

Seagrass-Watch

news

Issue 25 • April 2006

In this 25th edition of the newsletter we are highlighting Seagrass-Watch's international links, including articles which feature the importance of seagrass to seahorses, dugong, turtles and fisheries.

This newsletter also contains reports from those groups who have started monitoring for the year or who have attended training workshops in Queensland and New South Wales. The start to the New Year however, has not been so great for some. In northern Australia, Tropical Cyclone Larry, category 5, hit the region from Mission Beach to Cairns on 20th March 2006. The region suffered significant damage, particularly the coastal townships. 30% of homes in the Mission Beach area were either destroyed or severely damaged. It is unknown what level of impact the cyclone had on the nearshore seagrass meadows. The next suitable tides to inspect the seagrass at Mission Beach are not until late April, when groups will be conducting Seagrass-Watch and RWQPP monitoring.

In other news, Seagrass-Watch is working with new groups in Australia, and the website has had a major overhaul. You can now easily navigate using an interactive map to view the status reports. Check out the latest news and the new gallery page. Also, if you have not registered with Seagrass-Watch HQ, please do so online.

Seagrass for Seahorses

Choo Chee Kuang Reports

SOS Malaysia is monitoring seagrass and using the Spotted Seahorse, *Hippocampus kuda*, as a flagship species to help conserve the Pulai River Estuary in Johor. SOS stands for "Save Our Seahorses", a non-profit organization comprised of young scientists, students, public volunteers and local fishing communities.



The Pulai River Estuary boasts the most extensive intertidal seagrass meadow in Malaysia and supports large tract of intact riverine mangroves and endangered species such as the seahorse, pipefish, dugong and sea turtles.

However, developments from the surrounding areas are closing in since the last decade and had resulted in habitat and species loss. SOS is fighting to conserve what still remains in the Pulai River Estuary through research and awareness raising activities.

Since September 2005, SOS volunteers deploy the standard Seagrass-Watch monitoring techniques to monitor the seagrass meadow. The seagrass meadow, located

between Malaysia and Singapore, is approximately 1.3 km in length. So far 10 seagrass species are found here with the predominant ones being *Enhalus acoroides* and *Halophila ovalis*. Apart from seagrass monitoring, they also conduct capture and release research on seahorses and pipefishes to estimate their population abundance, seagrass invertebrates census and community survey.

The data gathered will aid in the development of a long-term conservation



and management plan for the Pulai River Estuary. SOS is working closely with the government and developers to achieve this goal. For more information, please visit www.sosmalaysia.org

Left: SOS volunteers preparing to do their job - the seagrass meadow can only be reached by boat.

Right: Measuring a spotted seahorse, *Hippocampus kuda*, in the field before it is released back into the meadow.

Below: SOS volunteers use a drag net to collect spotted seahorses for population assessments.



Above: The wing shell or "siput gonggong" is the most sought-after invertebrate collected by local communities.



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India

Gulf of Mannar Marine Biosphere Reserve

K.R. Saravanan (Wildlife Institute of India) Reports

With the assistance of Seagrass-Watch, seagrass ecosystems of the Gulf of Mannar Marine Biosphere Reserve will be assessed and monitored.

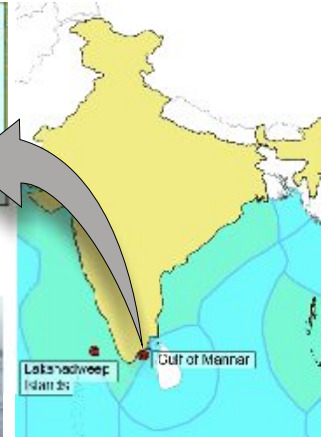
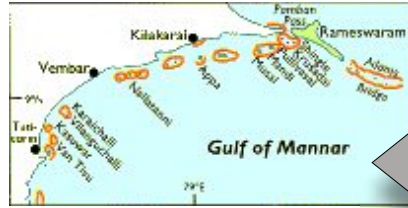
The Gulf of Mannar Marine Biosphere Reserve (GOMBR) was the first marine biosphere reserve in India and in southern Asia. The Reserve was one of six areas chosen on the basis of its threatened status and richness of biological wealth for inclusion into an action programme to save India's protected areas for future generations. It is located on the south eastern tip of India, in the state of Tamil Nadu. The GOMBR is an international priority site for many reasons: its biophysical and ecological uniqueness, economic, social, cultural, scientific importance, national and global significance.

The inhabitants are mainly Marakeyars, local people principally engaged in fisheries. More than 50,000 fisherman living on the coast of the Gulf of Mannar directly depend on the fisheries resources of the reserve for their livelihood.

The Biosphere reserve extends from Rameswaram Island to Tuticorin in a NE-SW direction to a distance of 140 km. There are 21 islands running almost parallel to the coastline of Gulf of Mannar with around 3,600 species of fauna and flora, which comprises of 3 different ecosystems - seagrass, mangrove and coral reef. The shallow waters in the area have the highest concentration of seagrass species along India's 7,500 km coastline. 11 species of seagrass recorded in India are found in the reserve. The island's surrounding shallow waters harbours 3 species of seagrass that are found nowhere else in India. These meadows support complex ecological communities and are of global significance as they are among the largest remaining feeding grounds for the globally endangered dugong, *Dugong dugon*, in India. Additionally, five species of marine turtles, innumerable fish, seahorse, molluscs and crustaceans also feed here.

Over harvesting of marine resources is one of the major threats to the ecological balance of the region. The introduction of large fishing operations has been a problem with inappropriate bottom trawling practices damaging seagrass meadows. Due to lack of awareness and poverty, the fisherman are also forced to indulge in destructive fishing practices such as dynamite fishing, using 'Taallumadi' and 'Rollermadi' kind of nets. The consistent failure of the monsoon has also encouraged many people from the mainland area to move into fishing activities, adding to the existing pressure on the marine resources of the area.

Further illegal destructive practices such as mangrove cutting, coral mining for cement industries and indiscriminate



collection of seagrass for industrial use collectively have had impacts on the sensitive marine ecosystem.

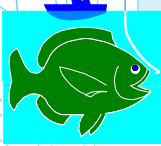
Pollution by industries is also having significant impacts. The major polluting sources include effluent from power stations and chemical works. The dumping of fly ash slurry into Karapad Bay has also resulted in filling up an extensive portion of the Bay. The ash, on being carried far into the sea, has also impacted on the sedimentary biota, algal beds, chank, corals and pearl oysters. Mangroves, which grow on the margin of the shoreline, have come to accommodate high levels of ash.

One of the major threats to the reserve is the Sethu Samudram Ship Canal Project on the coast of Tamil Nadu. It entails the dredging of a canal to enable faster sea travel between the east and west coasts to prevent ships having to sail 700 miles around Sri Lanka. The canal will require constant dredging to maintain a depth of about 10-14 m and aside from the immediate area of the sea bed, the consistent churning of sediment may also smother adjacent coral reefs and seagrass meadows. The increase in shipping traffic could also result in an increase in oil spills and marine pollution.



With these increasing and often competing pressures on resources in the Gulf, there is a need for government agencies, industry, community and local government to work together to develop a coordinated management plan. The provision of accurate assessment and monitoring of marine resources, including seagrass, is the foundation to developing a well-informed plan.

Without adequate management and enforcement, the seagrasses, dugongs, sea turtles and biodiversity of the Gulf of Mannar may be threatened, together with the livelihoods of thousands of traditional fisherfolk. 🌱



Seagrass meadows in the Gulf of Mannar in early 2006 with heavy epiphyte and macroalgal cover



Indian Ocean

Lakshadweep Islands

Seagrass-Watch is providing technical support for the assessment and monitoring of seagrass ecosystems of the Lakshadweep Islands.



Lakshadweep is an archipelago of 36 islands situated off the Kerala (west) coast of India. The group consists of 12 coral atolls, 3 reefs and 5 submerged banks. The tiniest Union Territory of India, the Lakshadweep (meaning "thousands islands") are 10 inhabited islands and 17 uninhabited islands with a total geographical area of 32 km², formerly known as the Laccadive. Lakshadweep is a geographical extension of the Maldives island chain. The local population on these islands numbers some 51 000, and fishing is an important activity, although largely focussed on offshore (non-reef) stocks.

Typically the atolls have shallow lagoons, averaging a depth of 3-5 meters, with islands mostly occurring on the eastern rims. The islands are characterised by major coral reefs around them, with sandy beaches and seagrass meadows in the lagoons, and coralline algal ridges and storm beaches towards the windward side. At least 70 species of corals and 7 species of seagrass have been reported from these atolls.

Seagrass meadows occur in long stretches along the shores and are confined to depth of up to 3 m. The total seagrass cover in the Lakshadweep regions was estimated to be 1.12 km² of which Minicoy (the southernmost island) has a maximum of 0.4 km², followed by Kavaratti (0.34 km²) and Agatti (0.19 km²). Seagrass flora of Lakshadweep is dominated by *Thalassia hemprichii* and *Cymodocea rotundata*. The seagrass meadows are mainly confined to lagoons towards the leeward side, and can include *Syringodium isoetifolium* and *Halophila ovalis*. Small patches of *Halodule uninervis* and *Halophila ovata* occasionally occur in the protected sandy regions of the lagoons and on the reef flats towards windward sides at Kavaratti and Agatti islands.

The major threats to seagrasses are erosion, siltation, construction, mechanised fishing, dredging for cargo transport and oil pollution. There has been sand mining in some lagoons which is likely to have impacted areas of reef. Tourism is a small but growing activity: access requires a permit and tourist numbers are currently below 1 000 per year. 🌱



Post tsunami workshop

A workshop "Post-Disaster Assessment and Monitoring of Coastal Ecosystems and Biological and Cultural Diversity in the Indian Ocean and Asian Waters" was held in Phuket, Thailand, 20-24 February 2006. Seagrass-Watch participants from Indonesia, Thailand and Seagrass-Watch HQ attended.



The workshop was a response to an urgent Call to Action in order to understand & mitigate the impact of natural disasters on coastal ecosystems of the Indian Ocean & Asian waters.

Organised by UNESCO-IOC/WESTPAC and the Department of Marine and Coastal Resources (DMCR) of the Ministry of Environment and Natural Resources of Thailand, the workshop was attended by 171 participants representing 30 coastal countries from 5 continents, and fringing the major seas of the world. Most of them border the Indian Ocean and Asian waters. 31 regional and international agencies were also represented.

The overall objective was to share lessons and experiences of post-tsunami human and ecological rehabilitation leading to better approaches to coastal management. The workshop included plenary presentations and focussed discussions. Audience & participants were mainly natural scientists & ecologists, fisheries experts, social scientists, anthropologists & culture experts, protected area managers, educators, development planners, tourism entrepreneurs, resort operators, concerned government officials, NGOs, & local communities, including cultural minorities.

In general, seagrass meadows appeared to have suffered relatively little impact from the tsunami. Mangrove ecosystems showed a high level of resilience due to their flexibility. Rapid surveys of coral reefs, carried out by some academic institutions, found that 2 to 10% of reefs were broken. Some reefs were covered by debris washed down from the shore/houses and by sediment. Some shorelines and land/sea scapes have changed or been damaged.

In the long term, the results of the workshop are envisioned to be an integral part of the hazard warning, preparedness & mitigation systems for the regions. 🌱



Above: tsunami warning tower on Patong Beach

Right: workshop delegates





Thailand



Naucrates

Monica Aureggi reports

In late 2005, Naucrates and Seagrass-Watch formed a partnership to assess and monitor the seagrasses surrounding Phra Thong Island, southern Thailand.

Naucrates, an Italian NGO, has been running a conservation project on sea turtles, mangrove forests and coral reefs at Phra Thong Island since 1996 in collaboration with the Phuket Marine Biological Center (PMBC) and the Ranong Coastal Resource Research Station (RCRRS).

Naucrates, from Greek language "who dominate the sea", operates in several countries and works with other worldwide organizations and institutions to find the best conservation strategies to save sea turtles and their habitats. Naucrates focuses on scientific research: collecting basic information to design conservation strategy and actions. Educational and conservation awareness activities involving local communities are also conducted in parallel with research.

Since 1996, they have been finding and protecting nests belonging to 3 different species of marine turtles: Leatherback, Olive Ridley and Green turtle. The greatest success of the programme has led to the elimination of egg poaching activities.

Unfortunately, on 26th December 2004 the project was completely washed away. The centers museum, volunteer huts, instruments, turtle tanks etc. were lost in the Andaman Sea. However, this material loss was nowhere near comparable to the loss of two members of the Naucrates team (Lisa Jones from the UK and Rebecca Clark from Canada) and four members of the Thai staff (Lung Pan (carpenter), Lung Lue (gardener), Ae (waitress), and young Duan (driver)) who were working at Kho Phra Thong when the tsunami wave hit the island. Since the devastation of the tsunami, the group has been working to rebuild the research centre and the local community.



The tsunami hit the beach at 10.15 in the morning. Photo By Emma Dilkes.

Naucrates normally conducts one mission each year, from May to September. However, Naucrates is currently conducting a second mission, from 4th January to the beginning of April 2006, in order to continue its conservation work. The second mission will focus on Post Tsunami evaluations, including:

- Conducting post tsunami evaluations of the status of marine turtle populations (nesting and foraging) and their habitats (including seagrass), including surveys and monitoring, with the support of the NOAA

Fisheries Service Office of International Affairs.

- Cleaning (debris caused by the tsunami), assessment and restoration of mangrove forests with support of North Andaman Tsunami Relief and Mangrove Action Project
- Assess the status of the coral reef at Ko Pring and monitor its recovery.
- Conduct community outreach and an Environmental Education Programme at Tapayoi school, providing lessons on conservation, basic English, and promoting awareness of the value and threats to coral reefs.

This study aims to collect preliminary data utilizing specific tools in order to be able to evaluate mid-long term changes in the ecosystems affected by the tsunami. The physical alteration or degradation of habitats such as mangroves, wetlands, seagrass meadows, beach forest, savannah, coral reefs, and tidal flats directly affects the quality of the marine environment and the health of marine living resources.

Most seagrasses in the area are intertidal, coming to the surface during low tide, in particular spring tide. It is likely that there are significant areas of subtidal seagrass. Naucrates plan to survey the seagrasses of the area and establish Seagrass-Watch long-term monitoring sites. The main reason for doing this is that it is a foraging area for juvenile sea turtles and dugong. Only a few animals remain, but it is probably the biggest seagrass area left in the region. Seagrass-Watch will help provide technical expertise on mapping and monitoring, including assisting with the analysis and interpretation of findings.

For more information, please visit www.naucrates.org.



AFTER TSUNAMI Turtle nesting beach Phra Thong island. Photo By Emma Dilkes.

Kho Phra Thong

Phra Thong Island, (about 100 km²) is situated in Phang Nga province, on the west coast of southern Thailand, about 200 km North of Phuket. It is part of a group of three islands near the mainland. The eastern coast of the island is covered by mangroves, while fine sand beaches (total length 15 km) occur on the western side.



Flora and fauna are still natural and rich in number of species. The island doesn't have electricity or roads. Tourist development is limited to three small resorts made with local materials.

The tsunami completely destroyed all the resorts and one of the three fishing villages of the island. International organizations and Thai Government are working towards the rebuilding of the local community livelihood.

Indonesia

Seagrass meadows in Indonesia - how important for fish?

Stuart Campbell (WCS) reports

The Wildlife Conservation Society (WCS) and marine park rangers from the Department of Forestry and Conservation have conducted assessments of seagrass ecosystems in Karimunjawa Marine National Park in Java, Indonesia over the past 3 years. The seagrass meadows were mapped in November 2003, and 9 sites representing different seagrass habitats have been chosen for monitoring within the park. In October 2005 monitoring of both seagrass and fish were conducted because local communities and park rangers wanted to know the importance of different seagrass meadows for fish, compared with adjacent coral reefs. The composition of reef fish species in different types of seagrass meadows (eg. *Enhalus acoroides* dominated vs *Thalassia hemprichii* dominated meadows), were more similar to each other than with the composition of reef fishes in coral reefs. Coral reefs had the highest diversity and numbers of reef fish, but seagrass and transitional areas (areas between seagrass and corals) were very important habitat for rabbitfish (food source), wrasses (reef grazers), damselfish and fast swimming, silver colored fish called majorras. The seagrass areas were also important nursery areas for parrotfish, cardinal fish and coral breams. Seagrass and fish monitoring will continue annually to assess the effectiveness of new protection zones declared inside the marine park. 🌱



Etwin Sabirini - WCS seagrass scientist checking out the *Enhalus acoroides* meadows on the west of Karimunjawa Island.

Operation Wallacea 2006

Operation Wallacea now includes Seagrass-Watch within its Sulawesi scientific conservation expeditions.

Operation Wallacea is a series of biological and social science expedition projects designed to underpin the achievement of specific wildlife conservation aims. The expeditions operate in 5 countries: Indonesia, Honduras, Egypt, Cuba and South Africa.

Operation Wallacea first started in Sulawesi (a part of Indonesia known as the Wallacea region) in 1995, the objective to utilise volunteer effort to help complete rapid assessments of large areas and identify those worthy of protection. This survey work resulted in the Wakatobi Marine National Park, the second largest marine protected area in Indonesia being gazetted in 1996 and the Lambusango forests also receiving protection. Since then the Sulawesi Expeditions have included marine research and monitoring component.



Three types of volunteers are accepted onto the programme: General Surveyors, Research Assistants and Dissertation/Thesis Volunteers. The General Surveyors are usually teams of High School students



accompanied by their science teachers who undergo a specific training course to complete a particular type of data collection. Research Assistant volunteers are undergraduate or graduate level and are able to select from a range of options available in each of the countries so they can help with the more complicated data collection exercises. Dissertation/Thesis Volunteers will spend most of their time on site gathering data for their Honours, Seniors or Masters level dissertation/theses.

Staffing for the projects is drawn from UK universities (eg Oxford, Cambridge, Durham, Imperial etc), European universities (eg Trinity College Dublin, Lyons etc), US universities (eg Boston, West Florida, NYU, Colorado State etc) and other academic institutions. In 2006 there will be a 100 strong team of biologists, environmental scientists, geographers, social scientists and anthropologists together with expedition photographers and artists, expert trackers and forest support teams, diving staff and extensive logistics teams to support the wide range of projects completed.

The marine component is based at the Hoga Marine Research Centre, in the centre of a triangle of reefs in eastern Indonesia which are the most biologically diverse reefs in the world. After first completing a brief course on Indo-Pacific Coral Reef Ecology, volunteers can select from a number of courses, including "Seagrass & sandflats ecology & exploitation", which assesses the productivity of reef flats and seagrass meadows. During this course students learn the biological and economic importance of reef flats and seagrass meadows, and help doctoral students with a detailed monitoring programme around Kaledupa island. During the 2005 season volunteers successfully mapped a section of the seagrass surrounding Hoga using the Seagrass-Watch protocols. Volunteers joining this project during 2006 will expand upon this, mapping areas surrounding the local center's of human population most at threat from overexploitation. This seagrass productivity project encompasses a diverse array of additional small projects that volunteers on this project may have the chance to join. Research for 2006 will include specific fishery orientated studies on the key fish species inhabiting these habitats; catch analysis of specific seagrass fisheries; and laboratory studies on photosynthetic productivity.

There are 4 expeditions in 2006, First expedition starts 28 June 2006 from Makassar and expeditions range from 2-8 weeks. For more information and prices visit their website <http://www.opwall.com/> 🌱



Philippines

Roxas, Palawan

A three day training workshop on seagrass resource assessment was held at Caramay Barangay Hall, Roxas, Palawan in early December, 2005. Ms Hildie Nacorda (Marine Science Institute, University of the Philippines) was the trainer.

The objectives of the workshop were to provide the participants with current knowledge on seagrasses, to acquaint them with present scientific and community-based initiatives for seagrass conservation, to conduct a field demonstration, and to provide the participants with basic approaches to analyze field data.

The first two objectives were addressed during the lecture on the first day, fieldwork and post-fieldwork data encoding were carried out on the second day, and then further data consolidation, analyses, and interpretation were discussed on the third day. Recommendations were also drawn from the field exercise and expectations for the next monitoring work were set.

On day 1 participants were given a lecture on seagrass importance, stresses, management concerns, world and local seagrass conservation initiatives, taxonomy, and methods of assessment and monitoring (following the protocol of Seagrass-Watch).

On day 2, the field component of the training was held in Brgy. Tinitian located ~14 km south of the training base and which has been identified as a potential ECAN core zone.

After anchoring the boats, a practice exercise on seagrass identification was first undertaken. Participants were split into 3 groups, and asked to find all species they could in the area and identify them. Species recognized by the groups were *Enhalus acoroides*, *Thalassia hemprichii*, *Halophila ovalis*, *Cymodocea rotundata*, *Cymodocea serrulata*, *Halodule uninervis*, *Halodule pinifolia*, and *Syringodium isoetifolium*. After which, an intertidal site was selected and each of the groups were assigned a transect which they then proceeded to monitor.



Participants of a subgroup making their own observations on their first quadrat sample.

Vegetative cover was good, overall, with seagrasses contributing over 50% on average (range 5 to 95%). Seaweeds, largely the green algae *Halimeda*, covered only 3% of the bottom, and epiphyte cover on the seagrass leaves was also negligible. *Thalassia hemprichii* dominated the meadow.

Flowering was observed for *E. acoroides* and a large number of invertebrates and fish were recorded across the site.



On day 3, back in the base, the subgroups submitted a copy of the completed datasheets to the trainer, which was checked for accuracy. Practical questions were thrown to some participants during the submissions. Thereafter, accomplished data sheets on the modules were countersigned.

Proceedings of the field activity were presented on the third day, where data from each subgroup were also consolidated onscreen, i.e., for everyone to see and subsequently react on. Ranges and means of all parameters obtained in the field were summarized. Rodel Arcaño presented this summary after a short introduction by Juliet Roa.

Apart from the planned activities for the monitoring in March/ April 2006, the following tasks are suggested for future inclusion:

1. Determine the perimeter (boundaries) of the meadow,
2. Determine water depth on the boundaries,
3. Create an updated map of the extent of the meadow (after completion of activities 1 and 2),
4. Assess the occurrence of other encountered species, including those not recorded within the observations quadrats, and
5. Determine the tidal profile in the area.

Overall the training exercise was a resounding success and the trainer has high opinion of the group, beginning with their enthusiastic preparations for the fieldwork, analytical perception of the monitoring activity, their unequivocal determination in accomplishing the tasks, and their group effort during data encoding and analyses. The group is now a core participant of Seagrass-Watch in Palawan. 🌱





Papua New Guinea

Kavieng (PNG)

John Aini (Ailan Awareness) reports

Seagrass-Watch in Kavieng has been off and on over the past year due to movement of teaching staff and trained people, although the sites (Lavongai LV1/LV2), Panamecho PO1, Bol BL1) are still known to people in these communities as seagrass monitoring sites. Our problems have been our ability to conduct follow up visits and maintaining dialogue with these communities.

One of Ailan Awareness tasks is the implementation of the community-based fisheries management program, and we see Seagrass-Watch integrating well within the program. Recently people from the west coast voiced interest in such monitoring programs and have specifically mentioned Seagrass-Watch. I have managed to establish 7 management areas and I am looking at linking Seagrass-Watch in with sea cucumber (bech-de-mer) monitoring. We are also planning to map seagrass in all 7 (the number will probably increase in the next two months) of the management areas. Hopefully we will not have issues with people moving/leaving, as these communities have appointed permanent fisheries management committees to oversee the management areas and take a lead in monitoring. Ailan Awareness would play the advisory role (e.g., maintain dialogue, do periodic visits and give some feed back to them), which will hopefully be ongoing.

In schools and communities, seagrass awareness is ongoing where we touch on various marine ecosystems and try to explain their importance, connectivity and the threats they may or will face. In all but one of these management areas there are schools and we may be able to encourage teachers and community fisheries management committees to come together with a shared vision of protecting these resources and the products they yield. 🌱

Seagrass-Watch and the Motupore Island, WCS Marine Training Course



Jane Wia (Research and Training Officer, Motupore Island Marine Biodiversity Unit)

In February 2006, the Wildlife Conservation Society (WCS) conducted its annual marine conservation and management training course at Motupore Island, Papua New Guinea (PNG). It was conducted with assistance from the David and Lucile Packard Foundation, the National Fisheries Authority's Coastal Fisheries Management and Development Program and the Motupore Island Research Centre (MIRC), School of Natural and Physical Sciences, University of Papua New Guinea (UPNG). Participants included UPNG students and representatives from various government departments and non government organisations.

The course coordinator was Michael Marnane (WCS) with specialist input from Chris Bartlett (WCS) Morgan Pratchett (JCU), Mark Baine (MIRC), Ursula Kaly (CFMDP), Thomas Maniwavie (MIRC), and Len McKenzie (DPI- QLD).

The month long course provided participants with practical training and knowledge on marine conservation and

management. Topics covered included: corals, reef fish, macro-invertebrates, mangroves, seagrasses and fisheries. Participants received instructions on (1) how to conduct surveys to monitor and assess these resources and (2) how to identify and manage any threats. Len McKenzie conducted the seagrass component of the course, within which the participants learned general seagrass ecology and were instructed on the monitoring and rapid assessment of seagrasses according to Seagrass-Watch protocols. A lasting legacy from this year's course was the establishment of permanent peg at Motupore Island to enable the continued quarterly monitoring of seagrass communities by MIRC personnel. A herbarium was also set up with specimens of seagrass species collected by the participants during the course.



Rhoda identifies the seagrass species from the reef flat of Motupore Island during the taxonomy lab session.

MIRC has also received 2 years of funding from the David and Lucile Packard Foundation to help build PNG's capabilities in marine biodiversity conservation and research. To this end, the Motupore Island Marine Biodiversity Unit (MIMBU) has been established and has the primary role of developing a marine biodiversity database for PNG. Collaboration with Seagrass-Watch will assist that process.



*Above: Aileen, Rhoda, Rongo, Selma, Susan & Freda at BT1
Left Susan estimates seagrass abundance
Below: Fidel, John I, John V, Chris, Robert & John A monitor transect 1.*



*Above: Students learn the background of Geographic Positioning Systems (GPS)
Right: Practising using a GPS in the field, before mapping the seagrasses around Motupore Island.*



With regard to seagrass research, Motupore Island is the site for some of the earliest studies on seagrass ecology conducted in the Indo-West Pacific and boasts a total of 10 species, three less than the reported total for the whole country. 🌱





Cawaci, Ovalau

Shaun Ashley reports

Upon embarking on our first Seagrass-Watch survey this year, changes in the two sites (CW1 and CW2) were immediately noticeable. The major change noted by the three observers was a significant increase of macro-algae over both sites. It is unclear what may have caused this increase, but we are sure it is related to sewage and urban runoff from the adjacent school and associated housing.

Other noticeable changes observed at the sites included the general absence of some seagrass species. It was evident that the seagrass species of *Halodule uninervis* (HU) and *Syringodium isoetifolium* (SI) were hardly seen growing in the two sites, compared to previous monitoring events. A large patch of *Halodule uninervis* (HU) was located growing 5 meters north west of quadrat 45 in CW1.



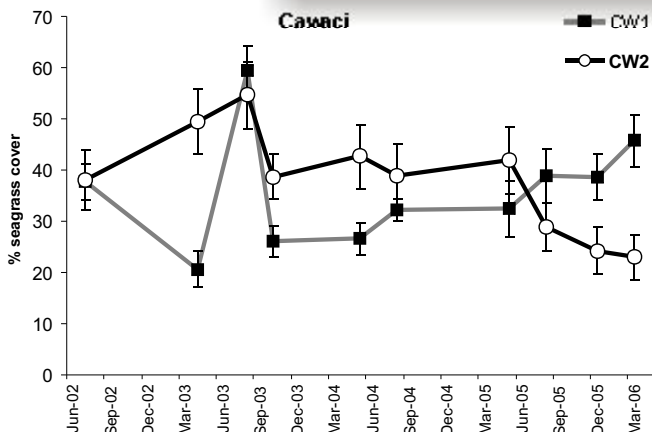
We feel these changes may be a consequence of the high macro-algal cover present in the site and the hotter than usual weather currently being experienced in Levuka over the past couple of months.

Through our participation in Seagrass-Watch, we are now more aware of our environment and more observant of possible threats. ♡



Ovalau Island and surrounding barrier reef. Levuka in the foreground and Cawaci at the top

L-R: Yuki (visiting Japanese student), Shaun and Charlene monitoring CW1.



Laje Rotuma Youth members receive Commonwealth Silver Award

Congratulations to the Laje Rotuma Youth Members, who on Mar 3, 2006 were presented with the 2005 Commonwealth Youth Silver Award.

The Commonwealth Youth Programme Silver Award, is in recognition of contributions made by young people to the development of their community. Projects submitted for the award had to be in existence for at least two years and were judged along certain criteria, some of which were the extent of the involvement of young people in the initiation and planning of projects. The originality and relevancy of the project, in meeting the needs of the community, gender equality and sustainability of the projects is also taken into consideration.



The winning project titled, "An Environmental Awareness Programme in Rotuma" is based on environmental education, awareness and conservation programme primarily targeting the youths living on the island.

It was developed to inform and strengthen the capacity of the island communities on natural resources management and conservation with particular emphasis in marine life. ♡



Seagrass Survey

In late 2004 and 2005, Alfred Ralifo conducted seagrass monitoring in the *Syringodium isoetifolium* in Motusa Bay, Rotuma. *S. isoetifolium* is the only species of seagrass found in Rotuma.



The results showed that the percentage seagrass cover has increased by 6% from 2004 to 2005, an indication that the seagrass meadow is relatively healthy. There was a reduction in the percentage epiphytic algae and other types of macroalgae in the seagrass meadow - a good sign of reduced nutrients.

Another good sign is that the mean number of animals found in the seagrass meadow has increased slightly from 2004 to 2005 and directly correlates to the increase in the seagrass cover. ♡

