

# SeaRead

Marine Park news from catchment to coral



Australian Government

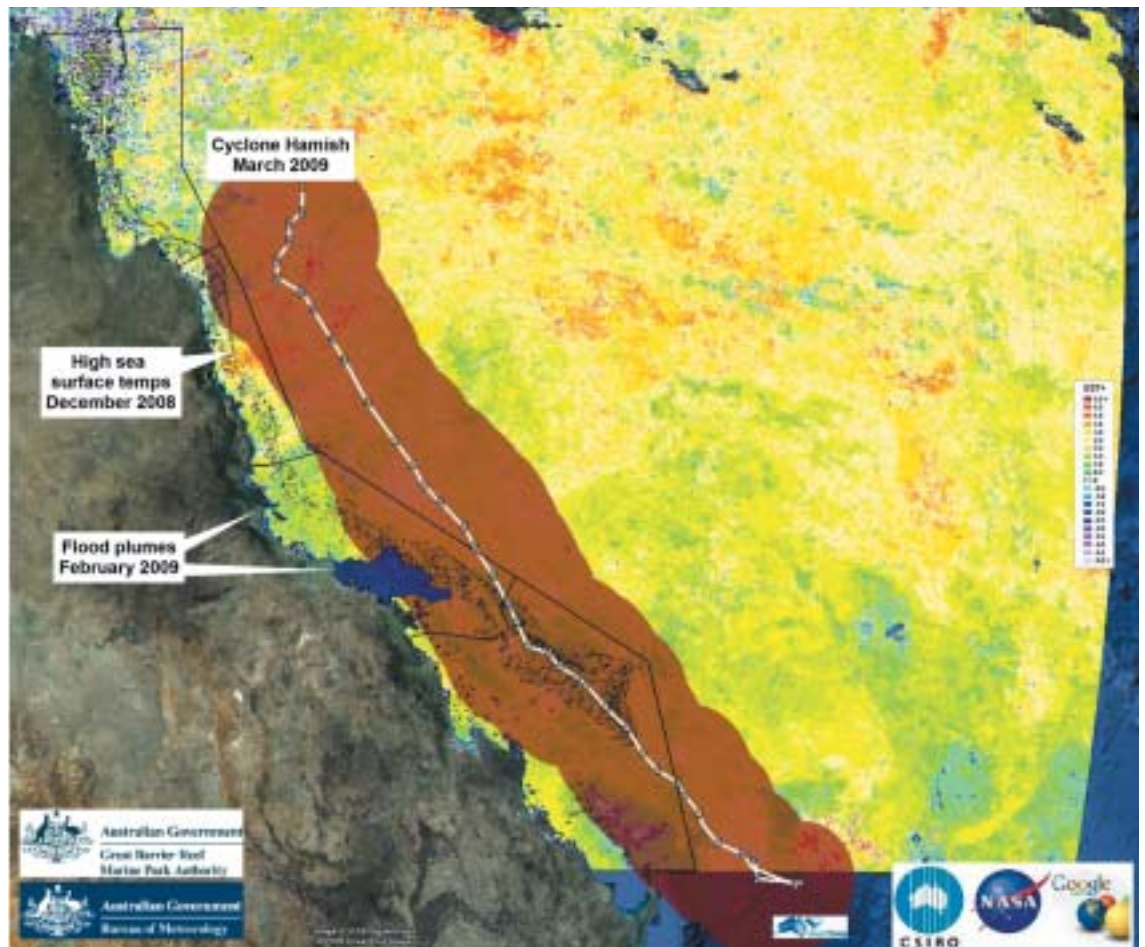
Great Barrier Reef  
Marine Park Authority

Issue 27 • March/April 2009

## What's inside

Bioremediation to keep atrazine from waterways	3
Residents look after their beach backyard	4
Looking after breeding flowery cod and camouflage cod	5
Check your free zoning map or risk a fine over Easter	6
Fishing champion awarded for eco-efforts	8

## Weather triple whammy roughs up the Reef



Sea temperatures 2–3 degrees higher than average, a one in one hundred year flood event and destructive winds from cyclone Hamish covering about 50 per cent of the Marine Park, have made this a summer of hard knocks for the Reef

Stifling heat, heavy rainfall causing significant flooding, and destructive winds from cyclone Hamish, have all compounded to have a hard hitting impact on the Great Barrier Reef.

Great Barrier Reef Marine Park Authority (GBRMPA) Chairman, Russell Reichelt, said a summer of extreme weather brought a triple whammy of pressures to the Great Barrier Reef.

"Sea temperatures across most of the Reef rose a massive 2-3 degrees above average in December which meant this summer was shaping up to be one of the worst years on record for coral bleaching due to the extreme heat.

"Above average sea temperatures are very stressful to corals and prolonged heat causes bleaching and ultimately coral death, so we were very concerned about the outlook for the Reef.

"In January, we got a reprieve from the risk of heat induced bleaching as wind and cloud cover from the monsoon cooled temperatures. But this was a mixed blessing for the Reef because storms in January and February caused record levels of rain and extreme flooding.

"This was a one in a hundred year flood event, where, in a rare consequence, we are seeing plumes covering very large areas of the Marine Park.

### DISCLAIMER

While all efforts have been made to verify facts, the Great Barrier Reef Marine Park Authority takes no responsibility for the accuracy of information supplied in *SeaRead*.

ISSN 1834-6774

Copyright Commonwealth of Australia

Please note that you are welcome to photocopy *SeaRead*. However, if the text is reproduced separately, it must not be altered and must acknowledge the Great Barrier Reef Marine Park Authority as the source. Illustrations must not be reused separately without permission. Please contact the Great Barrier Reef Marine Park Authority if in doubt.

## Message from the Chairman



It has been a very busy start to the year with extreme weather experienced throughout north Queensland this summer. High temperatures, record rainfall and cyclone Hamish have influenced our work as we continue to focus on the key priority areas for protecting the Great Barrier Reef Marine Park.

From an environmental perspective, the first two months of this year were a challenging time for all Queenslanders and we were certainly watching closely as part of our role in monitoring the health of the Great Barrier Reef Marine Park. It was a summer of extremes; with soaring temperatures in December, extreme rainfall over January and February and cyclone Hamish early March.

We recently held a workshop on developing a response system for managing coral bleaching and invited a range of reef users to take part. The workshop discussed developing a system to respond to mass coral bleaching on the Reef, similar to responding to other major incidents such as oil spills. It is important to have clear plans in place to deal with

this when it occurs, so that the response is timely and appropriate. We are keen to work with Reef users who have an interest in being involved.

Extreme heat can increase sea surface temperatures and elevate the likelihood of coral bleaching to concerning levels. We were closely monitoring sea surface temperature to determine if any variations would cause stress to corals and bleaching. While the risk of bleaching remained high throughout the early part of summer, widespread rain and cloudy weather provided some reprieve.

Cloudy conditions and above-average January rainfall between Cooktown and the Whitsundays reduced the immediate threat of bleaching over much of the Great Barrier Reef in January. By mid-February the risk of coral bleaching was downgraded to moderate due to the wet January and resultant cooling.

The monsoons brought a much needed cooling off period for the corals, but it presented other challenges for the Reef including flood plumes. As a result, this wet

season was a particularly busy time for us and our research and community partners.

We are keeping a close eye on the quality of water entering the Marine Park and the health of coral and seagrass. While the data from monitoring the floods will take some time to analyse, the high levels of rainfall can result in floodwater carrying large amounts of sediments, nutrients and pollutants off the land and into the marine environment.

We're pleased the Reef is still one of the healthiest coral reef systems in the world, but we encourage everyone to remain vigilant and be aware of their role in helping protect it. Through our management initiatives, community involvement, our work with industry and interest groups, and Reef Guardian Councils and Schools we will continue to spread the message that the future of the Reef is up to all of us.

Regards

Continued from page 1

"Flood plumes are also extremely stressful to corals and we've had reports of severe bleaching and coral death on reefs between Cairns and the Whitsundays.

"To make matters worse, destructive wind gusts from severe tropical cyclone Hamish affected more than 50 per cent of coral reefs in the Marine Park.

"Although we have yet to survey the effected areas, we expect the storm may have caused severe reef and island damage.

All of these things individually cause stress to the Reef but Russell said it was their combined impact that was most worrying.

"Historically the Reef has been resilient to events like this, but it is rare; possibly unprecedented; to have three such events in such a short period of time.

"It's been a summer of hard knocks for the Reef and given the slow

recovery of corals, we are likely to see the impacts of this summer for years to come.

"In fact, some reefs were still recovering from damage caused by the 1998 and 2002 mass bleaching events and other localised disturbances like cyclone Larry and a series of flood plumes over the past decade.

"Because it can take reefs up to 20 years to fully recover, these recent events are a real set back for reef recovery in some areas."

The GBRMPA is working with the Australian Institute of Marine Science and the Environmental Protection Agency to assess the damage at inshore and mid-shelf reefs between Townsville and Lizard Island.

Of all developed countries, Australia is likely to be most impacted by climate change and the Reef is already seeing signs of the changes to come.

Russell said it was important to buy time for the Reef from the worst effects of climate change and extreme weather by bolstering its overall health.

"While the Great Barrier Reef is recognised internationally as being the healthiest and best managed reef system in the world, we can't afford to be complacent.

"There is much work still to be done and with extreme weather events becoming more frequent, now more than ever we need to remain vigilant."

Russell said that keeping the Reef as healthy as possible required a two pronged approach, mitigating the impacts of climate change and working to improving its resilience.

While the Reef has experienced setbacks this summer, it is still faring better than most of the world's reefs and remains a fantastic destination for tourists.



## Bioremediation to keep atrazine from waterways

**Farmers around the world are expected to benefit from the successful trial of an enzyme that breaks down the herbicide, atrazine, in run-off water.**

According to Dr Colin Scott, CSIRO Entomologist: "When we added the enzyme to a holding dam filled with run-off contaminated with atrazine, more than 90 per cent of it was removed in less than four hours.

"The enzyme we have developed will reduce the potential for off-farm water contamination by atrazine and this should help provide continued access to it for farmers."

Atrazine is a widely used and extremely useful herbicide but, depending on its use, can result in residues that persist in water for sometime after application.

Undesirable residues of this chemical in water have led to restrictions on the use of atrazine in the European Union and United States of America.

The successful trial was held in the Burdekin sugar growing region near Ayr in Queensland and the results were very promising for reducing contamination in run-off that reaches the Great Barrier Reef.

Collaborators in the trial were the Queensland Department of Primary Industries and Fisheries (DPI&F), James Cook University

and the Great Barrier Reef Marine Park Authority.

The DPI&F's Rob Milla, who organised access to the trial farms and assisted in sample collection, is also pleased with the results.

"These initial field test results are very encouraging and our next steps will be to apply the enzyme in standard operating situations to ensure there are no impediments, from a farmer perspective, to its easy and effective use," Rob said.

The CSIRO bioremediation team is now focusing on improving the

production and application of the enzyme, to provide farmers and water consumers around the world with a cost effective bioremediation product to address triazine contamination.

CSIRO's search for the enzyme began with a search for bacteria that 'fed' on atrazine. Once identified, the team isolated the enzyme that broke down the chemical into non-toxic components and developed it to make it a product suitable for low-cost production and delivery into a range of situations.



Examining an agar dish for bacterial colonies as part of the bioremediation project  
Photo by David McClenaghan – CSIRO

## Dive into the ocean and explore the Great Barrier Reef

**State-of-the-art technology allows people to dive beneath the water surface and explore 3D underwater terrain of the Great Barrier Reef, without leaving their computer.**

Google recently launched Google Ocean in Google Earth, which includes ocean-related content contributed by marine managers such as the Great Barrier Reef Marine Park Authority (GBRMPA).

Google Earth is a popular free on-line virtual globe and mapping tool, displaying global satellite imagery, cities, infrastructure and a range of other geographic

information as maps or as 3D views. The new Google Ocean module allows exploration of a three dimensional ocean including bathymetric features.

GBRMPA Chairman Russell Reichelt said the technology allowed people from all over the world to experience one of our greatest natural treasures.

"Our role of managing the Great Barrier Reef Marine Park is vital to Australians and people from around the world," he said.

"Google Ocean in Google Earth opens up new opportunities to educate the public about this remarkable place, presenting its natural wonders to everyone from school children to scientists."

The new 'Explore the Ocean' layer highlights the Great Barrier Reef and other protected areas from around the world.

The content was developed with the help of the GBRMPA and the ARC Centre of Excellence for Coral Reef Studies.

The Google Ocean feature is on by default in the newest version of Google Earth. Users can zoom in on the ocean to see a dynamic water surface, and once they dive beneath the surface they can navigate 3D sea floor terrain.

The feature includes 20 content layers, containing information contributed by the world's leading scientists and ocean explorers.



# Residents look after **their** beach backyard

***Brittina Mundy and Yvonne Greer are passionate about looking after their patch.***

The pair from Balgal Beach, near Townsville, have been patrolling "their" beach for the past year, collecting rubbish and looking out for unusual signs.

Brittina and Yvonne recently contacted the Great Barrier Reef Marine Park Authority (GBRMPA) with concerns about coral rubble washing up on the beach following recent storms.

Brittina said that her love of the beach made her want to learn more about the Reef.

"I became very inquisitive about what it was I was seeing on the beach and I wanted to find the answers to my many questions."

Yvonne, a member of the Doomadgee community, agreed that Balgal Beach was a very special place.

"The beach and sea are good for my spirit and help keep me at peace.

"If everyone helps to protect this unique environment, it will be here for future generations.

"I encourage everyone to be part of the solution by disposing of litter properly when walking, camping and boating and by reporting illegal actions to the appropriate authority.

"It is very satisfying to help look after something that is so important to so many people."

While the beach rubble turned out to be a normal occurrence, this opened the door for the two enthusiastic residents to learn more about their local coastline.

In response, the GBRMPA provided the residents with training on how to appropriately report animal strandings and illegal activities, and how to identify oil slicks in the event of a spill.

The GBRMPA General Manager of Park Management Andrew Skeat said it is encouraging to see people who are passionate about the marine environment and who are interested in doing what they can to keep it healthy.

"We welcome reports of unusual sightings and are always keen to hear from community members."

## **You can help to protect the Great Barrier Reef Marine Park by reporting incidents, especially:**

*Stranded or injured animals, marine pollution, fish kills* – 1300 130 372 (EPA)

*Oil spills* – 07 3830 4919 (GBRMPA) quote 'oil spill'

*Illegal fishing* – 1800 017 116 (DPI&F)

*Zoning infringements (e.g. fishing in Green Zones)* – 07 4726 0510 (GBRMPA)

*Sightings of unusual marine life* – 07 4750 0700 (GBRMPA)



Residents from Balgal Beach learn more about their coastline.

## It's as simple as a flick of the switch

***Australians are encouraged to show their support for protecting the Great Barrier Reef Marine Park by turning off their lights for Earth Hour on 28 March.***

Earth Hour has grown from humble beginnings in Sydney in 2007 to a world-wide event reminding people that everyone has a role to play in mitigating the impacts of climate change.

GBRMPA Chairman Russell Reichelt said climate change was already impacting on the Great Barrier Reef.

"The Great Barrier Reef has already experienced several significant coral bleaching events which have caused unprecedented damage to corals over the last 10 years," Russell said.

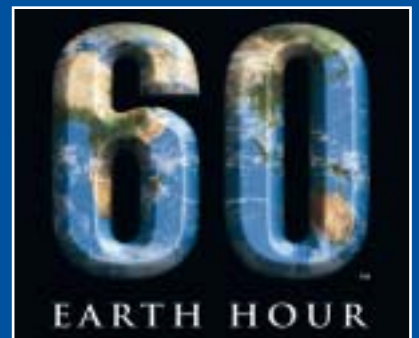
"Rising sea surface temperature is likely to cause an increase in frequency and severity of coral bleaching across the Great Barrier Reef.

"Making sure homes and business are as energy efficient as possible is an important step in reducing carbon emissions. It is also important to continue to reduce waste and recycle as much as possible.

"It's hoped that Earth Hour not just raises awareness about climate change but really encourages people to become more environmentally sustainable on a regular basis."

This year Earth Hour is aiming to reach one billion people and more than 1000 cities and over 64 countries.

You can participate in Earth Hour 2009 by turning off your lights for one hour from 8.30pm on Saturday 28 March. For more information or to register online visit [www.earthhour.org](http://www.earthhour.org)





# Looking after **breeding** flowery cod and camouflage cod

**Recent biology research by Dr Rachel Pears on flowery cod and camouflage cods, in collaboration with commercial and recreational fishers, is helping ensure sustainable fishing for these species.**

The research has helped the Department of Primary Industries and Fisheries (DPI&F), the Great Barrier Reef Marine Park Authority and the fishing industry to better manage reef cod species.

The research was used by the Management Advisory Committee for the reef line fishery (ReefMAC) and its Scientific Advisory Group to help the DPI&F determine the most appropriate fish size limits for these fish.

The new size limits (minimum 50cm and maximum 70cm) for flowery cod and camouflage cod came into effect on 1 March 2009.

Importantly, the research found that the old size limits (minimum 50cm and 100cm maximum) were ineffective in protecting mature breeding fish, particularly flowery cod.

Through ReefMAC, it was recommended the maximum size limit be reduced to better protect these species and a common size be applied as it is difficult to tell the two species apart.

The research found both species share several biological characteristics that make them vulnerable to

over-fishing, and large females of both species are important breeders because they produce many times more eggs than smaller females.

The minimum legal size limit of 50cm remains unchanged. This size limit provides good protection for camouflage cod because it protects the younger fish and gives them a good chance to breed.

However, this limit gives limited protection for flowery cod because flowery cod grow larger and mature later than camouflage cod.

The previous maximum legal size limit of 100cm was too high to protect either species, because few fish grow larger than this size anyway.

The new maximum size limit of 70cm better protects large breeding flowery cod.

A critical part of this management process has been the discussions with industry members who strongly supported the new size limits.

It was also recognised that large fish are not a preferred catch, as they're often regarded as unpalatable and fishers have difficulty selling them over six kilograms due to concerns of possible ciguatera poisoning.

The research was conducted while Rachel was at James Cook University and the former CRC Research Centre. She is currently a project manager at the Great Barrier Reef Marine Park

Authority. For more information on this research visit the [www.gbrmpa.gov.au](http://www.gbrmpa.gov.au)



Rachel Pears undertakes field research and (below) a camouflage cod and flowery cod



## New fishing rules strike a **balance**

**Recreational and commercial fishers will need to brush up on their rules with a number of changes to regulations recently coming into effect throughout Queensland.**

Primary Industries and Fisheries Minister Tim Mulherin said the new rules were aimed at ensuring that the State's fisheries remained sustainable while maintaining a catch share balance between the fishing sectors

"Changes to the Inshore Fin Fish Fishery - the largest and most diverse fishery in the State, the East Coast Trawl, East Coast Tropical Rock Lobster, Crab and Freshwater fisheries have now been finalised," he said.

"While the majority of these new rules came into affect on 1 March, 2009, there are some changes that will be phased in later to give fishers time to adjust.

"Queensland's population has doubled in the past 30 years to 4.3 million. Most of that growth has occurred along the coast - placing greater pressure on our fishing resources. Our outdoor lifestyle has led to a significant increase in boat ownership, thereby raising the number of fisherman on the water. This factor, as well as improvements in fishing technology, gives greater capacity for catching fish.

"First and foremost, the introduction of these critical changes will ensure the sustainability of our fish stocks.

"We also want to make sure that commercial fishing remains viable and recreational anglers can continue to enjoy the Queensland fishing experience. It is about striking the right balance.

"The changes include new bag and size limits for some of our most popular bread and butter species like whiting and flathead.

"Changes have also been made to the commercial fisheries in Queensland, including the East Coast Net Fishery which targets shark, grey mackerel and barramundi; the East Coast Trawl Fishery, which targets prawns and scallops; and the East Coast Tropical Rock Lobster Fishery".

As part of the new rules, all sawfish and spartooth shark are no-take species, given their international and national listing as endangered species.

"In addition, commercial fishers will need to be in attendance of their nets at all times, which will help to ensure that if the nets interact with a protected species such as a whale or dugong, they can be released unharmed."

For more information on the new rules visit - [www.dpi.qld.gov.au](http://www.dpi.qld.gov.au) - or phone 13 25 23.

## Check your free zoning map or risk a fine over Easter

***If you're heading out on the water over Easter, don't forget to pick up your free Great Barrier Reef Marine Park zoning map so you know where you can go and what you can do.***

Andrew Skeat, General Manager Marine Park Management from the Great Barrier Reef Marine Park Authority said the maps were useful to keep onboard boats or in tackle boxes and should be checked regularly when out on the water.

"It's a good idea for fishers to check their maps while out on the water to ensure they aren't illegally fishing in areas where fishing isn't allowed or is limited," he said.

"We're stepping up patrols over Easter so people should be particularly mindful that they can only fish in Blue Zones and there's limited line fishing in Yellow Zones."

"Even people who go out on the water regularly should take time to check the activities guide on the maps to refresh their knowledge of what they can and can't do in particular areas.

"Zoning is an important management tool in the Great Barrier Reef Marine Park to ensure the long-term protection of the many plants and animals that call it home."

Green Zones are no-take areas where extractive activities like fishing or collecting are not allowed.

Anyone can enter a Green Zone to participate in activities such as boating, swimming and snorkelling. You can also anchor in a Green Zone.

While in a Green Zone be sure to stow fishing gear on board the boat or in rod holders even if the hook remains attached, provided the fishing apparatus is out of the water.

There's limited line fishing in Yellow Zones - this means fishing with one hand-held rod or one hand-held line per person, with one hook attached to that line.

Early indications are that zoning is working and preliminary research shows fish numbers are increasing.

North Queensland scientists found a spectacular recovery in coral trout numbers on unfished reefs following the introduction of the Zoning Plan.

They found coral trout numbers rebounded by 31 to 75 per cent on a majority of reefs which had been closed to fishing for as little as 1.5 to 2 years.

Free zoning maps are widely available from bait and tackle shops, visitor information centres, ship chandlers and Environmental Protection Agency and Queensland Boating and Fisheries Patrol offices. Alternatively call the Great Barrier Reef Marine Park Authority 1800 990 177 for a free map.



## Hotspots under the microscope

***Patrols will be stepped up in compliance hotspots in the Great Barrier Reef Marine Park in the coming months so it is important that people know where they can go and what they can do.***

The Great Barrier Reef Marine Park Authority is also undertaking some targeted education activities in particular areas to remind fishers about the zoning rules.

A number of locations continue to have more frequent occurrences of

recreational fishing infringements in Green (no-take) and Yellow Zones (limited line fishing).

One area for dedicated compliance patrolling and education activities over the coming months will be the Newry Islands area near Seaforth north of Mackay.

In particular, people boating and fishing off Seaforth should make sure they are familiar with the Green and Yellow Zones in the area.

You can expect to also see patrols in hotspots such as the reefs offshore from the Cairns area, Magnetic Island off Townsville, the Whitsunday

Islands, and the Keppel Islands off Yeppoon.

Fishers illegally fishing in these zones risk getting a fine, so it's important people familiarise themselves with the zoning rules.

Free zoning maps are available from bait and tackle shops, visitor information centres, ship chandlers and the Environmental Protection Agency and Queensland Boating and Fisheries Patrol offices. Alternatively call the Great Barrier Reef Marine Park Authority 1800 990 177 for a free map.

## Newest Reef Guardians commit to cleaning up waste

***Wulguru State School pledged their commitment to helping the Great Barrier Reef recently by becoming the north's newest Reef Guardian School on Schools Clean Up Australia Day.***

The Great Barrier Reef Marine Park Authority in partnership with Burdekin Dry Tropics Natural Resource Management presented the official Reef Guardian Schools sign to the school before joining students in a school-wide clean up.



Wulguru students show off their haul of litter



# Students learn about the perfect coastal plants for their backyard

*From the banana bush to the yellow mangrove - students are learning all about coastal plant species thanks to an innovative new teaching kit.*

The Great Barrier Reef Marine Park Authority (GBRMPA) teamed up with Burdekin Dry Tropics Natural Resource Management (NRM) and Greening Australia to deliver coastal plant teaching kits to schools throughout the Burdekin Dry Tropics region.

GBRMPA Reef Guardian Schools Project Officer Leonie Maddigan said almost 30 schools signed up for the program and would each receive 20 native coastal plants (or seedlings) and 30 copies of the 'Coastal Plants of the Burdekin Dry Tropics' booklet as a class resource.

"The schools will also receive a series of plant activities to learn about the importance of native plants and the role they play in coastal ecosystems," she said.

The 60-page booklet called 'Coastal Plants of the Burdekin Dry Tropics' was produced by Burdekin Dry Tropics NRM in conjunction with Coastal Dry Tropics Landcare Incorporated.



Students from St Patrick's study up on coastal plants

Burdekin Dry Tropics NRM Community Engagement Facilitator, Paul Wuth, said the booklet was colourful, user-friendly and profiled 50 species of native coastal plants that are all suitable for residential gardens.

"We encourage students, and by extension the community, to help protect our delicate coastal areas by planting coastal natives in the backyard and avoiding exotic species," he said.

Greening Australia General Manager Bob Osborne said planting native trees would provide habitat for fauna and possibly attract a wealth of butterflies and birds into backyards.

"They can also form wildlife corridors in urban areas, they require less water and generally increase the health of the coastal ecosystem," he said.

"If people are looking for plants suited to the Burdekin region I encourage them to check out Greening Australia's native plant nursery in Pimlico."

The booklets are free and available from Burdekin Dry Tropics NRM by phoning 07 4724 3544. Greening Australia's native plant nursery can be contacted by phoning 07 4796 0411.

## The Adventures of Sonya the Freshwater Sawfish

**Department of Primary Industries and Fisheries (DPI&F) sawfish researcher, Stirling Peverell, has written a children's book to help raise awareness of one of Australia's most intriguing and least understood aquatic animals, the freshwater sawfish.**

Stirling drew inspiration for the book after conducting presentations to primary schools throughout the Gulf and Cape York and finding that children were captivated by sawfish.

The book, which is beautifully illustrated by Paul Lennon, leads young readers through the challenging first year of life when a young sawfish migrates many miles upstream from its estuarine birthplace.

"The book was written to draw attention to the charismatic sawfish

and to the threats to the species' survival, including habitat modification, illegal net fishing in rivers and line fishing in freshwater waterholes," Stirling said.

"It is intended to serve as a tool to assist in delivering an education and conservation message."

Inhabiting remote and inhospitable areas of northern Australia, freshwater sawfish exhibit unique evolutionary characteristics. Identifiable by a toothy rostrum and shark-like appearance, the freshwater sawfish is actually a ray that grows to a massive seven metres long, second only to a whale shark, and can live in freshwater and seawater.

"Little is known about sawfish populations or basic biology and life history, which would form the foundation for better conservation and management.

"Once abundant throughout the continental tropics, sawfish now face an uncertain future.

"Fortunately, in Australia sawfish are protected and are a no-take

species in commercial and recreational fisheries".

All proceeds from the sale of the book go to Project Sawfish, a non-profit organisation founded by aquarium supplier, Cairns Marine. It co-ordinates, facilitates and supports projects that aim to advance knowledge of animals that inhabit riverine, estuarine and near shore environments in northern Australia.

To purchase a copy, contact Ryan Donnelly at Cairns Marine on 07 4058 1711.



# Backbones show sharks way of life

***New research into Queensland's shark population has revealed that extracts from a shark's vertebrae could hold the key to identifying where it has been and whether it has travelled with other individuals of the same species.***

Department of Primary Industries and Fisheries project leader David Welch said the research was aimed at understanding how various shark populations were connected and where they had lived over their lifetime.

"Ultimately, this research will help in determining appropriate management arrangements for shark on Queensland's east coast," he said

"Independent monitoring of commercial fisheries indicates that the majority of catch is made up of blacktip sharks, scalloped hammerheads and milk sharks. Therefore our research is focusing on learning more about these populations and the movement of these species."

David said three different techniques were being used concurrently to determine whether there were distinctly different populations of blacktip sharks, scalloped hammerheads and milk sharks along the Queensland east coast.

"The techniques are genetics, microchemistry and population characteristics," he said.

"Although it is still early days in the project, the team has made some significant developments."

James Cook University PhD student Ron Schroeder has led the

development of an innovative method for examining the microchemical make-up of shark vertebrae.

Using this technique the chemical composition of vertebrae from sharks' backbones are analysed to determine the chemical 'signature' of individual sharks.

According to David, this is a world first. "This is the first time that these analytical methods have been successfully applied to sharks.

"It allows us to determine the concentration of various trace elements in shark vertebrae which then can tell us a lot about the history of individual sharks and where they have been living over their lifetime."

Another breakthrough made by the team has been in developing genetic techniques to reliably identify two different species of blacktip shark that look identical in appearance.

"Using this new genetic tool the team has learnt that the common blacktip shark is much more frequently captured on the east coast than previously thought.

"The team will now apply these tools in helping to determine the population structure of these shark species on the east coast."

The project is funded by the Fisheries Research and Development Corporation and is being jointly conducted between the Department of Primary Industries and Fisheries, James Cook University and the Great Barrier Reef Marine Park Authority.

# Fishing champion awarded for eco-efforts



Award winner Bill Sawynock

***Central Queenslander Bill Sawynock has been honoured with an international award for his efforts to promote conservation in recreational fishing.***

The Rockhampton resident received the Conservation Award from the International Game Fishing Association (IGFA) on January 24 in recognition of his efforts to support sustainable fishing.

Bill said that, as far as he was aware, he was the first Australian to win the award.

"The IGFA is probably the most respected international recreational fishing body in the world and it certainly is an honour to be recognised by such an organisation," he said.

Bill is an Australian representative of the IGFA, but the award is not limited to members and may be awarded to both groups and individuals.

Among his many achievements, Bill is involved with Suntag, the Released Fish Survival Program, and also manages CapReef, a community based monitoring program involving recreational fishers.

Fitzroy Basin Association Natural Resource Management Group (FBA) Chief Executive Officer Suzie Christensen said Bill, a former long standing FBA board member, was a tireless worker and deserving of the award.

"Bill has been a champion of the recreational fishing sector for many years, and his community driven research is providing valuable information. Programs such as Suntag and promotion of safe fish release are helping to ensure the sustainability of fishing for generations to come. I offer Bill FBA's heartfelt congratulations," she said.



Blacktip shark



# PEW Fellow sheds light on Reef management **success**

**Great Barrier Reef Marine Park Authority (GBRMPA) scientist and Pew Fellow, Dr Laurence McCook, recently played host to a delegation of Indonesian political leaders and reef managers interested in reef management.**

The Pew Fellowship in Marine Conservation program identifies emerging talent and innovative thinkers who can move ocean conservation forward. The 2009 Fellows are focusing on global-scale solutions both through research projects and by engaging communities worldwide in their ocean conservation goals.

The program is aimed at preserving the biological integrity of marine ecosystems and primarily focuses on efforts to curb over fishing, reduce bycatch and prevent the destruction of marine habitat.

Laurence held a three day coral reef management workshop with the delegates to discuss the GBRMPA's reef management strategies, and how they might be adapted by reef managers in Indonesia.

Laurence said the workshop successfully built mutual understanding about the challenges facing reef managers who are working to protect reefs in Indonesia.

"The Indonesian delegation heard first-hand what has and hasn't worked in the Great Barrier Reef Marine Park, the world's largest and best managed reef system," he said.

"Many reef management strategies adopted by the GBRMPA have been effective in protecting the Great Barrier Reef. It is hoped by explaining these strategies in detail that we can help translate them into strategies that will protect the plants and animals of coral reefs in Indonesia.

"The workshop participants were especially interested in the benefits sustainable management practices can have for the economy through increased tourism opportunities."

Laurence hopes to visit Indonesia in June to work with reef managers and government leaders about reef management strategies which could be used to increase the protection of the fabulous reef biodiversity of Indonesia.

The three biggest threats to coral reefs in Indonesia are destructive fishing practices (the use of cyanide and dynamite), over fishing, pollution and habitat destruction - along with climate change.



Example of pollution facing reefs in Indonesia



Dr Laurence McCook with Indonesian delegation

## Shed meetings go from the farm to the **Internet**

**Queensland cane farmers now have their own website where they can meet and discuss the latest growing technologies, download advice and watch other growers implement best management practices in their paddocks.**

Shedmeeting.com.au is the high-tech way for growers to exchange information and ideas.

"This is an excellent example of using the latest technology to enhance the business of our cane farmers across Queensland, Department of Primary Industries and Fisheries (DPI&F), Director Eddie Gilbert said.

"One of the useful tools on ShedMeeting.com.au is the short videos of cane farmers in the field,

demonstrating the best practice farming techniques that work for them.

"Topics range from tips for growing rotational crops such as soybeans, to water quality testing, green cane trash blanketing and ground water drainage."

Burdekin Productivity Services chair Paul Sgarbossa paid a special tribute to the cane farmers from across Queensland's growing districts who gave their time to be involved in the videos.

"Queensland cane farmers are innovators, and take the time to invest in the growth of the entire industry. These videos are proof that we are leaders in adopting new farming technologies that enhance

both the economic and environmental performance of the industry."

The brainchild of DPI&F cane extension officers Henry Thomas and Avril Robinson, the development of ShedMeeting.com.au has been a collaborative process, made possible by funding from the Sugar Research and Development Corporation.

Other contributors to the site's development include the Australian Agricultural College Corporation, Burdekin Productivity Services, Burdekin Dry Tropics NRM and Pioneer Cane Growers Organisation.

# Nemo "won't be coming home"

*Nemo, the lovable clownfish of movie fame, may be unable to find his way home as the world's oceans acidify due to human carbon (CO<sub>2</sub>) emissions.*

Fish lose the sense of smell that guides them home when sea water becomes more acidic – with potentially devastating consequences for sea life, an international team of scientists has discovered.

The researchers tested clownfish raised in normal and slightly more acidic sea water to see what effect it had on their sense of smell. To their dismay they found that the fish, normally acutely sensitive to different smells in the water, became confused when the water they were raised in was more acidic than usual.

Dr Philip Munday of the ARC Centre of Excellence for Coral Reef Studies said they found the baby fish were strongly attracted to scents they normally avoided at the sort of levels of ocean acidity that could occur by 2100.

"Furthermore they no longer responded to scent cues at all when the acidity rose to the sorts of levels likely by the second half of that century if nothing were done to curb carbon emissions," he said.

"This is a disturbing finding, because the tiny larvae of many coastal fish probably rely on scent cues in the water to help locate adult habitat.

"Any disruption to their ability to navigate could have far-reaching implications for the future of these fish populations.

"At least 30 per cent of the human-generated (CO<sub>2</sub>) released into the atmosphere in the past 200 years has been absorbed by the oceans, causing ocean pH to decline (ie to acidify) at a rate around 100 times faster than at any time in the past 650,000 years."

The paper 'Ocean acidification impairs olfactory discrimination and homing ability of a marine fish' is available at [www.coralcoe.org.au](http://www.coralcoe.org.au).



Clownfish eggs are tended by the male until they hatch. After hatching the tiny larvae spend 11 days in open water before they settle into adult habitat on the reef. Photo courtesy of Gerry Allen

## Spearfishing **confusion** near Cape Upstart National Park

**People planning to go spearfishing near Cape Upstart National Park are reminded to brush up on zoning to ensure they know where spearfishing is allowed in this area.**

Throughout the Marine Park, limited spearfishing (with a spear or speargun and snorkel only) is allowed in Yellow Zones except where the zone is also a Public Appreciation Special Management Area.

Public Appreciation Special Management Areas are identified by a pink dashed line around this area on Great Barrier Reef Marine Park Authority zoning maps.

A Public Appreciation Special Management Area is located in the Yellow Zone on the western side of the National Park and spearfishing is **not allowed** in this location.

Spearfishing is **allowed** in the Yellow Zone at the northern part of Cape Upstart National Park as this is not part of the Public Appreciation Special Management Area.

Spearfishers are encouraged to take free zoning maps with them when

heading out on the water so they know where they can go and what they can do - free maps are widely available.

Even people who go out on the water regularly should take time to check the activities guide on the maps to refresh their knowledge of what they can and can't do in particular areas.

Penalties apply for not following the zoning rules so it is important to make sure you know and understand the zoning for the areas you're planning to visit.

*Free zoning maps are widely available from bait and tackle shops, visitor information centres, ship chandlers and Environmental Protection Agency and Queensland Boating and Fisheries Patrol offices. Alternatively call the Great Barrier Reef Marine Park Authority 1800 990 177 for a free map.*

## Waves of **Change** Queensland Coastal Conference 2009

12 – 15 May  
Sea World, Gold Coast

**What are the real implications for Queensland's coastal environments? How do those involved in coastal planning and management proactively address these changing elements and mitigate potential impacts? How do we know our management practices are the most effective solution to identify problems? All of these issues and more will be discussed at the Queensland Coastal Conference 2009.**

The conference will assist coastal managers, planners and decision makers to enhance and maintain momentum for coastal sustainability in Queensland. Discussions, workshops and presentations will draw on the learning's of the past and build on the wealth of existing knowledge to increase our efforts in protecting Queensland's iconic coastline.

For more information and to register log onto [www.iceaustralia.com/qldcoast09/register.html](http://www.iceaustralia.com/qldcoast09/register.html)



### The eye's have it

What has 24 eyes, toxic venom, is practically invisible and dictates how we interact with the tropical marine environment? The answer is, a box jelly. A dangerous seasonal visitor to Northern Queensland seas, there is a surprising complexity to this ancient and seemingly simple animal.

- It was in Precambrian times, (about 543 million years ago), that box jellies took a different path along the evolutionary tree from other sea jellies. This makes them one of the more ancient marine animals alive today.
- The box jelly, Class *Cubozoa*, (so named from their box or cube like appearance), are often known simply as 'marine stingers'.
- Box jellies are voracious predators. You can see it in their 'eyes'. Many predators have two forward facing eyes that use triangulation to form an accurate picture of exactly where their prey is. Each corner of a box jelly has six eyes!
- Two of these are complex eyes that are similar to our own, complete with a cornea, a lens and a retina composed of cells similar to the rods found in vertebrates. These are eyes capable of forming a detailed colour picture of what they are looking at. They also have four simple eyes that only detect light and dark.
- That's 24 eyes in all. The box jelly is an animal that not only has eyes in the back of its head, but on both sides as well. These complex eyes make the box jelly a successful predator. Active hunters, they will pursue prey around obstacles at speeds of up to four knots.



## New sea turtle research database for the Pacific region

***A seven-year effort to develop a Pacific region database on sea turtle research culminated with the recent launch of the Turtle Research Database System (TREDs).***

The database was officially launched at the recent Twenty-ninth Symposium on Sea Turtle Biology and Conservation held in Brisbane.

The new system collates and standardises marine turtle data that has been collected throughout the region over the last few decades and is critical to understanding population trends throughout the Pacific.

TREDs can store tag information (flipper, Passively Induced Transponder and satellite), nesting beach and foraging ground data, clutch and hatchling information, and biological sampling (such as genetic data).

It can systematically manage inventory tags used per project, generate project-specific and/or site-specific summary reports, and help standardise data collection protocol.

Given that sea turtles migrate between the Pacific region and eastern Australia having a database that stores and collates this information will greatly enhance our knowledge of turtle populations.

The central database for the Pacific Islands region will be housed at the Secretariat of the Pacific Regional Environment Program in Samoa.

Plans are underway for a second central database to be managed by the Southeast Asian Fisheries Development Centre–Marine Fishery Resources Development and Management Department in Malaysia.

Together, these agencies will manage and consolidate turtle research data for their 31 member countries in the Pacific Ocean.



## Doing your bit to look after it!

**When fishing in the Great Barrier Reef Marine Park you can do your bit to look after it by:**

- Anchoring your boat with care, where possible in sand or mud away from corals
- Taking only what fish you need and abiding by possession and size limits (see [www.dpi.qld.gov.au](http://www.dpi.qld.gov.au))
- Returning all undersized or unwanted fish to the water as quickly and carefully as possible
- Being aware of best practices for releasing fish (see [www.info-fish.net/releasefish](http://www.info-fish.net/releasefish))
- If you intend to keep a fish, remove it from the fishing gear quickly and kill it humanely
- Not throwing fishing line or other litter overboard as it can kill marine life such as turtles
- Studying zoning maps for the area you are visiting to ensure fishing is allowed
- Reporting any suspected illegal fishing to Fishwatch by calling 1800 017 116.

## Community Links

### A profile of **Bruce Elliot**

General Manager  
Corporate Services



He grew up in Western Australia, can speak Indonesian fluently and spent 20 years with the Australian Army, but the lure of both job and lifestyle attracted Bruce Elliot to Townsville again.

The new General Manager for corporate services is no stranger to north Queensland, having lived in Townsville for two years during one of his 14 postings with the Army.

"Townsville's climate and size were definitely part of the attraction to come back, along with the opportunity to take up this new and exciting role in such an interesting organisation," he said.

"The new role and sea change look like it will provide the right balance between work, family and lifestyle.

"This position was an opportunity for me to move out of the intelligence speciality, which I undertook in both the Army and Australian Taxation Office, into a general leadership role.

"Managing people has also always been one of the most enjoyable aspects of all the jobs I've had which have been in some complex organisations within the government sector."

Bruce brings to the role significant past experience with financial planning, forecasting and budgeting as well as managing large numbers of staff.

But among the most interesting parts of his career is his 20-year stint in the Australian Army where he worked in intelligence collection operations around the world.

Over the years he was posted to 10 different locations including New Zealand, Indonesia and the United States.

He spent two years with the National Security Agency in the United States and was also deployed to East Timor as part of the Australian contingent to help coordinate intelligence collection operations.

He was involved in everything from guiding research by the Defence Science and Technology Organisation to leading and managing 85 staff delivering language and culture training to 500 students a year in 20 languages.

"My time with the Army taught me a lot about how organisations work, managing people and how to get the best out of them, and the importance of being organised and focused," he said.

Bruce left the regular Army as a Lieutenant Colonel in 2006 and is still in the Army Reserves. Prior to joining the Authority, Bruce was based in Melbourne with the Australian Taxation Office as the Assistant Commissioner for Intelligence and Risk.

Despite this varied career background, Bruce said it was probably inevitable that he ended up in a corporate management role.

"It's hard to say, what I would be doing career-wise if I wasn't doing what I am doing now," he said.

"I suspect that I would have eventually gravitated to corporate services or people management."

Bruce has a Masters in Defence Studies, a Bachelor of Professional Studies and an Advanced Diploma in Indonesian Language.

## Calendar of events

28 March

Earth Hour

18 April

World Heritage Day

22 April

Earth Day

12 – 15 May

Queensland Coastal Conference  
and Queensland Coastal  
Councils Forum, Gold Coast

22 May

International Day for Biological  
Diversity

23 May

World Turtle Day

## GBRMPA contacts



Australian Government

Great Barrier Reef  
Marine Park Authority

2-68 Flinders Street  
PO Box 1379  
Townsville Qld 4810

Phone: (07) 4750 0700

Fax: (07) 4772 6093

Email: [info@gbbrmpa.gov.au](mailto:info@gbbrmpa.gov.au)

If you do not wish to receive this newsletter in the future or if you would like to receive this newsletter via email instead of as a hard copy, please email [searead@gbbrmpa.gov.au](mailto:searead@gbbrmpa.gov.au) or phone the GBRMPA on (07) 4750 0700.

In this spare time, he enjoys writing, reading, running and good wine.

"I like to spend a lot of my free time with my family and there's certainly no shortage of things for us to do in north Queensland. We look forward to getting out and about – especially once all the rain stops."