

# Torres Strait - Queensland



## Torres Strait Round-up May 2007

Monitoring this month saw us monitoring all our regular sites with a return visit to Hammond Island.



The trip kicked off with monitoring Hammond Island first (see Stephan Ambar's recount) after we held a small presentation ceremony so that participants of the February Training Workshop could receive their certificates.

HI1, Wongai Beach, Horn Island was the next site to be monitored. Unfortunately the Kaiwalagal rangers were unable to monitor

this trip due to conflicting engagements. Not to worry we got a team together including regulars: Beccie Bowie, Stacey Ketchell, Sinitta Cloudy and new recruit Caitlin Seton. We missed our regular photographer Kinam Salee as she was away on a Rugby trip down south, but Sinitta managed the camera admirably.

The following day we monitored Back Beach (TI1) after a series of talks had been delivered to the Yr 11 Marine Studies class and the Yr 12 Multi-strand Class. Kinam, fresh (?) from her Rugby tour, took up the duties of photographer once again. It was a busy afternoon with people coming and going according to their other commitments. Three new students (Nancye, Sally and Zara) received on-the-spot training, and Joseph undertook refresher training (August 2006).



Above: Beccie supervises Caitlin's seeding monitoring technique  
Left: Stacey Ketchell, Sinitta Cloudy and Caitlin Seton on less muddier grounds, Horn Island



Jane shows Zara, Sally and Nancye the ropes

The team were ably supported by teacher aides Sue and Geoff.

An interesting incident did occur highlighting the necessity of watching where you put your feet, and wearing appropriate footwear. Geoff had a slight run in with a mud crab, luckily for him he was wearing booties and the crab came off second best. Something else that occurred that afternoon that we have talked about but never really seen, is the proximity of quite large vessels



that travel along side the meadow. This observation brought home the vulnerability of TI's seagrass meadows to potential boating/shipping impacts and made us realise the importance of our continued monitoring on the health of this meadow.

Quite a team assembled for Front Beach (TI2), regulars Kinam, Stacey, Sinitta, Caitlin and Sue. They were joined by Sally and Nancye who had only



Some perspective on the crab that got away



Back Beach Team finishes for the day



Sue, Seagrass-Watch regular on Thursday Island (standing) puts Sally and Charlie through their paces

tried out Seagrass-Watching for the first time the day before. Undaunted by the experience they came along to TI2 for a second dose. Charlie overcome by curiosity eventually ventured out from the beach to be part of the action. All in all it was a pleasant afternoon and with that many people monitoring was quick!

Next sampling is early August and we revert back to early morning (6:00am) sampling - at least we get to experience the sunrises. 🌞



Above: Steve Ambar presents certificates to Joyce, Elizabeth and Anima on Hammond Island.

Right: The Front Beach team



# Torres Strait & North Queensland



## Hammond Island

Stephen Ambar reports



Hello fellow seagrass monitors! My name is Stephen Ambar. I live on Hammond Island, and work as a Hammond Island Community Ranger. I would first like to acknowledge the traditional owners of Hammond Island. The Island is located in the Kkaiwalagal group of islands in the Torres Strait.

### Seagrass & our livelihood

We all feel that seagrass monitoring will allow us to find any changes in the growth and distribution of our seagrass meadows. We could react quickly in reporting to the appropriate authorities. If there are severe changes, it could affect our traditional food and way of life. Dugong and turtle need these little seagrasses to keep on living.

### Monitoring our Sites

On the 8th May 2007, the Nursery ladies were relaxing at the Community Council Office waiting for Jane Mellors (SW HQ) arrival. They told me they were hyped up and ready to go. We departed the council office around 1:30pm in two Toyota dual cabs. The tide was perfect - you couldn't ask for a better day to do Seagrass-Watch. We arrived at the HD1 site, Francis was off and the group followed behind. The group broke up into three teams to start monitoring: transect one - Francis Dorante & Jimmy (who also took the quadrat photos); transect two - Judith Thaiday, Alice Garnier, Salu Dorante & Elizabeth Dorante; transect three - myself, Joyce Cowley, & Anima Pearson. Jane checked with each group and supervised their monitoring



Judith, Salu, Elizabeth and Alice on Transect 2



Anima and Joyce assist Stephen on Transect 3

Unfortunately, Brancis Baira had to walk back to the beach area to rest her legs, with Aunty Joyce accompanying her. The meadows can be a challenging walk for some. It was great to see Judith and Alice participating with the group. They didn't have the correct footwear last time.

Anyway, transect two was going very well, then all of a sudden Aunty Salu stepped on a large mangrove crab. Francis tried to catch the crab but it was too fast. The big blue nipper mud crab went into his beautiful habitat. The seagrass meadows that form his habitat on Hammond Island consist of *Thalassia hemprichii*, *Enhalus acoroides* and *Cymodocea rotundata*.

Our aim is to have two more sites that we can monitor in future. These would be located on the NN West and Southern side of Hammond Island. 🌱



## Yule Point

Tom Collis (Tropical North Queensland TAFE) reports

Kaiwalgal and Hammond Is rangers from Torres Strait attended a residential at Tropical North Queensland TAFE in Cairns recently for Certificate II Conservation and Land Management. As part of their studies they joined up with Cairns students studying the same course and undertook monitoring of seagrass at Yule Point on Thursday, 31<sup>st</sup> May. The marine rangers usually monitor seagrass sites in the Torres Strait, so this was an opportunity to see a different site with some new faces.

The first thing they noticed was the fine hard sand at Yule Point, so no muddy feet!! As they walked out to the site we were greeted by thousands of soldier crabs as well as numerous seastars. The marine rangers noticed dugong tracks in the seagrass meadows, observing that the tracks were probably a week old. It was quite a windy day so there were lots of laughs as we laid out the measuring tapes in the strong wind.

The Torres Strait rangers enjoyed sharing lots of stories about the sea country with the Cairns students, especially a Zimbabwean student in the group who has only recently seen the sea. 🌱



Katua Rattler and David Charlie looking for seagrass seeds



Future Mpatiwa (Zimbabwe) and Pearson Wigness (Torres Strait)



Anna De Bruyne and Mary Ann Miskin



# Singapore

## Singapore Round Up

Ria Tan Singapore Seagrass-Watch local coordinator reports



Baffled by seagrass IDs? Wondering what's the deal with the transect lines and quadrats? Puzzled by why we measure the things we measure? All these and more were made clear when Len McKenzie and Rudi

Yoshida from Seagrass-Watch HQ gave TeamSeagrass a special workshop on the 24<sup>th</sup> March 2007. In a classroom session held at NParks BioDiversity's fabulous briefing room, we learned everything we wanted to

know but were afraid to ask.

The workshop also gave us a deeper appreciation of the importance of seagrasses and the many threats to this special ecosystem throughout the world. We are truly fortunate to have good stretches of this threatened ecosystem on our very own shores. And glad to be making a difference for them. Siti also gave a presentation on what we've been up to, and shared some preliminary findings from all your hard work in data collection.



Len (SW HQ) and Siti (Team Seagrass) talk to the media



Choo Chee Kuang and Dr Chua Ee Kiam

Attendee Seagrassers had lots of fun immediately putting the new knowledge into practice. Checking out the live seagrasses which were set up in a tank, specially for the workshop. While Len was hard at work giving the workshop, others were busy sharing the TeamSeagrass story with the media. Yes, we decided to go public with TeamSeagrass! And what better occasion than during



Arriving at Cyrene Reef.



Ria takes charge with the camera

Len and Rudi's visit to Singapore! Other special guests for the workshop were Choo Chee Kuang and Dr Chua Ee Kiam. Choo is Seagrass-Watch local coordinator at Pulau just opposite our Tuas (Singapore) monitoring site, and also champions the Save our Seahorses campaign in Malaysia. It was such a treat to have him with us to share his vast experience about seahorses, seagrasses and shore stuff. Dr Chua is of course Singapore's renowned nature photographer and author. He shared his latest book about Singapore's shores with the media too!



Dense *Enhalus acoroides* at Cyrene reef

Earlier that morning, TeamSeagrass were out at Cyrene Reef to show this fantastic reef to Len, Rudi and Choo, and to discuss setting up a monitoring site on the reef.

Bright and early the very next morning, the 25<sup>th</sup> March, TeamSeagrass were out on Pulau Semakau with Len and Rudi for the field portion of the workshop and to do some monitoring. On arrival, TeamSeagrass guide Ron Yeo gave an impromptu introduction to the Landfill and the intertidal wonders of Pulau Semakau. We took the traditional Team photo just before bashing through the mosquito-infested trail of the forested portion of Pulau Semakau



Right: Rainforest trek to the sites at Semakau  
Below: Semakau's lush seagrass meadows.



to reach the shore.

Reaching Semakau's vast seagrass meadows, Len held the Team enthralled as he explained the finer elements of monitoring.



### Pulau Semakau

Pulau Semakau is located to the south of the main island of Singapore, off the Straits of Singapore. The current island was formed by the amalgamation of the then much smaller Pulau Semakau and Pulau Sakeng. Pulau Semakau was Singapore's first offshore landfill. It covers a total area of 3.5 square kilometres and has a capacity of 63 million m<sup>3</sup>.

Semakau Landfill is filled mainly with inert ash produced by Singapore's four incineration plants, which incinerate the country's waste, shipped there in a covered barge (prevents the ash from being blown into the air) every night. Contrary to popular belief that Semakau would be another dirty and smelly landfill, the care put into the design and operational work has ensured that the site is clean, free of smell and scenic.

Semakau has vast meadows of *Enhalus acoroides* (considered rare and vulnerable in Singapore), mixed with *Halophila ovalis*, *Cymodocea serrulata* and *Halodule* sp.





Len (SW HQ) with workshop participants on Semakau

Under Len's guidance, one team started off on the first transect. Then everyone headed off to the transects, to put into practice what we've learnt. Meanwhile, Nigel Goh (NP Senior Officer) brought the media to have a look at the coral reef edge. The amazing reef animals do Pulau Semakau proud!

TeamSeagrass was all ready for monitoring early on the morning of Sunday April 8<sup>th</sup>. After the traditional 'TeamSeagrass Pose', Shufen and Wei Ling explained the special 'random' method that we would employ on Sentosa. The team got ready to do their thing, but the tide was still high! And it stayed high! The previous day, Shufen and Wei Ling also experienced an unusually higher tide at Labrador and Ron Yeo (TeamSeagrass-Semakau) said the guides at Pulau Semakau also felt the tide was unusually high.

We are perplexed. What could have caused this? Glaciers melting? Effect of the recent tsunamis? Bad algorithms for predictions in the tide tables? We haven't a clue. (It certainly wasn't us reading the tide tables wrongly :-)) We triple checked that as soon as we got back). Usually, the area that we monitor would have been well exposed for at least two hours, but this was not the case for the entire three hours that we were there!! However TeamSeagrass is never put off even by nature-defying situations. We simply went straight to the next item on the agenda: exploring the shore.

Another dawn arrival on Cyrene Reef (21 Apr 07) by the intrepid Team on this submerged reef near Singapore's container terminal. The city skyline was hazy in the distance as rain fell from an angry pile of big clouds sparkling with lightning. We were SO glad it didn't head our way.



It was a lean team that landed on Cyrene for the first TeamSeagrass monitoring of this very grassy reef. We quickly headed out to our site (Cr1) and to set up transect 1. Andy was obviously very ready to whack

something with the Team Mallet. Fortunately, the ladies quickly figured out where to place the markers so Andy could vent onto the stake. (The Mallet intriguingly had a label that said it was useful for 'removing ordinary nails'--we couldn't figure out how that would be possible).

Then it was time to set up Transect 2. "Follow me!" Siti says...and she promptly headed off, literally into the horizon. The rest of us trudged on behind her, past vistas of amazing marine life, sand flats and pools thick with seagrasses. "Are we THERE yet?" we complain loudly...alas, it was a looong walk before we did get there.

Cyrene is quite challenging to monitor because it has so many different seagrasses, which unfortunately, look similar. To identify the species, requires close examination and much squinting at leaf veins and such. As this diligent team at Transect 1 was still doing long after the rest of us were done.



Soon, we were done monitoring and spent the rest of the low tide checking out the reef. Besides the enormous expanse of seagrasses, there are also vast stretches of coral rubble and reef flats. All right next to major shipping lanes.

The seagrasses are full of life! We spotted a baby Knobbly sea star. Like a cartoon version of the bigger adult star, it was so cute and small! At Transect 2, the seagrasses were crawling with white sea urchins, some gathered together in big piles. It was hard to walk without stepping on them. These urchins also 'carry' things such as shells, bits of debris. There were several carpet anemones and most had a pair of anemone shrimps. On the sandy area, I startled a little soldier crab that waved its elongated pincers at me as it back pedaled into the wet sand and promptly disappeared from view.

All too soon, we had to leave as the tide rushed back in. We had a little bit of an adventure clambering back up the boat as it moved up and down in the surge. Then the boat got stuck and the manly team members had to push it off the reef. Fortunately, we all got back more or less in one piece. What a great trip! And it would not have been possible without team members Andy, Annabelle, Chay Hoon, Dionne, Kevin, Marcus and Vyna. Thank you! Dr Chua Ee Kiam also joined us for this trip.

On the 22<sup>nd</sup> April, TeamSeagrass was back on the shores of Chek Jawa for an early tide. While the busy Seagrassers headed off to the seagrass lagoon to monitor, I decided to check out the coral rubble area to see how things were since the mass deaths at Chek Jawa, that we encountered earlier in the year. The seagrasses were certainly doing very well in the area. With lots of *Halophila spinulosa*, as well as thickets of other seagrasses like *Halophila ovalis* and *Halodule sp.*



### Cyrene Reef

Located to the south of mainland Singapore, Cyrene is comprised of 3 patch reefs- Terumbu Pandan, Pandan Beacon and South Cyrene Beacon, it is one of the largest patch reef systems in Singapore. Cyrene Reef is a key maritime crossroad where east-west traffic routes cross north-south routes. Approximately five hundred ships transit the waters around the reef every day. The reef is also next to massive industrial sites like Jurong Island and Pulau Bukom, and opposite Singapore's container terminals. With abundant seagrass meadows and other marine life, Cyrene is a natural wonder. The reef top meadow is a mixture of *Enhalus acoroides*, *Cymodocea serrulata*, *Cymodocea rotundata*, *Halodule uninervis*, *Halophila ovalis* and *Syringodium isoetifolium*.



# Philippines

## Bolinao, Philippines - Seagrass Demonstration Site UNEP/GEF South China Sea Project

In April, a Seagrass-Watch training workshop was hosted by the Bolinao Seagrass Demonstration Site project at the University of the Philippines' Bolinao Marine Laboratory with the assistance of Len McKenzie (Seagrass-Watch HQ). Approximately 30 local participants attended.



Tutu (Demonstration Site Manager) introduces Len (SW HQ)



Participants board the bangka for the trip to the Seagrass-Watch site on the northern side of Santiago Island



Over the two days, participants learnt seagrass taxonomy, seagrass ecology, why seagrasses are important, how seagrass can be impacted and how to map and monitor seagrasses. As it was Easter, participants used their newly learnt skills with a GPS to hunt for Easter eggs that saved waypoints during one of the field activities.

On day two of the workshop, participants established a Seagrass-Watch site which they monitored and mapped.

The workshop gave the participants a thorough understanding of seagrass ecosystems, improved their capacity to monitor their seagrass resources, and empowered them to take ownership of their local marine resources and take a role in initiatives to protect, conserve and maintain the resources.

The Bolinao Seagrass Demonstration Site project recognises the ecological and economic roles of seagrasses in Bolinao, and that the maintenance of their ecology and integrity will, in both the long and short term contribute to uplifting the lives of the citizens of the municipality. It also recognises that sustained efforts in this direction should

involve local participation and initiatives.

The project aims to establish functional linkages between and among community groups, academic institutions, with local and national government support, so that the seagrass ecosystems that form the resource base of local livelihoods will be enhanced, protected and managed. In addition, it will preserve the biodiversity in the seagrass meadows, marine fauna and flora alike, restore the degraded areas, and reduced threats and provide preventive actions to these threats.

There is a real need to take initiatives to protect, conserve and maintain the resources.

Seagrass meadows play a very important role in the community since many of their livelihoods rely heavily on the seagrass meadows. At present, most people in the community understand this, but the importance of the linkages between seagrass meadows and other two major components of the marine ecosystem (mangroves and coral reefs), is not seriously considered.

Experience from other community-based initiatives shows that self-management of local resources is sustainable and effective if user-communities take on ownership of management activities.

The objectives of the project are:

- To enhance resource management, particularly for seagrasses based on comprehensive data and information;
  - To intensify and increase public awareness through information, education and communication campaign;
  - To strengthen stakeholders' capacity in management of resources; and
  - To design and implement alternative/supplemental livelihood program.
- With the implementation of the seagrass demonstration site in Bolinao, the following management outcomes are expected:
- A functional linkage among stakeholders;
  - Increased public awareness;
  - Strengthened capacity building among stakeholders;
  - Improved legislation and enforcement practices from project recommendations
  - Community establishment of protected sites;
  - Sustained monitoring through Seagrass-Watch;
  - Improved seagrass cover and maintenance of biodiversity;
  - Developed and improved livelihood skills of coastal communities to protect and manage seagrass and related reef resources.

For more information, please contact Demonstration Site Manager Ms. Tutu B. Almonte, [tutualmonte@yahoo.com](mailto:tutualmonte@yahoo.com)



Participants map the boundaries of seagrass patches at the monitoring site, Binabalian Labas.



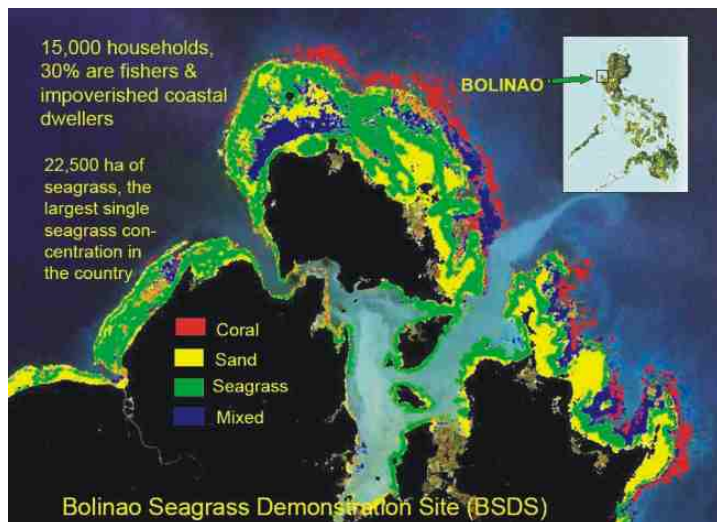
# Singapore & Philippines

## Seagrasses of the Philippines

Seagrasses are a prominent component of Philippine coastal ecosystems, where they sustain high primary production and provide habitat and food for economically important species. The seagrasses of the Philippines are also important food for marine green turtles and dugongs.

The seagrass flora of Philippines is characterized by a high species richness and mixed meadows are common. There are 13 seagrass species found in the country, *Cymodocea rotundata*, *Cymodocea serrulata*, *Enhalus acoroides*, *Halodule pinifolia*, *Halodule uninervis*, *Halophila beccarii*, *Halophila decipiens*, *Halophila minor/ovata*, *Halophila ovalis*, *Halophila spinulosa*, *Syringodium isoetifolium*, *Thalassodendron ciliatum* and *Thalassia hemprichii*.

There is some confusion regarding the distribution of seagrass in the Philippines. Some estimate only 33 km<sup>2</sup> of seagrass in the Philippines, however others using several methods, including remote sensing, estimate approximately 975 km<sup>2</sup>. Nevertheless, mapping of seagrass distribution is limited and ad-hoc.



Satellite image showing seagrass, coral and mixed benthos at Cape Bolinao. Courtesy M. Fortes

In the Philippines, *Enhalus* is one of the most prominent seagrass species in mixed seagrass meadows. In the reef flats off Cape Bolinao, this species is able to colonize various habitat types: muddy to coarse sandy substratum, turbid to clear waters and splash zones above zero datum to ca. 3m depth. Across this range in environmental conditions, *Enhalus* shoots differ in morphology, biomass and density. Flowering occurs year-round, but the intensity varies temporally and correlates with mean

water temperature. Spatially, differences in flowering intensity correlated with available light as affected by turbidity and water depth. Contrary to most seagrass species, *E. acoroides* invests substantial resources in reproduction, allocating up to 20% of its aboveground production to flowering and fruiting. Similar to other tropical seagrasses, *Enhalus acoroides* in Cape Bolinao are limited by the availability of nitrogen, which is highly variability both in space and time.



The other prominent seagrass species in Bolinao is *Thalassia hemprichii*. However, no persistent seed bank has been reported to be the present.



Seagrass meadows in Bolinao and the Philippines are of significant importance to artisanal fisheries. The seagrass meadows of Cape Bolinao form the base of fishery resources for 35 barangays (Philippine political units). One of the most important fishes includes the rabbitfish. Seagrass landscape patterns have been shown to influence fish abundance in Bolinao, but only in terms of continuity of vegetation.

The seagrass meadows of Bolinao are seriously threatened through the direct and indirect effects of human settlement and coastal development leading to intense pressure and anthropogenic disturbances. One of the most significant threats to seagrasses in SE Asia and the Philippines includes increased siltation from deforestation. Philippine seagrass species richness and community leaf biomass decline sharply when the silt and clay content of the sediment exceeds 15%.

It is hoped that through initiatives such as the UNEP/GEF South China Sea Project, the establishment of a Seagrass Demonstration Site in Bolinao will build the capacity of local stakeholders take a role in the conservation of their seagrass resources.♥



### Rabbitfish and seagrass

Rabbitfish are a valuable seafood resource for subsistence fishers in the Philippines. They belong to the herbivorous Siganid family, and rely on seagrass for their food, as well as habitat for juveniles. Reduction in seagrass coverage in the region will have a negative impact on rabbitfish stocks, and hence on food security of coastal subsistence communities in the Philippines.



### Oatmeal cookies from Seagrass seed flour.

The seeds of *Enhalus acoroides* are known to the Philippine coastal people to be edible. Its approximate nutritional composition is similar to that of rice. It is eaten raw or boiled and tastes like sweet potato when cooked. Some fishermen believe that it is an aphrodisiac. With the aim of developing seagrass seed as human food in small islands, researchers from the

University of the Philippines have developed a flour made from dried mature seeds of *E. acoroides*. Using a standard recipe for oatmeal cookies, seagrass seed cookies were made using seagrass flour half substituted for half of the usual wheat flour. Responses to a taste test were very positive and further development is planned. Additional investigations will include the nutritional evaluation of seagrass plant parts to support the protection of the ecosystem.



# Asia and the Pacific

## Pramuka Island, Seribu Islands, Indonesia

M. Alief Farid (University of Indonesia) reports



In May 2006, I examined the condition of seagrass communities at Pramuka Island, Seribu Islands, Jakarta, Indonesia.

Together with the British International School (BIS) Jakarta students (Year 12), Ligula Ecotourism, and Elang Ekowisata, we conducted seagrass monitoring during their field trip in the morning after breakfast.

The teams separated into three groups, each of them observed a transect. Before we went to the site, each of team was taught the Seagrass-Watch methods so they knew how to take the data.



Seagrass-Watch conducted on Pramuka Island, Jakarta

Unfortunately, the wind on the site blew quite fast so laying the measuring tapes was a challenge.

My group only found two species on our transect: *Thalassia hemprichii* and *Enhalus acoroides*. Since their coverage was poor, we completed our transect fast. Another team found *Cymodocea rotundata* and *Thalassia hemprichii*. I have found 6 species snorkelling around the island. The other species included *Syringodium isoetifolium*, *Halodule uninervis* and *Halophila ovalis*.




Fadzai, Chika, Adrio and Emma estimate seagrass cover

Also on Pramuka island is a mangrove planting site established in the seagrass area. The planting site has continued to grow through the seagrass meadows and we want to know if the mangroves are having an effect on the seagrass. I hope we can established a permanent site and continue monitoring the area.



Nicole holding the quadrat while Jacqueline, Queenie, Arvi, and Harrisman estimate species

Thanks for all participants and Seagrass-Watch HQ for teaching me about Seagrass-Watch in Bali 2005. Nge'lamun' Yuk!! (inviting jargon in Bahasa for doing Seagrass-Watch).

### Seribu Islands

Pramuka Island is the regency seat of the Seribu Islands (a chain of 105 islands stretching 45 km north into the Java Sea, with the closest lying in Jakarta Bay only a few km off mainland Jakarta). The area is noted for its abundance of attractive beaches and coral reefs. In 1995, the islands were declared a marine national park. Tourism has grown rapidly from one operator on a single island in 1982 to 11 operators working out of 18 islands in 1992. There were approximately 8,000 visitors in 1991. Some islands have long been inhabited by villagers who depend on reef and island resources. However, the tourism industry employs less than 5 percent of the local population. Domestic sewage, industrial effluent, and urban runoff from Jakarta threaten the southernmost portion of this area. Floating garbage is a problem, depending on prevailing winds. Ballast water discharges from boats result in tar being washed up on local beaches. Blast fishing, although outlawed nationally since 1920, still occurs as well as heavy ornamental fish collecting and major subsistence exploitation of marine resources. The islands are under pressure from developers seeking more tourism and recreational facilities to service greater Jakarta. Oil and gas exploration, taking place within kilometers of the park, could pose a potential future threat. Source: 1998. Reefs at Risk: A map-based indicator of potential threats to the world's coral reefs. Dirk Bryant, Lauretta Burke, John McManus, and Mark Spalding.



## Motupore Is Marine Biodiversity Unit Seagrass-Watch monitoring



Jane Wai reports

We have completed the second of our quarterly monitoring surveys for this year. There have been recent events of very low spring tides that have caused approximately 50-60% of the seagrass meadows within the intertidal zone to become overexposed and wither away. However, these should recover in time.



BT1205

The two sites that we monitor vary considerably in their sediment composition and exposure to the wind and thus have slight variation in species composition. The first site which is BT1 has sediment which is mostly sand, shell and to a lesser extent, silt. The second site, BT2 has sediment composition which is mostly gravel, shell and sand with very little silt. The dominant species in site BT1 is *Cymodocea rotundata*, followed by *Thalassia hemprichii* in close succession along with the other species which constitute a much smaller percentage. Site BT2 is dominated by *Thalassia hemprichii*, followed by *Cymodocea rotundata*, *Syringodium isoetifolium* and *Enhalus acoroides*, although not necessarily in that order.



Eddie laying out the transect at BT1




BT2305

We have received favourable initial responses from the local communities approached to establish new seagrass monitoring sites but have yet to formally meet with



Jane and Geua at BT2

them to select the exact locations. We will continue to work on this and intend setting up the monitoring sites and conducting the first of the surveys before the end of the year. 



# Eritrea

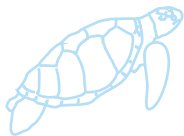
## Stomach analysis of a Southern Red Sea Green Turtle

Yosief Hiabu Berhane and Woldu Habtemariam (MFCIMD, Massawa, Eritrea) report.

The stomach content of a female green turtle (*Chelonia mydas*) slaughtered by local residents of Kiloma was analysed on 15<sup>th</sup> October 2005. The stomach content was sorted and identified eight hours after the turtle's plastron was opened. The estimated weight of the turtle was 90kg. Curved carapace length and curved carapace width was 130cm and 90cm respectively. Intestine length was 23m with an average cross section diameter of 7 cm.



The turtle slaughter in progress  
(Photo by: Yosief Hiabu)



Kiloma is a coastal village about 50 km south of Assab, southern Eritrean Red Sea. In the surrounding islands, there are six seagrass species (*Thalassia hemprichii*, *Halophila ovalis*, *Enhalus acoroides*, *Cymodocea rotundata*, *Halodule uninervis* and *Thalassodendron ciliatum*) and seven genera of macroalgae (*Cystoceira*, *Halimeda*, *Caulerpa*, *Sargassum*, *Grassilaria*, *Chaetomorpha* and *Turbinaria*). The turtle's stomach however, exclusively consisted of two seagrass (*Cymodocea rotundata* and *Thalassia hemprichii*), and one species of seaweed (*Sargassum illicifolium*). Of the total wet weight, the dominant food item was *S. illicifolium* (47.4 %), followed by *T. hemprichii* and *C. rotundata* (38.2% and 14.3% respectively).

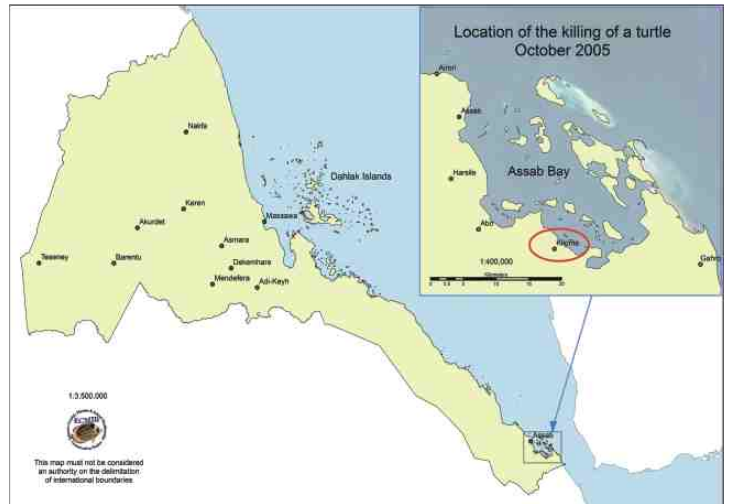


The stomach of the female green turtle  
(photo by: Yosief Hiabu)

The stomach content before separation  
(photo by: Yosief Hiabu)



Two seagrass and one macroalgae when separated  
(photo by: Yosief Hiabu)



Map of Eritrea and the coastal village of Kiloma.

A rapid assessment of seagrass and macro-algae distribution in the islands within 4 to 15km from Kiloma was conducted to investigate turtle food selectivity (i.e. if the turtle was targeting food items, or feeding on the dominant food item).

Results of rapid assessment of seagrass and macro-algae in the islands nearby Kiloma (12° 51' 57.9"N and 42° 52' 39.5"E)  
+ shows availability, +(a) abundant, and +(d) dominant

Seagrass / Macro-algae	Bolita	Abugendela	Umelgas	Adaile
	12° 49' 38.6"N 42° 52' 47.1"E	12° 52' 15.1"N 42° 50' 45.0"E	12° 52' 11.9"E 42° 51' 19.8"E	12° 51' 57.9"N 42° 52' 35.9"E
<i>H. ovalis</i>	+	+		+
<i>H. stipulacea</i>				
<i>T. hemprichii</i>	+	+		+(a)
<i>E. acoroides</i>		+(d)	+(a)	
<i>H. uninervis</i>	+	+		
<i>S. isoetifolium</i>				
<i>C. rotundata</i>	+(d)	+		+(d)
<i>T. ciliatum</i>				+
<i>Cystoceira</i> spp.	+	+	+	
<i>Halimeda</i> spp.	+			
<i>Caulerpa</i> spp.	+			+
<i>Sargassum</i> spp.		+		+
<i>Grassilaria</i> spp.		+	+(d)	+
<i>Chaetomorpha</i> spp				+
<i>Turbinaria</i> spp				+

The comparison of the stomach content with the availability of seagrass/macroalgae cover in the nearby islands leads to the conclusion that green turtle are important marine grazers that are highly specific in selecting among different food types. This shows that individual green turtles spend a considerable time grazing on one seagrass/seaweed ground before shifting into another. Further studies are needed to investigate the feeding habits of sea turtles on seagrass meadows as they prove to be among the major seagrass grazers. 🌱

Right: *Enhalus acoroides*, *Thalassia hemprichii*, *Cymodocea rotundata* with *Sargassum* sp. on reef flat platform  
Below right: *Cymodocea rotundata* meadow  
Below left: *Thalassia hemprichii* meadow





## Seagrass-Watch Champion

### A profile of Margaret Parr

Margaret Parr is Seagrass-Watch's longest serving local coordinator and longest continuous participating volunteer. So it is with great sadness that we report Margaret is leaving our northern coasts and heading south. But before we could let her go, we took the chance to ask her a little about her experiences in the Whitsunday's and Seagrass-Watch.

### How long have you lived in the Whitsunday's?

We moved from Mackay to the Whitsundays in 1998. Originally from Scotland, so I had very limited knowledge or experience of things in the sea - the abundance and diversity of accessible 'marine life' here still amazes me.

### How did you become involved in Seagrass-Watch?

When I joined Whitsunday Volunteers they had just decided to become involved in Seagrass-Watch. I thought it an interesting project and volunteered to be involved and to help my daughter, Amanda who had volunteered to coordinate a group of Volunteers to monitor Pioneer Bay. After a few months she moved away and I carried on! But I took it on very willingly, it was a huge learning curve.

### What have you enjoyed by your involvement?

I have enjoyed it for four reasons

1. Being involved in a worthwhile project where data collected is valued and used.
2. Learning so much and hopefully contributing in managing our local environment.
3. Working with wonderful folks like the local mob, Jane Mellors and her various helpers - always have a few laughs and usually a cuppa and chat.
4. Getting out on the different sites. With exception of mud in Pioneer Bay, they are all beautiful meadows in beautiful surroundings.

### Any particular fond memories?

The forum in Hervey Bay [2001] was a highlight. Lots of others - like seeing my first dugong feeding trail, collecting dugong poo and the day we were reported to Officers of Boating & Fisheries Patrol who came out to see what we were up to!

### What was your worst memory?

The first time I saw Pioneer Bay meadows swamped in mud from a nearby development.

Right: Margaret accurately estimates the seagrass cover  
 Below right: A deeply concerned Margaret shows Warren Lee Long the algal bloom  
 Below: Margaret and team accept Prime Ministers Environment Award



### What is your impression of seagrasses in the region?

Don't know what to answer here! My very unscientific answer would be that meadows are usually visually stunning here and seagrasses are so resilient.

### What is planned for the future?

Bruce and I are heading south Canberra initially where Amanda works in fisheries management then who knows, but intend to return to living by the sea!

We wish Margaret and Bruce all the best on their travels. They will be greatly missed by us all.



## Roebuck Bay: low levels of seagrass

Danielle Bain reports

The Roebuck Bay community seagrass monitoring project has been successfully running now for two months. About 20 volunteers have signed up for the monitoring project, which is a fantastic response from the Broome community. Volunteers have recorded information about the seagrass at three sites in Roebuck Bay and have found very low levels of seagrass. We have recorded between 1 and 3% cover for all three sites but most of the time we have recorded less than 1%.

We are hoping this is just a normal phase of growth for this time of year and we are expecting seagrass cover to increase again around September or October.

These findings demonstrate why it is so important that we collect baseline information on the seagrass beds in Roebuck Bay. At this stage we are not able to draw conclusions about whether the low levels of seagrass are normal for these areas of Roebuck Bay at this time of year as it is the first year of data collection. 🌱



## Seagrass-Watch Training workshop

**1-2 September 2007**

Sponsored by Environs Kimberley, Kimberley Land Council & Seagrass-Watch HQ

To register, contact Danielle Bain [dans\\_al@westnet.com.au](mailto:dans_al@westnet.com.au) or [hq@seagrasswatch.org](mailto:hq@seagrasswatch.org)