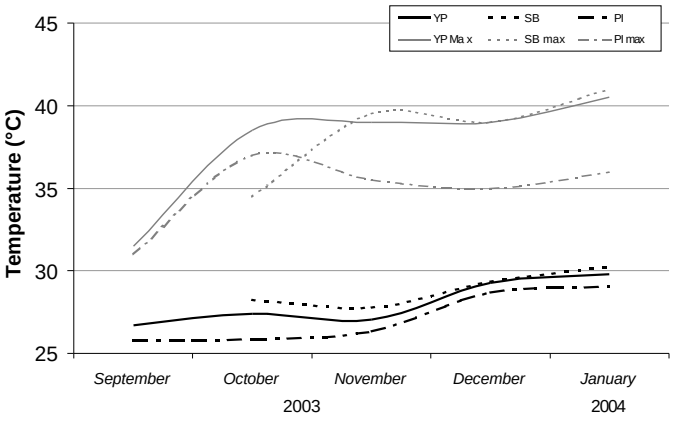
Seagrass-Watch news

ISSUE 19,
February 2004

Welcome to the 1st edition for 2004. We hope you all had a wonderful Christmas and New Year. Seagrass-Watch program developments over the past quarter have included the implementation of temperature monitoring at several sites, training workshops (Cooktown & Mission Beach (page 8) and Philippines & Indonesia (page 4)), and praise for the program with the launch of the World Seagrass Atlas (page 5). This issue also includes reports from across Queensland and from Victoria, where the program is expanding. Please keep your articles coming and have a great year.

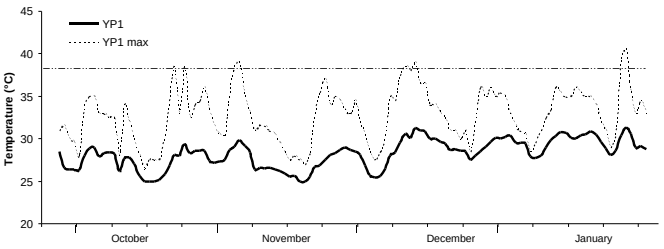
Surviving the Summer heat: Seagrass and corals.

In October, Seagrass-Watch introduced temperature monitoring at intertidal sites in north Queensland (Cairns-YP, Townsville-SB and Whitsundays-PI). Data from the loggers indicates that the mean water temperatures across northern Queensland over the summer were slightly above average at most monitoring sites. Satellite monitoring of sea temperatures by the U.S. National Oceanic and Atmospheric Administration (NOAA) indicates an alarming increase in sea surface temperatures in the Coral Sea, reaching levels 1-2°C above what would be expected for this time of year. Sea surface temperatures over the Great Barrier Reef region have also increased over the last few weeks, with anomalies of 0.5 to 1°C over much of the GBR region.



Water temperature has a strong influence on plant metabolism, as high temperatures can stress seagrass by decreasing photosynthesis, increasing microbial activity and depleting oxygen in the sediments, thereby causing stress to both leaves and rhizomes. The first sign of heat stress can be a "blackening" of the seagrass leaves, giving them a burnt appearance. So far there have not been any reports of seagrass "burning" in the north, however the possibility remains high as during low spring tides the temperature at the sites reached over 38°C for 2-3 hours on several days (*see graph below from Yule Point-Cairns*). The highest temperatures recorded across the north were on 18 Jan 2004: Townsville recorded a maximum of 41°C, followed by Yule Point (Cairns) with 40.5°C and Pioneer Bay with 36°C. High water temperatures possibly played a role in the low seagrass cover found at some sites in 2001-02, which also coincided with coral bleaching (*see Issue 15, October 2002*).

iButton® temperature logger attached to permanent marker



So far this summer, the threat of widespread coral bleaching for the Great Barrier Reef (GBR) region is rated as HIGH, based on current conditions and climate predictions (GBRMPA Climate Change Program, 11 February 2004). Although weather and sea temperatures have decreased toward seasonal averages at most locations over recent weeks, conditions are showing signs of warming again and reports of minor or patchy bleaching have now been received from several locations. Reports received through the BleachWatch program indicate that minor bleaching of susceptible corals is occurring at locations off Port Douglas, Cairns, Townsville, Airlie Beach, Orpheus Island and Heron Island. At some locations, notably off Port Douglas and Cairns, the severity of bleaching has increased over the last few weeks.

For information on BleachWatch, visit the GBRMPA web site: www.gbrmpa.gov.au.

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

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For information about the World Seagrass Atlas, go to
http://www.unep-wcmc.org/marine/seagrassatlas/

Learn about seagrasses in an innovate and interactive way,
http://www.reef.crc.org.au/

Great Sandy Strait Fauna & Flora Watch

Gordon Cottle reports

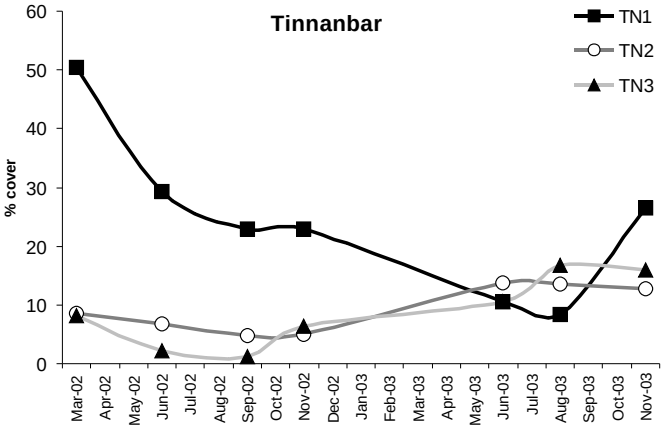
The period from November through to date has been very frustrating with continuous very strong winds (25 to 35 knots at times) making access to our offshore sites impossible.

In November Tinnanbar 1 site showed a remarkable increase of overall cover from August, in both *Zostera* and *H. ovalis*, possibly as a result of the fine silt that had been prevalent being washed away (*it's an ill wind* ....).

At Tinnanbar 2, Peter Lynch reported extensive dugong feeding three weeks prior to the survey which decimated an area some 20m wide parallel to the foreshore, clearly shown in the report [data], however the rest of the site was very healthy, again due to increased *H. ovalis* cover.

Tinnanbar 3, followed the trend of increased *H. ovalis*, and the site was riddled with dugong feeding trails, with four recorded in quadrats.

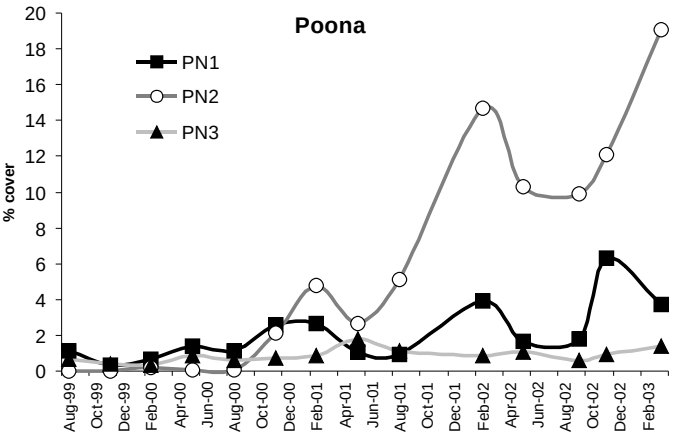
Dugong feeding trails at Tinnanbar.



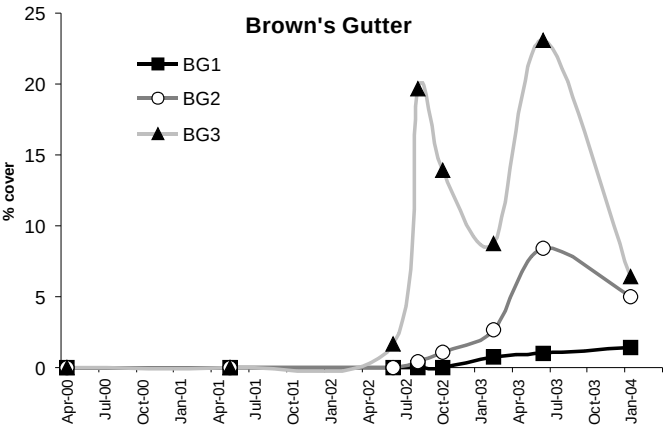
Poona 3 was very disappointing with minimal grass cover visible due to fine silt covered with a brownish film.

Boonooroo 2 is still very sparse, the readings being about the same as October, although with a different caller [observer]. The noticeable factor was the amount of wading bird activity throughout.

On 21st January Gary and Gordon finally got to Brown's Gutter by taking a new approach, launching the boat at Kauri Creek camp going down to the mouth and across the strait, which proved very satisfactory from distance and safety aspects. The outstanding fact at BG3 was the sunburnt *Zostera*, some yellowed to brown, other totally dead,



resulting in a high percentage cover reduction. BG2 showed little change, but a resurgence in *H. ovalis*, however the site has become very soft (calf deep) mud. The only challenge at BG1 is to find a blade of grass!



A very regrettable incident on 22st January with a mature female dugong washed up on the Poona foreshore. She was badly mutilated, cause unknown, and was properly disposed of, with photos and details recorded and forwarded to Fisheries.

Reef Islands monitoring is our next priority and an attempt to find Tootawwah Creek 1. TC 2 should be looked at, but it needs younger legs than mine and Hannah's. TC 3 has been abandoned as too dangerous.

Late News - on 25 Jan Gary was fishing off Poona and sighted a turtle tangled in a crab pot. The rope had already severed its right flipper but Gary was able to release it, so we hope it will survive.

Wayne and Gordon at Kauri Creek.

Monitoring News

Margaret Parr Reports

The Seagrass-Watch team of Whitsunday Volunteers recently left the comfort of their beds for 5am starts to monitor it's sites in Pioneer Bay. The tides at this time of year are not kind to Seagrass-Watch volunteers and it took us 3 mornings to complete our 4 sites.

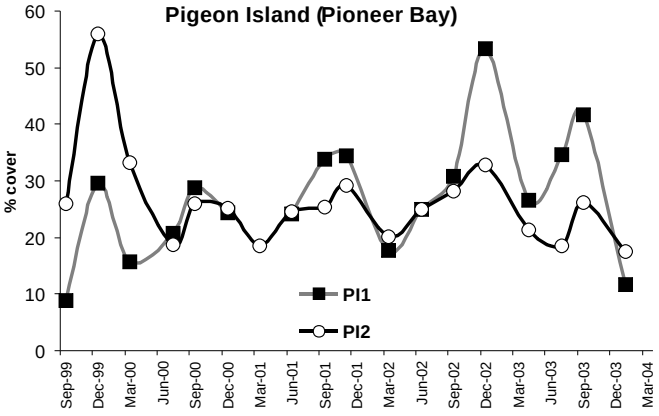
The first morning was rainy with almost full cloud cover and therefore difficult to see. The incoming tide chased us in after we had completed half of site PI3.

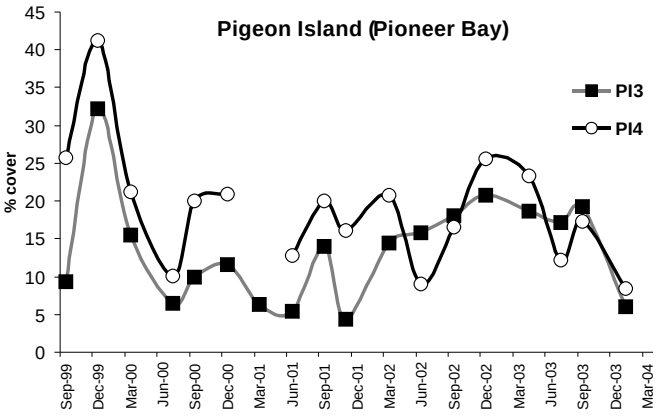
We had more success on Friday and Saturday mornings, completing sites PI1, PI2 and PI4 and more of site PI3. Temperature loggers were replaced and site pegs re-tagged where needed.

The layer of mud previously reported is still in the Bay, but appears to have more further inshore and further west. This means that our sites PI2 and PI3 have less mud, but sites PI1 and PI4 have a thicker layer.

Very few [dugong] feeding trails were seen. Patches of large-leafed *Halophila ovalis* as well as many dead hermit crabs were seen and photographed.

See you in the mud.





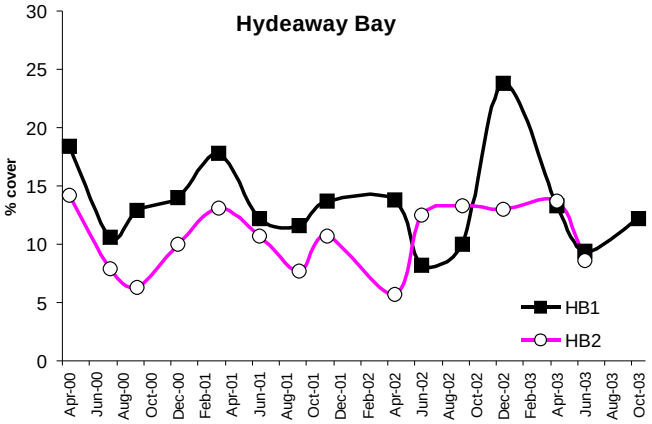
Regional roundup

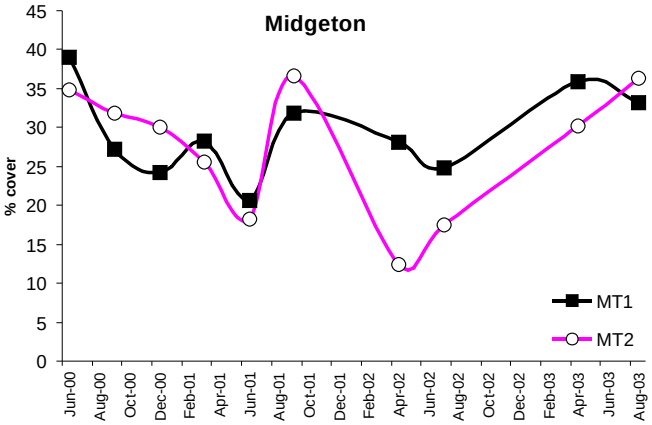
The Pioneer Bay sites PI1 and PI2 are showing a seasonal (late summer) decline in seagrass cover, however the declines at PI3 and PI4 are significantly lower than the previous summer.

At PI2 in late January, Margaret and Robin reported less mud on this site than the previous 3 monitorings and a few dugong feeding trails nearby. When Val and Dell monitored PI4 in late January, they noted that the seagrass leaves were covered in brittle "grey matter" which made them look dead, but they were still green underneath when wiped clean. This was most likely a covering of bryozoans. Bryozoans are sedentary animals that form colonies, which can appear like grey moss on seagrass leaves. They are sometimes called sea-mats or corallines. Bryozoans have ciliated tentacles with which they feed and some have calcareous skeletons.

John Williams monitoring at PI2.

Monitoring at most other Whitsundays sites has been relatively quiet. Hydeaway Bay and Midgeton also appear to be showing a seasonal trend, however the pattern is less obvious due to missed and sporadic sampling times.





Philippines & Indonesia

BantayIsay (Puerto Galera)

By Miguel Fortes, Rochelle Balitaan, Kristine Santos, Jacqueline Strachan, Michelle Sulit and Randell Villanueva

Puerto Galera Biosphere Reserve (13°1'N, 120°58'E) is located at the extreme northern part of the island of Mindoro, Philippines.

In January 2002, an Executive Order from the mayor's office was promulgated by Mayor Aristeo Atienza: (E. O. 02-01) "BantayIsay" (English, "Seagrass-Watch") and was officially launched in 4 October 2002 by the mayor and the Secretary-General of the UNESCO National Commission of the Philippines. For the Philippines and Southeast Asia, this is the first ever legislation that focuses attention directly and explicitly on seagrass habitats.

Dr. Miguel Fortes of the Marine Science Institute and his staff have tapped volunteer high school students from Puerto Galera Academy, led by Mr. Luisito Peliòo to conduct regular monitoring in Puerto Galera. On August 2003, training on Seagrass-Watch protocol was conducted at Maniknik, Puerto Galera. *Enhalus acoroides, Cymodocea rotundata, Halodule uninervis, Halophila ovalis* and *Thalassia hemprichii* dominated the approximately 500 m^2 seagrass bed in the area. At least three species of sea urchins were also found in the bed.

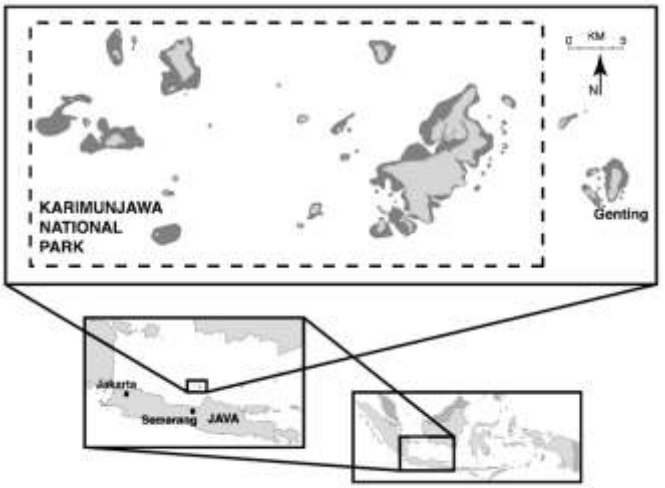
The students were both excited and amazed of the new experience and knowledge they've learned from the training. "BantayIsay" will eventually be incorporated as one of the regular activities of UNESCO Club in the said school.

The local government was pleased by the children's initiative that early this year it passed another Municipal Ordinance (M.O. 04-01) as part of the growing effort to support the initiative to conserve the seagrasses in the area.

Puerto Galera Academy students learning Seagrass-Watch.

Karimanjawa Islands (Indonesia)

In early October 2003, Stuart Campbell from QDPIF was invited by the Wildlife Conservation Society (WCS) to help train marine park rangers and marine biologists from WCS in seagrass mapping and monitoring in Indonesia. The workshop was conducted over 4 days where Stuart and the participants surveyed different seagrass habitats in the region of the Karimanjawa Islands (Java, Indonesia).



The WCS team had been working in the Karimanjawa islands for the past 2 years investigating the effects of fishing practices on the ecology of coral reef ecosystems. Their work has culminated in a management plan for the Karimanjawa islands. The marine park rangers plan to use newly gained skills to map the distribution of seagrass habitats throughout the islands. The maps will form a baseline inventory of seagrass habitats and be used in the management of marine resources the region.

Stuart Campbell training Wildlife Conservation Society staff in Seagrass-Watch monitoring techniques.

Posidonia australis Monitoring in Corner Inlet (Victoria).

Rebecca Koss (PhD Student), Deakin University

Volunteers and community groups with an interest in marine ecology were invited to participate in a new scientific project to monitor *Posidonia australis* seagrass beds in the newly established Corner Inlet Marine National Park, situated in South Eastern Victoria.

The dense *Posidonia australis* seagrass beds are one of the reasons that Corner Inlet was designated a Marine National Park. It is the only place in Victoria where it forms large meadows. The nearest beds are located in the Southern Australian Gulfs, New South Wales and Flinders Island, Tasmania. The isolated colony may be a remnant from a warmer climate when seagrass beds formed along Victoria's coastline.

Parks Victoria and Deakin University's School of Ecology and Environment, are introducing a new monitoring program which will rely on participation from keen volunteers in local community groups. “Friends of the Prom”, the community group assisting in the conservation of Wilsons Promontory National Park, are the key participants of the *Posidonia australis* seagrass monitoring project.

The main objective of Parks Victoria and Deakin University collaboration is to evaluate the potential of community based monitoring projects to assist in the management of Marine National Parks and Sanctuaries along Victoria's coastline. By monitoring the *Posidonia australis* seagrass beds over a long term period, the monitoring will indicate any changes in seagrass health. This in turn will produce a greater understanding of the differences made by the establishment of a Marine National Park in Corner Inlet.

Parks Victoria and Deakin University obtained State Government funding to develop a template for involving volunteers in community groups to monitor marine protected areas. This template can then be used in other marine protected areas. Monitoring will entail volunteers getting into the water, snorkelling along transect lines and measuring data parameters with quadrats.

The *Posidonia australis* seagrass monitoring program will empower local communities with the ability to participate in the preservation of their local environment. This will increase awareness of the environment and of Marine National Parks and Sanctuaries, which inturn will increase people's sense of stewardship of an area.

For more information, email:
rkoss@deakin.edu.au

Group praised for saving seagrass

By Rosslyn Beeby,
Research and conservation science reporter
Canberra Times, Wednesday 22 October 2003, Page 13.

An Australian volunteer conservation program has been recognised as leading the world in reversing the decline and loss of ocean seagrass meadows.

Seagrass-Watch. a public seagrass monitoring program established by the Queensland Fisheries Service, trains volunteers to check the condition of seagrasses and record data which enables scientists to decide if the marine meadows are recovering or need increased protection.

The Cairns-based program covers more than 150 sites and is the world's biggest public monitoring program. It has been so successful that it has been used as a case study in a new United Nations global environment report to highlight the urgent need for public help in stopping the global loss of seagrasses.

The UN has just published the first global survey of coastal seagrass meadows which reveals that 15 per cent of these unique marine ecosystems have been lost in the past 10 years. The World Atlas of Seagrasses. which involved 58 authors and data from 120 countries, says seagrasses are threatened throughout the world by sediment and nutrient run-off, boating. land reclamation, dredging and destructive fishing practices.

Seagrasses are not seaweed but a mixed group of underwater flowering plants which grow in tropical and temperate seas. Thousands of plant and animals species such as dugong. fish, seahorses and turtles, use seagrass habitat as food and shelter. Seagrass beds also protect coastlines from erosion caused by tides and waves and protect coral reefs by binding sediments. The UN report says seagrasses are being "needlessly destroyed" for short-term gain without a true understanding of their significance and stresses the need for greater public awareness of their importance. The meadows are also being heavily impacted by climate change.

Seagrass-Watch program leader Len McKenzie said the success of the Queensland programs was based on listening to people and respecting their skills and knowledge.

"There were previous attempts in a few countries to start community monitoring programs but they didn't work so we learned from their mistakes and decided a new approach was needed," he said.

"We've found that a lot of people have a genuine interest in science and want to be involved in activities that encourage and build on that interest.

"We have a simple philosophy of letting local people play a leading role to gathering information about the environment they live in. They use the area and therefore know more about it than we do."

Since it was established in 1998, Seagrass-Watch has expanded to include volunteers in Papua New Guinea, Fiji, Indonesia, the Philippines, Japan, Malaysia, Micronesia and Palau.

Townsville Region - Queensland

Regional roundup

Jane Mellors reports

Bushland Beach

On the 22nd of December, the Bushland Beach Seagrass Watchers monitored their site, and attached the temperature logger. Seagrass cover within the quadrats ranged from 0 to 60% with epi-cover being extremely variable between transects. There wasn't much time between the tides on this day and we were chased off the sand flat by the incoming tide before we could do any seed counts. One thing that did stand out on the day was the amount of *Trichodesmium* that was left on the sand by the outgoing tide. In places it really does resemble an oil spill. We are monitoring this site again on Saturday 21st Feb, at 2:00 am, if anyone cares to join us.

Shelley Beach

Since the last newsletter we have been out and monitored our two sites at Shelley Beach twice. In general seagrass cover at both sites was up in January compared to observations made in October, with the exception of Transect 1, SB1. This transect was almost devoid of seagrass during the January monitoring due to a large channel that had developed along transect 1, scouring out the seagrass. The reverse could be said for seed counts, as they were higher in October than during January. Both temperature loggers were retrieved successfully, and new ones deployed. We look forward to seeing what types of temperatures our seagrasses at Shelley Beach have had to endure.

An executive decision was made this year to only sample the nearest site (SB1) at night. Consequently, January monitoring at SB1 was a moonlight sortie and true to form the weather wasn't great. Though the rain held off, the wind was blowing a gale and the tide did not drop as far as was expected. Regardless, nine intrepid souls braved the conditions (one even on holidays from Brisbane), to go and do the monitoring. Dick Wickenden was even going to provide some warm refreshments at the end of monitoring unfortunately the mossies drove us off - next time Dick.

After a good nights sleep, we decided to see if we could access SB2 during the January daytime tides. This meant hiking over Cape Pallarenda and walking for 35 minutes along the beach. Luck was with us, as the tide had receded far enough for us to access our site even if we did have to trudge a short way through shin-deep mud. We were also amazed at the amount of wrack blown up on the beach, which we would have missed if we had accessed the site across the sand flats. This was a valuable exercise in gaining further local knowledge of our site, as now we are confident that SB2 can still be monitored at 1m low tide. Thanks to Barry and Dick for joining me on that excursion.

Night time sampling: enduring the gale force winds Dick, Sally and Kath.

Dick and Barry with the only sea hare we observed at SB2

Seagrass wrack at Shelley Beach

Wetlands Festival Townsville

28 February is World Wetlands Week, with the theme "Water for wetlands, water for life". In Townsville, the Wetlands Festival is being celebrated for the month and Seagrass Watch are involved. As part of the organising committee we have organised for the seagrass water colours to be displayed in Townsville's Perc Tucker Gallery from Feb 16-March 1 with a gala event on the 20th of February when a talk on the artwork and Seagrass Watch will be given. Then on Saturday we are running a Seagrass Id workshop in conjunction with mangrove and salt marsh plant identification and nature walks. State-wide other activities include seminars, nature walks, festivals, launches of new policies, announcement of new Ramsar sites, newspaper articles, radio interviews, wetland rehabilitation and a whole lot more.

For a calendar of events in Queensland see http://www.deh.gov.au/water/wetlands/day/qld.html.

Moreton Bay - Update

Paul Finn reports

November and December 2003 was the latest period of seagrass monitoring in Moreton Bay. Of the total 49 sites that have been established, 40 have been adopted by trained volunteers and of these, 25 sites were surveyed during this monitoring period. Among those surveyed was a particularly muddy site at Ormiston (see photos). Our appreciation is extended to all those volunteers who don't mind getting really dirty.

Carol Conacher and crew at Ormiston.

We currently have approximately 220 volunteers on the books and work over the next few months will focus primarily on training, particularly in the correct field identification of Lyngbya majuscula and the health and safety issues associated with this toxic cyanobacteria. We are also preparing for our next monitoring period, scheduled for March and April 2004.

The Ecosystem Health Monitoring Program (EHMP) has expressed interest in Moreton Bay Seagrass-Watch, especially in terms of its potential for the early detection of *Lyngbya* blooms. EHMP is currently providing some financial assistance to the program.

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

The monitoring crew at Ormiston.

Seagrass Monitoring in Shoalwater Bay

Alice Kay (QPWS, Rockhampton) reports.

The second year of our monitoring program in Shoalwater Bay has gone well. Although the Shoalwater Bay Military Training Area was heavily booked for the most of the year, there were enough breaks between defence exercises for us to do all four of our quarterly survey trips in safety.

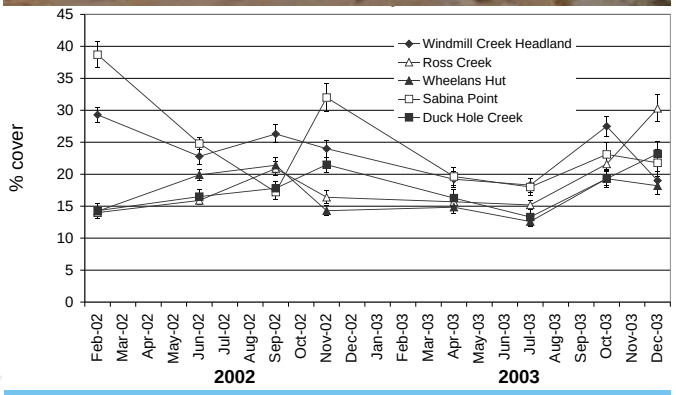
This year, nine QPWS staff and nine community volunteers were involved in the surveys. Camping out for six nights proved a challenge for some, especially when storms blew down and flooded some tents during the October and December trips. Luckily we were able to take refuge in the nearby Department of Defence workers' hut.

We visited all of our five sites on the western side of the Bay each trip. In addition to the Seagrass-Watch percentage cover estimates, we collected seagrass cores for estimates of shoot density and shoot and root biomass. Sorting and counting the shoots for 4 hours each day was everyone's least favourite chore even compared to slogging through the mud at the sloppiest site. Volunteers' diligence was most appreciated.

Now that we have two years worth of data there are some seasonal trends emerging with seagrass cover tending to be lower during the middle of the year. However, changes over time were not always the same at each site, especially in 2002. Average seagrass cover ranged from 14% to 39% in 2002 and from 13% to 30% in 2003. Overall impressions indicated that there was more seagrass about in 2002 than in 2003. The species compositions of each site were fairly similar between years with *Zostera capricorni* dominating three sites, *Halodule uninervis* dominating one while a more even mixture of the two species occurred at the fifth.

Sorting seagrass samples at the Department of Defence hut

The December 2003 survey team at the Wheelans Hut site.



Queensland Seagrass-Watch *news* continued ..

Cooktown

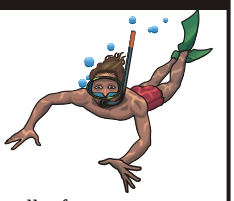
In late 2003, CRC Reef provided funding for the development of a Seagrass-Watch program in the Cape York area. A number of local groups have expressed interest in being involved in local seagrass monitoring to assess the condition of seagrass habitats in the region. Most interested was John McLaren a science teacher with Cooktown High school. In collaboration with Christina Howley (Cape York Marine Advisory Group), Bryony Barnett (CRC Reef) and Stuart Campbell (QDPIF) the first Seagrass-Watch training day in Cooktown took place on 23rd October. Bryony and Stuart gave presentations to the students about seagrass ecology. In field training was conducted at Archer Point, with year 11 and 12 students learning seagrass monitoring techniques. It was a highly successful day with teachers and students alike keen to contribute to future monitoring. Also attending were rangers from Queensland Parks and Wildlife Service and the Hopevale Land and Sea Centre.

Teacher John McLaren (second from right) and a Hopevale Land and Sea Centre ranger (centre) with Cooktown High school students at Archer Point.

Lunchtime at Archer Point

QPWS Ranger Sam assesses seagrass abundance with Cooktown High school students at Archer Point.

Mission Beach



In November 2003, 8 members of the Mission Beach Seabed Watch group, with funding from the Great Barrier Reef Marine Park Authority and EnviroFund travelled to Gould Island off Cardwell for Seagrass Watch training. No intertidal meadows could be found so participants were trained in seagrass identification and monitoring techniques in 1-2 m depth off Gould Island. Despite the poor visibility, it was successful day with all learning their seagrass species and able to estimate percentage cover at the end of the day. Cecelia Barrett Cropper, Secretary of the Seabed Watch group organised the training day and provided a gourmet selection of foods so the "Seagrass Watchers" were kept well fed during training.

Yule Point

Monitoring has continued at Yule Point (south of Port Douglas) over the last quarter. Both seagrass and epiphyte cover increased seasonally over the summer months. It is possible that the high epiphyte cover has provided some protective covering from the high temperatures and effects of desiccation experienced during the low spring tides.

Regrettably, on 5 January 2004, a 2.67m male dugong washed ashore at Yule Point. It was believed to have become stranded on the sandbar as the tide dropped in the afternoon and died soon after. Cairns QPWS Rangers believe it was possibly one of the three animals which had come into the shallows earlier in the day. A post-mortem examination will be held to determine the cause of death.

Do you want to get Involved?

Contact your local Seagrass-Watch representatives:

Hervey Bay:
Natalia Gleeson (Hervey Bay Dugong and Seagrass Monitoring Program) *Ph. (07) 4125 1351 or mobile 0405378424*

Great Sandy Strait:
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*

Cooktown
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Any comments or suggestions about the Seagrass-Watch program or contributions to the newsletters would be greatly appreciated.

NEXT ISSUE OUT JUNE 2004

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