

MARINE *Life*

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Marine Life magazine

Our Goal

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

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Cover Photo; nudibranchs laying eggs – Emma Flukes

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NATIONAL News Roundup

Beach-nesting birds appeal

from Fiona Blandford, Branch Liaison Officer, BLA



BirdLife Australia is launching a crisis appeal for the Beach-nesting Birds program. We have enlisted the support of writer and performer John Clarke to front the appeal, and will be promoting it through local media and directly to all volunteers working to help the program.

The program organisers would appreciate any help you can give to spread the word and raise much-needed funds for this at-risk program. The appeal's media release follows, with a supporting map. A flyer advertising the appeal is reproduced at the back of *Yellow Throat*. Writer and performer John Clarke warns that birds such as the Hooded Plover are at risk if the beach-nesting bird conservation program runs out of funds.

The Hooded Plover raises its family on busy beaches next to sunbathers, fishermen and dog-walkers and they need all the help they can get. 'I've spoken to the Hooded Plovers who nest on the beach near us,' Clarke says. 'They're very good about it and they never complain. They say they've got their food and habitat organised, but it's pretty clear

they can't fund their own survival. 'This is where we come in.' BirdLife Australia is urgently fundraising to keep its highly successful beach-nesting birds program going.

The program trains volunteers to monitor birds and erect signs, fences and nest shelters — and it's working. The chance of successfully raising Hoodie chicks has improved from two per cent to 55 per cent. "You can see the results by walking along the beach," adds Clarke, an avid birdwatcher and conservationist. "In my own community, Hoodies are returning to beaches where they have been locally extinct for over 10 years."



Learn how to donate and protect vulnerable beachnesting birds from disturbance by people, their dogs, horses and vehicles at savethebirds.org.au



Antarctic & Southern Ocean News

Southern Ocean Marine Park proposal stalled?



For a while now scientists and environmentalists have been pushing for an MPA in the East Antarctic. Recently Environment Minister, Mark Butler, got excited about this “significant undertaking”, describing the areas as representing “...features

as diverse as deep, underwater canyons to nursery areas for krill; from unique mollusc populations to foraging areas for penguins and marine mammals”.

The enthusiasm culminated in the idea being put on the agenda of three-day talks among 24 nations at the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR). This body was established 31 years ago by a treaty that tasked it with overseeing conservation and sustainable exploitation of the Southern Ocean. A Special Meeting in Germany was convened in July for the sole purpose of considering the MPA proposals.

An agreement would have protected nearly four million square kilometres of ocean near Antarctica, with multiple-use zones designed to protect animal species and the ecosystems on which they rely. It

would have more than doubled the area of the world’s declared ocean sanctuaries. The Minister enthused, “The MPA also includes scientific reference areas where we can measure long-term changes and natural variability - essential pieces of information to ensure the conservation of key features and sustainability of fishing in the region.

Australia, New Zealand, the E.U., and the U.S.A. were in favour. Maybe the support of the USA had an unintended consequence. Suddenly, the Russian representative questioned the legal right of the meeting to declare such a haven. Previously, Russia was instrumental in organising the talks. The fact that the Russian government holds lucrative fishing licences in the area may also be important. WWF Australia marine policy manager Paul Gamblin said it was unclear why Russia rejected the proposals, which still allow for some fishing in the areas. Then some of the disappointed players got into Russia-bashing. The Antarctic Ocean Alliance said everyone at the meeting came to negotiate in good faith “except Russia”.

New Zealand foreign minister Murray McCully expressed “deep disappointment” at the talks’ failure but said the Ross Sea proposal would not be abandoned. The leader of the Australian delegation, Dr Tony Fleming, said that progress was made at the talks and that Australia was hopeful of achieving consensus before the next CCAMLR meeting in Hobart in October. “Between now and the next CCAMLR meeting we will continue to work hard with all CCAMLR nations to progress the East Antarctic proposal and address any outstanding concerns in order to reach agreement,” he said.

Successful Antarctic blue whale voyage

by Mike Jacques

March saw the end of a successful voyage to the Southern Ocean trip to estimate the abundance, distribution and behaviour of blue whales.



Blue whales are very rarely seen in the Southern Ocean but are more easily heard. The 18-strong science team were based on a mother ship, but worked from small boats in freezing Antarctic conditions to carry out the work. They deployed passive acoustic sonobuoys west of the Ross Sea area. The audio devices were developed originally by the navy for detecting ships and submarines. The device is about the size of a small household fire extinguisher and allows the ship to listen in and move towards any blue whale songs. They discovered that the Antarctic blue whales recorded off the coast of New Zealand have different calls from their Southern Ocean cousins.

It wasn't just the blue whales making noise in the ocean. "We heard fin whales, humpback whales, sperm whales and killer whales." said Dr Miller. By tracking the blue whale sounds scientists were able to,

- collect 626 hours of acoustic recordings.
- identify 57 individual Antarctic blue whales, plus 11 pygmy blue whales.
- Take 23 Antarctic blue whale biopsy samples.
- Place satellite tags on 2 Antarctic blue whales.

The Antarctic Blue Whales Project is a flagship program of the international Southern Ocean Research Partnership involving ten countries – Argentina, Australia, Brazil, Chile, France, Germany, New Zealand, Norway, South Africa and the United States.





NT News

NT again says no to seabed mining

The NT government isn't a big fan of seabed mining, no surprises really in a community crazy about recreational fishing with high levels of political sensitivity about traditional Aboriginal sea country rights.

This June, the N.T. government moved to prevent seabed exploration around Groote Eylandt, some of the healthiest tropical seas in the world. The Anindilyakwa Land Council had very firmly opposed seabed mining. The decision also got a big tick from environmental groups. "Open cut strip mining of the Territory's seabed would devastate the feeding grounds on which our fish, turtles, dolphins and dugongs depend. This is why today's announcement is so significant".

In 2012, nearshore waters off popular fishing spots like Fog and Anson Bays, and in northern Arnhem Land around Howard and Elcho Islands were also proposed for seabed mining exploration. The Territory Government introduced a 3 year moratorium on seabed mining and exploration, pending a review by the Environmental Protection Agency. The interim report was released in November 2012 and recommended further research be conducted given the "many unknown problems likely to be encountered in securing sound environmental management and effective impact mitigation strategies".

Environmental groups want more, "Now they must permanently ban seabed mining from all Territory waters so popular spots like Fog Bay near the Finniss River, and northern Arnhem Land are safe," said Daisy Barham from the Australian Marine Conservation Society in Darwin. "Seabed mining is risky business. Shifting ocean currents, sedimentation and disposal of waste materials combine to make mining minerals from the seabed incredibly hazardous".



SA News

Plants may be to blame for marine deaths



A microscopic plant could be responsible for the spate of mysterious marine deaths in South Australia.

Thousands of dead fish washed up on Adelaide's southern beaches over the past month, along with penguins and dolphins. Professor Chari Pattiaratchi

from the University of Western Australia believes the event was caused by a poisonous microscopic plant called a dinoflagellate.

They're invisible to the naked eye and can bloom during unusually warm conditions. Some are exotic species introduced by ballast water from ships but the original of the offending bug isn't known for sure.

South Australian waters in recent weeks were up to five degrees warmer than average, but that alone would not trigger a bloom that would affect fish and dolphins on this scale. Five years ago, South Australia had a heat wave with a rise of three degrees in ocean temperatures – but that didn't result in mass marine deaths.

The Government says so far water sampled have come up clean, and it is still waiting on post mortem results from the fish and dolphins.



Queensland News

Reef 'under attack'

The US Navy is planning to recover four unarmed bombs it dropped in the Great Barrier Reef Marine Park and said the chance of them exploding was extremely remote.



The four bombs - two inert and two high explosive but unarmed - were dropped from a pair of US Harrier jets on Tuesday.

The jets were supposed to have dropped the bombs on a range at Townshend Island, north of Rockhampton, but were told the range was not clear. According to the US military it was trying to avoid errant boats that had strayed into the range, "There were civilian boats right below them." "Due to low fuel and inability to land with the amount of ordnance they were carrying, the on-scene commander determined it was necessary to designate an emergency jettison area for the ordnance," US Navy spokesman Commander William Marks said.

Each Harrier jet dropped two 227-kilo bombs: one BDU 45 and one High Explosive GBU 12. The BDU 45s are inert and the GBU 12s were unarmed when released, so none exploded.

They are lying under 60 metres of water, about 100 kilometres offshore and about 16 nautical miles south of Bell Cay in the Great Barrier Reef Marine Park. Each bomb was jettisoned in a "safe, unarmed state and did not explode". The Australian Defence Force said the bombs posed "minimal risk or threat to the public, the marine environment or civilian shipping transiting the reef area". "The incident is being investigated by the US and findings will be provided to the GBR Marine Park Authority so that the way ahead can be mutually agreed," a spokesman said.

But protesters expressed horror at the bombing of the World Heritage-listed reef. "How can they protect the environment and bomb the reef at the same time? Get real," said Graeme Dunstan, an environmental campaigner who opposes the joint Australian-US military exercise "Talisman Sabre".

The Great Barrier Reef Marine Park Authority said it would work with the defence force to locate the bombs and ensure they were recovered. Authority spokesman Bruce Elliot says the devices are considered low risk. He said two of the bombs did not contain any explosives. The other two were loaded with explosives but weren't armed when they were dropped.



In my not so humble opinion, I think the main protesters confused their environmental concerns with their political concerns and missed the big issues. As much as some of us might not like international war games on our doorstep, four inert pieces of steel aren't any kind of threat to the GBR. Even if they did explode it wouldn't be the kind of damage caused by even a small bleaching event.

Inshore sediments and climate change are the things that should be the focus of our concern.

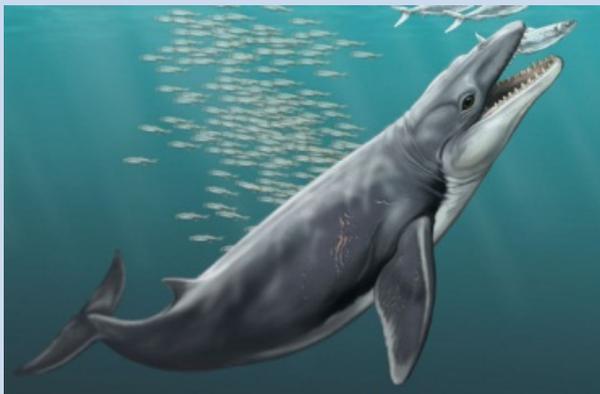


Victorian whale fossil unlocks the past

by Mike Jacques



A teenaged surfer named Staumn Hunder noticed the brown fossils on a boulder while he was surfing at Jan Juc near Torquay. He called his father and they transported the boulder to Monash University. The fossil was identified as a 25-million-year-old baleen whale. The name *Janjucetus hunderi*, honours both the township and the discoverer.



Janjucetus was a relatively small species and was probably 3m in length. An early ancestor of the blue whale, *Janjucetus hunderi* hoovered up its prey rather than using baleen plates. It didn't have a jaw flexible enough to

gulp in tons of seawater and instead went after fish and squid, sucking them up like a vacuum cleaner. The find now leads scientists to think that baleen plates evolved in whales a lot later than previously thought.

The suction style of feeding is still used by many marine mammals, including dolphins and seals.

A mystery remains as to how and why baleen whales shifted from suction-feeding to filter-feeding. "That's where the fossil trail goes cold...". One possibility, he says, is that early baleen whales had to start suction feeding from the sea floor, drawing up mud and sediment. In that case they started to evolve to filter out prey from the slurry. In July, 2009 a group of local surfers from the Bells Beach Surfing Reserve Advisory Committee discovered another fossil bone from the same species at Bells Beach in a section of recently eroded cliff. The whale fossil named "Charles" is now housed at Surf World.

The Torquay area is getting a reputation as a hotspot for unique fossils and a low tide walk near Bird Rock will reveal a platform laced with fossil bivalves, bryozoans and gastropods and echinoids that once lived in this area of shallow prehistoric seas. Please look but don't touch.





TASSIE News (that 'other' island)

Gull counting June 2013



Responding to a recent Birdlife Tasmania request for bird counters, on Sunday June 9th, Marine Life readers Michael Jacques and Richard Mason set off from Kingston in an inflatable boat. We were merely one group among the many who volunteered to count gulls in South East Tasmania.

The day was cool and overcast, but it was great fun to be out on the water, trying out my new Zodiac and doing something useful. Richard proved to be a dedicated counter, while I skippered the boat. We spotted plenty of Kelp

Gulls and also some good potential dive sites, including one offshore rock that we discovered with the propeller.

Motoring down the coast from the Alum Cliffs to Bull Bay on Bruny Island, we counted 150 Kelp Gulls but only 5 Pacific Gulls and 4 Silver gulls. Kelp Gulls dominate the coast, especially the high cliffs and offshore rocks on the western side of the Derwent. Dr Eric Woehler is yet to collate the results, but it looked to us like the invasive Kelp Gulls are muscling out the smaller and less aggressive local gull species, perhaps helped by our own wasteful behaviour. These birds can easily fly from the Channel to Hobart Tip in an hour, feasting on our garbage and becoming unnaturally numerous. We also saw lots of birds picking feral shellfish off the rocks and dropping them to break open the shells,

a plentiful food source for these adaptable birds as our Derwent shores are now being overtaken by feral shellfish species.

These gull statistics have been collected for many years and help to show how the birds are doing. It also shows us how to improve our own behaviour, e.g. in the management of tips and fish farms. Dr Woehler believes we are seeing a redistribution of birds, focused on fish farms in the D'Entrecasteaux Channel, but he is presently analysing the 10 year data to look for spatial patterns.



If you would like to read more about gulls and their behaviour see our previous article on this subject [see p.33 **Oct/Nov 2010**]

Tamar Sewage Stink

per ABC News



Launceston's failing sewerage system has seen untreated sewerage entering the waterway.

A raking procedure conducted by the Launceston Flood Authority has revealed rubbish in the river that has come from the sewerage system. Launceston is among the few cities in

Australia that have a combined sewage and stormwater system. This means that raw sewerage enters the river during times of heavy rainfall.

"What they have been bringing up is all sorts of interesting pieces of rubbish that have been left in the estuary over the years, but of most concern is that the dredge is coming up basically absolutely chock-a-block full of tampon strings."

"I think a lot of money needs to be spent...We need to separate the stormwater from the sewerage, and if we are going to pump anything into the estuary then it ought to be drinkable water."

The new state water board, Taswater, has inherited management of the combined system from the previous regional water board, Ben Lomond Water, which took control of the Launceston City Council assets in 2009. Andrew Beswick from the water authority, outlined Taswater's plans to upgrade the treatment plants. "Most of the time, it is pumped to the Tee Tree Bend Sewerage Treatment Plant on the Tamar and treated. The output of these treatment plants are treated effluent: it is a liquid, it is treated to a level, it does not contain the solids. In terms of Launceston, it is the next big project from the Northern side of Taswater, is to upgrade the greater Launceston sewerage systems."

Mr Beswick estimates the works will cost in the order of 150-200 million dollars. "That can be financed over time, through the revenue that Taswater earns, there will be a debt component, and perhaps we might be lucky enough and there will be some grant component to that.

The world's rarest fish and Aquaculture...

Professor Graham Edgar discovered the Maugean skate in 1988, and says it is one of the rarest marine animals in the world.

The Maugean Skate is the world's only skate known to inhabit brackish water. The species inhabits low-nutrient brackish water, 5–7 metres deep in the shallower upper regions of the estuaries. The species only lives in two places - Macquarie Harbour and Bathurst Harbour. The total range of the species is thought to be no more than 100 km² and the population is estimated at 1000 individuals. "There's no other shark or ray that lives in such a confined area," Professor Edgar said.

Dr Neville Barrett from the Institute of Marine and Antarctic Studies recently found a strong population of the species in Macquarie Harbour but says the area is the site of fish farm expansion and pressure from recreational fishing.

"The skate relies on a clean ocean environment, but then so do salmon farmers, so hopefully they can coexist," Dr Barrett said. "We are aware that the harbour isn't - as some people perceive it - a highly impacted estuary from the mining activities. "It's actually quite pristine, the vast majority of it, and it's an extremely important habitat of course for this species that lives nowhere else on earth."

Tasmanian salmon growers spokesman Adam Main says the industry is already working to protect the skates. "They tend to like shallower water, so we've already made those concessions and moved farms out to deeper water," Mr Main said.

Critter Files

Blue Whale Encounters

- by Mike Jacques

Everyone knows they are the biggest animals on earth, even bigger than the biggest dinosaurs, other than that, confirmed facts about Blue Whales are slim pickings.



We know there were a lot of Blue Whales around before commercial whaling started targeting them at the beginning of the twentieth century. There may have been 150,000 blue whales then and over the decades 350,000 were killed. The population figures now are a bit sketchy but is estimated at less than 20,000, with less than 1000 animals surviving in the southern hemisphere. These numbers haven't appeared to recover much since the end of whaling.

Even the species classification of blue whales is a bit confused. Blue whales in

Australia are currently recognised as one species with two sub-species, True Blue Whales (*Balaenoptera musculus musculus*) and Pygmy Blue Whales (*Balaenoptera musculus brevicauda*). Recently it was decided

that an estimated 6000 whales are from the separate pygmy blue subspecies. Most Australian sightings are likely to be of Pygmy blues, but it is very difficult to tell them apart visually

Blue whales cover huge distances each year as they migrate warm waters, where they give birth in winter, and krill-rich polar regions in summer. They are usually solitary or seen in pairs, but may be found in larger groups in feeding areas. Blue whales live mainly in the open ocean but will periodically follow changes in the oceanic conditions that lead them to upwellings off the Australian coast. These upwellings support dense swarms of krill (tiny shrimp-like crustaceans). They also provide opportunities for whale watching encounters.

Where to see them in Australia

The Blue whale hotspots are Western Victoria and South east South Australia. The new Ngari Capes Marine Park, (between Busselton and Augusta WA) is also now believed to be a breeding area for the species. Big aggregations have been seen off Rottenest Island WA in an area known as the "Swan Canyon".

Off Victoria/SA, around one hundred blue whales visit the Bonney Upwelling each year, between November and May, to feed on large swarms of krill. Blue Whales have also been spotted feeding off Eden, during the humpback whale watching season (October to December), and between King Island and Tasmania, but these sightings are not as predictable as the ones in the Bonney Upwelling and it looks like the Hunter Island area is just the south-eastern extreme of the Bonney Upwelling during productive years.

A helicopter/light plane is a good idea as there is a lot of ocean and not too many whales. It isn't foolproof as blues don't spend much time at the surface, so often you'll fly over them without knowing they're there.

If the winds that drive the upwelling are weak that year the nutrient-rich water won't always make it to the surface, which means there will be little surface krill and fewer visible whales. A whale will remain at the surface for a minute or so and then dive, disappearing for around 5 minutes. They can be difficult to track from a boat as they move on quickly, and that upwelling is caused by winds, bring the seasick pills.



If you are broke like me, you might still get lucky closer to shore. According to the Portland tourist blurb, "Whilst blue whales rarely approach land very closely, their blows and backs can sometimes be seen at a distance off

prominent headlands such as Cape Nelson and Cape Bridgewater. They generally arrive in November and remain off Portland until May. Their distinguishing features are a slender streamlined shape with a small dorsal fin towards the tail and a powerful, tall straight blow (exhalation of breath) that in good conditions can be seen at 10 kilometres and heard at 4 kilometres."

Boats should not approach closer than 100 metres to a whale. If you are in the water and a whale approaches, you must not initiate an approach closer than at least 30 metres from the whale.

The importance of Upwelling

Bonney Upwelling

The South Eastern coast of South Australia and Western Victoria are renowned for having good fishing, millions of breeding seabirds, seal colonies. The area is also visited every summer and autumn by thousands of dolphins and whales, including Blue Whales. It boasts a distinct colder-water flora, and rich underwater gardens of sponges, bryozoans and corals. The key to all this life is a deep water upwelling bring nutrients to the surface from the deep waters adjacent to the continental shelf. The upwelling plays an important role in the life cycle of juvenile Bluefin tuna who feed on pilchards in the eastern Great Australian Bight during the upwelling season.

Officially, its called the "Great South Australian Coastal Upwelling System", but more commonly known as the Bonney Upwelling, although the one on the Bonney Coast is only one of three known upwellings. It is the deepest-reaching of our upwelling systems and percolates up from depths exceeding 300 m. The phenomenon can extend 800 km from Ceduna, South Australia, to Portland Victoria.

Southeasterly coastal winds create the effect during the summer (December - April). Key upwelling centres form along the Bonney Coast (Robe, SA to Portland, Vic) and the southern tip of the Eyre Peninsula. A smaller upwelling also forms off the south-western coast of Kangaroo Island. In conservation terms these upwellings are considered as important as the Great Barrier Reef yet it is virtually unknown. We have known about it since 1998, but it was only properly mapped in 2004. The Bonney Upwelling area harbours 26 listed threatened species: one shark; 5 birds and 2 whales are listed as endangered; and 11 birds, 1 shark, 3 whales and 1 bony fish are listed as vulnerable.

If you want the Full Monty on how it forms, in layman's terms water starts swirling around the deep submarine canyons of the Murray Canyon Group, on the continental shelf edge just south of Kangaroo Island. A pool of cold and nutrient-rich water is pushed to near the surface just west of Kangaroo Island. This provides the source waters for other nearby upwellings. Owing to the narrowness of the shelf along the Bonney Coast, upwelling there happens without a cold dense-water pool and is only wind-driven.

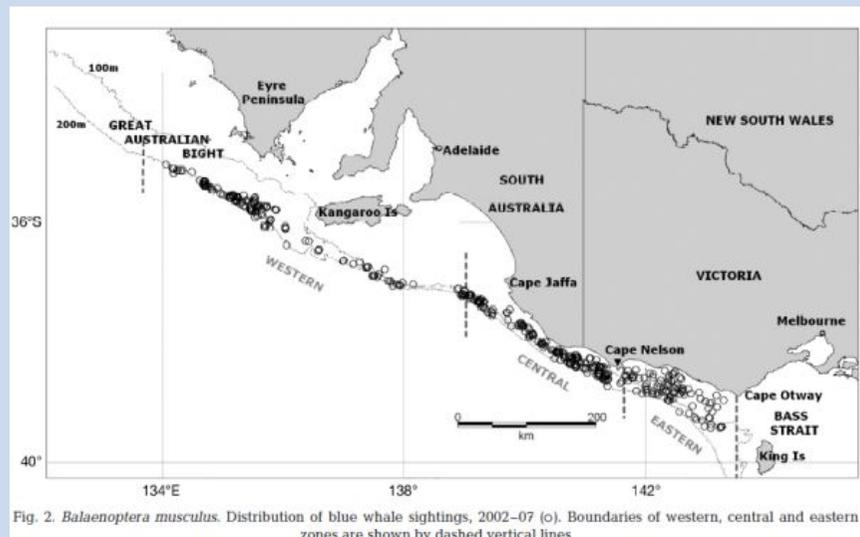
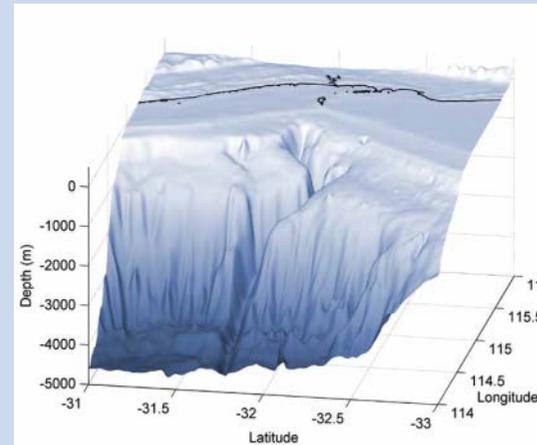


Fig. 2. *Balaenoptera musculus*. Distribution of blue whale sightings, 2002–07 (○). Boundaries of western, central and eastern zones are shown by dashed vertical lines

Perth Canyon

The Perth Canyon, known also as the Rottneest Trench or Swan Canyon, is a similar size to the Grand Canyon. It's a 15km cleft in the continental shelf starting at the 50 metre-deep water contour about 20 kilometres west of Rottneest Island. From there, it winds west for about 200 kms to depths of up to 4000 metres. The Perth Canyon, is a gorge formed after thousands of years of scouring by the ancient Swan River system. Back then the climate was wetter and nearly every river in Western Australia

from North-West Cape to Eucla had an offshore canyon associated with it. There are huge canyons off Yardie Creek, the Murchison and Kalbarri. In terms of marine biodiversity, scientists have said that "nothing can match the productivity and biodiversity in this canyon".



Life in the canyon is fed by organic material from rivers. The small krill reach the near-surface waters of the canyon in periodic upwellings between December and May. These deep ocean eddies are often spin-offs from the southward flowing Leeuwin Current.

The canyon's size and complexity mean that multiple eddies could form within it, taking nutrients to where marine life needs it. Blue whales use the Canyon for periods of between 2 to 4 weeks each year.

It is only recently that we have recognized the Perth Canyon area as a major whale feeding area. Krill species in W.A. don't come to the surface in daylight like the krill off Southern Australia. It is found during daylight hours at depths of 200-500 m, vertically migrating into surface waters only at night.

The area's blue whales can sometimes be seen circling on the surface before diving to the dark depths to harvest this krill. It is now understood that they circle to hold station over prey aggregations in deep water, while they regain their strength for another dive.

FEATURE - VIC

Bonanza at Blairgowrie

text and photos Mike Jacques



The plans to dive Phillip Island with the Bass Strait BSAC club didn't work out, thanks to the windy weather, a common experience for those trying to visit the exposed Bass Strait shoreline of Victoria. Instead I received the generous offer of a guided bay dive from BSAC's training officer, Michael. It's not every day that you get to visit the alien underwater environment of Blairgowrie jetty with an astrophysicist, so I eagerly accepted the offer.

Jetty diving - it's not exactly advertised in travel brochures and may not have lots of colourful coral, but it's the mainstay of diving in Port Phillip Bay. These artificial structures provide sheltered habitat for delicate marine life on the often shallow and sandy shoreline of "the Bay". In addition to that, it is dived so often that there is a regular 'bush

telegraph' operating about when a particular rare fish is visiting a particular jetty, so it can be the best way to see unique and often 'hard to see' critters like Tasselled Anglerfish.



Glass shrimp are common throughout Australia, but they seemed particularly numerous at Blairgowrie and not at all camera shy.

I also found that the resident critters are desensitised to regular visits by hoards of divers. They are not very timid and are easier to photograph. I was able to approach close to animals, like arrow squid, that I usually find are very skittish in Tasmania. I also saw more cormorants diving underwater in one day, than I have seen in the whole of my diving career. With some local knowledge, jetty dives are definitely worth doing.

They are also futile to do quickly and teach experienced divers a very undervalued skill, how to move slowly and be on the lookout for small oddities. Divers in a hurry to find the big fantastic deep water drop-off will emerge unhappy, and will have missed the opportunity to see some

of temperate Australia's smaller, rarer and more interesting underwater animals. It isn't the same as diving the Great Barrier Reef, thankfully, as variety is the spice of life.



As some small fish were cleaning off a pile of dumped scallop shells, an arrow squid was stalking behind. The arrow squid seemed to be so pleased with his catch, he came over to show off, or at least check out his reflection in the plastic camera casing.



Feather duster worm, shallow depths make for good natural light photography so that even commonly seen animals come up well.

FEATURE - WA

Walpole and Nornalup Inlets Marine Park

by Mike Jacques

"The river actually appeared to be embosomed amongst lofty wooded hills, with tall eucalypt trees close to the water's edge, and crowning the summits of these high hills, thus casting a deep gloom over the water and making the scenery the most romantic I ever witnessed in the other quarters of the globe."

William Nairn Clark 1841



Geography

Approximately 120 km west of Albany, the 100-hectare Walpole inlet lies adjacent to the town of Walpole. It is shallow (mostly about a metre deep) and fed by the Walpole River. The nearby Nornalup Inlet is bigger and covers 1300-hectares and is up to five metre deep. The two inlets are connected by a narrow channel about 200 metres wide, a kilometre long and about two metres deep. This photogenic channel is bordered by granite hills and karri forest. The inlet system is fed by the Frankland, Deep and Walpole rivers and is in relatively good condition compared to most other easily accessible estuaries in the region.

The defining thing about this estuary is that the inlet entrance remains permanently open to the sea. This is unusual on the South Coast, and occurs thanks to the high rate of water discharge in winter, and the

protection from ocean storms provided by nearby Rocky Head. This open ocean channel takes different routes through the mobile sands and may be several metres deep in some places, but can shallow to less than a metre deep in some places.

This narrow opening is still enough to let in local marine life, making the Walpole and Nornalup inlets one of the most diverse estuarine systems on the South Coast.



Skippy Rock Channel

History

The inlet system was created 7000 years ago, when sea levels rose and flooded old river valleys. The wind and waves then blocked these valleys with sand. The Minang Aboriginal people originally occupied the area from Albany north to the Stirling Range, and west to the Shannon River and Broke Inlet. They called the area "Nornalup", meaning "place of the tiger snakes".

Aboriginal groups used the area extensively for camping and fishing. Middens (places where shells, other food debris and other associated tools have accumulated over time), artefact scatters and fish traps can be found along on the shores of the inlet system.

Even before Albany was established in 1826, sealers used the area but it wasn't settled. Several attempts at sawmilling failed. Farming was only firmly established around Walpole in the early twentieth century. In 1910 the area was visited by a ministerial party headed by James Mitchell, Minister for Lands and Agriculture. They were there to assess the land for timber production and farming. Instead they reserved 920

acres of land for conservation and quickly added more. Perhaps they were also captured by some of the romance of the area, as Clark had been in 1841.



Circus Beach Ian Smith

Holiday spot

The sense of naturalness was soon making the area a popular tourist spot, even in the 1920s. Tourism and recreation largely support the present day Walpole economy. A major attraction for commercial tourism in the inlet system is the lack of development and sense of isolation and remoteness that can be found. High profile nature-orientated tourist attractions nearby, include the Bibbulmun Track, and the Tree-Top walk.

The Bibbulmun Track Day Walk covers the area from a massive Giant Tingle Tree to picturesque Coalmine Beach. The 13.8km return walk in the beautiful Walpole Wilderness Area. A variation takes the walker along a slightly more challenging track to Rame Head Campsite. The treetop walk is a drive-to attraction for the family.

Current commercial tourism based around the inlet system includes boat tours, houseboat hire, kayak tours, dinghy hire and guided fishing. There are privately operated caravan parks on the shores of the marine park at Rest Point and Coalmine Beach, and a range of accommodation options in the town of Walpole.

This is one of those peaceful little sandy seaside coves. Forget your diving gear, this place is for walking, camping, bird watching, photography and kayaking with the family.

Marine Life

The area was made into a marine park in 2009 and is surrounded by one of the oldest national parks in WA. The marine park is within the Western Australian South Coast Marine Bioregion, which extends from Black Point to Israelite Bay.

An open inlet mouth, the mixing of fresh and salt river waters, river deltas and two large inlets result in diverse marine habitats and a great range of fish species. Black bream, whiting, trevally, herring, juvenile Western Australian salmon are some of the 40 fish species that have been recorded. Sharks are uncommon in other WA estuaries, but here there are smooth hammerhead shark, southern shovelnose ray and black stingray. Eagle rays and gummy sharks are very abundant, though gummy sharks are found only in the outer basin of the Nornalup Inlet where salinity is the highest.

The catchment is approximately 6000 sq/km and much of the land in the north has been extensively cleared for farming. However, as estuaries can provide a rich source of nutrients, tolerant species can occur in very high densities. Polychaetes (worms), crustaceans and molluscs dominate the relatively rich benthic invertebrate fauna.



Photo Ian Smith

Fishing

The park doesn't have a 'no-take' zone and recreational fishing is very popular. There are boat ramps at Rest Point, Coalmine Beach and Nornalup, a jetty at Walpole and interpretive signage about the marine park at each boat ramp. commercial fishing has been banned in both inlets since the 1920s. No nets are allowed.

Sanctuary zones were considered during the planning process for the marine park. It goes without saying that any restrictions on recreational fishing attracted a lot of public opposition. However, this time it wasn't such an issue. The fish come and go with the tides and seasons and the basins aren't especially productive of themselves. Fishing isn't the main threat, coastal development is the estuary's main threat.

Flora

The inlet basins are dominated by mud and sand flats with some rocky shallows support seagrasses, such as *Heterozostera*, *Halophila* and *Ruppia*, and numerous species of algae.

Along the hillsides fringing the Walpole-Nornalup channel, the south-western shore of the Nornalup Inlet, and along the Deep and Frankland rivers, stands of karri (*Eucalyptus diversicolor*), red tingle (*E. jacksonii*) and yellow tingle (*E. guilfoylei*) dominate the tree line.



Photo Ian Smith

Birdlife

Black swans, ducks, grebes, swamphens, moorhens, coots, cormorants, herons, egrets, ibis, pelican, whimbrel, sandpipers, stints, oystercatchers and plovers—among other birds—all use the marine park. Gulls and terns are abundant in the area, and shearwaters, gannets and albatross may also be seen. Ospreys and white-bellied sea eagles ply the inlet waters for fish. These large predatory birds are major attractions for nature-based tourism in the inlet system. Migratory shorebirds utilise the tidal delta flats.



Photo Ian Smith

Threats

Although the majority of the marine park is in relatively good condition, there are areas that have suffered localised disturbance from human use. Anecdotal evidence suggests there are areas of shoreline degradation, possible depletion of some bivalve species, sediment contamination and accumulations of litter. It is likely that human use of the marine park will increase in the future.

Shark Finning

by Mike Jacques



Shark finning, is the fishing practice whereby the animal's fins are removed (often while they are still alive) and the body of the shark is thrown back in to the water. The fins are highly prized in Asia and sell for good prices. The rest of the shark's

body is worth relatively little. The trade in shark fin around the world has caused a dramatic decline in world shark numbers.

According to Fisheries Queensland, "Not only is the practice of finning sharks and dumping their bodies illegal and wasteful, but it is simply inhumane to treat living animals in this way". "Some shark fishing is legal in Queensland. However shark finning is illegal and will not be tolerated". Under Queensland legislation, anyone taking a shark fin must also retain the body of the shark. These rules are in place to act as a deterrent to targeting these animals for their fins alone. Penalties of up to \$100,000 apply but haven't stopped regular reports of shark-finning incidents, usually performed by unlicensed fishermen selling shark fin on the side.

Recently, a Gympie man was convicted of finning sharks and fined \$8000. Queensland Boating and Fisheries Patrol (QBFP) says officers boarded the man's boat in Bundaberg in October last year, where they found 49 shark fins. "In sentencing, the Magistrate took into account the cruelty involved in the practice of shark finning". "I hope these

penalties will serve as a future deterrent," QBFP district manager Greg Bowers said.

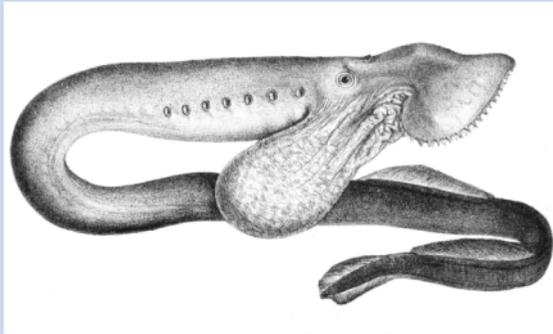
While I agree with the enforcement of these regulations, paradoxically Australia actively participates in this shark fin trade. The Queensland government allows the licensed catch of about 78,000 sharks each year just on the Great Barrier Reef. While statements are made about the sustainability of the fishery, the truth is that our information on shark ecology is incomplete in many areas. The 2011 stock status for the East Coast Fin Fish Fishery listed sharks as an "undefined" rather than "sustainable" stock. Undefined means, "some information is available but no reasonable attempt can be made to determine exploitation status at this time. This may be due to the need for additional information or analyses to adequately determine stock status". Shark fishermen are annually allowed a catch of 600 tonnes, divided into a 480 t northern component and a 120 t southern component. This represents a substantial decrease from pre-2009 when no quotas were set.

Ominously a Federal government study acknowledged that, "The impacts of removal of high order predators (including sharks, barramundi and mackerel) on food webs and species assemblages has not been quantified. Management of the fishery aims to ensure that sustainable populations of target species are maintained". The Queensland government similarly reported in 2011 that no assessments of some species could be made and that "Assessment of blacktip sharks and spot tail whalers is being undertaken by the Fisheries Queensland Shark".

Fisheries managers reading this will write in and say how we catch shark for food not fins and that other data can be used instead to estimate the sustainability of the catch. I'm not entirely sure about that, and even if I accepted this, really wonder why we would still then allow the annual import 10 tonnes of shark fin (potentially from dubious sources) if we are really that worried about shark finning.

Bits & Pieces

The Weird and Wonderful world of Lampreys



Fossil lampreys date back to about 280 million years ago, which is 50 million years before the appearance of dinosaurs. It is one the most primitive fish still living.

Their mothers may love them, but overall they are pretty repulsive. The pouched lamprey (*Geotria australis*) is widespread in the Southern Hemisphere. The most noticeable feature is a jawless mouth that is modified to form a circular suction disc. When fully mature, males develop a baggy pouch under their eyes, the function of which is unknown. It looks like something that God created to get rid of his excess scrotums. There have been suggestions that the pouch is used



by males during breeding, for gathering nest-building stones to make a nest.

Amongst other places, it is young are found in the Deep and Walpole rivers in W.A. Eggs are spawned in the headwaters of freshwater rivers and streams, the actual spawning process has

never been observed. The larvae or ammocoetes then hatch and drift downstream. They burrow into the dark and ikky mud of this sheltered embayment and live there for more than four years. They spend the next few years filter-feeding micro-organisms from the water.

During their six-month metamorphosis into the adult stage, their body changes from a muddy brown, to a bright silver colour with blue-green stripes. As they mature they head to the ocean.

It spends most of its adult life in the open sea, where it lives as a parasite on other fish. The adult lampreys attach themselves to a host sea fish, and then extract blood and muscle tissue. They can grow up to 60 centimetres long. Other than that, we know virtually nothing about them once they enter the ocean.



It returns to fresh water to breed, moving upstream *en masse*, travelling about 100M per day, but only at night and when it's raining. The returning migrating adults are capable of climbing virtually any wet vertical face. In very wet

weather, lampreys will leave the water and snake their way cross country to get around the most challenging of obstructions. Lampreys pick a nesting spot under boulders, usually 25 cm in diameter, at the bottom of riffles and at the upstream ends of pools. The adults will then spend a further 18 months sexually maturing before spawning and dying shortly after.

Lampreys are threatened by habitat loss and stream channel damage, but are basically pretty resilient.

Apparently we all love the new NSW Marine Parks regime?

A commentary by Mike Jacques

With much fanfare the NSW government has recently contrasted its new 'scientific' approach to MPAs with the former government's 'flawed' MPA policy. It often refers to a highly critical review it commissioned, the "NSW Marine Parks Independent Scientific Audit Panel" as validation of its pro-fishing lobby policy changes.

The new Authorities created to manage marine parks have recently published their first meeting minutes, which emphasise their commitment to a more consultative approach, "The Authority noted the feedback obtained from commercial fishing, recreational fishing and conservation representatives including that all groups were enthusiastic and generally supportive of the new approach to marine estate management. The Chair noted the importance of providing opportunities for stakeholders to meet and engage with the Authority, especially early in the process."

They then included a record of stakeholder engagement and listed players like Fishing World, Professional Fisherman's Association, the IUCN, various government departments and advisors, and OceanWatch Australia ("a national not-for-profit environmental company that works to advance sustainability in the Australian seafood industry..."). I didn't see any well-recognised national ENGOs in the mix, perhaps the spoilsports either weren't invited to speak, or were boycotting the sessions. This shouldn't have been a problem as they were raising their concerns pretty loudly in the media and not sounding at all "enthusiastic and generally supportive".

The National Parks Association of NSW were vocal about the government's recent unilateral decision to 'not enforce' fishing bans on angling from the shore in MPA sanctuary zones, "...the government is undermining the credibility of its new Expert Knowledge Panel before it is even formed. If it genuinely cared about achieving a credible

outcome, it would at least wait for the Panel's advice before making changes to marine protection...Clearly, this is a purely political decision, like the government's dogmatic commitment to maintaining a moratorium on marine park creation, despite the Audit's finding that marine sanctuary zones play an important role in marine estate management." The Australian Marine Conservation Society was a little blunter and indicated that it wasn't enthusiastic, but "appalled". Unsurprisingly, the NSW Greens and the Opposition criticised the changes as merely pandering to the Fishers and Shooters Party.

As for the government's undertaking to make MPAs more "science-based", Dr Daniel Bucher from Southern Cross University noted that, "I have been scanning that audit with a fine tooth comb and I cannot see anywhere where this is actually part of that recommendation. In fact quite the opposite," he said. "I have found parts of the audit where they believe that no take zones are important in the context of biodiversity conservation and where the aim is to preserve habitats from extracting uses including human impacts including fishing."

I suppose it could have been a lot worse, as a significant portion of fishing effort is actually from boats not shore angling. A quick scan of some fishing forums showed me that recreational fishers understood the limited nature of the amnesty and weren't exactly "enthusiastic" either. Some were clearly hoping for more. Chairman of EcoFishers, Chris Wallace, says he's looking forward to the review of all NSW marine parks that's due to get underway soon. "As ecofishers and recreational fisherman in NSW believe that the marine parks that are in place now...were unfounded, there was no science behind it. So we certainly welcome the news that any future marine parks will be based on science first".

I suppose we'll have to see whose version of the science we are talking about, and which interpretation is most favoured by the political forces that ultimately determine public policy.

Our Jellied Oceans

by Emma

Talk to a few people about jellyfish, and you'll start to build a picture of humans being irrationally terrified by these blobs of oceanic jelly - perhaps ingrained through being stung by bluebottles at the beach as a kid, or haunted by tales of killer box jellyfish. In Tasmania, we're lucky enough to have relatively harmless species of jellyfish – generally, the worst they'll generally do is cause a bit of skin irritation or goop up your dive gear. I snapped a photo of a jellyfish swarm a few months back after jumping in the water near Ninepin Point in the d'Entrecasteaux Channel and immediately noticing how gloomy it was. Looking up, I realised this shadowing was caused by masses of huge jellyfish floating just below the surface.



While this was just a harmless (albeit spectacular) localised bloom, the jelly story isn't so innocuous elsewhere in the world. Huge annual jellyfish blooms have been cropping up across the Mediterranean, Black Sea, Gulf of Mexico, and around Japan.

The problem with jellyfish is that they represent the dead end of the food chain. With the exception of a few highly specialised predators (turtles, sunfish), not much eats jellyfish because of their unpalatability, stinging cells, and low nutritional value. So, while jellyfish strip the water of zooplankton (a critical food source usually consumed by smaller fish), they have very few natural predators. Overfishing by humans continues to eliminate existing predators, and other smaller fish that compete with the jellies for food. This creates a 'vicious circle' in which jellyfish feed on fish larvae, further reducing resilience of fish populations and promoting jellyfish growth.

There are many different theories about what may be causing these enormous blooms, but what scientists seem to all agree on is that jellyfish are much better equipped than other marine organisms to cope with anthropogenic (caused by humans) stressors. Jellies are able to tolerate much greater temperature extremes caused by global warming, and they can readily cope with the increasing acidity of water resulting from high levels of atmospheric CO₂. Their bodily oxygen demands are very low, so they are able to thrive around fish farms or in areas subject to agricultural and industrial runoff where eutrophication (algal proliferation and death) has stripped the water of oxygen. Basically, these uncharismatic blobs are the opportunistic cockroaches of the ocean – fast growing, eat anything, can withstand poor water quality, and reproduce like crazy.

Some scientists say these fears are overblown, and that the mass jellyfish blooms documented worldwide, clogging fishing nets and choking intake lines for power plants, are normal cyclical population increases. During the 90s, the Bering sea experienced a massive jellyfish bloom, with the population in the year 2000 estimated to be around 40 times greater than in 1982. Over the following 10 years, this



population crashed back down to normal levels, with experts suggesting the jellyfish population outsized the available food supply.

Other researchers insist that these jellyfish plagues are a very real, human-mediated phenomenon, and warn that continued formation of blooms may cause oceanic systems worldwide to flip from a fish to a jelly dominated one. There are indications

that this may have already begun in areas like the Sea of Japan where Nomura's jellyfish (weighing 250-300 kg each... I know, what the HELL?) are swarming in their millions and wiping out entire fish stocks by stripping the water of food for other marine organisms.

For now, jellyfish are more of a novelty than a menace in Australian waters, and swimming amongst them can be a wonderfully surreal experience. But that may be set to change soon in a very big way...

Truly incredible Tasmanian Sea Monster sightings



The Mercury, 25/06/1936 - "It seems that the Identity of the mysterious marine monster washed up on a beach near Bridport on the north coast of Tasmania will not be established, for it was learned yesterday that it had been washed away by the tide before Launceston authorities on marine life had a chance to see it.

The matter was referred yesterday to Mr. H. H. Scott, Curator of the Queen Victoria Museum, Launceston, and he bemoaned the fact that the monster had been washed up several weeks ago, and no one had notified him earlier. He had learned that It was washed away, and all chances of identification had gone.

Mr. Scott was asked whether he could not determine its identity from the photograph and the description given in "The Mercury" yesterday. He said that was impossible, as the description was too contradictory, and the denizen appeared to have no shape or form. Dr. J. Pearson, Director of the Tasmanian Museum, Hobart, stated yesterday that he would say, from the description of the strange monster, that it was a sunfish, although he could not understand the covering of hair on the creature if such were the case. It was not usual for sunfish to be coated with hair."



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