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Why is monitoring an important management tool?

The impacts of the Funafuti Conservation Area on local biodiversity and the community

Claudia Ludescher *Biodiversity Officer, Funafuti Conservation Area Project*



The Funafuti Conservation Area (FCA) encompasses six of the atoll's 36 islets and surrounding reefs, channels, lagoon and ocean terrace habitat on the western side of Funafuti atoll in Tuvalu.

This project aims to conserve the marine and terrestrial biodiversity of Funafuti atoll based on the sustainable use of natural resources for the benefit of the community and their descendants.

The area is around 33 square kilometres in size and includes 20 per cent of Funafuti's reefs and 40 per cent of the atoll's tropical broadleaf woodland. Locally significant populations of sea birds, coconut crabs, reef fish and clams use or inhabit this area. Although no people live inside the CA (15 kilometres over the lagoon from the main settlement), all the land is either individually or communally owned, and in the past was used for fishing, hunting crayfish, birds and coconut crabs and collecting leaves and wood.

Aim of the Funafuti Conservation Area Project

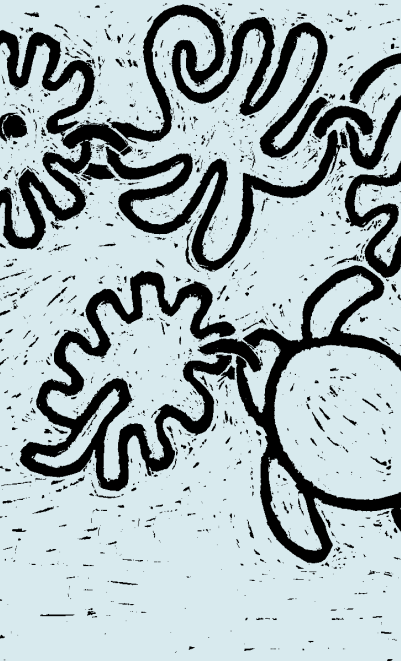
To conserve the marine and terrestrial biodiversity of Funafuti atoll based on the sustainable use of natural resources for the benefit of the community and their descendants.

Resource management tools currently used to address this aim are:

- 1 The closure of the Funafuti Conservation Area to all forms of fishing, hunting and collecting,

Conservation Officer teaching class 8 boys about the biodiversity of the CA





except for green and brown coconuts. The benefit of this method of fisheries management is to allow populations to reproduce and individuals to grow to a size (in the case of fish and crabs) where they produce an exponentially larger amount of eggs. This can result in a Conservation Area becoming a source of juvenile fish, crabs and birds for other parts of the atoll. As the area becomes crowded with fish (within five years), the adult fish will also migrate out onto the fishing ground (Russ and Alcalá 1996).

- 2 The establishment and implementation of education and awareness programmes to enhance understanding and care for the needs and benefits of natural resource management.
- 3 The establishment of a management body and by-laws for the management of the Conservation Area.

These tools will not be successful individually because:

- we cannot close a fishing and hunting ground without the understanding and support of the whole community;
- we cannot increase community understanding and support without research and monitoring results showing the conservation methods used are providing benefits to our natural resources and to the community; and
- we cannot make effective management decisions without information about the resources that we are trying to manage.

Therefore, monitoring becomes our fourth major management tool.

Aims of biodiversity and ecosystem monitoring in the FCA

- 1 To develop an understanding of patterns in the CA's physical environment and in the size,

distribution and changes in populations of important animals and plants found inside the CA.

- 2 To compare patterns inside the area with those occurring in unprotected parts of the atoll in order to identify any beneficial impacts the FCA is having.

To date, we have been monitoring our reef ecosystems and sea-bird populations.

Reef ecosystems

To answer the question of whether protection is helping to increase our fisheries resources, we have a robust scientific survey design and methods which compare abundance and diversity of indicator organisms at a number of impact sites (within CA) and control (outside CA) sites. Within these sites, we take samples in each habitat (lagoon, reef slope, reef top and ocean reef terrace) as different species prefer different habitats. We need to complete 7 replicate 30m x 10m transects for each of the following monitoring tasks: fish abundance and percent coral and algae cover. This is in order to account for the natural variability within the sites and habitats.



Survey team about to dive in the Conservation Area



Training in open water SCUBA Diving Certificate with Foua Toloa



...we repeated our survey design after 1.5 years. We were pleasantly surprised to see some very early signs of increasing populations of some fast-growing indicator organisms within the Conservation Area while populations of the same organisms outside the area declined or remained the same.

Then there is the identification and counting of the indicator species. There is a lot of work involved in learning to identify and count 76 species of indicator fish, 141 species of food fish, 149 mobile invertebrates such as crabs and sea cucumbers and 76 physical measures including corals, algae and sand/gravel/rock. That is why we need a well trained team to split up these tasks. Training or expert advice is also required for survey design and analysis of the data collected.

Using a GPS (geographic positioning system) to re-identify all our survey sites, we repeated our survey design after 1.5 years. We were pleasantly surprised to see some very early signs of increasing populations of some fast-growing indicator organisms within the Conservation Area while populations of the same organisms outside the area declined or remained the same.

Sea birds

Local information about sea birds shows us that numbers of breeding birds have drastically declined over the last 30 years with some species no longer breeding in the area. The ban on bird harvesting and disturbance within the CA aims to reverse this trend. Monitoring of our bird populations is necessary to determine whether this objective is being met. So far, we are doing approximate counts every two months to identify when the major breeding seasons for the different species are.

Dr Dick Watling from Environmental Consultants Fiji Ltd undertook the initial islet bird surveys and trained staff in identification and survey methods. A black noddy (*Iakia*) nest census (nests per tree and occupied trees versus unoccupied trees) was performed on three islets inside and three islets outside the CA at the time, and will be repeated at the same

time this year. Bi-monthly surveys entail approximating the numbers of the 15 sea bird species, five shore bird species and two land bird species to be found on the islets and documentation of nesting and roosting behaviour.

After long delays in obtaining information, together with time and staff constraints, we are now ready to begin monitoring the coconut crab populations as well. Vegetation and insect biodiversity surveys have also been completed but not yet analysed due to delays in identification.

Information from reef and bird surveys and counts of turtle sightings and nests is shared with the community via reports submitted, information seminars, radio programmes and the monthly newspaper update. Fact sheets on resource management concepts, life cycles and management needs of different species are also provided to the community. We hope that this information is assisting the community to understand and care for their Conservation Area and their atoll's natural resources.

The information gathered from regular monitoring is also used to assist the Conservation Area Coordinating Committee (CACC) to make management decisions that are based on the status of resource populations.

Aims of community surveying and awareness monitoring

- 1 To gather information about the community's use and perceived importance of natural resources on Funafuti atoll.
- 2 To monitor the impact of our education and awareness programmes on the community in order to use this information in planning ongoing and more relevant programmes in the future.

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We have adapted the pro-forma questionnaire provided by SPREP in our Project Preparation Document (Environment Unit, 1995) to develop a community survey/questionnaire that aims to give answers on the use and importance of natural resources and public awareness of the Conservation Area.

Our survey method included a sample of 100 households (approximately three per cent of the population) stratified according to the size of each community living on Funafuti. Some older people answered questionnaires in interviews, while other people answered questionnaires by themselves. Numeric results and answers to closed questions are being entered onto a computer using a STATISTICA package for statistical and graphical analysis and answers to open-ended questions will be analysed by tabular and visual comparison.

Information obtained regarding the use and importance of natural resources will be used in the development of our Conservation Area Management Plan and information regarding the success/failure of our education and awareness campaigns will be used to improve future programmes.

Conclusion

Why monitor? Because we-the community, the researchers and the managers-need to understand how our Conservation Area is working for the benefit of our biological diversity and for ensuring the sustainable use of our natural resources.

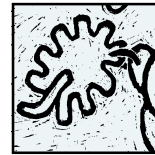
How do we monitor? We make sure we get advice from literature and experts in the relevant field to ensure that the monitoring methods used answer the questions being asked.

In the future, our monitoring programmes (some of which are just starting) will assist with the task of managing the biodiversity and ecosystems of our Conservation Area for the benefit of our community and our descendants.



Participants at the Conservation Enterprises and Income Generating Activities workshop

Profiting from natural resources



Business skills that let communities profit from their natural resources while still preserving them was the focus of a ten-day workshop held in Apia,

Samoa from 20 to 30 September. A total of 22 community members and conservation workers attended the workshop. They came from the 17 Conservation Areas that have been established in 12 Pacific island countries by SPREP's South Pacific Biodiversity Conservation Programme.

Organised by SPREP the eco-enterprises workshop, in collaboration with Samoa's Small Business Enterprise Centre placed a strong emphasis on practical exercises and field trips. "These will give trainees the skills they need to help communities and small operators understand the concepts and issues of conservation enterprises, and develop successful income-generating activities that are based on their natural resources," said Mr Martel, SPREP's Socio-economic Officer.

He said that while participants were a blend of community members, representatives of Conservation Area Coordinating Committees and Conservation Area Support Officers, they all shared a strong interest in setting up eco-enterprises that conserved a community's natural resources and at the same time benefited the community.

Participants spent four days in the field studying a range of eco-enterprises in Samoa, including a coconut oil production process that uses direct micro-expelling techniques to obtain the oil; a coffee and kava production operation; and eco-tourism enterprises based on Samoa's Taga blowholes, the Falealupo forest canopy walkway and the Saleaula women's project which offers tours of the lava field ruins on the island of Savai'i.

They then carefully analysed the strengths and weaknesses of each enterprise visited and developed a full project proposal for the Sa'anapu-Sataoa Conservation Area. Their conclusions were presented to the communities running the various enterprises.

The workshop looked at a series of case studies from participants' own conservation areas, developing detailed proposals and business plans. The plans were assessed by a specialist panel drawn from Samoa's business community.

Mr Martel said the workshop was part of a programme that aimed to make the region's Conservation Areas self-sufficient after the SPBCP support ends in 2001. "It is encouraging to see the extent of innovative ideas from participants, about ways they can develop business enterprises which have a low impact on the environment, benefit the community and use precious resources in a sustainable way," Mr Martel said.

Conservation area summaries 3rd quarter July–September 1999

News from the South Pacific Biodiversity Conservation Programme (SPBCP-supported) Conservation Areas (CAs).

Arnavon Marine CA (Solomon Islands)

The Arnavon Marine Conservation Area is comprised of a group of islands and surrounding reefs and waters. The CA lies in the Manning Straits of the Solomon Islands, midway between the islands of Santa Isabel and Choiseul. It supports a great diversity of marine resources, has a high diversity of terrestrial fauna and contains significant areas of unspoiled reef. The group of islands is also an important nesting site for the endangered Hawksbill turtle. The islands are uninhabited but the Arnavon Marine Conservation Area Project works closely with three communities (Kia, Posarae and Waghena) that have an interest in the area.

Public awareness of the CA has strengthened due to The Nature Conservancy's (TNC) (the project partner) recruitment of a Peace Corps volunteer who is responsible for education and awareness of the project. Awareness activities have been conducted in the communities, and the Peace Corps has run a training programme for the project's conservation officers, on public speaking techniques and production of visual aid material. A lot of work has also been carried out with women's groups in the communities to help them to better understand the concept of the Conservation Area and the long-term benefits involved.

A group of high school students from Choiseul Province made an educational field trip to the CA in August. The Conservation Officers gave

them a talk on conservation and the CA concept.

In September, members of the CA management committee attended a Biodiversity Conservation Network workshop in Suva. This workshop has motivated them to work harder and to dedicate and commit themselves to the development of their project.

One of the project's conservation officers attended the Conservation Enterprises and Income Generating Activities workshop held in Apia, Samoa, 20 to 30 September.

Takitumu CA (Cook Islands)

The Takitumu Conservation Area (TCA) is a 155-hectare inland forested area located on the south-eastern side of Rarotonga, the largest island in the Cook Islands. The three major landowning groups established the TCA in early 1996. The CA is the core breeding site of the endangered and unique local bird called the Kakerori. Other unique flora and fauna are also found.

The CASO, Ian Karika Wilmott gave presentations about the CA to Te Uki Ou and Avatea primary schools. Following the presentations the schools paid a visit to the TCA with the project's Conservation Officer, Mataiti Mataiti.

The TCA project and the World Wide Fund for Nature (WWF) jointly produced and broadcast ongoing conservation radio programmes.

The CASO assistant, Tungane George, prepared two articles, one on the project's "one stop environment shop" and the

other on the 1999 census of the Kakerori. They were published in the Cook Islands News on 9 and 16 October.

SPREP's Avifauna Officer, Greg Sherley, met with the CACC, lead agency (the Environment Service) and the Kakerori Recovery Programme's (KRP) technical people, Ed Saul and Hugh Robertson. The meeting discussed the future of the KRP.

The CASO and a CACC member, Tukurangi Hosking, participated in the Resource Management workshop held in Nadi, Fiji in July. In September, the CASO and another member of the CACC, Ben Tamariki, attended a workshop on Conservation Enterprises and Income Generating Activities held in Apia, Samoa.

The Conservation Officer did an invasive plant survey. Plans are underway to carry out further monitoring of invasive plants early next year.

The TCA's video entitled Enea Manea has been established on an Adventure Television Internet site. This can be viewed on www.adventuretv.com. Also, a new website has been established to promote the TCA. This can be viewed on www.ck/conservation.

The CASO assistant attended a SPREP-supported Media and Environment workshop held in Rarotonga from 13 to 17 September. The workshop was beneficial for her, as it has helped in producing environmental articles for the local media as well as the project's newsletter.

The Conservation Officer attended a Tour Guide Trainers workshop in Sigatoka, Fiji in August. He will be holding training courses for potential tour guides next year.

The Technical Adviser, Ed Saul, is training Mataiti to be well versed with all aspects of the Kakerori Recovery Programme. Training has included a population assessment, monitoring of nests and blood sampling of kakerori, and rat control.

One hundred and eighty-one (181) birds were counted in this year's annual kakerori census. This is an increase of 17 birds from last year's figure. Well done kakerori.

Koroyanitu CA (Fiji)

The Koroyanitu CA is located in the steep hills above Lautoka and Nadi in north-western Viti Levu. The Koroyanitu Range is the last remaining area of unlogged tropical montaine rainforest and cloud forest in western Viti Levu. It is the habitat of a large range of indigenous flora and fauna. The core CA is about 3000 hectares and consists of all land above 600 metres. There are six main villages located within the CA: Abaca, Navilawa, Nalotawa, Vakabuli, Nadele (Korobebe) and Yaloku.

It has been a while since we have heard from this project. Great to hear from Koroyanitu.

Unaisi Tawake was appointed the new CASO on 2 August following the resignation of Semi Lotawa in February.

Many of the CA project's activities were put on hold due

to the absence of a CASO. However, the Koroyanitu communities have received continuous support from New Zealand and Japanese funding organisations. The New Zealand Official Development Assistance (NZODA), through Tourism Resource Consultants (TRC), assisted the communities with ecotourism activities by developing and upgrading the Batilamu overnight trek from Navilawa to Abaca. The Japan National Committee for Pacific Economic Cooperation (JANPECC) funded a toilet and shower building at Abaca, which will ensure quality facilities for groups on day trips and overnight stays at Abaca. Over the past year Abaca Village has been working with Ronald Lucas from the Foundation for the Peoples of the South Pacific International (FSPPI), New Zealand accountant Matthew Abel and Cooperatives Department to develop a simple, accurate record and bookkeeping system.

The CA project has a new office, which is located at 3 Nede Steet, Lautoka town.

TRC and the Fiji Red Cross carried out a first aid training course in Abaca for park staff.

An SPBCP-funded botanical survey of the CA was carried out in September by a team led by Randy Thaman of USP. At the end of the survey, three Conservation Officers were taught how to do weed assessments and vegetation surveys.

The Mineral Resources Department has issued a prospecting license to MINCOR to prospect for gold in Navilawa part of the CA.

Utwa-Walung CA (Kosrae, Federated States of Micronesia)

*The Utwa-Walung CA is located on the south-western coastline of the island of Kosrae. It encompasses a number of different habitats and ecosystems between the villages of Utwa and Walung. The CA is the largest area in Kosrae that contains the least disturbed areas of estuarine, mangrove and upland forest habitats. The marine area is considered one of the most pristine on Kosrae. In the wetlands area there is a unique freshwater forest of ka trees (*Terminalia carolinensis*), which is the only remaining stand in the world.*

The CASO, Madison Nena, has been selected by Seacology Foundation for its Indigenous Conservation of the Year award. Congratulations Madison on being selected.

A newsletter in Kosraean was produced and distributed to the communities. The newsletter provides up-to-date information on the CA and creates awareness on other aspects of the environment.

Weekly radio programmes on the CA continue to be broadcasted.

An overseas film crew was recruited to make a promotional video for the CA. The video will be ready for distribution in December.

Construction of the Visitor's Centre is almost complete. (See news brief on this item).

A series of meetings was held with the key stakeholders of the Tafunsak community to review and evaluate the project, and to discuss a proposed plan to hold a Participatory Rural Appraisal

(PRA) workshop for the community in December.

B Ha'apai CA (Tonga)

The entire Ha'apai group constitutes the Ha'apai Conservation Area. The CA covers an ocean area of approximately 10,000 square kilometres. The 62 islands of Ha'apai range in size from less than 1 hectare to 46.6 square kilometres. The CA has an extensive system of coral reefs. The "biodiversity" of Ha'apai includes all terrestrial and marine ecosystems, all plant and animal species and varieties found in these ecosystems, and the knowledge, uses, beliefs and language that the people of Ha'apai have in relation to their ecosystems and species.

A consultant, Janet Bathgate is producing information panels and signs for the public and visitors to the CA.

Mr William Burge, a Peace Corps volunteer has joined the project.

The project manager, Netatua Prescott and the CASO, Sione Faka'osi attended the Community-based Resource Management Plan workshop from 19 to 30 July in Nadi, Fiji.

The project sponsored an essay competition for the St Joseph Community College during their English Week from 20 to 24 September. The essay topics focused on terrestrial and marine conservation in Ha'apai. The CASO participated in the prize giving and delivered the keynote address at the ceremony.

A representative from the project, Milika Paletu'a, attended a NZODA/SPREP Tour Guide Training workshop, from 15 to 20 August in Sigatoka, Fiji. Milika is involved in the tour-guiding training

programme conducted by the Tonga Tourism Project, funded by AusAID.

Funafuti CA (Tuvalu)

The Funafuti Conservation Area covers the western portion of the Funafuti atoll, Tuvalu. The total area of 33 square kilometres includes six small islets (motu) covering 8 hectares in total. The CA includes a representative sample of Tuvaluan biodiversity, both terrestrial and marine, and some of the most productive fishing grounds on Funafuti. The area contains the richest coral reef ecosystem found on Funafuti. The project's education and awareness campaign is aimed at the entire Funafuti community, as they are the resource users.

Great news for the Funafuti Conservation Area: The National Conservation Area Act was approved on its last reading and it is now in force. Congratulations Tu'É lu. In accordanp

with the new Act, the project has prepared a report to the Minister of Environment to request his approval to declare the Funafuti Conservation Area (FCA) a CA under this Act.

The CASO, Tataua Alefaio, and one of the Conservation Officers attended a Community-based Resource Management workshop in Nadi, Fiji in July.

A workshop was held with the CACC and members of the Kaupule on PLA (Participatory, Learning and Action). This was immediately followed by a discussion/consultation on the CA evaluation for their Transition Strategy.

The second Community Awareness Survey was carried out in the third quarter. The survey will measure the

effectiveness of their awareness programmes. Additional questions will be added to provide information to assist with their Resource Management Plan.

The project's popular radio programme continues to go to air every Thursday night, and their monthly environmental column in Tuvalu's only newspaper, Tuvalu Echo, continues.

The bi-monthly bird survey was carried out in August. This is part of a regular monitoring regime to determine population estimates of sea birds breeding within the CA.

The Biodiversity Officer, Claudia Ludescher, has prepared a turtle-monitoring plan for the CA and Funafuti as a whole. It will be used to monitor the number of turtles and the importance of different areas for turtle breeding and other activities.

The project manager attended the Conservation Enterprises and Income Generating Activities workshop for CAs supported by the South Pacific Biodiversity Conservation Programme (SPBCP) held in Apia, Samoa in September.

The project has received a lot of praise and encouragement from community members regarding the changes they have seen in the CA over the past three years. Public support for the CA has increased lately and this is illustrated by the reduction of reports on violating the CA rules.

SPBCP note: Keep up the good work.

Komarindi Catchment CA (Solomon Islands)

The Komarindi Catchment Conservation Area (KCCA) covers an approximate area of 19,300 hectares located in the central highlands of the western end of Guadalcanal Island, the largest in the Solomon Islands Group. The KCCA is the customary land of the Kakau and Lakuii Tribes of Guadalcanal. The tribes have formed the Veraboli, Kakabona, Konggulai and Kusumba communities, which the project works closely with. The area is representative of the high biodiversity that characterises the rainforest environment of the Solomon Islands.

The recent unrest on Guadalcanal has hampered progress on the project. It has prevented the CASO and the CACC from meeting to discuss and implement work plans.

The CASO, Nathaniel Lix da Wheya spent four weeks helping to review and evaluate the Arnavon and Vatthe Conservation Area projects.

The CASO attended the Conservation Enterprises and Income Generating Activities workshop held in Apia, Samoa in September.

Uafato CA (Samoa)

The Uafato CA is located on the north-east corner of Upolu along the rugged coastline region between Uafato and Tiavae. The project works with Uafato village. The coastal-forested CA is the only remaining area of its size in Samoa that is lightly inhabited, and is largely intact. The dramatic landscape of sharp peaks, rock walls, short steep-sided valleys and long knifed-edged ridges is unmatched elsewhere in Samoa. This coastal forest contains the

best of the very few surviving populations of Ifilele (Intsia bijuga), traditionally the most highly valued timber tree in Samoa.

Dion Ale resigned from the CASO position on 18 August. Mr Ioane Etuale replaced Dion and officially started work on 31 August. A new staff position was created for the Conservation Area Project (CAP), and filled from among the applicants for the CASO position. Mr Suiga Tuiavii was appointed as Conservation Officer on 13 September.

Dr Trevor Ward presented the results to the lead agency (O Le Siosiomanga Society Incorporated) of the test indicators to determine the success of the CA. Uafato is one of three CAs, Koroyanitu and Vatthe being the other two, chosen to collect field data to develop indicators to measure the success of the CA projects.

Vatthe CA (Vanuatu)

The forested Vatthe CA is located at Big Bay on the central north coast of the Island of Espiritu Santo. The area incorporates the lowland plain forests extending from the black sand beach of Big Bay, southwards to the top of a limestone escarpment and plateau to reach a height of 402 metres, some 4 kilometres from the sea. The CA is estimated to be about 3,470 hectares encompassing about 2,276 hectares of lowland forest and includes the village of Matantas.

Three awareness meetings on the SPBCP philosophy and the community-based approach to the project were held in this quarter. One meeting was held in Sara village and another in Matantas, the third one was with the CACC.

Nelson Timothy (landowner) attended a tourism management course organised by the Tourism Council of the South Pacific (TCSP) in Port Vila. Timothy was recently elected as the new CACC Chairman. Congratulations Timothy.

As part of its Transition Strategy, a review and evaluation of the CAP was done. Nathaniel Lix de Wheya, CASO from Komarindi CAP, Solomon Islands helped Charles Vatu, Vatthe's CASO with the review and evaluation.

The Lugainville Women's Centre conducted a one-week workshop for Matantas women. The workshop focused on the rights of women, family planning and violence against women. The Centre and Vatthe Lodge jointly funded it. The participants found the workshop to be extremely interesting. A follow-up workshop is now planned for early next year for the men.

The Department of Fisheries held a half-day awareness workshop in Matantas. The aim of the workshop was to help villagers to better understand the importance of conserving marine resources.

The CACC is gaining respect and recognition across all levels of the communities as the management body of the CAP.

The Vatthe Lodge is progressing well and the communities are experiencing direct benefits from the business. It was announced at a CACC meeting that 560,000 vatu were paid directly to the two communities from January to September 1999. Vatthe Lodge has been able to sustain its own operation since 1998 with a current bank asset of 600,000 vatu.

Vatthe Lodge management is continually improving under the leadership of Purity and Solomon. Community complaints about the management of the Lodge have reduced immensely. Community households take turns in small contract work with Vatthe Lodge.

The project coordinator, Russell Nari attended his last CACC meeting on 16 and 17 September. Russell leaves Vanuatu early next year for Australia to pursue postgraduate studies (see news brief). At his last CACC meeting, Russell mentioned that he was very impressed with the increase in progress and community participation in the project. Russell's last duty for the project is to assess a proposal by the government to establish a FREE TRADE ZONE in the Big Bay area under the Mondragon Project.

Ngaremeduu CA (Palau)

The community-based Ngaremeduu CA is located on the western coast of Palau's largest island, Babeldaob. The area is centred on Ngaremeduu Bay, but also incorporates a significant area of lagoon and reef including the very important Toachel Mlengui reef pass, as well as coastal mangroves and a large part of the bay's catchment area. The CA is located within the boundaries of three states, namely Aimeliik, Ngatpang, and Ngaremlengui. The following are some activities carried out in the first and second quarters of 1999.

The CASO, Alma Ridep-Morris attended the Ramsar COP7 Conference in Costa Rica on behalf of the Government of Palau as part of the wetlands initiative in Palau. The Ngaremeduu Conservation Area (NCA), being one of the biggest protected wetland areas in Palau, justified her presence at the meeting. Efforts are being made to make Ngardok Lake a Ramsar site of Palau. At the conference the CASO discussed the potential of Ngaremeduu CA becoming a Ramsar site.

An official draft of the NCA management plan has been compiled by the CASO as part of a requirement under the NCA legislation.

The Mangrove Crab project has commenced. Some transect plots were established in mangrove areas near the Ngarmeskang River. Similar transects are expected to be established in other areas of the NCA. The project aims to convey information about the habitats, population density, ecology, etc., of the mangrove crabs in the NCA. The project will also help communities in the NCA to better manage their areas to protect and conserve the crabs. It is hoped that the communities can eventually take over this project.

To stop poaching within the CA, the Conservation Area Patrol Officer of Ngatpang State conducted regular patrol and monitoring with the help from a Peace Corps volunteer of Ngatpang.

The CASO is seeking funding opportunities from other donors to assist them with their programmes. A proposal was submitted to the Urban and Community Forestry Council to support tree-planting and elderly-to-youth knowledge exchange programmes. Another proposal was submitted to the Environment Australia: Indigenous Protected Areas Funding seeking support for other activities that the project wishes to pursue.

The CASO attended the first Palau Automated Land and Resource Information System (PALARIS) workshop. The Bureau of Lands and Surveys hosted the workshop as a kick-start for the establishment of the Geographical Information System (GIS) network programme for Palau. The CASO was selected to be the contact person for the Bureau of Natural Resources and Development to coordinate the various divisions in preparation for the preliminary GIS needs and assessments programme.

Training in community-based natural resource management planning



A two-week training workshop for 24 conservation officers from 10 Pacific island countries in Micronesia and Polynesia was held in Nadi, Fiji, from 19 to 30 July. The participants worked with communities to help them manage their natural resources.



Participants consult with members of a Fijian village

The training focused on methods, tools and processes of information gathering and analysis needed when the owners of the resource and other stakeholders take a full part in putting together resource management plans.

All the participants are directly or indirectly involved in the management of conservation areas in a way that allows resources to be used, but in a sustainable manner so they are available for future generations.

Sam Sesega, the Resource Management Programme Officer with SPREP headed the team of facilitators and resource people involved in the workshop. Other members of the team consisted of Ms Suliana Siwatibau of Island Consulting and Mr Stephen Why of the Foundation for the Peoples of the South Pacific International (FSPI).

"Traditional resource management that revolves around the *ad hoc* imposition of taboos needs to be strengthened by adding to it the best attributes of modern resource management approaches based on good scientific knowledge of the resources," Mr Sesega said. "Furthermore, the formulation of management plans for community-owned resources should actively engage the communities. This will foster a collective sense of ownership of plans which is an essential element in gaining communities' commitment to implementation."

The workshop was part of SPREP's South Pacific Biodiversity Conservation Programme (SPBCP).

Naturewalks into the Takitumu Conservation Area (TCA)

Ian Karika Wilmott CASO, Takitumu Conservation Area

The natural resource we are currently using for income generating is the pristine state of the forest and uniqueness of the kakerori. The service is guiding tours into the CA for nature lovers and birdwatchers. We market this service as Nature-walks and Birdwatching tours.



The TCA conducts its tours in Titikaveka village on the south side of Rarotonga, the main island of the Cook Islands. Titikaveka is popular for tourist accommodation as the whole of this village sports white sandy beaches and a safe swimming lagoon. The TCA lies approximately 800 metres from the main coastal road and extends over 155 hectares (380 acres) of forested ridges and valleys. The area rises from about 50 metres above sea level to about 270 metres and clouds often cover points above 200 metres. It is typical of inland Rarotonga—steep, dramatic topography characterised by upstanding pinnacles of volcanic rock known as Tangaroa, and from certain vantage points there are spectacular views.

The project was established mainly to protect the endemic kakerori (Rarotonga flycatcher) along with many other unique plants and animals found there. This area is the core breeding site of this endangered land bird, and since 1989 the Kakerori Recovery Programme has brought the population back from 29 birds to the current 181.

The natural resource we are currently using for income generating is the pristine state of the forest and uniqueness of the kakerori. The service is guiding tours into the CA for nature lovers and birdwatchers. We market this service as Nature-walks and Birdwatching tours.

To find a means of earning an income without significantly altering the fauna and flora of the CA created a challenge for the CACC. Eco-tours were an obvious choice for the TCA as there is already a well-established tourism industry in the Cook Islands. There was also a demand for more tourist

activities to be developed locally.

Tourist numbers to the Cook Islands have remained around 50,000 for the last two to three years; an average of 1,000 per week. For the last 18 months the TCA has concentrated on conducting two tours per week with a maximum of 10 people per tour. To have more than 10 makes it hard for tour guides to communicate and impacts negatively on interpretation areas. There is the potential to increase numbers to 100 per week (5,000 per annum), 10 per cent of the total visitors to the islands.

Promotion and Marketing

Below are listed some of the marketing strategies that we are currently using to attract visitors to the CA. These figures are from the visitors' surveys from 26 March 1999 to 22 April 1999.

Marketing activities	No of visitors that had found out about the TCA tours through the marketing tools listed
Brochure	35
Signboard	3
Jason's map	5
Jason's book	4
Web page	1
Agencies	9
Word of mouth	2

Other marketing strategies include hoteliers' and agents' complimentary tours, a monthly radio show and TV sponsorship, newsletters and an advertisement in a British birdwatcher's magazine.

Further proposed marketing activities include:

- setting up a web page on a more accessible site;
- promoting birdwatching tours to TCA and other local islands;
- conducting complimentary tours for hotel receptionists more regularly;
- publishing an article in an alternative tourist newspaper; and
- publishing a TCA video on the internet.

The TCA endorses the idea of setting up a regional tourist network with other CAs. Marketing costs could be shared with those involved.

Competition

There are two other inland tour operators on Rarotonga, one of which conducts treks across



Locally carved TCA sign welcoming visitors to the area



the island and occasionally, gentle forest walks. The other uses 4WD vehicles. Both operations affect the TCA's tours as anyone wanting to see the interior of Rarotonga has a choice of the three. From our observations the 4WD operators seem to be getting the lion's share of the market.

The TCA seems to be at present a niche market for nature and bird enthusiasts and more aggressive marketing is necessary. There has been discussion among the members of the CACC of the possibility of also operating our own 4WD tours. A feasibility study will be conducted before a decision is made. There are still plans to enhance the TCA eco-tours by adding other attractions to the tour such as rare and native species of plants that are already in the CA.

Commissions of 15 per cent for one to nine passengers and 20 per cent for groups of 10 or more are given to agencies that sell our tours.

There are no legal requirements at present for the TCA to operate until turnover reaches NZ\$30,000 or more at which time Value Added Tax (VAT) will apply.

Social and community involvement

The following lists the breakdown costs of our Naturewalks tours.

Breakdown costs of Naturewalks	NZ\$
Gross income	35.00
Taxi service	5.00
Lunch	3.00
Purified water	0.50
Tour guide	4.00
Advertising	2.00
Agents commission 15%	5.25
Total Cost	19.75
Taxable income	15.25
Tax @ 20%	3.05
Net income per visitor	12.20

For 1,040 projected visitors per annum the total net income is NZ\$12,688

The TCA in formulating its Management Guidelines, set out the distribution of profits as follows:

Distribution of profits Projected figures based on 1040 visitors per annum

		NZ\$
Land rental	35%	4,440.80
Kakerori Recov. Prog.	20%	2,537.60
CA Development	20%	2,537.60
Administration	15%	1,903.20
Stock	10%	1,268.80
Total		12,688.00

The CACC will need to revise these distribution percentages to enable wages for an administrator, a conservation officer and casual workers.

Other income generating activities

At present the TCA has a small office close to the business centre of Rarotonga, which the project uses also as a "one stop environment shop" selling products such as T-shirts, posters, calendars, books, greeting cards, videos and cloth bags.

The TCA shop/office will be moving into larger premises on the main road in October 1999. This should increase visitors to the Environment Shop.

Sales figures for 1 Jan-17 May 1999

	Cost of items sold NZ\$	Costs of goods & services NZ\$
Apparel	375.00	252.00
Calendars	12.00	10.00
Eco-tours	5294.50	2156.00
Environ books	232.00	174.00
Posters and books	817.40	547.94
Greeting cards	20.00	11.00
CI Birds books	196.00	130.00
KRP donations	387.00	0.00
Laminating	9.00	9.00
Video	70.00	45.00
Total	7427.90	3334.94

Costs of items sold MINUS costs of goods and services = **4092.96**

Kakerori were abundant on Rarotonga until at least the mid-1800s, however, the arrival of ship rats (*Rattus rattus*) spelt doom to them, as it did for many birds that had evolved in the absence of mammalian predators on oceanic islands.

The endangered Kakerori



Conclusion

For the last 20 months the TCA has put a lot of effort into developing its eco-tourism venture. The study shows that there is more work needed to make the venture viable. Firstly, the product needs to be enhanced to make it an activity that more visitors to the Cook Islands would wish to experience. Secondly, there is still a lot more that can be done in the field of marketing. Figures show that there is a substantial market that can be tapped, but this may be

limited by the ability of the CA to handle the numbers required. Unfortunately we cannot determine this until we achieve the desired numbers. In our opinion, as we strive to reach a desired level or target, we have to continuously monitor the CA for any detrimental effects on its environment. An outside observer may be required to periodically monitor the CA, as our quest for the dollar may make us oblivious to the damage we are doing to our forests.

The Kakerori Story

Dr Hugh Robertson *Coordinator Kiwi Recovery Programme, NZ Department of Conservation*
First published in Wingspan, the membership magazine of Birds Australia



In 1989, the kakerori was amongst the 10 rarest birds in the world, with just 29 individuals surviving on the island of Rarotonga. Thanks to one of the most successful bird conservation programmes ever undertaken, numbers have rebounded and kakerori is no longer regarded as "critically endangered".

The kakerori, or Rarotonga flycatcher (*Pomarea dimidiata*), is a 22-gram forest bird endemic to Rarotonga in the Cook Islands. *Pomarea* flycatchers, closely related to the monarchs of tropical Queensland, are scattered through eastern Polynesia, and all five species are threatened with extinction. Kakerori start life bright orange, then at three years old they become mottled orange and grey, and from four years old they are grey.

Kakerori were abundant on Rarotonga until at least the mid-1800s, however, the arrival of ship rats (*Rattus rattus*) spelt doom to them, as it did for many birds that had evolved in the absence of mammalian predators on oceanic islands. A handful of birds were collected around 1900, but then kakerori were thought to have gone down the path of no return like the dodo and moa.

In 1973, a few birds were rediscovered in the rug-

ged foothills. In 1984, Rod Hay and Gerald McCormack colour-banded eight birds, and then Rod Hay and I counted 38 birds in September 1987. Nest observations over the next two years showed that an alarming 80 per cent of nests failed, mainly because of predation by ship rats, and a feral cat killed at least one adult kakerori.

By 1989, there were 29 birds left, including just 13 females. Unless something was urgently done, mathematical models gave a 50 per cent chance that they really would be extinct by 1998. Ed Saul joined the team in 1989, and we started an intensive experimental management programme. With funding from the Pacific Development and Conservation Fund; the South Pacific Regional Environment Programme (SPREP); and the Ornithological Society of New Zealand, we worked closely with the fledgling Cook Islands Conservation Service to control rats over an increasingly large part of the 155-hectare range of the birds.

The aim of the rat control programme is to reduce rat numbers before the first kakerori nests appear in mid-October, and then to keep rat numbers low until Christmas, when kakerori breeding is tailing off. Consequently, from late September to December, Talon WB50 (an anticoagulant rodenticide) baits are placed in bait stations (40 centimetre sections of plastic drainpipe) laid out along ridges and on twisting tracks following the contours within the valleys where most kakerori nest. A small team of (increasingly fit!!) conservation workers and volunteers replenish the baits weekly. Feral cats are killed incidentally when they eat poisoned rats. Where possible, nests are given extra protection from rats by nailing a band of aluminium around the tree trunk.

The success of the rat control programme is assessed by recording the decline of bait-take as the

weeks pass, the nesting success of kakerori and, ultimately, the number of yearlings and the total population at the annual census in August. This rollcall of birds is possible because two-thirds of them have been colour-banded.

In response to the programme, the kakerori population has grown six-fold, from the 29 birds in 1989 to a minimum of 180 birds in 1999. This has been due to increases in both nesting success (from 20 per cent to 67 per cent) and annual survival of adults (from 76 per cent to 93 per cent). kakerori are among the longest lived wild birds for their size; in September 1999, three of the eight birds colour-banded as adults in 1984 were at least 18 years 10 months old, and five others were at least 15 years 10 months old.

Since 1996, the management of the Kakerori Recovery Programme has passed from the Cook Islands Conservation Service to the three families who own the 155 hectares of forest occupied by the kakerori. These landowners are developing an eco-tourism business, and at the same time conserving the biodiversity of the area, as part of the South Pacific Biodiversity Conservation Programme implemented by SPREP. Anna Tiraa, a stalwart of the rat poisoning campaign and nest monitoring, was instrumental in establishing the Takitumu Conservation Area (TCA) Project, and Ed Saul has remained the backbone of the recovery programme as the technical advisor to the TCA.

The TCA hosts all five species of land bird native to Rarotonga, most of the sea birds (tropic birds, terns and noddies), numerous lizards, a flying fox colony, and many native plants, including several rare orchids and mistletoes. Tracks in one of the valleys cater for eco-tourists of varying levels of fitness, and an Interpretation Centre is nearly complete. Year-round, tourists are assured of seeing kakerori during their half-day guided tour for NZ\$35 (A\$30) per person (contact TCA at PO Box 3036, Rarotonga, Cook Islands; phone (00682) 29906, or email: kakerori@tca.co.ck).

The Kakerori Recovery Programme is now a model for other conservation work in the South Pacific region. The technologies developed during the Kakerori Recovery Programme are being applied elsewhere to try to conserve other birds, especially its critically endangered cousin, the Tahiti flycatcher (*Pomarea nigra*).

Efforts are being directed to determine the feasibility of shifting some kakerori to an island in the southern Cooks which is free of ship rats: this is simply an insurance policy, so that Rarotonga can be restocked if disaster (cyclone, fire, new predators or disease) strikes.

The kakerori has gone from an obscure forest bird to an emblem of Rarotonga that many local residents are proud of. The establishment of a successful eco-tourism business by the land-owning families shows that conservation and economic development can work hand in hand.

A visit to the Vatthe Conservation Area, Santo, Vanuatu

Joe Reti SPBCP Programme Manager



In August, the SPBCP programme manager, Joe Reti, represented SPREP at the second Global Strategy Meeting on the World Heritage Convention for the Pacific Islands held in Port Vila, Vanuatu. While there he took time out to visit the Vatthe Conservation Area. In an effort to be self-sustaining when SPBCP funding ceases, small-scale tourist accommodation (Vatthe Lodges) has been established within the Conservation Area. The following is an excerpt of Joe's travel report to the Vatthe Conservation Area (VCA).

Sunday

I travelled with Charles Vatu (CASO, VCA) and Nathaniel Lix DeWheya (CASO to Komarindi Conservation Area, Solomon Islands) to Vatthe for an interview with Max Herman of the Vanuatu Islands Bungalow Association (VIBA).

The VIBA establishes minimum standards for bungalows for overseas promotion. Vatthe Lodges is a member and therefore benefits from advertising by VIBA through published leaflets, promotional materials and trade fairs. A short article on Vatthe CA is in the Vanuatu Air in-flight magazine. A large sign advertising the CA is at the Lugainville airport on Santo, and Vatthe is now on the National Tourism

Office's web page. The VIBA can design a separate web page for Vatthe at no cost.

The association also conducts training courses and awareness-raising for its members. Vatthe has benefited from VIBA training in bookkeeping, tour guiding, project management and cooking.

Max believes that Vatthe, like many other small eco-tourism projects in Vanuatu faces some very difficult social and economic constraints including poor infrastructure (the access road was in a very poor state as a result of continuous rain) and lack of support from the community. To successfully promote the project, a number of things need to happen. They include:

...Vatthe, like many other small eco-tourism projects in Vanuatu faces some very difficult social and economic constraints including poor infrastructure (the access road was in a very poor state as a result of continuous rain) and lack of support from the community.



- raising the value of the project (road, facilities and current tours need to improve);
- finding specialised groups (nature lovers, birdwatchers etc.);
- training tour guides not only in the biological aspects but also in the cultural and historical aspects of the area;
- identifying cultural/spiritual sites within the CA (these will increase the value of the CA immensely and will attract people to the site); and
- reviving traditional stories (these should be part of the tours and should be told by local people who are familiar with such stories).

The VIBA is considering an attachment scheme where staff of small bungalow accommodation may be attached to another for a few weeks to learn from each other's experiences. There is also the possibility of staff from small bungalows like Vathe to be attached to a larger hotel in Vila or Lugainville to be trained by actually working in a more established enterprise.

Late in the afternoon, Charles and I took a walk through the CA. The forest has recovered very well from the cyclones. We saw a lot more bird life than I have ever seen in the CA in the past. Megapodes and white flying foxes, which were a rare sight in the past, were evident and we heard the call of the Pacific pigeon throughout the forest.

The walking tracks were well maintained, although directional signs need to be installed, especially since there are a lot more tracks now than in the past.

Monday

Discussions were held with Purity and Chief Solomon (her husband) who run the Lodge. Both have done an excellent job looking after the project and in providing the services required by tourists despite the constraints they constantly face. The quality of the food at the restaurant was good and all the tourists that we shared the meals with commented favourably on the cooking.

Purity is well placed to take over the CASO role from Charles Vatu although she would like to have

more time working with Charles, especially in the preparation of reports to SPREP. She also asked for some computer training so she could prepare these reports when required.

Charles also recognises that the time to hand over responsibility to the community is drawing close and he is committed to helping Purity as much as he can and to making sure that the necessary skills are passed on to her before he leaves. He is also committed to completing a management plan for Vathe.

The chiefs from Sara village came down to Matantas village on Monday morning to be interviewed by the two CASOs and to meet with Max and myself on the future of the project. Max reaffirmed VIBA's commitment to helping and I explained SPBCP plans for the next two years. The chiefs from the two villages expressed their appreciation for the support to the project and identified their priority needs for SPBCP funding as follows:

- 1 support for a wood carver to be trained in Port Vila;
- 2 more overseas promotion for the project;
- 3 another study tour by landowners to another CA; and
- 4 construction of larger water tanks for the bungalows.

A kava-drinking ceremony followed and the chiefs enjoyed the food and entertainment provided by the Lodge before leaving.

Tuesday

We left at about 7.30 a.m. with the two CASOs for a workshop at Sara village. This workshop was part of an evaluation process of the project that had started earlier in the week in Matantas.

Twenty-seven village people attended the workshop, a mixture of chiefs, young men, women and children. The Komarindi CASO facilitated the workshop and explained the reason for the evaluation that was underway. People went into small working groups to identify firstly what made the project work, what constraints prevented the achievement of certain objectives and what actions were needed to overcome these constraints. At the end of the workshop, the constraints by consensus were:

- lack of training in managing tourists and in project management;
- lack of funding; and
- poor infrastructure.

The chief of Sara (Chief Lus) again pledged his people's continuing support for the project and requested that SPREP continue to assist them whenever it could.

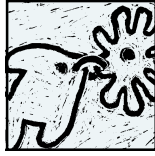
The workshop concluded at about 3.00 p.m. in time to return to Lugainville to catch my flight back to Port Vila.

CASOs Charles Vatu (nearest to the table) and Nathaniel Lix da Wheya about to have a meal at the Vathe Lodge restaurant



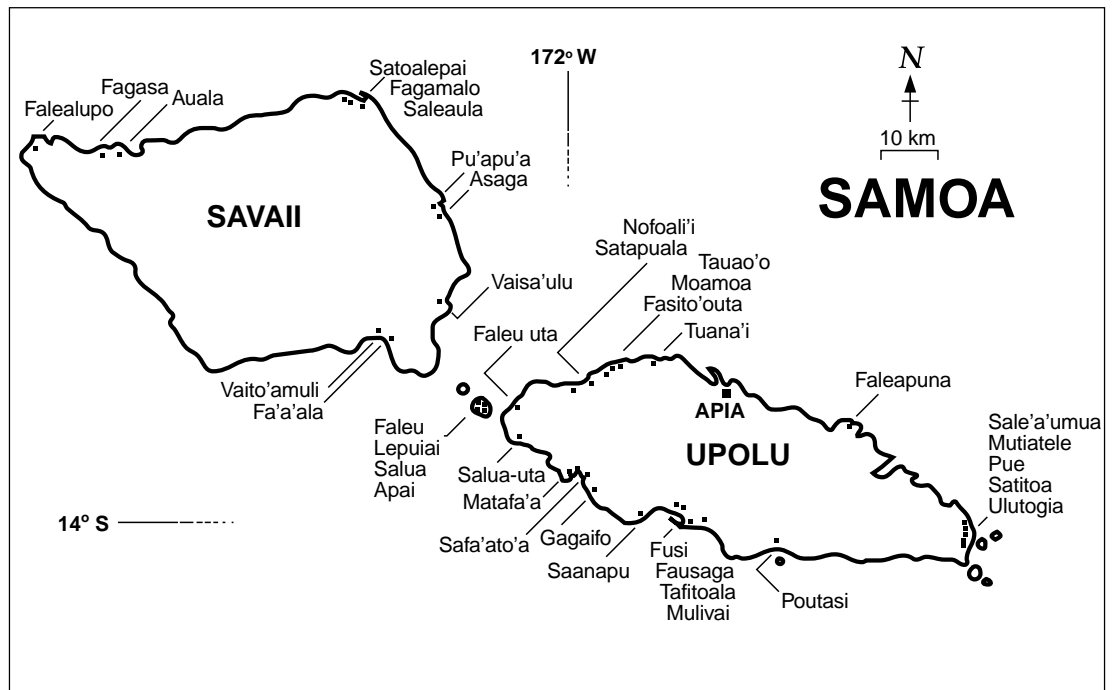
A network of small, community-owned Village Fish Reserves in Samoa

Jennifer Kallie Fisheries Extension Adviser, Fisheries Division, Apia, Samoa



The decline in inshore catches of fish and shellfish in Samoa, due to human activities, overexploitation, destructive fishing methods and the aftermath of two recent major cyclones, has greatly reduced the availability of marine protein resources, causing concern for the nutritional status of coastal village communities. Since government actions and national laws to protect fish stocks have not previously proven successful, a culturally appropriate extension process has been used to encourage and motivate village communities to manage their own marine resources.

A network of individual, highly protected Marine Protection Areas often with small separating distances, may maximise linking of larval sources and suitable settlement areas, and provide the means by which adjacent fishing areas are eventually replenished with marine species through reproduction and larval migration.



Extension programme

The staged induction of villages into the extension programme was initially facilitated by the AusAID Fisheries Extension and Training Project (FETP) and is currently supported by the AusAID Fisheries Project and the Fisheries Division (FD). The programme has been in operation from early 1996. Villages take an average of 11 weeks to develop management plans. This time span ensures that all groups in the community have ample opportunities to discuss implications and for ownership to evolve. Some village management plans have been in operation for over 36 months.

Management actions

Village management actions have included the banning of chemicals, explosives and plant-derived fish poisons (*ava niukini*), banning the smashing of corals (*fa'amo'a* and *tuiga*) to catch fish, enforcing national laws on fish size regulations, controlling the use of nets and underwater torches for fishing at night, collecting and removing crown-of-thorns starfish (*Acanthaster planci*), banning the removal of beach sand and the dumping of rubbish in lagoon

waters, and establishing fish reserves in parts of traditional fishing areas.

Reciprocally, to support community undertakings, the FD has undertaken to provide various forms of assistance and technical training. For example, to relieve inshore fishing pressure, villagers have been assisted to purchase small aluminium boats for outer reef slope fishing; tilapia (*Oreochromis niloticus*) have been introduced to villages having suitable natural lakes or ponds; and giant clams (*Tridacna derasa*) have been provided to restock lagoon fish reserves. In addition, regular demand-based technical training workshops in tilapia and clam aquaculture, fishing methods, gear technology, sea safety, fish handling and skills for small business management have been held. The Fisheries Division has also undertaken to review all management plans after approximately six months of operation and then at appropriate intervals, to verify sustainability.

Currently, 61 villages are managing their own inshore fisheries in Samoa. It is noteworthy that 56 out of the 61 villages have chosen to establish fish reserves ranging in size from 5,000 to 1,500,000

Results in Samoa confirm that regardless of legislation or enforcement, the responsible management of marine resources will be achieved only when fishing communities themselves see it as their responsibility.

square metres. These reserves, in which all fishing is banned, create the opportunity to establish a chain of fish refuges around the entire country. Such a network of individual, highly protected Marine Protection Areas often with small separating distances, may maximise linking of larval sources and suitable settlement areas, and provide the means by which adjacent fishing areas are eventually replenished with marine species through reproduction and larval migration.

A village establishing its own Village Fish Reserve must have either traditional, de facto or legal control over its adjacent waters to allow community management. In Samoa, villages have de facto control of adjacent fishing areas, and also have the ability to devise fisheries by-laws which, after government approval, become enforceable under national law. Fifty-three of the 61 villages in the programme have posted by-laws to support their fisheries regulation actions.

Benefits

Community-owned Fish Reserves may be discussed in terms of expected benefits to both villages and government. From a community viewpoint, the expectation is that, by declaring part of its fishing area as a Village Fish Reserve, fish catches in adjacent areas will eventually improve. Although government fisheries authorities may share this expectation, there are additional public benefits relating to management, compliance and sustainability.

As the Samoan Village Fish Reserves are being managed by communities with a direct interest in their success, compliance with bans on fishing is high and the usual enforcement costs associated with national reserves do not apply. Most villages with Village Fish Reserves have actively enforced their own rules, and have often applied severe penalties for infringements. People breaking village rules by fishing in reserves have had traditional fines of pigs or canned goods imposed on them by the village council. Community enthusiasm and commitment suggests that the prospects for continuity of the Village Fish Reserves are high.

Although there are biological production advantages of a Fish Reserve with a large area, in practice this has had to be balanced against the sociological disadvantages of banning fishing in a large proportion of a village's fishing area. As most village fishing areas in Samoa are relatively small, the declaration of a reserve in village waters usually denies some members of the community access to a relatively large part of their traditional fishing area. For example, although young men are still able to go fishing beyond the reef, women (who traditionally collect echinoderms and molluscs in subtidal areas) and the elderly are particularly disadvantaged in losing access to shallow-water fishing areas. Thus, while

some villages in Samoa initially elected to ban fishing in their entire lagoon area, extension staff were often obliged to curb over-enthusiasm, and to ask the community to reconsider the social effects of such large reserves. Moreover, larger Village Fish Reserves can also force members of that village to fish in the waters of neighbouring villages, thus increasing the potential for inter-village conflict.

In terms of total fisheries production, a small Fish Reserve is unlikely to be as effective as a large one. Larger reserves are more likely to provide suitable breeding areas for small inshore pelagic fish such as mullets and scads. However, small reserves are beneficial for non-migratory species and it is possible that the combined larval production from many small reserves may exceed that from a smaller number of large reserves. It is also possible that a chain of small reserves, with small distances separating them, maximises the chances of linking larval sources and suitable settlement areas. However, as the interconnections between sources and settlement areas are poorly understood, this remains a hypothesis, which is not easy to test.

Scientific Input

Scientific input has included providing advice on the placement of reserves, monitoring biological changes within the reserves, and collecting data on fish catches in adjacent areas. A side benefit of fisheries staff working closely with fishing communities is that the collection of scientific data on subsistence fisheries is greatly facilitated by community involvement. A large amount of information, and even estimates of sustainable yield by area, may be gained from such extensive surveys on subsistence fisheries.

Summary

In summary, Samoa has 56 established Village Fish Reserves, which are being managed by communities with a direct interest in their continuation and success. Although by social necessity many of the community-owned Fish Reserves are smaller than biologically optimal, their large number with small separating distances creates the opportunity to establish a network of fish refuges around the entire country. The Samoan model appears to be applicable to other countries in which fishing communities have some degree of control over their adjacent waters. Results in Samoa confirm that regardless of legislation or enforcement, the responsible management of marine resources will be achieved only when fishing communities themselves see it as their responsibility. If community actions include the declaration of Village Fish Reserves, there is the additional advantage that even small reserves may contribute to fisheries and biodiversity conservation.

Construction starts on Utwa–Walung Centre



Construction well under way on the Utwa–Walung Centre

Construction of this impressive building commenced in June and is expected to be finished in December. The CASO for the Utwa–Walung CA, Madison Nena said that the building is based on a traditional Kosraean house, and that the last time a building of this type was built to live in was over 100 years ago. There has recently been a revival of this type of building in Kosrae mainly for tourism-related activities. There are two other buildings on Kosrae built in this traditional style, the Kosrae Tourism Office and the Kosrae Village Resort's Innum Restaurant. So far, no name has been given to the building. It will house a shop to sell locally made handicraft, display and demonstrate locally prepared food and display educational information on the CA; and the project's office, which will also coordinate all eco-tourism activities into the CA.

The South Pacific Biodiversity Conservation Programme (SPBCP) provides support to Pacific island countries to develop and manage "Conservation Areas". A Conservation Area is an area of national or regional conservation significance that the local community has decided to manage for conservation and sustainable use. The programme currently supports 17 projects in 12 countries, ranging from Palau in the north to the Cook Islands in the east.

CALL is the newsletter of SPREP'S South Pacific Biodiversity Conservation Programme, based in Apia, Samoa.

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CA networking

The "boundaries" of the Takitumu Conservation Area, Rarotonga and Rock Islands CA, Palau were "extended" in August with the recent wedding of Tukurangi Hosking, a member of the Takitumu CACC and Charlene Mersai, CASO for Rock Islands. The pair had a double wedding ceremony, with the first being held in Rarotonga and another in Palau. The pair met while attending an SPBCP workshop. Members of the Rarotongan wedding party included Takitumu's CASO, Ian Karika Wilmott and Ngaremeddu's (Palau) CASO, Alma Ridep-Morris.

SPBCP special note: Our sincere congratulations and best wishes go to the pair.



Members of the wedding party L–R , Sally Hosking (mother of groom), Tukurangi Hosking, Ian Karika Wilmott, Alma Ridep-Morris and Tukurangi Hosking Snr (father of groom)

Overseas study for Project Coordinator of Vathe CA

Russell Nari, Project Coordinator of the Vathe CA has been awarded a scholarship to study for two years at the Australian National University in Canberra, Australia commencing in March 2000. He will do a Masters Degree in Environmental Science. Russell was instrumental in initiating the Vathe CA, and the project will certainly miss his input. We wish you all the best and good luck with your studies Russell.

Common Acronyms

CA	Conservation Area
CALL	Conservation Area Live Link
CACC	Conservation Area Coordinating Committee
CAP	Conservation Area Project
CASO	Conservation Area Support Officer
SPBCP	South Pacific Biodiversity Conservation Programme
SPREP	South Pacific Regional Environment Programme

From the Manager's Desk

Joe Reti *SPBCP Programme Manager*



Greetings to the traditional readers of CALL and to new partners who have recently joined us through the Pacific Conservation Area Network. I hope you continue to find the newsletter informative and entertaining. At some point, this column may need to be retitled "From the Editor's Desk" to further illustrate the fact that this is no longer just a newsletter for people and projects under the SPBCP. It would be really nice if there were a few more articles and news from non-SPBCP projects so as to achieve a better balance of news and articles in future issues.

On the SPBCP front, the key highlights for this quarter were two regional workshops, one on Community Resource Management and the other on Small Business Enterprise and Income Generation. The former involved CASOs, project managers and community representatives from CAs in Polynesia and Micronesia while the latter included managers of small business enterprises that are dependent on the CAs. Feedback from the participants suggests that the workshops were highly successful in achieving their objectives of increasing the capacity and skills of local communities to manage the resources of the CAs in a sustainable manner. Reports of these workshops will be distributed to members of the Network when completed.

In an earlier edition, I indicated that discussions are continuing with the University of the South Pacific (USP) and the International Center for Protected Landscapes (ICPL) with regards to the establishment of a Protected Area Training Programme at USP for protected area practitioners from the Pacific. These discussions were again held in September and if everything goes according to plan, we could see the first batch of trainees under the Programme at USP in the second semester of next year. I will of course, keep you posted of developments in this area.

Well, it is good to see that a number of CAs have already started to prepare for the end of the SPBCP era. Community consultations – an important part of the CA evaluation process – are underway for some of the projects, and for other CAs, transition strategies are being drafted with the view to have them adopted before the beginning of the next year. I was fortunate to be in Vathe when Nathaniel (CASO from Komarindi) and Charles were carrying out consultations with the Matantas and Sara villages. Seeing these two CASOs in action gave me enormous confidence in the ability of the family of CASOs to take conservation beyond SPBCP. It was great to see the confidence and commitment of these two people to the task at hand. The support from the communities themselves was very gratifying. **Malo** Charles and Nathaniel.

The next three months will be a busy time for us at SPBCP. Firstly, there is the Seventh Meeting of the Technical and Management Advisory Group (TMAG) to organise on 25 and 26 October. This will be followed by the Regional Training Workshop on

the Pacific Conservation Trust Fund (27 and 28 October), a development I am sure all of you are keeping a close watch on. The Sixth Multipartite Review of the SPBCP will be the climax of this week of meetings (on 29 October). The week 1– 5 November will be the Fourth Roundtable on the Action Strategy for Nature Conservation where Sam Sesega, Programme Officer (Resource Management) and I are expected to attend.

As we prepare for the end of SPBCP support to your CAs, I would like to once again urge you not to miss a great opportunity to integrate your CA work with the rest of the conservation efforts occurring in your countries. The preparation of National Biodiversity Strategic Action Plans (NBSAPs) provides an excellent opportunity for projects such as yours to be fully integrated with government and other conservation programmes in your countries. The Secretariat has helped draw the attention of the NBSAP coordinators from the Pacific to the wealth of experience and lessons available from the SPBCP and the CAPs. However, it is really up to you to ensure that projects such as yours are given appropriate consideration in the development and implementation of these national plans and strategies. If you wish to know the name of the NBSAP in your country, let us know and we will provide you with this information.

Remember the SPBCP award for the most progressive CA? Well, its getting close to decision time. Your reports for the third and fourth quarter of 1999 will be the basis for assessing progress for your individual projects this year, so make sure your final reports for 1999 are submitted as soon as possible early next year. I expect to announce the inaugural winner of the award in March 2000, so don't be disappointed by not sending us those reports.

Finally, if we are lucky, this issue will reach you before Christmas. However, I very much doubt that this will be the case. In any case, Merry Christmas and Happy New Year to all readers of this exciting newsletter. I hope our partnership, developed through the Pacific Conservation Area Network will gain greater strength and purpose in the new millennium and look forward to continuing working with you in the coming years.

Joe Reti,
Programme Manager, SPBCP

News flash

Warmest congratulations are in order to Ngaremeduu's CASO, Alma Ridep-Morris and Nathan Morris on the birth of their baby boy on 9 November. Their baby's name is Graig De Andre Olkeriil Ridep-Morris.