result of the rare to non sighting of certain fish and invertebrates.

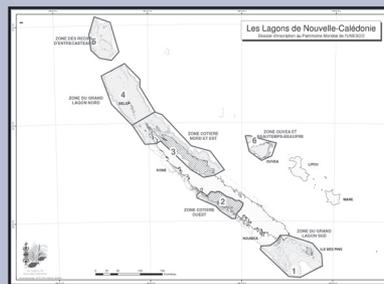
**Samoa:** A nationwide socioeconomic study by the Samoan Fisheries Division in 2006 assessed the status of rural fisheries in Samoa in 939 households in 49 villages (7778 people). People were interviewed about their household composition, income, education level, seafood purchasing and consumption habits, fishing preferences, catch, and whether they sell fish. Fishing contributed to 41% of household income and more than 20% of households were strongly dependent on fishing income to cover their expenses. Average fin fish consumption per year was 59.4 kg, (163g/day); average consumption of tinned fish was 75 kg/year (206g/day); villages closer to Apia (capital of Samoa) ate less fresh fish than those farther away; 66% of respondents felt that there were fewer fish than 10 years ago.

**Solomon Islands:** The WorldFish Center and WWF-Solomon Islands (WWF-SI) combined to assess the impacts of the April 2007 tsunami and earthquake on selected villages in the Western Province. They visited 29 locations across much of the affected area between May and June 2007, approximately two months after the event. This assessment was focused on immediate effects and needs of the coastal fisheries, including environment and infrastructure, as well as assessing on-going threats to the sustainable recovery of coastal fisheries. The assessment reported the collapse of traditional 'tambu' systems in most places; a poor understanding of fisheries/resource management issues or national regulations; a loss of community control of fisheries; relatively difficult enforcement of fisheries regulations because of extensive coastlines; marine resource management needs are more long-term in nature rather than related to immediate food security; and not all communities are equally dependent on the marine environment.

**SEM-Pasifika:** Representatives from Vanuatu, Solomon Islands, Fiji, and Tuvalu attended the SEM-Pasifika (Socioeconomic Monitoring in the Pacific Islands Initiative) training workshop held in Papua New Guinea in October–November 2007 and the SEM-Pasifika regional guidelines were published in October 2008 (available at [www.reefbase.org/socmon](http://www.reefbase.org/socmon)). Further training and assessments are expected for each country, including current assessments in Vanuatu. Results of the socioeconomic assessments will be included in future Status Reports and on [www.reefbase.org/socmon](http://www.reefbase.org/socmon).

### WORLD HERITAGE LISTING OF THE LAGOONS OF NEW CALEDONIA

In July 2008 the World Heritage Commission listed ‘The lagoons of New Caledonia: reef diversity and associated ecosystems’ as a serial listing of 6 marine clusters containing 15 743 km<sup>2</sup> of coral reefs, or 60% of the total reef area. The Commission acknowledged that these reefs were of global significance, noting the large numbers of species: 350 hard corals, 650 other cnidarians (jellyfish and soft corals), 1695 fishes, 841 crustaceans, 802 molluscs, 254 echinoderms (starfish, sea cucumbers, etc.), 220 ascidians (sea squirts), 203 worms, 151 sponges, 14 sea snakes, 4 turtles and 22 marine mammals. The listed area contains 9 major reef types, including fringing reefs, single barrier reefs, very rare double barrier reefs, atolls with lagoons, raised atolls and coral islets. In addition, there are extensive mangrove forests, and seagrass and algal beds, which contain 12 seagrass species, 322 recorded species of algae from 46 families; but it is estimated that another 600 to 700 species remain to be identified. New Caledonia is a territory of France with one main mountainous island, Grande Terre, the Loyalty Islands (uplifted coral platforms), the Isle of Pines and Bélep Island, 3 active volcanic islands (Walpole, Matthew and Hunter), and many atolls to the north and in the Coral Sea to the east. New Caledonia is adjacent to the Coral Triangle, the global centre of coral reef biodiversity. This, and the wide diversity of reefs and habitats in near natural state, attracted the World Heritage Commission. Whilst there was some evidence of coral bleaching and damage, probably from cyclone Erica in 2003, the corals were healthy with average live coral cover of 27.5% in 2004. Most notable are the large numbers and diversity of large fish, including top predators such as sharks, barracuda, grouper, snapper, etc. This is an important indicator of a balanced ecosystem and relatively low fishing pressure. Another important feature is the strong customary tenure and management practices of the Kanak (Melanesian) people, who were involved in developing the management framework in partnership with the French, New Caledonian and Provincial Governments. About 50% of the main island and all the offshore islands are held in customary tenure through local chiefs and villages; whereas individual land ownership is most prevalent around the capital, Nouméa, and on the west coast of Grande Terre. The World Heritage implementation is supported by specific legislation on fisheries, land and water use planning, urban development and mining. The fisheries and mining legislation are currently being revised to strengthen their environmental effectiveness (from Pierre-Yves Vion, pierre-yves.vion@dafe.nc).



**This map shows the 6 components that make up the World Heritage listing of the New Caledonian reefs, lagoons and coastal lands (copyright DTSI - New Calédonian Government)**

## STATUS OF MANGROVES, SEAGRASSES AND FISHERIES: 2008

Mangroves and seagrasses have been damaged during urbanization though there has been little regular monitoring. However, there is increasing awareness of the need for protection: Vanuatu and Fiji have begun to map seagrass beds in certain areas.

All countries have invested in efforts (to varying degrees) to replenish depleted marine species through aquaculture and re-stocking programs, and through protected/managed areas. Fiji, Vanuatu, Samoa and Solomon Islands have ratified the Convention on International Trade of Endangered Species (CITES), thus they have an added responsibility to control the trade of endangered species (listed in the CITES Appendix II). This is to ensure that trade is not detrimental to the survival of organisms which include scleractinian corals, live rock, giant clams and humphead wrasse (*Cheilinus undulatus*).

The most culturally important oceanic fisheries in this Node are turtles, tuna, whales and dolphins. Turtles are widely distributed throughout the region and harvesting has a long history. Turtles continue to be exploited for subsistence and traditional purposes despite harvest bans in at least 2 countries (Fiji, Vanuatu). Tuna is an important export commodity for countries and fishing licenses are issued to foreign vessels for a fee to harvest tuna in the exclusive economic zones of most countries. Both resident and migratory populations of several whale and dolphin species exist in all Node countries and are important to the tourism industry in some. However, the dolphin trade in the Solomon Islands has caused concern to all Node countries but should be regulated now that Solomon Islands have become a party to CITES.

## FUTURE OF CORAL REEF HEALTH

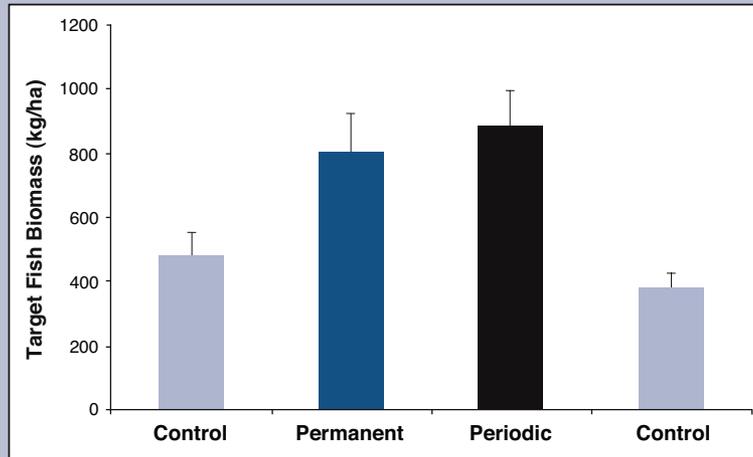
It is likely that the South West Pacific Node will experience several natural coral reef damaging events within the next 10 years. Localised coral bleaching and increasing crown-of-thorns starfish outbreaks are predicted for 2008 and/or possibly 2009/2010. If the reefs follow the patterns observed since 1999, it is predicted that poor reef health will continue across the Node in 2009–2010; to be followed by regeneration that may return coral cover to current levels by about 2014. This presumes that COTS outbreaks and La Niña conditions do not occur more frequently than current observations suggest.

Human impacts are likely to continue and become greater, particularly if political instability continues to hinder environmental management. Coastal development continues to expand and, without proper legislation and action, impacts of sedimentation, eutrophication and over-fishing are likely to degrade coral reef health along some coastlines. Uncontrolled mangrove clearing could be one of the greatest threats to reef populations in the next 10 years.

The number of locally managed marine areas are increasing (especially through FLMMA in Fiji and similar initiatives elsewhere) and this is probably the most effective measure in the region's reef 'first aid kit'. As community awareness spreads and customary owners of fishing rights become more active in conserving their own resources, more practical protection for reefs may be achieved. Networks of marine managed areas may enable conservation of reef stocks, both for biodiversity and food security purposes, despite over-fishing and development which may continue along many coastlines.

### NGUNA-PELE MPA IN VANUATU: A VALUABLE CASE STUDY

The Nguna-Pele Marine Protected Area Network is a community-managed organisation on Nguna and Pele islands in central Vanuatu, where a blend of traditional and Western management provides a valuable case study for governments, NGOs and international agencies. The primary goal of the network is the collaborative implementation of a unified area-wide strategy for the use and management of marine and terrestrial resources. Ultimately, the MPA Network seeks to improve the food and livelihood security of local residents through sharing and adaptive learning. The Network originated in 2003 when 4 area paramount chiefs decided that if they worked together they had more power to negotiate with and request assistance from national government departments and resource management NGOs. The MPA Network was modeled after previously existing island-wide networks like the Nguna-Pele council of chiefs and the Nguna-Pele Presbyterian session. Since its establishment, 16 communities have officially joined the network. Each member village has a long-term management strategy and dedicated conservation committee which sends representatives to the Network for monthly meetings. There they discuss resource management issues and area development, sharing experiences from their own village and identifying areas for collaboration. A critical role of the Nguna-Pele MPA Network is the dissemination of information; after MPA meetings each month, village representatives return to their communities with the latest and most relevant information on natural resource management. This information is both traditional and western, and is provided by local fishers, national government extension agents, local NGOs as well as obtained from overseas research and academic organizations. Most member communities of the Nguna-Pele Network have implemented marine or terrestrial closures for resource management; interchangeably called 'Tabu', 'MPA', or 'conservation area'. The motivation to establish marine closures originated from a Fisheries Department extension program conducted by trochus specialists in the 1990s. Prior to that closures were typically enacted only in preparation for, or in response to, a ceremonial or community event. Currently the Nguna-Pele area has seen a shift towards closures designed by communities for long-term resource and stock management. Many communities on Nguna and Pele have established permanent closures over parts of their tenured sea area. Some communities, however, cannot realistically close an area permanently to harvest due to high resource dependence and limited alternative livelihood options. In these cases, communities have established closures that can be periodically harvested following social and cultural requirements. Periodic harvest events are carefully controlled and monitored by communities on Nguna and Pele to ensure that long-term use goals are met. In order to understand the effectiveness of permanent versus periodically harvested reserves, the Nguna-Pele MPA Network, in collaboration with researchers from James Cook University, undertook a comparative ecological assessment. They found that periodically harvested reserves had significantly higher target fish biomass than control fished areas. These results indicate that periodic harvest in small, community-based reserves in the Pacific may be an appropriate strategy for obtaining livelihood and food security, while also meeting conservation and long-term resource management goals (from Kalpat Tarip, Manager Nguna-Pele Marine Protected Area, [marineprotectedarea@hotmail.com](mailto:marineprotectedarea@hotmail.com) and Christopher Bartlett, [CYBartlett@gmail.com](mailto:CYBartlett@gmail.com)).



***This graph clearly shows the benefits of protection with higher target fish biomass inside permanent and periodically harvested village marine reserves, compared to two comparable areas open to fishing (means + standard error).***

## CONCLUSIONS AND RECOMMENDATIONS

It is clear from these studies that a continuation and increase in monitoring activity is needed to obtain a clear understanding of changes in the composition of coral reef communities and to assist on-going reef management. Monitoring over 6–10 years has shown recovery from a bleaching event, COTS predation, cyclones and storm damage; providing evidence of considerable reef resilience in this region. However, it will probably take 20–30 years of data collection to detect if any cyclical patterns exist, such as La Niña events. The value of monitoring regular sites in the South West Pacific Node has become apparent, but cannot be continued and/or expanded unless resources are secured and committed well into the future. In addition, there needs to be consistent and continuous collaboration between all stakeholders to ensure that effective monitoring data and information are provided to coral reef resource managers in this region.

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- Other material in this chapter has been drawn from draft National chapters being written by national coordinators.

### THE VALUE OF VOLUNTEER MONITORING: REEF CHECK AND OCEANSWATCH

Probably the most extensive monitoring program in the world is on the Great Barrier Reef but only 5% of the 2900 reefs can be monitored regularly. That is where Reef Check Australia comes in. Since 2001 they have increased scientific knowledge, and especially built community support in a cost-effective manner to support reef conservation. The Reef Check GBR Project surveys >30 dive sites using local scuba divers and also out in the Coral Sea at Osprey Reef. These reefs have remained relatively stable over 8 years, except for a significant algal bloom of *Chrysocestis fragilis* in the Cairns region in 2004 which subsequently died. COTS and *Drupella* sightings are currently low at most sites and only occasional coral bleaching and coral diseases have been seen since 2004. These data will be used to track resilience and possible climate change impacts. Reef Check Australia has developed a snorkelling program to assess grouper (coral trout) populations throughout the GBR, and the International EcoAction program has an ecotourism activity in partnership with the dive industry. Educational materials will be available online in 2009 to build stewardship for reef conservation with the younger generation. Reef Check Australia are developing an Enterprise Information System with flexible online data entry and reporting to permit sharing of raw data between scientific and management institutions.

OceansWatch harnesses the thousands of yachting and diving communities of the world to work in partnership on marine conservation and humanitarian projects in developing countries. OceansWatch has used Coral Watch and Reef Check protocols in Tonga, Vanuatu and Papua New Guinea and more projects in Asia-Pacific and Caribbean countries will be added in 2009. OceansWatch provides management and resources for projects identified by communities, scientists or other NGOs and the teams include a wide range of professional and technical skills. The Trustees organise appropriate teams and resources for projects with 2 yachts available and a fleet of purpose built catamarans being planned. Reef Check can provide training to cruising yacht crews that often travel to remote locations. Moreover they can also take scientists and volunteer divers willing to assist with in-depth surveys (from Jos Hill, Reef Check Australia, [jos@reefcheckaustralia.org](mailto:jos@reefcheckaustralia.org); Chris Bone, [chris@oceanswatch.org](mailto:chris@oceanswatch.org) or [www.oceanswatch.org](http://www.oceanswatch.org))