

Seagrass-Watch

news

Issue 26 • July 2006

It was 7 years ago to the month, that Seagrass-Watch monitoring was initiated. Since then, we have seen the program expand from 2 to 14 regions in Queensland, to other Australian states, and to 14 countries globally. Currently 165 sites are monitored throughout the program.

The program still continues its success and this issue includes reports from many of the regions & countries currently participating in the program. Read about Noosa, the new monitoring region in Queensland, and the effects of Cyclone Larry on the seagrasses of Mission Beach. You can also read about the South China Seas project, the Hepu Demonstration site, and how Seagrass-Watch is working with Hideaway Resort on their environment program in Fiji. Catch up on what's happening at Roxas in Palawan, and Minicoy Lagoon, India.

The biggest news to the program recently is that CRC Reef (the programs longest supporter) will wind up in Sept 30 and a new Centre has been formed - Reef and Rainforest Research Centre implementing the Marine and Tropical Science Facility in North Queensland on behalf of the Australian Government. The first set of projects (*which include Seagrass-Watch*) was announced on 20 July 2006 by Minister for the Environment and Heritage, Senator the Hon Ian Campbell.

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Noosa River Seagrass- Watch

Tara Kingsbury Reports

Noosa River is located on the Sunshine Coast on the east coast of Australia, approximately 160km north of Brisbane, Queensland. The Noosa River system is highly sensitive to change, and is increasingly under threat with population growth, tourism, boating and other human activities. As seagrass abundance, health and distribution buffers and reacts to change, it is a powerful bio- indicator of river health. The Noosa Integrated Catchment Association (NICA) with funding from Noosa Council recognized the importance of the Seagrass- Watch program as a fundamental management tool, and has worked towards and supported the implementation of seagrass mapping and monitoring in the river. And so Noosa River Seagrass-Watch (NRSGW) was born.

Noosa River's outstanding natural attributes include high water quality, rich diversity of in-stream habitats and high levels of production of fish species. Large areas of land adjoining the headwaters of the river are protected in an undisturbed condition as national park, a key factor in maintaining the river's high natural values, it is also one of the few Queensland rivers which enjoys a year-round freshwater inflow. The Noosa River has been awarded an overall A- rating based on comparison with other river systems. Seagrass abundance and distribution is a key factor indicating a healthy river system (EHMP 2005).

An NRSGW Field Day was held on Sunday 26th March that attracted more than 50 community members and stakeholders, with 32 of these volunteering to monitor 10 selected sites. A total of 13 sites have been identified as desirable for monitoring. 2 of these with pedestrian access and in a central location have been selected for educational purposes, to be monitored by school and community groups. The potential for monitoring seagrass further upstream will be explored, as we have

received reports of seagrass meadows as far upstream as Lake Cootharaba.

Seagrass distribution throughout the Noosa River was found to have changed a lot since last mapped in 2002 (EPA 2005). The most notable change was found in Lake Doonella where the once dense seagrass meadows have disappeared. This is most likely due to a huge influx of Black Swans (*Cygnus atratus*) in 2003 when drought conditions elsewhere in the

region caused the locally migrating birds to descend on Noosa River, with the population on Lake Doonella swelling from 80 to 480 (MacNamara Pers. Comm. 2006). This also impacted on overall species diversity in the river as Lake Doonella's seagrass meadows were largely *Halophila ovalis*, a species

Continued over.....



Seagrass helping to stabilise the Noosa River bank for mangroves to establish



Our team of volunteers from Davo's Bait and Tackle Noosa, the bathyscope they lent us proved an important tool!



Noosa River Catchment - note lake system and protected area upstream that contributes to outstanding river health (EHMP 2006)



Queensland



Zostera capricorni is the dominant species in Noosa River. *Halophila ovalis* has been found in low density at one site so far.

that is now extremely rare in the river today with *Zostera capricorni* dominating.

The most popular Seagrass-Watch monitoring method (running three 50m transects-25m apart) was not possible in Noosa River, as meadows are often narrow patches running adjacent to the shore. So we used

two approaches recommended by Len McKenzie (Seagrass-Watch Program Leader) and Paul Finn (Local Coordinator SGW Moreton Bay). We use five 25m transects (perpendicular to shore), or where the meadows are very narrow, two points (A and B) were marked out defining a 50m transect with quadrats placed every 5m.

We faced several other issues during the first round of monitoring. Low visibility due to depth and turbidity of water (these parameters have been added to NRSGW datasheets) at the sites made estimates difficult, and photos near impossible, particularly during a very dark cloudy sand-fly ridden day. The depth of quicksand like sediment was also a problem, sucking volunteer's thigh high into the mud and increasing turbidity making it was impossible to see anything in the surrounding waters.

The use of kayaks and a bathyscope was awkward but more feasible than tramping through the meadows on foot. A catamaran sans sail brought along by a volunteer turned out to be

Right: Kayaks decrease disturbance to both seagrass and volunteers



Below: Setting up the transect can be a little hard in the Weyba Creek area off Noosa River



a user- friendly platform for seagrass watching.

NRSGW future adventures include; possibly acquiring and

fitting out a catamaran for minimum disturbance, volunteer friendly seagrass monitoring. Monthly Waterwatch monitoring of representative seagrass sites to start in July 2006 (by Noosa and District Waterwatch and NICA's Volunteer River Rangers), as well as placing temperature loggers (to be supplied by SGW Moreton Bay). This additional monitoring may give valuable data concerning water quality issues around our sites. We look forward to the next round of monitoring in September/October.

Thanks go to our volunteers: Simon Baltais and Paul Finn from SGW Moreton Bay; Noosa Integrated Catchment Association, (NICA); NICA Volunteer River Rangers; Micheal McNamara (Noosa Council River Ranger); Len McKenzie; Davo's Bait and Tackle; O-Boats; and Mandy Maggs (Noosa and District Waterwatch)

For further information please contact; Kristopher Boody (Program Coordinator) or Tara Kingsbury (Program Officer) at seagrass@noosariver.com.au or NICA office (07) 54 499 650. ♡

References:
EHMP (2005) Map of Noosa Catchment http://www.ehmp.org/ehmp/results_noosa.html
EPA Environmental Sciences Division (2005) Noosa Council (2004) The Noosa River Plan Noosa Council Strategic Planning Section. * All photographs taken and supplied by Tara Kingsbury

Aussie Kids Turning The Tide

Lauren Kirk reports



Hello we are a group of 15 year olds who have begun a project monitoring the seagrass off Quoin Island in the Gladstone Harbour.

Aussie Kids Turning The Tide is a way for kids of all ages to share their creative ideas about the environment and to learn about animals, plants, ecology, Native Wisdom and more.

Gladstone is a large industrial city on the central east coast of Australia. For many years now I have been interested in the environment and who and what we do in our homes ultimately effects the health of our waterways and the ocean.

In 2002 I traveled to Canada to participate in the United Nations International Children's Conference on the Environment. In 2004 I was invited to participate in this conference again but this time as a member of the Junior Board.

It is with this interest that I have managed my web log (blog) on encouraging children to make changes in what they do in their homes and to become active in the community with environmental projects.

Our environmental group meets monthly to discuss what we need to do next and different events that we participate in. Bonnie, Kate, Kevin, Tom and I are the core group.

Tom's family has a home on Quoin Island and recently he began talking about the death of two dugongs on Witt Island. As we needed a new project, it made sense to investigate the history of this island and the seagrass meadows that lie to the east and west of the island.

After contacting Len McKenzie he encouraged us to make contact with Dr Peter Stratford, the local Seagrass-Watch Coordinator for the Gladstone region, who helped us set up our first site.

The day began as a beautiful sunny day but ended cold, bleak and windy. On Sunday the 28th May we had a very low tide of 0.78 at 3.45 PM so we needed to work quickly to beat the tide and the setting sun.

We were excited to find seagrass and to our delight two turtles lying on the muddy flats. After having a wonderful day we started asking questions of the locals about what the island was like before the dredging of the harbour began. To our horror we were lent a photo of the seagrass meadow in the 1980's and our excitement at finding seagrass diminished quickly. We realize now that what we found is sparse compared to what it had been in the past.

So we will continue to monitor this site and hopefully our knowledge and understanding of the different surrounding habitats will grow enabling us to do more about the disappearance of our valuable marine resources.

If you would like to know more about our group, please visit our website www.aussiekidsturningthetide.com. ♡



Lauren & Tom with a juvenile Green Turtle



Peter Stratford trains Lauren in Seagrass-Watch methods

Queensland

Lugger Bay

In the last edition of the newsletter, it was mentioned that the monitoring sites at Lugger Bay (Mission Beach) had recently been exposed to a tropical cyclone, although the extent of any impact was unknown.



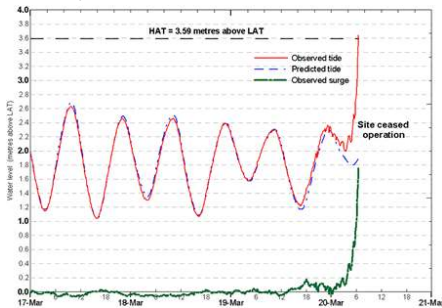
Severe Tropical Cyclone Larry crossed the tropical north Queensland coast near Innisfail (50km north of Mission Beach) during the morning of 20 March, 2006. TC Larry was the first severe tropical cyclone to cross the Queensland east coast since Rona in 1999.



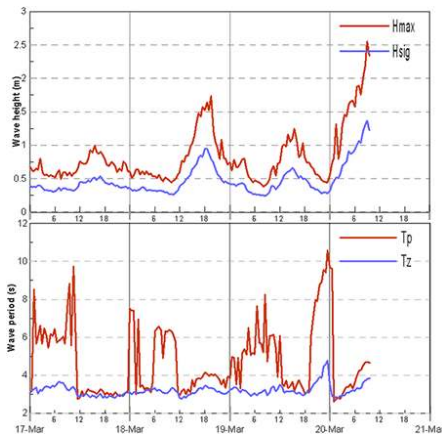
Image from MTSAT-1R satellite received and processed by Bureau of Meteorology courtesy of Japan Meteorological Agency.

Although TC Larry was quite small in size, it caused major damage to homes and other buildings, as well as extensive damage to local crops between Cairns in the north and Cardwell in the south. TC Larry crossed the coast on a neap tide, so the significant storm surge and effects of the waves only caused the sea level to exceed highest astronomical tide in a few locations. One of which was Mission Beach, with sea levels exceeding the predicted tide by 1.75m (at which point the instrument stopped recording prior to landfall).

One of which was Mission Beach, with sea levels exceeding the predicted tide by 1.75m (at which point the instrument stopped recording prior to landfall).



Plot of Clump Point actual tides against predicted

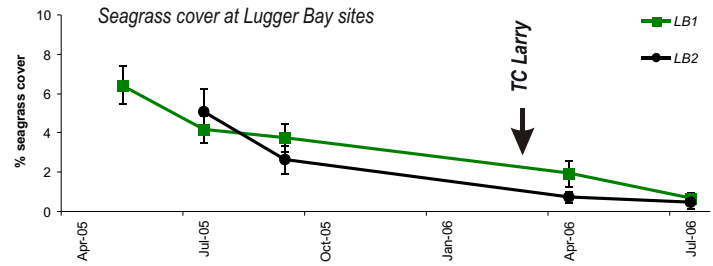


Waves heights for Cairns
(Hmax=maximum wave height,
Hsig=significant wave height (average height of waves which comprise 33% of waves in a given sample period)
Tp=peak period, Tz=zero-down crossing period)



The intertidal Seagrass-Watch sites at Lugger Bay have been examined on 2 occasions since the cyclone, and it appears that they were significantly impacted. Immediately following the cyclone in late April, the abundance and distribution of the meadow was significantly lower than previous. In July, although the tides were not the greatest for monitoring, the meadow shows no signs of recovery and abundance appears even lower.

However, the sites are on a naturally dynamic intertidal sand



bank, which is often exposed to regular periods of disturbance from wave action and consequent sediment movement.

It is difficult to say if the overall distribution has further decreased since April, because the sites were still partially covered with water in July. In fact, in July the last 10m of each transect were still covered with water, to a depth of 15cm in places. Observations relied on the tactile senses, as the water turbidity was more comparable to brown soup, with zero visibility.

It is unknown how long it may take the meadow to recover, as there is no seed bank (no seeds have ever been found on the site) and recovery will only be by vegetative reproduction. The next monitoring is in early September.

Napranum

Ron Baker (DPI&F) Reports

Three Rangers from the Nanum Wunghim Land and Sea Centre at Napranum joined DPI&F officers Louise Johns and Ron Baker in June 2006 to survey the Seagrass-Watch site at Munding on the shores of the Embley estuary. The Rangers, Anthony, Lionel and Morris, were very enthusiastic, so despite Ron's mix up with the tide times we were able to complete a full survey including seedbank sampling before the rising tide dampened our spirits. Epiphyte cover appeared to be quite high, and the patch of *Thalassia* which was previously outside the site had expanded and is now encroaching into the site from the south. There were quite a few dugong feeding trails between the shore and the site, which were not observed a month earlier. Although there wasn't much in the transects, the *Enhalus* in the site showed a lot of signs of burning.

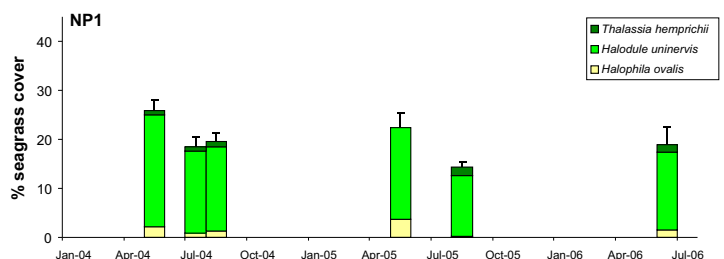
The DPI&F officers were visiting the Napranum and Weipa as part of an assessment of the fisheries resources of Albatross Bay which has been nominated as a potential Fish Habitat Area.



Ron and Anthony sampling the seed bank



The crew: Ron, Anthony, Lionel and Morris (Louise took the pic)



Townsville Region - Queensland

Shelley Beach

Shenade Muller reports

On Tuesday the 25th of April, I was lucky enough to again participate in Seagrass-Watch this time at a site at Shelley Beach (SB1). I expected a long walk to the sight but was very pleased when I found the walk was not half the length that I expected. At first because of the tide it was difficult to actually find pegs that marked the sight we were monitoring. But as the tide went out the pegs were eventually found. While most others in our group of Seagrass-Watchers were doing Seagrass-Watch, Catherine Walsh and I were collecting the reproductive samples, which we have been working with in the lab for the Reef Water Quality project. Once completed I helped with counting the seeds along each transect which was a fairly new thing for me as I had only once before counted seeds while doing Seagrass-Watch, which was few days previous at Bushland Beach.

After working for much of my Easter and Christmas holidays with DPI&F, I was surprised to find how much more interesting Seagrass-Watch was. Having worked with both the reproductive samples and nutrient samples in the lab, I found myself being able to easily identify not only the different species, but also identify the flowers and seeds of *Halodule uninervis*. For a job I once was not too keen on, I can now say that I find Seagrass-Watch much more interesting and appreciate what is being done much more thanks to my work with DPI&F. ♡

Naomi Smith (DPI&F) reports

SB2 was monitored on a sunny Friday afternoon in May 2006. The participants were a team from DPI&F, Jane Mellors, Ronald Baker, Posa Skelton, Iony Woolaghan, Sue Mulvany, Naomi Smith and new recruits Tav Bates and Flora Akwilapo. Flora is a senior Government official from Tanzania, who is currently in Townsville for six months under a United Nations fellowship program. Interestingly, Flora had already participated in Seagrass-Watch in her home country. It was great to hear that Seagrass-Watch is carried out in Tanzania and had a good support group there. We all made the long muddy trek out to the site and found that the meadow was made up of three dominant species *Halodule uninervis*, *Zostera capricorni* and *Halophila ovalis*. It was a great afternoon with all participants working efficiently, so that we were not racing the tide back in! ♡

Sue Mulvany (TTSW Local Coordinator) reports

It is the middle of Winter in Australia but conditions in Townsville for our July Seagrass-Watch at Shelley Beach were just superb. It was a great place to be on a Sunday afternoon, poking around a seagrass meadow with a balmy Southeast breeze, plenty of sunshine, and our brilliant views of the island and beaches of the Cape.

The team consisted of Jason, Michelle, Andrew, Barry, Linda, Lisa and Ken, Marilyn, Posa, Naomi, and moi. Shelley Beach has a good band of Seagrass-Watchers so that even with some stalwart members committed to the Riverfest and elsewhere we had a



comfortable number of experienced members to complete the survey. There is always a lot of coming and going however, so we need to continually add to our list of willing watchers.

Our first Seagrass-Watch without our mentor Jane Mellors, none-the-less there was plenty of experience within the group to ensure no hitches with data collection. Also, (don't tell Jane!!) we were able to do a little sneaky animal watching quite fearlessly. We did have some moments of excitement in Transect 3 with a pipe fish and a juvenile emperor (Jason's guess) in the one quadrat! A baby-crayfish in one of transect 2's quadrats caused much interest before being enthusiastically and skillfully shot with our digital camera. Not that seagrass isn't

exciting because our other huge excitement was a record-breaking, expletive making (to quote Posa) 82 HU seeds in one sample. Now that is amazing!!

Speaking of seagrass, only HU was observed except for one quadrat with 1 per cent HO. Percent cover was low across all transects, and no dugong trails were observed.

Next Seagrass-Watch for Shelley Beach is Saturday 7th October with low tide mid-afternoon so it should be another lovely day. Because people are always coming and going we can never have too many people in our bank of Seagrass-Watchers, so if you know someone who might be interested in coming along please encourage them. It is great always of course to have international visitors. (Hi to Lisa and Ken Clifton, and to Flora). ♡

Below: A tripod fish. Right: A baby lobster.



Larnie Linton (DPI&F Tropical Rock Lobster project) examined the photo and confirmed it is a very early juvenile lobster. It is just past puerulus stage as it has started to colour up (the puerulus stage is when they settle and they are usually clear with clubbed antenna- if you look closely at the end of his right antenna you can see it is clubbed, unfortunately the other is broken off). Although Larnie is not sure what species this one is, it is most likely *Panulirus ornatus*, but could also be *Panulirus homarus*. It probably only settled out in the last month.




Townsville Region - Queensland

Rowes Bay

Naomi Smith (DPI&F) reports

The week before the students from Belgian Gardens State School went out into the field to monitor Rowes Bay, Jane Mellors and Naomi Smith visited the Grade 6 class. Jane worked through the Seagrass-Watch procedures and informed the students on why we monitor the seagrass and the importance of seagrass meadows to the environment.



While at the school, the students showed Jane and Naomi their classroom fish aquarium which was absolutely fascinating. Out in the field the students led by class teacher, Mr Brett Murphy, were very well behaved and were confident in their seagrass species identification and percentages. The students were filled with enthusiasm and even a very muddy walk back to the beach couldn't dampen their spirits (if anything it added to their adventure).

Bushland Beach


Lux Foot reports

In April, fifteen keen "seagrassers" turned up for this month's outing. Because of a tropical low out to sea, the tide was higher than usual with some water over the meadow which gave some trouble because of the muddy water from the wet season.

July 22nd: Nine seagrassers turned up for the July monitoring. We also had Jane Mellors with 4 girls who were sampling seagrass seeds. They later joined up.

It was a very windy day which played havoc with the tapes, however we soon overcame that and were able to do the job. The wind did not alter the water level, which was good.

The blowouts are a lot larger this time no doubt caused by the strong winds of late. *Halodule uninervis* and *Halophila ovalis* are still the main grasses. There are patches of *Zostera capricorni*, some quite large in the area. It is interesting to see the site after 4 years. The site BB1 was placed on the edge of the banks, but now one walks through fields of grass to get to the site.

We ended the day with a BBQ, which will be a norm from now on.



Regional roundup

Naomi Smith (DPI&F) reports

Seagrass-Watch was riding a wave of publicity in the Townsville region over the last couple of months, with a number of public displays and activities.

National Volunteer Week Expo 14th May 2006

This was the first of Seagrass-Watch's exposure to the Townsville public for 2006. It was estimated that 300 people visited our display stall on Victoria Bridge. Our display included live seagrass plants, posters, seagrass and dugong information



brochures and colour-in handouts for the kids. Our display attracted the attention of the local radio station 4TTT which offered Seagrass-Watch the opportunity to go on air during their fishing segment to publicise the important work we

do for the conservation of the environment, in particular, the seagrass meadows and to advertise the next monitoring dates.

The stall was manned by Posa Skelton and Naomi Smith. A special thanks to Sue Mulvany for volunteering on Mother's Day to come in and promote Seagrass-Watch and for nagging (*oops nabbing*) quite a few volunteers.

North Queensland Field Days 17th & 18th May 2006

The Seagrass-Watch display was located in the Department of Primary Industries & Fisheries marquee. It was estimated that up to 8000 people visited the site over the two days. There was plenty of public interest, especially from school teachers, which allowed us to sign up several new volunteers.

The display was manned by Naomi Smith, Catherine Walsh and Carla Wegscheidl. Our display was also visited by the Minister for Primary Industries & Fisheries, Mr. Tim Mulherin.

Tile Making Workshop 23rd May 2006


As Seagrass-Watch is a regular participant at the Townsville EcoFiesta, it was approached by Fiona Banner from the North Queensland Potters Association Inc. to be part of a mosaic that will be showcased on a permanent building in Anderson Park at a later date. The centre design was based around the Seagrass-Watch logo with smaller tiles surrounding the centrepiece depicting different species of seagrass as well as marine animals.



Catherine Walsh, Iony Woolaghan, Posa Skelton and Naomi Smith had a fun afternoon making the tiles. Many thanks to Fiona for her patience and guidance with our novice attempts at tile decorating.

Eco Fiesta 4th June 2006

Seagrass-Watch had another successful public outing in Queens Gardens attracting attention from both the general public and the local daily newspaper the Townsville Bulletin. Our popular children's activities included badge making, colouring-in and building a meadow with cut-out seagrass shapes on which were written conservation messages. This outing attracted another handful of new volunteers eager to sign up.

Iony Woolaghan, Naomi Smith, Sue Mulvany, Posa Skelton and Catherine Walsh all worked on the stall at various times during the day. With positive public exposure and over twenty new volunteers showing interest in becoming Seagrass-Watchers the seagrass meadows in the Townsville region are swaying with delight.



Seagrass Ecosystem of Minicoy Lagoon, Lakshadweep

Prabhakaran M.P. (School of Marine Sciences, CUSAT) reports

Seagrass meadows are of considerable ecological importance in coastal and marine ecosystems where they play a significant role in the processes and resources of near shore coastal ecosystems. They are the most productive and dynamic elements of an aquatic ecosystem.

In the lagoons of Lakshadweep atolls, seven species of seagrasses were present. They include *Thalassia hemprichii*, *Syringodium isoetifolium*, *Cymodocea serrulata*, *Cymodocea rotundata*, *Halodule uninervis*, *Halophila ovalis* and *Enhalus acoroides*. This article provides basic information about the seagrass ecosystem of Minicoy lagoon.

Minicoy, the southern most island (8°17'N & 74°04'E) in the group, is located 215 n.miles southwest of Kochi, in the Arabian Sea. It has large lagoon with an area of 25 sq.km and an average depth of 4m. The seagrass vegetation in this lagoon is very rich and extends to an area of 2.2 sq.km.along the intertidal zone. The abundant species are *Thalassia hemprichii*, *Syringodium isoetifolium* and *Cymodocea serrulata* forming mats while *Halophila ovalis* and *Halodule uninervis* are present in small patches.

Based on the field survey, it was found that seagrasses are distributed along the length of the island in the intertidal zone of the lagoon, excluding the southern and northern ends and village area, which is at the middle part. There exists stratification in the distribution of seagrasses in the tidal zone. *Halodule* generally extends from the upper intertidal zone to the lower intertidal zone. Both *Thalassia* and *Cymodocea* are distributed through out the lower intertidal to the upper sub-tidal zones. *Syringodium* is restricted to the sub-tidal habitats. *Halophila* is present only in some areas of the lagoon in small patches.

The seagrass meadow of Minicoy lagoon has a rich and diverse association of flora and fauna. Floral component include seaweeds of Rhodphyceae, Phaeophyceae and Chlorophyceae. The abundant species are *Gracilaria edulis*, *Gelidiella acerosa*, *Acanthophora spicifera*, *Laurencia papillosa*, *L.obtusata*, *Janea capillaceae*, *Hypnea musciformis*, *H.valentiae*, *Turbianria ornata*, *Caulerpa peltata*, *C. racemosa*, *Halimeda gracilis*, *Enteromorpha compressa*, *Chaetomorpha linoides* and *C. area*. Other minor species present are *Cladophora* sp., *Cladophoropsis* sp., *Ulva lactuca* and *Boergersinia forbesii*.

The distribution and abundance of macro fauna are related to the density and biomass of *Thalassia hemprichii*. Sessile and creeping epifauna which live on the leaves of the seagrasses are mainly gastropods, which include, *Cypraea monita*, *C. tigris*, *Strombus* sp., *Melo* sp., *Drupa* sp., *Neriata* sp., *Pyrene* sp. and *Lambis*. Fauna attached to

the stems and rhizomes comprise sponges and coelenterates. Mobile faunal group mainly include crabs such as *Calappa* sp. and *Thalamita* sp. and fishes such as *Lethrinus mahsena*, *Gerres oblongus*, *Caranx sexfasciatus*, *Sphyrnaenia barracuda*, *Lutjanus kasmira*, *Upeneus* sp., *Albula vulpes* and *Spratelloides delicatulus*. Predatory fishes like sharks and rays are occasionally seen during high tides.

As a result of their shallow sub-tidal and intertidal existence seagrasses are subjected to many of the stresses imposed by man's use of coastal environment. Such activities include dumping of sewage, fishing activities and dredging and filling operations. Although not on a large scale, these human interferences are noticed on seagrass meadows of Minicoy lagoon. ♡

Gulf of Mannar Marine Biosphere Reserve

J.K. Patterson Edward (Suganthi Devadason Marine Research Institute) reports

We have started the seagrass assessment in Gulf of Mannar very recently and now we finished assessment a very small area in the Tuticorin coast (Southern part of Gulf of Mannar Reef Area).

In Gulf of Mannar, vast seagrass meadows are seen between Islands and mainland; patch meadows between islands; and vast meadows towards seaward side from the islands, but in depths over 6 m.

We do not have any specific programme/budget to assess the seagrass meadows, however I am doing the present assessment out of my interest using our very limited institute funds. Therefore, I have restricted the area of assessment as "3 km radius from the island"

We are following Saito and Atobe (1970) to estimate the percentage cover of the seagrass (Species/population) by using quadrats (50cm×50cm) divided into 25 squares (10 cm × 10 cm).

The proposed assessment of seagrass is being carried out around the 21 islands of Gulf of Mannar, at present about 3 km radius from the island. 100m transects is laid on the seagrass meadows and transects are separated from each other by a reasonable distance (50-100 m), and are parallel to each other and perpendicular to the shore. Samples are also taken at regular intervals (5m) along the transect. At least 4 replicate quadrats are laid at each sampling location. Seagrass biomass is being estimated using the method of Mellors (1991). ♡



Seagrass meadows at Krusadai Island (above) and Shingle Island (below)



Philippines

Roxas (Palawan)

Hildie Nacordam (Marine Science Institute, UP) reports

This year's phase of the Participatory Coastal Resource Assessment (PCRA) and Monitoring Training for seagrass, kicked off in late April. It was the second Seagrass-Watch monitoring event in Barangay Tinitian; one of seven seagrass core zone areas identified by WWF-Philippines in the municipality of Roxas

After trialing the Seagrass-Watch methodologies with the local participants last year, the group elected to slightly modify the standard methodologies, and replace visual estimates of species cover with shoots counts. The monitoring also includes mapping the perimeter of the meadow.

The training at Caramay Barangay Hall (Roxas) on April 24-26 included presentations (including a brief review of seagrass background knowledge), conducting monitoring and guiding the participants on the analysis, interpretation and presentation of field data.

On the first day, the lecture was spiced with a round-song titled Lusayán (tune: Three Blind Mice), which reminded the participants of the different seagrass genera found in the country:

*Ang baryaw, ang baryaw
Lusayan, lusayan
May EnHALus, ThaLAssia, HaLOphila
HaloDUle, SyRINGodium, RUppia
CymoDOcea AT ThalaSSO-dendron
Sa lusayan...*

After a short refresher quiz on seagrasses (taxonomy, world and local distribution, importance, sources of stress) and the Seagrass Watch program, participants were given presentations of the fieldwork in Tinitian last December 2005. By the afternoon, the participants regrouped, prepared all materials and practised the field methods.

On day two, the site was submerged in almost 1m of water on arrival in Tinitian and water movement was minimal. This differed from last year's exposure given the same time of day.

Volunteers located the site and proceeded with data gathering. Shoots of all species present were counted, i.e., in all 25 squares of the quadrat for *Enhalus acoroides* and *Halophila ovalis* and in 9 squares (30 x 30 cm) for the rest. Each subgroup also collected (at random) complete shoots of *T. hemprichii* for a demonstration of the age reconstruction technique (*sensu* Duarte *et al.*, 1994 - this is where the age of complete *T. hemprichii* modules is estimated by counting the nodes and the number of extant leaves).

The perimeter of the meadow was also mapped and a patch of *Thalassodendron ciliatum* was located just past the sandy edge of the meadow. This sighting represented the municipality's first record of *T. ciliatum*.

On the last day of the training, participants entered the data, computed the means of the variables (seagrass cover, canopy heights, densities) and presented their findings back to the group.



Top left: RArcaño, Kap JA Abonales and J Roa.
Left: Measuring the canopy height of *T. hemprichii*.
Above: Transect 3 finishes first!



The core group, in recognizing their continued participation in the Seagrass-Watch program, appears enthused by future seagrass-related activities of WWF-Philippines. Some have already begun to participate as volunteers during WWF's monitoring of the seven seagrass core zones in Green Island Bay. Overall, the trainer remains positive of the group's capability and agrees that other citizens may be locally trained for monitoring support.

Summary of field observations

Seagrass cover ranged from 40-95% (mean $78 \pm 3\%$) and cover for associated seaweeds was up to 5% (mean $2 \pm 0.4\%$). Epiphyte cover ranged from <5-40% (mean $20 \pm 2\%$). Overall, the seagrass cover was slightly higher than recorded in December 2005. Leaf blades also appeared moderately loaded with epiphytes compared with negligible values observed last year. This may be attributed to the accumulation of silt from rivers during the episodic heavy downpour in December 2005, immediately after the first Training Workshop.

The group identified five seagrass species within the quadrats: *E. acoroides*, *T. hemprichii*, *H. ovalis*, *C. rotundata*, and *H. uninervis* (including *H. pinifolia*). *S. isoetifolium* and *C. serrulata* were found in patches outside the quadrats. Mixes of 4 to 5 seagrass species were typical and these were dominated by *T. hemprichii*. The canopy of *T. hemprichii* was taller by ~ 2 cm than in December 2005, and reached an average height of 10 cm (± 0.3). Associated seaweeds, often recorded in Transect 3, were represented by the green algae *Halimeda* and *Acetabularia*, red algae *Laurencia*, and by brown counterparts *Padina*, *Gracilaria*, *Sargassum* and *Turbinaria*.

The present meadow boundary indicates a slight decrease in the size of the meadow relative to the area mapped by WWF-Philippines in 2005. From the reconstruction age of *T. hemprichii* exercise, shoots were mostly recent (mean 12 months ± 1 ; modal age 12 months) and the oldest shoots were only about 40 months years old. ♡



J. Amer Abonales practices framing the quadrat in the viewfinder while B. Baddari looks on



Examining the *Thalassodendron ciliatum* patch



Members of the Seagrass Watch RX core group: front row, seated, L-R: B. Sheila Albasin (WWF-Philippines PHE Project Leader), Marco Dimanalata (Tinitian), Kag. Dindo Remoto (Brgy. 1), Rodolfo 'Pong' Cayaon Jr (WWF-Philippines); middle row, standing, L-R: Kagawad Alfredo Cacatian (Caramay) (with red cap), Juliet Roa (MENRO-Roxas), Rodel Arcaño (Brgy 2), Miguel Heredero (MPDO-Roxas), Danilo Namuco (Jolo), Hildie Maria Nacorda (Trainer, UPMSI); back row, standing, LR: Kag. Sany Gabua (San Miguel), Kap. J.Amer Abonales (Brgy. 6), Barahim Baddari (Brgy 6), Albert Ladica (MAORoxas) (with grey cap).



Hepu & the South China Sea Project

Prof Xiaoping Huang (South China Sea Institute of Oceanology) reports

Seagrass-Watch China and sampling of the UNEP/GEF project "Reversing environmental degradation trends in the South China Sea and Gulf of Thailand" was officially launched at the Hepu Seagrass Demonstration Site on 15-18, June 2006. This was the third Seagrass-Watch survey since the establishment of Hepu Seagrass Demonstration Site in April 2005.

Operational since January 21st 2002, the South China Sea (SCS) Project aims:



- to create an environment at the regional level, in which collaboration and partnership in addressing environmental problems of the South China Sea, between all stakeholders, and at all levels is fostered and encouraged; and
- to enhance the capacity of the participating governments to integrate environmental considerations into national development planning.

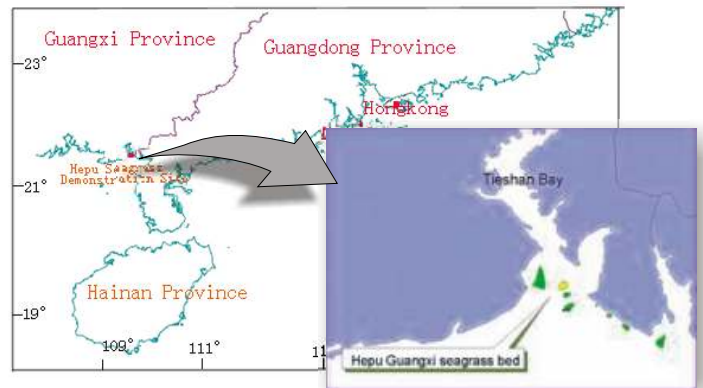
The South China Sea Project is funded by the Global Environment Facility (GEF) and implemented by the United Nations Environment Programme (UNEP) in partnership with seven riparian states bordering the South China Sea (Cambodia, China, Indonesia, Malaysia, Philippines, Thailand, and Vietnam). For more information on the project, visit <http://www.unepscs.org/>.

The Hepu Seagrass Demonstration Site was developed as part of the protective measures component of the project. Hepu was the first formally agreed seagrass demonstration site, and other similar sites have since been established in Bolinao (Philippines), East Bintan (Indonesia) and Kampot (Cambodia).

The Hepu Seagrass Demonstration Area is located at Hepu County of Beihai City, Guangxi Province. It is easterly from Yingluo gulf to westerly sea area of Yingpan town, and across Shatian town. The goal of the project is to establish a Demonstration Site of community based management, and thus to maintain the existing biodiversity and current environment and utilize seagrass resource in a sustainable way. Experiences of the relevant research, protection and utilization for seagrasses in the Demonstration Site will be useful for other seagrass meadows in China and the all over the world.

In June, participants set up three sampling sites (50m x 50m) on nine locations in Shabei seagrass meadow at Hepu and made detailed observations. They recorded coverage, species and canopy height of seagrass, algae coverage, sediment features, animal quantity and so on.

The field survey and sample



collections were conducted not only on the original fixed sites established in December 2005 (Xialongwei, Shabei, Beimu, Yingluo Port and Ronggen hill), but also at an additional three sites (Jiuhejingdi, Caowu and Dasha). In this survey, area of each seagrass meadow, biomass and shoot density of seagrass and benthos were surveyed and inhabited environments of the seagrass meadows were photographed in videos.

In addition, the working team made a detailed survey and analysis on the damage suffered by the inhabited environment of Hepu seagrass meadow.

It is hoped that the outcomes the project will:

- Promote the local residents, governments and relative authorizations to take part in the actions of seagrass protection;
- Raise the awareness of the government and local people on protection and sustainable use of seagrasses;
- Improve the environment of seagrass meadows;
- Bring protection of seagrass meadows into local socio-economic development plans
- Recover biodiversity of seagrasses;
- Promote international exchanges of experiences and achievements on seagrass researches; and
- Train related personnel.

These outcomes will also support China's Action Plan for Protection of Seagrass Resources and ensure sustainable use of seagrass resources in order to bring benefits to the mankind and even the future generations.

If you would like more information on the project or to participate, visit <http://seagrass.scsio.ac.cn> or contact Prof Xiaoping Huang at Email: xphuag@scsio.ac.cn, xphuag2004@yahoo.com.cn.



China's first website on seagrass (<http://seagrass.scsio.ac.cn>) was opened recently. The website, as a part of the working contents of Guangxi Hepu Seagrass Demonstration Site funded by UNEP/GEF, will play an important role in the universalization and education of the protection and sustainable use of seagrass resources. In addition, it offers reports on fresh research progresses in the field at home and abroad. It serves as a new channel for information exchanges for the researchers, organizations and personnel engaging in the field of environmental protection.