

# SDFSFA Newsletter – December 2022

Editor: Heather Creech



## SCUBA DIVERS FEDERATION OF SA, Inc.

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Northern Water Supply Project: Your Say

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## HAVE YOUR SAY ON THE PROPOSED DESALINATION PLANT in the Upper Spencer Gulf: The Northern Water Supply Project

Infrastructure SA is developing a business case for a desalination plant to provide water security to the mid North / Upper Spencer Gulf. Your SDFSAs participated in a stakeholder workshop in Whyalla to learn more about the project and to bring to the table concerns over possible marine environment impacts and the protection of the Giant cuttlefish annual migration.

A desalination plant is being considered to support water security, drought proofing and economic development, with particular attention to the water needs of the future Port Bonython Hydrogen hub, other industries and the agriculture sector. Three sites have been proposed -- Point Lowly, Crag Point, and Munnaquarna Station, but only one will be selected for a more detailed study and form the basis of the business case to government.

The Northern Water Supply - Business Case, Your Say Page <https://yoursay.sa.gov.au/northern-water-supply> has been set up to inform the public of the project and to solicit feedback on the options being explored. This online space is a one-stop shop for all things project related and provides an opportunity for critical stakeholder feedback to be given directly to the project team. On the Your Say page you'll find:

- Background information
- Document Library containing project technical assessment reports, scientific and research reports and stakeholder workshop presentations
- Frequently Asked Questions
- Newsfeed with project updates
- Opportunity to provide feedback by taking the survey

The survey is open until **15 February, 2023**.

For further information, you can contact the project team at [northernwatersupply@sa.gov.au](mailto:northernwatersupply@sa.gov.au) or by phone on **8429 4650**

**The SDFSAs will continue to participate as a stakeholder in the discussions on the business case, and will keep our members informed.**

### IMPORTANT NOTICES

**Edithburgh Jetty 150TH Anniversary:** Edithburgh Jetty's 150th Anniversary will be celebrated on 7th and 8th of October 2023 with multiple events including a period costume ball at the Edithburgh Institute on the Saturday night, historic vehicles, presentations on the history of the Edithburgh jetty, a historical diving display and possibly demonstrations and much, much more! **If you need accommodation, you should book in ASAP.**

**Advice for Diving Overseas:** For those of you planning international dive trips, remember to be cognisant of the laws and customs that govern the waters in which you dive, including protection of the environment, no-take rules, and respect for underwater cultural heritage.

## SDFSa COMMITTEE BUSINESS

**Edithburgh jetty stairs:** Your SDFSa participated in the recent co-design workshop for the Edithburgh Diving Platform on 18<sup>th</sup> November, organised by the Yorke Peninsula Council. Approximately 20 attendees gave their feedback on the current proposed design and other facilities and considerations needed. The stairs will be free standing. Council is currently seeking grant funding to fund the stairs. With the upcoming 150th Jetty anniversary in October 2023, Council is attempting to have the new stairs installed prior to the anniversary.

**Advancing the Cuttlefish Campaign:** As announced in last month's newsletter, the SDFSa is advocating for a permanent ban on fishing for the Giant cuttlefish during the aggregation and breeding season in the Upper Spencer Gulf. The domain [www.cuttlefishalliance.org](http://www.cuttlefishalliance.org) has been registered and a contact email set up: [info@cuttlefishalliance.org](mailto:info@cuttlefishalliance.org). The website itself is under development. A meeting of the Cuttlefish Alliance Advisory Group is planned for the 2<sup>nd</sup> week in December, with plans underway for an engagement strategy with the Ministries for Fisheries, Environment and Tourism. A proposal for financial support has been submitted to PADI.

**Next SDFSa Committee Meeting:** 18 January 2023 at the Arab Steed Hotel, Adelaide, 7pm (we are meeting the third Wednesday of the month rather than the fourth, in order not to conflict with Australia Day celebrations the following week.)

## INTRODUCING YOUR SDFSa Committee Member: Brendan Toohey

Brendan Toohey's journey into diving is intrinsically linked with his career as a school teacher. It started on a school camp in Thailand (while living in Singapore). The opportunity came to 'throw some teachers into the shark tank' and he quickly raised his hand. Hookahed up to a dive helmet, it was amazing. Within a month, he'd signed up to an Open Water course. On that same course was his son's teacher - who organised a dive trip for his students, including Declan. It's great to have a 'home made' dive buddy!



Brendan and son

Fast forward a few years to another school camp, this time at Edithburgh with Immanuel College and he could see the benefits of having in-water knowledge and responsibility of being a Divemaster - affirmed when Ron from Diving Adelaide suggested it.

Brendan now leads tours independently and with Diving Adelaide and Experiencing Marine Sanctuaries, especially during school holidays. At school, he continues to volunteer for as many days out of the classroom and into the water as possible!

The crossover of passion and career has developed into a relationship with Zhong Zheng Senior High School in Taiwan, where for the last two years his classes in Adelaide have studied marine issues with their peers in Taipei (and many thanks to Stefan Andrews for his work and resources on the Great Southern Reef that have been invaluable).



## NEWS FROM SHOPS AND CLUBS

**The Scuba Clinic**, Unit 16/937 Marion Road (Mitchell Park) is now providing air fills. For more information, call (08) 7324 5574.

**The Marine Life Society of SA** announced earlier this year a collaboration to bring Clearbot, an autonomous craft capable of cleaning up our waterways, to South Australia, but the project was unsuccessful at securing government support.

## CONGRATULATIONS TO...

- Josh Richards, Matthew Aisbett, Martin Slater, Chloe Reid, Ryan Kaczowski and Simon Backman on finding the Englebrechts East Extension - “the 2nd largest cave in the Limestone Coast” around the back of the Englebrecht's East air chamber, back in December 2019. The Englebrechts East Extension is an enormous new cave network running under the centre of Mount Gambier. Video footage of a complete swim-through of the new cave can be found at <https://youtu.be/aVzqRLL0ikg>. (Source: <https://www.facebook.com/photo?fbid=728549860148&set=pcb.728550468928> )
- Mike Bartick on the release of his new eBook titled “The World of Blackwater”. Mike is an award-winning underwater photographer and Photo Pro at Crystal Blue Resort. His new eBook chronicles his recent work from diving deep offshore at night. “The eBook offers a compilation of images of rare or never seen before marine animals (with common and/or scientific names), natural history, Mike’s personal journey into blackwater diving, and photo tips.” It is available as a PDF or iBook that can be accessed and read on any digital platform. It can even be used as a digital-field-guide for blackwater diving in the Indo-pacific and other tropical locations around the world. Owners of this eBook will also receive automatic updates as they become available. See [www.Saltwaterphoto.com](http://www.Saltwaterphoto.com) , [www.Gumroad.com](http://www.Gumroad.com) and Apple iBooks.
- Chris Daniels, Presiding Member for Green Adelaide, on being named as one of four South Australian nominees for the 2023 Australian of the Year Awards.
- Karen van den Oever from South Africa on extending her previous Guinness World Record for women's cave diving on 27th October. Karen descended to a 246.65m on open circuit in Boesmansgat Cave. In doing so, she broke her previous cave diving record, set back in 2021, by more than 10m. (Nuno Gomes set his own world record when he descended 283m to the very bottom of South Africa's Boesmansgat Cave in 1996.)
- Four scientists from the Institute for Marine and Antarctic Studies (IMAS), and their seven colleagues, who have just been named the Clarivate Highly Cited Researchers of 2022. This places them among the world’s most influential researchers, and they’re in the world's top 1% of cited researchers in their field. They are all from the UTAS College of Sciences and Engineering, as follows: IMAS Profs Gretta Pecl, Neil Holbrook and Graham Edgar and Emeritus Prof Reg Watson, CSIRO | IMAS Adjunct Professors Beth Fulton and Alistair Hobday, and University of Tasmania researchers Profs David Bowman, Timothy Brodribb, Arko Lucieer, Sergey Shabala and Steven Smith. Visit <https://clarivate.com/news/clarivate-names-worlds-influential-researchers-with-highly-cited-researchers-2022-list/> or <https://bit.ly/3Ob9VAC> for more details.

## STEVE'S SCIENCE STORIES for the month

By Steve Reynolds

### PLANKTON & SHARK RESEARCH

Researchers from Flinders University using satellites worked with SARDI to identify vast subsurface layers of plankton in the Great Australian Bight recently. Their study found that a long list of marine life, including great white sharks are attracted to the phytoplankton in the Bight. The great white sharks are said to be attracted to the plankton 'year-round'. According to The Advertiser for 17<sup>th</sup> August, "Oceanographer Jochen Kaempf said that subsurface plankton provided a rich food source for sharks, whales, seals, sea lions and southern bluefin tuna." "Our observation of subsurface phytoplankton layers is the missing key explaining the high productivity of the region," Jochen said.

Despite that, and the finding that shark bites have steadily increased globally, and in Australia, over the past few decades, and that SA has fewer shark bite mitigation measures than other states, the number of shark attacks recorded in the upper Spencer Gulf area have been found to be historically low.

According to The Advertiser for 8<sup>th</sup> November, "There hasn't been a confirmed SA death due to shark attack since 2014," something that goes against worldwide statistics. (Sam Kellett was killed whilst spearfishing near Edithburgh on the Yorke Peninsula on 8th February 2014.)

The Advertiser says that "Recorded non-fatal shark attacks (in SA) have overwhelmingly occurred off the Fleurieu Peninsula (19), followed by Eyre (8) and Yorke (7) peninsulas, Adelaide Metro (6), Limestone Coast (4) and Spencer Gulf (2)."

### GIANT KELP FOREST RESEARCH

According to his Facebook feed, Stefan Andrews says that he finally got out to Tasmania's Actaeon island to dive and film the state's last remaining dense forests of giant kelp. It followed earlier filming of "the work of marine scientists pioneering restoration efforts for these highly vulnerable marine macroalgae," according to Stefan. "With less than 5% of Tasmania's eastern populations remaining due to climate change, these dedicated researchers are working on techniques to attempt to help bring the giant kelp forests back," he says.

Last year he filmed another giant kelp forest off Southport "that unfortunately already no longer exists. Not a single giant kelp plant remains in an area that just a year ago was dense and seemed to be thriving," he says.

"I hope this is not also the fate for the giant kelp forests of Actaeon island but rather we see restoration attempts in areas like Fortescue Bay come back to a state like this. But there is a long road ahead. Capturing and sharing the majesty and beautify of these remaining giant kelp forests has never been so important. My footage from this trip will be used in upcoming media releases around the giant kelp restoration work as well as some short films I'm working on. More to come," he says.

### THE CURRENT STATE OF PLASTIC POLLUTION IN SOUTH AUSTRALIAN MARINE ECOSYSTEMS

With over 10 million tonnes of plastic waste entering our oceans each year, plastic pollution is a huge global problem affecting our marine environment. As larger pieces of plastic break down, they form microplastics, and it is this type of plastic that can cause major issues for marine species and ecosystems. What is the current state of marine microplastics in South Australia? Marine

researchers from the University of Adelaide recently shared the most up to date research on marine plastic pollution with us, including current trends and solutions. Experiencing Marine Sanctuaries presented the talk on Facebook and Zoom. The FB footage can be found at <https://www.facebook.com/experiencingmarinesanctuaries/videos/811353240016550> .

Nina Wotton (Nina Marina) studies plastic pollution. She has prepared a 1-minute video which can be found at <https://www.facebook.com/nina.wootton/videos/4432676416772348> .

## **NEXT GENERATION BIOPOLYMER COATING MATERIALS THAT COULD SOLVE PACKAGING WASTE DILEMMAS**

Grease resistant fast-food packaging presently uses fossil-based plastic coatings, so researchers at Flinders University joined up with German biomaterials developer one\*five “to develop next generation biopolymer coating materials that could solve packaging waste dilemmas for the fast food industry”. They used seaweed extracts to develop the biopolymer coating materials. These new biomaterials are non-pollutive and will replace the packaging using fossil-based plastic coatings. The researchers say that “the seaweed extracts have a similar structure to the natural fibres from which paper is made”.

## **WE CAN'T AFFORD TO GO SOFT ON PLASTIC POLLUTION**

Here's a sobering thought - without a massive global effort, there will be more plastic than fish in our oceans by 2050. it's deeply depressing, then, that in the past fortnight we've seen the collapse of soft plastics recycling in Australia, amid news warehouses across the country are stuffed with all those plastic bags we've been increasingly returning to Coles and Woolworths. How did we get here? There are a couple of reasons. The first was a massive fire five months ago at the suburban Melbourne factory of a company called Close The Loop, which mass recycled soft plastics into an additive and binding agent for bitumen (and accounted for a huge amount of the five million plastic items collected daily by REDcycle) Close The Loop's factory is being rebuilt and expanded, but won't be operating again until at least mid-2023. The second reason is a lack of retailer, industrial and government support for other recycled products created using soft plastic waste. NSW-based Plastic Forests is a perfect example. They take soft plastics and turn them into everything from poly sheet and wheel stops to garden edging. The problem is that major supermarket chains don't stop Plastic Forests' products to make them easily available to consumers. As Plastic Forest owner David Hodge told ABC's 7:30, waste is not recycled until somebody buys the end product. What a wasted opportunity. How good would it be to walk into your local supermarket and support an Aussie firm recycling the bags you helped to divert from landfill? REDcycle was started by an amazing group of Melbourne mums but for all its success, it still only diverted a tiny fraction of soft plastics from landfill or litter. Nothing's really going to change until manufacturers are made responsible for the packaging they produce. If I was in charge, I'd give them time to transition out of soft plastic packaging or start paying a hefty impost for their long term impact on the environment. There is some good news though, albeit on the far horizon. Environment Minister Tanya Plibersek this week set a national target of recycling or reusing 100% of plastic waste by 2040. She's also signed up Australia to the High Ambition Coalition To End Plastic Pollution, which has a global goal of ending plastic pollution by 2040 and involves 32 nations including Britain and France. “Ambitious” is the keyword here, given it is estimated only 13% of single use plastics are recycled. It bewilders me that more of us aren't fired up about recycling and reducing our impact on the planet for the sake of our children and grandchildren. Is it ignorance or laziness, or is recycling simply not a priority because many have bigger issues to worry about than separating rubbish into a few different bins? Whatever the reason, it's estimated Australians allow 130,000 tonnes of plastic to contaminate our rivers, lakes



and coastlines every year. We need to start caring more, thinking smarter and doing better. Unless we want Friday nights takeaway to be plastic and chips.”

### **DR ‘TWIGGY’ FORREST**

Did you realise that the philanthropist Andrew ‘Twiggy’ Forrest is, amongst many things, a Doctor of marine biology (ecology?)? The mining tycoon is also an environmental campaigner. He gave a presentation at the COP27 climate conference in Egypt last month, during which he called for a global moratorium on extracting minerals from the seafloor.

According to <https://www.minderoo.org/authors/minderoo-foundation/> , Forrest’s Mindaroo Foundation’s key initiatives include ocean research. According to <https://www.minderoo.org/oceanomics/news/minderoo-foundation-and-illumina-commit-up-to-aud40-million-to-apply-advanced-genomics-to-marine-conservation/> , “Minderoo Foundation and Illumina Commit Up To Au\$40 Million To Apply Advanced Genomics To Marine Conservation”.

### **eDNA (environmental DNA) CATALOGUING**

According to The Advertiser of 5/10/22, thanks to eDNA analysis by the Mindaroo Foundation, an ambitious project by the CSIRO will catalogue the DNA of every plant & animal in Australia. The National Biodiversity DNA Library is cataloguing marine vertebrates such as fish to kickstart the project. That is said to be some 5500 species.

eDNA cataloguing saves scientists having to catch, kill and preserve animals. They can instead be catalogued from traces of DNA that they leave behind in the environment. Analysing this DNA left behind in the environment is said to be something similar to Covid wastewater testing.

Dr Jenny Giles is CSIRO’s project director. She says that eDNA analysis may revolutionise biodiversity monitoring. Important biodiversity monitoring in a country as large as Australia is expensive and difficult, but eDNA surveys can change that.

The director of Mindaroo Foundation’s OceanOmics program is Dr Steve Burnell. According to <https://www.amoon.fund/team/advisors/steve-burnell-phd/> , he is CEO of the Foundation’s Collaborate Against Cancer Initiative. He is establishing a research program in marine genomics. Steve is particularly focused on how to improve the way data is used to improve marine conservation and cancer care.

He says that eDNA is a game changer for conservation. It “is probably the most exciting tool on the horizon for how we can understand life in the ocean and protect it better. The technology could also potentially be used to assess the abundance or scarcity of species, proving data for the conservation & sustainability management of fish stocks. eDNA could also be used to track “tropicalisation” – the warming of the world’s oceans, leading to the depletion of some species, and the relocation of others,” he says.

According to a full-page spread about this topic in the Sunday Mail of 20<sup>th</sup> November, eDNA works as follows: -

“Environmental DNA, or eDNA, is the genetic material left in the environment as animals move around, feed and mate. eDNA can be used to identify which organisms are present in a particular environment without the need to physically observe, capture or kill them.

1. Seawater is collected in pre-sterilised containers dropped to various depths at set locations.

2. eDNA is isolated from the seawater through very fine mesh filters before being extracted and purified.

3. A common eDNA workflow involves the amplification of eDNA using PCR (the same process used to determine the presence of Covid-19) to target species-specific genetic markers. The resulting copies of DNA are then sequenced.

4. A second machine, called a qPCR, tests how much of a particular type of DNA is within the sample. The more DNA, the greater the presence of that species.

5. eDNA can also be “shotgun” sequenced where all the DNA in the sample is sequenced – a method particularly useful for biodiversity analysis, to discover which organisms are present in that environment – provided you have a good reference genome DNA database to match these short sequences against (see below).

6. eDNA samples can be stored in -80 degree Celsius freezers for several years, which is important when researchers need to revisit samples.”

Further,

## "A REFERENCE LIBRARY OF SPECIES' DNA

1. The full characterisation of ocean wildlife using eDNA relies on a library of DNA reference genomes.

2. A reference genome is generated by sequencing the complete set of genetic information each individual species – requiring high quality DNA isolated from a piece of tissue or blood.

3. Only 200 of the 20,000 known species of fish have had their genome sequenced to date.

4. In collaboration with partners, Minderoo's OceanOmics lab will develop and publicly release a complete library of DNA reference genomes for thousands of marine species – starting with those that are endangered, threatened or targeted by fishing.”

I found the same article from the Sunday Mail in the Daily Telegraph at <https://www.dailytelegraph.com.au/technology/environment/how-australian-csi-mission-could-save-our-oceans-and-our-fish/news-story/eb5d7b5b8e6caaf3e7aee197fbbb9bf0> . I found video footage there also. I was also able to copy some additional details from that article: -

## “How Australian CSI mission could save our oceans and our fish.”

While 'Twiggy' earned his reputation (and billions) from land-based enterprises, marine conservation has taken an ever-increasing focus for the mining magnate. He has bought Tasmanian aquaculture interests, campaigned against overfishing, called for a moratorium on all deep-sea mining at the

84 WORLD | Sunday, November 25, 2012

sciencemag.org

SCIENCE'S NEW TOOL TO TRACE ALL FISH STOCKS

Secrets of the deep

EVIDENCE

FISH STOCKS

AISS scientists are using cutting-edge genetic techniques (known as environmental DNA, or eDNA) to track the abundance and potentially massive implications for the global fish industry and for what we eat and eat well.

"eDNA of the fish," the laboratory called eDNA metabarcoding, will be officially launched at the University of Western Australia's Perth, including a comprehensive library of the estimated 7500 fish and vertebrate species that frequent Australia's oceans.

The fish in the latest analysis include the southern bluefish and Nikola Perna's Midwestern Ocean Whitefish. They were estimated as abundant (and billions from land-based eDNA) because their coexistence has taken on ever increasing force for managing negatively. The eDNA metabarcoding is said to revolutionize ocean conservation through the development of next-generation genetic tools. "As the monitoring and management of ocean wildlife, including endangered species, is enhanced in the Midwestern Foundation."

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deep—and crucially, in what sort of waters.

Currently, estimates of marine species' health are based on fisheries, or catch—methods which can be unreliable. It's been estimated that 25 percent of the world's fish have been fished with insufficient data to determine if they're sustainable or not.

The Australian government counts 372 individual fish stocks in its waters, and the latest report shows 32 of those species are sustainable. But 27 of the fish stocks are unsustainable. They are characterized as "negligible," 35 are recorded as "negligible catch" and 70 are listed as "negligible catch."

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favorable. But some winter chub, Tasmanian scallop, and several stocks of snapper.

But with 65 per cent of the unfished area in Australia showing no recovery, the eDNA metabarcoding research is still in its infancy.

Working like a sort of eDNA metabarcoding, Marine Catch the eDNA metabarcoding will detect what species of marine life pass through a certain location, based on the eDNA they leave behind—in fish, for example.

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"eDNA can revolutionize how we monitor, understand and ultimately protect the ocean," eDNA metabarcoding research is still in its infancy.

The eDNA samples are collected in tubes of water known as "water samples" and then analyzed in the lab.

Through filter, the eDNA metabarcoding will detect what species of marine life pass through a certain location, based on the eDNA they leave behind—in fish, for example.

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recent COP27 conference, and even completed a PhD on a depleted marine species, the short fin mako, in 2019.

The OceanOmics program “aims to revolutionise ocean conservation through the development of next-generation genomic tools ... for the monitoring and management of ocean wildlife, including endangered species,” according to the Minderoo Foundation.

The researchers are using a technique called environmental DNA (eDNA) analysis to determine what’s actually out there in the deep – and crucially, in what sort of numbers.

Currently, estimates of marine species’ health are based on observations, or catch – methods which can be unreliable. It’s been estimated that more than half the global seafood haul is from fish stocks with insufficient data to determine if they’re sustainable or not.

The Australian government monitors 477 individual fish stocks in our waters, and the latest report shows 302 of those species are sustainable. But 37 of the fish stocks are depleted, another 17 are characterised as “depleting,” 36 are recorded as “negligible catch” and for 70 there is insufficient information to make an assessment. In other words: for 160 of the 477 monitored stocks (just over one in three), warning signs could or should be flashing.

On the depleted list are such favourites as blue swimmer crab, Tasmanian scallops, and several stocks of snapper.

But with 65 per cent of the seafood eaten in Australia coming from overseas, the OceanOmics research has the potential for a global impact, not just a national one.

Working like a sort of Crime Scene Investigation Marine Unit, the OceanOmics team will detect what species of marine life have been passing through a certain location based on the DNA samples they leave behind. Fishy fingerprints if you like.

“eDNA can really revolutionise how we measure, understand and ultimately protect the ocean,” said OceanOmics director, Dr Steve Burnell.

“When you consider the conservation range of threatened or endangered species, eDNA can be a very powerful tool telling you that [a species] is in these other areas where you thought it was perhaps not present. Or vice versa, it can be quite powerful in telling you [a species is] absent from an area where it once was quite common.”

The eDNA samples are collected via tubes of sea water lowered to different depths. The sea water is then run through filter paper, which collects all those telltale DNA signs of a marine species’ presence – everything from tiny corals to the big behemoths of the sea.

The samples can be analysed back at OceanOmics, which will be the biggest marine genomics lab in the southern hemisphere, or on board the research vessel Pangaea, which comes equipped with its own full laboratory.

The team can take a “scattershot” approach, to look at the full field of what’s in the sample, or target their search for specific marine creatures.

The samples can also be used to determine the abundance or scarcity of a species, with this data hopefully being used in future to guide what the fishing industry take from the sea.

Analysis on board Pangaea, with its rapid turnaround time for results, means the crew can do additional testing in the same or nearby waters, should surprising results pop up.

It also means they can monitor the real-time effects of marine heatwave events – an increasingly frequent phenomenon in Australian waters – to see which species suffer, which species survive, and which species change their behaviour or range as a consequence.

“Going to those locations and sampling the eDNA during that time means we can assess what is happening within that biological community while that stressful event is taking place,” said Dr Priscilla Goncalves, a marine biologist with OceanOmics.

“We can study how the population responds to that heat event, but also how it recovers it over time.”

Currently docked at Fremantle, the Pangaea’s next expedition will take it around the Cocos Keeling Islands, one of two Australian Indian Ocean territories nestled close to Indonesia.

Satellite imagery from the website Global Fishing Watch shows the immense fishing pressures in at play in the region: trawlers largely avoiding the Exclusive Economic Zones around the Christmas and Cocos Keeling Islands, but intensively working other areas, including a narrow strip between the two zones.

The OceanOmics team will be studying the marine biodiversity of the region, as well as the wider effect of such concentrated fishing activity. “We’re excited about the potential for eDNA to provide supporting data for the sustainable management of those fish stocks,” said Dr Burnell. “It’s really a game changer for conservation.”

While the OceanOmics eDNA program will be focused on practicalities like the impacts of overfishing, climate change and ocean acidification on our marine environments, there also remains the possibility the researchers will discover new species, or even find ones thought lost which are still hanging on.

“Many of these species are small, they’re cryptic, they’re not fished or easily observed, so finding them via eDNA can give us some encouragement that they are still there,” Dr Burnell said. “But of course, they may still be horrendously threatened.”

***(by David Mills, National Environment Reporter, Daily Telegraph)***

Visit <https://7news.com.au/news/twiggy-sets-sights-on-oceans-deep-secrets-c-5515601> for further details about Forrest’s involvement.

Further details can also be found by Googling “edna research by Minderoo Foundation”.

## FOR YOUR CALENDAR: FORTHCOMING EVENTS

### ***South Australia***

**Sunday 5th March 2023: Dive for Cancer** returns with diving at Port Noarlunga reef followed by food and drinks, a guest speaker, some prize giveaways, silent and live auctions. See [www.diveforcancer.com.au](http://www.diveforcancer.com.au).

**Sunday 5<sup>th</sup> March 2023:** Clean Up Australia Day. Visit <https://cleanup.us16.list-manage.com/track/click?u=d64624efee0dffc653b9f7a0&id=6f4f25f19e&e=3d74b9f36d> to register.

**7-8 October 2023: 150<sup>th</sup> Anniversary of the Edithburg Jetty** celebrations.

### ***Interstate/International***

**6–7th March 2023:** the Australian Coastal Restoration Network (ACRN) symposium will be held at James Cook University, Townsville.

**2<sup>nd</sup> to 7th July 2023:** The 57th Australian Marine Sciences Association (AMSA) 2023 annual conference will be held at the Gold Coast Convention and Exhibition Centre. “This is a national marine science forum that will provide a space to exchange traditional knowledge and modern science. Together, this will provide a strong foundation for understanding marine ecosystems, and inform marine management decisions”

## **ABOUT THE SDFSFA...**

**SDFSFA is a non-profit, incorporated membership association dedicated to the preservation and enjoyment of our unique underwater world.**

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**<https://sdfsfa.net/membership-categories/>**

The more members we have, the stronger our influence. We serve as a peak body representing the interests of South Australian recreational scuba divers and the related sports of freediving and snorkelling, including the provision of information to government and the general public. Together we can have real impact on the issues affecting the South Australian diving community.

If you wish to be added to the mailing list for this Newsletter, join the SDFSFA!

You can also read about the Federation’s work in monthly issues of DiveLog Australasia, Scubadiver ANZ and on our website at <https://sdfsfa.net>. Stay up to date with the latest news through our Facebook page, <https://www.facebook.com/scubadivesa/>. And follow our FB group, SA Dive Sites VIz and Conditions for current diving conditions shared by the group members.

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*The opinions expressed by authors of material in this newsletter are not necessarily those of the Federation*