Seagrass-Watch news

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Seagrass-Watch has been very busy over the past year. We have seen the introduction of the GBRWQPP biological monitoring at 22 intertidal sites. Seagrass-Watch has also expanded into New South Wales and another 2 regions in Queensland.

Sadly there has also been a few departures - most notably with the passing of Jerry Comans. We have also lost a few of our long-term volunteers who have given a lot to the program over the years: Steve Winderlich and Anne O'Dea; Eileen and Andrew Finglas; Valerie and Geoff Bunn. We wish them well. Sadly, QPWS has also withdrawn support from some regions.

Nevertheless, the program still continues its success and this issue includes reports from across the regions & countries currently participating in the program.

Everyone at Seagrass-Watch HQ wishes all watchers and supporters a happy new year and safe holiday season. See you on the flats in 2006!!!

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Seagrass-Watch and the Great Barrier Reef Marine Monitoring Programme

Deb Bass (Research and Monitoring, GBRMPA)

Over the last few months you may have noticed scientists digging around in the tidal flats collecting mud samples at your sites and wondered why. These scientists (from the Department of Primary Industries & Fisheries, Central Queensland University and local marine consultants) with the assistance of local communities, are analysing these sediment samples for nutrients and pesticides that may have accumulated in the seagrass meadows. This sampling is part of a Great Barrier Reef-wide monitoring programme to look at what pollutants are flowing out of local rivers into the Great Barrier Reef lagoon, where they end up, and what affect they are having on marine life.

Peter Stratford (CQU) samples sediment nutrients

Experts have concluded in recent years that Queensland land use practices - such as agricultural use, cattle grazing, vegetation clearing, wetland drainage and urban development -have resulted in high levels of sediment (soils), nutrients (Phosphorous and Nitrogen) and pesticides (chemicals used on crops) entering the waterways. This ultimately reduces the water quality of the Great Barrier Reef. It all causes impacts downstream on the rivers, estuaries and eventually on the coastal ecosystems such as inshore coral reefs and seagrass meadows.

This is because high levels of nutrients in a marine environment can cause algal blooms and the spread of larger algal species. The spread of larger algae reduces the bottom cover that corals can colonise, hence limiting their ability to multiply. Algae can also smother seagrasses, which affects their ability to photosynthesise.

Turbidity is a measure of how much soil is suspended in the water or water clarity. High quantities of sediment in the water are obvious by the dirty colour of the water. Dirty water can damage corals and seagrasses by smothering and by reducing light reaching them.

Pesticides are chemicals designed to kill pests and weeds, but in a marine environment can also kill aquatic life such as seagrasses. Pesticides can remain in the environment for a long time and will accumulate in sediments or animal tissue, which may affect the reproduction of some species.

To deal with these impacts before ecosystems are damaged beyond repair, the State and Federal Governments in 2003 developed a plan to reduce the pollutant levels flowing into Great Barrier Reef waters. This plan, called the Reef Water Quality Protection Plan aims to halt and reverse the decline in water quality entering the Reef within ten years. The plan will do this by reducing land-based pollutants entering the reef, and enable rehabilitation and conservation of areas

Len McKenzie (DPI&F) harvests seagrass to measure tissue nutrient concentrations

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upstream that are important in removing pollutants.

In order to achieve these goals, which is not a simple undertaking, there are numerous actions planned including:

- Improving management of farms
- Educating landholders and community
- Economic incentives for conservation and rehabilitation of wetlands
- Better planning for land use
- Working in partnership with regional bodies, researchers and industry
- Introducing legislation and monitoring.

Monitoring is important, as it will show whether any of the land management or conservation actions are actually resulting in better water quality downstream and ultimately in the marine environment.

The monitoring programme is widespread, in that it extends along the Queensland coast from Cape York to Hervey Bay and to the outer shelf. It focuses on ten major river mouths to track pollutants from these rivers into coastal waters and onto seagrass meadows, reefs and into the food chain.

The monitoring programme has five components:

1. River mouth monitoring
2. Inshore water quality monitoring
3. Reef and seagrass ecosystem monitoring
4. Accumulation of pollutants in mudcrabs
5. Social and economic study of community.

The data collected by Seagrass-Watch forms part of this larger monitoring programme by monitoring changes in seagrass ecosystems. In addition to the data collected by Seagrass-Watch volunteers on seagrass condition and seasonal changes, DPI&F are also monitoring the neighbouring sediments for accumulated pesticides and nutrients that may impact on the seagrasses. This will give an indication as to whether the pollutants from the rivers are reaching the seagrass meadows and, if so, measure the level of these pollutants. This information can then be used to link to any changes in seagrass health shown by the Seagrass-Watch data.

Margaret Parr (QPWS Volunteers) measures seagrass reproductive health.

So if you ever help with the collection of mud or seagrass samples at a site, then you are also helping to fit together another bit of the complex puzzle of water quality on the Great Barrier Reef.

Trischelle Lowry and Rudi Yoshida (DPI&F) harvests seagrass at Urangan to measure tissue nutrient concentrations

Indigenous Students Gain Work Experience

Becky Bowie (Thursday Island High School Seagrass-Watcher) travelled south during the September school holidays courtesy of CRC Torres Strait to gain work experience, with DPI&F. Becky was joined by DPI&F's Queensland Government Aboriginal and Torres Strait Islander Education to Employment Scheme buddy Shenade Muller.

Becky and Shenade participated as field assistants in the Seagrass-Watch component of the Reef Water Quality Protection Plan Biological Monitoring collecting seagrass and sediment nutrient samples at Pigeon Island and Sarina Inlet sites.

They had an informative time and Becky got to experience quite different seagrass meadows than those she is used to around Thursday Island. While in Townsville they met with CRC Torres Strait CEO Dr. Dave Williams and visited Reef HQ and TATSIC.

Above: Becky (R) visits the offices of the CRC Torres Strait and meets Dr. Dave Williams (L)

Right: Shenade (R) and Becky (L) at Reef HQ, Townsville

Besides meeting lots of volunteers, Becky and Shenade also had an unexpected encounter with a turtle which provided one of the many highlights of their trip.

Becky (L) and Shenade (R) get up close and personal with a turtle, Whitsundays.

Hervey Bay Dugong & Seagrass Monitoring Program

Trischelle Lowry reports

2005 has been interesting and challenging in my role as Local Coordinator. It was a great pleasure to accept this position and wonderful to be received by our band of volunteers with open arms and welcoming smiles. Unfortunately this year was also tinged with sadness with the loss of our founder Jerry Comans in April, but we hope that Jerry would be pleased with our continued work in monitoring the Hervey Bay region.

In October we took part in the Reef Water Quality Protection Plan (RWQPP) intertidal seagrass monitoring as one of the initial participants. Seagrass samples were collected for tissue and sediment nutrients and reproductive health at the UG1 and UG2 sites and forwarded to DPI&F for analysis. This monitoring at Urangan saw seagrass in good condition with Zostera lengths as much as 30cm and percentages up. Unfortunately recent high winds seem to have produced a lot of algae which is covering the small amount of seagrass that is present at the Dundowran sites. We are hopeful for good results at all remaining sites which will be monitored in December.

Also Congratulations must go to one of our long-serving members Chris Ashcroft for graduating from the Australian Maritime College (University Southern Queensland) with a Bachelor of Administration (Marine Resources), we wish him well in his future endeavours.

Natural and human impacts at Urangan

Chris Ashcroft (Australian Maritime College)

Hi Everyone,

I have recently completed my research project for the Australian Maritime College Bachelor of Administration (Marine Resources) degree. This research was a longitudinal study of seagrass in Hervey Bay: 1999 - 2005.

The study has shown that the abundance of seagrass in the Urangan area dramatically fluctuates over time. The sites are now exhibiting strong seasonal variations in seagrass coverage, with peaks in coverage from late August and early December, and lowest percent coverage from the end of February to early May. Results from the study clearly show that seagrass coverage is adversely affected by consecutive months of high rainfall.

The study also indicated:

- The 1999 flooding event had a major impact on seagrass meadows in the sample sites
- The construction of the dredge disposal and rehandling area did not have a significantly negative impact on seagrass abundance in the two study sites
- The results from this small scale study would not be enough on which to base any major management decisions; however the results may provide an insight into the dynamics of seagrass ecosystems and direction for future study.

I would once again like to thank Len McKenzie, Trischelle Lowry and the team from UG1 & 2 for their assistance during this short research project.

Urangan boat harbour with monitoring sites (UG1 & UG2) in foreground

Great Sandy Strait Fauna & Flora Watch

Gordon Cottle reports

This has been a particularly frustrating quarter due to lack of personnel and withdrawal of support from QPWS.

Robyn Bailey and I surveyed Tinnanbar TN1 on 3rd September, with seagrass cover down on the May readings, but comparable with August, 2004. This was probably due to winter die off. There were also several patches of exposed rhizomes.

In September my knee collapsed resulting in a total replacement, which is progressing well, but reduces my ability to assist for about six months.

I especially thank Robyn and Wayne Matthews for doing Tinnanbar TN2 on 1st October, while I recorded, sitting on the cliff top using two way radios. The results from that day showed a remarkable turn around from previous monitoring with only a small strip of *Zostera* at 45/50m on transects 2 and 3, on what was previously a predominantly *Zostera* site, and only a trace of *H. ovalis* at 15m on transect 3.

The *H. uninervis* cover ranged up to 25% and was a fresh light green. Referring back to August 2003, nine whole and ten half seeds were recorded, so is this the end result ? The other noticeable factor was the increase in crustaceans.

Anne O'Dea and the Maryborough Special School continue to check on Poona PN2, and reported dugong feeding trails between the site and the foreshore, similar to PN1. Anne, Steve and Aaron Winderlich did Boonooroo BN1 on 5th September, but regrettably they are heading back to the Territory and we wish them safe and enjoyable times in Kakadu. Their departure leaves another big gap.

Season's Greetings to all of you

Dugong feeding trails at Poona

Magnetic Island

Picnic Bay

Magnetic Island State School once again exchanged inside learning for outside learning, when they monitored the seagrasses at the Picnic Bay site MI1. The regular monitors, class 3/4C, were joined by other classes during the excursion as part of the school's Science Week activities. Consequently there were lots of volunteers for every aspect of the monitoring but seed collecting still remains the favourite activity.

Class 3/4C on site

One thing that did puzzle the group was the colour of the seawater when the tide was coming in. It was a brownish colour as though someone had a waived a tea bag through the water. This colour may have been caused by the tannin cells being released from the heat stressed seagrass leaves [similar to tea leaves].

Magnetic Island State School celebrate Science Week with Seagrass-Watch

Cockle Bay

Rhonda Stephens did an excellent job in recruiting volunteers for the October monitoring of Cockle Bay site MI2. Amongst the locals that turned out to monitor, there was an entire class from University of the Third Age (UTA), who were checking out what is involved in Seagrass-Watch. They must have had a great time as they have agreed to adopt MI2 for regular monitoring. Many thanks to Sue and David who travelled from Townsville and assisted in helping these new recruits learn the ropes.

Bushland Beach

Early October saw the Northern Beaches Rotary Club monitor their site at Bushland Beach. It was an all girl team this trip as Lux was away "watching" wild flowers and seagrass meadows in W.A. Sharon was ably assisted by Naomi and Linda, which was lucky as Jane (DPI&F) was very preoccupied with mapping the meadows edge. Despite the low numbers, monitoring went off without a hitch even though the tide height wasn't particularly low. The meadow is in an amazing condition, with heaps of seagrass and more and more animals present. When this site was established, the site markers were nearly on the landward edge of the meadow. That edge is now about 200m away - just goes to show the resilience of this meadow. As the meadow has aged the density of razor clams has also increased highlighting the necessity for wearing proper foot ware out on the meadow.

Linda, Naomi and Sharon

Shelley Beach

SB1

Regular Seagrass-Watchers Steve, Beth, Dick and David were joined by Jane, Naomi and Sarah (DPI&F) and Seagrass-Watch virgins Sue and Steve. After some quick on the spot training the newest volunteers took to monitoring with gusto. It was a beautiful day, with the breeze taking the edge off the midday sun. Transect 1 still looks pretty depleted as the gutter travelling along it widens but in some of the pools *Halophila spinulosa* is starting to appear. Overall the meadow appeared quite lush and very green, high nitrogen perhaps???? Next monitoring dates are late January, early morning tides, unfortunately this time there is no full moon to help!

Quite a gang

SB2

A gang of six struck out for SB2 in the midday sun (*what was that about mad-dogs and Englishman well how about five Australians and a Canadian*) to monitor the seagrass. Once on site it was interesting to note that the site did not seem as muddy as previous times. The meadow was extremely lush with patches of *Zostera* appearing more frequently within the site. It was also pleasing to see the number of dugong feeding trails through the meadow.

Dugong feeding trails

QPWS Volunteer Rangers

Margaret Parr (QPWS Volunteers) reports

QPWS volunteer seagrass watchers in the Whitsundays again successfully monitored sites at Pioneer Bay, Dingo Beach, Laguna Quays and Midgeton in September and October. The new spring growth is always a welcoming site. We noted several dugong feeding trails and collected dugong poo for analysis.

Seagrass-Watch continues because of the commitment of volunteers to the project. Dell and John Williams, Helen Debnam, Sandra Hardy and myself have been involved since the first monitoring in Pioneer Bay in September 1998. Others have been involved for several years. Sadly, two of the Whitsunday's most committed volunteers, Valerie and Geoff Bunn, left the area earlier in the year. We very much miss their contribution to Seagrass-Watch.

Dell, family and friends at Pigeon Is.

This year we have been grateful for assistance from Jane Mellors (DPI&F) and her various assistants when she came to carry out sampling for the GBRMPA Reef Water Quality Protection Plan.

From all seagrass watchers in the Whitsundays, we wish all fellow watchers a safe and happy Christmas.

Above: Helen samples for seeds
Left: John checks the seagrass species ID

Midge Point

Wenzler family reports

Well summer is upon us again with a vengeance. We were able to do our seagrass survey on Saturday 15 October. We got to the site by 2pm, an hour before low tide and the tide was well out.

General feeling about the site is that, it is the healthiest I have seen it, with the seagrass thicker and longer then I can remember. No algae was noticed, although there was still some epiphytic cover. We also noticed an almost plague of "new" snails. I sent a specimen to Seagrass-Watch HQ for identification [the snail was a species of bubble shell from the family Bullidae commonly found in sandy intertidal waters where they feed on green algae and epiphytes].

Sarina Inlet

Sarina Inlet was sampled for a third time in October. SI1 was monitored by the Sarina Beach Progress Association, with assistance by Coastcare Facilitator Jon Woodworth. After a quick recap of Seagrass-Watch techniques, and a refresher on seagrass identification with Jane Mellors (DPI&F), the group took to the mud to monitor their site with their new kit.

As Sarina Inlet is one of the locations that has been included in the RWQPP monitoring (*see page 1*) the DPI&F team set up a replicate site further around in the inlet and monitored it. The most difficult parameters to measure were epiphyte cover and distinguishing between HU and ZC (esp. when they are both narrow leafed it is quite difficult). When in doubt dig up some of the rhizome - ZC tends to have an orange coloured rhizome while HU has a pale/white coloured rhizome.

Left: Jon Woodworth (Coastcare Facilitator) with Catherine, Becky and Shenade (DPI&F)

Below left: Sarina Beach Progress Association monitoring SI1

Below right: Becky, Catherine and Shenade with John in the background

Sarina Inlet monitoring site SI1

Dugong and Seagrass in Henoko Reef and Oura Bay, Okinawa

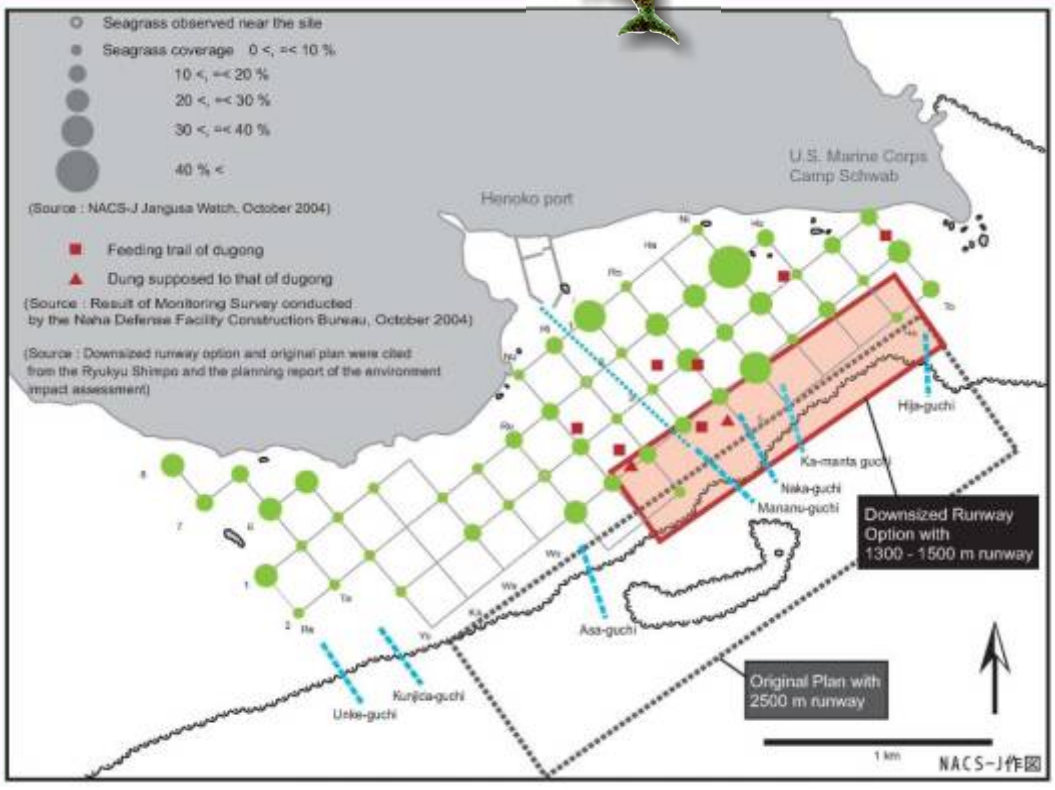
By Masahito Yoshida
Nature Conservation Society of Japan

U.S. and Japan had intensive negotiations to find a solution to relocate a present U.S. Marine Corps Futenma Air Station based in Ginowan, Okinawa before President Bush's visit to Japan in November.

During the negotiations from September to October, Japan insisted on constructing an airport inland the Camp Schwab, Nago, Okinawa, while U.S. refused this plan and insisted on constructing an airport of shorter runway (1,300 to 1,500 m) than present plan (2,600 m) inside the Henoko Reef, offshore of Camp Schwab. *(See Fig 1 below).*

The U.S. supported the shorter runway option because they believe the plan can minimize the impact on coral reef. However Okinawa Janguwa-Watch - citizens' monitoring of seagrass, revealed that the shorter runway option still has a serious impact on the largest seagrass meadow in Okinawa and integrity of Henoko reef.

Study area off Camp Schwab, Henoko, Nago City.



Downsized runway option in the Henoko reef overlaid with distribution of seagrass and dugong feeding trails and sightings

The Nature Conservation Society of Japan (NACS-J) sent a statement of opposition to U.S. Secretary of Defense, Secretary of State, Japanese Minister of Defense and the Minister of Foreign Affairs on October 6. *(see http://www.nacsj.or.jp/old_database/henoko/henoko-051004-for_mr_rumsfeld.pdf).*

Because of opposition from conservation organizations and local government, Japan proposed another option to construct an airport with a 1800 m runway by reclaiming the coast of Oura Bay. Japan and U.S. agreed to this option on October 26. *(See http://www.nacsj.or.jp/old_database/henoko/henoko-051026-map.pdf).*

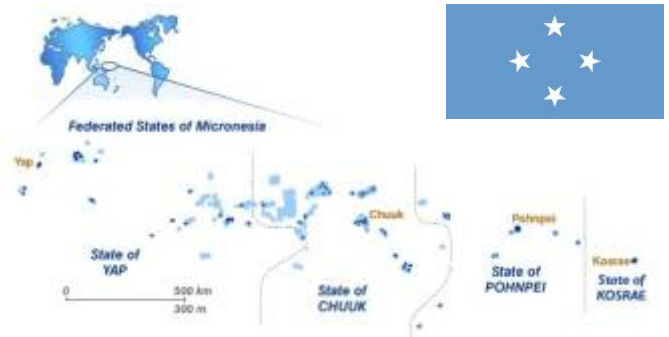
However, this area is home to a new type of *Halophila* that was found during the last Jangusa Watch held in September 2005. We have *Halophila ovalis* widely distributed and *H. decipiens* in deeper water in Okinawa. However, this new type was found in medium (7-8 meter) depth, and has comparatively long leaves, resembling *H. hawaiiana*. Further investigations will be needed to determine the taxonomy of new *Halophila*, and to elucidate environmental and ecological factors responsible for its limited distribution in Oura Bay.

Besides seagrass, stands of the coral *Porites cylindrica* (home to anemone fish) and *Oulastrea crispata* (a parasite on a kind of seashell *Strombus canarium turtulella*) were found in the Oura Bay. Construction works of airport may risk rich biodiversity of Oura Bay.

NACS-J will conduct another field survey in January 2006 to investigate a possible impact of the airport on integrated system of Oura Bay.

Another successful day monitoring

Federated States of Micronesia



Seagrass study supports previous assessments on the negative effects of sedimentation to coral reefs

By Carla (Conservation Society of Pohnpei)

The final phase of Pohnpei's Rapid Ecological Assessment has been completed with the survey of the seagrass meadows. Len McKenzie and Michael Rasheed from the Queensland Department of Primary Industries & Fisheries, surveyed 510 sites around Pohnpei's lagoon and Ant atoll. The assessment which was conducted over two weeks in late October and early November, focussed on the health and abundance of the seagrass meadows.

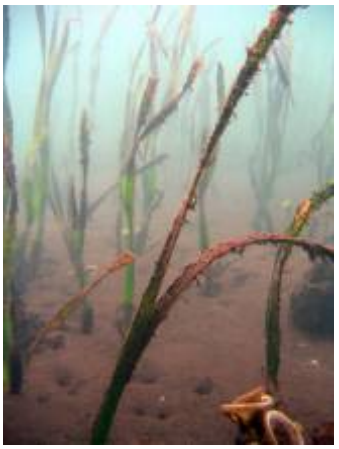
The study has revealed that although there is a low diversity of seagrass, it is quite abundant and in relatively good condition. Three species of seagrass have been identified: *Thalassia hemprichii, Enhalus acoroides* and *Cymodocea rotundata.* Len and Michael reported that, 'the low diversity level was anticipated and it is characteristic for the area. There is an abundance of marine life within these meadows, including rays, rabbitfish, sea cucumbers and many juvenile species as well. The seagrass meadows act as a nursery and a filter and are therefore important component of the reef environment.' The study also found an abundance of *Cymodocea rotundata,* which is an ideal food source for the green sea turtle. Unfortunately, the team was surprised to find only a few turtles in the area.

Above: Len McKenzie examines seagrass meadows at Ant Atoll, Pohnpei

Right: Cymodocea rotundata meadow

The seagrass populations were the most prevalent on the reef flats in less than 3 metres. The seagrass actually dominates the reef areas, while the coral ecosystems encircle them along the fringes. Len and Michael have stated that this interconnectivity between the seagrass, corals and also the mangroves is the most important aspect for the successful preservation of the marine environment. They found that the established Marine Protected Areas (MPA's) in Pohnpei possess these healthy connections between the ecosystems.

The results of the seagrass study support the recent fish and coral assessments, which identified sedimentation as a major threat to the health of the reef ecosystems. Heavy sedimentation decreases the water clarity making it difficult for the plants and animals to receive sunlight, which can kill the marine organisms. The assessment recorded high sedimentation levels in the areas adjacent to the river mouths and dredge sites. Of primary concern, is the sedimentation loads due to deforestation of the uplands and coastal development projects. This increases the sediment that is carried down in the stream runoff. The mangrove areas act as a filter capturing much of the sediment flow, as does the seagrass.



Nearshore Enhalus meadows impacted (above left) and unimpacted (above right) by sedimentation

The seagrass, fish and coral assessments provide important information on the status of Pohnpei's marine environment and will help the Conservation Society of Pohnpei (CSP) improve the effectiveness of its MPA network. The survey is a cooperative project of the Conservation Society of Pohnpei (CSP), Pohnpei Division of Marine Development, The Nature Conservancy, Western Australian Museum, CRC Reef and Queensland Department of Primary Industries & Fisheries. The survey is funded by Packard Foundation and US Department of Interior, Office of Insular Affairs.

Torres Strait

Thursday Island

We often hear about the midnight sorties for Seagrass-Watch in Townsville, well in the Torres Strait these occur at dawn. Risk management at Thursday Island includes waiting for sunrise, so you can scan the entire meadow for any evidence of crocodiles before a decision is made to monitor. Much to the disappointment of some, no crocodiles were apparent in November, so sampling went ahead without the extra thrill!!!

Ina and Shakira estimate cover at TI1

The Thursday Island High School Students took full ownership of the November monitoring and held a sausage sizzle during a school lunch hour to raise awareness of Seagrass-Watch. They made posters advertising the event and posted them up around town - they even did a talk-back session on the radio.

Two students Becky Bowie and Shakira Weston also gave a talk to employees of the Torres Strait Regional Authority, about the techniques used to monitor and identify seagrass.

Seagrass-Watch promotion on TI

There were also lots of visitors in town. Lux Foot a regular Bushland Beach Seagrass-Watcher decided to journey north and check out TI. Besides doing the touristy things, Lux assisted in the Clean Beach Day activities, such as badge making sausage sizzling, and monitoring at Front Beach site TI2. Lux stayed with the DPI&F team at their TI home away from home - the historic Federal Hotel (est 1901). David and Janine Mills, the hotel owners/operators always make the team feel welcome, and the hotel is ideally situated on the front beach, only a few steps to the Seagrass-Watch site - *always handy for those early morning starts !!!.*

L: seagrass in front of the Federal Hotel

R: Lux counts seeds at Front Beach pre-dawn.

Len McKenzie (Seagrass-Watch Program Leader) was also in town and took the opportunity to present Becky Bowie with a certificate for her dedication to the program. Becky not only regularly monitors Back Beach, but has assisted in monitoring the Horn Island site and travelled south during her school holidays to help with monitoring in the Whitsundays and Sarina Inlet (see page 2).

Len presents Becky with her certificate

Horn Island

In November, Horn Island Primary School students (Torres Class) were also awarded participation certificates for their efforts in monitoring seagrass over the year. This was done on assembly and a big "Esso" goes out to Len and Jane for the certificates and caps.

Torres Class with their certificates

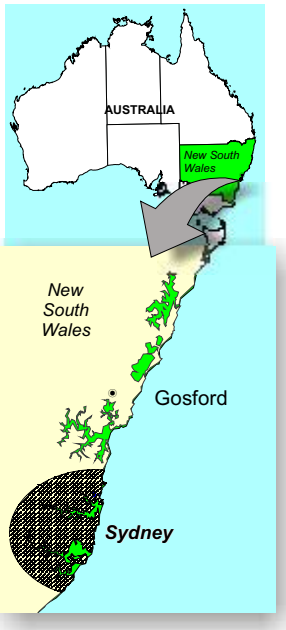
The DPI&F team monitor Horn Island site HI1, with Thursday Island in the background.

Other than these highlights, sampling was conducted at Wongai Beach (HI1), Horn Island by the DPI&F team during the early hours of the day (ie dawn). The seagrass appeared particularly "lush" and a large number of *Halodule* seeds were recorded. Although Jane was glad the resident crocodile was nowhere to be seen, she was not so impressed by the mud!!!

New South Wales

The Community Seagrass Project NSW

Hi! My name is Rebecca Small and I am the Seagrass Project Officer for The Community Seagrass Monitoring Project NSW based at Gosford. The project is a community-based program hosted by the Community Environment Network, and funded by the NSW government through its Environmental Trust Program.



The project was born as a result of concerns raised in regards to the health of seagrasses, estuaries and wetland areas in NSW. Currently there is no standard localised Community Based Seagrass Monitoring occurring on a broad scale across NSW, despite the overwhelming interest in seagrass health!

NSW has four main types of seagrass, including one, *Posidonia*, which grows so slowly that if it is disturbed it can take more than 100 years to return to its full glory. Seagrasses thrive in shallow waters of New South Wales estuaries, so they are easily degraded. Often the places they love to grow are the same spots where people like to visit. As a result, Botany Bay's once vast seagrass meadows are drastically diminished.

No one knows exactly how extensive seagrass meadows are in New South Wales, but there are anecdotal reports of declines of more than 85 per cent. Much of this is due to development, pollution and physical disturbance. A boat propeller running through a seagrass meadow can be the marine equivalent of clearfelling.

We are calling for groups and individuals along the New South Wales coast to help find, map, monitor and protect remaining seagrass meadows.

Seven workshops have been conducted within the Central Coast, Lake Macquarie and South Coast regions over the last few months, with many more workshops planned in 2006! Support for the project has been tremendous with a range of experts lending a hand, thought and smile, including Len McKenzie, from the successful Seagrass-Watch Program in QLD. It is all becoming very exciting and results from monitoring activities should start to come through very soon!

If you would like to participate, please contact me at

Community Environment Network (CEN)
Email: seagrass@cccen.org.au
Phone: 02 43484327
Web: www.cccen.org.au

Rebecca Small inspects seagrass at Canton Beach, Toukley.
Photo: Dallas Kilponen

Workshop Gallery

Above: The Technical side of seagrasses at Conjola, NSW S Coast
Right: Using quadrats and transects at Long Jetty on the Central Coast of NSW.

Above left: Learning the Seagrass Monitoring techniques at Coal Point in Lake Macquarie
Above right: Identifying the fauna living in the seagrasses after Bug netting at Long Jetty on the Central Coast of NSW

Above: Learning Seagrass monitoring techniques at Lake Illawara
Left: Community monitoring, Lake Illawara
Below: Learning the Seagrass Monitoring techniques at Coal Point in Lake Macquarie

Central Coast Community Environment NETWORK

Seagrass-Watch Update.

Paul Finn (QPWS) reports

Moreton Bay Community Seagrass-Watch currently has almost 200 volunteers on its database with 161 trained in the methods. As expected occasionally volunteers loose interest or drop out from monitoring for various reasons but with 20 new volunteers signing up within the last six months we have been able to address the attrition rate adequately. Volunteers who are currently monitoring total 114 and 45 volunteers have opted to receive newsletters only so to be kept informed. Table 1 outlines the approximate in-kind contributions provided by the volunteers themselves (costed out at $20/hr) and the many organisations that support Seagrass-Watch in Moreton Bay over the last 12 months. New industry and business groups are coming on line to support us, the most recent being Seaworld who have offered us the use of their vessels and the online electronic magazine "Bayjournal" (http://bayjournal.com.au/mambo/) has provided space for our newsletters.

Table 1: Summary of in-kind contributions in monetary terms for a typical year of Seagrass-Watch monitoring in Moreton Bay.

Organisation	In-kind contribution
Seagrass-Watch Volunteers	$33,100
Wildlife Preservation Society of Queensland - Bayside Branch	$13,000
Queensland Conservation Council	$5,000
Queensland Parks and Wildlife Service	$7,400
Port of Brisbane	$10,000
Tangalooma Wild Dolphin Resort	$2,100
Total	$70,600

The Moreton Bay Seagrass-Watch pilot program established six sites in May of 2001. Since October 2002, we have expanded the program to include 51 additional sites. Therefore we currently have 57 sites set up within Moreton Bay, with 47 of these adopted by trained volunteers. The number of sites monitored has been steadily increasing since the beginning of 2003 (Figure 1). This is mainly due to the progressive establishment of new sites and training of new volunteers to adopt them. Collectively, volunteers across all sites have surveyed 1923 m^2 since the pilot program began.

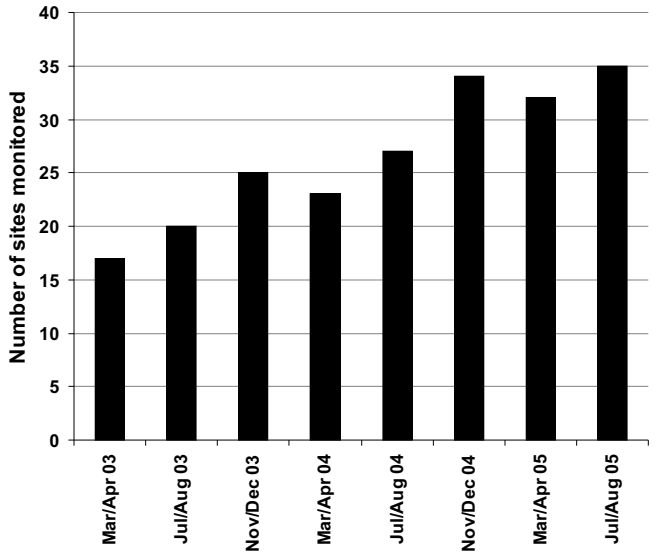


Figure 1: Number of sites monitored in each of three monitoring periods per year since the Seagrass-Watch program was expanded in Moreton Bay.

Our complete data set provides a significant contribution to the base-line information of seagrass distributions in Moreton Bay over the last five years. Seasonal trends have been recorded. Seagrass cover generally peaks in summer (November/December) and declines by Winter (July/August) (Figure 2).

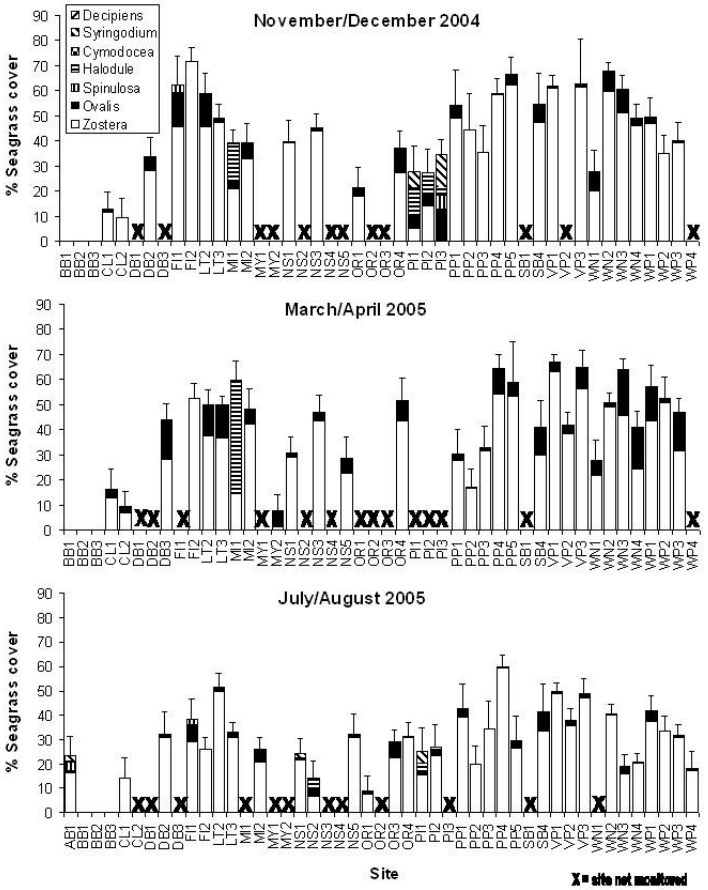


Figure 2: The percent seagrass cover (mean ± standard error) and species composition for all sites monitored during the last three survey periods (November/December 2004, March/April 2005 and July/August 2005).

The estimates of percent seagrass cover that Seagrass-Watch volunteers collect generally match very closely those of the trainers/validators (Figure 2). Across a sample of 191 seagrass cover estimates, 68 percent of the variation in a validator's seagrass cover estimates is explained by the variation in the volunteers' estimates (r^2=0.68, P<0.001; Figure 3). This is particularly encouraging as the scope for error is quite large, in that the volunteers' estimates come from many different observers over a range of sites and the validator's estimate is made in the office from a photo supplied by the volunteer.

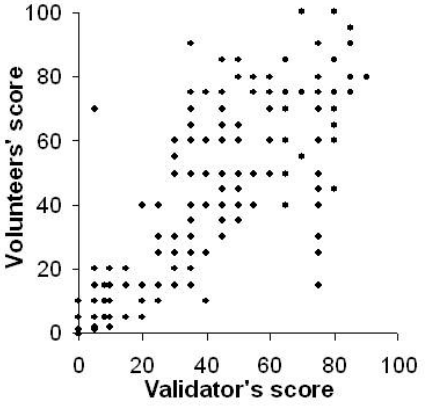


Figure 3: Relationship between percent seagrass cover estimates from volunteers' across various sites and those from a data validator.

Continued over...

Continued from Page 10

Another example of the good quality of the data comes from two sites situated on the eastern side of Pumicestone Passage, at Sylvan Beach on Bribie Island. Both sites show very similar seasonal trends (Figure 4), as would be expected as they are approximately one km apart on the same stretch of beach. What is encouraging is that two different groups recorded these closely matched trends independently of each other.

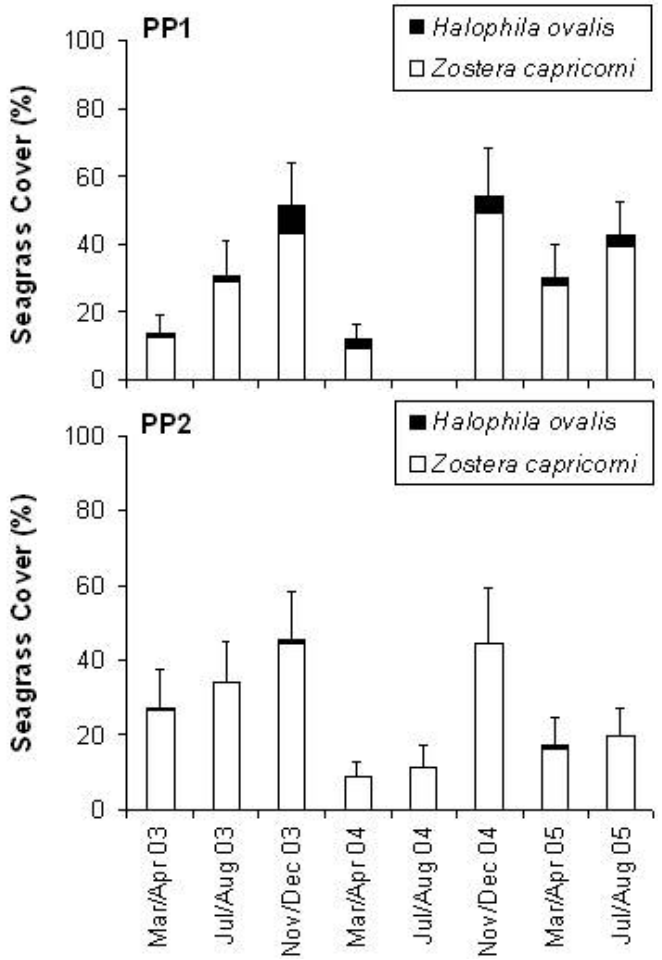


Figure 4: Comparison of percent seagrass cover and species composition at two Seagrass-Watch sites (PP1 and PP2) within the one locality (Pumicestone Passage). Note the Jul/Aug04 survey was not completed at site PP1.

The Moreton Bay Seagrass-Watch Program is planning a couple of major projects for 2006. Firstly we will be assisting the Noosa Integrated Catchment Association in establishing a similar but smaller program in Noosa. Six to 12 sites are planned depending on volunteer commitment level. A seagrass rehabilitation trial is scheduled for the later half of 2006. We hope to trial the establishment of seagrass in areas that have historically supported large beds but are currently devoid. We have already consulted key stakeholders such as the Queensland Parks and Wildlife Service (Marine Parks), DPI&F and Port of Brisbane. Following the lead of other Seagrass-Watch Programs we are also planning to install temperature data loggers at a variety of our monitoring sites.

Crossword

Across

1. The scientific name for sponges
7. What are radially symmetrical animals that are only found in the sea
9. In many cultures around the world, people still eat turtle meat and ____.
11. What type of sponge is similar to moss because they tend to cover the surfaces of rocks
12. The depth range of seagrass is usually controlled at its deepest edge by the availability of _____.
13. Seagrasses on reef flats and near estuaries are often known as *(2 Words)*.
14. A form of protection where an arthropod looks like another arthropod

Down

2. Seagrasses are unique amongst flowering plants, in that all, but one genus can live entirely immersed in seawater. What is it?
3. When a cetacean launches itself into the air, head first and then lands back in the water with a splash, this is known as _____.
4. What are plants that also colonised the sea and are often confused with seagrasses
5. All sea turtle species, except one, are listed as _____.
6. Turtle that is named for the colour of the fat underneath its shell
7. Crustaceans are bilaterally symmetrical and have *what?*
8. Because green sea turtle only eat seagrass and algae, they are called _____.
10. Clams, mussels, squid, and octopods are all examples of _____.

Solution in issue 25.

Facts about Molluscs

Maybe you think that snails, clams, mussels, squid, and octopods are very different. Yet, they are all in the same category of animals known as molluscs and are structurally similar. Molluscs are some of the most well known of invertebrate sea creatures (there are over 50,000 species). Some are very rare and are only found in very deep-water.

Molluscs have three body regions.

1. The head contains the "brain" and the sense organs.
2. The "visceral mass" contains the internal organs.
3. The "foot" is the muscular part of the body.

Molluscs usually, but not always, have a shell, which is secreted by a body wall called the mantle. Many molluscs have a tongue of sorts, called a radula. The radula is rough like sandpaper. Molluscs have well developed body organs that are used in the respiratory, circulatory and nervous systems.

The Stomach-Foot

The stomach-foots (class Gastropoda) contains about 70% of all mollusc species. The stomach-foots include snails, limpets and abalones, which have shells. Slugs and nudibranchs are also stomach-foots, but do not have shells. A few stomach-foots are found on land.

The Bivalves

The bivalves (class Bivalvia) are very well known. They include clams, mussels, oysters and scallops. All bivalves have two shells (the name means "two shells"), and there are about 15,000 species. Most bivalves are marine, but about 20% are found in fresh waters. Bivalves do not have radula because they eat by filtering water through their gills to obtain organic particles. Most bivalves attach themselves to something or burrow underground. Some scallops, however, do not attach themselves to anything and are able to swim by squirting water through their mantle.

Squids & Octopuses

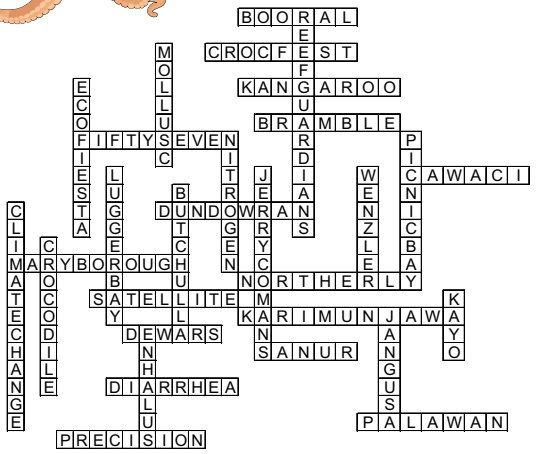
The class cephalopoda, meaning "head-footed," includes squids, octopods, cuttlefish and nautiluses. The feet, or arms, of these creatures are connected to their heads, not their bodies. The rest of the body is in front of the head. That's why they're called, "head-footed." The "feet" of cephalopoda are called "arms," not tentacles.

The cephalopods appear very different from other molluscs, but physiologically they are similar. Cephalopods, like most molluscs, have a mantle, a mantle cavity, a radula, and a U-shaped digestive tract. Cephalopods have two kidneys and three hearts, which pump blue blood. They are carnivores that feed on fish, shrimp, crabs and other cephalopods.

Octopuses do not have shells, while squids have a small internal shell. (Nautiluses, which are found in the South Pacific and Indian oceans, are the only cephalopods with an external shell.)

Cephalopods have a more developed nervous system than other molluscs. They also have very well developed eyesight that is used in finding prey. Once prey is found, it is grasped firmly and eaten with a mouth located at the base of the arms. Cephalopods also have a parrot-like beak which is used in biting into prey.

Solution to Issue 23 crossword



Do you want to get Involved?

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The David and Lucile Packard Foundation

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

NEXT ISSUE OUT MARCH 2006

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