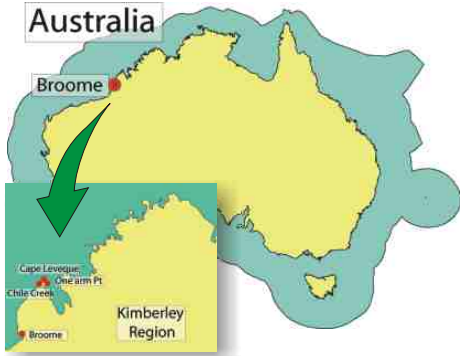




Western Australia

Kimberley Region



The Kimberley region of Western Australia extends from the border with the Northern Territory in the north to Sandy Point (Roebuck Bay) in the south. Seagrasses are a significant component in the southern coastal marine ecosystems and they are critical to regionally important dugong and turtle populations

The Kimberley displays wide variation with embayments and sounds with wide sandy beaches which give way to mudflats. Mangrove inlets and tidal creeks are interspersed with coastal cliffs. There are numerous offshore islands and much of the coast remains uninhabited. The coast is prone to large tidal variation from <1 to 11m and these strong tidal flows dramatically influence the coastal environment.

From 30 August to 3 September 2007, Len McKenzie (Seagrass-Watch HQ) visited the Kimberley region in Western Australia with the assistance of Kimberley Land Council - Land & Sea Unit and Environs Kimberley. The trip was to conduct a training workshop in Broome and to scope potential monitoring sites on the Dampier Peninsula.



Bardi Jawi Land and Sea Rangers at Chile Creek



Above and below: *Enhalus acoroides*, Chile Creek



Below: Looking for a possible site



The following day, with the Bardi Jawi Land and Sea Rangers (Daniel, Shawn and Trevor), Len visited One Arm Creek, another of the locations recommended for future monitoring. Seagrass meadows are located in the shallow waters of the perched fringing coral-reefs. The tidal range is extreme in this location (11m), and during low tides, water is trapped (ponded) on fringing reef flats, while water is several metres below the reef crest on the seaward side. The majority of the meadows are low-moderate in abundance, and are dominated by *Thalassia hemprichii* with *Halophila ovalis*, *Halodule uninervis* and *Enhalus acoroides*. Dugongs and turtles are often reported feeding on these meadows.

Continued over....



Thalassia hemprichii and *Enhalus acoroides*, One Arm Point



Thalassia hemprichii meadow, One Arm Point



One Arm Point



Thalassia hemprichii meadow in pooled water at low tide on perched reef, One Arm Point

HAVE YOU REGISTERED WITH HQ??

To receive regular updates on the program and be a recognised member of the Seagrass-Watch community go to

www.seagrasswatch.org/register.html





Western Australia



Town Beach, Broome

It was then back to Broome, over the weekend of Shinju Matsuri (Japanese for "Festival of the pearl") and "stairway to the moon", where Len conducted a Seagrass-Watch training workshop jointly hosted by Environs Kimberley and the Department of Environment and Conservation. Local coordination

was by

Danielle Bain. On the Saturday afternoon, 14 participants learnt seagrass biology, ecology, identification, and Seagrass-Watch monitoring. Early on the Sunday morning, participants ventured onto the sand flats of Roebuck Bay to put their newly learnt skills into practice, by monitoring a site (RO1). The morning was finished with a morning tea and vanilla slices. 🍌



After the training workshop, Len was able to visit RO2 and RO3 and could affirm that our sites had been well selected and our methods were sound. He pointed out many dugong feeding trails and indicated that the seagrass meadows were looking healthy.

Thank you for teaching us so much Len! We hope you found your trip to be as valuable as we did. 🍌



Broome Workshop

Danielle Bain reports



The Seagrass-Watch group in Broome was delighted to have Len McKenzie (Seagrass-Watch program leader) visit the Kimberley recently. After spending a couple of days on the Dampier Peninsular with the Bardi Jawi Rangers, Len delivered a training workshop for our volunteers here in Broome.



We spent Saturday afternoon learning about the biology and ecology of seagrass including a practical session on identification and specimen pressing. Then we completed a field monitoring session at RO1 (Town Beach) early on Sunday morning followed by a morning tea in the park.



Even though the majority of participants had been monitoring in Roebuck Bay for a few months already,

everybody learnt a lot about seagrass and its role as an indicator of ecological health. But most importantly, the volunteers came away with a great sense of being a part of something much larger. Many did not realise how many other Seagrass-Watchers are out there doing the same thing as us. It is very reassuring to know that the data we are collecting can be useful and can influence decision makers.

Roebuck Bay

Roebuck Bay is a tropical marine embayment with extensive, highly biologically diverse, intertidal mudflats. The Bay is bounded to the north-west by the township of Broome and extends to Sandy Point in the south.

Declared a Ramsar site, it is internationally important for at least 20 species of migratory shorebirds and one of the most important sites for shorebird conservation in the East Asian-Australasian Flyway in Australia and globally. Dugongs (*Dugong dugon*) and Green turtles (*Chelonia mydas*) regularly use the bay as a feeding area and as a transit area on migration. The Bay is also a major nursery area for marine fishes and crustaceans, and supports an exceptionally high biomass and diversity of benthic invertebrates (estimated to be between 300 – 500 species), placing it amongst the most diverse mudflats known in the world.

Roebuck Bay has a very large tidal range which exposes around 160 sq km of mudflat, approximately 45% of the total bay area, with tides travelling at up to 20cm/sec mid cycle. Most of the mudflat area is inundated by each high tide and at times, spring tides and/or cyclones may cause the adjoining coastal flats to become inundated. The tidal system is semi-diurnal with an average tidal amplitude of 5.7m. Tidal range varies from c. 1 m on neap tides to 10.5 m on the highest spring tides. These factors dominate the intertidal ecology.

Extensive seagrass meadows occur in the northern regions of Roebuck Bay, particularly in the Town Beach area, and are dominated by *Halophila ovalis* and *Halodule uninervis*. The



most vigorous stands of seagrass grow in areas that are exposed for less than two hours at low tide. A "wrinkly" leaf form of *Halophila* occurs sparsely by itself, often in pools which remain in the high intertidal during low tides, or with some *H. uninervis*. *Halodule pinifolia* has also been reported from northern Roebuck Bay, but mixed with other species.

HAVE YOU SENT YOUR DATA TO HQ??

If not, your data cannot be used for regional and global assessments



Seasonal and spatial variations in seagrass biomass and shoot density at Minicoy Atoll, Lakshadweep

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



Seagrass ecosystems form one of the important coastal ecosystems of tropical regions. This ecosystem is conspicuous and often dominant habitats in shallow water coastal areas. These systems are becoming well known for their high primary and secondary productivity, ability to stabilize sediments, production of vast quantities

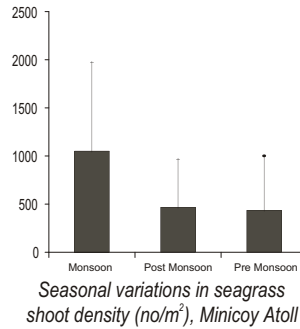
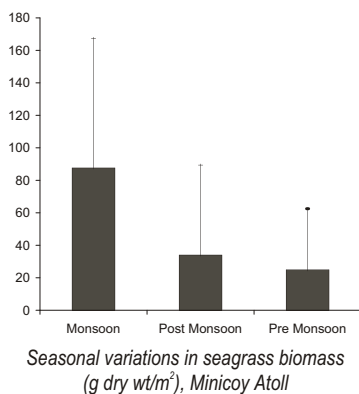
of detritus and support of diverse faunal and floral communities.

The seas around Lakshadweep and the reef lagoons are of great ecological significance as they influence the fauna and flora associated with the coral reefs and seagrass meadows, to a great extent. The lagoons and reefs provide suitable coral habitat, for innumerable varieties of animals and plants. 112.4 hectares of seagrass area has been identified in the lagoons of Lakshadweep, which covers an area of about 4200km². Minicoy, the southern most island of Lakshadweep Archipelago has the largest lagoon among the group and has a rich vegetation of seagrasses in the inter tidal zone of the lagoon. Minicoy lagoon, the study area, has abundant growth of seagrasses. Studies on seagrass meadow in this region are very few and there is no comprehensive study on different aspects of the ecosystem. The present study was carried out during two consecutive years (2000, 2002). The study aspects include seasonal and spatial variations in seagrass biomass and shoot density both in temporal and spatial scales.



Minicoy and the 4 sampling stations

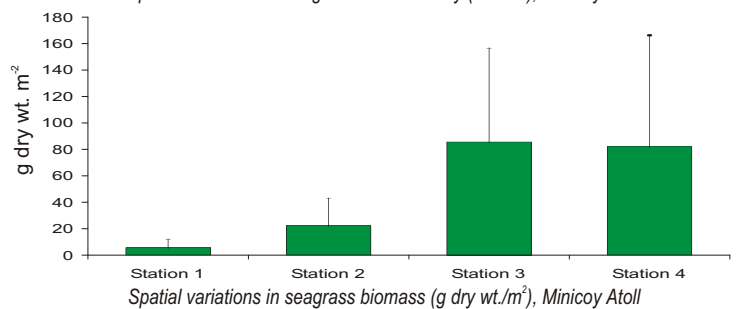
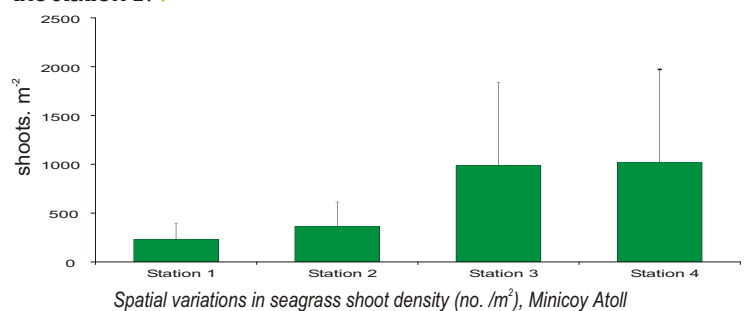
Quadrat method was used for the sampling of seagrasses, during low tide. The sampling was done on monthly basis and the values were made into averages. The shoot density (no/m²) and biomass (g dry wt/m²) of each species found out separately and pooled together for graphical representation. Seasonally, highest seagrass biomass and shoot density was observed



during monsoon (June to September) and lowest during pre monsoon (February to May).

Spatially, highest mean shoot density was observed in the station 3, which was contributed by *Syringodium isoetifolium*, followed the station 4 *Syringodium isoetifolium* and *Cymodocea serrulata* formed the members of seagrass meadow in this station.

Lowest mean density was recorded in the station 1, where *Halophila ovalis* was the sole member of seagrass community. Highest mean biomass was recorded in the station 4 and lowest in the station 1. 🌱



The Lakshadweep Islands

Lakshadweep is the smallest union territory of India. The group is located 200 to 300 km off of the coast of Kerala in the Arabian Sea. The total land area of the territory is 32 km². Eleven of the islands are inhabited.

Lakshadweep officially consists of 12

atolls, 3 reefs and 5 submerged banks, with a total of about 36 islands and islets. The reefs are in fact also atolls, although mostly submerged, with only small unvegetated sand cays above the high watermark. The submerged banks are sunken atolls.

The people of all the northern islands speak a dialect of Malayalam. According to local folk beliefs, they descended from traders who were washed up on the islands during a particularly heavy storm. However, the people of Minicoy, the southernmost atoll, speak Mahl, which is another word for Divehi, the language of the Maldives.

The islanders are ethnically similar to coastal Kerala's Malayali people, and were influenced by Arab traders. Inhabitants of Minicoy, the southernmost and largest island, closely resemble Maldivians.

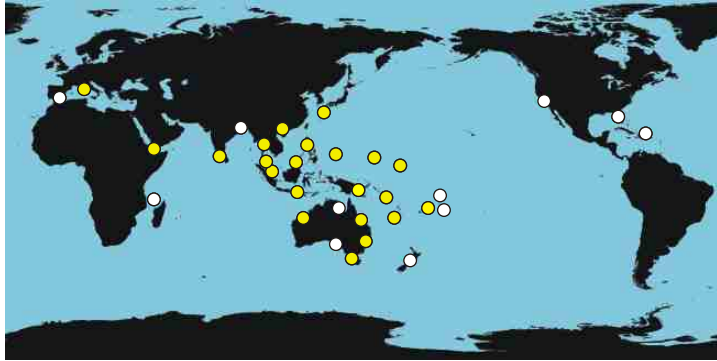
Due to its isolation and scenic appeal, Lakshadweep is emerging as a major tourist attraction for Indians. This brings in significant revenue, which is likely to increase. Since such a small region cannot support industries, the government is actively promoting tourism as a means of income.

Source: <http://en.wikipedia.org/wiki/Lakshadweep>, Image courtesy of : Lenish Namath



Who participates in Seagrass-Watch?

Anyone can participate in Seagrass-Watch, as it responds to local needs. Since Seagrass-Watch began in May 1998, it has expanded from 2 locations in Queensland (Australia), to 16 regions in Queensland, 4 states in Australia, and more than 17 countries globally. Monitoring is currently occurring at over 205 sites and growing.



- **Current participants:** Australia (Queensland, NSW, Victoria, Western Australia), Fiji, New Caledonia, Papua New Guinea, Solomon Islands, Federated States of Micronesia, Philippines, Japan, China, Thailand, Malaysia, Singapore, Indonesia, India, Eritrea, France, Viet Nam.
- **Future participants** (expressed interest & currently building capacity): Bangladesh, Comoros Islands, Spain, Caribbean, USA (Florida, California), Tonga, Samoa, New Zealand, Australia (Northern Territory, South Australia)

Seagrass-Watch's vision is to educate and build the capacity of local stakeholders to monitor the condition and support conservation measures which ensure the long-term resilience of seagrass ecosystem

Seagrass-Watch is a multi faceted program. One component of the program is focused on education, awareness and capacity building. Other components focus on community participation/ownership and Governments, NGO's working with stakeholders. The program has become a collective network of participants ultimately interested in seagrass conservation

The largest component is long term monitoring of seagrass resources. Although some new locations are still at the resource assessment stage (determining what seagrass species are present and their distribution), other sites have just over 8 years of monitoring data. These sites are coastal sentinels, providing an early warning of ecological decline. ♡

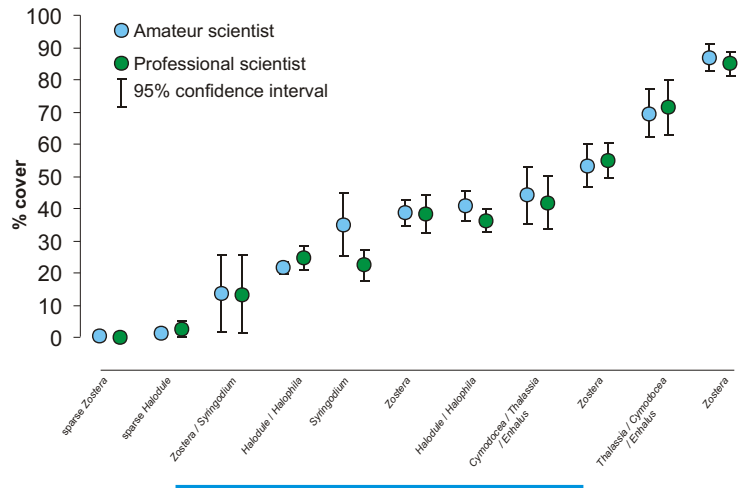
How does Seagrass-Watch ensure data quality?

Seagrass-Watch is a supervised monitoring program with participants from communities and scientific institutions/agencies (including academic, government and non-government). The collection of data by a diversity of participants necessitates a high level of training to ensure that the data is of a standard that can be used by management agencies. Technical issues concerning quality control of data are important especially when the collection of data is by people not previously educated in scientific methodologies.

Seagrass-Watch has an accepted Quality Assurance-Quality Control program in place to ensure that the program is producing data of high quality, and that time and resources are not wasted. The program implements QAQC during all phases of monitoring (before, during and after field collections) (see issue 23, page 20).

Independent evaluation by statisticians from the Australian Institute of Marine Science in 2004, concluded that the data produced by the program was of good spread (spatial and

temporal) and quality. Many of the sites monitored achieve <20% min detectable difference, with 80% power. Experiments have also been conducted to see if a difference exists between the percentage cover estimates of experienced professional scientists and trained community volunteers (amateur scientists). A variety of seagrass communities over a wide range of covers were tested and no significant difference was found between observer groups. ♡



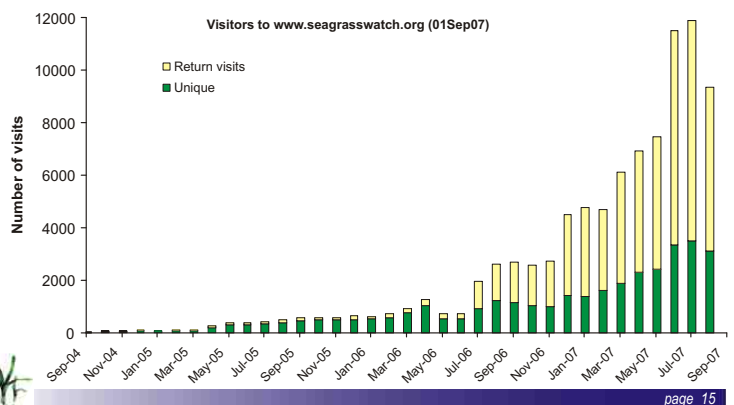
How does Seagrass-Watch communicate feedback to participants?

Seagrass-Watch's communication strategy works on several levels and uses a number of communication tools. The newsletter is only one of the tools. Not only can participants read about program developments, they also read about what's happening outside their region or country. The newsletter shows participants they are part of a global program and that their local efforts can make a difference.

Where possible, the Seagrass-Watch uses workshops/presentations/festivals to spread the word. Field interactions and workshops are an important component. These workshops may be focused on training or providing a forum for participants to share their experiences (such as the International forum in 2001).

Seagrass-Watch HQ is currently working on an educational activity kit for schools, and in the past has assisted with developing seagrass modules for school curriculum. Other promotion materials are also produced and available to participants, including brochures, stickers and bookmarks.

One of the most popular ways to provide feedback has been via the program's website. The number of unique hits per month has increased dramatically over the past 3 years, and the introduction of E-bulletins has also proved popular. ♡



From the schools

Raffles Girls School, Singapore

Jocelyne, Sihui and Siling report



While their schoolmates are sleeping in on weekends, three young ladies from Raffles Girls School (who have recently been dubbed the "Labrador Seagrass Angels" for their enthusiasm for all things seagrass) are



traipsing the shores of Labrador Nature Reserve. What are they up to? Jocelyne, Sihui and Siling report on their activities so far:

We had to take up a project to fulfill our science requirements for school, and we initially wanted to study mangroves. However, our teacher, Mr. Lim, told us about seagrasses (which we had never heard of before) and TeamSeagrass, a group of volunteers monitoring seagrass beds in Singapore. TeamSeagrass was looking for student volunteers to undertake monitoring activities of the seagrass meadow at Labrador Nature Reserve. We felt it was a good opportunity to learn something new and undertake a rather unusual school project, and the rest, as they say, is history!

When Seagrass-Watch held a workshop for TeamSeagrass in March 2007, we were lucky to meet with Len McKenzie (SW HQ) who gave us several ideas for experiments on seagrasses, many of which have not been carried out in Singapore. We finally settled on an experiment measuring the leaf growth in *Thalassia hemprichii*. We had our first run in June and the preliminary results look interesting, so watch this space for more news from us! We're also currently doing a profile of Labrador Beach to determine if there's a correlation between seagrass growth with respect to the beach profile.



Len and Siti meet with the girls in March to discuss their project

Then of course, there's the monitoring aspect of our project as part of Seagrass-Watch, but our methods differ slightly from the usual 50m x 50m transect lines. This is because the patch of seagrass at Labrador Beach is too small so we've adopted a GPS

tracking method. Using a GPS, we walk around the edge of the plot of *Thalassia hemprichii*, and by comparing the coordinates of different monitoring sessions, we are able to see if the plot has grown, shrunk, or moved. We focused on *Thalassia hemprichii* although there was also *Halophila ovalis* and *Enhalus acoroides* as the *Thalassia hemprichii* patch was the main component of this seagrass meadow and the other two species were found mostly in the periphery. In addition to the



The girls monitor the meadow at Labrador with Siti



Running out a transect

mapping, we also take the usual measurements as all other seagrass-watchers out there, such as percent cover, species composition, canopy height and the rest.

We all love going down to Labrador Beach, and we've had our fair share of adventure like the time we had to wade around in high-deep water because Mr. Lim

thought that the tides were low enough, climbing and crab walking along the edge of the railing to get into the Beach because the entrance was locked and monitoring seagrass in the rain. And we will leave you now, with some wise words Ms Siti had imparted to us during a TeamSeagrass presentation she gave at our school "Hug A Seagrass Today!" 🌱



Labrador Nature Reserve

Labrador Nature Reserve, also known as Labrador Park is located in the southern part of the main island of Singapore. It contains the only rocky sea-cliff on the mainland that is accessible to the public for recreation, education and scientific research. Since 2002, 10 hectares of coastal secondary vegetation and its rocky shore have been gazetted as a Nature Reserve.

Labrador Nature Reserve has a rich variety of flora and fauna. More than 50 species of birds and more than 11 species of butterfly have been recorded. In addition, the rocky shore contains a multitude of corals and crabs, seagrasses (*Halophila ovalis*, *Thalassia hemprichii*, and *Enhalus acoroides*), sandworms and horseshoe crabs. The Common Hairy Crab (*Pilumnus vesperilio*) is often spotted in the area.

The entire nature reserve, together with the current park, used to be called Pasir Panjang Beach, or Long Beach. The area used to be a long strip of coastal land at high tide, and a rocky beach at low tide, before land reclamation took place and formed the seawalls and grassy park seen today.

Besides its rich biodiversity, this headland played a significant role in the history of Singapore during World War II. Remnants of the past include war relics, tunnels and a fort.

Source: http://en.wikipedia.org/wiki/Labrador_Park & http://www.nparks.gov.sg/nature_labradorasp



The Labrador site



From the schools

Thongniankanaphibal School, Thailand

Asst. Prof. Dr. Anchana Prathep reports

A capacity building camp on marine resources was organized by BRT and Asst. Prof. Dr. Anchana Prathep of *The Seaweed and Seagrass marine unit, Faculty of Science, Prince of Songkla University* for marine national staff from July 6th 8th, 2007 at Thongniankanaphibal School and Koh Tharai, Kanorm District, Nakhon Si Thammarat. The training was done using Seagrass-Watch protocols with funding by BRT and TOTAL E&P Thailand and TOTAL Foundation of France. This was to train a teacher and five students from Thongniankanaphibal School, how to monitor seagrass using the Seagrass-Watch monitoring methods and the importance of seagrasses.



In this camp, the students have learnt about seagrass ecology and Seagrass-Watch protocols, for

example, the seagrass identification, and the specimen collection method. In addition, they have monitored the seagrass meadows using Seagrass-Watch protocol at Koh Tharai. Moreover, the students also have learnt to identify marine animals and marine plants life using the Seashore Detective manual. This is very much useful for those students to know more about their home resources and get them involved in conservation programs while they are still very young. The first collection also was done



Students learning to identify marine animals and plants using the Seashore Detective manual



Estimating seagrass abundance using Seagrass-Watch protocols



Learning to analyse data collected



Learning to prepare a herbarium press

during this camp and will be continued throughout the year.

This camp was the first step to build up capacity on marine ecosystem and conservation for the community. We hope that this program can lead the students to continue their projects on seagrass monitoring program by themselves, supervision by Jittima JaiJang, their teacher. Also, the students get to know and love the marine ecosystem and the sea of their home. ♥



Students and a teacher of Thongniankanaphibal School in the field



Nakhon Si Thammarat Province

Nakhon Si Thammarat (often in short Nakhon) is one of the southern provinces of Thailand, on the eastern shore of the Gulf of Thailand. Khanom is a district located in the north of the Nakhon province. Most of the coast line of district will be protected as part of the Hat Khanom - Mu Ko Thale Tai National Park, which is currently in process of creation. The coast of the district consists of a series of beaches nestled among the limestone and shale mountains of northern Nakhon Si Thammarat mountain range.

The provincial seal shows the Phra Baromathat Chedi of the Wat Phra Mahathat Voramahavihan, one of the most important historical sites in southern Thailand. According to the city chronicle it was already built in 311, but archaeology dates it to the 13th century. The chedi is surrounded by the animals of the Chinese zodiac in theseal.

The twelve animals represent the twelve Naksat cities or city-states which were tributary to the Nakhon Si Thammarat kingdom: the mouse of Saiburi; the ox of Pattani; the tiger of Kelantan; the rabbit of Pahang (actually a city in Pahang which is said to be submerged by a lake now); a large snake of Kedah; a small snake of Phatthalung; a horse of Trang; a goat of Chumphon; a monkey of Bantaysamer (might be Chaiya, or a town in Krabi Province); a cock of Sa-ulau (unidentified city, might be Songkhla, Kanchanadit or Pla Tha); a dog of Takua Pa and a pig of Kraburi.

Source: http://en.wikipedia.org/wiki/Nakhon_Si_Thammarat_Province, http://en.wikipedia.org/wiki/Amphoe_Khanom

Thursday Island High School (Torres Strait)

Stacee and Kantesha report



Stacee and Kantesha, Front Beach, TI



Early morning monitoring at Back Beach, TI

On the 10th, 11th, 12th and 13th of August Seagrass-Watch was up and running here in the Torres Strait once again. With a group of keen Seagrass-Watchers, expert Jane Mellors conducted another successful series of Seagrass-Watching on sites located on Thursday Island, Horn Island and Hammond Island.

The keen Seagrass-Watchers woke up really early ensuring that they made it to each site on time and ready for work. We enjoyed ourselves and learnt a lot thanks to Jane. Local workers also joined our team at Horn Island, Hammond Island and Thursday Island sites. It was a big effort for everyone to keep enthusiastic and willing to get up early throughout the three massive mornings.

A lot of important seagrass

information was found and learnt over the days and another Seagrass-Watch will happen in November. So if there are willing volunteers, they are most welcomed to join and have a good time. The experience is very valuable. 🌱



Kinam and Frank, Wongai Beach, Horn Is.

Belgian Gardens State School (Townsville)

Gayle Joyce (Head of Curriculum/ Year 6 Teacher.) reports

On August 9th, eighteen students from Class 6 J and their Teacher, Mrs. Gayle Joyce assisted Naomi Smith and Adam King in monitoring the seagrass meadows at Rowes Bay (Townsville) on an overcast and cool day, with the odd sprinkling of rain thrown into the bargain! But who cared? It was certainly a better way to practise percentages (of seagrass, algae and epiphyte cover) than doing percentages on the blackboard in the classroom.



Gayle with her camera

This was the first time at monitoring for most of the students however after an informative session with Naomi in the classroom the preceding week and with many practices at calculating the percentage-cover, the students were confident in doing the monitoring efficiently.

The first thing that struck all of us, was the amount of "silty" substance (mud) covering the site. The students were initially disappointed at the apparent lack of seagrass, though I think they had imagined fields of billowing "wet" grass.

For me, having monitored the site on many occasions, it was quite a shock to see the seagrass covered in many places with a thick layer of mud. Had there been rough seas and strong currents recently? Had there been an amount of dredging in the shipping channel recently? Was there any building or reclaiming of land in the port area recently? Was this a Natural phenomena? The appearance of the large amounts of silt posed many questions to which the students are trying to find answers.

Continued over....



Naomi shows off her seed data



Coring for seeds - found one yet?

A day out on the seagrass flats of Rowes Bay!



Jake and Jane, Horn Is

Stacee, Jake and Kantesha

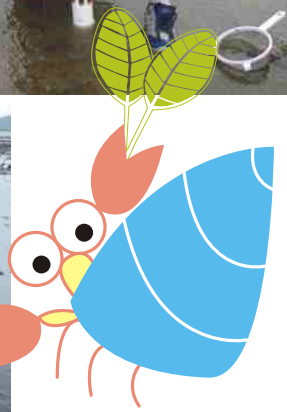
Thursday Is monitors



Horn Is Team



Back Beach Aug '07



From the schools



Monitoring went efficiently with students finding majority of the seagrass being *Halodule uninervis* and quite a lot of seeds being found in the sampling done. I was surprised at the lack of *Halophila ovalis* species of Seagrass as there are usually patches of this type in the vicinity of our site.



Notable findings were many and varied jelly-like egg sacs, some being identified as sea-mullet eggs and others as snail eggs although many of the jelly-sacs were unidentified. Also the students monitoring Transect 1 came across a multitude of Sea Hares and were fascinated to see so many in a relatively small area. Many small crabs were found and assorted hermit crabs and snails with one

lovely "olive" shell with the mollusc intact.



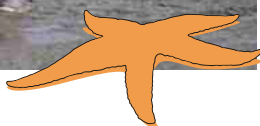
Hermit Park State School (Townsville)

Nakia Hill and Rachel Monaghan report (Grade 7)

On Tuesday the 12th of June, Hermit Park State School students helped four dedicated Seagrass Watch volunteers, Posa, Naomi, Carmen and Adam collect scientific data on seagrass (dugong food). They arrived at Rowes Bay and split up into four groups. Near the site, the mud started to become soft and sloppy and the children sank to their ankles. One of the groups took photographs of the quadrants. The other group was looking for seagrass seeds and the rest were looking for marine life and measuring seagrass percentages and heights in the quadrants. After the days work had been completed, they were all awarded with a chocolate frog and a friendly game of cricket.



Posa Skelton, above, and Naomi Smith, right, teach Hermit Park students Seagrass-Watch monitoring techniques



The students finished the monitoring in record time and were very appreciative at being able to participate in such an important Real life monitoring project. Many thanks to our parents for their assistance and to Naomi and Adam for their expert guidance. ♡

"I think the Seagrass-Watch activities are a great idea for kids to learn whilst having fun," remarked William Webster, one of the students.

The children want to thank the Seagrass-Watch volunteers for helping them to learn these skills. ♡



Animal facts

Seahorses and seagrass pastures



Hippocampus sp.
Image courtesy of Mr. Mohammed Al Momany, Aqaba, Jordan

As unusual as it sounds, there exists a fish with a head like a horse, a tail like a monkey, where the male becomes pregnant and some believe has magical medicinal powers? That fish is of course, the seahorse.

Naturalists in olden times were uncertain whether to class seahorses amongst fishes or insects. Unlike their other bony fish relatives, seahorses share a characteristic elongated semi-flexible stiff body, covered with bony plates and rings for protection instead of scales. They have a dorsal fin located on the lower body and

pectoral fins located on the head near their gills. They have specialised tubular snouts with a small mouth at the tip, they lack teeth and can move their eyes independently. But in spite of their unusual looks, seahorses are true fish, with backbones, gills and fins.

Together with pipefish, and sea-dragons, the seahorses comprise the family *Syngnathidae*. Seahorses are grouped within the genus *Hippocampus*: a name derived from the Greek words for hippos (horse) and kampos (monster) or kamepe (curvature). These bizarre and wonderful creatures are found principally in seagrasses, coral reefs and mangrove habitats in tropical, subtropical and warm temperate habitats where they feed largely on small crustaceans.



A spotted seahorse (*Hippocampus kuda*) clinging onto a blade of *Enhalus acoroides* at Sg Pulai estuary, Johor, Malaysia.
Image courtesy of Choo Chee Kuang (SOS Malaysia)

Unlike other fish, though, seahorses have a tail that is prehensile (able to grasp). It can wrap around seagrass and other stationary objects on the ocean floor. This anchors these weak swimmers, which otherwise are at the mercy of currents. Hanging onto a blade of seagrass also helps the seahorse hide. Seahorses grow skin flaps and change colours to blend in with their surroundings. Colour changing is also an important part of mating.



Potbelly Seahorses at Tennessee Aquarium, Chattanooga, TN, USA.
Image courtesy of Joanne Merriam

Seahorses are generally monogamous. The male and female will greet one another with courtship displays in the morning and sometimes in the evening to reinforce their pair bond. They spend the rest of the day separate from each other hunting for food. Sometimes during courtship displays, the pair link their tails, and the female deposits her eggs into the male's belly pouch, which he fertilizes. After 10 to 21 days, the male gives birth to up to 150 young. These miniature seahorses rise immediately to the surface to take a gulp of air, which helps them stay upright. Hatched offspring are then independent of their parents.



Hippocampus kuda, Papua New Guinea.
Image courtesy of Jane Wia, MIRC

The world's oceans host about 33 seahorse species. Because of the fishes' colour and skin changes, this number is debatable. The 2003 World Conservation Union (IUCN) Red list of Threatened Species lists 9 of the 33 seahorse species worldwide as vulnerable, and one as endangered. The other 23 are listed as data deficient, demonstrating the lack of knowledge of seahorse biology, and the urgent need for more research.

Habitat destruction, pollution and collecting for aquariums threaten seahorse survival. The largest threat however is overfishing. More than 25 million dead and live seahorses are traded globally on an annual basis with around 95% of these being used in traditional medicines; aquarium and souvenir trade make up the rest. In the 1990s, some seahorse populations were observed to shrink between 25 to 50 percent over five years. Traditional Chinese, Japanese and Korean medicine practitioners use dried seahorses to treat asthma, atherosclerosis, thyroid disorders, skin diseases, heart disease, sexual dysfunction, lethargy and pain.

Several Seagrass-Watch participants are investigating the relationship between seagrass and seahorses. Their research will provide valuable knowledge on these unique and iconic creatures. 🌱

Do you want to get involved?
Register with Seagrass-Watch HQ
www.seagrasswatch.org

