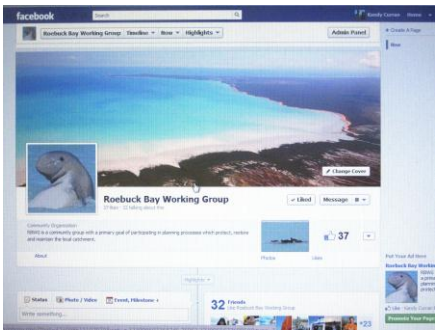
Roebuck Bay Working Group NEWSLETTER

"Community Driven Management Planning to Protect, Restore and Maintain Roebuck Bay"

Number 6 • July 2012

RBWG on a friendship drive



ROEBUCK BAY has begun a friendship drive through social networking. The motivation to develop Facebook and an outstanding Roebuck Bay website is to encourage our community to get involved in the bay's management and protection as we learn more from Yawuru, RBWG, scientists and local naturalists. Become a Facebook friend now »

Celebrate the bay: August 12, Town Beach, 12-4.30pm

The event will be a joyful celebration of the incredible marine life that Roebuck Bay supports, and the cultural significance it holds for Yawuru people, the traditional owners of Broome. Celebrate the Bay will have a science theme, so there will be plenty of **fascinating hands on activities for the community to learn about the bay's marine life.** For example, mud dwellers that live in the bay's extensive intertidal mudflats will be on show and supersize binoculars on hand to view snubfin dolphins. Other drawcards will be seagrass and migratory shorebird displays, a walk to see dinosaur footprints and a SciTech 'Marine Biology Meets Pathology' show. Scientists will be there too, to talk about their research on the Bay and careers in science. Stephen Pigram, will create the atmosphere, singing about croc's, pearling and fishing. And for the kids, lots of games and prizes focused on the Bay.

A Celebrate the Bay program will be on the Roebuck Bay website soon and the event advertised in the paper: http://www.roebuckbay.org.au/news-and-events/

Thanks to National Science Week for a grant of $1800 for the event and Rangelands NRM funding for the RBWG project.

Roebuck Bay Working Group is supported by:

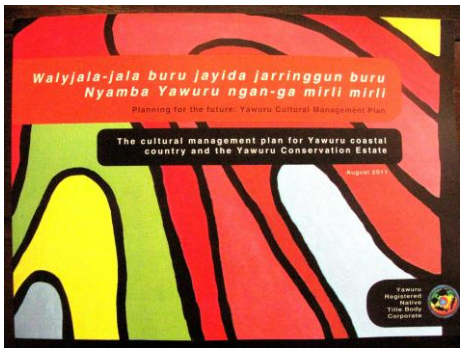
Rangelands NRM Western Australia

An Australian Government Initiative

Inspiring Australia

national science week

Yawuru cultural management plan launched



A CULTURAL MANAGEMENT PLAN for Yawuru coastal country and the Yawuru Conservation Estate has been launched, with a copy of the award winning book presented to the RBWG. Titled, Walyjala-jala buru jayida jarringgun buru Nyamba Yawuru ngan-ga mirli mirli Planning for the future: Yawuru Cultural Management Plan, the book provides a framework to guide future planning for terrestrial and marine areas in the bay.Described as a living document to be amended over time, the plan is guided by Yawuru knowledge of country gathered over countless generations, and the need to manage all of country together – land, sea, animals, plants, culture and spirits. The plan is making sure Yawuru people will be able to hunt and fish, and continue cultural practices on country far into the future.

A blooming good film

Award winning filmmakers Mitch Torres and Clinton Ferstl have been working closely with the RBWG, DEC's Yawuru Rangers, Roebuck Primary students and the Broome community to develop a short film. The idea of the film is to make the connection between land-based pollution and algal blooms of Lyngbya that have been worsening in Roebuck Bay in recent years. After writing a script and identifying local talent, filming got underway in July. The film will be available on website shortly.

Blue Cloud Spatial Project

RBWG met with the Blue Cloud Spatial Team (affiliated with Duke University, USA and Murdoch University, Perth) in June. The team works with locals, scientists, corporations and stakeholders involved with marine, estuarine and river ecosystems in America and WA to provide partners with high quality GIS maps, supporting collaborative conservation efforts based around true citizen science. We look forward to contributing citizen science footage and data to the map when up and running. Visit the Blue Cloud Spatial »

Don't take Roebuck Bay for granted

Eminent marine ecologist Professor Theunis Piersma from the Netherlands provided a riveting talk in March on research he has undertaken on the bay's shorebirds and benthos over 20 years. Theunis' data confirms that the bay is the richest intertidal mudflat in the world and should never be taken for granted. Theunis (NIOZ) has funded benthos monitoring for 13 years and employs Chris Hassell, the bay's only full-time researcher.

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Keep our bay clean campaign

In recent years algal blooms of *Lyngbya majuscula* have been forming thick mats over the bay's seagrass and impacting marine life**.** The cause for the blooms is likely to be linked to run-off and polluted groundwater from Broome. Pollutants such as treated wastewater, fertiliser, pindan and garden waste enter the Bay directly through stormwater drains during the wet. Similarly contaminants (fertiliser, sewage) can enter indirectly, leaching through soil to groundwater flowing under Broome to discharge into coastal waters. The RBWG has responded with KEEP OUR BAY CLEAN campaign to reduce pollutants entering the bay.

Keep Our Bay Clean achievements in 2012 include:

'On the Bay' newspaper column in Broome Advertiser.


Advertiser News

Algal blooms a big threat

On the Bay

Kandy Carran

Stencilling of Broome's drain inlets with a KEEP OUR BAY CLEAN logo to help our community understand the need to reduce pollutants entering stormwater drains and contributing to algal blooms e.g. fertilisers, pool water, detergents (cars washed on roads), wastewater, sewage, rotting rubbish, plants.

Three RBWG display banners developed by Jan Lewis and designed by Danica Clinton: *Values of Roebuck Bay*, *Lyngbya in Roebuck Bay*, *Actions to Reduce Lyngbya blooms*.

Fridge magnets with tips on Keeping Our Bay Clean delivered to 5000 homes during the 2011/12 wet! The response has been terrific, with a greater level of awareness than expected and many residents expressing concern about the impact of Lyngbya blooms on fish, dugongs and shellfish.

How to use fertiliser wisely in your garden **brochure** developed by Jan Lewis and designed by Danica Clinton, to guide residents on fertiliser use for Broome soils to reduce fertilisers entering the bay and becoming food for algal blooms.

Keep Our Bay Clean web tips: IN YOUR HOME, SCHOOL, GARDEN, NEIGHBOURHOOD »

Letter to Shire re developing a Drainage Catchment Plan. With many older drains narrow, eroded and without structure or plantings to hold back flows of nutrients and sediments, there is an urgent need to identify drains for re-engineering and planting. Shire is currently working on Anne Street drain - thanks Rangelands NRM for funding the work.

Letter to Conservation Volunteers and Shire re clean-ups of drains to reduce rubbish and nutrients entering the bay and feeding algal blooms, which have devastating effects on marine life such as dugongs, turtles, salmon, shorebirds and snubfin dolphins.

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Research on the bay's water quality and hydrology

By PhD student, Gayan Gunaratne

On January 2nd, DEC volunteers and the Flash-Mob (RBWG volunteers) braced for the slippery task of collecting water samples from 24 drain outfalls in Broome's first storm.

Monitoring the first flush provides important information about the amount of dissolved constituents in water flowing off the streets into Roebuck Bay. Follow up sampling was carried out during most rain events during the 2011-2012 wet.

Outcomes of research thus far:

1) Old Broome drains have highest nutrient concentrations.
2) Lesser nutrient concentrations from Broome North drains, but still detectable.
3) Run-off volume is more important than nutrient concentration in terms of nutrient load to bay in majority of drains- to do this we need detailed information on drain geometry.

Future work:

1) Complete the nutrient analysis.
2) Map study site using GIS – identify/map all drain catchments, collect drain geometry information.
3) Simulate surface water hydrology using a mathematical model on drain geometry and water level data to understand run-off volumes and nutrient delivery to bay.
4) Simulate bay hydrodynamics using a mathematical model for scenarios to help understand the bay hydro and nutrient dynamics.
5) Next wet season look at the ground water hydrology, because it has a major role in nutrient delivery to the bay and Lyngbya blooms.

Supervisors: Assoc. Prof. Ryan Vogwill, Assoc. Prof. Matt Hipsey, Assoc. Prof. Ryan Lowe.
Partners: UWA, DEC and RBWG.

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Research on nutrients, Lyngbya, benthos and shorebirds

By postdoctoral researcher, Dr Sora M Estrella PhD

An objective of the project '*Effects of Nutrient Enrichment and Toxic Lyngbya Blooms on Benthic Invertebrates and Migratory Shorebird Communities of Roebuck Bay Ramsar site"* is to determine the extent, duration and intensity of the bay's cyanobacteria blooms.

To achieve this, a field assessment was undertaken on the Lyngbya bloom extension and intensity over two years. Twelve transects were set perpendicular to the coast, and every 100m three quadrants of a known area were sampled. Nine transects were set between Fall Point and Dampier Creek and three transects between Town Beach and Simpson's Beach. In the lab we calculated the *Lyngbya majuscula* biomass of each sample.

Mapping was undertaken during the 2010, 2011, 2012 wet seasons. The maps indicate Lyngbya blooms reach a maximum extension and intensity in February each year. Of the three years evaluated, in 2012 the bloom was most extensive (see fig. 3). However, 2010 was the year when the bloom was more intense (see fig. 1). In both years the bloom reached the Ramsar area of the bay. However, no Lyngbya was observed on the sand banks between Crab Creek and Bush Point in February 2012.

The mapping program has resulted in identification of two hotspots of Lyngbya blooms in the bay. The principal one is located on the intertidal zone of Simpson's Beach (see fig. 3). The second one is located midway between Fall Point and Dampier Creek (see fig. 3).

NOTE: Only February maps have been included for the RBWG Newsletter. The project does not evaluate the biomass of Lyngbya washed up on the beach. Please use this link to see the 2010, 2011 and 2012 maps (Figure 1, 2 & 3) and to read the full article »

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Volunteer and help protect and manage our coast

SEAGRASS MONITORING »

Four times a year volunteers monitor Roebuck Bay's seagrass meadows. Learn about intertidal creatures and seagrass ecology, whilst contributing to an important dataset that helps monitor the health of Roebuck Bay.

Seagrass monitoring dates for 2012

July 22	Town Beach	05:45 for a 06:00 start
July 23	Demco Beach	06:15 for a 06:30 start
July 24	Port Slipway	06:45 for a 07:00 start

Bring Sandshoes or mud booties, hat, sunscreen, water, AN ADULT IF PRIMARY AGED.

Contact Kylie Weatherall M 0400 66 5524 E seagrass@environskimberley.org.au

FREE LEVEL 1 SEAGRASS MONITORING TRAINING, SEPT 2012 »

SHOREBIRD MONITORING »

Our group regularly studies Roebuck Bay's migratory shorebirds who breed in the northern hemisphere, so we can contribute to their survival and migration. Newcomers are given instruction on handling birds.

Shorebird monitoring dates for 2012

Aug 5	Broome Bird Observatory	10:30	Sep 8	Broome Bird Observatory	12:30
Aug 19	Broome Bird Observatory	09:30	Sep 16	Broome Bird Observatory	08:45
Aug 25	Broome Bird Observatory	13:00	Oct 7	Broome Bird Observatory	12:00
Sep 2	Broome Bird Observatory	09:30	Oct 14	Broome Bird Observatory	07:45
Sep 8	Broome Bird Observatory	12:30	Oct 21	Broome Bird Observatory	12:00
Oct 21	Broome Bird Observatory	12:00	Oct 28	Broome Bird Observatory	07:45
Oct 28	Broome Bird Observatory	07:45	Nov 4	Broome Bird Observatory	11:00

Bring footwear, hat, sunscreen, water and AN ADULT IF PRIMARY AGED.

Contact Chris Hassell 0408954655 E turnstone@wn.com.au

BENTHOS MONITORING »

Each month our team takes mud samples in Roebuck Bay. These samples are full of invertebrates (benthos). Long term sampling enables knowledge of changes in invertebrate abundance. Please ring to confirm dates.

Monitoring Dates

Aug 7	Broome Bird Observatory	07:30	Nov 2	Broome Bird Observatory	06:15
Sep 5	Broome Bird Observatory	07:00	Dec 18	Broome Bird Observatory	07:30
Oct 4	Broome Bird Observatory				

Bring Enclosed shoes or mud booties, hat, sunscreen, water and AN ADULT IF PRIMARY AGED.

Contact Darren Stevens P 9195 5500 darren.stevens@dec.wa.gov.au

RUBBISH CLEAN-UPS OF BROOME'S BEAUTIFUL BEACHES »

Fun, worthwhile and identifies pollution sources so we can take action!

Rubbish clean up dates

September 15th Broome Bird Observatory

Bring Enclosed shoes, hat, sunscreen, water, ADULT IF PRIMARY AGED.

Contact Jason Richardson P 9195 5500 jason.richardson@dec.wa.gov.au

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Good news story for Roebuck Bay

Roebuck Primary students are community leaders, painting dugongs and salmon on Roebuck Estate's drain inlets as well as their school's footpaths. The good news is that the turquoise logo has an important community message – Keep Our Bay Clean.

With Roebuck Bay experiencing worsening algal blooms of Lyngbya most years since 2005, Roebuck Primary has got into a Keep Our Bay Clean project being run by RBWG and Yawuru Rangers. The key message is that our community has a good chance of stopping destructive algal blooms if we reduce nutrients and pindan entering stormwater drains.

The year six and seven students are so proud of their environmental work they have decided to wear the Keep Our Bay Clean logo as a badge on their school shirts.

The project is achieving excellent community support, with Broome Senior High's Bushrangers the next school students to paint footpaths near their school.

The contaminants that are of most concern for Roebuck Bay are fertilisers, garden waste, sewage, cleaning chemicals containing phosphorous, pool water containing phosphates and believe it or not pindan, which contains a large amount of iron and some phosphorous.

As a result of the project children will be coming home from school full of ideas about how your family can stop pollution reaching Roebuck Bay, thereby reducing the chance of Lyngbya blooms and deaths of marine life such as dugongs, turtles and dolphins. If you want to be ahead of them in Lyngbya awareness, check out our new Lyngbya program and list of tips to Keep Our Bay Clean: home, garden, school and neighbourhood»

For enquiries about the Roebuck Bay Working Group's work please contact:

Project Coordinator Kandy Curran P 0400 003864 E info@roebuckbay.org.au

W www.roebuckbay.org.au F www.facebook.com/roebuckbay

Disclaimer: RBWG has made every effort to verify all facts in this newsletter.

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