

eagrass-Watch program developments over the past guarter included the launch of the Seagrass Education Kits. media exposure with the children's program "Totally Wild" and the adoption of Seagrass-Watch as the standard protocol for monitoring seagrass habitats by the Locally Managed Marine Areas Network (p7). This issue also includes reports from across the regions and countries currently participating in the program and includes some of the research findings from a study examining water quality impacts on seagrasses of the Great Sandy Strait (p3).

Over the coming months Seagrass-Watch is introducing temperature monitoring, using loggers at many of the regularly monitored sites (p10). Seagrass-Watch training workshops are planned for Cooktown, Mission Beach and Bowen (*contact* Seagrass-Watch for details). October will also see the launch of the World Seagrass Atlas and the associated media which will feature the Seagrass-Watch program and raise it's international profile.

Thank you to the many people who responded to the questionnaires in the last issue with some very positive feedback on the program. Some preliminary results are included in this issue (p10).

As this is our last newsletter for 2003, a big thank you to all volunteers who participated over the year collecting valuable information on the status and condition of seagrasses in their region. Please keep your articles coming and have a great festive season & new year.





## **Seagrass Education Kit**

On 27 August the Hervey Bay Seagrass and Dugong Monitoring Program's education kit was launched. The kit was put together by Jerry Comans with the help of school teacher Greg Lynch, Nah-leah Judd and scientific input from the Marine Plant Ecology Group. The launch, at Southern Cross University in Hervey Bay, was attended by about 50 people and was opened by the local member Andrew McNamara. The vice chancellor of the university Prof Susan Brambrick, Greg Lynch (Fraser College) and Stuart Campbell (DPI)

gave short presentations outlining the value of the education kit to promote awareness of the marine environment throughout the region. The education kit takes students through a series of questions and tasks before rewarding them with a "Seagrass Eco Agent" badge and certificate. It is hoped the kit will be used by schools throughout Queensland and promote Seagrass-Watch as an important community program aimed at educating the wider community about protecting our valued fisheries habitats from inappropriate use.

## Totally Wild Seagrass-Watch



<u>By Year 7, Yarrilee State School (Hervey Bay)</u>

On Wednesday 27 August, the Hervey Bay Dugong and Seagrass

Monitoring Group organised Channel 10s "Totally Wild" crew to film local students monitoring seagrass at Urangan, to coincide with the launch of the seagrass education kits. "Totally Wild" is an afternoon children's television program aimed at educating young audiences (8-14 year olds) about Australian flora, fauna and environments.

Three of our students (Alex Kratochwil, Memphis Fitzgerald and Coenraad van der Westhuizen) and three students from Star of the Sea Catholic Primary School (Emily Smith, Jack Shaw and Scott May) were chosen and filmed at Urangan. The program had us demonstrating to presenter Emily Barker how we sample seagrass meadows as part of Seagrass-Watch and we spoke about the importance of seagrass meadows to dugong

"Totally Wild" presenter Emily Baker interviews students on the Urangan mudflats.



and turtles. It was a great experience. Not only did we get to see another site with a lot more seagrass AND MUD than Burrum Heads, but we became instant TV stars. It was

good to meet Stuart Campbell (DPI) because he explained lots more about Seagrass-Watch and the other countries where students are seagrass monitoring.

The "Seagrass Monitoring" story went to air on Wednesday 1st October 2003 at 4pm, and again on Friday 3rd October 2003 at 6am.

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Visit the World Seagrass Association website at www.worldseagrass.org

For a Totally Wild seagrass monitoring Fact Sheet, visit www.ten.com.au

# Great Sandy Region



## **Great Sandy Strait Jauna & Jlora Watch** Gordon Cottle reports



The current quarter's seagrass monitoring is progressing well, despite the high winds. Good grass coverages are seen at Tinnanbar and Poona (PN1), where the fine silt that covered the area in June has gone, revealing a higher percentage of *H. ovalis*. At PN2 *Zostera* is in abundance, with multiple dugong feeding trails; unfortunately there is a

long propeller scar there~ also, adjacent to PN3, a furrow 50m long and up to



300mm deep, indicating a total disregard for the environment and their own boat motor.

> On Friday 29th August, we accompanied James Sheppard (James Cook University), Juanita and Stuart, tracking a dugong which was fitted with a transmitter in March at Burrum Heads. It had been recorded at Kauri Creek for about three weeks and a few minutes after we arrived in the area, guided by Steve

Dugong feeding trails at Tinnanbar.

Winderlich, it was located and surfaced four times within 20 metres of the boats. From recent observations there are probably around sixty dugong in the vicinity.

James' intention was to release the collar by remote control, but the batteries were too low. However, within twenty four hours the animal re-appeared at Burrum Heads, and the collar released.

While monitoring a new well grassed site at Kauri Creek, a False Water Mouse nest was spotted, confirming other sightings.

Members will be attending training sessions at Mon Repos Turtle Sanctuary in October and the egg laying and recovery watch at Sandy Cape in December/January.

An unusual call out on the morning of Wednesday, 17 September 2003: A kangaroo reported on the mud flats past the channel. Received assistance from two visitors who reached it and got it into their small tinnie. Sincere thanks to Merv and Pam McDonald, Having let it

recover whilst restrained we returned it to its local habitat.

### Seagrass Monitoring Great Sandy Strait Wayne Matthews reports (QPWS)

Seagrass monitoring in the Great Sandy Strait for the current quarter is well under way. Most sites have shown positive growth while other sites have shown subtle changes in percentage cover along monitoring transects.

Seed monitoring at the Tinnanbar (TN2) yielded a

significant number of whole and half seeds. This was quite a surprise to regular site volunteers (see also p11). Identification of seeds was confirmed by those on site.

Large dugong herds have been seen in the Great Sandy Strait south of the mouth of Kauri Creek.

Queensland Parks and Wildlife Service (QPWS) has invited schools to become involved with the Seagrass-Watch program, now underway with the dedicated assistance of students from Maryborough Special School, Maryborough West State School and Tin Can Bay P-10 State School. Maryborough Special School monitors Poona (PN2) which now has a good cover of *Zostera capricorni* and a percentage of *Halophila ovalis*. Maryborough West's site at Boonooroo (BN1) contains a sparser coverage of *Halodule uninervis* with a small percentage of *Halophila ovalis*. While Tin Can Bay's site at Norman Point contains a very sparse cover of *Halodule uninervis* and *Halophila ovalis*. Other schools wanting to participate in the program should contact QPWS, Marine Parks Unit on (07) 4121 1800.

The success of the seagrass monitoring program is due to the invaluable contribution of volunteers. **OPWS** would like to acknowledge their work particularly the dedicated assistance of Gordon Cottle, Gary and Desley Neilsen, Hannah Larsen, Steve Nicol and Peter Lynch. More help is always

needed.



Zostera capricorni with heavy epiphyte cover at Boonooroo.

## Great Sandy Strait - Regional Roundup

At Brown's Gutter in mid June, Garry, Gordon and Peter reported that the channel to the immediate north of the site appeared deeper than previously, possibly a result of recent heavy rains on Fraser Island. The site was covered by fine silt as a result and crustaceans were noticeable absence throughout. Nevertheless, they observed many recent dugong feeding trails across the site. They also noted that the bank south of the site, exposed by the low spring tides, was totally covered in *Zostera* (up to 20cm canopy height).

At Tinnanbar, Peter, Gordon and Gary reported heavy epiphyte cover over the whole area. The cover was much greater than that observed at Reef Islands and Brown's Gutter sites, and it gave the grass cover a greater appearance than actual. They also observed extensive

old and new dugong feeding trails throughout TN3 and about 10m from TN2.



# Hervey Bay Happenings

#### Seagrass vs herbicides By Kathryn McMahan (UQ)

By Kathryn McManan (UQ)



With the assistance of other researchers from the University of Queensland, I recently completed a study in Hervey Bay and the Great Sandy Strait on herbicides and seagrass health. Six intertidal seagrass sites were surveyed in April and December 2002, and all were adjacent to permanent Seagrass-Watch sites. A number of measures of seagrass health were taken and water samples were also collected at each site at high tide to test for 8 different types of herbicide. Herbicides were detected at all of the sites, but at very low concentrations, below what is known to impact seagrasses. The most common herbicide was diuron.



Herbicides are used for a variety of activities; to kill weeds in agriculture, forestry and in the local community in parks and home gardens, and are also used for anti-fouling paints on boats. In

Hervey Bay and the Great Sandy Strait, herbicides were found in catchments with both agriculture and forestry. During a flood event, seagrass is generally lost due to the turbid water which reduces light reaching the seagrass. If the turbid water persists for a significant period of time, the seagrass will die. Seagrasses can also be lost through storms and by physical removal from fast flowing waters. During a flood event herbicides may play a role in increasing the amount of seagrass lost and may also slow recovery of the meadows after a flood. However, between flood times there is no indication of an impact. The work by Seagrass-Watch volunteers in the area will certainly help us to get a better understanding of how seagrasses recover after floods by monitoring seagrass cover and also seed banks, which play an important role in meadow recovery after disturbance. Thanks to all the Seagrass-Watch volunteers who helped with data collection on this project. It was much appreciated. If you would like more information, contact Steve Winderlich, Senior Coastal Ranger at QPWS, Maryborough, tel: 4121 1933 or email: steve.winderlich@epq.qld.gov.au





Paul Sysum, Gerrald Trent, Susan Bengston Nash, Kim McKenzie and Karen Kirk seagrass sampling

## *Yarrilee State School Environment Studies*

Year 7 students report

As part of our school Environmental Studies Program we completed the monitoring at Burrum Heads (BH1 and BH2) on August 25.

We split our class into three groups and did three transects at the same time. It took about 25 minutes to do each site. Some of us had done monitoring before and for others it was a new experience. Everyone was excited because we saw lots of dugong feeding trails, especially near Burrum Heads (BH1).

The other things we liked were discovering three different species of seagrass, improving our monitoring skills and how many different animals we found on each site. Because we did two sites it helped our understanding of how seagrass is affected by what people do on the mainland.





Year 7 students monitor seagrass at Burrum Heads

## Hervey Bay - Regional Roundup

At Burrum Heads in late August, Bill Alston noted numerous dugong feeding trails and dense patches of *Zostera*, *H. uninervis* and *H. ovalis* between BH3 and the beach.

Dundowran seagrass abundances are still extremely low, and as no seeds have ever been found at any of the sites since seed sampling began in February 2001, it seems unlikely that the rate of recovery will increase in the immediate future.

Good news for Urangan sites however, where recovery has continued to increase at a tremendous rate.

Unfortunately no monitoring was conducted at any of the three Toogoom sites last quarter.

# Whitsunday Wanderings!

## Monitoring News



<u>Margaret Parr Reports</u> Whitsunday Volunteers have again monitored their

four sites in Pioneer Bay. We welcomed three new volunteers who came along to training and were soon out on the sites with the rest of us. They all got the hang of it very quickly. They have all written of their impressions of their first taste of seagrass monitoring (see below) thank you girls.

Over three afternoons, we successfully completed 3 sites and seed counting, and installed the new temperature probes, but the tide beat us on the forth site. The ever-present mud appears to have moved westward in the Bay and further inshore. Sites 1,2,and 4 are still quagmire like, although the seed corer was easier to use on site 2 than on the last two occasions. Site 3 seems to have less silt than observed at last monitoring. A few dugong-feeding trails were seen between sites 1 and 2 and dugong poo spotted on site 2.

Every monitoring we see something new! This time Helen found *Zostera capricorni* growing on site 4. Another new find was many baby sea cucumbers in our quadrats and surrounds.

Several tons of a sludge of seagrass, algae and mud have recently been deposited on Cannonvale beach and we observed *Halophila spinulosa*, *Zostera capricorni* and *Thalassia hemprichii* washed up on the mud flats and floating in the incoming tide.

This will be our last monitoring at Pioneer Bay for 2003. Thank you all who have contributed to the success of the program in the Whitsundays this year and thank you to Stuart and Len for your support throughout the year.

See you in the mud next year, Margaret.



Above left: Seagrass wrack & sludge on Cannonvale Beach. Above right: Trainees Meg, Emma, Diane, Wendy with Dell.



#### Seagrass Watch Impressions By Meg Lopez

By Meg Lopez

As a new volunteer for Whitsundays, I turned up for training for the Seagrass-Watch program. The smell hit us first!! What is it? We are still debating! Sewerage? Sludge? Drains? We thought all of these combined!

Anyway, Margaret sat us down to explain our job and the job of seagrass itself. Then we headed out. As this was my first monitoring session, I found it fascinating and many discoveries were made including a new species in an area where it is not usually found. We raced the tide unfortunately it beat us!! A great experience, I hope to be involved in it again.

#### <u>By Wendy Galloway.</u>

The new volunteers arrived to be joined with the old Vols on the excursion to Pioneer Bay to monitor seagrass. After donning our booties, we set forth to have explained to us the types of seagrass we were searching for, also the animals that inhabited within each area we were monitoring. A cool breeze was blowing and once we determined how to traverse the mud without becoming bogged, it was "all go". Overall a very enjoyable afternoon followed by a very much-needed cup of tea at the end.

#### By Diane Turner

Three of us new Vols, Wendy, Meg and myself joined the old Vols for a training session on seagrass monitoring. Then out in the mud we went. What a fascinating world out there at low tide - so much life in the shoreline. Dell and John Williams from Mackay joined us for the afternoon along with their family. I look forward to participating in this exhilarating project again.

## **Regional Roundup**

At Pioneer Bay in mid July, Margaret & Bruce Parr and Morrie Kite reported that the sites and surrounds were still covered with light grey mud with black oily sludge underneath (for background, see article in issue 17). Betty Wilson and Val Bunn also reported the same phenomenon at PI4 with the mud ankle deep or more in parts. Abell Point Marina redevelopment has continued and blasting can be heard by volunteers when on site. The sites also had increased amounts of algae, mainly red with some brown and green filamentous. A large number of detached *Halophila spinulosa* stems were found throughout the bay. Helen & John Williams reported dead *H. spinulosa* over much of their site, PI2.

*H. spinulosa* is a subtidal seagrass species, which has a fern like appearance due to its compound leaves (10-20 pairs of leaflets arranged around a common stalk). *H. spinulosa* is one of the seagrass species preferred by dugong, and is especially important during low tides when it may be the only accessible food resource. A meadow of *H. spinulosa* was mapped in January 1999, 3.5km north of the monitoring sites in Pioneer Bay, in a depth of 4.0m off Bluff Point. Leaves could have been transported from this meadow by northerly winds, or a new meadow may have established nearer to the monitoring sites.

# Papua New Guinea



## Papua New Guinea Seagrass Monitoring Training Workshop By Robert Yen (WWF PNG

marine officer) Following the successful ending of the Bismarck Solomon Seas Ecoregion (BSSE) Vision Workshop in Madang in July, fourteen participants from five different organizations in Fiji, Papua New Guinea and the Solomon Islands remained for yet another workshop; the Seagrass Monitoring Training Workshop 14-16 July. Particpants included The Nature Conservancy (Kimbe Bay, PNG), WWF Solomon Islands, WWF Papua New Guinea (Port Moresby and Madang), WWF

South Pacific Programme (Suva) and volunteers from the Riwo community.

The facilitators; Len McKenzie and Stuart Campbell, both from the Department of Primary Industry in Queensland were thrilled to have fourteen enthusiastic participants ready to grasp additional skills and knowledge on seagrass monitoring.

On <u>Day One</u> of the training workshop the participants were introduced to the concept of seagrass monitoring. They were also given a general introduction to seagrasses. The second half of the first day, participants actually tried out the seagrass monitoring methodologies in the field at Riwo Village.

<u>Day Two</u> of the workshop followed in a similar fashion as the previous day. The day began with a classroom session about mapping and rapid assessment of seagrass habitats, followed by the exciting fieldwork in the afternoon at a different site in Riwo.

During the workshop, John Aini from Ailan Awareness did a presentation on seagrass work in Kavieng. Ailan Awareness was the only participant who has currently been conducting



Participants of the Seagrass Monitoring Training Workshop at Riwo Village. 🚺

seagrass monitoring in Papua New Guinea. At Riwo village near Madang Town, participants took to field exercises on the seagrass meadows, equipped with transect tapes, sand pegs, datasheets, pencils, clipboards, rulers, standard size quadrats, quadrate photo labellers, water proof cameras and field guides.



The learning experience turned out to be fun filled as participants

Participants getting a feel of seagrass monitoring exercise

waded into the warm water off Riwo village. On the <u>final day</u> of the workshop, the participants were divided into five groups. Each group analyzed the various data collected from the two sites sampled on the previous days and gave presentations of the results back to the group.

The participants then did some Seagrass-Watch housekeeping: cleaning and washing the field equipment used on the previous days as it is important to keep all monitoring equipment clean and salt-free. "Pressing" seagrass herbarium specimens was the last of the day's activities. This activity is truly an art to some participants. Their seagrass specimen was neatly spread out to show all the features of the sea plant. For others this task took a lot of patience to be completed. Pressing of herbarium specimens concluded the three day Seagrass Monitoring Training Workshop in Madang.

Seagrass meadows and the ecosystem these sea plants make, is a very important marine environment for a large number of organisms including fish, invertebrates and other benthic organisms. However, closely linked to the seagrass are micro algae, dugongs and turtles. The seagrass is a foraging, breeding and nesting grounds for many of the species that exhibit the coastal waters. For some organisms, the seagrass habitat is an excellent nursery.

The concern for conserving and managing marine resources must start by firstly identifying the condition of the habitats and ecosystems. This is an objective of Seagrass-Watch monitoring, which is also one valuable tool for the management of marine resources. This tool can be applied to especially assessing and managing the declining population of dugongs and marine turtles that forage on this resource.

Each organizations represented at the Seagrass Monitoring Training Workshop were presented with a Seagrass Monitoring Kit. Equipped now, the five organizations from the three Pacific Island States will now begin to conduct Community Monitoring of Seagrass Habitats at their respective project sites.





### Seagrass-Watch Nadroga Alfred Ralifo reports (Nadroga

Navosa Provincial High School)



Rotum

tis

Nadroga Navosa Provincial High School is located on the main island of Viti Levu, 11 Km west of the town of Sigatoka. It was founded



where the start is the second Girls School by the Methodist Church and later became a co-ed school in the 1970s. With a current roll of approximately 200 students, our school is very fortunate to be part of Seagrass-Watch. It enables us to be more aware of the importance of seagrass meadows and how to look after them.

Similarly, getting the students involved in the scientific work of sampling brings into reality what they have learnt in the classroom. At the same time, this program will help them

change their attitude towards their environment as well as give them a sense of ownership of the seagrass meadows they have in their different coastal communities. Having a sense of ownership will mean that they will be more careful about their natural surroundings and become active and responsible environmentalists.

In September 2003, a group of 13 biology students led by Alfred Ralifo, Yuka Fujii and Noel Pabalan conducted their third Seagrass-Watch. survey at Nadroga.





session and are looking

forward to the next.

The weather was just perfect and the whole meadow was exposed at low tide. Everybody joined in and worked hand in hand. It took us a little bit more than an hour to complete the survey

Teacher Yuka Fujii (right) with Our next visit to the site is on November. Everybody enjoyed the monitoring



Cawaci - Ovalau Venoma Yoshida reports

Rukuruku

Nasac



AWACI

St. John's College, located 5 km north of the historic town of Levuka (Old capital of Fiji), is on the island of Ovalau, which lies off the east coast of Viti Levu. The college was founded in 1894, by Bishop Vidal, to educate

the sons of ranking Fijian Chiefs. It sits on the grounds of St. John's Church, a gothic revival building, that is constructed of limestone and coral from the island's fringing reefs. Moturik

The fringing reef has large

intertidal meadows of Halodule uninervis, Halodule pinifolia, Syringodium isoetifolium and Halophila ovalis ssp. bullosa.

In August 2003 the student team of 4 led by teacher Josephine Qalo conducted their 3rd survey of the

> seagrass meadows at Cawaci and managed to complete both sites in good time. The students were very enthusiastic about the sampling event as they were able to apply knowledge

which had just been learnt in their biology class.

The next survey is expected to take place in October 2003.









Cawaci students monitoring site CW1 with teacher Josephine Qalo.



## Komodo National Park (Indonesia)

The Komodo National Park, located in the center of the Indonesian archipelago, was established in 1980, to conserve the unique Komodo dragon



and its habitat. Over the years, the goals for the Park have expanded to protect its entire bio diversity, both terrestrial and marine. In 1986, the Park was declared a **World Heritage Site** and a **Man** 

Western Pacific

and Biosphere Reserve by UNESCO. The Park includes three major islands: Komodo, Rinca and Padar, as well as numerous smaller islands creating a total surface area (marine and land) of 1817km. Indonesia is the only equatorial region in the world where there is an

exchange of marine flora and fauna between the Indian and Pacific oceans. Passages in Nusa Tenggara between the Sunda and Sahul shelves allow movement between the Pacific and Indian oceans, thus making the Park one of the richest marine environments that include coral reefs, mangroves, seagrass meadows, sea mounts, and semienclosed bays. These habitats harbour more than 1,000 species of fish, some 260 species of reef-building coral and 70 species of sponges. Dugong, sharks, manta rays, at least 14 species of whales, dolphins, and sea turtles also make the Park their home.

There are approximately 4,000 human inhabitants living within the park spread out over four settlements (Komodo, Rinca, Kerora, and Papagaran). All villages existed prior to 1980 before the area was declared a national park.

Seagrass monitoring at the 4 sites established in Komodo National Park has continued with the assistance of WWF and the Nature Conservancy. Seraya Kecil sites are dominated by *Enhalus acoroides* and *Thalassia hemprichii* with varying amounts of *Halophila ovalis, Syringodium, Halodule* and *Cymodocea* species. Sites at Papagaran are dominated by *Enhalus* with some *Thalassia*. Abundances appeared to show a possible seasonal increase in April, with July 2003 abundances returning to 2002 levels.





## Locally Managed Marine Areas Network.



In August, Seagrass-Watch was adopted as the standard protocol for monitoring seagrass habitats by the Locally Managed Marine Areas (LMMA) Network, at a region-wide meeting for all members held in Suva, Fiji.

The week long meeting from August 11<sup>th</sup> - 15<sup>th</sup> was attended by approximately 80 people from 9 countries: Indonesia, the Philippines, Palau, FSM, the Marshall Islands, PNG, Fiji, Samoa, and the US/Hawaii (including 15 to 20 observers).

The LMMA Network is a group of projects and practitioners who have joined together to increase the success of their marine conservation efforts by providing guidance and capacity building in the areas of project design, management, monitoring, analysis and communication. Members span the people and cultures of Southeast Asia, Melanesia, Micronesia, Polynesia and the Americas. Through the network, community learning and results are shared across a global audience.

The August meeting brought participating LMMA Network members from around the region together to share and learn about their lessons and findings in LMMA use and to make decisions about the future activities, services, and directions of the Network in the next few years. Particpants also received orientation and training on community-based biological and socio-economic monitoring methods.

The meeting was very successful and the LMMA Network is now fully operational and on course in achieving its vision and objectives. You can read more about the network at www.lmmanetwork.org.



### **Regional roundup** Jane Mellors reports

#### Shelley Beach

July sampling was a great success. With Mundingburra Rotary announcing they were ready to take on monitoring SB2 on their own, it allowed another group to monitor SB1. This group was ably crewed by volunteers from Bushland Beach Seagrass-Watch, Indo-Pacific Sea Turtle Conservation Group, CRC Reef, and ACTV. Seagrass cover was lower at SB2 ranging from 0.5% to 15% whilst at SB1 seagrass cover ranged from 15% to 60%. Seed counts were also higher at SB1. One of the amazing things at SB1 were all the small anemones attached to the seagrass blades and once again lots of sea hares which probably accounts for not much algal epi-cover at this site. The day was rounded off with a BBQ, at the environmental park at Pallerenda.



Cheers: Après Shelly Beach Monitoring

#### Herbert River Rotary Club

With initial contact being made through the Northern Beaches Rotary Club, it was decided that Jane Mellors would travel to Ingham and do a presentation for the Rotary Club on seagrass and Seagrass-Watch. The talk was received well and enough interest was generated within the club that it looks like we will now be monitoring seagrass in the Taylors Beach-Lucinda area. It's great that Seagrass- Watch is still expanding in the region.

Right: Lux Foot and Brain Scott discussing seagrass watch at Herbert River Rotary Club meeting.



Jane Mellors delivers Seagrass-Watch presentation to the Rotary Club of Herbert River, Ingham.

#### **Bushland Beach**

Bushland Beach sampling on August 9th saw two new volunteers make it out onto the seagrass flats. After some on the spot training Angelina and Sam, took to monitoring seagrass like ducks to water. Seagrass cover at this site ranged from 5% to 30% and lots of flowers and fruits of *Halophila ovalis* were observed. Seed counts for *Halodule uninervis* revealed that this plant is also actively reproducing at this location with one sample recording nine seeds and four half seeds. Whilst not recorded on any of the transects *Halophila spinulosa* was seen for the first time since monitoring started at this location. The day was ended with a BBQ at Sharon's house to which a delegation from the Herbert River Rotary Club came to find out more about Seagrass-Watch and its feasibility in their region.



Angelina and Sam monitor for the first time



Belinda and Matthew





Alyssa and Louis



Next good tides (Townsville Port) The next monitoring of long term sites will be Shelley Beach, October 2003 Best tides (0.6m) are on Thursday 23rd at 1:22pm & Friday 24th at 1:56pm Bushland Beach, November 2003 Best tides (0.9m) are on Friday 21st at 1:09pm & Saturday 22nd at 1:52pm

## Queensland Seagrass-Watch menny continued ..

## Moreton Bay - Update

#### Paul Finn reports



July and August was a busy period in Moreton Bay, being the second monitoring round since beginning the expansion of Seagrass-Watch here late last year. Of the total 47 sites that have been established, 32 have been adopted by trained volunteers and of these, 23 sites were surveyed during the recent monitoring period. Among those surveyed was the first of the subtidal sites at Peel Island and several sites at Wellington Point. Wellington Point supports a high recreational use by a diverse cross-section of the general public and as such volunteers get ample opportunity to explain what they are doing to the casual visitor.



Left to right: Rebecca Fowler, Lucas Batton & Michael Salini off Peel Island.

Channel Ten's 'Totally Wild' aired a story on Seagrass-Watch in Moreton Bay recently. Of particular interest and great effect were the personal perspectives of two of our longest standing volunteers.



The next monitoring round is scheduled for November and December 2003. In the meantime we will be training new volunteers and getting them set up at sites that have not

been adopted yet. There is still a large and continually growing list of volunteers waiting to adopt sites. We have been pleasantly surprised with the number of younger volunteers joining the team.

For more information on the WPSQ Bayside Branch, visit http://www.users.bigpond.com/wildlifebb/



From left to right: Barry Johns, John Henderson and David Joseph at Wellington Point.

## Sea country habitat monitoring at Napranum, Weipa

Seagrass-Watch is establishing a sea country habitat monitoring project to be coordinated through the Nanum Wungthim Land & Sea Centre at Napranum. The Land & Sea Centre



expressed interest in developing their capacity to monitor their sea country resources in an effective way and to build on their ranger skills. Results from the monitoring will assist Nampranum's traditional owners and the community in understanding the health of their sea country, and can be applied to the management of dugong, sea turtle, and traditional fisheries resources.

The area includes some of the most extensive and diverse seagrass habitats found in the eastern Gulf of Carpentaria. These seagrass resources are important habitats for dugong and turtle, and also provide nursery and forage habitat for many commercially valuable fish and prawn species.

The Ports & Shipping Group (DPI) have monitored seagrass resources at Weipa since 2000 through the Ports Corporations of Queensland. The last two surveys have shown marked declines in Weipa seagrass distribution. The reason for the decline could be related to changes in global climate conditions, but without year long temperature and seagrass health data, the answer will not be fully understood. Since 2002, seagrass monitoring by DPI has been restricted to only one annual survey event and has no capacity to compile data on changes that occur throughout the year. Data provided through a Seagrass-Watch monitoring program at Weipa will greatly build on the knowledge of these seagrass systems throughout the year and may provide vital clues to understanding declines in seagrass.

Monitoring sites were established at Evans Point and Napranum in late September 2003. The Evans Point site is dominated by *Halophila ovalis* and the Napranum site is dominated by *Halodule uninervis* (narrow) with isolated plants of *Halophila ovalis*, *Enhalus acoroides* and *Thalassia hemprichii*. Temperature loggers have been deployed at each site.

Formal training of community members and Nanum Wungthim Land & Sea Centre rangers in Seagrass-Watch



monitoring methods will hopefully occur in April 2004. Due to restricted daytime low tides in the r e g i o n , monitoring at these sites will only be in April, J u l y a n d September.

Murray Penter (Land & Sea Centre coordinator) inspects temperature loggers at Napranum, Weipa.

## Queensland Seagrass-Watch menn continued ..



## Seagrass-Watch Volunteer Survey -Preliminary results. By Deb Bass (JCU)

I received 45 responses (from predominately female volunteers), mostly from the Whitsunday and Townsville regions. It would be nice to get some more from the Moreton Bay or Hervey Bay regions so I would like to encourage anyone down that way to fill in a survey form and send it in.

46% of survey respondents have been involved in Seagrass-Watch for over 2 years, and 44% involved for less than 1 vear.

44% of respondents were confident in performing the Seagrass-Watch techniques, 48% were OK and 6% were unsure of the technique (one person had been involved for 4 years, the other 2 had only done one day of collecting data). This suggests that some refresher training may be required for a few people.

An interesting finding, is that there seems to be a strong background of conservation minded people with higher education from the replies so far. 53% of respondents were tertiary educated, of which 50% have a science/biology qualification

If you did not receive the last newsletter and questionnaire, please contact Seagrass-Watch. Send completed questionnaires to Seagrass-Watch, and they will forwarded on.





## Seagrass-Watch temperature monitoring Seagrass-Watch is introducing a

temperature monitoring component at most regularly visited seagrass monitoring sites. High water temperatures possibly



played a role in the low seagrass cover found at some sites in 2001-02. These low abundances coincided with high seawater temperatures and coral bleaching (see Issue 15, October 2002). Water temperature has a strong influence on plant metabolism and photosynthesis, as well as the associated plant and animal populations of seagrass High temperatures can stress seagrass by meadows. decreasing photosynthesis and by increasing microbial activity and depleting oxygen in the sediments, thereby causing stress to rhizomes. In many cases, the distribution of seagrass is limited by the maximum temperature the plants can withstand. It is therefore important to determine the temperature range of the seagrass meadows being monitored.

iButton temperature loggers are placed at the permanent marker of nominated Seagrass-Watch sites for three months.

The temperature loggers are attached to the permanent station marker using cable ties, above the sediment-water interface.

the sensors are not



This location ensures that *iButton* temperature logger attached to permanent marker

exposed to air unless the seagrass flat is completely drained and places them out of sight of curious people.

The logger number and the date deployed are recorded on the datasheet. At each monitoring event (every 3 months) the iButton temperature loggers are removed and replaced with fresh loggers. After collection, the iButton temperature loggers are forwarded to Seagrass-Watch for downloading and re-calibration:

If you would like to monitor temperature at your site, please contact Seagrass-Watch (details on back page)



## **Congratulations** Jane

To those of you who have met Jane Mellors either monitoring or at the Seagrass Forum, we are sure you have heard her talking about her PhD thesis! Well, we are pleased to



announce that Jane recently submitted her thesis. The findings from her research will help us to understand the relationship between coastal intertidal seagrasses and nutrients, and the role of location and sediment type. Well done Jane!!

## Seagrass-Watch Ment continued .....

## Seed banks

Worldwide, seagrass meadows are periodically subject to catastrophic mortalities as a result of cyclones and floods. Recovery from these events can take several years and is presumed to result principally from germination of local seed reserves. This is only possible if existing seed reserves remain intact following death of the mature plants or if the seeds are dispersed to denuded locations from sites nearby. The greater the seed reserve, the more capable the meadow is of regaining it original status after an acute impact.

Halodule uninervis is common throughout the Indo Pacific. Members of the genus *Halodule* produce simple, single seeded, spherical fruits (approximately 2mm diameter) that are released below the surface of the marine sediments. The fruit is essentially the seed in *Halodule*. The fruits have a stony pericarp, are negatively buoyant and are capable of prolonged dormancy (>3 years). Flowering is seasonal (October - February) with new fruits appearing predominately between January and April.

Seagrass-Watch monitoring at several sites throughout Queensland, has collected quantitative measures of *Halodule uninervis* seed densities over the past couple of years. The results indicate a latitudinal difference, with higher seed counts in more tropical sites in the north.

The following graphs show the total number of  $\blacksquare$  whole seeds and  $\Box$  half seeds collected each sampling at selected sites. Graphs are ordered according to their latitude - from the most northern sites at the top to the southern sites at the bottom.



## Quadrat Photograph Refresher



- Photographs are taken at the 5m, 25m and 45m quadrats along each transect. You can also take additional photos of other quadrats of particular interest (e.g., dugong feeding trail, high algal abun dance lots of gastropods).
- Photos are taken before any other quadrat measures, to avoid resuspending sediments by walking in the area which would affect the photo quality.
- First place the photo quadrat labeller beside the quadrat with the correct code on it. The photo \_\_\_\_\_
- code has 6 characters. The first 3 are the site, the next is the transect and the last 2 are the quadrat distance. For example, if you are at Pioneer Bay site **PI2**, on transect **2** and at **5** metres, the code is **PI2205**.



• Next, take the photograph from an angle as **vertical** as possible, which includes the entire quadrat frame, quadrat label and tape measure. Try to avoid having any shadows or patches of reflection off any water in the field of view. Check the photo taken box on the datasheet for that quadrat.



• In some instances (if site subtidal), you may also need to take another photograph from an **oblique** angle (e.g., 45 degrees), which includes the entire quadrat frame and the quadrat label.

## Sediment Recording Refresher

When determining sediment type, the sediment is described as one of, or a combination of:

- Mud
- Fine sand
- Sand
- Coarse Sand
- Shell
- Gravel

You must record the most dominant sediment type first, then the other components. For instance, if you had a very muddy handful with a bit of sand, then it is recorded as Mud/ Sand (NOT Sandy Mud). Recording this information accurately is very important, as often changes in sediment components may be a cause of a seagrass species composition shift.



# Seagrass-Watch *Mental* continued .....



#### Across

- 1. Species of Cymodocea with a distinctly serrated leaf tip
- 5. number of points on the leaf tip of Halodule uninervis
- 6. repeated observation of a site to detect change
- 10. genus of seagrass who's leaves are round in cross-section
- 12. a paper form used to record field data in a set format
- 13. Self-Contained Underwater Breathing Apparatus
- 16. beneath the low watermark
- 17. structure which encloses the growing tip of the rhizome and protects young leaves

#### Down

- 1. species of *Halophila* which has a lateral shoot bearing 10-20 pairs of opposite leaflets
- 2. seagrass structures used to anchor the plant and absorb nutrients
- 3. growing tip of a seagrass
- 4. stalk of Halophila ovalis leaves
- 6. open expanses of intertidal mud
- 7. species of Cymodocea with rounded leaf tip
- 8. soil/matter that settles to the bottom of a water body
- 9. single leaf structure arising immediately from the horizontal rhizome unique to the genus Zostera
- 11. a fixed unit, usually square, used for sampling
- 14. a cylindrical sample of benthos and substratum obtained by the use of a hollow tube
- 15. satellite-based navigation system



Crossword solution: page 11

Two dugong have been tagged with satellite transmitters, which one will reach the seagrass meadow.



#### Do you want to get Involved? Contact your local Seagrass-Watch representatives:

#### <u>Hervey Bay:</u>

Jerry Comans (Hervey Bay Dugong and Seagrass Monitoring Program) Ph. (07) 4124 2393

#### **<u>Great Sandy Strait:</u>**

Gary Nielsen (The Great Sandy Strait Fauna & Flora Watch) Ph. (07) 4129 8117

## Steve Winderlich (QPWS Maryborough) *Ph. (07) 4121 1933* **Whitsundays:**

Margaret Parr (Whitsunday Volunteers Association) Airlie Beach Ph. (07) 4946 4996

Tony Fontes (O.U.C.H) Airlie Beach Ph. (07) 4946 7435

## Townsville:

Jane Mellors (for Townsville Seagrass & Mangrove Volunteers) Ph. (07) 4722 2655

#### **Moreton Bay:**

Paul Finn (QPWS Moreton Bay Marine Park) Ph. (07)3821 9029 Nicola Udy (QPWS Cleveland) Ph. (07) 3821 9024

#### <u>Cooktown</u>

Christine Howley Ph. 04 3945 9932

#### <u>International</u>

Len McKenzie (QFS, Cairns, Australia) Ph.(+61) 7 4035 0131

## Web sites:

### http://www.reef.crc.org.au/

Learn about seagrasses and the Seagrass-Watch program in an innovate and interactive way, including children's games, on the CRC Reef website

#### http://www.bayconnect.com.au/seagrass/default.htm

home site of the Seagrass-Watch volunteers from the Hervey Bay Dugong & Seagrass Monitoring Program

#### http://www.ouchvolunteers.org/

home site of the Seagrass-Watch volunteers from O.U.C.H. Whitsundays



'ext: Len McKenzie ayout & graphic design: Len McKenzie & Rudi Yoshida Any comments or suggestions about the Seagrass-Watch program or contributions to the newsletters would be greatly appreciated. Contact: Seagrass-Watch Northern Fisheries Centre PO Box 5396, Cairns. Qld. 4870 Email: Seagrass@dpi.qld.gov.au Phone(07) 4035 0100

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