



Issue 9.4 December 2006

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Introduction

Welcome to the fourth edition for the year, which contains reports of recent events, intertidal monitoring updates, the dive calendar and lots more news on issues relevant to reef conservation.

We are getting some great diving weather already and have seen water temps over 20C. We have planned several monitoring and training days as well as the annual marathon dive. Hope to see you there.

If you currently receive this newsletter in the post and would prefer to receive it by email then let us know at info@reefwatch.asn.au. If you do not have access to the internet and need help obtaining any on-line reports or other information we refer to in this newsletter, call us on 8223 5155 and we'll mail you a hard copy.

Reef Watch Quiz Night and your chance to win!



This year's Quiz Night on October 20th was a huge night with over 130 people attending. With over \$4000 in prizes - from movie tickets to dive courses - not many people left empty handed. Adding to the fun was a gold coin toss for a bottle of malt scotch, a wet suit auction – (both taken home by Jill Bajut) and a mega raffle.

Everyone's marine ID skills were refreshed with clever links between Reef Watch pictures and general knowledge questions. Now, answer this question to win: So a Zebra fish asks: "Which Beatle crossed the Zebra crossing barefoot?" E-mail the answer with your postal address to info@reefwatch.asn.au. The first 10 correct answers win an air fill card. Quiz ends February 28th 2007.

1 st	Adelaide Scuba 1	39.5
2 nd	CWDC	37.5
3 rd	Incredibles	36.5
4 th	Adelaide Scuba 2	36
4 th	CCSA	36
4 th	Diver's Delight	36
5 th	Dyviates	35
6 th	BSAC	33.5
6 th	Underwater Expl.	33.5
7 th	Mix n Match	32.5
8 th	Fleurieu DC	30
9 th	Mike Rowlands	29.5
9 th	SODS	29.5
10 th	Friends GSV	28.5
11 th	Flinders Hairy-Chested Toe Crabs	27.5



The Incredibles on their way to 3rd place

Wooden Spoon Award won by Flinders Hairy-Chested Toe Crabs with 27.5.

A big thanks for donations of prize go to Glenelg Scuba, Divers Delight, Adelaide Scuba, Underwater Sports, Southern Dive, Diver Service, Scuba Commercial, Greater Union Cinemas, Woolworths, Second Valley store and the Yankalilla bakery.

Reef Watch starts on Eyre Peninsula

December 1st, Port Lincoln Science Centre: Thanks to the initiative of the EP Natural Resources Management (NRM) Board we had the first Reef Watch session on Eyre Peninsula. 13 divers and snorkellers gathered for an interactive slide show of local fishes, a briefing on fish ID and survey methods and planning for the weekend.



Same afternoon, Tumby Bay: As we snorkelled, the images from the slides came alive - from Blue Groper to Hula fish – it was all there. Our Reef Watch rookies had abundant marine life to practice with.

Sunday morning, Billy Light's landing: we divided into teams of snorkellers and divers. The snorkellers, already familiar with the basic Reef Watch methods, completed several fish surveys. They spotted a moon jellyfish and discovered some nudibranchs they hadn't seen before. The divers were not so lucky this time; due to technical problems the dive was called off.

It was still a good start and everybody wants to continue the training and agreed on establishing regular monitoring in the area. Reef Watch has found some new buddies.

If you want to support Reef Watch on Eyre Peninsula by participating in monitoring dives or support on the day, please contact Reef Watch.



Ferals feel the heat on KI

On December 9th the heat was turned up on the feral marine critters at Kingscote Jetty. The hottest day ever on KI saw a group of eleven divers and snorkellers take to the water in search of feral plants and animals. Particular targets were European fan worms and *Caulerpa taxifolia*.

The day started with an information session and slide show presented by Martine Kinlock and Steve Leske. They taught how to identify marine pests and explained why feral species can have such a devastating impact on local marine habitats. Reef Watch *Feral or in Peril* slates were distributed and an explanation given on how to use the slates and report sightings.

Once all the lively questions had been answered, everyone was keen to get into the water. Armed with slates and new skills our hunt for the pests began.

The team found a suspected feral fan worm. Detailed photos were taken and forwarded to PIRSA Fisheries for further identification.

Stay tuned for the results of our investigation.

New Reef Watch Instructor

The Reef Watch team welcomes Mark Kaehne to assist with in-water training this summer. Mark has been snorkelling and diving in South Australia for over 20 years and has dived around Australia and overseas.

He loves the ocean and is happy to contribute to its conservation via Reef Watch. For several years he has supported the program as a volunteer.

Mark is a PADI Master Scuba Diver Trainer.



What's for dinner this Christmas?



Want to make a sustainable choice this Christmas? Australia's Sustainable Seafood Guide is for you!

If only there were plenty more fish in the sea. Some of our favourite fish are being pushed to extinction by increasing demand and destructive fishing methods. Australians eat over 206,000 tonnes of seafood each year

and our appetite is growing. Today an incredible 75% of the world's oceans are officially over-fished or fished right up to their limit and Australia's oceans are not faring much better. But the good news is our seafood choices can make a difference.

The Australian Marine Conservation Society has launched **Australia's Sustainable Seafood Guide - Expanded Edition**. It lists the fish species we should avoid, think twice about and those that are a better choice.

Australia's Sustainable Seafood Guide is only \$9.95 and makes a great Christmas gift.

It can be purchased online at www.marineconservation.org.au or Freecall 1800 066 299. Discounts are available for multiple copies. All proceeds are recycled into creating more sustainable seafood products for you.

Intertidal monitoring at Snapper Point, Aldinga.

The story so far...

Agnès Cantin

This season, two formal intertidal monitoring sessions have been held at Aldinga. The first was held in August with a turn out of 14 volunteers and the next in November with 10. During both sessions the same methods were used to obtain data on visitor use, habitat cover, habitat depth and species abundances and size.

Visitor Survey

Visitor surveys, which are conducted at all sessions, are used to provide information on the amount of usage of the reef as well as the types of activities being undertaken. In August an average of five people were found on or nearby the reef during the monitoring session. In November an average of seven people were observed during the session. The majority of these visitors were adults, however one large group of nine children was observed searching the reef in November. The main types of activities that the visitors displayed during both sessions ranged from walking (many with dogs), observing, searching and one horse rider on the beach.

Line-intercept transects (LIT)

The LIT method is used primarily to assess the percent cover of algae and sessile organisms (organism attached to the reef) and also the depth of each habitat type. It basically involves laying a five metre tape measure parallel to the shoreline and noting the transition of sessile organisms. Any change in the cover and depth of a habitat is of concern for the organisms that depend on them.

- The error bars displayed in the following figures represent the standard deviation. This is a measure of the amount of variation in the data, the longer the bar the more variation present.

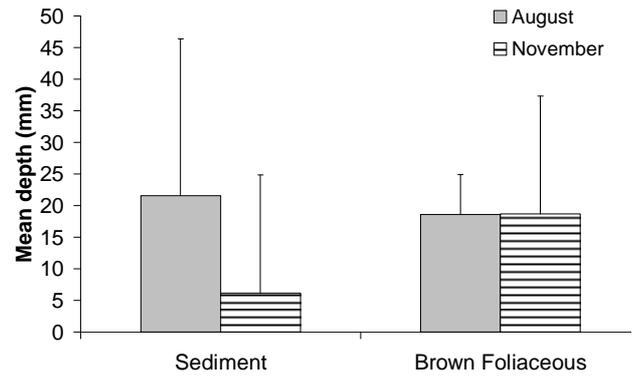
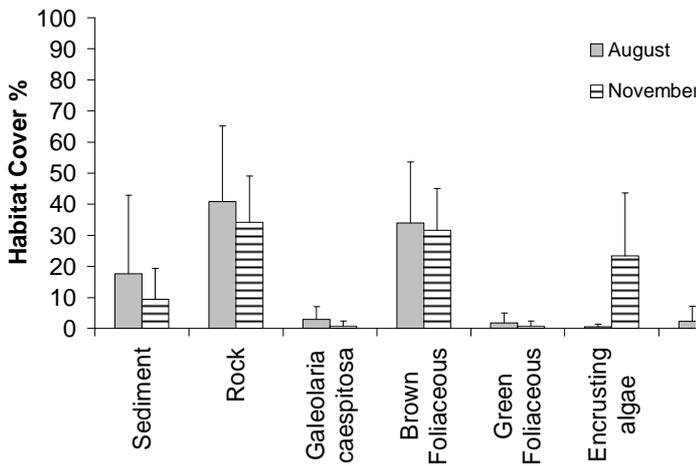


Figure 1: Mean percentage cover (SD) of the most abundant habitat types using line-intercept transects.

Figure 2: Mean depth ((mm) (SD)) of habitat types measured at random points along the line-intercept transects

- Figure 1 shows the percentage cover of dominant habitat types in the area surveyed on the reef.
- The most dominant habitats are bare rock (average of 38% cover over both months) followed by brown foliaceous algae (33% cover over both months), which is dominated by Neptune’s necklace (*Hormosira banksii*) and then sediment (mainly sand) with an average of 14% cover.
- The most apparent trends between the two months are the increase in encrusting algae from 0.6% cover in August up to 23% cover in November and the small decrease of sediment from 18% cover down to 9% cover in November.
- Figure 2 shows the average depth of the two most dominant habitats. Sediment depth decreased from an average of 22mm to 19mm in the three months between the sessions, which is consistent with the reduction in the percent cover of sediment. Brown foliaceous algae showed very little change in average depth.

Quadrats

Quadrats (a square sampling unit) are used to estimate the abundance and size of selected mobile molluscs (e.g. snails) as well as the percent cover of algae and sessile organisms. Some molluscs are an important part of the food chain

on rocky shores. Some are grazers where they feed on algae which grows on the rocks thereby they prevent the shore being dominated by plants. In turn, grazers are eaten by predatory snails, fish and birds which all support the diversity of animals along the coast. Many species of molluscs, some of which were found in these sessions, are often collected by harvesters for food and bait. It is assumed that the larger molluscs are more likely to be collected by people. This results in an overall decrease in the average size of the molluscs as harvesting activity increases over time. A change in the average size and the overall abundance is often evidence of over harvesting.

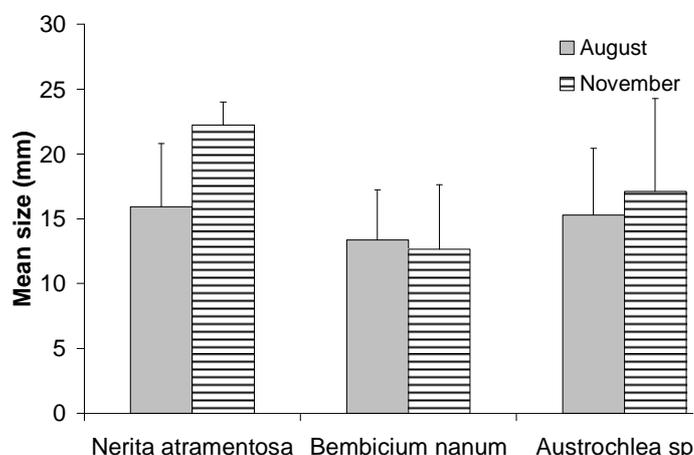
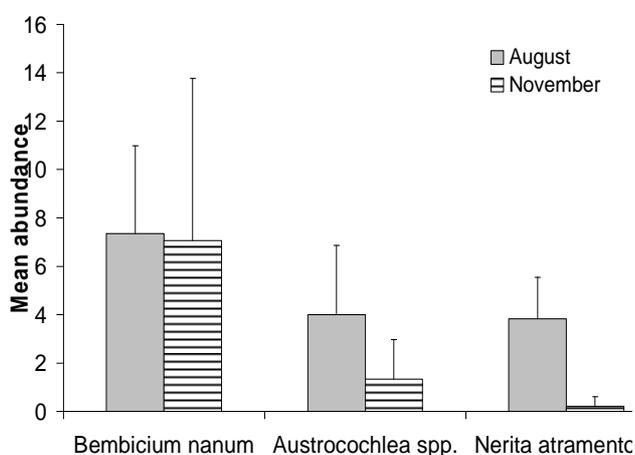


Figure 3: Mean abundance (SD) of organisms found using quadrats.

Figure 4: Mean size ((mm) (SD)) of the organisms found using quadrats.

- The quadrat surveys are carried out in a rocky area of the reef, quite a way from the LIT surveys.
- Quadrat surveys (Figure 3) show that *Bembicium nanum* is the most abundant organism in the area sampled, with an average over the two months of seven organisms found compared to three for *Austrocochlea* spp. and two for *Nerita atramentosa*.
- *Austrocochlea* spp. and *Nerita atramentosa* were more abundant in August (average of four found) compared to November (average of one found). Several reasons could account for these differences: seasonal influences or time of day – many intertidal species crawl under boulders to protect against the sun and therefore desiccation.

- The average size of *B. nanum* and *Austrocochlea* spp. showed little change between the two sessions, whereas a slight increase in the average height of *N. atramentosa* was found.

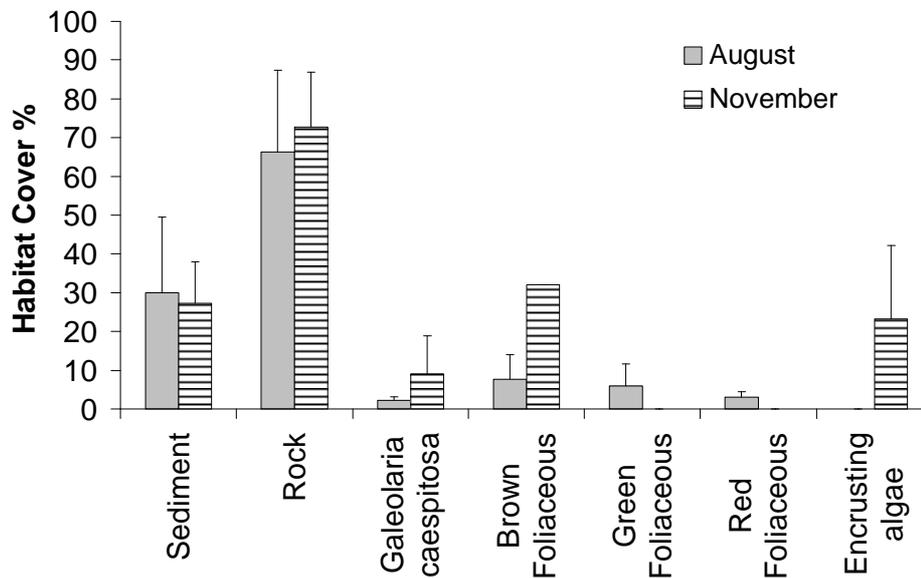


Figure 5: Mean percentage cover (SD) of the dominant habitats found using the quadrat divided into 50 intersecting points.

- Figure 5 illustrates the dominant habitats associated with the organisms found using the quadrat surveys.
- Similarly to the LIT, bare rock was dominant (average of 70% over the two sessions) followed by sediment (29% cover) and brown foliaceous algae (20% cover).
- Encrusting algae showed a distinct increase from no cover in August up to 23% cover in November surveys.

Some of the differences found during these two sessions could be due to several factors. The changes in percentage cover of the dominant habitats could be influenced by a change in seasons. Sediment cover usually displays a decrease over the summer months and also lower tides and hotter days may cause desiccation of algae therefore reducing its cover on the reef. Mobile and sessile organisms are also affected by the tides and sun. The average abundance recorded of many mobile organisms would increase if boulders were overturned, as during the day they escape the harsh environment

underneath the rocks. We do not recommend turning over the boulders as this does affect organisms relying on them for shelter. The results so far show that Snapper Point is a dynamic reef with several changes occurring (not necessarily negative ones), the exact causes of these changes would need very specific experiments. What is required is long-term monitoring to provide important baseline data on the organisms of this reef. The Aldinga monitoring group are well on their way to provide this important information.

Thank you to everyone who participated in these surveys as well as all the information and training sessions, I hope to see you all again at the next monitoring session in January. Happy festive season and stay safe.

Future monitoring sessions at Snapper Point, Aldinga

If you would like to participate or find out more information on the following sessions please do not hesitate to contact Agnès. More details regarding what to bring and where to meet will be sent out to participants closer to the date.

Agnès Cantin

Reef Watch Intertidal Project Officer

agnes.cantin@flinders.edu.au

Mob: 0427 183 734

Day/Date	Height & time of low tide	Meeting Time
January Sunday 21 st	0.08 m @ 1:38 pm	10:30 am
February Sunday 18 th	0.04 m @ 1:00 pm	10:00 am
March Sunday 18 th	0.12 m @ 12:15 am	9:30 am
April Sunday 15 th	0.36 m @ 10:13 am	9:00 am

Heard around the Reef

New faces at Adelaide Scuba

New owner Ray Cotton took over last month. Mel is still around and is joined by Tim Patterson and Nicole Strzelecki, who will teach courses as well as helping out in the shop. Behind the scenes will be Von, with Patto helping out with the new club and gear servicing. The new team has a wealth of knowledge and experience in the South Australian dive industry as well as a passion for diving.

Reef Watch wishes the new crew success and looks forward to continued cooperation. We also want to thank Dave Albano for always having a cheerful “yes” to our requests and hope he now has more time to dive with us.

Port Jackson Shark Congregation

Be on the lookout throughout the next couple of months for large numbers of Port Jackson Sharks, *Heterodontus portusjacksoni*. They will congregate together in shallow waters in summer to mate. Don't expect to find the sharks 'at it', however, since mating is said to only occur under cover of darkness. Visit <http://www.mlssa.asn.au> to read a copy of the September issue of the Marine Life Society of SA's newsletter for more details about Port Jackson Shark congregations.

Inshore Fish Group Website

Visit <http://ifg.bioteck.org/> to view the website of the Inshore Fish Group. The Inshore Fish Group is based in South Australia and focuses on Southern Australasian fish. Species tables describing each inshore fish species and their biology will eventually be available. IFG says that Southern Australasia has a very high diversity of marine life and ecosystems. It also has the longest cool temperate coastline in the world. The region serves as the ecotone between the southern Pacific Ocean and the south-eastern Indian Ocean.

Stormwater to be recycled

The Federal Government will spend \$90m on wetlands to recycle 17 gigalitres p.a. of stormwater for industry and drinking water. This means that the 17 gigalitres of stormwater will no longer flow into Gulf St Vincent each year, polluting our coastline, affecting marine life and reducing visibility.

Please send us info on what's new to keep the Reef Watchers up-to-date. Text and photos are welcome at info@reefwatch.asn.au

Policy and Legislation Stuff

Fisheries Management Bill

- The Fisheries Management Bill is currently being debated in parliament and will be completed early in 2007. The major changes from the current *Fisheries Act 1982* include:
 - o Fisheries Management Committees (FMCs) will be replaced by the Fisheries Council with 10 members, including the Director of Fisheries as an *ex officio* member. Members are appointed by the Governor with the presiding member appointed by the Minister.
 - o The Council members will have expertise in fisheries management plus a diversity of other experience and skills. Members will serve a three-year term.
 - o The Council will prepare and review management plans and advise the Minister on certain issues.
 - o The Minister or Council may also establish various advisory committees
 - o The Minister may require the preparation of management plans for Aquatic Reserves.
 - o Fishing Licences will remain in force for up to 10 years, and Permits for up to three years. The term of a licence will be linked to the life of a management plan for that fishery. They are not transferable unless allowed under the fishery they relate to.
 - o Aboriginal Traditional Fishing is recognised and subject to specific management plans.
 - o Strengthening of powers for Fisheries Officers and penalties for breaches of the Act.
 - o Allows for Scientific Observers and Sea Rangers (functions to be stated in Regulations).
- The lead agency for this Act is PIRSA Fisheries
www.pir.sa.gov.au/index.shtml
- For further information contact Lambertus Deluca-Lopez
delucalopez.lambertus@saugov.sa.gov.au, 8226 2317.

Port Waterways Water Quality Improvement Plan

- This draft Water Quality Improvement Plan (WQIP) works with industry in the Port waterways (including the Port River, North Arm, North Arm Creek, Angas Inlet and Barker Inlet) to reduce nutrient inputs into the water.
- Water quality improvement plans detail strategies to improve water quality in a defined area. They assess the range and sources of pollutants entering the waterways and work with those responsible to reduce inputs.
- WQIPs are environmental management plans prepared through the Natural Heritage Trust's (NHT) Coastal Catchments Initiative (CCI).
- The Port Waterways WQIP will be integrated into the Adelaide and Mount Lofty Ranges NRM Plan with priority areas funded by the Investment Strategy.

- The Port Waterways WQIP will form part of an Adelaide Coastal WQIP in the future as the outcomes of the Adelaide Coastal Waters Study (ACWS) are implemented.
- The Port Waterways WQIP is out for public consultation until **Wednesday January 31, 2007**
- Copies of the Plan can be found online at www.epa.sa.gov.au/pwip.html.
- Submissions can be made via an online forum at www.epacomments.sa.gov.au/ or in writing to Peter Pfennig, Port Waterways Water Quality Improvement Plan Consultation, Environment Protection Authority, GPO Box 2607 Adelaide 5001 or email pfennig.peter@epa.sa.gov.au ph. (08) 8204 2181.
- The SA Environment Protection Agency is the lead agency for this Plan.

State of the Environment Report 2006

The third Australia State of the Environment was released in December 2006.

The findings for Marine include:

- Increases in the acidity of seawater as the ocean absorbs carbon dioxide from the atmosphere will make it more difficult for coral and other calcareous organisms in the sea to build new skeletons
- sea level has risen globally by between 0.1 and 0.2 metres during the twentieth century and is rising around the Australian coastline at about 1.2 millimetres per year
- climate change is likely to have negative effects on Australia's coral reefs, seagrasses, reef systems and other nearshore marine habitats, and cause complex readjustments in the physical structure of beaches, estuaries and sheltered foreshores
- Benthic species that are able to colonise new territory may be able to adjust, but those that cannot, might become locally eliminated or even extinct.
- In south-eastern Tasmania, there are changes in the distribution of kelps, changes in the distribution of sea urchins, and problems with the salmon culture industry that can be related to climate change
- The aquaculture industry is also at risk. Water temperature shifts of just a few degrees may mean the difference between successful and unsuccessful aquaculture of a number of species.
- Few marine industries have established precautionary climate change adaptation strategies, and there is no specific set of national responses that are designed to ensure that biodiversity issues driven by climate change are properly identified, or to provide a suitable planning base to respond to the pressures created by climate change.
- There is very little systematic monitoring of fish populations except in the commercial fisheries and many fisheries have no biomass reference points, little reliable data and no fully independent assessment of stocks.
- Reports on commonwealth commercial fisheries by the Bureau of Rural Sciences show a steady increase in the number of species considered to be overfished.

Calendar 2007

Please check updates. Details of dives may change. Visit www.reefwatch.asn.au regularly in the weeks prior to a scheduled dive.

Last minute Hotline 0418 898 302. We monitor the weather before the Reef Watch dives and make early decisions where ever possible. Sometimes we may change location or cancel last minute. Please always ring the hotline before you leave home.

Please register. Send us an e-mail to info@reefwatch.asn.au, send an sms or call Steve Leske 0400 272 177 if you want to join us.

Club dives: Some dives are for particular clubs. Unless otherwise stated there is mostly room for other divers.

Monitoring days: Members of our scientific committee will be on hand to dive with you and answer your questions. Sometimes we arrange boat dives. Dives are followed by a free BBQ.

Saturday, January 13	Public Dive	Victor Harbor Meet in the Bluff car park at 9am.
Sunday January 14	Southern Ocean Divers Social Club (SODS)	Port Noarlunga Meet on car park lawn at 9am.
Wednesday January 17	Public Dive	Port Noarlunga Meet on car park lawn at 6pm.
Sunday January 21	York Peninsula Public Dive	Location and further details T.B.A.
Saturday / Sunday February 3rd & 4th	Kangaroo Island	Saturday - Intertidal workshop Sunday - Monitoring dive/ snorkel
Thursday February 8	Glenelg Scuba	I.D. Workshop. Glenelg Club rooms 7pm

Saturday February 10	Glenelg Scuba	Boat dive to monitor Seacliff Reef (cost to be determined) Meet at Glenelg Scuba at 9.30am
Sunday February 11	Southern Ocean Divers Social Club (SODS)	Port Noarlunga Meet on lawns adjacent to car park at 9am - BBQ - put another dot on the graph tracking change on Noarlunga Reef
Saturday February 24	Public Dive	Second Valley meet at Jetty car park 10am Feral search and BBQ
Sunday February 25	Public Snorkel	Noarlunga Reef Meet on car park lawn at 9.00am Everyone from 8yrs on welcome.
Sunday March 4	Marine Life Society of SA (MLSSA)	Hallett Cove Meet in car park adjacent to Surf Lifesaving Club at 9am Important Reef Watch monitoring day - dive with the scientists - BBQ lunch - put another dot on the graph tracking change at Hallett Cove (apart from Noarlunga, this site is the most frequently surveyed by Reef Watch divers.)
Sunday March 18	Marathon Dive	Pt Noarlunga - Annual Marathon Dive - Boats - BBQ - Kids entertainment More info soon

Invertebrate search in Edithburgh



Saturday 28th of October was the start of this season's Reef Watch activities on Yorke Peninsula. At the Edithburgh swimming pool, three divers were trained in the new invertebrate search and enjoyed perfect diving conditions. The search uses new slates with photos of target species and is done over 50M in a similar way to the fish count.

The divers found the new survey is an enjoyable way to learn about some of the less seen animals on the reef and were amazed how much diversity they discovered.

They saw hundreds of Port Jackson shark eggs.

After a short break they completed several fish surveys snorkelling in the shallows. Several juvenile blue groppers were seen and many other smaller fish.

The next session will be on Sunday 21st January with more details to be confirmed soon.

Want to get involved in Reef Watch?

For diving or snorkelling activities, visit our website and follow the quick link to "Next dive". For photos and stories, see "Recent Dives".

If you want to get involved as a volunteer in our committee, administration or development work, contact Reef Watch at the Conservation Council, 8223 5155, info@reefwatch.asn.au.

Merry Christmas

The Reef Watch Team would like to wish all Reef Watchers a Merry Christmas and a New Year filled with great vis, calm water and an endless supply of dive buddies. We look forward to diving with you again soon as we move into the 10th year of the Reef Watch program.

Reef Watch currently receives most of its funding from the Adelaide and Mt Lofty Ranges Natural Resources Management Board through the Natural Heritage Trust, with support also coming from the KI, EP and Northern and Yorke NRM Boards.



Government of South Australia

Adelaide and Mount Lofty Ranges Natural Resources Management Board



Natural Heritage Trust
Welfare Commissioner
Dipping Adelaide
87 Flinders St, Adelaide SA 5000

A number of other organisations or agencies have provided some funding or in-kind support, including:

Primary Industries and Resources SA



SA Research and Development Institute

Department for Environment & Heritage

PADI Project Aware



City of Onkaparinga



The diving industry has also given considerable support to Reef Watchers for the annual Marathon Dive, Quiz Night and in some cases for dives throughout the year. Details are listed on the website.

The Reef Watch website is www.reefwatch.asn.au

If undeliverable return to:

Reef Watch

Conservation Council of SA Inc.

120 Wakefield St

Adelaide 5000



Conservation Council of South Australia Inc

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