

Seagrass-Watch



news

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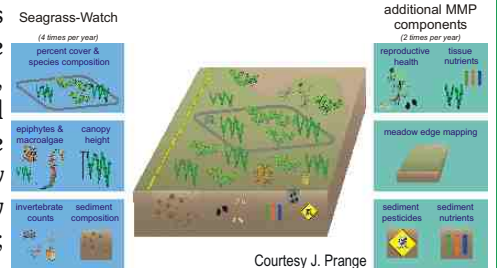
Seagrass-Watch has certainly been productive over the last few months: training workshops have been held in Singapore, Queensland (Townsville) and the Philippines; Great Barrier Reef Water Quality monitoring has been completed; additional monitoring locations established; and most sites have conducted monitoring.

In this issue you can read reports from several of the regions & countries currently participating in the program. Read about the RWQPP monitoring adventures from Queensland's far north to the south, including an interesting discovery at Hamilton Island. You can also learn why Seagrass-Watch participates in Reef Plan MMP and read the experiences of Yogi and Nicky from Fiji, who helped monitor 8 sites in 4 days (a champion effort).

Catch up with the Townsville teams, what they've been doing and their "identity crisis"! Hear from the Torres Strait teams and their trip to Cairns. Learn how DPI&F are protecting seagrasses and hear how the award winning Great Sandy Strait team has been keeping busy. Read about a study examining turtle diets in Eritrea and the Bolinao Seagrass Demonstration Site. Margaret Parr gives her last report on the Whitsundays before heading south, and Ria fills us in on the adventures of Team Seagrass in Singapore. Happy reading!

Great Barrier Reef WQ monitoring

The third round of Reef Water Quality Protection Plan (RWQPP) Marine Monitoring was successfully completed in April/May. The monitoring is pre and post tropical wet season (October and April respectively) each year, and targeted at the major marine ecosystem types in the Great Barrier Reef region most at risk from land based sources of pollutants. Intertidal seagrass meadows are one of the targeted ecosystems. Monitoring is based on Seagrass-Watch standard methodology, plus additional components, including: edge mapping, reproductive health (flowers), sediment nutrients, sediment herbicides, and seagrass tissue nutrients. This season saw the expansion of the monitoring to include: new sites at offshore islands; within canopy temperature monitoring at all RWQPP sites; and trialing light loggers.

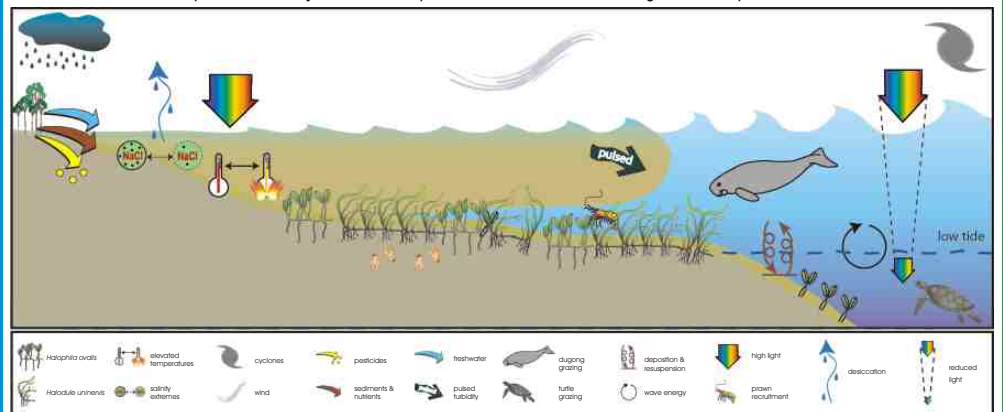


Monitoring to date has highlighted that seagrass meadows are dynamic; coming and going on time-scales of months to years. However the interrelationship between human mediated influences and normal population changes in seagrass meadows in the GBR are poorly understood. In the past, nutrients have been the factor most concentrated on when determining the effect of declining water quality on seagrass meadows. Seagrass habitats of the GBR have now been characterised by having low nutrient availability and being primarily nitrogen limited. A recent appraisal of the relationship between seagrass biomass, tissue nutrients and sediment nutrients determined that something other than nutrients was limiting seagrass growth in intertidal meadows. The most likely factor is light. This coupled with the predictions of climate change such as rising sea temperatures, increased storm intensity and wind speeds and further decreases in water quality (turbidity or water clarity), could exacerbate the impacts of low light availability already being experienced by coastal seagrass meadows. For these reasons, light and temperature are the new monitoring components which have been introduced to improve our understanding of drivers of changes in seagrass abundance and distribution in the Great Barrier Reef region.



Naomi (SW HQ) installs a light logger at Bushland Beach

Conceptual diagram of coastal intertidal seagrass meadows in the wet tropics of north eastern Australia: general habitat and processes. Major drivers are pulsed runoff from the land, light and temperature.



What's inside:

Article	page
Seagrass-Watch Fiji visits Qld.....	2
RWQPP Townsville to Gladstone.....	3
Townsville-Thuringowa.....	4-5
Bowen.....	6
Great Sandy Strait.....	7
Whitsunday's.....	8-9
Seagrass - worth protecting.....	10-11
Torres Strait.....	12-13
Yule Point.....	13
Singapore.....	14-15
Bolinao (Philippines).....	16
Seagrasses of the Philippines.....	17
Pramuka Island (Indonesia).....	18
Motupore Island (PNG).....	18
Eritrea (Green turtle diets).....	19
Roebuck Bay.....	20
Seagrass-Watch Champion.....	20

Seagrass-Watch acknowledges the traditional owners on whose sea country we monitor

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DISCLAIMER: while all efforts have been made to verify facts, the Queensland Department of Primary Industries & Fisheries takes no responsibility for the accuracy of information supplied in Seagrass-Watch News. The views expressed in this newsletter are those of the authors and not necessarily those of the Queensland Government.



For more information about the Reef and Rainforest Research Centre visit <http://www.rrrc.org.au>

Far North Queensland

Seagrass-Watch Fiji visits Far North Qld: 8 sites in 4 days

Masao & Nicolette Yoshida
report

We arrived in Cairns April 14th and were very fortunate to be able to join Len & Rudi (Seagrass-Watch HQ) at Yule Point, Green Island, Luggier Bay & Dunk Island for Seagrass-Watch and Reef Water Quality (RWQPP) monitoring. While we had visited Green Island and



Yule Point

Luggier Bay (Mission Beach) previously, Yule Point and Dunk Island were a first. We were looking forward to the experience, as we are from Fiji and we conduct Seagrass-Watch monitoring on the Island of Ovalau.



Dugong feeding trails at Yule Point

Day 1 - Yule Point. It was quite windy but apart from that the day was perfect. The two sites (YP1 & YP2) were monitored and the highlight of the day was seeing the dugong feeding trails that Len pointed out. We don't get dugongs in Fiji and so to imagine these sea mammals feeding on the seagrass was great.



Green Island: Len (SW HQ) monitoring GI2

Day 2 - Green Island. Travelling out to Green Island is always a most enjoyable experience. The day was fine with slight winds. It never fails to amaze us to see the life out in the reef and in the seagrass meadows. Clams ("vasua" in Fijian) lying close to the shore and beche-de-mer ("dairo") in abundance. If only Fiji had the same enforcement as the Marine Parks in Australia do. We also saw a couple of turtles swim up close to the beach at high tide, feeding on seagrass. It was nice to see, as in Fiji this is unusual because the sale and consumption of turtle meat is still very common; even though Fiji currently has a 5 year moratorium which bans the sale of sea turtles.



Above: Green Island: Nicky and Masao (Yogi) collecting seagrass samples

Below: Setting up at Luggier Bay, Mission Beach



Some even helped us with the water quality collections.

Day 3 - Luggier Bay (Mission Beach). The isolation of this area is amazing. During the monitoring the only visitors to the beach were the wallabies. The meadow was not as lush as that of Green Island and Len told us that the area had been severely impacted from the effects of Cyclone Larry in March 2006. The weather was fine and the sites were very dry due to the very low tide.



Luggier Bay: Running the transect. Dunk Island in the background



Monitoring the new Dunk Is sites, DI1 and DI2

Day 4 - Back at Mission to catch the ferry for a 25 min ride across to Dunk Island. Seagrass-Watch HQ was establishing a new site on the island as part of the RWQPP monitoring, and to be part of this was most exciting. Len and Rudi waded through waist deep water on the southern reef-flat of the island, looking for seagrass and a suitable site to monitor. When it looked as if setting a site up would not happen, the tide dropped sufficiently to reveal a meadow, large enough for two sites. The two sites were set up, monitored and completed in time to see us head back to Mission Beach on the ferry at 4.30pm.



Above and below: Halodule uninervis and Halophila ovalis growing on the southern reef flats of Dunk Island



Seagrass monitoring is very exciting and important, and we are very happy to be able to be a part of Seagrass-Watch. 🌱

Dunk Island



Image courtesy of www.dunk-island.com

Dunk Island lies 4 km off the Australian east coast in the Pacific Ocean, opposite Mission Beach, Queensland. It is the northernmost and largest of the Family Islands group, rising to 271 metres at its peak. Dunk Island National Park covers 7.3 km² while an airstrip, resort and farm cover the remaining 2.4 km² in the north-west. The Indigenous Australian name for Dunk Island is Coonanglebah, "The Island of Peace and Plenty." It received its European name from Captain Cook in 1770 after George Montague-Dunk, 2nd Earl of Halifax.

Queensland

RWQPP Townsville to Gladstone Roundup

Naomi Smith reports



Reef Plan MMP sampling in April was successful as Jane Mellors, Iony Woolaghan, Catherine Walsh, Shenade Muller and myself sampled the eight sites at Townsville, Mackay and Whitsundays in one week. The highlight of the trip was establishing a suitable Seagrass-Watch site at Hamilton Island.

The intertidal shore of Catseye Beach on Hamilton Island varied from reef top to sandy flats. Along the sand flats, directly in front of the Resort, we observed a large sparse patch of *Halodule uninervis* and *Halophila ovalis*. It was at this location that we monitored 30 random quadrats. In the reef top habitats to the right and to the left of the Resort, we observed seagrass meadows consisting of sparse patches of *Thalassia hemprichii* with high algae cover as well as seagrass meadows with a variety of species. In total we observed 6 species including *Thalassodendron ciliatum* which was very surprising as this is the furthest south it has been observed in the Pacific. Hopefully, after more investigations in July, one or two sites at Hamilton Island can be added to the Seagrass-Watch "family".

The next round of sampling was at Ross Creek (RC1) and Wheelans Hut (WH1), Shoalwater Bay. The team from CQU/CEM (Kelly Jacobs, Kirsty Small, Ashley Bunce and Andy Davis) took me under their wing as this site involves camping in the Army training ground for 3 days. A 4WD vehicle was required to drive to both sites and then we had to walk in ankle to knee deep mud to the Seagrass-Watch sites. This area has huge tides (7.5m) and the seagrass meadows go on for as far as the eye can see. It was an amazing sight. The main species found at these sites were *Zostera capricorni* and *Halophila ovalis*. We saw up to 20 turtles, beached, waiting for the tide to come in and we were able to measure one turtle's shell and it was 104cm! During the morning, while waiting for the tide to drop, we walked around the top end of Sabine Point and it was here that we saw dugongs and an abundance of marine life.



The RWQPP team. LTR: Catherine, Jane, Shenade, Naomi and Iony



RWQPP monitoring at Shelly Beach, Townsville



An exciting find - *Thalassodendron ciliatum* on Hamilton Is. Possibly the most southern record for the species in the Pacific Ocean



I would like to thank the CQU/CEM team for their hospitality and especially Andy for his bush cooking and his 4WD



adventure!!!

On the 15th May, Iony Woolaghan and I embarked on an adventure to the beautiful Great Keppel Island in search of a new Seagrass-Watch site (Hey someone had to do it!!) We exhaustively searched 3 beaches (Leekes, Putney and Fishermans) on the North West side of the island on the one low tide.

The sediment along these beaches was compacted fine sand, only changing at the end of Leekes Beach where the sand became a little coarser with some shell grit. We observed seagrass (mainly *Halophila ovalis* and *Halodule uninervis*) washed up along Putney and Leekes Beaches. At Leekes and Fishermans Beaches only very sparse patches of intertidal seagrass meadows were observed. Whereas, along Putney Beach we found a large patch of sparse seagrass meadow (mainly *Halodule uninervis*) so we decided to set up a Seagrass-Watch site. Unfortunately, due to the sparseness of this meadow most of the seagrass did not fall within our quadrats.

On the next field trip it would be a good idea to investigate both Monkey's and Long Beaches on the south side of Great Keppel Island. The quantity of seagrass washed up along the beaches leads us to believe that there must be a very healthy subtidal seagrass meadow growing off the island.

Our long days didn't end there as the next day we drove to Gladstone to sample the two sites on the south end of Curtis Island. We are greatly appreciative to Queensland Boating and Fisheries Patrol (QBFP) for taking us out to the sites, as navigating through Gladstone Harbour, especially at low tide, can be very difficult. We then had to walk 1.2 km to the sites, luckily, the sediment was sand/mud, although at some points around GH1 there was ankle deep mud. The dominant species at these sites was *Zostera* and a high algae cover was observed. Thankyou to Iony for a successful and enjoyable field trip. 🌱



Iony searching for seagrass at Leekes Beach



Halodule uninervis, Putney Beach, Great Keppel



Monitoring on Gladstone Harbour



QBFP arriving at Curtis Island, Gladstone Harbour



Turtle measuring 104cm (left) and the CQU/CEM team (below), Shoalwater Bay



Townsville Region - Queensland

Townsville-Thuringowa Seagrass-Watch



Posa Skelton (TTSW Local Coordinator) reports

Sky-wonkies (weather experts) have been seen proclaiming that the El-Nino has sufficiently shifted to break the long-standing drought in most parts of Australia. For us, the Seagrass-Watchers of the twin-cities, it meant pleasant days out on the exposed seafloor watching the green seagrass grow. Furthermore, the low-tides were in our favour allowing for a good afternoon picnic after the surveys. The month of April was the busiest for our monitoring group, with the Northern Beaches Rotary kick-starting the surveys on the 14th April, which was followed by the Shelley Beach seagrass-watchers under the guidance of the Mundingburra Rotary on April 15. Our friends from the University of the Third Age were out and about seagrass-watching a couple of days after the Shelley Beach survey, at their Cockle Bay site, over at Magnetic Island. In May, only one monitoring was undertaken, at the second site at Shelley Beach. Our many thanks to Jane Mellors (SWHQ) for leading that survey.



Out of the marine meadows, our partners and supporters at the Conservation Volunteers Australia and the Qld. Department of Primary Industries and Fisheries have been busy promoting Seagrass-Watch to schools. School presentations and tours were carried out as part of the International Wetland Day. Preparations were well under-way for a hype of environmental activities for the Environment Week (June 3-8th). Our group held two displays over the weekend (June 2-3rd). The Fishing & Boat Expo at Cluden Park, attracted a lot of fishing enthusiasts. Having a Seagrass-Watch stall there was the appropriate way to remind the community that sustainable fishing can only be achieved by looking after the fish habitats, especially our seagrass beds.



The Townsville Ecofiesta gave us the opportunity to promote and recruit new members. There were plenty of children's activities, and by far the most popular was the badge making exercise (until the badge machine decided to have an eco-siesta). Our seagrass meadow was also popular with the community writing conservation messages

on seagrass leaves. We also had a touch-tank display, kindly donated by the North-Queensland Algae Identification Facility at James Cook University.



on seagrass leaves. We also had a touch-tank display, kindly donated by the North-Queensland Algae Identification Facility at James Cook University.

As we conclude the second quarter of Seagrass-Watch activities, we acknowledge the great progress made in our region, we look forward to what looks to be busy months of June-July out on the seagrass meadows counting seagrass seeds and estimating seagrass cover. Of

course the balmy tropical winter of North Queensland is just another reason why you should join us to watch the seagrass grow. 🌱

Identity Crisis

That's it we need an identity!!! Over the years we've been the The Townsville-Thuringowa Seagrass and Mangrove Watch, Twin City Tidings, Townsville Seagrass-Watch, and just plain old Seagrass-Watch (which gets confusing between the methodology and the people). So now is the time to give us a handle - all suggestions can be emailed to Posa Skelton (Townsville-Thuringowa Seagrass-Watch Local Coordinator) at skeltonp@bigpond.net.au or even posted to him c/- PO Box 1085 Townsville Q 4810. Who knows there may be mystery prize for the best suggestion. 🌱

Sea Hares



Sea hares are small marine gastropod molluscs of the suborder Anaspidea (P. Fisher, 1883) in the subclass Orthogastropoda, class Gastropoda, phylum Mollusca. Their common

name derives from the projections on their bodies which somewhat resemble rabbit ears. Their scientific name (Anaspidea) is derived from the Greek for "without a shield" and refers to the lack of the head shield which characterises other members of the Opisthobranchia.

Sea hares are large, bulky creatures, reaching a length of up to 75 cm and weight of up to 2 kg. They have soft bodies with an internal shell and are all hermaphroditic, acting as male and female simultaneously, even during mating.

Sea hares are herbivore/herbivorous and are typically found on seaweed in shallow water. When there is a shortage of food, they burrow themselves. They have an extremely good sense of smell. They follow even the faintest scent with their rhinophores, which are extremely sensitive chemoreceptors. They will only eat seaweed that matches their colour; if the slug is red, it will feed on red seaweed.

They rely for protection on their coloration, which camouflages them from predators. When disturbed, a sea hare can release ink from its ink glands, providing a potent deterrent to predators such as sea anemones. This release acts as a smoke screen, while, at the same time, affecting the scent of their predators. The color of the ink is white or reddish, depending on the color of the pigments of the seaweed. Their skin contains a similar toxin that renders sea hares largely inedible for many predators.

Source :http://en.wikipedia.org/wiki/Sea_hare

Townsville Region - Queensland

Bushland Beach April Survey

Posa Skelton and Lux Foot report



Lux Foot and Posa Skelton, BB1



Tav and Iony, collecting for RWQPP



Afroz, Posa, Sayaka, Jenny and Wendy on transect 3



Bushland Beach Site



Working on Transect 2



Shenade with Jane Mellors



On Saturday 14th of April we ventured out to monitor the Bushland Beach meadow for our 2nd Seagrass-Watch survey of the year. Lux, armed with his yellow mobile-size GPS (provided courtesy of Conservation Volunteers Australia) led the way to the permanent marker, where Jane Mellors and her RWQPP team were now congregating after the completion of their research. Lux took charge, and Jackie and Jenny (Rotary members) began laying out the transects as the rest of the group teamed and divvied up the tasks (there were 24 of us all together which helped to make monitoring easy).

The gale force winds over the past two weeks had done a lot of damage to the meadow, fresh blow outs and the tide had scoured the seabed leaving seagrass rhizome exposed at the edge of temporary tidal pools. Another fascinating observation was the many baby trochus that were seen in and around our quadrats. This certainly affirms the fact that seagrass meadows are great nursery areas for marine species, especially the commercially important ones. We also noted that the seagrass had begun to re-established in some of the old blow outs.

With great team effort and many extra pairs of hands, monitoring was completed in two hours. We gathered on one of the un-scoured and exposed seagrass patches to complete our traditional group photo and headed back to the shore, where the remaining members of the Northern Beaches Rotary were already laying out the barbequed fare and crisp cold drinks.

This was an enjoyable day. We will continue to learn more every time we visit this and our other sites in Townsville. The Townsville-Thuringowa Seagrass-Watch group would like to thank our hosts the Northern Beaches Rotary. ♥

Shelly Beach

We were a small group but an effective one on Thursday, 17th May and it was great to walk over to the site via the sandbanks rather than trudging out through the mud!!!! It was great to see Sue Wilson applying her new found Seagrass-Watch knowledge (March Seagrass-Workshop participant, for more on the workshop see issue 28).

Absolutely unbelievable effort by Julia who got straight off the plane from Brisbane and convinced Carole that they should go Seagrass-Watching. Brilliant!!!! Percent covers were slightly down (not surprising, given the strong winds we have had recently), seed counts were still relatively high and faunal recruitment to the site made the monitoring session really interesting.

We had sea hares, looking remarkably like hairy caterpillars as they head to tailed it through some of our quadrats, in addition to lots of tiny oyster-like bivalves along the seagrass leaves. We also noted some other species of seagrass (*Cymodocea serrulata* and *Halophila spinulosa*) that we don't find within SB2, as we traversed the meadow on our homeward leg.

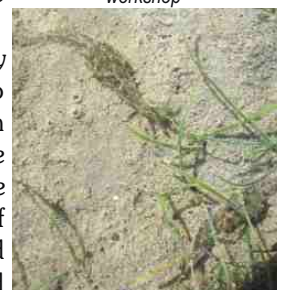
As always at this time of year in Townsville, it was an absolutely glorious day and it felt great to be outdoors amongst it!! ♥



The Shelly Beach Crew



Sue Wilson putting in practise what she learnt at the Townsville workshop



Sea hares at Shelly

Excellence Award



Posa Skelton the local co-ordinator for the Townsville-Thuringowa Seagrass-Watch received an award during Townsville's week long celebration of World Environment day. He was awarded *The Townsville City Council's Sustainability and Environmental Excellence Award for Individual Initiative for Raising Awareness of Marine Conservation* on Wednesday June 6th. The award was in recognition for his tireless and significant contribution towards environmental protection and improvement in Townsville. Seagrass-Watch HQ would like to congratulate Posa on his award. Well done!! ♥



Queensland

Cockle Bay, Magnetic island

Don Kinsey (U3A) reports



The April monitoring by our U3A Earth and Sea Class was carried out on the 17th April. Adam King (Conservation Volunteers Australia) met with us and came around to the site with me. He gave our group several pairs of booties, a comprehensive first aid kit, and a submersible film camera.

These April observations were very different to those of last April. In view of the enormous difference in meteorological conditions between years, that is probably not too surprising. Conditions have been windy and almost totally dry for some weeks. *Halophila ovalis* was completely absent from our transects. *Cymodocea serrulata* was even more dominant than in February, and exhibited very high cover. *Halodule uninervis* was present in minor amounts in the outer sections of the transects, and we found no *Thalassia hemprichii*.

Algal cover was nearly absent over the majority of quadrats on transect 1 and 2. As usual, Transect 3 with its sparser seagrass cover, exhibited more algal cover. Foliose reds were essentially absent along transects 1 and 2 though there was limited occurrence on Transect 3 and in the general area. *Halimeda spp* were of only sparse occurrence. Other algae with even more sparse occurrence in the general area of the transects were: *Sargassum spp*; *Padina sp*; and the very occasional *Dictyosphaeria* on rocks etc.

The higher ground from the inner ends of the transects back to the beginning of the mangroves exhibited only sparse but general *Halophila ovalis* cover which was stunted and dark in colour. There were patches of very narrow leaved *Halodule uninervis*, but no *Zostera capricorni* on this occasion. There was also no evidence of the Enteromorpha- type green filamentous alga so dominant on this higher ground last April after the heavy rains.

Epi-cover was a fine muddy diatomaceous layer with no significant occurrences of epi-faunal and epi- algal crusts. There was virtually a total absence of epi-cover by the usual turf algae and diminutive foliose red algae. Green sponges again were quite common in the transect area. As usual, seed occurrence was very low- in this case zero. 🌱



Catherine's last Seagrass-Watch field trip.

Picnic Bay, Magnetic Island

Naomi, Jane, Iony and Catherine monitored MI1 in late April (Thursday, 19th) as part of the suite of sites monitored for the RWQPP. It was fantastic to see that our new method of marking the site proved to be successful. This is one of the worst sites for losing site markers and therefore temperature loggers, so here is hoping. It was a fairly routine monitoring with no big surprises average per cent covers and

no seeds!!! The site did look rather brown though as the tips of the seagrass were all burnt. This monitoring also coincided with Catherine's last Seagrass-Watch venture before she took up her new job in Toowoomba (not much seagrass there).

The Townsville Seagrass-Watch team would like to wish Catherine all the best for her future and hope that if she is visiting her parents in January she might consider coming out and doing some midnight monitoring for old time's sake - thanks Catherine for all your assistance over the years. 🌱

"Seagrass Watch" Bowen

Jane Mellors (Seagrass-Watch HQ) in collaboration with the Bowen State School established and monitored a new site (BW1) at Front Beach, Port Dennison. The site is a mix of *Halodule uninervis* and *Zostera capricorni*. There were also small amounts of *Halophila ovalis*, all great dugong food. The site will be monitored by the Year 7 students as part of their Environmental, Reef Guardian Program.



Carli DeLuci (BSS) reports.

On Friday the 27th of April, 21, year seven students walked down to Front beach to complete our first seagrass monitoring. As part of our Environmental Program 2007 we have decided to monitor the seagrass meadow at the Front Beach with the help of Seagrass-Watch HQ.



Halodule uninervis and *Zostera capricorni* dominate Front Beach

Before we left the school grounds Jane Mellors (Seagrass-Watch HQ), gave a talk to the year 7 students and teachers about the program. Jane also explained to and taught us the importance of seagrass and the different species of seagrass we would find.



Students under Jane's guidance monitor BW1

When we reached Front Beach we divided into 5 groups, each having a task to complete. Three groups did transects examining the seagrass, one group took photos and the other group sampled seagrass seeds.

The year seven students successfully completed the tasks and the data was sent to



Seagrass-Watch HQ for further study. We will receive our own Seagrass-Watch Monitoring Kit from the Burdekin Dry Tropics NRM this term. We were very proud of our efforts and look forward to continuing the "Seagrass-Watch" program in 2007. 🌱

Bowen

Bowen is located in the dry tropics, on the NE coast of Australia, halfway between Townsville and Mackay. The town enjoys a diversified and prosperous economy based on agriculture, fishing, tourism, and mining. Just north of Bowen is the Abbot Point coal loading port. Coal is mined inland of Bowen and is exported mainly to Europe and Japan. Bowen also has an evaporative salt producing facility. It uses only seawater and sunlight to make salt, without burning fossil fuels. This is only possible because of its dry tropical climate. Most of the table salt

Queensland



Great Sandy Strait

Gordon Cottle reports

After the euphoria of our Award win (see Issue 28) it was back to business on 3rd



March when Robyn and Hanne again walked to the island site at Boonaroo (BN2) where the grass cover was very similar to September 2006.

On the 17th March we met up with Len and Rudi (Seagrass-Watch HQ) at Tinnanbar (TN3) where we recorded greater *Halodule uninervis* cover at transect 3 than the other sites. This was also confirmed by seed monitoring, with 5 whole and 18 half seeds.

After a brisk walk back to TN2 we found patchy *Zostera capricorni*, which was lower than November 2006. Robyn tried her first seed monitoring (finding only 6 halves on the site), before we were beaten by the tide. A very welcome and interesting meeting for all of us.

Unfortunately, in April we did not get the opportunity to get out, with both Robyn and I in hospital. I did, however, travel to the Tannum Sands / Boyne Island BMRG Coastal

dugong feeding trails throughout. Are these results a consequence of no local rains or flooding from the adjacent local residential area?

On Wednesday Pat and I went to Tin Can Bay to meet up with Cheryl List (BMRG Schools Officer), Maree Prior (Cooloola Coastcare Coordinator) and four other CoastCare Volunteers, one of whom (Lee), initially laid out the TB1 site. We were fortunate that all the pegs were still in position, the substrate is rock and shell, with an algae growth throughout. We did record some sparse *H. uninervis*. However, by removing some rock and shell good rhizome was revealed, and it would appear that the seagrass is struggling to get through.

At the same time Robyn and Hanne walked to PN3, for the last time I believe, having seen Robyn's photos of Hanne (who then fell backwards herself - she wouldn't surrender the camera to Hanne). The cover still remains around 1 - 2% comprising *H. uninervis* and *H. ovalis* with epiphyte to 100%. At transect 3 was a patch of *Halophila spinulosa*, unusual to see intertidally.

Come Thursday and we are at Tinnanbar TN1 The seagrass cover was a sight to behold with extensive *Zostera* cover to 40%, *H. ovalis* was also evident, with sparse *H. uninervis*.

With favourable weather conditions over the weekend Robyn and Hanne in Paul's boat went to Reef Islands. RI1 maintains a good average cover from 20 to 30% *Zostera* with some *Halophila ovalis*. RI3 showed clean seagrass mainly *Zostera* of 25 to 30% cover.

Another fine day on Sunday 20th saw Robyn, Sarah and Paul at RI2 where the usual average cover to 25% remains. Another outstanding effort by the Team, Nine sites in six days! 🌱



(Left to right) Pat Cottle, Hanne Larsen and Robyn Bailey on site at Tinnanbar



Hard at work, Gordon in the background doing seeds



Len McKenzie (SW HQ) quizzed about monitoring protocols



Above: Dugong feeding trails at Tinnanbar

Forum and gave a PowerPoint presentation on seagrasses in the Great Sandy Strait. It was well received by an interested and very interesting group of local volunteers. The day was rounded off with a visit to the Rio Tinto alumina smelter.

On the 14th May Pat and I drove to Poona Palms Caravan Park and set up camp for the week. In the afternoon we met Hanne at BN1 where the overall seagrass cover was well up on February 2007: averaging 12% + *Zostera* & *H. ovalis*.

The following day Robyn joined us at Poona PN2 which showed an amazing recovery from February with seagrass to 12 & 15%, only 13 quads with no grass. We proceeded to PN1 on an excellent 0.2 m tide, giving us about a four hour window. The overall seagrass cover was double the February reading, with



The Team back at Poona



Dugong feeding trails on site at Poona



Gordon Cottle (third from left) with volunteers at Tin Can Bay



Hanne Larsen "stuck in mud" at Poona, site 3



Tinnanbar: Hanne and Pat, another site wrapped up



A dead turtle found at Reef Islands

Queensland

Pionner Bay, Laguna and Midgeton (Whitsundays)

Margaret Parr Whitsundays Seagrass-Watch local coordinator Reports



Pioneer Bay monitoring on April 17th was a joint effort between QPWS Volunteers and Jane Mellors (SW HQ) and her very able helpers. Their help meant we were able to complete work on the 4 sites in one afternoon.

The mud we have become accustomed to is still there but now mixed with an algal bloom. It is amazing how the seagrass is able to battle through adverse conditions in the Bay. Sadly we said au revoir to Eileen Lavis who is leaving the Whitsundays. Thank you Eileen for all your excellent work over the past 5 years, we enjoyed having you as part of our team.

At Laguna, Bruce and myself observed that there has been a lot of wave action around the site. The site peg was buried and seagrass looked healthy although there was not much of it. We did note many gastropod sacks on the site.

Helen Debnam, Carolyn Williams, Michelle St Martin, Betty Wilson, Bruce Parr and myself spent a memorable afternoon at Midgeton. We saw



Seagrass smothered with algae, Pioneer Bay, April 2007



Below: Dugong feeding trails at Midgeton



Below: Pioneer Bay site covered with algae



Above: Dugong feeding trails recorded for the first time at Midgeton



dugong feeding trails for the first time on this site and a new seed count record was made see below. The sites looked healthy and were also being enjoyed by a jabiru fishing in one of the ponds left by low tide and two green turtles.

QPWS ranger Carolyn Williams is also leaving the area. She has supported Seagrass-Watch for a number of years not only as our liaison with QPWS but as a volunteer. Thank you for your help Carolyn. You are leaving us happily holding "the most seeds in one core record", 21, recorded recently at Midgeton - smashing the previous record of 17 seeds by Betty Wilson and Geoff Bunn. 🍀



Carolyn Williams, Midgeton "Champion seeder"

"I'm doing my bit to look after it!"



Whitsunday's crew, together for the last time

Dingo Beach

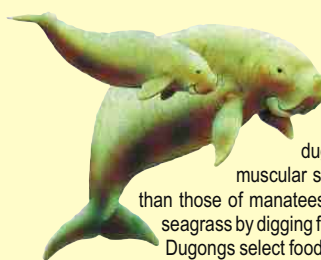
Carolyn Williams reports

Taking photo's and searching for seagrass seeds for the first time, Damien Head proved he had good skills at Dingo Beach, while Kerry Harrison and Wendy Galloway completed the transects. The tide came in quicker than a speeding bullet so the team retreated to a shady spot for lunch after a job well done. The seagrass looked healthy, was fairly uniform throughout the site and some seeds were found. 🍀



Dingo Beach

Dugongs



Dugongs are particular about their diets, with certain 'meadows' of seagrass grazed. Dugongs are referred to as 'sea cows' because their diet consists mainly of seagrass. Unlike manatees, dugongs are exclusively benthic feeders. The muscular snouts of dugongs are more dramatically tapered than those of manatees. Their primary feeding mechanism is uprooting seagrass by digging furrows in the sea-floor with their snouts.

Dugongs select food on the basis of high nitrogen, high starch and low fibre levels. The order of preferred seagrass species for dugongs is *Halophila ovalis* > *Halodule uninervis* > *Halophila spinulosa* > *Syringodium isoetifolium* > *Zostera capricorni*. Feeding trails are commonly seen in low density meadows (10% -30% cover) of *Halodule* or *Halophila* on sandy intertidal banks. Feeding trails have however been recorded down to 33m in the far northern section of the Great Barrier Reef.

Queensland

Midge Point Survey

Wenzler Family report

We surveyed the Midge Point sites on Saturday April 14, 2007. It was great to be out surveying the seagrass meadows again. It amazes us that every time there is something different to be found or seen. This time was no exception.

The day was cloudy and a storm was on the eastern horizon as we left the shore for our 1km walk through the mud to our sites. Over the years we have become adept in getting to and from our site through the mud without getting up to our knees in mud.

This time we noticed that most of the seagrass was covered in mud and water in the pools was muddy. We were soon to find out why - that storm on the horizon made good time and hit us just as we arrived at the first site and gave us a good and thorough drenching.

The sites were a little thin this time. One of the quadrants that was surveyed, had little *Halophila ovalis*. When we first started surveying these sites over 5 years ago we had almost 100% *Zostera capricorni* but over time *Halophila ovalis* slowly increased. But on this monitoring event, *Halophila ovalis* had decreased (I wonder if it has something to do with which month we actually do the survey in?)

We also noticed that the surface sediment of the mudflats were different, besides the rain splattering most of the "topsoil" (or should I say "topmud" was washed away and the courser shell/mud matrix was visible.



Midge Point site



Tara and Jennifer drenched!!



Estimating percentage cover



Turtle found in a pool of water at Midge Point



Fibropapilloma tumors on a turtle at Midge Point

On a different note, we came across two turtles in our survey. One was just resting in a shallow pool near one of our transects. Upon closer investigation we noticed that this turtle was not well. It had numerous growths on its soft tissue under the shell, neck and eye. We rang the QPWS animal helpdesk to see if there was anyone who thought that this turtle should be investigated or researched (or helped medically). After talking to the person on duty, and leaving our contact phone number, we continued on our seagrass survey.

Finally, as we walked over to the sites, we noticed all the rocks covered with hundreds of tiny dead bivalves. Again, we had never seen them before, although it did remind us of the time a while back where we had hundreds of live bivalves living on the seagrass leaves themselves. 🍀



Fibropapilloma tumors

Fibropapilloma (FP), is a form of herpes virus which causes wart-like growths on the turtles. They may become quite large on the exterior and interior of the animal. Based upon the location of these growths it makes it difficult or impossible for the sea turtle to eat due to obscured vision, a mouth sealed shut, or flippers with limited mobility.



Fibropapillomatosis of sea turtles is causing an epidemic amongst sea turtles. Sea turtle fibropapillomatosis, was first discovered in 1938. In 90% of the cases, FP and herpesvirus are both present. All cases report a max. 2cm between the FP and herpes spots. These results lead to the conclusion that a chelonian herpesvirus is regularly associated with fibropapillomatosis and is not merely an incidental finding in affected turtles.



In the 1990's, it was thought that this was a deadly condition for sea turtles and would quickly lead to the extinction of all sea turtles. New research shows that larger species can and will recover from the disease.



Fibropapillomas occur in other species besides sea turtles, such as cattle, camelids, cervids, and sheep. These tumors are benign and may spontaneously regress. Treatment consists of surgical removal, though tumors may recur if the tumors are not entirely and fully removed from the turtle's external covering. But, if the tumors are internal (growing on the lungs and trachea and also inside the throat) the turtle will not recover and will sooner or later die from the deadly disease. Fibropapillomas in species other than the sea turtles are thought to be caused by the bovine papillomavirus or closely related viruses.

<http://www.answers.com/topic/fibropapillomatosis>
<http://en.wikipedia.org/wiki/Fibropapillomatosis>



Protecting Seagrass

Seagrass worth protecting

Louise Johns (Fisheries Biologist DPI&F) reports



Most avid Seagrass-Watch newsletter readers would already be aware that seagrass has vital links to fisheries. It is due to these links that the Queensland Department of Primary Industries and Fisheries (DPI&F) takes responsibility for managing and protecting fish habitats including marine plants. Marine plants include vegetation that grows on or adjacent to tidal lands. This description includes mangroves, saltmarsh, algae and, of course, seagrass.

Juveniles of commercially important species of Queensland fish such as barramundi, mullet, whiting, tailor, luderick, bream and flathead depend on seagrass meadows. Commercial penaeid prawns such as red spot king, brown tiger, grooved tiger and endeavour also live in seagrass meadows as juveniles. Shellfish such as some oysters and pearl shell are often more likely to settle and survive where there is seagrass. Juvenile and adult sandcrabs, mudcrabs and flathead are just a few species which spend most of their lives in seagrass meadows, where there is not only food but also protection from strong tidal currents and predators.



Above: An adult mud crab (*Scylla serrata*) exposed at low tide

Right: A juvenile emperor (*Lethrinus*) in the seagrass meadow of Green Island

Below: A juvenile sandfish or bech-de-mer (*Holothuria scabra*) emerges from the substrate of a seagrass meadow late in the afternoon.



Dugong grazing (feeding) trails at Yule Point



Seagrasses are important indicators of the 'health' of the marine environment. Human impacts such as excessive pollution from sewage discharge, oil and runoff, and physical destruction from dredging, uncontrolled bait digging, boat propellers and anchors/moorings can damage or destroy seagrasses.

Estuarine seagrasses in particular may be threatened by coastal development and nutrient, sediment and herbicides from catchment sources. Seagrass meadows are fragile ecosystems and any damage to these may impact on associated prawn and fish communities.

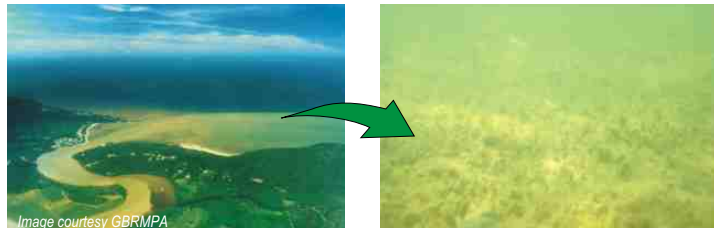


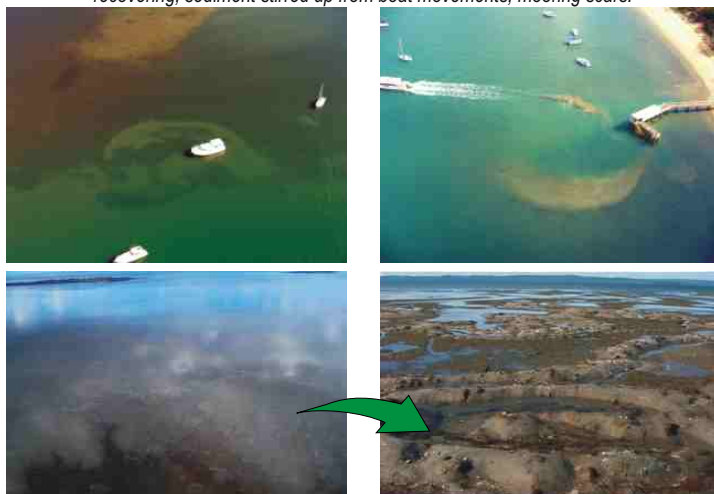
Image courtesy GBRMPA

Agricultural runoff during a flood event can lower light available to seagrasses

Below: Rubbish in a seagrass meadow
Right: Discarded fuel drum



Effects from boating activity
clockwise from above: A recent propellor scar; an old propellor scar with seagrass recovering; sediment stirred up from boat movements; mooring scars.



Digging for worm (bait) by fishers. Above left: aerial view showing density of scars. Above right: A recent dig showing the extent of damage



Damage to reef platform meadow from heavy machinery on a remote Torres Strait Is.

Protecting Seagrass

All seagrasses and other marine plants are specifically protected under the Fisheries Act 1994 in Queensland waters, as the proper management and conservation of these habitats is essential to both the commercial and recreational fishing industries and to traditional fishing activities. The majority of the seagrass meadows in coastal Queensland are also within areas closed to trawling to avoid capture of juvenile prawns.

Any damage or removal of seagrass requires approval from DPI&F under the Integrated Planning Act 1997 or authorisation for minor disturbance (e.g. for research) under a self-assessable code.

Where development along the Queensland coastline directly impacts on seagrass habitats, (e.g., marinas, port developments, etc.) DPI&F must undertake a thorough assessment of the proposed development based on Departmental policies and taking into account the merits of the individual proposal prior to any approval being issued. Applications may be refused. Whenever an approval is issued involving losses of seagrass or any marine plants, offsets for this loss must be provided by the developer with agreement by DPI&F where appropriate.

Whilst DPI&F issue approvals for development that can impact directly on seagrass meadows it is harder to control offsite factors that can affect seagrass, things such as reduced water quality,

sediments and nutrient loads. Wherever possible DPI&F recommends buffers between development and freshwater and tidal wetlands to improve water quality further downstream.

An additional level of protection that DPI&F provides for seagrass and fish habitat is via the State's declared Fish Habitat Area (FHA) network. The FHA network throughout Queensland consists of 71 tidal wetland areas that have an extra layer of legislative protection which restricts the type of disturbance or development, providing a higher level of protection for seagrass and all other fish habitats within the area. Before an area is considered suitable for FHA declaration, it must be first assessed against standards for each of the following criteria: fisheries (e.g., fish species richness), habitat (e.g., size and diversity of habitats) and unique features. In 2005/2006, Seagrass-Watch supported an assessment of the fisheries resources (fish & habitats) of Albatross Bay (Weipa & Napranum) to determine if it met the requirements of FHA with the view of possible future declaration. Although the area meets the criteria of an "A" management FHA, a decision is still pending after closer consultation with stakeholders. The declared FHA network currently protects more than 800 000 ha of Queensland's coastal fish habitats. 🌱



Coastal development:
Left: marina and reclamation
Below R: port expansion (e.g., Brisbane Port)
Below L: beach replenishment

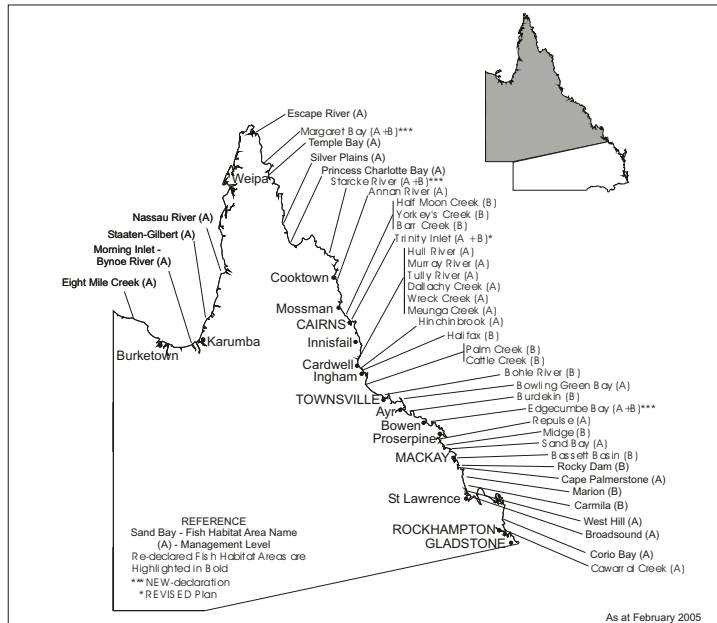


YOU CAN HELP

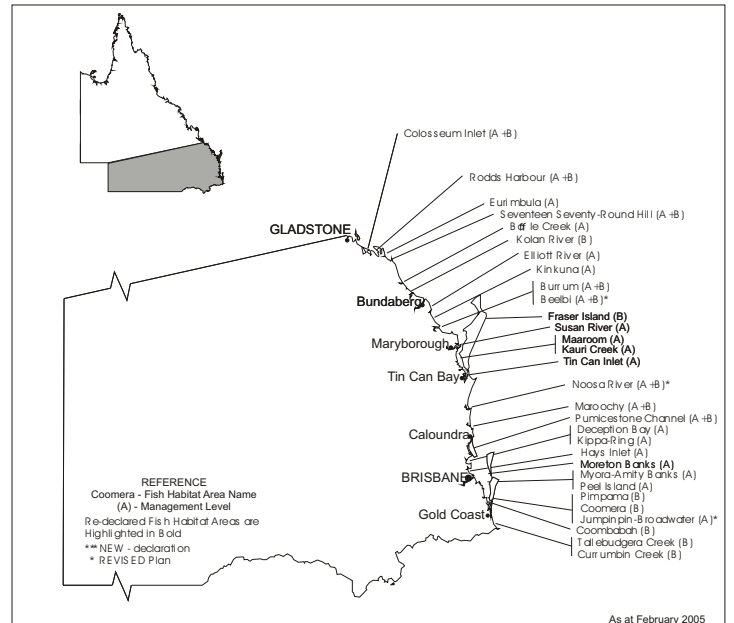
There are strong links between Seagrass-Watch monitoring sites and the Fish Habitat Management Group at DPI&F. Any unusual monitoring results provided by the SGW groups within Queensland are passed onto the DPI&F Fish Habitat Management group for investigation and management response.

To report any suspected illegal activities involving damage to marine plants or fisheries, phone the 24-hour freecall Fishwatch Hotline on 1800 017 116.

For more information on seagrasses and other marine plants or any departmental policies discussed, contact DPI&F on 132523 or check our website at www.dpi.qld.gov.au/fishweb.



Fish Habitat Areas in Queensland: Gladstone to NT Border



Fish Habitat Areas in Queensland: NSW Border to Gladstone