MARINE Life

The 'taking over the world' edition

October/November 2012

ISSUE 21

Our Goal

To educate, inform, have fun and share our enjoyment of the marine world with like-minded people.

The Editorial Staff

(and the zen bits, grasshopper)

Emma Flukes, Co-Editor: Shallow understanding from people of good will is more frustrating than absolute misunderstanding from people of ill will. *[I'm definitely not zen enough to understand any of this, but let's run with it anyway...]*

Michael Jacques, Co-Editor: In the practice of tolerance, one's enemy is the best teacher.

NT *Honcho* – Grant Treloar
***Tas Honchos* - Phil White and Geoff Rollins**
SA *Honcho* – *Peter Day*
WA Honcho – Mike Lee

Disclaimer: The views expressed in this publication are not necessarily the views of the editorial staff or associates of this publication. We make no promise that any of this will make sense.

Cover Photo; Maori Octopus – John Smith

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Contact us: marinelifetassie@gmail.com

News

Bits & Pieces

Feature Stories

Heritage and Coastal Features

KEEP UP with the news on Facebook!

Thanks to all the good oil we are collecting from all over Australia, we need to rationalize space so the magazine can still focus on a more in-depth articles. That means an increasing amount of our 'breaking news' will be posted on Marine Life Magazine's Facebook page. Please go to our site and 'like' our page, so you can keep pace with developments. We are lazy and it hasn't happened yet, but it will happen.

Supertanker Supplement

Last edition's supertrawler supplement attracted a LOT of attention from readers, so thanks to all of you for taking an interest in the topical environmental issues around you. While it's a little more distant, Western Australia also currently has its own environmental debate raging in the form of the Liquid Natural Gas industry. To avoid filling the mag you know and love with environmental rants that are a little on the heavy side, we're giving the bonus liftout thing another go for this edition. Our LNG SuperTANKER Supplement should be out in a few weeks to bridge the gap between Marine Life editions, so stay tuned...

BREAKING NEWS - *Supertrawler dead*

- Summary by Mike Jacques

Environment Minister Tony Burke announced the Federal Government would create legislation allowing it to stop the super trawler from fishing until an expert panel conducted an assessment-a process expected to take two years. He indicated it was the groundswell of opposition from many Labor MPs, recreational and commercial fishers and the wider public which allowed him to push the case to be given stronger powers under the Environment Protection and Biodiversity Conservation Act.

Greenpeace hailed it as a victory for the Australian community, which had united to reject the "monster ship". "This is what happens when we all stand together," Greenpeace spokesman Ben Pearson said.

Senator Colbeck, the Coalition's fisheries spokesman, told a joint party room meeting in Canberra the decision would put business investment at risk. Senator Colbeck, who was supported by five colleagues in a debate on the issue, said Australia was a world leader in fisheries management. However, three Coalition MPs voiced concerns about the super trawler.

Seafish director Gerry Geen says the decision means 50 Australian jobs will go, including 45 in the Tasmanian town of Devonport. "It is going to be hard to have to tell those employees, some of them who were long-term unemployed, that we no longer have a job for them," Mr Geen said.

He said the company was "extremely disappointed" at the Government's decision. "It seems that after we have met every rule, regulation and request made of us, after years of working with the relevant authorities, that in the end the government reacted to the size of the Abel Tasman and not the size of the quota and the science that supports it."

Feedback Corner

We asked and you delivered!
YOUR responses to last edition's
Supertrawler Supplement

Hey, you all really loved the supertrawler supplement even if you didn't agree with everything in it. Our downloads have gone through the roof. Hmm…so you like controversy, eh? Emma's herculean effort in bringing out the fisheries management argument was particularly appreciated. We would also like to thank Jon Bryan for a similar effort which really helped to draw out the arguments and balance the commentary.

My impression was that many of you, when faced with the choice of two ten page articles detailing the controversy, read either the one that supported your current position, or just read one, then ran out of steam. I'm yet to meet anyone who read both in detail. It is still available for download and the issues will come up again in a different guise. **– Mike**

I thought the overwhelmingly positive comments we received were responses to my hilariously witty and charming writing style? Maybe that's just me… Thanks for taking the time out of your busy schedules to have a read. – ***love*** **Emma**

Comment #1

Dear Emma,

Congratulations on your excellent article regarding the Margiris. It supported much of what I suspected about the hysteria and why I haven't had much to say on the issue. It would be great if at the end of all this, it brought a little more awareness to every fisherman/women as to what acceptable and sustainable fishing is all about and focus on how they go about getting a feed for themselves. I note with interest that some of the most outspoken opponents of the super trawler are the very people who themselves drape grab-all nets over inshore reefs turning what once were fish rich dive sites into relatively barren rocky outcrops!

Cheers ******

Comment #2

Hi Emma,

A friend of mine sent me the Marine Life newsletter so that I could get caught up on all this super trawler business (I've been out of the state for a while, but when around pretty keen on these sort of public outrage matters).

I noticed you had an email address at the end of the article so I wanted to write and congratulate you on a well written and concise article, considering the number of common arguments you covered and the depth of your answers. Certainly enough for non-marine scientists like myself to get a handle on things.

Also wanted to give massive props for the following sentence: "don't worry Derpina, I think you would really benefit from doing derpidy derp, here let me prescribe you some Derpadene Derp"

Including 'herp' and/or 'derp' into anything official is a constant goal of mine whenever writing anything official, so as such I would like to state, again, congrats, and that I like the cut of your jib. Cheers, keep on science-ing!

Comment #3

Hi Emma, hope you are well! I just read your article on the 'supertrawler' you posted, and if there was a mega like button i would have hit it! It's hard to remain objective in the face of such an emotive issue and huge opposition, but I reckon you conveyed the rebutal for all points of contention probably better than most people in my office... I wish there was a bit more of this in mainstream media rather than the end of the world type commentry. I am a lover of the piscatorial kind as well but we must have faith in good science and the people who dedicate themselves to it. Anyway, top stuff and hopefully see you around sometime.

Comment #4

Hi Emma,

I just read your article that in appeared in "Marine Life" Aug/Sep issue entitled Trawling for Trawler truths. I own a fishing tackle store in Victoria and so this topic has been discussed in my shop rigorously by many people. I too have been trawling for the truth to get my own opinions as well, as most of my knowledge on the topic has come from secondary or tertiary sources. Your right, primary sources are very hard to find on this topic and always are on any topic really unless you have access to a uni server, gotta love uni! I think you have done all the work for me though and I probably won't look into it any further, so thank you for that. I personally hate commercial fishing, I live in

Gippsland in Vic, and we are heavily commercially netted and long lined in our estuaries, in particular Corner Inlet. The Corner Inlet access licence which allows a vessel to commercially fish Corner Inlet and surrounds is the particular licence that's affects me and the surrounding recreational angler in my area. Just wondering if you would know where to get the primary data or sources for quotas and past catches for Corner Inlet, as I really can only find secondary sources from DPI which are useless and rounded off and seem utterly inaccurate and nonsensical. I know a few netters personally so question the hell out of them all the time, but they honestly lie through their teeth, which I can't say I blame them as it's their business, and no-one want anyone else to know about their personal business. I'm no different.

Back to talking on the "super trawler", the only question I ever had about it, was why Seafish Tas needed such a big boat to get their quota that they already get anyways with a smaller fleet. You answered this, by saying "the onboard processing capacity and technology allows for a greater end product". I might be wrong and probably am, but this doesn't seem like a big enough reason to have such a big boat that can hold a 1/4 of its annual quota at a time. It could theoretically fill its quota on 4 trips. Is this normal? Why would Seafish Tas go to the trouble to get this boat and have it for a year when it could potentially only need to be used a couple of times?

Also, I am an extremely keen fisherman, and opened my tackle store when I was 18 and am now 30. I would hope to think Australia knows what it is doing in the fisheries and enforces it hard but from my own personal experience of our local commercial guys whom have rules/regs as well, they do not have every catch checked and are not watched upon all the time. Maybe it will be different for a boat as big as this one. Anyways, great article!

Kind Regards, ******

Comment #5

Hi Emma,

I have been following the super trawler debate closely since it arose and am involved in a group of fisheries scientists penning an information piece on this fishery and the Margaris, although it is taking a while to pull together trying to get the words right and balance political positioning about this sensitive topic.

I just wanted to say that what you have produced is beautifully written – particularly the accessible writing for the masses, on topic, balanced and by far the best piece I have seen on this issue to date. Congratulations and well done.

Cheers, Dr ****** (IMAS)

Comment #6

Hi Guys,

A fairly comprehensive article with most of the issues covered. It will be interesting to see that if the 5 key points that Jon mentioned ...are addressed satisfactorily if those against will change their opinion, or will they find something else to contest…

Further DEPM surveys are scheduled and will be required to maintain high TAC's (thus in seafish's best interest), and from what I hear there are management discussions at present to address localised depletion and also additional SED videography. Myctophid interaction (which I think is minimal) would be able to be determined from past (and potentially future videography) – We probably already know this

I guess we will know this within the next month…

Cheers, Dr ****** (IMAS)

Comment #7

Hi Emma

Not sure we have properly met, as past president of ASFB I have long been an admirer of your fishy photos (thanks). I thought I'd take this opportunity to congratulate you on your article regarding the Margiris, as one of the scientists involved in both the orange roughy and small pelagics fisheries you have done a great job in researching and teasing out the issues (without all of the hype and emotion). While I can well understand the concern about the size of the vessel (we are certainly entering unchartered waters) I think that the management processes and the science are solid - it is significant to note that DEPM surveys for jack mackerel and redbait are already planned for this year, monitoring of stock responses will be on-going, and operational aspects of the vessel will be very closely scrutinised.

Within the next few days we hope to be releasing a scientific response that backs up much of what you have researched and concluded. Again well done.

Cheers, Dr ****** (IMAS)

Comment #8

Well bloody done woman! Freakin awesome article! Must have taken you ages, but if I were you I'd be so damn proud of myself. One day I will claim I'm famous because I know you :-)

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Comment #9

Dear Emma,

I read with interest your article in the Aug/Sept 2012 issue of Marine Life regarding trawling for truths. I found the article to be exceptionally well written and researched, and very enjoyable, engaging and balanced.

Is interesting that most of the total allowable catch (TAC) issue has focused on jack mackerel populations, yet redbait, the other small pelagic species included the TAC provided to Seafish Tas, have been almost left out of the equation.

For your records, and just in case you didn't have it, I have attached a paper on DEPM-based spawning biomass of redbait published last year in a "A" type international journal, and therefore out in the public domain. The paper, which was independently refereed before being published (3 referees), explains in detail the DEPM - a quite powerful and increasingly popular fishery-independently method for biomass estimation.

Best wishes, Dr ******

[a full version of the paper mentioned is available on request]

Comment #10

Emma

thank you for informing me of the facts in this debate. I actually signed the getup petition against the vessel on the basis that it was foreign owned. However this was before they posted the 'photo' of dolphins pouring out of the net, and I also found out about Seafish Tasmania's partnership in the vessel . I have worked on prawn trawlers in Shark Bay and off the NQ coast, so I am aware of dolphin behaviour re trawler nets and therefore knew the picture was wrong somehow. I then tried to find some facts on the matter which led me to your posting. I'd always pondered what the percentage of bycatch on prawn trawlers was and you informed me of that also. I put a link to your document on the getup comment thread which was countered by someone linking to the views of an economist in brisbane whose claims were not referenced. It seems far too many Australians aren't interested in facts on this among many matters. Maybe that's why the polls favour tony the toolman. anyhow, thanks again for puting the facts out there in such a well written manner. I'd appreciate any links to further inform me.

regards, *******

Comment #11

What a fantastic summary – it should be compulsory reading for every Tasmanian intending to engage in this debate – especially the ENGOs and the politicians. Otherwise they will polarise us like they've done over forestry - we'll have the 's' word to add to the 'f' word - and we'll end up with similarly perverse outcomes.

That's what I reckon anyway!

Comment #12

Hi Emma

I just want to congratulate you on your wonderful article on the Margiris. It was refreshing to find and read an article on the topic that addresses and transcends the misinformation and hysteria. I really enjoyed the injection of levity and the way you explained scientific process and principles in a manner fit for public consumption – it reminded me of the way in which Richard Dawkins explains scientific concepts in some of his recent popular science books.

I recently attended a conference on recreational fishing where the Margiris issue eclipsed many of the other issues and polarised the delegates. It would have been great if a handout of your article was available to be distributed there! I will be sure to send a link to your article to Mark Nikolai (TARFish) and to the Rec Fishing Section of DPIPWE who are currently embroiled in the issue.

Kind Regards, ******

Comment #13

Dear Emma

I have just read your article about Trawler Truths and wanted to thank you very much for your research, your intelligence and your humour not to mention your writing style.

I feel increasingly we are living in some latter day Salem where every vexed issue becomes a witch hunt and where rumour and innuendo are rife. I don't have a scientific bone in my body (Humanities/ Linguistics) but I do have an older brother (now retired) who was a marine biologist. As a little girl I watched him cut up sharks and ichthyology was just one of those words you heard around the dinner table like fish or yes sharks! I also felt his passion for his subject and his great love and deep interest in marine life and the hard years of study and research that marked his career. Maybe it is this that makes me feel sickened by how little scientists are heard or listened to these days. I

tried to persuade my brother to write a letter to the editor about this vexed issue but he, perhaps wisely, did not oblige.

To find your article was music to my ears. Expressed with a lightness of touch which I know I would not be able to muster it is comprehensive, informative and has given me the arguments to help counter the uninformed hype which swirls about us.

How great that there are young marine biologists out there who can carry the flag of evidenced based research and write in such an engaging style. Thank you!

Warm regards, ******

P.S. My husband is a fan too!

Comment #14

Thanks for your views Emma. Well researched and written, objective and unemotional. Exactly what science is all about.

Regards, ********

Comment #15

Michael and Team

Have just finished reading the supplement.

As someone who is actively participating in this issue, and representing national recreational fishers interests in the federal govts Working Group discussions on the Super Trawler, I commend you for putting together such a comprehensive and well balanced analysis of all sides of the public debates currently occurring.

Regards, *******

Prizes???

Last time I suggested we would give a particularly pathetic prize for the best feedback. It was a hard pick, I particularly liked the refreshing element of freeform whimsy in Always Angling. I'm also highly susceptible to anything related to "Derpy" or "Derp".

However, my prize goes to the guy I interviewed for the "Across the Partitions" article who flatly wasn't interested and wouldn't participate, Col the farmer and engineer. When his friends kept talking about it, he felt left out and actually read the Neira Report and Dr Warmsley's critique - off his own bat. I think his conclusions are very thoughtful and make a positive contribution, even if he doesn't have a PhD.

Neira Report – Col's take on it

> *"I get asked to do this kind of report all the time. You never have enough time or primary data to do it the way you would really like to, but there are no perfect solutions in life and you have to get on with it and make it work. The report is an educated judgment made by a bloke doing his best in an imperfect situation. It is wrong to imply that its conclusions are risk free and there is some sort of guarantee that 'she'll be right', but it's just as wrong to suggest that it is somehow unprofessional. It's the best technical solution we can have based our present state of knowledge and nothing in life is risk free. It would always be better to have better data and you could study it forever and spend millions, but who would pay for that and we would still have to make an educated judgment about the remaining risks. The only risk free solution is to do nothing all the time, which isn't a practical way of dealing with real life problems like this one."*
>
> *- Col*

(INTER)NATIONAL News Roundup

New Report Card for Australia's marine environment

A massive effort involving 80 Australian scientists from 34 institutions has produced a report card for Australia's marine environment. The *Marine Climate Change in Australia Report Card 2012* looks ocean temperatures, acidity and the strength of ocean currents and relates these to changes in marine environment.

The CSIRO is warning climate change is having a big impact on the country's oceans, with tropical fish turning up as far south as Tasmania. The damage under the sea is much clearer than when it released its last report on the subject three years ago. As well as causing a southern migration, climate change is causing a decline in some temperate fish stocks and ocean acidification is beginning to affect shellfish.

Dr Alistair Hobday says, "Off the east coast of Australia the southward flowing East Australia Current is warming and pushing further south. This region is a marine global warming hotspot, one of about 20 such ocean regions where the rate of warming is much faster than average". The east coast of Tasmania and parts of Western Australia hardest hit. Overall the rise in sea surface temperature is about one degree centigrade over the last century.

However, Professor Booth says snorkelers should not be too excited about the changing underwater world. "Now everyone is probably thinking what's wrong with having some lovely tropical species down here, but the flip side, of course, is firstly any interaction with normal species and then independent of the colder water species not being able to live as far north and in my home state of New South Wales could really have a risk of a loss of fisheries."

Smaller coastal species such as sardines, anchovies are also responding to climate change. Their abundance may increase as stronger upwelling of cool nutrient rich water in a range of coastal locations is expected to enhance their food chain. On the west coast of Australia in 2011 a marine heat wave also led to many pelagic species, such as manta rays and whale sharks and coastal fishes occurring further to the south.

Dr Will Howard stated "Ocean acidification impacts have only begun to be detected in nature in the last few years. A number of marine ecosystems of national and global importance, including the Great Barrier Reef and the Southern Ocean, are already feeling the effects of acidification".

In tropical waters, over the past 40 years we are seeing thinning and increased porosity of shells of 'sea butterflies' (winged snails), important food for many fish, as ocean pH declines because of more CO_2. These

changes are likely to be the first of many in the future that are likely to have profound effects on many iconic fish, turtle and mammal species. Associate Professor Anthony Richardson studies plankton and stated, "Plankton are microscopic plants and animals that float in the water and provide the oxygen in every 2nd breath we take, and directly and indirectly feed most fish, turtles, and seabirds. In the first Report Card in 2009, there were no published impacts of climate change on Australian plankton. From new studies in the past three years, we now have the first evidence of changes at the base of the marine foodweb. There are dramatic changes caused by the rapid warming in southeast Australia and the strengthening of the warm East Australia Current. This has led to the expansion of subtropical plankton into Tasmanian waters and into the Southern Ocean. In particular, the red tide species *Noctiluca scintillans*, which can be problematic for aquaculture farms, has expanded in recent years from off the NSW coast to around Tasmania, and in 2010 into the Southern Ocean for the first time. Over the past 40 years off Tasmania, we have also seen abundances of key cold-water zooplankton species decline and warm-water species increase, which are smaller and poorer food for fish.

Professor Ove Hoegh-Guldberg is an expert in coral reefs , "It is really important that we take stock of the large number of changes taking place in Australia's marine environment, especially given that our ocean resources are twice that of our land resources. What really strikes you about this report is the extent and diversity of changes taking place – everything from potential changes to the sex ratio of sea turtles and declining nesting success in sea birds, to mass coral bleaching and changes to important fisheries stocks. The report card brings to national attention the extent of these changes and highlights the challenges we face in the context of our national goal of sustainably managing our natural resources.

Risks to coral reefs remain extremely high and the current global trajectory means that coral reefs like those in Australia and elsewhere are likely to be removed by the middle of this century. This should have everyone's attention."

*The full report is available **HERE**.*

Giant Kelp forests endangered

The Federal Government has listed the giant kelp forests near Tasmania, Victoria and South Australia as an endangered ecological community. Any projects which could impact on the forests will now require assessments under national environment law.

The forests are being threatened by warming oceans, invasive species and human activity on coastlines. Greens Senator Peter Whish-Wilson has warned the marine forests will remain under threat unless further action is taken to address climate change.

Queensland News

UN Report stirs development criticism

A United Nations' report into the health of the Great Barrier Reef says the rapid increase of coastal developments is a significant concern. A draft report warns the region's health is being threatened by overdevelopment, noting a rapid increase in development approvals affecting the reef since 2008. It specifically questions the management of Gladstone Harbour. It has urged the Queensland Government to refuse approval of any new port development or associated infrastructure outside of existing ports until 2015.

Federal Environment Minister Tony Burke says there are no projects proposed in fragile areas before then. "The ones that are likely to come up in the shorter term are in existing ports," he said. Deputy Premier Jeff Seeney says a number of port projects have been scrapped. "The

UNESCO report was written before this government halted those irresponsible plans," he said.

Government approvals for a $6.5 billion Alpha Coal Project's location in the Galilee Basin have been stalled by a dispute between the state and federal governments. Mr Burke said Queensland approval process had been "hopeless" and failed to ensure environmental concerns had been remedied. The final report by UNESCO is due to be handed down in 2015.

A number of other regional players then took up the cudgel and went further. The Capricorn Conservation Council says the report broadly acknowledged the whole of catchment issue but should have gone further. Thought needs to be given to halting major mining development in river catchment areas that flow into the Great Barrier Reef. He says the impact of mining developments in the catchments should be fully examined in the Federal Government's Strategic Assessment of the Great Barrier Reef World Heritage Area. "The Fitzroy catchment and the Belyando Burdekin catchment are the two largest rivers flowing into the Great Barrier Reef," he said.

"Those two catchments have massive amounts of coal, coal seam gas and are still recovering from many years of agricultural practices and land clearing."

Some landholders are concerned about the health of waterways like the Fitzroy River.

A former Rockhampton mayor says mining companies should be made to treat all waste water before it is pumped into the Fitzroy River system. "The mines must be made to bring the water quality that they are pumping into the river up to the same quality that's in the river," he said. "I can take you up to Riverslea there and show you melaleucas dying and take you and show you tea-trees dying, you can find other things dying. This wasn't happening before…I don't care what you say, I don't care what the reports are talking about. There's something wrong. Our river quality, our river health is failing, dying."

Muddy, muddy Gladstone

Gladstone Harbour is currently being dredged for an LNG project. Dredging has been in the news for allegedly causing fish deaths. Recently it has also exceeded its environmental guidelines, being more turbid than allowed for 12 days out of the past 30. The ports corporation has 28-days to fix a leaking bund wall around a reclamation area that has contributed to higher turbidity levels. While the corporation seals the wall, it will use a light-based monitoring program to examine seagrass health, which will take precedence over turbidity levels.

An environmentalists protested that they"... dredge over the limit and due to human and fish illness are asked to stop politely in September 2011 by the previous government," he said. "They dredge over the limits on Christmas day, Australia Day, Easter, and Labour day holidays with disregard to tourism and recreational and commercial fishing.

Gladstone MP Liz Cunningham has accused Gladstone Ports Corporation of a "cover-up" over the bund wall leak, which it has been aware of since September. However Gladstone Ports is forging ahead and chalked up a win by having a compensation claim dismissed in court with costs. The Western Basin Dredging and Disposal Project (WBDDP) has now taken 8 million cubic metres of material out of the Gladstone harbour, which is just over 30% of the total 26 million cubic metres. The backhoe dredging is now complete. All berth pockets are dredged to 13 metres and access channels are dredged to 7.5 metres giving access to the LNG construction docks on Curtis Island. This will allow the construction program to increase in pace.

WA News

Sharks get kill order

- by Mick Lee

On the 27th of September a joint media statement (here) from the Western Australian Premier, Colin Barnett and Minister for Fisheries, Norman Moore announced its grand plan for Shark Mitigation to Protect Beachgoers.

This is a long-awaited strategy, with many WA beachgoers frightened to even look at the ocean just in case a large ocean going beast with a mouth full of razor sharp teeth launches itself out of the water, tearing its victim to shreds. The people of Perth have been demanding action and today it was announced.

A further $6.85m will be spent over four years for shark mitigation, education and research. This funding is on top of the already $13.65m announced last year. Measures this time around will include:

- $2m for a new 'service' allowing the Department of Fisheries to track, catch and if necessary destroy sharks in close proximity to beachgoers, including setting drum lines if a danger is posed.
- $200,000 for a feasibility study and a trial of a shark enclosure in conjunction with local government.
- $2m to continue shark tagging programs, including real time GPS tracking systems.
- $2m over four years for an applied research fund overseen by the Chief Scientist.
- 500,000 for Surf Lifesaving Australia to purchase jet skis to bolster beach safety.
- $150,000 for additional community awareness programs, including a smartphone app.

Elements of this package are a positive step forward, especially when it comes to research and education, but based on these details (and I do admit they are a bit light) the point is being missed in a big way. Firstly let's have a look at the new 'service' that will is be set up, sort of like CSI for sharks, right? Will we be seeing uniform clad Special Shark Investigators roaming the beaches and springing to action on every sighting? What I read into Minister Moore's quote the whole "if necessary" seems as though it is a done deal already.

"Previously the orders were used in response to an attack, but now proactive action will be taken if a large white shark presents imminent threat to people," Mr Moore said. Ok, but what exactly classifies an imminent threat? If Bruce the Shark is swimming along minding his own business, possibly following a school of salmon or some seals, will he be ambushed by armed members of the SSI? Will he be killed for simply doing what he was put on this planet to do - cruise the oceans, look great, and when hungry have a feed? Once again here is an example of a government that ignores all science or even logic in a very poor attempt to gain public confidence and votes. "These new measures will not only help us to understand the behaviour of sharks but also offer beachgoers greater protection and confidence as we head into summer," the Premier said.

Summer is two months away and these measures are in place now (assuming they do not need State legislative change or debate… not that we really get that anyway). There is no feasible way that this research into shark enclosures can even be planned out, let alone conducted, before beachgoers start hitting the water in earnest. From a

media statement (here) on the 3rd of September 2012, Minister Moore asked for public comment on research from a report entitled *The likely effectiveness of netting or other capture programs as a shark hazard mitigation strategy in Western Australia*, by Associate Professor Daryl McPhee (this report can be viewed from the link). The public are open to comment on the report until the 31st of October 2012. Now I have never been particularly good at maths or dates, but it does seem as though we're not being given much of an opportunity to comment on the study.

Having read through this report myself I do find some areas of concern:

1) Shark Control Measures, especially nets and drum lines, may well catch sharks. But can they guarantee catching Bruce the Shark before he strikes in his murderous rampage? Or will they catch Terry the Turtle who is also swimming along happily, how about Sammy the Seal or Flipper the (annoying begging rapist) Dolphin? While the report reassures us that these will help stop sharks, they also involve bycatch. The fishing and ENGO world jumped up in unison against the supertrawler, but when it comes to sharks, seemingly not a peep. We have recently experienced last-minute changes of legislationat the governmental level to stop this trawler, and now we are setting Super Duper Nets (and Drum Lines) of Death ourselves. Even more than that though, the State Government is funding drum lines without allowing the opportunity for public comment, and based on adverse research findings.

Could this be Bruce?

2) The WA Government needs to obtain Federal approval for Shark Control Measures under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act 1999). This in itself would cost approx. $800,000 - $1m. From what I see we are going to spend $200,000 on the feasibility study and shark net trials. So where is the rest of this money supposed to magically appear from?

3) Let's say they go ahead and build an enclosure. What does that even mean? Well, realistically, nothing more than a great big concrete wall blocking off the ocean and forming a seawater pool to swim in. Sure, it will keep Bruce away but what about some of the potential environmental impacts? What about erosion effects? Shark enclosures are also only suitable for bathers, so if you dive, kite surf or surf, forget it - you still are not protected (until we kill them all…)

Or Flipper?

Part of this new funding is going towards community awareness, but it is not enough. $150,000 is one letter box drop. For an effective education campaign we need to involve schools and community groups and work towards coexisting with Bruce the Shark, although I'm not sure how we can do this while the SSI is chasing and killing every shark that even looks at the beach. Then there is the smartphone app – this will come in handy when I'm diving and it goes beep at 30m letting me know Bruce has just checked into my reef. I guess I can tag him into my picture…

What we have here is money intended for research and tagging, but that will more likely be used by the SSI to catch a shark that they can parade that up and down Elizabeth Quay. The $2.2m would be much better diverted away from reckless vote grabbing proposals and put into education and research. Yes, we need the patrols, and Surf Life Saving needs every extra cent they can get. Have some early warning and close beaches if need be. But while you're at it, let's try educating the media on sensible and realistic reporting, because you can bet they'll be salivating when Bruce is killed.

NT News

Save our Sawfish!

Source Newsletter: NERP Marine Biodiversity Hub

Researchers are contributing to a global conservation strategy for sawfishes: perhaps the world's most threatened fish family *[I reckon there are a few contenders, what about Handfish?-Ed*]

All seven species of sawfish are listed on the IUCN Red List as Critically Endangered.

The international scientific community will develop a Global Sawfish Conservation Strategy by early 2013. Dr Peter Kyne of Charles Darwin University (CDU) led reviews of two species that occurt in Australia, the Dwarf Sawfish and Freshwater Sawfish. The meeting found common ground between Australia and the United States that could lead to a sharing of methods.

Sawfishes, and in particular the Freshwater Sawfish, are key species studied by the Hub. A Marine Hub project aims to improve management decisions about rare and threatened species. Innovative methods will be developed to assess the population status of data-poor, low abundance, rarely-encountered sharks and rays, with a focus on threatened sawfishes and river sharks in northern Australia.

Sawfishes are an ideal initial focus for this research. The methods include sampling juveniles in Northern Territory rivers, estimating juvenile movement and mortality using acoustic telemetry, and using Close Kin Genetics to estimate population size in the Northern Territory.

The project involves CDU, Northern Territory Fisheries and CSIRO with contributions from the NERP Northern Australia Hub. It will provide the first quantitative population estimates of Freshwater Sawfish in Australia and provide SEWPaC with additional management options. This is a critical step forward in the management of this species, contributing to the success and evaluation of recovery plans and actions.

TASSIE News (that 'other' island)

Sea and Shorebird News

Courtesy of BirdLife Tasmania

Maria Island: Devils and Shorebirds

Following the announcement of the introduction of Tasmanian Devils onto Maria Island in order to create a refuge for this endangered species, BirdLife Tasmania are in discussions with DPIPWE and the Parks and Wildlife Service in regard to establishing a surveillance program of nesting shorebirds on the island. BirdLife Tasmania's submission to the Tasmanian Government identified a number of bird species, shorebirds included, which, because they are ground nesting, are likely prey species for the devils. BirdLife Tasmania hope to establish a number of cameras to monitor nests during the coming breeding season to document the reasons for nest failures.

Gull workshop

BirdLife Tasmania is conducting a workshop on gulls in south-east Tasmania with attendees from the aquaculture industry, councils, Parks and Wildlife Service and other managers. The workshop will update everyone on the status of gulls and examine likely management issues in the future as rubbish-tip management changes and after the probable expansion of aquaculture that is proposed on the West Coast. The workshop draws on the results of the Winter Gull Counts conducted by Birds Tasmania since 1980 and on a recent review of gull management conducted after the 2011–12 breeding season.

Penguins and dog attacks

BirdLife Tasmania are presently compiling a report reviewing dog attacks on penguins in Tasmania. This review was prompted by the most recent attack on the penguin colony in Kingston, in which more than 20 penguins were killed. Penguins have been attacked in the past and, over the years, considerable effort has gone toward protecting the colony. BirdLife Tasmania have records from around the state, but BirdLife Tas are aware of other instances for which we have no data.

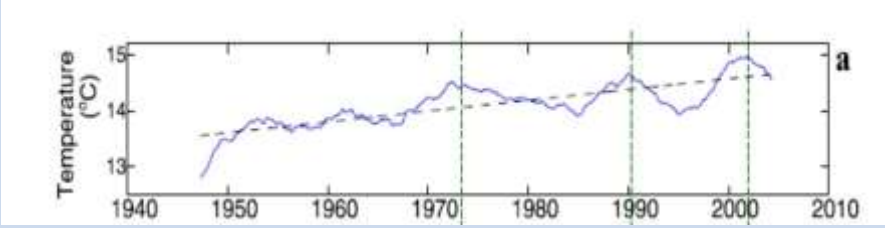
If you have any records that you can provide us in any form (personal observations, newspaper clippings, etc.), and are willing to share them with BirdLife Tasmania for the review, please send us any details for date, location, penguins killed and any other details (follow-up actions, etc.). All contributors will be acknowledged and sent a copy of the final report. Please circulate this request to your networks, colleagues, friends and associates. If you have access to a newsletter, please consider publishing this request. We are keen to receive as many reports as possible to compile the most complete account possible of dog attacks in Tasmania. Please send your responses to **tasmania@birdlife.org.au**

Redmap on show, what an extravaganza!

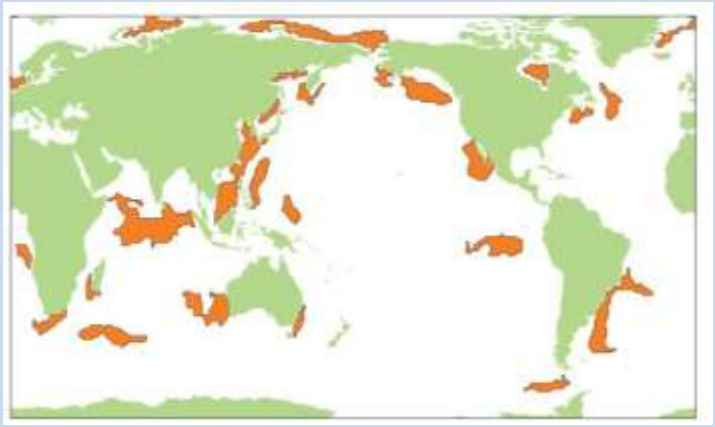
- by Mike Jacques

Like a Hollywood Golden Globe gala, the Science Week Redmap presentation in Hobart was a veritable "Who's who" of the beautiful people in the marine sciency, nerdy, thingy. There were fine wines and cheeses galore as well as dazzling repartee from Dr Gretta Pecl. As for the rich, Rich Mason was there, and I had at least ten bucks in my pocket (by the way Rich was broke). You should have been there! So you don't feel like you missed out, pull up a chair, open a Pinot Noir, drink until you are tiddly, and read my cut-down take on Dr Pecl's presentation.

Old Wives & Sergeant Bakers coming soon…to an ocean near you!



The temperature record for Maria Island, on the east coast of Tasmania shows that the East Australian Current (EAC) has pushed 350km further south in the last 50-60 yrs. Tasmania is a hotspot for ocean warming.



While it sounds nice it has caused many changes. Here are just some;

- Range extensions (southward movement) in many species of fish and other marine animals
- Expansion of sea urchins native to mainland Australia causing loss of Kelp forests off eastern Tasmania
- Changing composition of phytoplankton blooms off Tasmania– increased tropical species and red tides
- Rock lobster catch and distribution has been affected in a bad way by high surface temperatures around the Tasman Sea.

The REDMAP project started in Tasmania, in Dec 2009. REDMAP stands for Range Extension Database & Mapping. The project is asking people to record species they have seen 'out-of-range' and lots of sightings have been received from fishermen and divers. This can be done on-line through the REDMAP website. The website includes species to look out for, but you can submit sightings of ANY species suspected or known to be unusual. A scientist will then collate all your sightings. The website also tells you where other people have been seeing unusual marine animals.

What's the aim?

- Ecological monitoring of species ranges
- Effective way to identify where research could be targeted
- Promoting awareness within the general community
- Involving & engaging industry
- Gives industry and community ownership of the knowledge

Some of the result so far,

- 450 sightings have been logged for 70 species from 140 people
- Over 60,000 hits on the site
- 170,000 website page downloads
- Visits from 167 countries
- >750 newsletter subscribers
- the data has been used in 3 science journal publications so far

Next Steps – Redmap Australia

The project is being run through IMAS (Institute of Marine and Antarctic Studies) and is soon going Australia-wide.

- Launches November 2012
- iPhone application for SMS reporting
- Increased engagement (ability to add captions on photos, link to Facebook)
- Greater species information and reporting – benthic, megafauna, sharks
- Upload videos & multiple photos
- Extract geo-referencing information from submitted photos
- Automated allocation/distribution of sightings for verification

LOG ON, CHECK OUT THE SITE AND SUBSCRIBE TO THE NEWSLETTER www.redmap.org.au

redmap
SPOT. LOG. MAP.

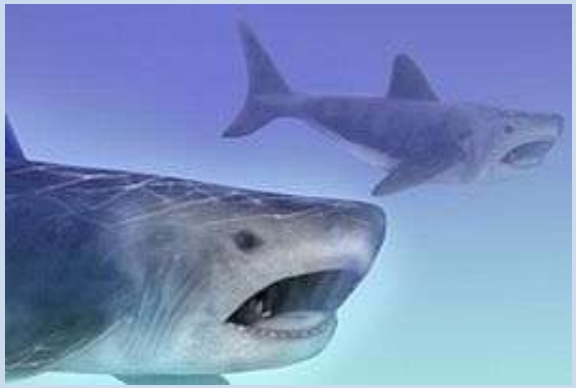
Serious Kid's Stuff

- by AMY *(nearly 12 and ready for high school)*

WEIRD ANIMALS - *The Spiral Saw shark*

Helicoprion ("Spiral Saw shark"), was a 3-4 M long primitive shark that lived 280 million years ago.

The only major thing scientists have found is a fossil of that strange jaw. The teeth are serrated like a steak knife, and it was carnivorous. It may be that the teeth were specialized for the job of breaking into the ammonites (nautilus) shells. Another idea was that the shark would swim into a school of fish and fling out the jaw, snagging prey on its teeth.



No-one knows for sure what it looked like. If the jaw was sticking out, this would create drag, making the shark a slow swimmer. But this version is the coolest.

The jaw might also have been hidden inside a big mouth, which would be a lot easier for swimming, but that's pretty boring.

Federal Marine Parks get a roasting

- by Mike Jacques

If you have been living under a rock, you might not have noticed the sustained campaign aimed at undermining the new Federal MPA plan. Although all are 3km off the coast, there have been some extraordinary suggestions, including implying that it will impact on mums and dads angling off the local rocks. The Opposition has pledged to "review" the reserves. This is surprising considering that many environmental groups have noticed that the reserves skilfully avoid areas of noted productivity, except perhaps in some areas of the Coral Sea. Fishers in Queensland and Western Australia, claim they will lose up to 30 per cent of their business.

About one-third of the South West Zone, off Western Australia, would have the highest levels of protection, including part of an area known as the Perth Canyon. While much of the South West Zone remains open, fishermen say it will severely hurt business.

While one Geraldton rock lobster fisherman says those in his fishery will simply move to unprotected areas, Fremantle fisherman Clayton Nelson says his company of 20 employees will lose one-third of its business.

The Government characterises the Coral Sea region as the jewel in the crown of the marine reserve network. It is also claimed to be one of the world's prime yellow fin tuna fishing grounds, worth $35 million a year. Terry Must from Bowen-based Arabon Seafoods says many in the fishing industry already feel heavily regulated. "When is it going to stop? It's disgusting, we're nearly a marine park all the way around Australia now and they want to put more closures in place now and I can't see the sense of it," he said. "There's no real science and when you look at the Coral Sea it's protected by the depth of the water and the weather anyhow, so what's the problem out there?"

The owner of a major Sunshine Coast seafood business says there has been an overreaction to the Federal Government's proposed marine park legislation. Gary Heilman from Debrett's Seafood in Mooloolaba is concerned. "We would see maybe 10 to 15 per cent per annum of value coming out of the Coral Sea area," he said. "I guess some of that could be relocated into the other areas of the fishery in the east of us, but there would be some loss obviously." Our operation has been geared around fishing in the Coral Sea since about the mid-2000s when we were forced to cut back on catching swordfish out to the east of us here which we had traditionally done. He says fishermen will argue strongly to be fully compensated.

Mr Heilman rejects the argument that the changes are necessary to preserve the environment and the fisheries, but he says he is not angry. "It was made very clear to us a number of years ago that this was something the Government was going to do one way or the other and we should work with the Government proactively to ensure the best outcome," he said. "That's what we've done and the Government has listened to us, I believe."They haven't been as straightforward as we would probably have liked but that's governments."

A group representing mining companies says a major expansion of marine parks could affect resource projects in Queensland. "The devil's

in the detail, it really does depend on the amount of commercial shipping that is actually held back from these parks," he said.

If everyone was hoping for a big payout, the government appears to have attempted to hose down these expectations. The Australian Bureau of Agricultural and Resource Economics and Sciences looked at the impact of the new reserves on coastal communities and businesses in the Hunter. The assessment showed a much smaller financial hit for Port Stephens and Newcastle. Overall potential losses for the Temperate East region, which takes in the Hunter marine reserve, will be just over $500,000. The earlier draft plan had estimated losses of around 1.2 million dollars.

Meanwhile, environmentalists in far north Queensland say the fishing industry has overreacted to the Federal Government's national marine parks. Steve Ryan from the Cairns and Far North Environment Centre says the backlash has been over the top. "The decision announced by the Minister the other day was quite a compromise and I think it's unfortunate that people have to travel hundreds of kilometres before they can actually enjoy a marine national park and that's pretty much a result of the pressure by recreational fishers," he said.

Climate change skepticism in retreat?

- Source: Sara Phillips ABC News, added commentary Mike Jacques

Fewer and fewer scientists now believe that climate change isn't happening and the criticism is now more about doubting the severity of the damage.

> *"The argument (on climate change) is absolute crap. However, the politics of this are tough for us. 80% of people believe climate change is a real and present danger",*
> - Tony Abbott, December 2009

Things have moved on a bit since that statement. American physicist Richard Muller is one of the prominent climate skeptics who has recently changed his mind and announced that he is a "converted skeptic". Muller's criticisms of the data methodology were once highly prominent in skeptic blogs. He now states, "Global warming is real."

For a while Muller still wasn't entirely sure what had caused this warming, but lately he has said "Humans are almost entirely the cause". Bjorn Lomborg is another high-profile climate skeptic who has also changed his mind. He believes climate change is real, but that it won't be the calamity predicted by some.

Blogs are now an even more confusing variety of opinions on the severity of the change but are beginning to de-emphasise an absolute rejection of the science. Most now only think the predictions of global ecosystem collapse are overblown. Few climate skeptics now doubt that humans play a role; fewer still doubt that temperatures are rising. This shift has even seen prominent politicians like Tony Abbott, begin to shy away from his former "absolute crap" position. Even radio shock jock Alan Jones accepts the role of CO^2, but doubts humans are the cause of any problems.

> *"Yeah look I never said it was a myth. I once used some colourful language describing the so-called settled science of climate change but look, climate change is real, humanity does make a contribution to it and we've got to take effective action against it"* - Tony Abbott, July 2011

Wave energy plants coming to a coast near you!

- by Mike Jacques

More than 1000 megawatts of ocean power is being evaluated around Australia. The Southern Ocean, in particular, is one of the world's largest and most consistent wave energy resources. Regions such as Port MacDonnell in South Australia, Portland, Warrnambool and Phillip Island in Victoria, Albany and Geraldton in Western Australia and parts of the Tasmanian and NSW coastlines are optimal sites for wave energy plants.

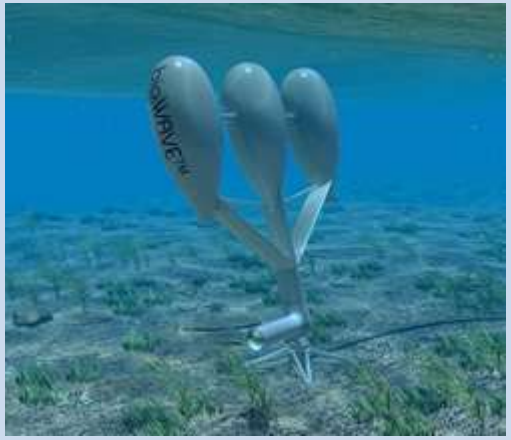
Currently there are two wave powered generation plants operating in Australia, all tiny test projects. Oceanlinx Limited at Port Kembla in NSW has a 0.5 megawatt plant and Carnegie Wave Energy has a 0.1 megawatt plant in Fremantle in WA. AquaGen Technologies have a small development wave energy prototype running on Lorne pier in Victoria. Atlantis Resources operates a 0.15 megawatt plant at San Remo in Victoria that utilises the tide.

Ocean power is a zero-emission electricity source, except for its initial capital inputs. One megawatt hour of marine-derived electricity avoids approximately one tonne of CO2. Internationally, ocean power is still a relatively new technology and most projects are at the prototype or testing phase.

The future success of ocean power in Australia is dependent upon government policies. Renewable energy funding initiatives as well as the national Renewable Energy Target (RET) which aims to ensure that 20 per cent of Australia's electricity supply comes from renewable energy sources by 2020 are important to drive research and development into ocean power technologies.

Port MacDonnell

Oceanlinx plans to build a pilot wave energy plant off Port MacDonnell, south of Mount Gambier. It can only produce enough electricity to power 1,000 households but, "If you could capture the energy that exists in just that coastline off south of Australia from west to east that would be more than sufficient to feed the whole of Australia." [I suspect there will be a few practical difficulties with that]. A second trial in Victoria has also received federal backing.



Oceanlinx wants to install a 20-by-20-metre offshore concrete unit. The power plant will use wave-power technology called CETO, which produces electricity from tethered submerged buoys in the ocean which pump high pressure seawater to shore.

The company was looking to establish a 5MW demonstration plant and a large-scale 50MW demonstration project , the latter about 15% of the size of a conventional large wind farm project, or gas peaking plant.The unit is expected to be connected to the power grid late next year.

"We have also spent obviously a lot of money with respect to third-party consultations ..." he said. He also says community response so far has been mainly positive. "A few who had any concerns - it wasn't because they were not supportive, it was more to do with some of the uncertainties due to the lack of detailed knowledge on what the project entails," he said.

However, the local mayor has complained about a lack of consultation and fears impacts on the local cray fishing industry. The South-Eastern Professional Fishermen's Association says it is concerned about the

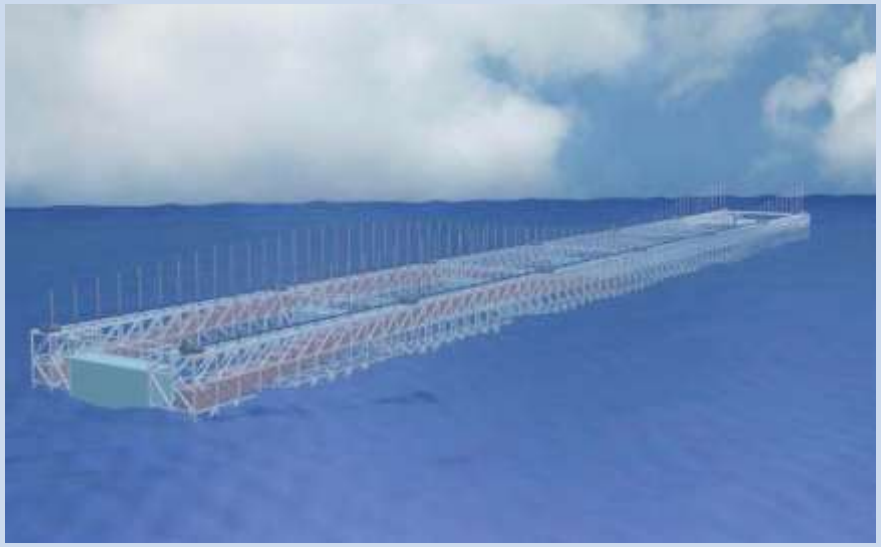
possible impacts. The association's executive officer, Justin Phillips, says it is unclear what type of exclusion zones will be put in place. He says the region is one of the state's most valuable commercial fisheries. "It generates ... around $200 million worth of economic activity for the state, so it's a fishery which is very valuable for South Australia, very valuable for the regions in the Limestone Coast and south-east region," he said.

Elliston

Meanwhile, another company, Wave Rider Energy which uses offshore wave energy converter technology is working on its $5 million plant at Elliston. Heavy steel processor and manufacturer RPG Australia has built the 200-tonne, 110m wide steel structure.

An open steel cage-type system and seven buoyancy pontoons keep the massive structure afloat, while buoys below the surface move up and down as waves pass through. Movement of the buoys then causes the rotation of an axle on top of the Wave Rider which, in turn, powers various generators to produce electrical energy.

The structure will be fitted with sensors and video cameras for Wave Rider Energy to monitor its capabilities for the duration of the 12 months after it is launched. The commissioning was planned for March this year, but there appear to have been no further announcements. The pilot plant was to be moored 800 metres off Locks Well south of Elliston.



Environmental issues

The CSIRO has tried to assess the potential impacts, but they depend a lot upon the type of system and where it is located, and really have to be assessed on a case by case basis. There is a potential impact from transferring waters in the water column with differing nutrient, temperature and chemical composition. This may alter the food web, changing the quantity, size and species of marine organisms. Animals can also be caught in water intakes in some turbine systems. A relatively small amount of CO_2 will be released due to out-gassing from water drawn from the abyss. This has been estimated at about 1 per cent of the CO_2 released from fuel oil combustion. Some systems also have the potential to release ammonia and chlorine. Ammonia is toxic if released after an accident or extreme event. However, considering the current size of the projects, the risks seem small.

Nothing much was said about how things like fouling organisms were going to be controlled and the other chemicals that might be used on-site, during normal operations. There are obvious issues relate to obstructing other water users and the visual impacts. But I'd suggest it is a 'suck it and see' proposition at the moment.

Nature's Fast Food

Seaweed beds are nature's fast food outlets, for the marine animal that can't be bothered chasing down a hard to find meal in the open ocean.

I had an old book in my bookshelf that I thought I understood. It is now only after re-reading Edgar's "Australian Marine Habitats" with better background knowledge, that I'm starting to get new insights into things I am seeing out on the ocean. One thing I've noticed is how much of a smorgasboard of food there is out there for reef dwellers.

Vegetarian feast

Macroalgae (big seaweeds) can produce 2kg of plant material per m^2 of bottom per year, about the same as a paddock or a seagrass meadow. That is about 5 times more productive than inshore plankton. While seagrass is tough, seaweed is pretty easy for many animals to eat whole. It also breaks down more quickly for those animals at the small end of the food chain with little mouths. It's obviously pretty fattening because there may be up to 50,000 of these "mezograzers" on every m^2 of seaweed bed. There can be up to 50 separate species of these little critters on just one plant. These are nature's chubby 'fast food' eaters.

While little shrimp-like things like amphipods can tackle seaweed, not many fish can eat whole seaweed. Those that can (like Luderick or Herring Cale) are so successful that they can make up half of the total weight of fish on reefs in Southern Australia. Luderick have a bacteria-filled second gut, just like a cow, to help it chow down on the seaweed.

Love those shrimp

One of the most common southern Australian reef fish are Purple Wrasse and Blue-throated Wrasse. They mostly get their energy from seaweed indirectly, by eating the small grazing shrimp-like animals that are eating the kelp. It is common at certain times of the year, to see large clouds of mysid shrimps hovering over the kelp. In fact, almost everything Bastard Trumpeter, leatherjackets, handfish and sea dragons will have a go at these little, but very tasty, amphipods, isopods and mysids.

Seaweed snot for dessert

OK so some fish and shrimp-like animals swim up and eat seaweeds. You can even see little holes forming in fronds as they get nibbled away. What you might not know is that seaweeds shed much more food into the water that you can't see. Large amounts of organic material leach from seaweeds and are known as mucilage (basically seaweed snot). Big seaweeds like Giant Kelp also shed the tips of their fronds as tiny particles, as a mechanism to get rid of fouling plants and animals. Up to 25% of the plant is lost as mucilage or as dissolved organic matter. A lot more of the seaweed is lost this way, than by grazing from other animals like

fish or urchins. Although you can't see this with the naked eye, seaweed beds are literally oozing great masses of food into the surrounding water column. Bacteria goes after it all first and 6 grams of bacteria can polish off 100 grams of dissolved weed particles. Other small critters (ciliates, flagellates and amoebas) chew on the bacteria.

Sifting through the scraps

These microscopic organisms are food for other filter feeding animals, like the colourful tunicates and sponges that inhabit the reef. This flood of 'easy' food might partly explain why tunicates are often very common on seaweed beds, while other invertebrate animals usually find it too hard to compete for space with the bigger algal plants.

At Primrose Sands there is a pronounced belt of tunicates or sea squirts out on the sand. The tunicates provide structure for green algae which in turn provides habitat for breeding fish and other small animals. Pyura sea squirts are better adapted than most to survive out on the looser sand. Out there they can feed without too much competition from other filter feeders. They also don't get 'beaten up' by the lashing of big seaweed fronds. As this particular species is a vegetarian, they have most likely found a good spot where the phytoplankton oozing out of the seaweed bed collect thanks to local current eddies.

The Reef Oasis

The productivity of seaweed beds can make them hotspots for biodiversity. So when you hear someone say they are an "open water diver" they are actually a 'temperate seaweed bed' diver, or 'sub-tidal reef' diver. The exciting stuff to look at is mostly found there and divers rarely venture away from this very narrow, and relatively shallow strip of rock hugging the edge of our vast (and relatively barren) continental shelf. These seaweed beds are like a smorgasboard of quick fattening meals in a desert of fairly nutrient-poor surroundings.

Ugly, scary things need love too!

- by Mike Jacques

People get very confused about 'who' or what animals are. This article is for anyone who has felt embarrassment at talking to dogs.

Oh, that's so cute – but why?

As Emma has opened up on the wickedness of dolphins, I thought you might be ready for this article on the way we sometimes fuss around animals. This practice comes with a big word, "anthropomorphizing" -"the assignment of human shape and attributes to gods, animals, etc."

Animals have always been portrayed as like us

Confusing animals and people is as old as religion. Various mythologies talk about animal gods in semi-human form that possess human characteristics such as jealousy, hatred, or love. It is extremely difficult for the average person to picture or discuss an abstract idea like God or religious values without a familiar image. So we have often portray these abstract ideas as another kind of animal-human.

The use of anthropomorphised animals has a long tradition in art and literature too. Frequently they are used to mock our behaviour. Everyone thinks a pig is "greedy", so we can criticise greed by making a pig appear human. For example, George Orwell did this very cleverly with his book "Animal Farm". It is also a common tendency for people to think of non-human objects they struggle to deal with as having human-like characteristics. Ever found yourself swearing at a broken photocopier, or a mobile phone?

Scary animals

We also tend to think of some animal species we struggle with as having as having a human mind, and being 'bad'. Why is a shark killing a seal 'bad', when it is only hungry? Why is carnivorous dolphin seen as gentle when it kills fish [or even other dolphins]?

Some marine life can predate upon humans and can be genuinely scary. This fear can make us worry a lot about the welfare of something 'passive' to humans such as a dolphin, but fail to empathise as much with the plight of a rarer dangerous predator like a shark. Oddly, we can use the same tendencies to cope with this fear of predators, by making a scary thing seem more recognisably human. A Pixar cartoon can make a shark seem friendly if it talks and has a human personality. We know how to deal with a 'mischievous being' like that.

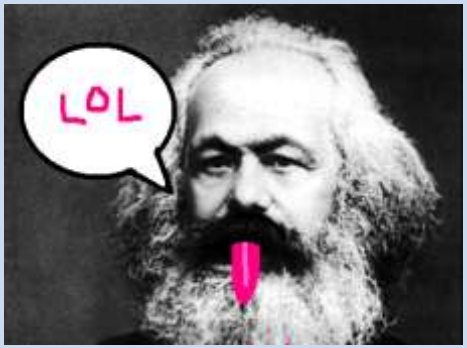
Why do we do it?

Some sociologists think that anthropomorphism could be a relic of a survival instinct. When we began to recognize around the age of four that other peoples' minds are different, we try to figure out what those other thoughts are. We may over-extend this "theory of mind", to try to figure out what an animal is thinking (or to know the animal's "spirit"). We are also deeply social animals and seem to have a need to think that lifeforms are connected intimately to us and that we can have a social relationship with them. The most noticeable anthropomorphisers are pet-lovers, who try to draw animals into a human relationship. Why does a dog need a floral fabric coat, or a kennel with a tile roof and fake chimney?

So, what's the problem?

If the animal really doesn't lend itself to being 'human-like', say a really ugly sea cucumber, we can be blind-sided to its genuine conservation needs. We can also neglect the legitimate survival needs of potentially dangerous animals.

We end up with a hierarchy of marine animals we care about. It's often only the prominent 'cute' animals that get the popular support and research dollars, regardless of how common they might be.



I know some scientists who really despise this way of thinking. We will call them the anthropomorphism Marxists because according to the Soviet Dictionary, it is "infantile". *"… anthropomorphism is today characteristic only of a child's psychology; among adults it is usually a symptom of infantilism."* Thanks Karl, but overall most commentators now think it's pretty harmless or even beneficial. It's certainly an improvement on no empathy for anything. You don't see too many pet-loving mass murderers, do you? (oh, except for Hitler).

Adults do get embarrassed when reminded they are anthropomorphising and chatting to the dog. When you are a kid it's easier, you can watch cartoon animal-humans all day without anyone batting an eyelid. We are wired up to feel a communion with all living things, both other humans and animals.

I think the trick is to be aware you are overdoing it and to remember to switch on your more reasoned understanding when we get to the big issues. That way we can protect sharks, rare poisonous fish and sea cucumbers that look like poo, as well as Minke Whales (which aren't especially rare).

So LOVE SOME POO-LIKE SEA CUCUMBERS TODAY!

Proof that cute baby Whale Sharks are actually evil, sinister net robbers

THE ANTHROPOMORPHISM TEST

[hint- empathetic humans are programmed to fail this test all the time]

Which of these animals would you be most pleased to save from development or hunting?

Alison and Amy tried it and decided to (of course) save the baby seal, even if it was in plague proportions and there were only 200 of the fangtooth lantern fish things left. Queried as to why Alison picked the baby seal, she explained that it looks like a human baby [Alison - I didn't realise Amy was born with so much fur?]

Amy thought that the diver cuddling a sea cucumber still made it look like poo, and the diver is just "weird" for cuddling it.

FEATURE(S!) - SA

Pipeline massages Adelaide beaches

- by Mike Jacques

Is it just me, or does the extreme efforts to keep sand on Adelaide's beaches seem a bit Knut like, in trying to hold back the forces of longshore drift and rising sea levels? The beach replenishment program is currently in the news as a sand pipeline is now being laid along the coast to move sand 7 km from Glenelg south to Kingston Park.

The northern drift of sand has been moving sand along the Gulf for thousands of years. "If we didn't recycle the sand, we'd be down to rock and clay on many sections of this coast within about 10 years". For three months each year in summer, four pumping stations will move 1,000 cubic metres of sand daily, replacing the sand trucks that would have otherwise redistributed the sand. All the pump stations, except Glenelg, will be underground. Work on the pipeline is on due for completion before the end of the year.

According to a Government site, Adelaide's Living Beaches Program is a strategy for keeping sand on Adelaide's beaches and reducing the amount of sand carting. In the long term, the strategy is expected to reduce the cost of managing Adelaide's coastline by about 20% [and the big carbon footprint from this massive trucking effort].

For more than 30 years, beaches affected by erosion have been replenished by carting sand in trucks from areas in the metropolitan beach system where it builds up. However, the cost of managing the beaches continues to grow because of dwindling local sand sources, seagrass loss, rising sea levels, and the need to bypass sand around the harbours at Glenelg and West Beach.

The existing program of beach replenishment places 160,000 cubic metres of sand each year on southern and central beaches. This maintains the sandy foreshore, builds up dune buffers, and protects coastal infrastructure. Coarser, more stable sand is added to the system from external sources such as Mount Compass. This tackles the ongoing loss of dune volume and beach width caused by sea level rise and other factors. Structures such as groynes and offshore breakwaters are being used in a few critical locations to slow the northerly drift of sand.

Yeah, but why is a system that was working fine for thousands of years for free, no longer working?

Sand is always moving northward along the Adelaide coastline – being pushed along by waves and, to a lesser extent, wind. This 'river of sand' shifts about 70 000 m^3 of sand northwards along the metropolitan coast every year, most of which accumulates at Semaphore and North Haven.

Unfortunately, the natural sand supply to the southern end of the metropolitan coast is only about 10 000 m^3 per year. Without some form of artificial replenishment, the sand on the southern beaches would drift away.

An estimated 2700 Ha (34%) of seagrass meadows along the Adelaide coast have died since 1950. Poor water quality resulting from stormwater runoff and effluent disposal has most likely been the cause. Sand previously trapped on the seabed has been released and washed ashore. The seabed has got about a metre deeper as a result. This has increased the wave energy reaching the shore in storms. More sand has been liberated to also migrate northwards with longshore drift. This effect will also be complicated by rising sea levels.

Summary

It all sounds all lot more complicated than just that, and if you aware of more information about the causes of this issue, I'd be happy to hear. If you don't have any further information, I'd be happy to suggest that there is more study done into the hydrodynamics of the Gulf beaches before millions are spend trying to fix a problem that probably shouldn't have happened in a perfect world. Perhaps some more of that money and brain power needs to go into broader remediation works.

*[If you would like to know more about the ecology of seagrasses in the Gulf, see Peter Day's article in the August-September edition of Marine Life **HERE**].*

More about less development at Pt Lowly

All the developments planned for the Pt Lowly cuttlefish aggregation area seem to be due for a rethink, but it is economic factors rather than the environment impacts that have caused a change in plans. BHP shocked the mining industry by shelving its Olympic Dam expansion, with an expected softening in commodity prices meaning that the price tag couldn't be justified. This has put on hold the desalination plant that was to discharge return water straight into the cuttlefish breeding area. BHP's decision is just an interim one. They may resume activities in the next few years. This has had a knock on effect to other proponents.

Indian company Deepak Fertilisers had also hoped to build a $350 million ammonium nitrate plant at Port Bonython. The company cited a range of reasons for deciding to move the project, including BHP Billiton's decision to delay any expansion of the Olympic Dam mine. SA Manufacturing Minister Tom Koutsantonis said "They are now looking for other pieces of land closer to other mining jurisdictions, like for example the Eyre Peninsula or the Braemar Alliance near Port Pirie."

For the present, the new jetty still seems to be going ahead with the Spencer Gulf Port Link Consortium being issued with guidelines for an Environmental Impact Statement on the project. The consortium plan to spend $600-$700 million on the port facility. It includes an assessment of the breeding areas for the giant Australian cuttlefish. The full EIS report will now take a further 12-18 months to complete.

"Once the 50 million tonne per year port comes along, we are going to see nearly 300-500 ships per year. Do we want to do that to one of our best marine regions?" environmentalist Sid Wilson said.
The iron ore storage facilities will consist of,

- Ore unloading facilities
- A new rail line connecting the storage facility to the existing Port Augusta/Whyalla rail line.
- Ancillary amenities and infrastructure
- A new jetty structure (approximately 3km long, accessing 20m depth of water)
- Ship loading wharves (for Cape size vessels that can carry up to 180,000 tonnes)
- Conveying and ship loader equipment to export 50MT of ore per annum

There was already agreement to avoid any construction work during the cuttlefish breeding season.

The SA Government said a deep sea port would support the mining industry and be able to accommodate 180,000-tonne bulk iron ore carriers. It was given major project status last March. Construction would take about three years, if approval for the project were given, and that it would be ready to handle exports in 4-5 years. The Port Bonython diesel fuels storage facility has been approved and also still seems to be going ahead.

The exisitng Santos gas fractionation plant at Point Lowly can't stay out of the news, due to an ongoing oil contamination issue that first surfaced in 2010. Santos has built a trench around the plant to stop groundwater from being contaminated. It has also been remediating groundwater to extract any oil. A company spokesman says it has treated about 16,000 cubic metres of groundwater but recovered fewer than nine cubic metres of oil. A cracked drain taken out of service at the plant in 2008 is believed to be the source of the leak. It isn't clear that any oil has leaked into the ocean, but the Greens have implied that there may have been an impact on cuttlefish populations.

Marine Park storm in SA

The fishing industry have put in a pitch for more compensation by alleging that proposed South Australian marine parks could have a big impact on rock lobster fishing. The Rock Lobster industry has commissioned its own report on the likely economic impact of restricted zones. The report estimated up to double the impact ($22M).
Another report was released last month by the South Australian Research and Development Institute (SARDI) and was a bit more restrained at $11M. Production would be cut by just 2 per cent.
A newly formed action group says small businesses around the top of Gulf St Vincent will be severely affected unless proposed no-take zones in Marine Park 14 are changed. The group's chairman and Port Wakefield fisherman, Bart Butson, says many small businesses in the region are reliant on fishing-related tourism, which would go.
The Kangaroo Island Rock Lobster Association says five local fishing boats could go out of business. They said that Kangaroo Island's economy would lose $6.3 million annually. SA Environment Minister Paul Caica said the Government was aware proposed marine parks would have a bigger impact for Kangaroo Island than most other regions.
The Opposition wasn't slow to jump on the bandwagon, saying that the South Australian Government has unfairly raised the hopes of fishing crews in its use of a report on the likely economic impact of marine parks. Production will be cut by more than claimed. "They were elected in 2002 with a mandate to implement marine parks and here we are a decade later, it's a complete debacle".

FEATURE - WA

The Montebello Islands: *The other kind of nuclear wilderness*

- by Mike Jacques

To quote Oppenheimer "behold man, destroyer of worlds"
To quote "Dr Strangelove"... Yiiiiii Haaaawww!

The amazing thing about the Montebello Islands is that they are a hotspot of biodiversity, despite having about the worst possible history of human contact. The islands are notorious as a nuclear test site. Three British nuclear weapons tests were carried out here in 1952 and 1956.

The Monte Bello Islands are 174 small islands lying 130 kilometres off the Pilbara coast of WA. The climate is hot and arid with an annual average rainfall of about 320 mm.

The Montebello Islands Marine Park was created in December 2004. Approximately half of the marine park has been set aside in sanctuary (no take) zones. There are no visitor facilities on the islands, but fishing and diving charters from Dampier, Onslow, Karratha and Exmouth are becoming increasingly popular during the winter.

Plants and animals

The largest islands, Hermite (1022 ha) and Trimouille (522 ha) consist of limestone rock, *Triodia* hummock grassland, shrubs and sand. Patches of mangroves grow in sheltered bays and channels. The mangroves are scientifically very important, as it is unusual to find mangroves growing within lagoons on oceanic islands. The species that inhabit them are particularly vulnerable.

The tropical, relatively-low-salinity, narrow Leeuwin Current flows south along the WA coast from the North West Shelf to the Great Australian Bight. The waters surrounding the Montebello are considered to be the headwaters of the Leeuwin Current, which suggests that the marine park. A 1993 WA Museum survey recorded 456 fish species.

Five of the six species of marine turtles found in WA

inhabit the marine park and adjacent areas. WA's hawksbill turtle population is the only large population of the species remaining in the Indian Ocean, while flatback turtles only breed in Australia. A large population of green turtles nest in the park, and the area is at the northernmost breeding limit for loggerheads in WA. Several species of whales are found in the area. Humpback whales pass through the park during their annual migration north to the warm tropical waters off the Pilbara and Kimberley coasts in June and July to give birth and suckle their young.

Dugongs are frequently seen in the shallow, warm waters near the Montebello Islands, though not in the large concentrations seen in Exmouth Gulf or Shark Bay. A 2001 survey of numbers the Pilbara dugong population found approximately 2000 individuals. The seagrass beds around the Lowendal Islands are thought to provide a valuable food source for these animals.

The islands have been identified by BirdLife International as an Important Bird Area (IBA) because they support over 1% of the world populations of Fairy and Roseate Terns, and of Sooty Oystercatchers. After considerable effort, DEC successfully eradicated feral cats from the Montebello Islands in 2001 [*what! nuking them didn't work!*]

History

The natural resources of the marine park have exploited since whalers arrived in the late 1800s. Commercial turtle harvesting occurred from the late 1870s until 1973. The islands were economically significant for pearl fishing from the end of the nineteenth century until the outbreak of the Second World War. Cultured pearl farming in the Montebello Islands began in 1902 and continues today.

On 15 September 1952, the plutonium core for the first British nuclear device, code named Hurricane, left England with the frigate HMS *Plym*, three landing craft and 1500 men. The test, called Operation Hurricane, saw a 25-kiloton bomb placed inside the hull of the *Plym*, anchored in 40 feet of water, 400 yards off Trimouille Island. The explosion left a saucer-shaped crater—20 feet deep and 1,000 feet across—on the sea floor. This was the first British nuclear test. The device tested was a plutonium implosion bomb similar to the Hiroshima bomb. The test was devised to investigate the effects of a ship-smuggled bomb (a threat of great concern to the British at the time). The ship was mostly vaporized by the explosion, except for scattered fragments of hot metal that set fire to the spinifex scrub covering Trimouille.

There were two further tests in 1956. Operation Mosaic in 1956 saw a 15-kiloton device exploded on Trimouille Island. This was the first British test using fusion fuel (as a physics experiment, not a weapon test). The "fusion yield was negligible", well for a nuclear weapon,

> *"At the end of the countdown, there was a blinding electric blue light, of such an intensity I had not seen before or ever since. I pressed my hands hard to my eyes, then, realised my hands were covering my eyes. This terrific light power, or rays, were actually passing through the tarpaulin, through the towel, and through my head and body, for what seemed ten to twelve seconds, it may have been longer. After that, the pressure wave, which gave a feeling such as when one is*

deep underwater. This was then followed by a sort of vacuum suction wave, to give a feeling of one's whole body billowing out like a balloon." - Observer, Mosaic G1 at Monte Bello, 16th May 1956

The second of these on Alpha Island, codenamed G2, was the largest device ever detonated in Australia, with a yield of 98 kt. It was a fusion-boosted weapon system developed to keep pace with the Americans and Soviets. The cloud from the explosion rose only to 15,000 feet due to the very dry air. Even then, Queensland towns such as Mount Isa, Julia Creek, Longreach and Rockhampton were contaminated by the fallout from the test. The test yield broke an assurance made personally by UK PM Anthony Eden to PM Robert Menzies that the yield would not exceed 2.5 time that of Hurricane (thus about 62 Kt), the true yield was concealed until 1984.

Remains of the associated military activities including scrap metal, disused roads and the foundations of former British military operational headquarters can still be found on some islands. Radiation effects on your health are cumulative over your life time. Limit visits to ground zero sites (the three test sites Alpha and Trimouille Islands and off the coast of Main beach) to one hour per day. Do not handle or remove any objects as they may be radioactive. "Regular monitoring of radiation levels shows that, with the exception of ground zero sites (the exact places the bombs were detonated) radiation has dropped below levels considered dangerous to public health." [*meaning ground zero is still toxic*].

The hatched areas are still radioactive…!!!

If that doesn't deter you there are lots more places that we have nearly blown to hell that you can visit, try the Bureau of Atomic tourism http://www.atomictourist.com

HERITAGE FEATURE – WA

The *Little Dove* Returns: A slice of maritime history

- by Mick Lee

The Spice Trades

It's 1606 and the Dutch, being the most successful European shipping nation of the time, is looking to expand its ventures further afield. The Dutch East India Company has already built a stronghold in Banten, West Java and is eyeing off greater prizes.

These were violent times focused solely on building empires and creating wealth from the lucrative spice trades between the East and the markets in Europe. Prior to the 1600's the spice trade was dominated by the Portuguese who were under the Spanish crown at the time, which allowed safety and ease of control in the spice trade. At the same time the Spanish were at war with the Dutch. Not wanting to get left behind and needing money to fund the war and establish themselves as a maritime powerhouse, the Dutch entered the spice trade market. Obtaining the 'secret' Portuguese plans for world domination, the Dutch set forth for East Indies (now Indonesia).

In 1600, assisted by local Muslim Hituese, the Dutch attacked and gained control of the Portugese base on Ambon Island. Forming an alliance with the locals was a strategy of the Dutch that enabled them to gain control of other ports and bases across the East Indies. In 1603 the Dutch were established on Banten and later in Jayakarta (later called Batavia and now known as Jakarta). This was all under the control of what was essentially the first large super-company - the Dutch East India Company (Vereenigde Oost-Indische Compagnie, VOC).

Growth and expansion throughout the region was rapid, not just to find more lucrative markets, but also to keep competitors such as the Spanish and English at bay. The VOC was growing into an economic power in the region and holding large amounts of political power.

The Duyfken ('Little Dove')

Built around 1595, The *Duyfken* was a small vessel (approx. 24 metres and 140 tonnes) that was designed to be light and fast. More than likely it was intended to be used a messenger boat carrying small valuable cargoes and the odd privateering role.

Selected as scout vessel whilst captained by Willem Cornelisz Schouten and sailing with the 'Moluccan Fleet', in 1601 the *Duyfken* discovered and named the Cape Horn named after the Dutch city Hoorn. On that same voyage on Christmas day the fleet reached Bantam (Banten), only to have their way blocked by the Portuguese. Ensuing battles raged until on New Year's Day the Portuguese were driven away. thus ending their dominance on in the East Indies.

Over the next few years the *Duykken* was used as an escort vessel for trips from the East Indies to its Dutch home ports and back again. Then in 1606, captained by Willem Janszoon and in search of new and potentially rich spice markets and the promised land of Nova Guinea, the *Duyfken* encountered and charted the shoreline of Cape York. This was the first recoded encounter and charting of Australia by Europeans. During the charting, *Duyfken* made landfall at the Penefather River in the Gulf of Carpentaria in the first authenticated landing on Australian soil by Europeans. This was also the first recorded meeting between indigenous Australians and Europeans.

In total, the *Duyfken charted* 350 kilometres of the cape coast before sailing north towards the Torres Strait. However, the crew was by now depleted from time at sea and skirmishes with locals, and the vessel was forced to return to Banten. At the time the voyage was declared as unsuccessful because it had not found gold or rich spices, and because it was thought they had discovered Nova Guinea. In fact, they had discovered the Gulf of Carpentaria and the oldest living culture on earth. All of this occurred 164 years before Captain James Cook filled in the gaps in the map.

In 1608, *Duyfken* was sent with other larger vessels to capture the Spanish fortress on Makian Island. After engaging in a five hour battle the Dutch fleet retreated. *Duyfken* was damaged in this battle, and a few months later she was beached on a reef for repairs. During this beaching her bottom was damaged further and judged unrepairable. Not exactly a glamorous or exciting end to a little ship that started the discovery and further exploration of Australia.

Below is a Timeline of Australian Discovery (when land was discovered but not settled):

- **C. 50,000** Aboriginal People arrive in Australia via the seas separating Australia from SE Asia.
- **1595** Cornelius Houtman leads the first Dutch fleet to SE Asia
- **1606** Willem Janszoon sails *Duyfken* to Australia.
- **1616** Dirk Hartog lands on the West Australian coast at Shark Bay
- **1629** Dutch VOC vessel *Batatvia* is wrecked on the Abrolhos Islands Western Australia
- **1642** Abel Tasman voyage of discovery to Tasmania and New Zealand
- **1666** Macassan ships flee to Australia after Battle of Buton, returning with trepan and beginning Australia's first export industry
- **1697** Willem de Vlamingh explores the West Coast of Australia including Rottnest Island and the Swan River
- **1770** Lt James Cook and the HM Bark Endeavour explores Australia's East Coast and New Zealand

The* Duyfken *Replica

In 1993, a group of Fremantle businesses and like-minded people got together to build a replica of the little Dutch ship that could. The aim was to tell the history of Australia and counter the popular beliefs that Dirk Hartog was the first European to land on Australia and that Captain Cook 'discovered' Australia.

The replica is built as close to specification as possible (with added technology for safety) and was ready for its first water test in July 1999. In 2000, the *Duyfken* set off on a reenactment of its historical trip of discovery along Australia but also through the original spice route.

Since then, the *Duyfken* has been rediscovering its old routes and recently returned back to Fremantle. This voyage involved sailing back to the original *Duyfken's* home port of Rotterdam and back again.
The *Duyfken* is now moored in Fremantle and members of the public can view and explore a small part of the rich history of Australia. For more details check HERE.

HERITAGE FEATURE – NT

The Cats of Darwin Harbour

- by Mike Jacques

During WWII, at East Arm the RAAF operated a seaplane base This base was home to 20 Sqn RAAF who performed tireless patrol work and night raids during the war. The US Navy's PatWing10 also called Darwin home. This important work left several Catalina flying boats sunk in the harbor.

The American planes were lost at their moorings near Shell Island in 15M of water, during the first Japanese bombing raid of February 1942. The RAAF machines were mostly lost to accidents in 1945, when the worn out old aircraft were at the end of their life.

These wrecks are the only located physical evidence of the role played by Catalina squadrons in defending the Territory. All the remains of the Quarantine Island Catalina Base that serviced them have now disappeared.

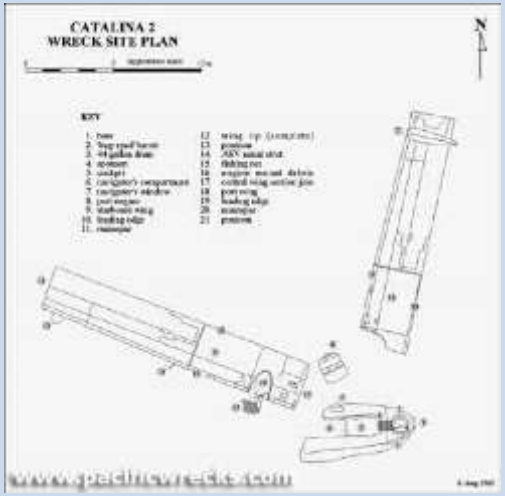
(Cat 1) Catalina A24-1

This was the first Catalina taken on service in the RAAF. She was originally built for a French order, but was flown out to Australia after France fell. She was assigned to 11 Squadron on March 19, 1942, then to 20 Squadron on August 14, 1941. She went to Canada during November 1941 and then returned to Australia. After a heavy workout she was assigned to a training unit,

3OTU based at Rathmines NSW. On August 281945, she took off from Rathmines and landed at Darwin on a journey to Singapore to evacuate liberated prisoners of war. A24-1 was selected for the trip to Singapore because it had the most robust hull out of the remaining old Catalinas. It nevertheless needed some rivet replacement before the trip. On August 30, 1945 it crashed during take off and was a total loss, but the crew was uninjured.

The wreckage is exposed at low tide on a muddy bank of the East Arm just around from the new LNG plant. Pieces of her can still be seen on the mud about 3km from the boat ramp at East Arm, surrounded by croc tracks. Her pilot at the time was W /Cdr William Keith Bolitho, a famous WWII aviator.

(Cat 2) Catalina A24-69



This was the first Amphibian (seaplane with wheels) taken on charge by RAAF, delivered to Lake Boga December 17, 1943. It was assigned to 11 Squadron on February 18, 1944. On December 17, 1945, this PBY Catalina was at a mooring. Two crew members were detailed to sleep on the aircraft overnight. Smoke was noticed coming from the Engineer's compartment. Sgt Pierson directed a CO2 fire extinguisher at the seat of the fire. They were unable to extinguish the fire. Being almost overcome by smoke and gas, Sgt Pierson gave the warning to abandon the aircraft. A dinghy was thrown overboard and both crew members jumped into the water. By the time the crash boat picked them up, the fire had got a hold on the mainplane and the fabric was burning furiously.

This aircraft had originally been delivered to the RAAF in December 1943. The Catalina was on transport duties at the time and was due to leave for Cairns at first light the next morning.

Sometimes referred to as "Catalina 2". Divers brought up the contractor's plate, indicating that the aircraft was a PBY-5A model. There was only one model of that type lost in Darwin Harbor. The wreck site also has a bug-eye turret.

Water visibility is poor in other than exceptional conditions. In 1994, when news came out that the wreck site was threatened by the development of a new wharf, a 'free-for-all' took place. Navy Reserves raised an engine and a number of smaller artefacts. Then a local dive raised a propeller. None of the artefacts have had professional conservation treatment, which has resulted in information loss about the wreck site. The salvors also made quite a mess of the wreck in their pursuit of relics.

(Cat3) Catalina A24-206

RAAF PB2B-1 Catalina, A24-206 (original Serial No. USN 44217, RAF JX611), was destroyed on 20 June 1945 after an explosion of some depth charges at East Arm. This new aircraft had been delivered to the RAAF in February 1945.

USN Catalinas 4,5, & 6

The three other seaplanes are US Navy seaplanes. Patrol Wing 10 (PatWing 10) was established at Naval Station Cavite in the Philippines in December 1940. After the Japanese attack on Pearl Harbor, PatWing 10 retreated to Ambon, then Soerabaja and then Darwin where five aircraft operated from a seaplane tender, the USS "William B. Preston". On 19th February, the William B. Preston was moored in East Arm with her planes moored nearby in a line. When the alarm was raised the tender had time to raise steam and escape although damaged by Japanese bombs. The three seaplanes were strafed and sunk by Japanese Zero fighters.

Three men were on board, servicing one of the machines: Ed Aeschilman, Tom Anderson and Herb Casey. They dived overboard when bullets from strafing Zeros riddled their Catalina. They escaped, but the aircraft burned and sank.

USN Cat 4 - #41 (Ex Y41 Netherlands)

This wreck (previously known as 'Catalina 4') is an ex-Royal Netherlands Air Force Catalina. Apparently, the Dutch Catalinas had

metric gauges and instruments and an odd propeller, which helped to identify the wreck.

Cat 5
Examination of the aircraft's propeller assembly and engine features indicate that the wreck is a PBY-4 Catalina variant. It's one of two PBY-4 type wrecks, but outside East Arm there are no flying examples, museum exhibits, or other relics exist of this variant. The United States Navy commissioned the production of 33 PBY-4s in 1937. It is not certain which of the wrecks is which, but they were numberd PBY Catalina #4 and #8.

Cat 6
Depth 18m. This was the elusive 'missing' PBY-4 Catalina not found until a 2008 Inpex survey.

Preservation

Five of the wrecks were nominated to the Heritage Advisory Council in 1998 and are still awaiting a decision. A sixth PBY Catalina was discovered in 2008 by INPEX as part of its remote sensing survey of the seabed. As pressure for development of the harbour increases the fate of historic relics and wrecks becomes more uncertain. The Heritage Council says "Destruction of the wrecks could well be the result of the rapid development of Darwin Harbour. INPEX will need to dredge the harbour and blow up a section of reef in order to bring LNG tankers in and out of the harbour to Blayden point. The best outcome would be that the wrecks are given heritage listing, that an exclusion zone is placed around them, and a management plan put in place."

Latitude and Longitude GPS coordinates (below)

Site Name	Latitude	Longitude	Depth (m)
A24-1	12° 31.099'	130° 55.751'	2.5
Catalina 2	12° 29.750'	130° 53.812'	10
Catalina 3	12° 29.820'	130° 54.410'	12
Catalina 4	12° 30.710'	130° 53.823'	16
Catalina 5	12° 30.620'	130° 54.170'	14

Breaking news
Japanese gas giant Inpex says it has begun dredging in Darwin Harbour. The company will dredge about 15 million cubic metres of soil to create a shipping channel so gas tankers can access a processing plant being built at Blaydin Point. Inpex says dredging will take place in two stages, with the intensive phase beginning in November. The effect on the Catalina wrecks is unknown, but they could be affected by sediments and cutting work passes very close to the wrecks.

Back Issues

We have been gathering together a lot of information and stories since November 2009, so if you are new and interested, please log on our back issues page which has been generously hosted by the Tasmanian University Dive Club, http://www.tudc.org.au/news/marinelife.php