

Seagrass-Watch Moreton Bay

Seagrass Watch

Newsletter No.30 – October 2009



Introduction



Spiny Seastar at Blue Hole.

There are still a few unclaimed places for our next Seagrass-Watch Moreton Bay [Day on the bay](#). Check your diaries and get ready for Saturday 14th November. This is a day trip run with the assistance of Queensland Parks and Wildlife Service. We board the Marine Parks vessel Spoonbill at Manly in the morning for a trip to [Blue Hole](#). Then take the opportunity to explore this interesting and diverse area of the bay at low tide, on foot (a snorkel mask might help). Lunch and refreshments are provided, returning to Manly in the afternoon. This is a chance for our valued volunteers to see the Bay and is always good fun. Please RSVP quickly as places are limited.



Explorers disembark at Blue Hole.

Websites:

<http://www.wildlife.org.au/seagrasswatch/index.html>

<http://www.seagrasswatch.org>

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*Summer is coming and we are
looking forward to a great season
Watching Seagrass grow!*

After a successful winter season it's time to gear up for Summer. Lots of great data was collected and comments recorded by all the hard working volunteers. New people keep coming too. This edition of the Seagrass-Watch Moreton Bay newsletter includes opportunities for the quick, an excellent article contributed by volunteer Ed Boast and some info on new science in seagrass, oceans and climate change.

Don't forget to check page 4 for suitable dates to go monitoring and remember to book your kit EARLY.

Our next Seagrass monitoring training day will be on Sunday 29th November at Wellington Point. This is where new volunteers acquire the skills for data collection and is also a good way to refresh techniques for those who want it. Email Nick for more info.

The **Queensland Wader Study Group** is running a workshop on these remarkable birds, if you are interested see the flyer on the last page.

Do you like cricket? No, you love it!

[Volunteering Qld's](#) cricket day is coming up. No we don't use a Seagrass monitoring kit for wickets. Yes it's free entry to the Gabba to watch the experts.

Queensland Bulls Vs Tasmanian Tigers

Date Friday 30 October 2009

Time Gates open 1.15pm, match starts at 2.15pm

Venue The Gabba (Brisbane Cricket Ground),

Ticket holders receive:

Complimentary entry to the match

Complimentary transport to and from the Gabba on city shuttles *plus* all TransLink scheduled services in South East Queensland including QR train, Brisbane Transport buses and Brisbane City Council ferries. Plus more.

Email Nick at Seagrass-Watch Moreton Bay **to register before 22 Oct** for your **FREE TICKETS**. Remember each ticket is entry for 2 people.



The Team from MI1

For members with an interest in marine ecology I thought I'd share with you a down the bay activity that Jill and I have been involved in for some years. The Seagrass Watch (SGW) volunteer programme organized by Marine Parks is now operated from their new premises on the north wall of Manly Boat Harbour.

Three times a year we head off with our friends and fellow seagrass watchers Mike and Diana Patchett to our allocated seagrass site on the banks south of the Blue Hole.

We have to be there on one of the lowest tides to have time to carry out the data collection tasks while the banks are dry.

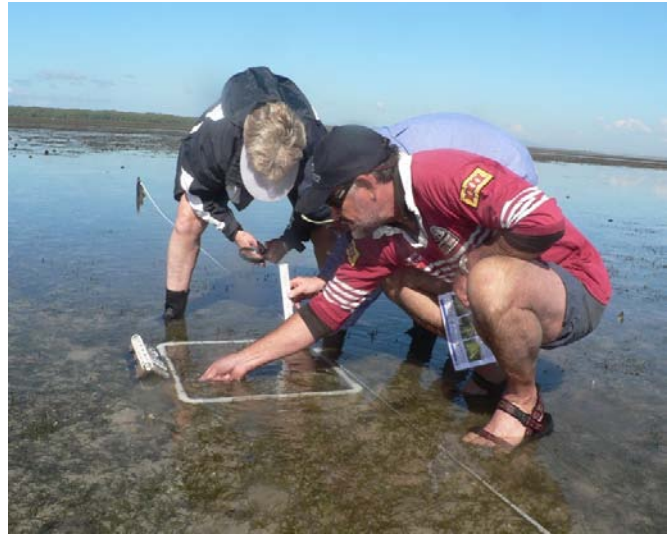
As the saying goes "time and tide wait for no man" so we are compelled to go regardless of weather and time of day and this often means we don't get out of the Blue Hole until after dark so a bit of GPS plotter navigation is called for.

The process once we get on to the dry banks is first to find our site. This involves taking a bearing on a lateral nav aid then once in position walking two hundred meters down the back bearing to the site. The site is marked by a small black peg and on at least one occasion in the early days we failed to achieve this target before the tide beat us.

Once on site we set out three 50-meter legs on a bearing and check the sea grass and other flora and fauna every 5 meters on each of the three legs, the plan being to check the same 30 spots three times a year. The information gathered is returned to the coordinator who enters the data on the Master Plan of Moreton Bay which is part of a larger worldwide data base. The research project that started in Australia has spread across the globe.

We each have a job on the site. Diana is the recorder and Quality Controller, Jill and Mike do the identification and assessment of cover and I am the photographer and measurer.

*This excellent article was contributed by **Ed Boast** and originally appeared in 'Mainsheet' Aug/Sep 2009. Magazine of the Royal Queensland Yacht Squadron. It appears unchanged from the way it first went out in Mainsheet. Except for my comments in italics!*



Excellent close inspection for epiphyte cover assessment



Good use of the site ID for later reference and photo validation !

It's a great boating activity and rewarding on many fronts. The challenge of getting there and back whatever the weather adds spice to the outing. One of the most memorable days was the time we came across a dugong herd on our way to the Blue Hole. The day we were rained and blown off after the second leg and the one when we swam with turtles in the Blue Hole are two of the many we reminisce about.



All Seagrass-Watch Moreton Bay volunteers are welcome to contribute to the newsletter. Just contact Nick Hoffmann

Climate Change, Carbon dioxide, Biodiversity and the importance of Seagrass Meadows

Diversity in seagrass meadows.

When we look at biodiversity of a seagrass meadow it means a number of things. Firstly, the diversity of different species of seagrass present. Secondly diversity refers to all other biota (plants and animals) also present. A good example is the epibionts (small plants: 'epiphytes' and small animals: 'epizooans') that grow on the leaves of seagrass.

What Diversity is good for?

Diversity is good for maintaining productivity in seagrass meadows (measured in biomass or carbon capture). Diversity is also associated with increased productivity in associated biota such as fish, prawns and other creatures.

Productivity and CO².

Increasing concentration of carbon dioxide (CO²) in the atmosphere is the major cause of global warming. Plants take CO² from the atmosphere through photosynthesis and use it to grow (production). The high productivity of Seagrass means it is an active photosynthesizer sucking in a lot of CO².

CO² in sea water decreases pH (makes it more acidic).

Acidic seawater dissolves the calcium carbonate (CaCO³) shells of marine creatures including molluscs, corals and many of the epizooans growing on seagrass. When we assess epiphyte cover on seagrass we are looking at small plants and animals with calcium carbonate shells growing on the seagrass leaves. Increasing ocean acidity from increased CO² in the atmosphere may have a dramatic effect on biodiversity in seagrass meadows.

Seagrass can make seawater less acidic.

Recently researchers have shown that actively photosynthesizing seagrass takes in CO² from the surrounding seawater. This reduces the concentration of CO², making the water less acidic (increases pH).

This means in a future of acidifying oceans, seagrass meadows may provide a local zone that protects biodiversity.



Matrix for estimating cover of epiphytes

Epiphytes are algae attached to seagrass blades (often giving the blade a fuzzy appearance). First estimate how much of the blade surface is covered, and then how many of the blades in the quadrat are covered (e.g., if 20% of the blades are each 50% covered by epiphytes, then quadrat epiphyte cover is 10%). Epibionts are sessile animals attached to seagrass blades - record % cover in the comments or an unused/blank column - do not add to epiphyte cover

		% of leaves in quadrat with epiphytes																					
		0	1	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Average epiphyte cover on a leaf	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	5	1	1	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	4	5	5	5
	10	1	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	10
	15	1	1	2	2	3	4	5	5	6	7	8	8	9	10	11	12	13	14	14	15	15	15
	20	1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	20
	25	1	1	3	4	5	6	8	9	10	11	13	14	15	16	18	19	20	21	23	24	25	25
	30	1	1	3	5	6	8	9	11	12	14	15	17	18	20	21	23	24	26	27	29	30	30
	35	1	2	4	5	7	9	11	12	14	16	18	19	21	23	25	26	28	30	32	33	35	35
	40	1	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	40
	45	1	2	5	7	9	11	14	16	18	20	23	25	27	29	32	34	36	38	41	43	45	45
	50	1	3	5	8	10	13	15	18	20	23	25	28	30	33	35	38	40	43	45	48	50	50
55	1	3	6	8	11	14	17	19	22	25	28	30	33	36	39	41	44	47	50	52	55	55	
60	1	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60	60	
65	1	3	7	10	13	16	20	23	26	29	33	36	39	42	46	49	52	55	59	62	65	65	
70	1	4	7	11	14	18	21	25	28	32	35	39	42	46	49	53	56	60	63	67	70	70	
75	1	4	8	11	15	19	23	26	30	34	38	41	45	49	53	56	60	64	68	71	75	75	
80	1	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80	80	
85	1	4	9	13	17	21	26	30	34	38	43	47	51	55	60	64	68	72	77	81	85	85	
90	1	5	9	14	18	23	27	32	36	41	45	50	54	59	63	68	72	77	81	86	90	90	
95	1	5	10	14	19	24	29	33	38	43	48	52	57	62	67	71	76	81	86	90	95	95	
100	1	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	100	



This photo shows biodiversity in a Seagrass meadow. Look closely to see epibionts on the leaves.

When monitoring a Seagrass-Watch site. One of the things we do in every quadrat is estimate the cover of epiphytes. It is important to use the number matrix to do this correctly. First estimate how much of the blade surface is covered, and then how many of the blades in the quadrat are covered. Then follow the line and column into the matrix and come to a number. Record this value in the % Epiphyte Cover column. Over long term, this type of baseline data may be valuable in studies of the effects of climate change and the importance of Seagrass.

Information in the above article is drawn from a number of publications.

For a list of references contact Nick at Seagrass-Watch Moreton Bay (details on front page).

Mudflat spotlighting

We conduct mudflat spotlighting trips on an opportunistic basis, so we invite you to let us know if you would like to do one of these trips at your own site. This is a great way to see the hordes of bizarre creatures that utilise your site at night. Please contact Simon or Paul to arrange one of these evening events.

Seagrass surveys

Seagrass-Watch surveys are undertaken three times a year (March-April, July-August and November-December). The **November-December 2009** monitoring period is upon us and there is a limited number of good tide times – see tide times opposite (Brisbane Bar). Those who have been trained and set up at sites should select a suitable day and contact Nick your SGW Co-ordinator to book the equipment. P. 07 31312861, M. 0408 140 874, E. nick.hoffmann@derm.qld.gov.au

Please give plenty of notice when making a booking.

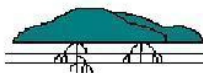
Thanks

A big thankyou to all the volunteers for generously giving their time to this valuable community monitoring program.

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Seagrass-Watch Moreton Bay

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Disclaimer: The views expressed in this newsletter are those of the authors and not necessarily those of the Queensland Government.



Wildlife Preservation Society of Queensland

Bayside Branch (QLD) Inc



Queensland Government
Queensland Parks and Wildlife Service

Good Tides...

Month	Day	24hr Time / Height (m)
November	Sun 01	1434 / 0.49
	Mon 02	1520 / 0.45
	Tue 03	1606 / 0.44
	Wed 04	1653 / 0.45
	Sat 07	0554 / 0.36
	Sun 08	0647 / 0.46
	Mon 09	0754 / 0.55
	Tue 10	0913 / 0.60
	Wed 11	1032 / 0.60
	Thu 12	1145 / 0.57
	Fri 13	1252 / 0.53
	Sat 14	1350 / 0.50
	Sun 15	1444 / 0.48
	Mon 16	1531 / 0.48
	Tue 17	1615 / 0.50
	Wed 18	1658 / 0.54
	Sun 22	0557 / 0.55
Mon 23	0641 / 0.65	
Tue 24	0735 / 0.75	
Sat 28	1218 / 0.75	
Sun 29	1318 / 0.66	
Mon 30	1414 / 0.58	
December	Tue 01	1506 / 0.51
	Wed 02	1558 / 0.46
	Thu 03	1649 / 0.43
	Sun 06	0550 / 0.31
	Mon 07	0645 / 0.41
	Tue 08	0745 / 0.52
	Wed 09	0853 / 0.63
	Thu 10	1007 / 0.70
	Fri 11	1124 / 0.73
	Sat 12	1235 / 0.70
	Sun 13	1339 / 0.66
	Mon 14	1433 / 0.61
	Tue 15	1522 / 0.58
Wed 16	1605 / 0.57	
Thu 17	1644 / 0.57	
Tue 22	0618 / 0.59	
Wed 23	0703 / 0.70	
Mon 28	1252 / 0.77	
Tue 29	1357 / 0.65	
Wed 30	1456 / 0.55	
Thu 31	1550 / 0.46	

Quick Seagrass-Watch Reference Guide to Monitoring Techniques:

- Sediment description:** Dig your fingers into the top centimetre of the substrate and feel the texture. Describe the sediment by noting the grain size in order of dominance (e.g. sand, fine-sand, fine-sand/mud, mud/sand, mud/coral rubble). It will reduce confusion if we record the sediment in this way, taking care to list the sediment types in order from most to least dominant sediment type. For example, if the sediment is more muddy than sandy, then it is recorded as mud/sand.
- Other organisms:** If possible, be more specific about the number and type of other organisms present within quadrats. For example, information about the distributions of predatory versus algal-grazing gastropods is potentially important. Identification of other organisms should only be taken to the individuals' skill level, i.e. if you know what it is then write it down.
- Water depth:** We would like to start recording the depth of water present in each quadrat. Please measure the depth of water (in centimetres) in each quadrat and record it in the comments (if there is no water, please also make a note of this).
- Photographs:** These are to be taken at 5, 25 and 45 meters along each transect instead of 10, 25 and 40 meters. Please take the photo from as vertical as possible and make sure to include the three items: the tape, quadrat and quadrat identifier.
- Estimating percentage seagrass cover:** Always use the percentage cover photo guide to narrow down seagrass cover estimates. Also, please be more specific with estimates, especially if the cover is less than 50% (i.e. do not simply round off to the nearest 5%). Never use greater- or less-than symbols (i.e. '<' or '>').
- Seagrass canopy height:** When measuring the seagrass canopy height, please take care to select seagrass blades randomly and not to focus on the three longest blades. Seagrass-Watch HQ in Cairns advise ignoring the top 20% but if you have some other sort of system that works for you (e.g. always taking samples from roughly the same three points within the quadrat) then continue.
- Seagrass species composition:** Estimate the least dominant species first, up to 100%. This is useful for quality assurance/quality control (QAQC) procedure as some people have trouble adding up. If we have this system of writing down the least dominant species first then we can generally work backwards to get the percentage composition. Try and use several diagnostic characteristics for species identification (e.g. blade shape, leaf venation and rhizome structure/colour), not only one.
- Macroalgae:** Please record anything that is not attached to the seagrass and keep separate from seagrass cover, i.e. it is possible to get 100% cover for both seagrass and macroalgae if drift algae is covering the entire quadrat. In this case one must lift up and remove the drift algae in order to measure the seagrass.
- Epibionts (epiphytes versus epizoans):** Epiphytes are algae attached to seagrass blades and often give the blade a furry appearance. Epizoans are sessile animals attached to seagrass blades (e.g. ascidians or anemones growing on seagrass blades). Please do not include epizoans in with the estimation of epiphytes. Record the presence of epizoans in the comments or an unused/blank column. Also, we need to measure epiphytes more accurately, as a percentage cover, and not just within the three categories: low, medium and high. There is a new protocol for this, for example: if 20% of the seagrass blades are each 50% covered by epiphytes, then quadrat epiphyte cover is $[(20 \times 50) / 100]$ 10% (there is a matrix to help with this process, available to download at <http://www.seagrasswatch.org/monitoring.html>, under Quarterly Monitoring, Step 8. estimate epiphyte % cover). The values of percentage epiphyte cover may be lumped prior to data analyses but when and how to do this is for a statistician to decide.
- Seagrass resilience (seed bank) sampling:** For those who are keen we can provide training in assessing the *Halodule* seed bank reserve and thus the resilience of this species. Thirty core samples are taken within each site and training will be provided if you would like to give this a go.



INTRODUCTION TO WADERS (SHOREBIRDS) IN AUSTRALIA AND MORETON BAY

This workshop offers a unique opportunity to learn about a special group of birds, waders. These birds are magnificent athletes, flying up to 25,000 km every year. They range from tiny 24-gram birds to the world's largest wader, the Eastern Curlew, weighing in at over 1 kilogram. Moreton Bay, on Brisbane's doorstep, is an internationally significant area for waders, but most people are oblivious to their presence.

Seventeen resident and 36 migrant species of wader occur in Australia; in total, about 3 million birds. They feed on the shorelines of coastal and inland wetlands of Australia. The majority breed in the higher latitudes of the Northern Hemisphere in places like Siberia and Alaska, and travel the East Asian/Australasian flyway twice a year on migration. From September to April, a large number of species can be found in Moreton Bay, and we have an ideal opportunity to study these species. They face increasing pressures from

burgeoning human populations and habitat destruction throughout the flyway.

During this one-day workshop you will be introduced to these fascinating birds through specific topics that include:

- Definition of waders and habitat;
- Field identification;
- Factors affecting local and regional distribution;
- Importance of Moreton Bay;
- The East Asian/Australasian Flyway;
- Threats to waders and their habitat;
- National and International conservation agreements.

The field trip will give you the opportunity to have a 'hands on' chance to identify many of the species mentioned in the lectures with experienced wader-watchers.

THE WORKSHOP CONSISTS OF A MORNING OF LECTURES AND AN AFTERNOON FIELD TRIP

- COST:** \$ 40.00 Cheques payable to the Queensland Wader Study Group.
To confirm your registration, post your payment to Vicki Campbell, 62 Scenic Road, Kenmore, 4069. Places are limited.
- REGISTRATION:** SATURDAY 7th NOVEMBER 2009, 9.00am to 9.15am
at the Port of Brisbane Corporation Visitors' Centre, Whimbrel Street, Fisherman Islands (UBD map 144, H15; <http://www.portbris.com.au/visitorscentre>).
- LECTURES:** 9.15 am to 12.40 pm, Morning tea and lunch included.
- FIELD TRIP:** SATURDAY 7th NOVEMBER, 2009, 1.00 to 4.00 pm, at ROOST SITE (TO BE ADVISED)
Please note that the field site is exposed – remember to bring a hat, sunscreen and water bottle.
- CLOSING DATE:** Please enrol by WEDNESDAY 28TH OCTOBER 2009. Remember places are limited.
- ENQUIRIES:** Vicki Campbell – 3378 2964 or vicki.campbell@cogentia.com.au



ENROLMENT FORM

INTRODUCTION TO WADERS (SHOREBIRDS) IN AUSTRALIA AND MORETON BAY

Course Fee: \$40.00 payable to Queensland Wader Study Group.

Post to: Vicki Campbell, 62 Scenic Road, Kenmore, 4069

Title: First Name: Last Name:

Address:

Post Code:

Organisation (if applicable):

Phone:

E-Mail Address:

Do you require a vegetarian or other special lunch? Please specify.....