



# EBM KUBULAU BULLETIN



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Ni sa bula vinaka! Welcome to the special seventh edition of the WCS EBM Kubulau Bulletin. This edition of the bulletin focuses on the recent Kubulau Ecosystem Based Management Planning workshop. The bulletin brings together news and results from ongoing activities by the Wildlife Conservation Society within the Kubulau area.

## KUBULAU MANAGEMENT PLANNING WORKSHOP

From 24th to 27th February representatives from the ten villages within the Kubulau District and many Non Governmental Organisations (NGOs) and governmental departments gathered in Namalata village for a workshop.

The workshop was conducted by the Ecosystem Based Management (EBM) partners to help draft a holistic adaptive management plan that is: inclusive of all the existing management plans; reflects the connectivity between the habitats (land, freshwater and marine); and is based on the scientific findings of the EBM team (socioeconomic and biological).

“The last workshop was held in 2005. Since then the EBM team has had many findings, results of which are now ready to be presented back to communities to help the communities revise their management plan” says Thomas Tui the EBM project officer with Wildlife Conservation society (WCS).

During the workshop, participants were also informed of the legal procedures of the gazettal of marine and terrestrial protected areas. “I was impressed by the participants' strong commitment to sustainable management of their natural resources, and was pleased to be able to answer ques-



The participants of 2009 Kubulau Ecosystem Based Management Planning workshop which was held in Namalata village.

tions about legal tools for ecosystem-based management, including gazettal of marine and forest reserves” commented Pepe Clarke, lawyer and consultant for WCS.

“It is rewarding to see that the communities have been informed of the results of scientific work done in Kubulau especially since they have put in a lot of effort in ensuring that the workshop was organized to meet everyone’s expectations” said Paulo Kolikata, chairman of the Kubulau Resource Management Committee (KRMC).

As part of this process, a revised draft management plan including community action plans per habitat will be ready in a few months. This will then be presented to the communities for consultations and also to external stakeholder before the final revised EBM plan for Kubulau District is distributed to the communities.

The articles in this edition of the newsletter present a summary of the presentations done during this workshop.

### KEY EBM MESSAGES:

*Preservation of functional integrity of Fiji’s ecoscapes through community based management.*

- *Successful EBM relies on cross sectoral planning and management*
- *Inland and lowland communities need to manage resources together*
- *EBM protects habitat for all stages of life*
- *Improving land and fishing practices helps protect natural resources*
- *Public health and livelihoods depend on environmental health*

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## WHAT ARE THE POWERS AND DUTIES OF COMMUNITY FISH WARDENS?

The Permanent Secretary of the department of Fisheries can appoint fish wardens to enforce the fisheries act. Fish wardens have the power to:

- 1) Order a person to display their fishing license, gear or catch.
- 2) Board and search fishing vessel.
- 3) Take a suspected offender, the vessel, gear and catch to the nearest police station or port.

It is important to note that detaining a person or taking their property without legal authority may be a criminal offense.

Fisheries offences under the Fisheries Act and regulations include:

- Fishing for trade or business without a license.
- Breaching the conditions of the license.
- Fishing in a declared restricted area.
- Using a prohibited fishing method (e.g. dynamite, poison).
- Taking undersized fish, shell, or beche-de-mer.

- Taking protected species (such as turtles, davui).



The boat donated by PCDF in October 2008 will help Kubulau communities monitor it's MPAs.

## WHAT LEGAL APPROVALS ARE REQUIRED FOR LOGGING?

THE GOAL OF ECOSYSTEM-BASED MANAGEMENT IS TO MAINTAIN AN ECOSYSTEM IN A HEALTHY, PRODUCTIVE AND RESILIENT CONDITION SO THAT IT CAN PROVIDE THE SERVICES HUMANS WANT AND NEED.



Intact forests are needed for conserving terrestrial plants and animals, maintaining good water quality in rivers and streams, and helps coral reefing by preventing soil erosion.

If a non-resource owner wants to carry out commercial logging on native land, they must first obtain:

- A logging license issued by the Forestry Department, as required by the Forest Decree.
- A native land lease issued by the Native Land Trust Board, as required by the Native Land Trust Act.
- An environmental approval issued by the Department of Environment, as required by the Environment Management Act.

Any person who wants to cut timber or clear land must apply for a license from the Department of Forest. However, cutting timber for customary purposes, including houses and firewood for domestic use are permitted.

The license holders must comply with license condition and logging code of practice. Logging without a license or breaching the conditions set in the license is a serious offense and can lead to \$10, 000 fine or 2 years of prison term.

From January 1<sup>st</sup>, 2008 most development proposals require an Environment Impact Assessment (EIA) as set out in the Environmental Management Act (EMA).

The person (company) that proposes to do logging must carry out an EIA and consult with the public, including the native landowners.

After these processes have been met, the Department of Environment can approve the project, after which the license is issued.

During the logging period, the community monitors are encouraged to help monitor the area of logging to ensure that the logging code of practice is followed. If there is non-compliance then Department of Environment should be contacted for further action.

## WHAT IS THE ENVIRONMENTAL MANAGEMENT ACT

The Environmental Management Act (EMA) came into effect on 1 January, 2008. As a result of EMA, development proposals (roads, tourism, dredging, gravel extraction, logging and land clearing) now require an Environmental Impact Assessment (EIA). An EIA is not required for fishing activities, but it is required for other activities that can affect the marine environment ( e.g. removing corals, establishing a cannery). If an EIA is required then the person or company proposing the development must:

- submit an application for EIA approval,
- undertake an EIA study,
- consult with the public, including landowners,
- submit an EIA report to the government for approval.

The Department of Environment (DOE) can grant an EIA approval for activities and features such as: commercial logging; sawmills; tourist resorts; mines; dams; dredging; activities that could cause air or water pollution or coastal erosion, and

activities that could harm human lives. EIA approvals can be issued with term of conditions and breaking this term is a serious offense. DOE can issue stop notice for illegal development, the court can impose large penalties and make orders to stop work or remedy the environmental harm.

The EMA encourages public discussion of possible environmental effects before the government makes any decision on the proposal.

## THE PROPOSED KILAKA FOREST RESERVE

In the 2005 a management plan was drafted for the proposed Kilaka Forest Reserve. The area proposed to be set aside for forest reserve is owned by the Nadicake mataqali and is 2.064 acres in size.

This land is important because it protects the major water catchment area and contains some of the best remaining forests. Several endemic and rare plant species have been found in this area, which makes it a priority conservation site. In addition, many endemic insects are found along the 'Batiniqere range'. The Kilaka river has 53 out of the 68 species of fish found in Kubulau and 3 (out of 4) are endemic to Kubulau only.

The management rules outlined in the 2005 plan includes the following:

- No logging within the proposed Kilaka reserve.
- No unnecessary harvesting or clearing .

- Access into reserve to be authorized only by the Kubulau Resource Management Committee (KRMCM)
- No grazing of animals within the proposed reserve.
- Destructive gear is prohibited within the proposed reserve.
- No earthworks activities.
- Removal or capture of wildlife from within the proposed reserve is strictly prohibited.
- Hunting is banned.
- Burning near the proposed reserve boundary should be avoided.

The major threats identified in 2005 included logging and agriculture.

Most forest areas in Kubulau has been logged, and the threat of future logging is still high. Management actions taken now are critical to prevent loss of remaining forest reserves.



The location of proposed Kilaka forest Reserve.

An increased market for agricultural produce typically leads to an increase in commercial agriculture. Local plantations need to be contained so that they do not encroach on forest reserve boundaries. In addition, commercial-scale agriculture should be avoided to prevent excess run off of fertilizers and chemicals into Kubulau's waterways. Both excess nutrients and chemicals can damage freshwater and marine ecosystems.

In summary, it is important that future logging and agriculture are prevented in order to maintain the proposed Kilaka forest reserve. The Kilaka forest will help Kubulau District maintain it's healthy and well connected freshwater source to preserve good fisheries and healthy coral reefs.

## WHAT ARE MARINE RESERVES?

Marine reserves are fishing restricted areas as declared by the Minister of fisheries. A declaration can only be done with the majority consent from the communities. A marine reserve can be set up for any length of time (e.g. 5 years, 10 years, 15 years), after which the restriction can be lifted. The only current example of a marine reserve in Fiji is from Ono, Kadavu.

While marine reserve status is active, the resources are still owned by the communities, however, compliance of reserves rules may be monitored by the government.

Fishing in a restricted area without a permit is an offense. This rule applies to everyone, including the resource owners. However, a permit is not required to fish in a marine reserve using a handnet, wading net, spear or line and hook. Only the minister can change or remove the restricted area status.

Some advantage of marine reserves are:

- Public recognition of community conservation effort.
- Enforcement by fish wardens, licensing officers, and police.
- Potential for long term protection of important sites.

Remember during the restricted period, the conservation area is still owned by the resource owners.



Aerial photograph of Namena.

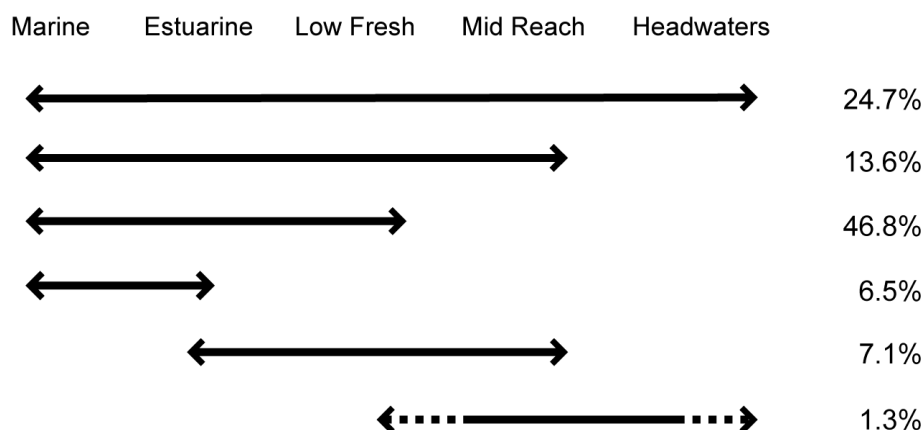
## FISH MOVEMENT BETWEEN FRESHWATER AND MARINE

Wetlands contain the one natural resource upon which all life depends: freshwater. The wetlands of Fiji can be divided into five main types; mangrove forests; peat bogs; rivers; lakes; and reservoirs. The value and importance of wetlands to our lives cannot be overstated. The continued lack of comprehensive river basin management increases the annual number of people who are at risk to flooding in Fiji, as clearly illustrated in the recent devastating floods this year.

Wetlands and groundwater resources are also closely linked, as groundwater provides drinking water for over half of the world's population. Wetlands act as water purifiers. They trap sediment, remove excess nitrogen and phosphorous from water, and even filter some diseases. Mangroves and coastal wetlands additionally provide critical nursery areas for marine fishes while stabilizing shorelines.

These river and stream wetlands are connected by more than water flow. They also provide corridors for the "flow" of living organisms that maintain the health

of a river system. Fijian wetlands, from freshwater to estuaries have approximately 164 species of fishes. Based on extensive field surveys and literature review we now understand that 98.7% of these fishes will interact with the sea either for feeding or breeding and almost all will move across 3 or more habitats during their lives. If there were no large waterfalls or manmade barriers then about 40% would move across all 5 habitat types, and about 28% will make this full migration from headwaters to the sea and all the way back. This highly migratory group of fishes are the embodiment of the living connections of river basins from headwaters to ocean and include; freshwater eels (Duna), worm eels (balolo), freshwater moray (dadarikai), some gobies (beli), and flagtails (ikadroka).



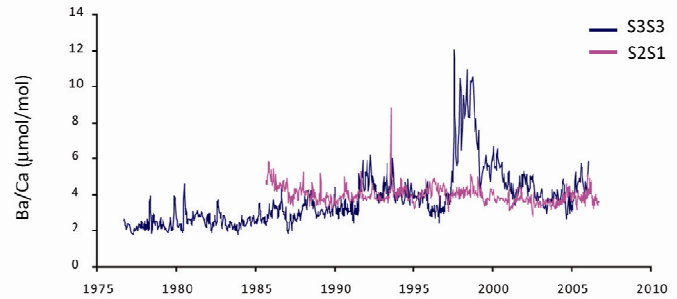
Percentage of Fijian freshwater and estuarine fishes that are connected across different wetland habitats during their life history.



## LONG-TERM CORAL RECORDS

Long-lived corals are living archives of changes to local marine water quality. Large, boulder corals store information about water quality by incorporating chemical elements directly from the water into their skeletons. One of these elements, called barium (abbreviated as “Ba”), is related to the amount of terrestrial sediment that runs off the land into nearshore waters. An increase in the amount of barium in the coral skeleton usually represents an increase in the amount of sediments running off the land into the sea.

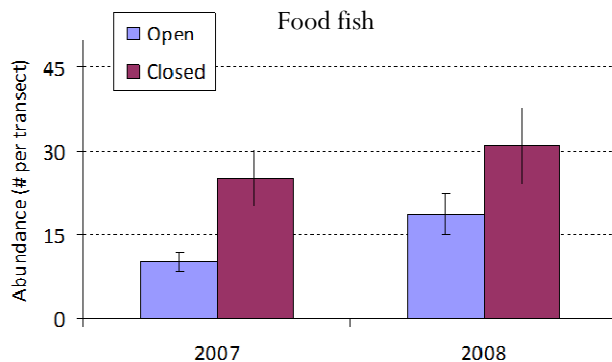
In 2007, long cores were drilled from two coral colonies within the Kubulau qoliqoli. One colony was located adjacent to the Namena Reserve, while the second coral was drilled from a colony west of the Nasue MPA and near the mouth of the Yanawai River. These corals were sliced open in order to analyse changes in the amount of barium within the skeleton during the period when the corals were living between 1977 and 2007.



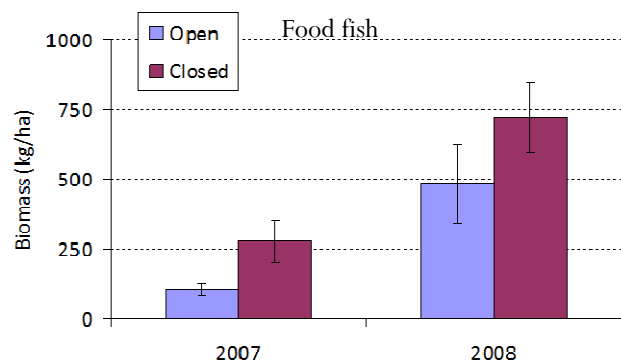
The coral core results for Nasue (S3S3) and Namena (S2S1).

The results of the analyses suggest that sediment delivery to near-shore waters near the Yanawai River mouth increases rapidly and remained high during the period between 1996-1998 when the Pacific Island Gold company re-opened the Mt. Kasi mine. The barium values from the Namena core remained constant and low during this period, suggesting mine runoff did not reach that far offshore.

## SUMMARY OF NAMENA SURVEYS



Number of food fish counted outside Namena (open area) and inside Namena (closed area).



Food fish biomass outside Namena (open area) and inside Namena (closed area).

According to 2007 and 2008 marine surveys, there was higher food fish abundance (number) and biomass (size) inside the Namena Marine Protected Area (MPA) than at adjacent sites outside of the MPA.

There was also an observed increase in total food fish number and size inside the MPA.

The results show a positive response to management: No-take MPAs protected for a long period of time can help increase fish number and size.

“This strong response is a combined result of long-term protection and high enforcement” explains Dr. Stacy Jupiter, WCS marine scientist.

The quality of marine life inside the Namena MPA is essential for attracting dive tourism which will bring finance to Kubulau district. Therefore, it is recommended that the no-take status of Namena MPA be maintained.

“An effective way to maintain this status is to gazette the Namena MPA as a marine reserve for a few years” adds Dr. Jupiter.

**EBM  
ACKNOWLEDGES  
INTER-  
CONNECTEDNESS  
AMONG SYSTEMS;  
BETWEEN AIR,  
LAND AND SEA.**

FIJI ECOSYSTEM BASED  
MANAGEMENT (EBM) = HEALTHY  
PEOPLE, PROCESSES AND SYSTEMS

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Community member discussing and marking  
tabu boundaries during the workshop.

## ONGOING AND UPCOMING EVENTS

- **Mar 09**-Kubulau Community biological and socioeconomic monitoring using FLMMA techniques.
- **Apr/May 09**-Kubulau marine biological monitoring.
- **Apr 09**-Kubulau Stakeholder meeting.
- **Mar/Apr 09**-Ongoing management plan development.
- **Mar 09**-Continued data collection of community monitors (CPUE, infringement, mangrove stakes, and leaf litter).

## SOCIOECONOMIC SUMMARY RESULTS

According to the socioeconomic surveys from 2005 and 2008, most respondents had observed an increase in all habitat and resource status and health (better forest, improved river habitat, more mangroves and seagrass, and plenty and bigger fish and invertebrates).

Since 2005, the communities have observed an increase in live coral abundance, fish abundance, fish size and fish diversity. However, community members continued to identify threats to their resources. Some of the perceived changes to threat levels between 2005 and 2008 were:

- Terrestrial: Increases in logging and clearing by burning;
- Freshwater: Increases in rubbish, sedimentation, and chemicals in runoff;
- Estuarine and mangrove: Increases in rubbish;
- Seagrass: Increases in sedimentation;
- Inshore: Increase in sedimentation, anchor damage, overfishing, poachers, destructive fishing gear and rubbish;
- Offshore: Increases in sedimentation, poachers, overfishing, and destructive fishing gear.

## ANY QUESTIONS...?

Please send your questions and letters to the EBM Bulletin Editorial Team, using the contact details above. The deadline for submissions to the next newsletter is Monday 5<sup>th</sup> May 2009. Please contact the Editor for further details.

### *TAQOMAKI NI NODA VEIKABULA*



The Wildlife Conservation Society (WCS) is a U.S. based international NGO, with conservation programs all around the world, including Fiji. Over the past century, the WCS has worked to establish more than 130 parks and protected areas on land and at sea as well as working on threatened species. WCS works to save wildlife and wild places by understanding and resolving the critical problems that threaten key species and large, wild ecosystems around the world.

Our "Ecosystem-based Management" work is funded by the David and Lucile Packard Foundation and the Gordon and Betty Moore Foundation, which started in 2004. It is led by WCS, with the partners of the World Wide Fund for Nature - Fiji, Wetlands International, and the University of the South Pacific. A second EBM site is at Macuata, to the north. This newsletter focuses on the work led by WCS at Kubulau.

