

MARINE *Life*

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Our Goal

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

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Cover photo, *Phil Watson, Victorian diving*



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Seagrass Habitat Pt II

Main Seagrass Species

Posidonia

Large, meadow-forming species of *Posidonia* is often the dominant seagrass species. *P. sinuosa*, *P. angustifolia*, *P. australis* and *P. coriacea* are common in the south. *Posidonia* spp. are relatively large with strap-like blades that extend from a sheath at the base of the plant.



Posidonia meadows have only modest rates of production but a substantial standing crop

The ability to store large quantities of carbon may be a benefit in terms of enabling the plant to tolerate extended periods of sub-optimal light but a high below ground biomass poses a substantial oxygen demand that cannot be assuaged by dissolved oxygen in the water column. A loss of photosynthetic capacity may result in profound root anoxia and even the production of poisonous sulphides

Amphibolis



Amphibolis, as a genus is confined to southern Australia with two species (*A. griffithii*, and the

more common *A. antarctica*). *Amphibolis* grows into sizeable plants (up to 1 metre) across a wide range of depths, from the intertidal down to 40 m. *A. griffithii* likes lower light conditions and higher wave energy than *A. antarctica*. *Amphibolis antarctica* is more common in shallower areas (<12 m depth along the fringes of *Posidonia* meadows. *Amphibolis* is said to readily recolonise areas after disturbance .

Amphibolis antarctica is highly productive relative to other seagrasses, with a high above ground biomass. Although both species produce flowers at roughly the same time as other seagrasses (spring and summer), they are viviparous, with seedlings maintained on the parent throughout much of the year (i.e. July to December for *A. antarctica*). Nitrogen uptake in *Amphibolis* is mostly absorbed through the leaf blades rather than the roots. In this respect, *Amphibolis* acts more like a macroalga and it has the ability to colonise rocky substrate. However, uptake of most nutrients through leaves may increase the susceptibility of *Amphibolis* to high nutrient loads and nutrient toxicity (see below).

Heterozostera



Heterozostera tasmanica is widespread within Australia, ranging along the southern coast from Western Australia into New South Wales and Tasmania It is often a major component

of seagrass assemblages from the intertidal zone to around 8 m depth

Heterozostera has relatively fast growth rates, but its biomass is low relative to other species. Fast growth may enable the plant to cope with smothering of its leafage, but it may react poorly to prolonged periods of increased turbidity.

Despite the widespread distribution of the *Zostera* genus and *Z. capricorni* along the Queensland coast

Halophila



Several species of *Halophila* geographic range similar to that of *Heterozostera tasmanica*, *Halophila australis* also exists across a broad depth range, from the intertidal to 23 metres, generally as a sporadic component of other seagrass meadows

Halophila has a wide (paddle – like) blade rather than the straplike leaf exhibited by most other species

Halophila populations are characterised by low biomass relative to other seagrasses (Duarte and Chiscano 1999). *Halophila ovalis* appears to have very fast leaf turnover, which enables this seagrass to act as a pioneer although it is thought to be sensitive to shading, it also has very low light requirements and can grow to considerable depth.

Lepilaena

Lepilaena has a broad range of salinity tolerances and frequently occurs in estuaries, coastal lakes and hypersaline environments that are not classed as marine. For this reason, *Lepilaena* is

frequently not regarded as a seagrass, it is commonly associated with *Z. capricorni* in the intertidal SA

Ruppia

Like *Lepilaena*, *Ruppia* is a genus that is not generally considered a seagrass for the same reasons Two species *Ruppia tuberosa* and *R. megacarpa*. occur in Western Australia, South Australia and Victoria, with *R. megacarpa* extending into New South Wales and New Zealand.



Seagrass in Tasmania

Primary Source: Christopher Grant Rees, 1993: SOER



Dr Simon Groves spotted that last edition gave a rundown of the national state of seagrass but left Tassie off the map. We have to fix that pronto.

Five seagrass species occur in Tasmania, their presence or absence defining five zones around the Tasmanian coast.

Three genera that are endemic to the temperate waters of Australia *Posidonia*, *Amphibolis* and *Heterozostera*, and of these the species *Posidonia australis* and *Amphibolis antarctica* occur in Tasmania at the southerly limit of their distribution. Both appear to be confined to the north coast and Bass Strait islands with only scattered patches of *A. antarctica* at a handful of sites on the Tasmanian east coast

It is likely that these genera had a wider distribution around the coasts of Gondwana in the Palaeocene era, and only avoided

extinction in the relative stability of the Australian coastal environment since that time. Their confinement to the southern coasts of Australia has probably resulted from the slow northward drift of the continent into warmer tropical waters since the break-up of Gondwana. The other two genera found in Tasmania, *Halophila* and *Zostera* have species in warmer, more northerly Australian regions and a wide global distribution.

From 1000 km² of sea grass may occur in Tasmania, and it is believed to be reducing. There is a strong relationship between the seagrass decline in coastal areas and the presence and abundant of algal epiphytes. Ambient nutrient levels in some coastal water bodies are likely to be a major cause of seagrass decline. Decline is most pronounced close to population centres.

Amphibolis antarctica is found along the length of the north coast, the Furneaux Group, and the Kent Group. It is found on the central east coast from Great Oyster Bay to Green Bluff on Maria Island's west coast. This appears to be the southerly limit of its range in Australia. Within Great Oyster Bay it grows in small beds along the west coast of the Freycinet Peninsula to Coles Bay, and also south of Swansea and in Mayfield Bay. The total area of the species is not large, since it tends to occur in small dense patches, or as a fringe along beds of other species, particularly *Posidonia australis*. *Amphibolis antarctica* is found in sheltered, semi-sheltered and exposed bays, straits and channels. It is also common in the Tamar Estuary. In the Tamar it fringes *P. australis* beds along the edge of the main channel, tolerating the strong tidal currents. The species was generally found in a depth range of 2.5 to 5.5 m, often in sites with higher water energy than other species. Another species of strapweed, *Posidonia angustifolia*, has also recently been identified on the western shore of Flinders Island.

Halophila australis is often associated with *Heterozostera tasmanica*. It is particularly common in the Norfolk Bay and D'Entrecasteaux regions. *H. australis* was otherwise only seen in Coles Bay, the Tamar near Redbill Point, and off Lady Barron. It

is also found in deeper areas among the islands of the Furneaux and Kent Groups.

Heterozostera tasmanica is found in both estuarine and marine environments. Small beds of as little as a few square metres can be found in patches of sand in the shelter of reefs. There are clear limitations on its tolerance to low salinity, preferring marine conditions. It tolerates tidal currents in the channels of estuaries and lagoons, and in sheltered bays may form a well defined boundary beyond the effect of direct wave action.

Posidonia australis is the most abundant species, even though it is limited to along the north coast of Tasmania and the islands in the east of Bass Strait. Over 108 km² of seagrass beds were mapped in which *Posidonia australis* was the sole or dominant species.

Zostera muelleri and *Z. muelleri* sensu stricto is found throughout the State on sheltered intertidal flats, and permanently submerged in many lagoons and upper estuarine areas. It is therefore tolerant of a wide salinity range and a wide temperature range. *Z. muelleri* sensu stricto is only found in any abundance in the Port Davey/Bathurst Harbour area. Both varieties generally occur in monospecific beds, or bands.



Wire Coral (*Cirrhopathes*)

Most people think of coral little flower-like animals attached to reefs in massive colonies, but there are lots of different forms of coral. The snaky coral *Cirrhopathes*, is a long spiral, like a sea whip and curls and uncurls throughout the day. There are 16 species within the *Cirrhopathes* genus.

Cirrhopathes is a type of black coral from the family Antipathidae. Colors range from yellow, red, blue and green. They have a dark skeleton underneath, just like other black corals. They are common in tropical and subtropical areas at depths greater than 50 metres. They can grow up to more than three meters in length. It is even believed that the survival of two species of shrimp depends entirely on these corals.



LORD HOWE ISLAND DIVING SITES



LAGOON

Erscotts Hole

2-8 metres

Erscotts Hole is a deep hole inside an otherwise very shallow lagoon. The site tends to attract fish from the surrounding area and it is nearly always patrolled by Galapagos Sharks. As it is very sheltered it is often visited for diving or snorkelling, especially in poor weather. It is shallow, generally free of currents and suitable for novice or training dives. It has good visibility and is good for photography. The inshore fringe of the hole supports some delicate corals and these

corals attract bluefish, double header wrasse, spangled emperors and various butterfly fish and damselfish. Very persistent amateur naturalists may also spot some rare species like pigmy seahorses and rare hawkfish. Although its an easy dive even for the beginner, this does not mean it is some second rate consolation prize for experienced divers. The lagoon holes offer some of the best diving on the island. This site is closer to the lagoon edge and can experience slow currents on a falling tide.



Dave Byrne going after a perfect holiday memory

Erscott's Blind

2-20 metres

This hole in the lagoon lies close to the reef edge near the South Passage and can be affected by big seas, not so much on the dive itself, but in getting to the site as it is approached from outside the lagoon. The landward side of the hole offers a relatively steep slope studded with coral down to a sandy bottom in 20 metres. In big seas there can create a surface current, but it is manageable. The fish life is similar to Erscott and Comet Holes, but the coral is more extensive.



Frequently gliding overhead are harmless Galapagos Sharks

Comets Hole

2-8m

Comets Hole is the other dive site in the sheltered lagoon. The hole was formed by a natural freshwater upwelling and never fills with sand. It is otherwise very similar to Erscott's . It is popular among photographers and of all the dives on the island, I consider this to be one of the best. It has very diverse fish life and delicate corals that are less frequently encountered on the high energy coast outside the lagoon. Some are more common species, but there are also endemic and rare species to discover with effort. It doesn't hurt that the area is visited by glass-bottom boats that attract pelagic fish with feeding pellets. At the start of the dive you are greeted by big schools of silver drummer. The white sandy base of the hole makes the reef well-lit and great for photography. The delicate corals protect a

smorgasbord of smaller tropical fish as well as the usual Lord Howe resident reef fish. You will see a dozen species in the first minute. The nearby sandy bottom is covered in seagrass detritus and this attracts schools of different herbivorous and pelagic fish. The whole time, small and harmless Galapagos sharks buzz around the human intruders as they try to protect their territory. Keep this site up your sleeve for bad weather, but make sure you do it before you leave.



Sylph's Hole

6m

This hole lies about 100 metres offshore from Settlement Beach, an easy walk from the township. This site is good for a snorkel when the high tide brings in schools of fish. The area around it is shallow seagrass, so you can expect to encounter turtles from time to time, either in the hole or on the surrounding seaweed beds. The area is protected from fishing and is marked with a

yellow buoy. The hole was an anchorage for a small local sailing ketch of the same name, lost at sea with all hands in the 1880s.

"Favourite" Wreck and North Bay snorkel

This area is frequently visited by tour boats, mostly for glass-bottomed viewing, but you may be able to organise a snorkel. In 1965, the tuna boat "Favourite" dragged her anchor at night and ended up on the north side of North Passage. Parts, including the engines and freezer box, are still visible at low water sitting in three sections. The vessel was burnt to avoid planks washing into the lagoon and posing a hazard to the flying boats. This is only a snorkel dive as much of it nearly dries at low water.

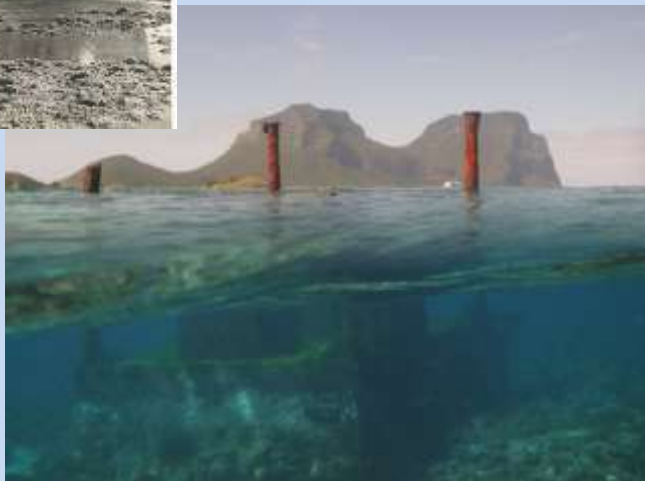
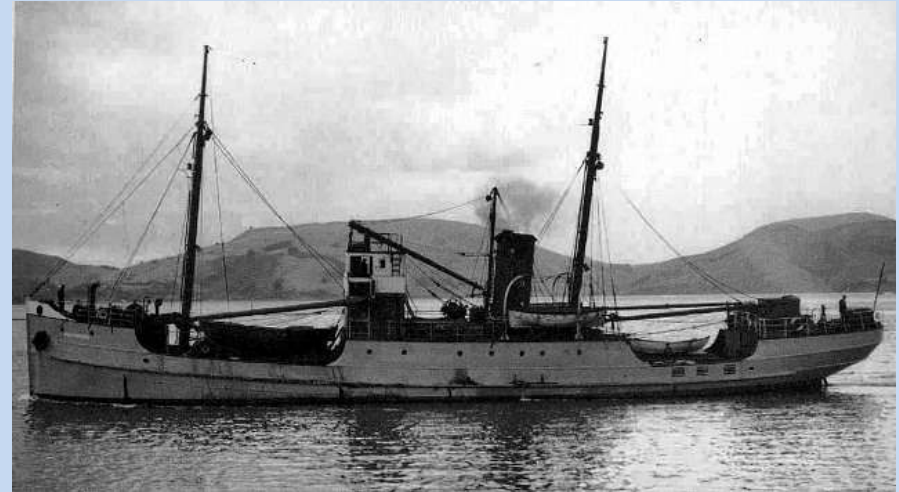


Photo Wikipedia

Wreck of the "Jacques del Mar".



This 145 ft long steel screw steamer of 506 tons was built in Bremerhaven, Germany in 1906 as the "Marion Sleigh". On 20 July 1954, the Jacques del Mar anchored outside the reef to unload general cargo and fuel for the island. A gale sprang up suddenly and she ran aground at the south side entrance to North Passage. The wreck was bought by the manager of the Pinetrees resort. All moveable fittings were removed and some are probably still used in houses on the island.

Parts of her are in the local museum. Twisted parts of the hull and some bollards are visible at low water, with the depth not exceeding 3 metres at high tide. She can be snorkelled, but be wary as currents do sweep around the entrance, especially after heavy weather.



NORTH PASSAGE AREA /FRONT REEF

The dive sites along the front reef, along the ocean side of the lagoon are diverse and suited to beginners to advanced divers. There are quite a few sites which include The Arch, Le Meurthe, North Head Cave, North Head Gutters, Cathedral Cave, Boulder City, and Twin Caves. All of the Front Reef sites provide divers with interesting underwater terrain to explore ranging from about 12-16m in depth. Coral archways, bommies, gutters and overhangs have formed over the years and house numerous species of fish, invertebrates, hard corals and colourful sponges.



Wreck of the "Ovalau"

18-30M

31° 31.717' S 159° 02.328' E (WGS 84)

The Ovalau was a 1229 ton steel steamship, used as an island trader by the Union Steamship Company of New Zealand. She was built at Dumbarton, Scotland in 1891. On 19 October 1903, while anchored off the North Passage, she was destroyed by a fire in her cargo of copra. The wreckage is now spread over

about 300 metres and is covered in coral. Items that can be identified include bollards, two boilers, the propeller shaft, hull plating, and a mound of collapsed components off the steam engine. The boiler lies in 18 metres with the rest down the deeper reef crevices. The remains are few and mostly scattered and overgrown or buried. She has an unusual quadruple expansion engine. Her position on the reef flat is exposed to swell from the south and west. Six other wrecks have been found at Lord Howe, most in the North Passage area.



Pacific Chieftain Aircraft VH-BRE (Undiscovered Wreck)

An Ansett Airways Short Sandringham flying boat was driven ashore in the lagoon by a gale on 3 July 1963 and severely damaged. Beyond repair, the aircraft was partially salvaged for usable parts, towed to sea, holed with hand axes and sunk off the North Passage. She is probably in deep water but is a surviving relic of an important part of the island's history.

Wreck of the La Meurthe.

This 1597 ton, three-masted wooden warship was once a grand pre-Dreadnought French naval vessel. She was built in France in 1882 with an anachronistic battering ram, to go with her powerful steam engine and lavish ornamentation. Newer naval designs soon made her obsolete and she was relegated to transporting troops out to Noumea in New Caledonia. By 1907, her engines were out of action and she was unwanted. The old warship was sold to a Sydney foundry, probably to be cut down and used as a coal hulk. The tug St Louis started to tow her from New Caledonia to Sydney, but into the teeth of a fierce gale. One of the crew was killed in an accident before the tow line was cut to save the tug from foundering too. The old warship wasn't done for yet, and she drifted ashore on Lord Howe Island on 9 October 1907. She hit the fringing reef near the opening to North Passage and the impact drove away the rudder post and damaged the keel. She settled on the shallow reef. Most of her lavish fittings were recovered before she was set on fire. Little remains on the wrecksite. She is scattered in three metres of water at high tide, knee deep water at low tide. She now lies under a surf break and her scattered remains can only be dived in very calm weather.



Le Meurthe Reef

5- 16 metres

Located just outside the North passage of the lagoon, large Acropora corals shelter juvenile painted crayfish, slate bream and southern white spot octopus. There are also plenty of juvenile wrasse species on the reef top such as bird wrasse, five-banded wrasse and New Guinea wrasse.

Undiscovered wreck of the S.M. Stetson

In 1877, the collier barque SM Stetson left Newcastle with 1150 tons of coal on 10 March 1877 bound for San Francisco. After springing a leak at sea, Captain Curtis beached vessel at the entrance to the North Passage on 25 March. A timber barque of 707 tons gross, S.M. Stetson had been built at Port Maddison in the USA in 1874. She was heavily salvaged before breaking up. The remains, little as there might be, haven't been located.

North Passage

5-12m

There are many features just to the seaward of the surf breakers between North Passage and Blackburn Island. This site is one of a number of wave-scoured features of various names along the reef edge. They offer an excellent dive in moderate depths. This area offers a honeycomb of interconnected smaller tunnels and overhangs in the reef. The crevices are open at the top allowing soft light to enter. There are numerous smaller tropical fish. Other fish commonly seen include, catfish, crays and scalyfin.

A popular site is a single coral encrusted pinnacle that reaches to within 5 metres of the surface. The pinnacle is wave worn and contains many crevices and overhangs encrusted is quite a rich

diversity of corals. A swim around the pinnacle reveals many of the inshore reef species at LHI such as species of butterflyfish and wrasse. Silver Drummer and Pacific Drummer patrol the cracks and overhangs within the pinnacle complex.



Shark Reef

30m

This site is off the Western end of Blackburn Island on the edge of the lagoon. The reef edge offers gutters, swim throughs and ledges all packed with fish and invertebrates, the reef edge is patrolled by small Galapagos sharks

The Arch

6 - 16 metres

This relatively small site lies half way between North Passage and Blackburn Island. It lies beyond the breakers but is usually partly sheltered. The reef ledge drops on to a sand channel down. This leads through a series of gutters and crevices dominated by a large limestone arch. The large cave has lots of crevices and openings, often affected by surge in heavy weather. The insides of the cave are wave-swept and relatively bare, but they offer an interesting feature with good fish life including, schools of trevally, catfish, angelfish and wrasse. A search around the Arch will reveal invertebrates including crayfish, Spanish dancers and shrimp.

North Head Gutters

6 - 20 metres

Named after the numerous swim throughs that run out from the reef into deeper water, this is a challenging dive to navigate. Also keep an eye trained for Ornate Butterflyfish and Splendid Hawkfish perched on the lips of hard corals.

North Head

30m

This area just outside the passage offers deeper diving on volcanic outcrops covered in invertebrates. The site offers lots of ravines and overhangs to explore.

North Head Cave

5-16 Metres



The dive starts and ends on a reef flat in 5 metres that is quite surgy at times, but the nearby sandy gutters offer good, easy diving. The gutters either lead to a shallow cave in North Head that is easily seen from the surface. This is area is wave scoured but usually has a Galapagos Shark or two in residence. The walls of the crevices hold diverse corals wherever there is shelter from the swell, and nudibranchs, crays and other invertebrates can be found. In the other direction the gutters lead to honeycombed features in the limestone that also allow divers to access the deeper reef front if they have the air, and are experienced and so inclined. Navigating back to the boat can be tricky without an experienced guide.

Phillip Rock

1-33m

This site offers diving on a deeper pinnacle patrolled by lots of pelagic fish including, kingfish and trevally. The bottom also has some large boulders, small caves and drop offs.

NORTHERN SIDE

Located below Malabar cliffs are several dive sites that are part of a complex reef system referred to as Malabar, Malabar West and Landslide.

Malabar

9-18m

The area offers a range of sites with small caves, bommies, overhangs and walls draped in coral and black coral trees. Malabar is the deepest area at 18m is considered one of the best dives on the island at that depth, especially for photography. Pelagic fish are very diverse with schools of trevally, kingfish, silver sweetlips, dotted Sweetlip and small Galapagos sharks. In and around the reef there are crayfish, Spanish dancers, shrimp, anemone fish, nudibranchs, cardinal fish, turtles and eels. The sites are protected in Southerly winds and swell.

Kim's Lookout

25m

This deeper site is under a prominent lookout perched high on the towering Malabar cliffs. It offers a mix of tropical and temperate species on a reef running parallel to the shore. The sheltered side of the reef offers excellent fish life. Sea fans,

feather stars, catfish, batfish, Moorish idols, smaller tropical, nudibranchs and anemones.



Landslide

5-13m

It is a very large area of limestone reef broken by gutters of blinding white sand. This shallower site offers lots of smaller gutters and crevices and is good for a training dive or for photography. Soon in to the dive you are likely to be buzzed by schools of pelagics fish, including kingfish. The white sand helps to make the site particularly photogenic.



Second Reef

13m

This area lies further offshore than Landslide but so close they could be dived together. The larger areas of limestone reef are heavily sculpted by the waves and offer large overhangs and swim-throughs with good fishlife. A particularly large cave that bisects the reef is a highlight. The area has good fish life in the caves and even turtles.



LHI Moray, Photo by Greg Close

Light-Mantled Albatross

This albatross likes the colder areas around Antarctica. It is curious and will play around with the masts and rigging of ships. It is rarely seen in southern Australia but is common along the Antarctic ice shelf. It breeds on Sub-Antarctic islands.



Sooty Albatross

Likes it a bit warmer and prefers the Southern Indian Ocean and South Atlantic. Other than that I can't tell them apart.



Early South Australian Steamer Wreck

S.S. Marion

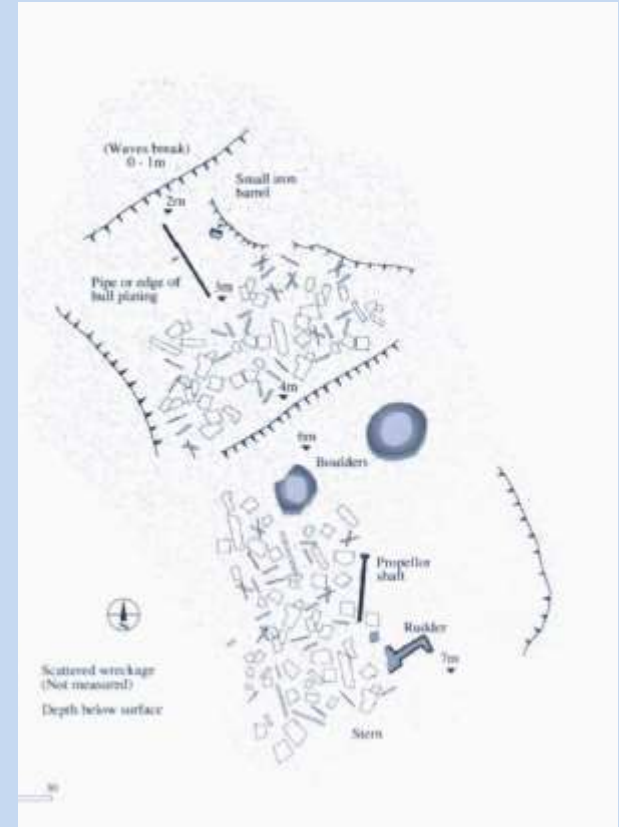
The schooner rigged, single screw steamer *Marion* was built in 1854 at William Simons Glasgow, Scotland and imported for the Hobart - Melbourne passenger trade by Rae, Kerr & others of Hobart Town. She had a 2 cylinder engine producing 30 horsepower. As William Simons made its own engines and specialised in "horizontal" (side lever) engines at this time, this was the likely engine fitout. Employed on the Hobart - Melbourne trade she enjoyed little popularity. In Jan 1857, it was sold for £4500 pounds to H Glass, Melbourne. Her dimensions were altered as 197 gross tons. She was placed on the Warrnambool-Port Fairy service until October 1857 when she was again sold to Joseph Stilling, J R H Ward, Joseph Darwent and others for the Port Adelaide to Port Lincoln trade. The *Marion* was the first vessel to operate a regular steam shipping service from Port Adelaide to the Spencer Gulf ports.

On 11 July 1862, the S.S. *Marion* was en-route from Adelaide to Wallaroo under the command of Captain Alexander McCoy. On board were 35 passengers and 15 crew. Visibility became hazy while the *Marion's* chief officer was at the helm and, after passing Troubridge Hill, he became unsure of his position. Unexpectedly, heavy surf threatened out of the gloom. The engine was ordered full astern but it was too late, "a concussion that shook the vessel with great violence, succeeded by a harsh grating sound, and a quiver as of an animal in death agony".

The rising swells lifted the vessel onto rocks at the east side of Cable Hut Bay, 5 kilometres west of Stenhouse Bay. The crew were unable to save anything beyond a few provisions and the mainsail. "With the dawn of the morning we visited the scene of the wreck. Nothing could be more terrible or sublime. The gale had reached its climax... and broke in surf 40 feet high over the ill-fated steamer. She was now rapidly breaking up. The masts and funnel had gone. In an hour or two she broke amidships, the

after part, including her machinery, settled in deep water, and nothing remained but a fragment". The *Marion* was uninsured.

The wreck of the S.S. *Marion* lies at the base of a cliff, in 2-7 metres of water, east of Chinamans Hat Island, and to the south-east of the car park at Cable Hut Bay. Little of the hull structure remains to be seen because the wreck, which is scattered on a northerly axis for a distance of some 60 metres, is located on a predominantly rocky bottom in a high wave energy zone. The wreckage is divided into two distinct locations with the forward part of the ship broken and scattered over a shallow reef shelf, and the stern lying in an area of patchy sand in deeper water at the base of the reef. Nothing much of her early engine remains.



Diving Chinaman's Hat South Australia

<http://adelaidescuba.blogspot.com.au>

According to Adelaide uni club, it is a "idyllic beach setting. Good snorkelling. An occasional ray or stingaree can be spotted after it enters the shallow bay to feed. Patches of turtle grass support a small population of pencil weed whiting. A one-metre high limestone ridge frames the eastern side of the island, with blue-throated wrasse weaving in amongst the kelp and seaweed. The best - albeit awkward looking - way to the western bay is to crawl/walk through the breaking waves and across the weed-covered ledge which connects the Hat to the shore. Depths on the western side of the Hat are more conducive to diving with a bottom at 10m, hulking limestone heads covered in the same kelp and seaweed, strong surge and low visibility in particulate-laden waters, small caves and holes sheltering the occasional magpie perch and blue-throated wrasse. "



Oddly named fish

Flower of the Waves *Iso rhotophilus*

Aust Museum, MLSSA



Much less eloquently known as the surf sardine, this species is the only Australian representative of the of the Surf Sardine family. It is only known from parts of southern Australia, Taiwan and

Japan.

It appears to be quite common in suitable surge sites on moderate/high wave energy rocky coasts. It is well known in SW WA, NSW and Victoria and also seen in SA. Little is known of its biology, it seems not to venture out into open water (unless as plankton, etc..) so SA's low population of divers, etc.. is the likely reason for, till now, absence of local records of the species.



LORD HOWE ISLAND HOLIDAY MAGIC

Photos by David Byrne





Oscillating engine Auxiliary Screw Steamer Wrecks

This was the most popular type used to power paddle wheel steamers. They were later adapted using a system of gears to power screw steamers. The *Oscillating Engine* was popular because it was easy to start and stop. It also took up little inboard room. It was a compact engine because it dispersed with the connecting rod. The piston rod attached directly to the crankshaft. During operation, the cylinders rocked to take up the motion, hence its other name, the "*vibrating engine*".

City of Melbourne



Watercolour CF Gregory

The wooden screw steamer City of Melbourne was the first Australian-built screw steamer. She was 168 gross tons and 118'4" long. She had an oscillating engine of 25 horsepower and was rigged as a 3 masted schooner. She was built in 1851 by J Kruse of Melbourne for George Ward Cole.

"After a thorough inspection, we can only say that as a vessel adapted for the conveyance of passengers, she is not surpassed by any ship which has entered our port, and her accommodation for steerage passengers is unequalled. We must, however, correct an egregious error into which our Melbourne contemporaries have fallen. Instead of steaming three knots, her average speed by the screw, seven miles ;per hour; and her sailing qualities are first rate under her square sail alone (which by the way is a tidy solid piece of cloth),...passengers will experience in Captain Saunders that gentlemanly deportment and urbanity without which a voyage is tedious and unpleasant".

She commenced the first full-time Bass Strait steam ferry service. She was extremely popular in her day as a Bass Strait steamer. With the onset of the Gold Rush later in the year, large numbers of steamers arrived from the U.K., many taking up running across Bass Strait. In 1852 she was forced to run ashore on Kind Island during a storm, but was later refloated.

In April 1853 she was sold to the ASN Co and placed her on the Moreton Bay run and her troubles included running aground at Oyster bank, Newcastle. ASN Co sold her late 1855.

August 19th 1855 she caught alight at Sydney while undergoing repairs and was near gutted. Her engine was removed and she was converted into a 3 masted barque. Her engine went into the paddle steamer "Eagle". Those engines were likely scrapped in the 1890s. Sold, the sailing hull of the City of Melbourne again ended up on the Wide Bay bar but was refloated.

On December 28th 1873, she came ashore for the last time, six miles to the north of the entrance to the Burrum River, Queensland in a violent storm. This put it as probably up on Woodgate Beach. She was in ballast at the time from Mackay and was forced to anchor. The gale parted the anchor cables and she went up on shore. At low water it was found she was in very shallow water, about twenty yards from land. An anchor from her can be found at the Hervey Bay historical village museum.

Not enough Pollution?

Main Sources 2009 Kingborough Council Report; 2016 Taswater Report

We all know that sewerage can be very damaging to marine life, but in the Derwent there is an example of a pollution source that is aiding the survival of a threatened biological community.



Giant string kelp or *Macrocystis* is found in Australia in the temperate water from Cape Jaffa in South Australia, around Tasmania and to Walkerville in Victoria (near Wilsons Promontory). It is also found in South Africa, South America and Pacific North America.

It loves nutrient rich waters from natural upwellings. *Macrocystis* is the longest marine plant in the world and is also one of the fastest growing.

During winter and early spring, nutrient-rich sub-Antarctic waters intrude into the lower Derwent estuary, producing elevated nutrient levels in those seasons. They are pushed south in the summer and autumn by nutrient-poor subtropical waters from the East Australian Current. The warming of the globe's oceans has increased the strength of this warm current and it lasts longer and heads further south than ever before. Sea temperatures off Tasmania's East Coast have increased by as much as 2 degrees Celsius because of this increasingly strong current. As a result, almost all of the once thick stands of kelp have disappeared from the East and South East of Tasmania.

One of the few resilient stands has been directly off a sewerage outfall at Blackmans Bay in the Derwent. Here an old and not particularly modern sewerage plant has duplicated the effect of a natural nutrient rich upwelling. Before 2010, the old outfall created a plume of nutrient effects discernible 600 m alongshore x 200 m offshore of the outfall. In 2006 the string kelp was most abundant and formed a substantial canopy at 90 - 150m from the outfall. Close to the old outfall only hardy coralline algae and sea lettuce could survive. This phenomenon has also been recorded off sewerage plants in California, and I've also seen kelp thriving off an old outfall at Ulverstone.

In 2010 the outfall was upgraded and extended. The old outfall had a dilution of 4:1 while the newer longer outfall has an initial dilution of more than 100:1. 'Fertiliser' ports were put in the line to enrich the existing kelp forest. There were promises of an effluent dosing schedule to correspond with natural factors (I'm not sure whether that happened). It didn't stop the kelp from disappearing.

Recently, kelp has just started to sprout again all down this part of the river due to natural factors. It is not clear that the sewerage plant is still encouraging the kelp in any appreciable



way and this is likely to be more so as time moves on. More recent monitoring suggested that the nutrient levels in the area surrounding the outfall are not much different from the rest of the river.

Once again the plant will be modernised, with significantly lower nutrients entering the river. Even though existing Margate, Electrona and Howden farms will be redirected to Blackmans Bay, the net result is a drop in potentially harmful effluents. Overall, this is a great thing for the river, but maybe not so much for the local kelp.

The consultant's report penny-annied about whether, being in less than 8 metres depth, it really was part of a listed threatened habitat according to the official definition. Fertiliser ports on the existing effluent pipeline will remain, for now. However, if you think that means Taswater will maintain the kelp forest think again. "If the persistence of the kelp forest is found to be a direct result of the anthropogenic input of nutrients, it is considered unsustainable in the long-term to maintain the forest through releasing effluent of a lower quality than AMT standards" [my emphasis]. Taswater were asked for comment and also added that they are restricted by the terms of their EPA licence.

This is an odd scenario, we have been schooled in to not ever thinking about releasing pollution. However, having stuffed up the environment of the river we have the odd example of a

human impact which is, in a very small area, redressing some of those impacts. Is it reasonable to maintain this fragment of a habitat. It might be an artificial underwater botanic garden, but no more wrong or unsustainable than the ones we maintain on by shovelling phosphate fertiliser on to them.

I put this question to Dr Neville Barrett, who generously took the time to respond. It looks like there are no easy fixes when the environment is suffering a broadscale event,

"Agreed that the original shoreline output was instrumental in maintaining a luxuriant *Macrocystis* forest at Blackmans Bay through time, even while many of these declined markedly as a result of increasing EAC influence in the region. We have learnt a lot by observing this forest informally. In years when nutrients were low but overall temperatures remained below 20c as the summer maximum, plants near the outfall continued to flourish while those regionally died back, indicating that nutrient limitation was a particular cause of regional declines. However, in one summer where water exceeded 20c even the plants by the outfall declined markedly. So that was a "natural" experiment demonstrating that even in the presence of sufficient nutrients, *Macrocystis* would die back, as it was intolerant of temperatures above 20c.

When the outfall was extended 1 km or so offshore, the *Macrocystis* beds in the area declined markedly in response to declining nutrient availability during the summer period. No doubt they will decline further if the sewage plant is upgraded further."

"...if we do indeed decide to artificially stimulate the survival of some forests in the area, but bearing in mind that we cannot do anything about warmer summer water, so are we delaying the inevitable, and will lose even those "botanic gardens" every warm summer. "

Are fish farms stimulating kelp?



Peter Hendrie

Interestingly, Dr Barrett suggested that fish farms might be partly making up for nutrient shortfalls during summer as the waters of SE Tasmania warm and increase the influence of the nutrient poor Eastern Australian Current.

“In the future, background nutrient loading from Salmonid farms in Storm Bay and the D’Entrecasteaux Channel will add to summer levels and help maintain nutrients at a time when EAC influence and spring blooms have normally depleted levels. They are almost certainly doing this at present in the Channel, and will increasingly do so in the lower Derwent as production increases. So, given that, maintaining anything extra from the Blackmans Bay plant may not be necessary. Overall, it’s an interesting conundrum, trying to reduce unnatural organic loading in the Derwent from STPs and other sources, while maintaining conservation values that need some nutrients (at the summer minimum).”

Having just read a report on fish farming that said there were no effects away from the pens, I asked him to explain how they could then be affecting kelp forests some distance away,

“The effects at a distance are difficult to quantify with respect to algal growth in general. The study that showed effects at distances of 300 m or less was one I was involved with (Liz Oh hons project) and demonstrated elevated levels of epiphyte growth at scales like that, with no clear effects at a km or so. However, we have no baseline sites that are completely removed from diffuse inputs so its really hard to tell. The long-term BEMP study shows elevated levels of nutrients throughout the region, particularly in summer when natural inputs are low. But these aren’t high enough to stimulate plankton blooms etc, so are not a major concern at this stage. We have not formally studied effects on *Macrocystis* for the same reason though, as diffuse effects throughout the Channel make control-impact types of studies very difficult. Despite that, it is clear that *Macrocystis* has survived well in this area over some difficult summers.

Sometimes that can be due to river runoff due to high rainfall, but other times it is likely to be due to enhanced background levels of nitrogen. So in a system such as the open coast, where nutrients are declining naturally due to climate change, the farm inputs may offset these. So another interesting conundrum, as if these are at about the same increase as the decline, and they balance out, could that be thought of as a climate change mitigation strategy? ”

I don’t think anyone is advocating pollution as a defence against biodiversity decline, even less a solution, but coincidentally sometimes there is a side-benefit in some places. This would be nothing except that in strange times we are glad for any help we can get.

It just goes to show that even a simple or even apparently helpful human activity like fixing a sewerage farm is not always that simple.

Royal Shepherd - transitional screw steamer. .



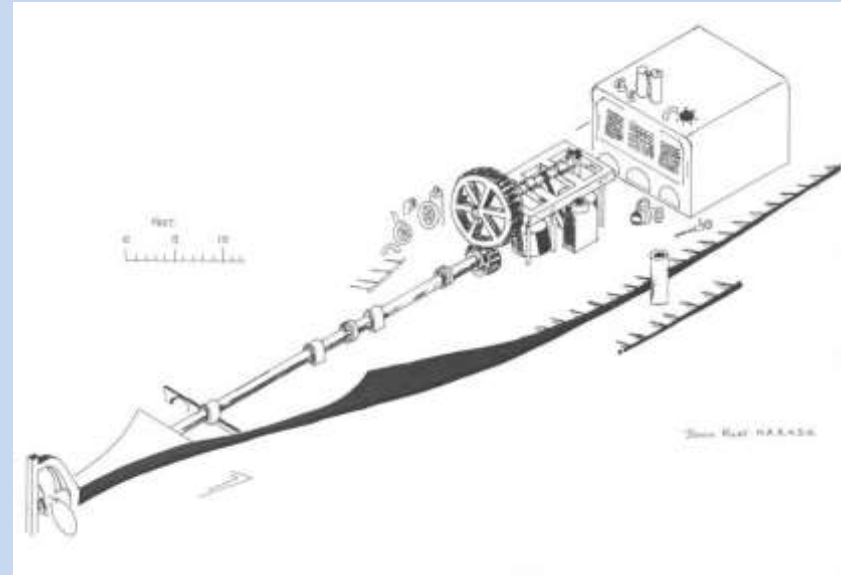
This Sydney wreck offers a close-up look at an historic marine engine

In 1853, this 265 gross ton, 148'1" foot long iron steamer was built by Blackwood & Gordon at

Paisley, Scotland. An oscillating engine producing 60 horsepower. They were of the jet condensing type requiring a steam pressure of between 15 to 20 p.s.i. The vessel also had a unique square boiler. Unusually a large gear wheel had wooden teeth - a weak link that was repairable in the field. She also relied on sails, originally on 3 masts. She was owned in 1854 by the Launceston Steam Navigation Co., registered in Launceston. July 1857 owned by G Fisher & Partners (Launceston and Melbourne Steam Navigation Co). Intended for the Bass Strait run, she had little success, and was sold December 1864 to Adelaide interests. In October 1885 she was sold to Sydney. It was to be used at the end of her life as a collier but found other work until finally converted into a collier in October 1889. She was towing a sailing ship to Wollongong when she sank after a collision the steamship *Hesketh* on 14th July 1890 off Sydney Heads. No lives were lost.

The wreck now sits upright on sand at 30 metres. The small site is dominated by the unusual engine and boiler. A few fish can be seen bullseyes and leatherjackets.

Its close to the entrance to Sydney Harbour and sometimes experiences poor visibility, especially after rain. It has some



shelter from southerly winds and is a good alternative dive when there is a southerly sea running.



<http://www.michaelmcfadyen.scuba.info/>

Dragons under threat

No I'm not talking Harry Potter, but the possible population decline of an iconic species. The species, may need to be reclassified from near threatened to endangered.

ABC, SIMS



Kris O'Keefe

Weedy seadragons are found from Port Stephens NSW, around the south coast to Western Australia, including Tasmania.

Male sea dragons brood the eggs on the lower half of his tail, where the female deposits about 250 eggs.

Sea dragons have well defined home ranges but the males move to more suitable sites to look after their eggs and give birth to their young. Some males have more than one brood per season

with around 60 days between broods. Breeding peaks just prior to the time of warmest water temperatures. The young grow very quickly in the first few months when the water is warm and there is an abundance of food (small mysids) but they do not grow as large as animals found further south. The offspring become sexually mature at 28 months and 33cm. Seadragons may live up to 6 years.

The University of Technology Sydney (UTS), is conducting a two-year study into the species.

Sydney

Researcher John Turnbull said the kelp that the seadragons depended is thinning out at Kurnell in Sydney's south. "The numbers here are down. This is the best site in Sydney, so you can still see them here reliably," he said. 'Dragon alley', a dive site off Barrenjoey Head popular for weeing weedy seadragons, is now empty of seadragons. They are also missing from Botany Bay,

"The outer sites are doing fine at the moment, but clearly industrialisation and sedimentation has reduced the kelps which in turn has meant the seadragons are probably not dead, but have relocated further out of the harbour," said UTS professor of marine ecology, David Booth.

"With climate change driving warmer waters further south, I think the Sydney populations could come under threat directly through climate change," he said.

Derwent River

If you were hoping that cooler southern waters would be a refuge for the species think again. A 2016 survey in Tasmania failed to identify any weedy seadragons in the River Derwent.

"We went to those three sites, did our surveys and did not find one single individual, which shocked us a little bit," she said. Bicheno still yielded 8 sightings.

Melbourne

At Portsea "Since the channel got deepened in 2009 for the port development in Melbourne, wave action [has] destroyed the habitat," Dr Klanten said. She said instead of seeing between 50 and 80 seadragons under the pier, they found only eight.

The researchers have been using facial recognition software to identify and name individual fish. Like a number of similarly dotted fish (handfish are similar) each individual has a unique spot pattern. Hard and time consuming to compare at home with a photo, but not so hard when automated.



Kris O'Keefe, baby weedy seadragon

Marine Impressions, Turner



The morning after the wreck

News from Bird Life Australia (via Yellowthroat Magazine)

Raising Money for Bird Conservation

“Good morning everyone

You may be aware that BirdLife Tasmania, in conjunction with NRM South, the Tasmanian Parks and Wildlife Service, Landcare Tasmania, and Glamorgan Spring Bay, Tasman, Sorell, Clarence, Kingborough and Huon Valley Councils launched a crowd funding campaign to raise much-needed funds to protect our beach-nesting birds earlier this month.

We are presently half way through our 4 week campaign, and have raised just over \$5000 for our conservation efforts. Please consider making a donation if you can, and circulating this email or linking with Facebook and other social media etc to your networks, colleagues, friends and associates.

Many thanks in advance for your support and assistance.
Kind regards to all

[Dr] Eric [Whoeler]”

What now?

Help us reach our goal by chipping in a small donation - big or small, every cent helps! You can also help us out by sharing this campaign with your professional and personal networks. You can find the campaign link , or keep an eye on NRM South's social media channels.

Share the shorebird love and help give our precious beach-nestingbirds their place in the sun!

Winter Gull Count 2017

The annual BirdLife Tasmania Winter Gull Count will be held on Sunday, 11 June 2017, which is the Sunday of the Queen’s Birthday long weekend. The count has been undertaken annually since 1980, and is the longest annual gull count in Australia. The count covers coastal areas between the southern part of the d’Entrecasteaux Channel and Bruny Island northward to New Norfolk, and eastward to Marion Bay and the Forestier and Tasman Peninsulas. No prior experience with gulls is required — the count package distributed to all participants comprises an instruction sheet, an identification guide and the data sheet. We are fortunate that we have the support and involvement of the aquaculture industry, with their staff counting gulls at the various facilities and leases around the coast. Analysis of the long-term count data has shown a movement of gulls away from tips and their traditional foreshore feeding and loafing sites to the d’Entrecasteaux Channel, in particular to areas with aquaculture facilities. Please contact Eric Woehler or on 0438 204 565 to be included in further emails regarding the count.

[Marine Life is also doing surveys from the Alum Cliffs to Tinderbox by boat – like a morning out on the water as we may be short of participants this year? Bring your warm clothes and waterproofs.]

WA Salmon are running

WA stocks of Australian Salmon are very healthy, why? Well its largely because they taste terrible as far as our palates are concerned.

ABC, Fishing World



When salmon start to run in March and April we see an increasingly rare sight, a natural fish aggregation on a Biblical scale that seems to reassure us that the ocean is full of untapped resources. According to professional fishermen the salmon are being 'wasted'.

In the past salmon have been an important 'artisan' fishery. When men in small towns in the WA South Coast would leave farming to make spare cash from beach netting during the salmon runs. That industry nose-dived ten years ago when the fish canneries closed down. The fish have had such a low value there isn't even a stock assessment for them since 2004. The salmon industry has not seen a price increase since 1981 (with bait around 50 cents a kilo), and over the years the market demand has diminished to the point where many fishermen have given up altogether.

It looks like WA Australian salmon are now to be put on the menu, with strenuous efforts by the remaining artisan fishers to get chefs to cook around the ikky bits and oily strong flavour we don't like in table fish.

The commercial sector plans to restore its catch to near historic levels 2000-2500 tons and start up an export market. Some

want to trial moving the fishing effort offshore using boats that could catch salmon year round to ensure certainty of supply for buyers [does that mean industrialising it?]. This would involve exporting to China to make canned and frozen fillet products. So far the Fisheries Minister isn't willing to commit to that fishing level.

Everyone wants a piece of this action. The cray industry wants cheap bait and aren't keen on other people taking too big a cut of the stock. Because salmon are cheap to buy they are a valued bait resource. They are also safer to use. Importing frozen bait in the 1990s, is thought to have introduced a mysterious herpes virus that devastated pilchard stocks from New South Wales around to WA.

Recreational fishermen also aren't happy with any ideas for new industrialised fishing. They love the big aggregations, "This is one of the world's best sport fisheries and the world doesn't even know about it," he said.



They have been pushing for years to have the whole industry closed and be a rec-only fishery.

The Department of Fisheries has advised the commercial industry to meet with the recreational industry in order to "strengthen their proposal". Today there are only about 5 active commercial fishermen, with another 15 holding licences to 'wait and see'. They can't compete with the political muscle of the rec fishing lobby. Recfishwest, represents 800,000 WA anglers.

Professional fishermen said no to talks, "There's a panel called the [Integrated Fisheries Management] board that decides who gets what with tonnages and percentages and then the total

allowable commercial catch, which should be done on science-based evidence — not just two groups talking."

There is a strong argument that recreational fishermen provide economic value to coastal towns, for small towns perhaps more than any small offshore trawler fleet. In what might end up being the final word on the subject, recreational fishermen have said the bait market was a poor use of a valuable resource. "Simply taking these magnificent animals out of the environment, running them through a bandsaw and stuffing them into a bait box to put into a rock lobster pot is simply not acceptable use of this important resource."



WA Salmon

Per DEH stock assessment 2004

The fishery targets WA salmon (*Arripis truttaceus*). Although initially considered a type of eastern Australian salmon (*Arripis trutta*), genetic studies conducted in the 1980s indicate that WA salmon is a separate species.

The species is found in the waters of southern Australia, extending from Kalbarri in WA to Eden in New South Wales, including the waters surrounding Tasmania. The bulk of the harvest of WA salmon occurs at shallow depths off beaches. Low levels of genetic differentiation suggest that a single stock of WA salmon exists. The lifespan of *A. truttaceus* is 9-10 years. Growth rates decrease from west to east across the population,

with western individuals maturing in 3- 4 years and eastern individuals in 4-6 years.

Juveniles are found in shallow marine embayments and estuaries, but adults may be found associated with open beaches and rocky reefs, offshore to partway across the continental shelf.

WA salmon make a single migration from south-eastern waters to spawning areas off the southwestern coast of WA between Busselton and Albany, after which most become resident in WA waters. The fishery targets this spawning migration.

The fishery for WA salmon began around 1940 in WA waters, initially in the Hopetoun area.



Readers Observations

Leatherjacket Massacre

ABC, Narooma News, BOM, Break O'Day council



Kent from Hobart (a keen fisherman and Seadragons diver) has also seen schools of dying Threadfin leatherjackets (*Paramonacanthus filicauda*) on the East Coast of Tasmania at Orford. They were forming a bait ball a metre or so under the water, a mix of the dead, dying and healthy. Dead leatherjackets are also floating about in Fortescue Bay and clutter the beaches at the tide line. Birds are hanging about but so full they are now ignoring the stranded fish. Even underwater, crevices in the rocks at Bivouac Bay are dotted with dead fish



A baitball of leatherjackets at Montague Island NSW

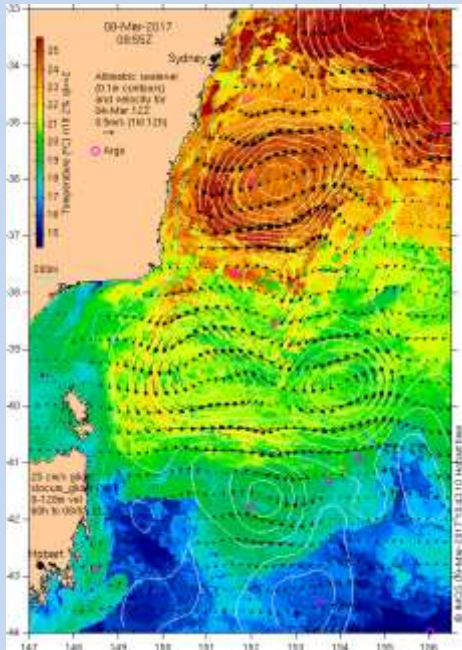
Large schools of threadfin leatherjackets follow the East Australian Current down the coast of New South Wales from tropical waters.

Threadfin leatherjackets are found in Australia and Papua New Guinea. In Australia they are known from the north-western coast of Western Australia, around the tropical north and south to Tasmania.

Thousands of juvenile threadfin leatherjackets washed up on New South Wales beaches in May and June 2004, and mass kills of this species have been recorded in New South Wales and Queensland in previous years.

They occasionally come inshore where the local fishermen claim they "pick reefs clean". The Narooma Times reported on an aggregation event several years ago, "There were reefs known for long-fin orange perch but once the jackets showed up these and other fish just disappeared," he said. More likely, the same thing that usually kills the threadfins also killed the other fish.

Recently a very large mass of these tropical fish have been riding the East Australian Current (EAC) towards Tasmania. At this late stage in the year the cooler southern waters usually start to overpower the EAC and cool the water. Rather than the fish slowly dying off, a large upwelling of cold water off Tasmania's NE has put them under sudden and unbearable stress.



This started on the 8th March and was picked up by weather satellites as a green swirl of cold water jammed between the warm tropical current and the cold Southern Ocean waters pushing up the East Coast of Tasmania. The upwelling was caused by winds and eddies created when the EAC hit the shallow waters of the continental shelf. The fish were hit by a noticeable cold 'front', the warm 22°C was separated by only 25km from 14°C upwelled water. The northeastern corner of Bass Strait is a well-known upwelling region

In March dying threadfin leatherjackets were washed up on shores in far eastern Victoria and southern New South Wales.

Although most of the fish appear were leatherjackets, there are also whiting, black sole, puffer fish, boxfish, sea urchins, and flathead affected too.

They then started washing up dead on Flinder's Island and drifting southwards until they are now off Fortescue in mid May. In response to worried calls from beach users, Mick Tucker, Mayor of Break O'Day Council, quite rightly said. "It doesn't happen every year but it's happened before and it's been proven to be a natural occurrence." Beach swimmers can go back in to the water, but only if they can also suffer the drop in ocean surface water temperature of 7 degrees Celsius that came with the dead fish to St Helen's beaches.

Being pedantic, there is still some argument about whether the kills are caused just by the cold, or the oxygen depletion caused when the algae die off, or the suffocation caused by algae blocking the fish gills. Whatever the cause of this fish kill it appears that increased southward extension of the EAC since at least 2014 (which is climate change related) has contributed to creating both a stronger upwelling event and higher gradients in temperature.



Expect to see more dramatic natural events as the roller coaster of oceanic climate change starts to pick up speed and strength.

Exciting...you can hardly wait...well maybe not.

Readers Observations

Latchets everywhere

John from Bicheno reports "We've had some exceptional viz in the bay of late, around 20m with a few days out to 30. There are lots of latchets about, I hadn't seen one in the bay for the last 10 years I reckon". I've seen one recently off Rocky Cape NW Tasmania recently too.



R. Kuitert

Widespread in southern Australia, from about Sydney, New South Wales, southwards around Tasmania and westwards to Perth, Western Australia. Elsewhere, found off the northern coast of the North Island, New Zealand. Depth range: 10–484m with juveniles smaller than 125mm SL occurring in depths above 55 m.

Readers Observations

Who am I?



Dave Byrne has taken this pic. These guys, assumedly a juvenile fish, have been everywhere in the Derwent lately, any ideas what they are? I suspect a juvenile barber or butterfly perch?
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