



**Reef Watcher Production Team**

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All contributions are subject to editing.

**Deadline** for next issue: 13th February, 2008

# Reef Watch needs volunteers

**A**re you a diver? Have you undertaken Reef Watch training? Have you done any surveys beyond your training? The answers to all of these questions is critical to the success of Reef Watch.

If you are a diver and have not undertaken Reef Watch training, then find out more about us by visiting our website to find out about our PADI-accredited course: [www.reefwatch.asn.au](http://www.reefwatch.asn.au)

If you have undertaken the training but not done any surveys yet, then now is the time. As waters warm up for the summer, we need you in the water! We are concentrating on 6 reefs in the Adelaide metropolitan area:

- Broken Bottom
- Hallet Cove
- Second Valley
- The Bluff
- Noarlunga North Inner
- Noarlunga South Inner

Most of these reefs have been surveyed by marine scientists at SARDI Aquatic Sciences through the Reef Health program. They were identified with a 'traffic light' system to be in a good, caution or poor condition.

If you are unsure of the location of some of these reefs, ask our Project Officer, Steve Leske,



contact him via the website.

Reef Watch co-chair, Dr David Turner, says 'Having Reef Watch volunteers concentrate on only these reefs will provide better quality data, which will produce a higher quality interpretation of the results to provide to managers of the marine environment.'

Reef Watch surveys will provide you with good identification skills as well as an understanding of temperate reefs.

If you are a trained Reef Watch volunteer and have some experience with surveys, don't forget that you can go out on your own to do

surveys at any time. It's a great activity to do with a buddy who shares your enthusiasm.

If you are an underwater photographer as well as being a trained Reef Watch volunteer, then you can combine the two. If you are unsure of an identification, you can always take a picture and email it to us to help. The more accurate your information the better the data we can provide.

So, what are you waiting for? Dust off your scuba gear and get in touch. We would love to hear from you about getting into the water this summer!

# Reef Watch and jobs

by Dr Sue Murray-Jones, Reef Watch co-chair

If you are doing a degree (or have recently finished one) in environmental science or marine biology, you may have already discovered a sad truth ... there are a lot of you, and not many jobs. Jobs are hard to get, at least at first.

New graduates are trapped by the old catch 22. If you haven't had a job, you can't get a job - or at least, it's very hard. I want to sell you on the idea that Reef Watch can help you get a job by developing (and letting you demonstrate) marketable skills. I'll start by giving you a glimpse of how most organisations select and interview candidates, then some examples of how Reef Watch can help make you more competitive.

Most universities these days should teach you to write a competent job application, although I am constantly amazed by how badly some people do it. Almost any job these days has an associated set of 'Job and Person Specifications' (J&Ps). They set out a list of essential and desirable characteristics that you need to demonstrate that you have in order to get the job.

When I am on an interview panel, the first part of the process is to sort through the 50 or more applications that come in. We develop a list of EACH of the items listed under the J&Ps, with a yes/no

column next to it. Enough ticks, and the person gets an interview. This means, incidentally, that you have to address each one very specifically - best done under dot point headings listing the actual item from the J&P. If the relevant essential criterion is a Coxswain's certificate, don't make us read all the way through your CV and letter to figure out if you actually have one! This gets very annoying when you are assessing 50 applications.

The other problem for you is that the majority of the other 50 candidates have probably much the same qualifications and experience as you if you have just finished a degree. We can only interview a handful, so we are looking for people who have done a bit more, one way or the other, to make them stand out from the crowd. Volunteer work is a good way to do this - which is where Reef Watch comes in.

The kind of skills you might gain will depend on what you do. Participating in surveys would include developing experience and expertise at identification of marine life, knowledge of SA marine life, experience working at sea (if diving from boats), working as part of a team, entering data, etc. - and generally just getting off your bottom and caring enough to do something! Taking over and adopting a site and

organising other divers to monitor it helps show initiative, leadership, and organisational skills. Giving Reef Watch a hand with reporting would answer other typical J&Ps. Writing articles for the Reef Watcher adds that something extra to the "excellent written and oral communication skills" that nearly always pop up in J&Ps. So does giving talks to dive clubs on what we do. Going a bit further, and giving CCSA a hand in providing comments on draft policies, biodiversity reviews, etc., could help fill out a common J&P about ability to provide sound professional advice on estuarine and marine matters - very hard to do if you haven't had a job in the area.

I really recommend anyone who is looking for work, or soon to be looking, to go through the papers and internet sources, find a few jobs you think look good. Then get hold of the J&Ps, and see where your gaps are. Where wouldn't you get a tick and hence an interview? (Remember, competition is so fierce that not having a good answer to any one of the 'essential' requirements may mean no interview.). Then look at where volunteer work could net you that positive answer. I'll be willing to bet Reef Watch can help!

## Can you identify these black & white reef fish?



A



B



C



D

Answers on back page.

# *Caulerpa taxifolia*: some problems just won't go away

By Dr Marty Deveney, SARDI Aquatic Sciences

The invasive green marine alga *Caulerpa taxifolia* was discovered in West Lakes, South Australia in 2002 and has been the subject of intense management effort since then. Stormwater was diverted into the West Lakes system in 2003 to eradicate the population there, but by the time the West Lakes population was eradicated, the alga had spread to the lower Port River. This population is considered ineradicable.

*Caulerpa taxifolia* is native to tropical oceans including northern Australia, but invasions have occurred in temperate marine environments including the Mediterranean Sea, the U.S.A., Japan and Australia. These invasions have been subject to intense media and public scrutiny, inspiring books and even a song by a German heavy metal band. Scientific debate has been intense.

Invasions are reported to cause habitat change, seagrass loss, and decreased biodiversity. A selectively bred aquarium strain of *C. taxifolia* is often claimed to be exclusively responsible for these invasions. It is claimed that this invasive strain grows larger and more vigorously, does not rely on sexual reproduction, and is resistant to low temperatures compared to native tropical populations. Recent evidence, however, suggests that the “invasive strain” theory and many of the environmental effects associated with *C. taxifolia* invasions are more

complex than initially thought. Molecular evidence from the initial Mediterranean invasion provided support for the hypothesis that this strain was genetically identical to the strain of *C. taxifolia* that was widely cultivated in a large aquarium in Monaco (3). At sites in SE Australia, populations may have originated from several Australian source populations (4) indicating that Australian invasive populations are not the same genetic



strain as those responsible for the Mediterranean invasion. Monitoring data from Moreton Bay suggests that native *C. taxifolia* is not directly replacing seagrass, but that seagrass loss and subsequent *C. taxifolia* colonization occurs as part of a successional change (1). Limited evidence exists for increased cold tolerance of *C. taxifolia* (2). The scientific debate continues and is unlikely to resolve until considerable further studies have been undertaken.

SARDI Aquatic Sciences currently has

several lines of research underway on *C. taxifolia*. As part of a broad risk analysis for the pest, studies are ongoing to determine the environmental factors (light, nutrients, temperature and salinity) that promote growth and to elucidate some of the factors that make environments susceptible to invasion. Changes to the marine biological and chemical environment that occur in association with *C. taxifolia* invasions are also being investigated and our long-term aim is to describe the ecosystem-level effects of invasion and to predict those areas that are at greatest risk of invasion.

In the Port River, *C. taxifolia* has continued to spread since 2003 (4). Anchoring bans remain in place to control spread. All users of the marine environment should be aware of the areas that are closed to anchoring and report any suspected findings of *Caulerpa taxifolia*,

particularly outside the Port River system (including the Port River, Eastern Passage and Barker Inlet) to **Fishwatch on 1800 065 522**

1. Burfeind, D. and Udy, J. (2008) In press. *Aquatic Botany*.
2. Glasby, T. and Gibson, P. (2007) *Marine Biology*. 152 (2): 255-263
3. Jousson, O., Pawlowski, J., Zaninetti, L., Meinesz, A. and Bourdoursque, C. (1998). *Marine Ecology Progress Series*. 172: 275-208.
4. Westphalen, G. (2008) In *Natural History of Gulf Saint Vincent* (Eds Shepherd, S., Bryars, S., Kirkegaard, I., Harbison, P. and Jennings, J.) Royal Society of SA
5. Wright, J.T. (2005) *Marine Biology*. 147: 559-569

## Feral or In Peril - Red Alert Species!!

*Caulerpa taxifolia* is one of our 'Feral' red alert species—if you see it or something like it, outside the Port River system, report the location immediately to **Fishwatch—1800 065 522**

# Sea dragons in Hawaii

By Ali Bloomfield, Reef Watch committee member

I was recently in Hawaii and was surprised to see weedy sea dragons in the Waikiki Aquarium. They had about four weedy sea dragons in a large aquarium and a big display on the leafy sea dragon. I was very excited that our state marine emblem was attributed such a large display outside of its home-range!



I have seen displays about sea dragons in the Melbourne and Sydney Aquariums before, but I actually think this display was larger, and more educational. The educational display took up about 3 x 3 m plus the aquarium. Then, on the plane home I saw an article on leafy sea dragons and how a seahorse farm in Hawaii is trying to breed them in captivity. They are trying to breed them in captivity to take pressure off wild populations.

Some points of interest raised in the article included:

- Leafy sea dragons are one of the world's most desired and expensive aquarium fish, with some public aquariums paying \$6,000 USD for a single animal.
- They are star attractions – the Baltimore Aquarium made \$20million USD in one year from its sea dragon exhibit.
- Wild-caught sea dragons don't last

very long in captivity, rarely more than a few months, and are practically impossible to breed (so don't bother trying to catch one!).

- Apparently Australia grants one permit a year to take a pregnant male from the wild.

Although I was a little stunned that they described leafys as a cross between a seahorse and flat parsley, this article did remind me how lucky we are to have sea dragons in our waters and that not everyone gets to see them in the wild or at all. So next time you see a sea dragon whilst diving, marvel at its wonder and be thankful that you have had the luck to see one in the wild. And when you get home, remember to **report your sighting on the Reef Watch website!**

## Murray River short-neck turtles need help

The water in the lower Murray River system near Clayton and Goolwa, South Australia is getting very salty and a tube worm (probably *Galeolaria* species) from the salt water is attacking the turtles. The worm builds a coral like on top of the turtles shells and it is so heavy the turtles get washed up on the bank and end up on their backs and are unable to flip themselves back over. So they die, frying in the sun, starving, eaten by foxes and dying of thirst.

We were cleaning up the Murray recently, when we found lots of dead turtles and still we continue to find these poor turtles suffering or already dead. We chip the coral off their backs and keep them in tubs of clean rainwater, changing the water every second day at least and then if they survive, we release them further up stream.

Hopefully by looking at the pictures it will give you some idea of how thick the coral is on their backs.

The children of Eastern Fleurieu School Milang Campus South Australia along with my family have been trying to save the turtles by chipping the coral off.

**If you can help us or would like some more details please call me on 0407 483 817 or the Milang Campus on 85370223.**

Christine Jackson



# Australian Marine Environment Protection Association (AUSMEPA) - Ship Membership Scheme

AUSMEPA has, as a key objective, 'making the Australian community more aware of the marine environment and the importance of its protection'. We achieve this through various education programs:

- For school teachers and their students, we provide a range of free resources on our website, [www.ausmepa.org.au](http://www.ausmepa.org.au) designed for middle year high school students. Posters are also provided on request. There are three programs already available to students:
  - ✦ Marine Pests & Threats
  - ✦ Climate Change and Coral Bleaching
  - ✦ Stormwater Pollution

Two new education programs will be available on the AUSMEPA website in early December; these will introduce students to the world of shipping and ports and will provide information on how these industries protect the marine environment.

For seafarers, a DVD titled 'Welcome to Australia protecting the marine environment', which is in five languages, is placed on each ship, by its agent, when it arrives in an Australian port for the first time.

## Ship membership schemes

In early 2006 the AUSMEPA 'ship membership scheme' was introduced to recognise international Australian and foreign ships with a high safety and environmental record that are traveling in and out of Australian waters. Owners and operators of quality ships often take steps beyond the requirements of the international conventions to ensure maximum environmental protection from their operations. AUSMEPA wanted to provide an opportunity for this practice to be recognised.



*Captain Saldanaha (AUSMEPA Deputy Chair) and Captain Evangelidis, Master of the M.V. Sophia Britannia*

To be approved as an AUSMEPA ship member the owner or operator of the ship needs to make an application and demonstrate that their ship meets AUSMEPA's safety and environmental criteria. Once approved and the membership fee is paid, the ship is presented with an AUSMEPA certificate and flag.

The criteria used by AUSMEPA when assessing a ship's performance includes whether the ship has been detained in any port in the world as a result of a port State control inspection during the previous two years, or whether the ship has a safety certificate issued by the US Coast Guard called a 'Quall Ship 21' or whether the vessel is entered in one of the world's top ship vetting companies (e.g. Right Ship Pty. Ltd. located in Melbourne) or can demonstrate in some other way its quality and a good safety and environmental record.

In order to make sure ship members continue to maintain their high safety and environmental performance, each ship is entered in a database operated by Right Ship Pty Ltd. If one of the ship members is detained during a port State control inspection or is involved in a serious marine incident such as a grounding or collision, anywhere in the world, AUSMEPA will be quickly notified. This enables the AUSMEPA Board to assess whether to continue to permit the vessel to retain its AUSMEPA Ship Member status.

Information about the scheme and a list of ship members is provided on the AUSMEPA website.

AUSMEPA is in the process of introducing a similar scheme for domestic ships that are currently regulated by State/NT agencies.

A ship flying the AUSMEPA flag is a sign of quality!

# Reef Watch and Reef Life Survey

A new national reef monitoring program called Reef Life Survey (RLS) commenced in early 2008, and whilst it differs in the involvement and commitment required of volunteers, it shares many things in common with Reef Watch (RW). Representatives of the two programs recently met to discuss ways in which the two programs could best compliment each others activities in South Australia, and a Memorandum of Understanding is now being drawn up between the two programs..

Where Reef Watch can access a large number of recreational divers with a general level of expertise, Reef Life Survey needs only a few very committed and sufficiently experienced divers and trains them to produce very high quality data. Although the types of surveys undertaken by RW and RLS are very similar, the main difference is where RW use life form codes for some organisms, RLS asks its divers to identify organisms to species level. This produces data suitable for slightly different purposes, such as reporting to environmental managers, and for scientific analysis of biodiversity trends and status.



Some Reef Watch divers have already undertaken Reef Life Survey training at Second Valley earlier this year. The training is done over an intense 5 day period with multiple dives and many hours learning to identify species from a range of taxonomic groups. RLS returned to South Australia again in October to further develop the skills of these divers with a short weekend at Edithburgh.

It is anticipated that in future RW and RLS will work together in the following ways:

- RW will encourage committed and more experienced RW divers to undertake advanced RLS training programs to further their skills or make the most of the skills already available.

All data collected by RLS and RW divers during RLS activities in South Australia will be added to the RW database also, and it will contribute to any reporting undertaken by RW.

RW and RLS will explore the development of more frequent advanced training programs managed by RW, using trained marine biologists qualified to conduct such training.

- Providing materials and articles for each others newsletters, websites or other research or publicity materials.

RW and RLS look forward to a productive future, working together for healthy reefs.

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## Feral or in Peril expands to Victoria

Reef Watch has just found out that it has won a fairly large grant to continue Feral or In Peril work over the next two years. But this time we're expanding to Victoria!

Victoria has never had a community based 'feral or in peril' equivalent, although Reef Watch Victoria has been running for several years. The grant will enable us to work with Reef Watch Victoria so that they can develop their own slates with similar

species, hire a project officer, develop their website and start to work with their divers.

In South Australia, we hope to expand our program from working with divers to working with recreational fishers and boaties, as they can also contribute significant data about all the Feral or In Peril species. We will also develop our web pages to include more information about both the 'ferals' and the 'in perils'.



*Harlequin fish. Photo by David Muirhead*

# Reef Watch Marathon Dive

## 29th March 2009

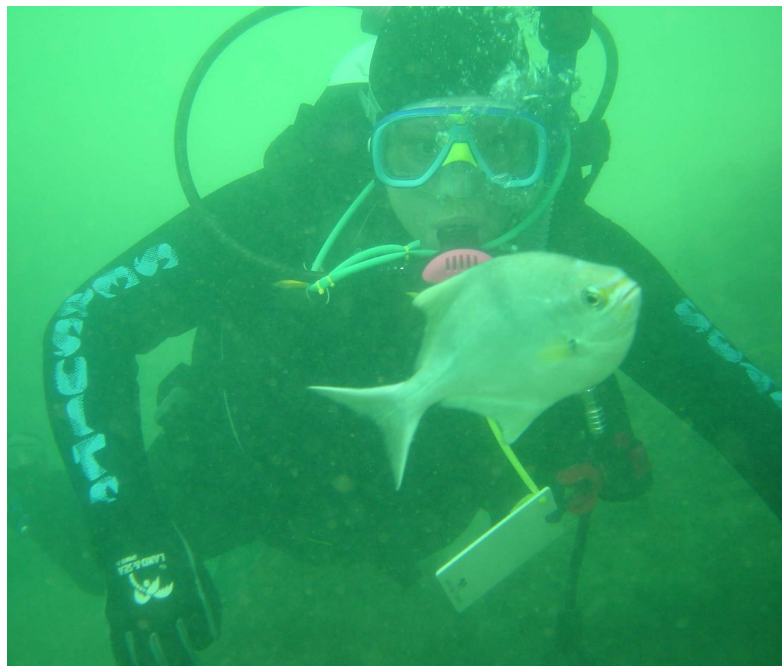
Put this date in your diaries and dive calendars now!

If you have not yet done Reef Watch training, contact Steve to get your training in and get ready for our huge annual Marathon Dive in March.

As usual it will be held at Port Noarlunga Reef.

There will be a BBQ for hungry divers and other volunteers as well as displays, t-shirts for sale, and give aways.

To register your interest, as a diver, or as a 'dry' volunteer, please email Steve:  
[info@reefwatch.asn.au](mailto:info@reefwatch.asn.au)



## Conservation Council Fish Forum

The CCSA Fish Forum is a **new** bi-monthly event where you can discuss fisheries issues directly with government representatives, scientists and other stakeholders.

The first of these forums was held in mid-November, with a focus on the Western Blue Groper, a large and charismatic fish, with some existing protection. The forum discussed the conservation status of this species and whether it needs more protection. The event attracted more than thirty people, including representatives from PIRSA Fisheries, DEH, Wildcatch

Fisheries SA, the Charter Boat Owners Association, recreational fishers, divers and others. After short presentations from scientists and government, the floor was open for a facilitated discussion. This sort of open forum worked extremely well with scientists able to answer many questions and some major data gaps identified. Many people stayed for drinks and nibbles afterwards and there was significant positive feedback.

Other topics for future forums include 'green' seafood labelling schemes, ecological sustainability assessments, gear types, and even the

possibility of an early morning visit to the fish market at Mile End.

The next CCSA Fish Forum is on **4th February, 2009**, with a focus on '**Bycatch of Australian Sea Lions**'. This endangered species is caught as bycatch in a Commonwealth fishery. A representative from the Australian Fisheries Management Authority will be present, as well as a South Australian scientist who is studying this species. The forum is open to all.

Venue: Coglin Street  
Community Centre  
From 6.15 pm (to start at 6.30)  
For more details:  
[alex.gaut@ccsa.asn.au](mailto:alex.gaut@ccsa.asn.au)

# Many thanks to our generous sponsors and supporters

CSA acknowledges that Reef Watch currently receives most of its funding from the Adelaide and Mount Lofty Ranges Natural Resources Management Board.

Other supporting organisations include:

- Primary Industries and Resources SA via SARDI Aquatic Sciences
- Department for Environment and Heritage

Reef Watch also acknowledges the generous support of the diving industry for Reef Watch events.



Government  
of South Australia



Australian Government

From page 2:

- A. Moonlighter
- B. Boarfish
- C. Old wives
- D. Western talma



Conservation Council  
of South Australia Inc

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Help save time, money and the environment! Please send me Reef Watcher via email only. Email your details: [info@reefwatch.asn.au](mailto:info@reefwatch.asn.au)

## Port Stanvac desalination EIS out for comment

The Environmental Impact Statement (EIS) for the Port Stanvac desalination plant has been out for a while and public comments are due by **24th December**.

The website below has all chapters of the EIS for access by the public. "Members of the public, government agencies, community groups and local councils are invited to consider the EIS as part of a six-week consultation period and lodge submissions to be considered by SA Water as part of the development assessment process." said Minister for Urban Development and Planning, Paul Holloway.

<http://www.sawater.com.au/SAWater/WhatsNew/MajorProjects/EIS.htm>

- Fast tracking of the desalination plant located at Port Stanvac with a rated capacity of 150ML/day (about 50 GL a year with a capacity to upgrade to 100 GL a year) using reverse osmosis technology
- Intakes and outlets up to 2.5 kilometres long to draw raw seawater into the facility and disperse concentrate to the Gulf.
- Environmental performance objectives and criteria that underpin the design, construction and operational phases.
- The development of sound management strategies and monitoring plans to avoid, minimise and/or mitigate any potential impacts.

Written submissions can be sent via email to:  
[plnsa.desaleis@saugov.sa.gov.au](mailto:plnsa.desaleis@saugov.sa.gov.au)