Fathoms

Official Magazine of the Victorian Sub-Aqua Group (est. 1954) SUMMER 2025-26

Elodie Camprasse - Eaglehawk Neck Tasmania

Contents

VSAG 2025 Activity Report

by Peter Walters

For a president's report I thought I would list a summary of the club activities in 2025.

When we read through the list, I think we can see that VSAG continues to be a vibrant club, with quite a range of activities throughout the year for members.

The activities

Local Diving

Mud Islands - A new initiative this year was to visit Mud Islands following a single-tank boat dive.

Port Phillip Bay diving - we had a great summer of it this year, and our more intrepid divers continued on in the better clarity of the winter months. This included some spontaneous whale watching in Port Phillip Bay.

Inverloch - The crays continue to be nervous living in the area.

March Long Weekend - Phillip Island - Some good dives done, but there was also a range of boat-trailer based activities.

Slug Hunting and the Nudibranch Census - The hunt for more of these little critters continues.

Dive Trips

Hogan Island - A range of brave club explorers joined the Aquaholics crew for a number of trips of to the island group. A couple of trips had to be cancelled, due to conditions; but there were several with great diving and adventure.

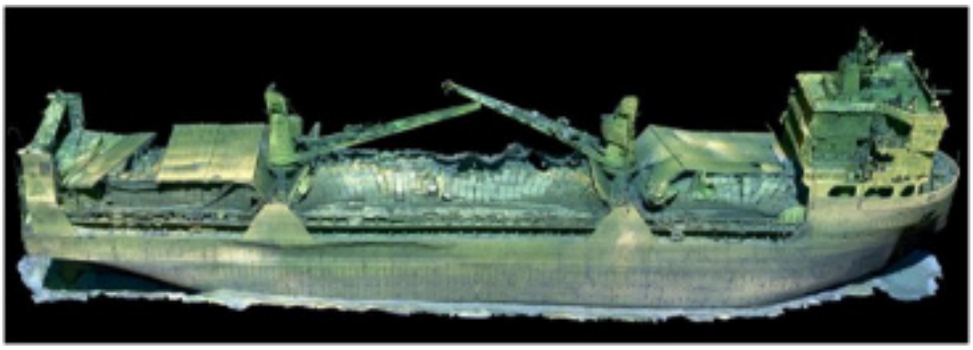
Santos Island Vanuatu - The SS President Coolidge and surrounding dive sites continue to draw VSAG divers in.

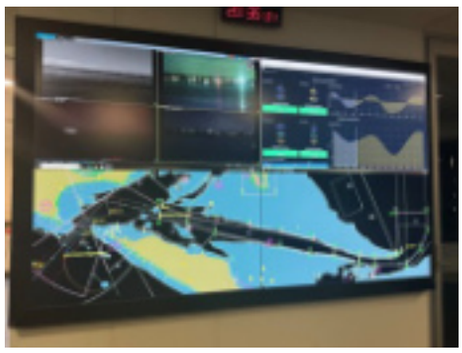
Jervis Bay Trip - Twenty divers and 4 boats headed across to the bay. After one great day of diving the weather closed in and we spent a lot of time getting wet on the shore.

Palau Trip - A small band of VSAGers were lucky enough to have a week of magnificent diving around the island.

Tasmania Trip - Eight divers headed to Eaglehawk neck and Tasman Island. We were lucky to have great weather and dive this spectacular area of Australia. Following a week of diving half the crew continued on for a week of Tassie touring.

Activity Report cont.





Presentations

The club continues to try and find interesting presenters for our club nights. This year we had:

- Brandi Mueller presenting on Bikini Atoll.
- Dom Robinson presenting on deep wreck diving.
- Ian Scholey presenting on photogrammetry.
- Richard Pensak presenting on invasive species and Earthcare St Kilda.
- Tara Jones presenting on the Australian Marine Conservation Society and plastics in the ocean.
- Elea Lewendon presenting on Faulkland Islands Marine Heritage Trust and finding the Endurance.
- Sandy Webb presenting on Jawbone Sanctuary.
- Sanir Alhafith from the Sydney Project presenting on diving the SS Nemisis.

Discussion group sessions

Our club nights also included discussion on diving topics:

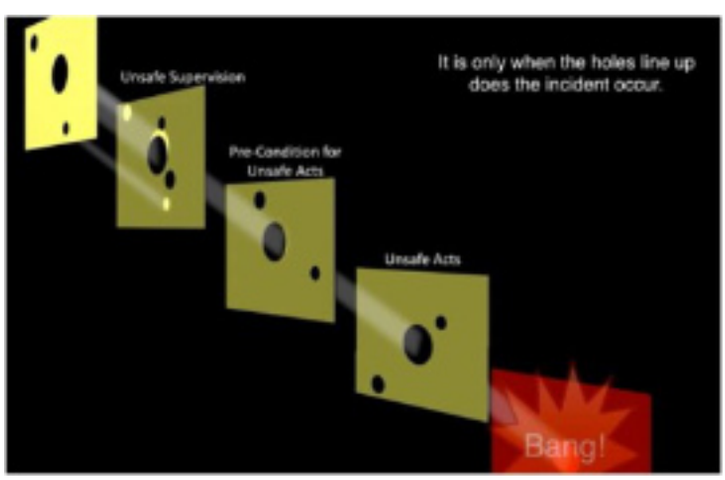
- Tips and Tricks from Cave Diving Experiences – led by Terri Allen
- iNaturalist – led by Elodie Camprasse
- Barrotrauma, Ear & Teeth Maintenance – led by Sandrine Balbao
- 'If Only' – Gareth Locks Human Factors video – led by Andrew McKernan
- Dive Debriefing Systems – in an open group discussion
- Nitrox Diving discussion – led by Mark Ryan
- Dive computers – led by Terri Allen and Mike King
- 02 and AED discussion – led by Ian Scholey

Other activities

The out-of-the-water activities included:

- A VSAG Dive Computer Survey
- A Port of Melbourne - Operations Tour
- Attending the Ocean Film Festival
- The annual XMAS in July Dinner
- The annual Life Member's Lunch

A core number of members step up to organise these events, and I would like to thank them for this. Of course, it is only with these efforts that the club continues to be so active after 70 years.



CLUB EVENTS

Whale of a story

by Craig Norrish

My name is Craig Norrish and I write this story as a brand spanking new member to VSAG and being lucky enough to have the experience of a lifetime. It occurred in early October when I was out with Peter Beaumont (on his boat) and Ian Scholey. We were doing two dives that day, the first was a dive on the Hurricane, just off Rye and the second was a scallop dive in approximately the same location. I should also add that while I am an experienced diver, this was my “check out dive” with the club.

To start with the day was a glorious day, bright sunshine, clear blue skies albeit a bit cold still at that time of year. The difference though was that on the day there was so much wildlife activity – Seals basking in the sun, dolphins and several large surface bait balls with birds dive bombing them like darts.

On the second dive which was the scallop dive, Peter and I descended to about 13-15 mt and went our separate ways collecting scallops, while Ian manned the boat. As soon as we descended, we both could hear whales singing but with none in sight, Peter and I were separated and doing our own thing. After about 20mins of collecting scallops, the real adventure started to unravel. Again hearing whale sounds, I happened to look to my left and right there about 5 mt from me was a whale with the biggest eye ball I had ever seen just having a good ol gawk at me. I would guess the whale was maybe 20-25 mt in length. My instant reaction was to be startled but then I felt in awe seeing this beautiful huge animal in my midst.

Then to my surprise it started circling me at a walking speed, no anger or aggression felt but a pure curiosity. It then swam off, I thought OK that’s it, its gone, and so I went back to collecting scallops.

Then after about 5 minutes, I happened to look straight ahead and I could see a dark shadow that was getting bigger and bigger – I think the whale has returned. As it got closer it became clear that it was coming straight at me, again only at a slowish walking speed. Then I thought to myself “My god, its going to run into me head on”! I put my arm out straight in front of me as it honed in on me and then it happened, my hand hit and placed itself on the whale’s forehead. Its forehead had some barnacles on it but I more remember the lichen type growth that was covering it. I of course was then being pushed backwards underwater, which was fun in itself but not something I could keep doing. I turned my body to the left which caused me to slowly slide down the entire length of the whales body from head to tail, all the while the front of my body and arms and hands were pressed up against him or her. As I came off the end of the tail, I was quite concerned in case he decided to swat me but that did not happen. He swam off and I made a quick retreat to the surface and join the boat. At that point I also heard Ian’s tale of the whale circling the boat closely and then retreating.

So that’s my (our) whale story, one that I will never ever forget as the day I had a unique experience in getting up close and personal with a beautiful Southern Right Whale.

Beginnings

by Rob Kirk

Like many divers of my vintage it was the TV show Sea Hunt that got me interested in SCUBA. I pretty much knew that diving was all I wanted to do ever since I was 5 or 6 years old.

I was also about that age when my folks bought a block of land at Loch Sport and had an old SEC workmen's hut from Yallourn put on it, and by some miracle they still had enough money left over to buy me a snorkelling set for Xmas '67. The snorkel was one of them plastic death-defying "S"-bend types with a ping pong ball in a cage, but I was more likely to drown from the PVC mouthpiece falling off which it did fairly often. The damn mask was plastic and cut a circular scar into my face for all of summer and the open heel plastic fins made short work of my feet too. I'd stagger back from the beach in agony at the end of the day and go straight back out snorkelling as soon as I could the next morning. Looking back, the truly bizarre part was that there's no reef at Loch Sport.It's all sand and sea grass but that didn't matter an over-active imagination fuelled by watching Sea Hunt, Voyage to the Bottom of the Sea and even that stupid bloody Flipper show.

Xmas '68 Santa answered at least one of my prayers and coughed up an actual rubber snorkelling set comprising of blue Turnbull Continental closed-heel fins, a Nemrod Bali mask and a snorkel that didn't lose its mouthpiece every 5 minutes. This was a real game changer and increased my endurance dramatically. I snorkelled for miles! The seagrass shallows stretched out to about 300 metres from the beach then dissipated to sand where the depth dropped to about 2, maybe 3 metres at the most and this is where I taught myself how to duck-dive. But, being so far out from shore, boats became a genuine hazard and I soon learnt to pop my head up every time I heard the whining of an outboard engine. Too many water-skiers at Loch Sport. Bloody hoons!

Back in Melbourne, Ricketts Point was my favourite haunt, except Dad hated it whenever there was a Council ticket seller which there usually was on a hot day. It was a trap because you only saw that there was a ticket seller on duty after you turned into the carpark from Beach Road and there he'd be and Dad would mutter "Mongrel bloody bastard!!! The amount of money those bastards fleece off of us and the road's still bloody dirt!" Well, it was the principle

of the thing. The parking fee might have been 20 cents or something and I'm sure my Dad would be turning in his grave if he knew that road was still dirt 60 years later! There's a long concrete drain and there used to be a beach next to it, seems to be swamp now, but from there I'd go out along the edge of the exposed reef as far as the point where the timber pyramid beacon is. Unlike Loch Sport there was plenty to see. One time there were a lot of small dead stingrays washed up on the beach and even more live stingrays amassing in the shallows.

Beginnings cont.

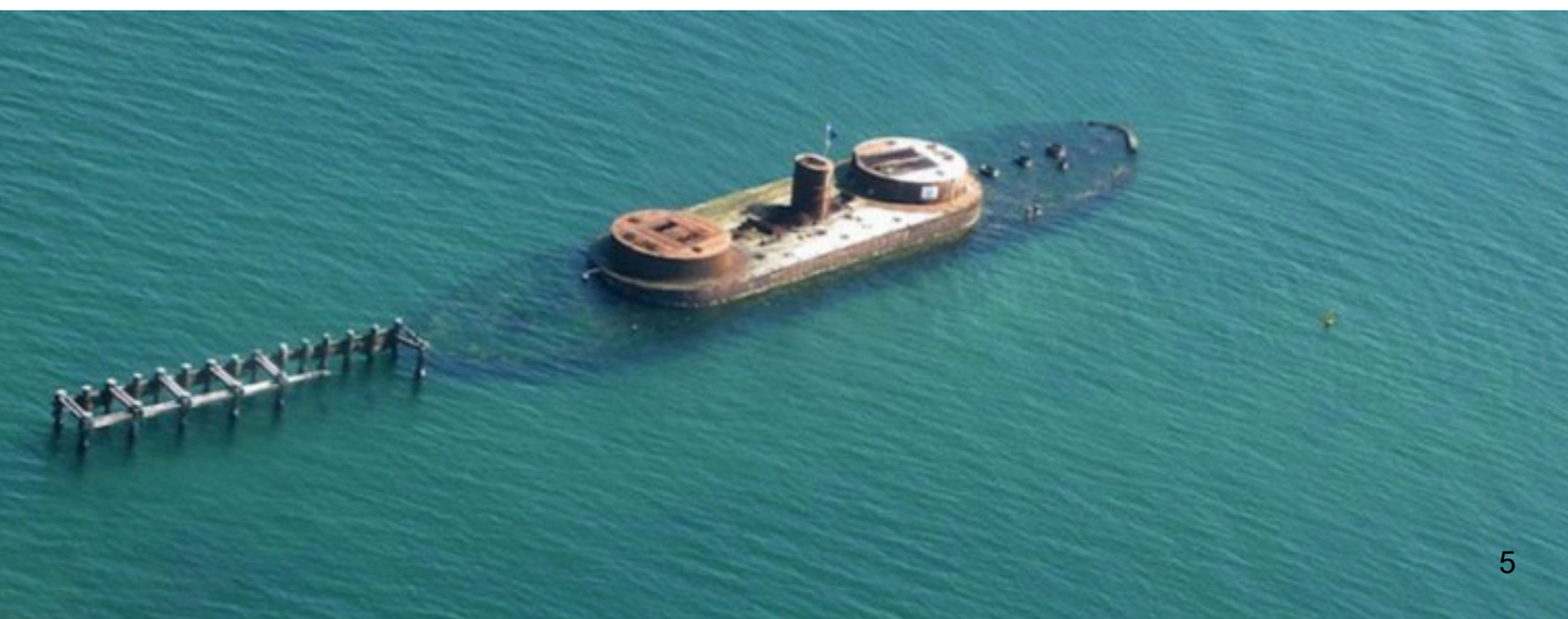
I found that by shuffling my feet they got out of the way and yes, in hindsight I probably should have just sat on the beach and built sand castles like a normal kid. I've often wondered what caused the great stingray congregation and die-off. From memory it was a drought year and pretty hot, but why stingrays would play at being pilot whales and beach themselves remains a mystery.

By the time I hit 14 I had accumulated a half-decent bike, a SeaBee shorty wetsuit and a hand-spear! This gave me the freedom to go snorkelling any time I wanted. From Dunoon Street Murrumbeena to Ricketts Point or Half Moon Bay was only 10 or 12 kilometres but it was a lot for me back then, not to mention that the bike was loaded with diving gear. I'd roll my wetsuit up and tie it under my handlebars. My hand-spear was tied to the cross-bar ready to shoot forward like a torpedo and harpoon some poor little old lady if one had have jumped out in front of me at the Concourse, forcing me to brake hard. Mask, snorkel, a towel and an old Sun News-Pictorial went into my schoolbag with my fins tied on top. The paper was to wrap all the fish in, but that never happened. (I did manage to frighten a mulloway once off the outer bluestone wall of Brighton Yacht Club but it got away.) The weight belt, however, presented somewhat of a dilemma. Any of VSAG's current crop of middle-aged men in lycra will attest to the importance of balance when cycling. Even though my belt only carried 4 x 3lb weights it was forever shifting in the schoolbag and the bike would shimmy then wobble with alarming force on a downhill run. The only solution I could come up with was to just wear the bloody thing. I shudder to think now of the damage that weight belt could have done to my spine if I had fallen off. When I fought and died in the Air Cadets we had a memorable flight in a WW2 vintage C-47 Dakota which were still in RAAF service in 1975. The flight took us around the Bay and I was absolutely amazed at how much accessible snorkelling reef there is between Elwood and Beaumaris, yet I didn't do as much exploring as I could have. After going to all that effort only to find the water a pea-soup green a couple of times, waiting for perfect weather became the limiting factor. OK…. it was laziness. This travelling to dive sites by pushbike was hard work!

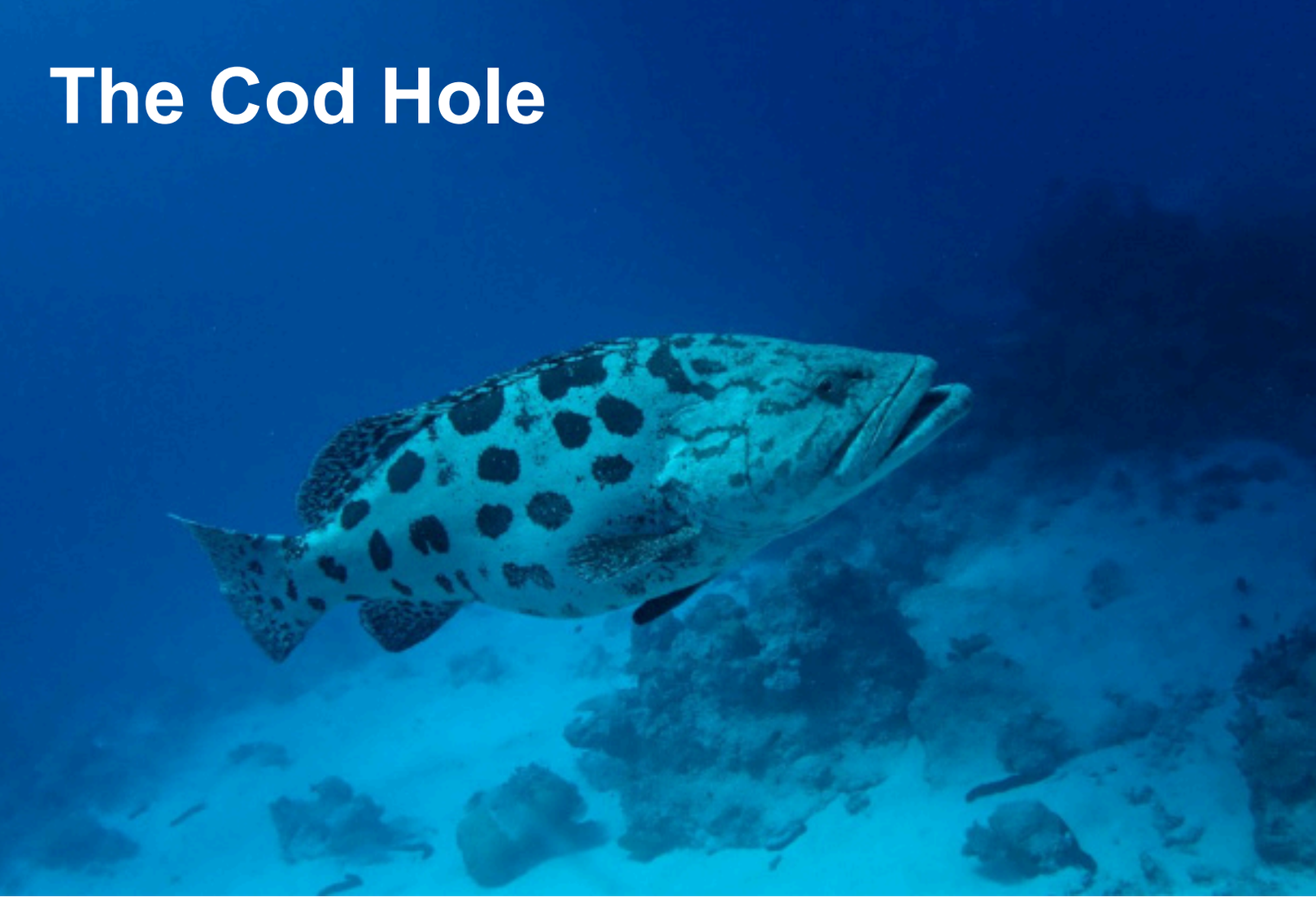
If I had have bothered to look at a Melways I would have discovered that South Road was significantly closer, but generally I spent most of my time at Ricketts Point or at Half Moon Bay and the wreck of the HMVS Cerberus. At the end where the timber groyne is, a bit back from the bow or stern or whatever it is – one of the pointy ends - there used to be a steel ladder lying in the sand. There was a fitting of some sort conveniently sticking out from the hull that you could hook the ladder onto and climb up with your fin blades between your teeth. The wreck was quite interesting to explore, although there was a lot of rubbish left behind by boaters and picnickers. It's a pity you can't do it now. Actually it's a pity that the whole thing wasn't preserved as a Museum Ship but I guess they didn't care much for preserving history back in the 1930's.

I regret that I didn't do a lot more on the ol' sweat-wheel than I did. Snorkelling seemed rather dull after I started SCUBA and of course I just got fatter and lazier when I got my driver's licence and started working and smoking and drinking.

But that's another story.



The Cod Hole



by Peter Mosse

The Cod Hole is one of the most popular, iconic, short duration liveaboard dive trips in Australia. Popular with Australian divers but even more so with overseas divers. On my trip in October, my dive buddy and I were the only Australians!

The Cod Hole is at the northern end of the Ribbon Reefs, east of Lizard Isand. I went on the Spirit of Freedom. The boat leaves Cairns at about midday Thursday and returns to Lizard Island on Saturday evening to deliver divers to the airport for a very scenic flight back to Cairns on Sunday morning.

The Spirit of Freedom at anchor at Lizard Island

Coral doesn't get much better than this.

Ron and Valerie Talor discovered the Cod Holc in the early 1970s. Over the years since then the Cod Hole area has been subjected to cyclones and coral bleaching and loss of fish. However, coral regeneration has been quite spectacular, and the fish are back, albeit in reduced numbers. Historically, up to 20 animals frequented the area, but the numbers are now reduced. We saw five fish. The area is protected and feeding of the cod is strictly controlled.

The corals along the Ribbon Reefs were spectacular with no sign of any bleaching where we dived. Not surprisingly, the further north we dived the better the coral.

The Cod Hole cont.

And the fish life was incredible. Because of the way the dives were run, there were two late afternoon dives towards sundown. The water takes on a deep blue hue, and the fish seem to just “go nuts”.

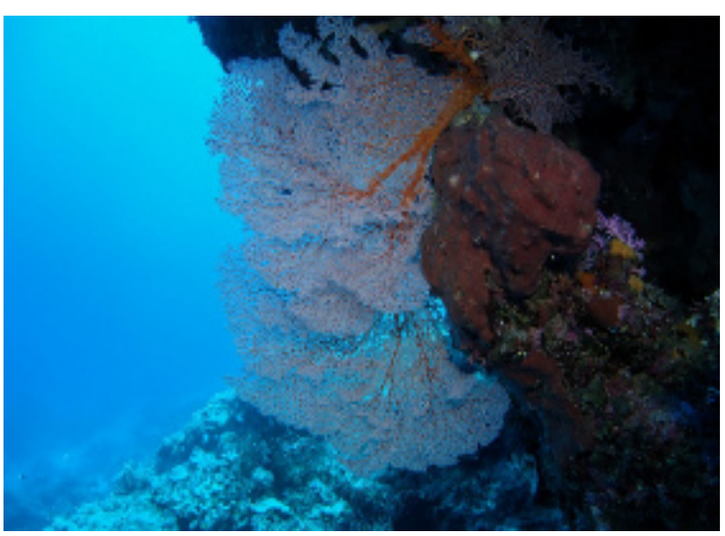
So many species, too many to remember. Schools of arge and small barracuda, surgeon fish, parrot fish and wrasse including an occasional maori wrasse. Coral trout and cod, sweet lip, snapper, silver trevally, blue fin trevally, GT and for me a new species the blue blanquillo. A few small reef sharks and a remora that decided to try to attach to me at a safety stop. And of course, the ubiquitous brightly coloured shallow coral reef fish.

Very old, very large giant clam

And for me a coral reef trip needs to have fans! And there were plenty.

We didn’t see many small “critters” but there was just too much happening on the “big screen” including the biggest and therefore probably the oldest giant clam I have ever seen.

And of course, the Giant Potato Cod after which the dive site is named. They are so tame and

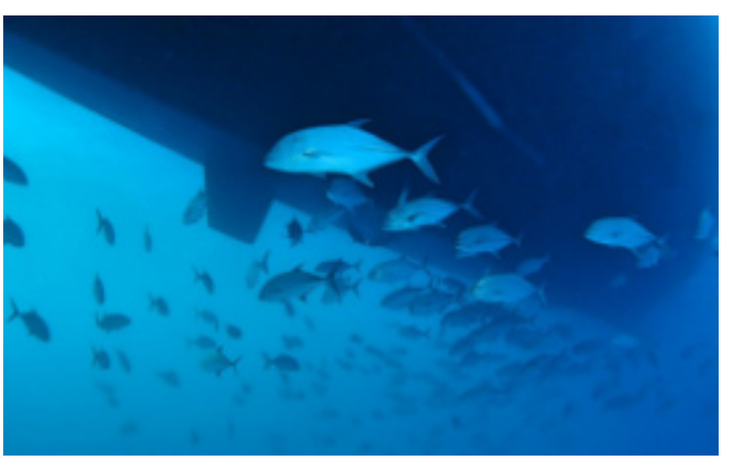


Delicate gorgonians up against a stunning blue background.

A barracuda at a cleaning station. I could have crept closer but a would-be photographer with a GoPro on a “Hockey Stick” buzzed in to get a swim by shot and spooked them. Ho Hum!

inquisitive, it is easy to understand the “no strobe” policy. But there is easily enough ambient light to get lots of good photos.

So, for those of you who don’t necessarily like long multiday, long distance travel dive trips, think about joining one of the Cod Hole trips. The Spirit of Freedom was great. Great food, great diving operation, very good quality gear. And with only 24 divers on board, the dive sites didn’t get too hectic. It seems like October, give or take a month, is a good time to go, but as with all reef trips, the weather can be against you. The next trip after us faced 20-25 knot winds heading out to Osprey reef.



Trevally love to hang around under the boat.

There are other providers, but I can personally vouch for this one.

And one final thing, the “Hole” in the name seems to be a bit of a misnomer. There is no hole as such, just a region of parallel coral reef ridges.

The Cod Hole cont.

Up close, eyeball to eyeball.

This accumulation of oblique banded sweetlips seems to be a regular feature at the Cod Hole.

Hook, Line and Stewardship

by Cara Hull

After several decades of diving, I have lost count of the number of animals I have freed from ocean debris. Rays trailing hooks, sinkers and fishing line, seahorses tangled in monofilament, and the occasional fish hopelessly snagged in debris that should never have been there.

Out the back of places like Flinders Pier, fishing line gets caught in seaweed, seagrass and other marine plants, making it super effective at grabbing a diver's fin. It's happened to me there so many times that it feels like second nature. In those moments, I reach for my line cutter, free my fin and quietly remind myself why carrying one is so important.

Diving several times a week during the summer season gives you a good sense of what lies beneath the surface. One thing is almost guaranteed: under the anglers on the pier there will almost always be fishing debris. Monofilament wrapped around pylons, hooks and sinkers tangled among the marine growth, and other debris snagged wherever it happens to catch.

Divers around Melbourne are fortunate. Within a short drive we have access to boat dives, shore dives and plenty of easily accessible pier dives. From sheltered bay sites to remarkable dive sites along our coastline, we are surrounded by great diving on our doorstep.

Yet even in these places, debris left behind underwater remains a persistent problem. It can entangle marine life, damage fragile habitats and pose a hazard to divers moving through the same structures.

On a recent boat dive we recovered two separate anchors. One was still attached to a considerable length of chain and rope, and the other took quite a bit of cutting before it could be freed. Sadly neither of them belonged to the sort of vessel many VSAG wreck divers would be hoping for.

For most divers the response is straightforward. Carrying a cutting tool has always been part of basic dive safety, and it also allows us to deal with debris when we encounter it. A quick cut of fishing line or a small tangle lifted from a pylon might seem minor, but it is one less hazard for marine life and the next diver who swims past.

Some divers choose to go a step further and make the occasional dive specifically about removing debris. It does not have to be every dive. Even deciding that one in five dives might be a dedicated clean-up dive can make a noticeable difference over time. Others simply build the habit into their normal dives, carrying a small container or pouch so the debris they collect can be brought safely back to the surface. None of this requires special equipment or a major expedition. Small actions repeated over time can make a real difference beneath our piers and reefs.

Divers have long followed the rule: take only photos. Perhaps every now and then we should add one more line to it and take a little rubbish with us too.

The Great Southern Reef

Let’s meet the locals! Part II

by *Elodie Camprasse*

I am back to introduce you to the underappreciated and overlooked marine biodiversity of the Great Southern Reef – the southern coastline of Australia, spanning 8000 kms from Kalbarri (Western Australia) to the border between New South Wales and Queensland. I am hoping that part 2 of this feature will continue to inspire you to connect with our precious marine life, be curious about the habits of the creatures we encounter underwater. Hopefully, this article will even help you gain a desire to visit more of the Great Southern Reef and experience this incredible biodiversity for yourself.

Let’s play a game and see if you can you guess which superpowers the species below are equipped with, which make them unique and help them thrive in the temperate waters of the Southern coast of Australia. You can check your answers below.

The Quiz

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Meeting the locals cont.

Multi-choice Question 1

Golden kelp

a - it is the only plant which can flower underwater

b – it can grow to around 10 meters in length

c – it has buoyant air-filled bladders that help them stay close to the surface and get more sun exposure for photosynthesis

d – none of the above

Answer - none of the above

The golden kelp (also known as common kelp), a brown seaweed that thrives in cold, nutrient-rich waters, forms the backbone of the Great Southern Reef. Foundation species like the golden kelp create habitat and provide food and shelter for a vast array of species, from small fishes and crustaceans to large organisms like seals and whales. Though brown seaweeds like kelp are often confused with plants, they sit in a different taxonomic group and, unlike the plants that form seagrass meadows, do not produce flowers.

The golden kelp might not reach the records set by other kelp species on the Great Southern Reef, but it punches above its weight all across the Southern shores of Australia, where its presence shapes marine ecosystems. Individual Southern bull kelps can grow to around 10 meters and weigh up to 75 kgs; giant kelp can grow up to half a meter each day under the right conditions and form towering forests reaching 35 meters above the seafloor. Their air-filled bladders help them float towards the surface, maximising the amount of sunshine that reaches their fronds and photosynthesis. Despite its relatively modest size in comparison, the golden kelp deserves wider appreciation as the most widely distributed kelp species on the Great Southern Reef, with a staggering direct contribution to our economy (estimated at more 10 billion dollars a year!), and indirect value for biodiversity, carbon capture, coastal protection and more.

Meeting the locals cont.

Multi-choice Question 2

Flounder

a – it can swim upside down to confuse predators

b – the rays on its side fins can anchor in the sand to trap prey underneath its body

c – its eyes change position and the shape of its skull changes as it grows from juvenile to adult

d – it can change sex several times throughout its life

Answer - its eyes change position and the shape of its skull changes as it grows from juvenile to adult

Despite their inconspicuous nature, flounders fascinate us with their peculiar looks, interesting anatomy and unexpected life history. A small group of flounder species calls the Great Southern Reef home. They tend to live in muddy and sandy sediments, often visible to divers in sheltered bays and estuaries, at night, when they are most active.

Their adult appearance can fool us, but they, in fact, look like ‘normal’ fishes at the start of their lives. Like in other flatfishes, flounder larvae swim upright and have one eye on each side of their bodies. As they transition from larvae to juveniles, one of their eyes migrate to join the other at the top of their head as the shape of their skulls changes. The colouration of their skin closely matches that of the seafloor, whilst their ventral side (or ‘belly’) remains unpigmented. They then become the fishes we most often spot on the seafloor, compressed and well-camouflaged organisms with eyes sticking out on top of their heads near a mouth that makes them look like this change has left them forever grumpy.

It is thought that this unusual adaptation allows flounders to exploit a common habitat – sandflats and mudflats – whilst reducing their vulnerability to predators as flatfishes can easily burrow in soft sediments and wait to ambush unsuspecting prey swimming past.

Unlike other fishes like gobies, flounders cannot change sex back and fourth, but sex in some flounder species can be reversed during the juvenile stage under certain conditions.

Meeting the locals cont.

Multi-choice Question 3

Giant cuttlefish

a – males can use the ‘bone’ in their bodies to fight off other males and gain access to females

b – it can display different colourations and signals on the right side and left sides of its body

c – it can make itself very flat so it blends in with the seafloor

d - all of the above

Answer - it can display different colourations and signals on the right side and left sides of its body

Who’s ready to meet the rockstars of thes sea? Giant cuttlefishes have an extreme lifestyle – they live fast and die young. One of the most exciting natural events to witness in the winter on the Great Southern Reef is the gathering of tens of thousands of giant cuttlefishes in South Australia,which constitutes the only known mating gathering of cuttlefishes worldwide. Divers and snorkellers brave enough to plunge into the cold, shallow waters of the Spencer Gulf at that time of year are always in for a treat. Males engage in fierce battles to secure mating rights from choosy females, in dazzling kaleiodoscopic displays. Indeed, like other cephalopods (cuttlefishes, squids and octopuses), giant cuttlefishes can change colours rapidly, for increased camouflage or to communicate with others, using organs called chromatophores filled with pigments.

During the spectacular mating rituals, the moody creatures can send mixed signals, showing different displays and colourations on both sides of their bodies, depending on whether those sides are facing friends or foes. Giant cuttlefishes can reach half a meter in length and weight over 10 kgs. Big males have a siginificant advantage over their competitors, and the small males that do not stand a chance in aggressive encounters lay low, disguising themselves as females to get past their bodyguards, and sneakily mate behind their backs. Regardless of strategy, both males and females mate repetitively during the breeding season. Their body condition drops as they expand resources to cope with repeated aggression and defence, and many don’t survive to see another season.

Meeting the locals cont.

Multi-choice Question 4

Port Jackson shark

a - it gives birth to live young and stays with them until they know how to hunt

b - it needs to constantly swim in order to breathe

c - it can lock its teeth together and force the water out to filter plankton out of the water

d - it can migrate for hundreds of kilometres to return to breed where it was born

Answer - it can migrate for hundreds of kilometres to return to breed where it was born

Don't let mainstream media fool you – sharks are a lot more than the blood-thirsty creatures they are portrayed to be and they display a wide range of feeding adaptations, as well as complex mating strategies and fasincating life histories. Affectionally known as "PJs", Port Jacksons are one of the most beloved sharks of the Great Southern Reef. Their 'bullhead', the crest above their heads and the spine in front of their dorsal fins make them easy to identify and individuals can be recognised thanks to the markings on the top of their heads.

Like for many other animals, shark sex life can be brutal and tiresome. They gather in large numbers in shallow embayments at the start of the mating season. After breeding, males return to deeper waters, followed by females a little later, which have to lay eggs first. If you have dived or gone for a wander on the beach somewhere along the Great Southern Reef, you might have come across corkscrew shaped eggcases lodged in crevices on rocky reefs or washed up on the shore. Unlike other shark species including mako, bull, lemon and blue sharks, which give birth to live young, PJs indeed lay eggs. PJ hatchlings have to figure out life on their own and be very careful – even their own kind can feast on them and mortality rate is extremely high. It's a tough life out there!

Whilst a few other marine predators can lock their teeth together to filter out their prey from the surrounding waters, PJs use their broad and flat back teeth to crush the urchins, crustaceans and molluscs they can get a hold off, mostly at night when they are most active. Nothing as scary as "Jaws", as least not from our human perspective!

DIVING HISTORY

The humble O-ring story

To seal, or not seal? That is the question

by Des Williams

Recently, after comms with Peter Mosse, I got to thinking about the development of the humble O-ring seal, which is such a vital component within the range of diving equipment of today, including demand valves, cameras, and torches. Today most seals used in diving are quality O-rings, which did not begin to make their mark in diving until the early 1950s. Before then, it was a choice between rubber or leather for making an underwater seal.

When the standard dress diving helmet was introduced in the 1830s, FLAT profile, leather seals soaked in Neatsfoot oil were used (Image 1) and they remained in use for over 100 years. Neatsfoot oil was produced from rendered and purified shin bones and feet of cattle, but not the hoof. It keeps leather soft and water resistant.

Image 1. A new leather seal in position on a standard dress breastplate

An Internet search of the history of the humble O-ring reveals that it was not until 1936 that the O-ring was invented by Danish-American Niels Christensen. Commonly associated with wartime innovation, production of the O-ring was ramped up during World War II, when demand for reliable sealing mechanisms surged, and the U.S. government acquired Christensen's patent to support the war effort. There is an earlier record of a Swedish patent in 1896 to J.O. Lundberg.

The introduction of tough synthetic products really got the O-ring moving, as natural rubber was very soft, so the O-ring idea languished as too squashy and did not have a "memory" to hold its shape.

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The humble O-ring story cont.

The design was elegantly simple, an elastomeric loop with a circular cross-section, compressed between components to create a durable seal. Despite manufacturing processes having become increasingly sophisticated today, the simplicity of the design has stood the test of time.

The importance of O-rings became tragically clear in 1986 with the space shuttle Challenger disaster, caused in part by a failed Dupont Viton O-ring that lost flexibility in unusually cold temperatures before launch. The O-ring was situated around the girth of the jointed fuel filled booster cells, with the space capsule sitting on top. Fuel leaked out pass the massive O-ring during mid launch and boom!!

Since then, material science, quality tracking, and rigorous testing have transformed how O-rings are produced and used.

Today, O-rings support everything from oil fields and hydraulic systems to dental implants, beverage dispensers and diving apparatus. O-rings today are made from a large range of high-performance synthetic materials to handle extreme temperatures, corrosive chemicals, and complex mechanical requirements. They include: Aflas, Neoprene/Chloroprene, Ethylene Propylene, Fluoroelastomer, Fluorosilicone, Nitrile, PTFE, Silicone and Urethane/Polyurethane.

But I digress, so let's get back to O-ring development in diving. In the early recreational diving years of the 1950s, leather seals were initially used between the demand valve (regulator) and the cylinder pillar valve. This was acceptable, as in those days cylinder pressures were still only 120bar/1800 psi. However, O-rings were already beginning to make their mark in some countries where higher cylinder pressures were available. In the UK they were not widely used until the late 1950s/early 1960s. There was a mid-decade period when white-coloured flat-profile polythene seals were used (Image 2).

Alas, they proved too soft and, at best, lasted for one dive only. That requires an explanation, after all these early seals were part of early sports diving history. The seals were punched out of sheet material; their surface was slippery to the touch. As a result, the circular metal surface inside the demand valve yoke tended to skid sideways as it was tightened. There was no chance of a second attempt as an off-centre indentation remained, and a new seal was required. The first job on receiving a freshly charged diving club cylinder for use was obviously to check the indentation. Even if it was central there was a good chance that it would not work. The usual problem was that the soft polythene had been compressed to its maximum when the yoke had previously been tightened. There was not enough thickness left to be further compressed to make a second seal.

Again, the seal itself had to be changed, which presented a further problem. Being soft, on compression the seals expanded sideways and tightly filled the circular seal groove. The pointed tips of diving knives found a second use: to prise the polythene out. Divers got to carry around their own necklace of white polythene seals.

Sales of these seals lasted about two years, before black polythene seals came into use. They were harder, and often as not tended to have a central ring groove that could be reused for a second dive. Their tenure was, however, short-lived when O-rings finally began to appear towards the end of the 1950s. Before the pillar valve design was changed to accept new demand valve designs, the earlier O-rings were a straight change-out for the polythene seals (Image 3).

Image 2. Flat profile polythene seals.

Image 3. An old pillar valve with O-ring where the cross-sectional diameter was large enough to fill the original pillar valve groove.

The humble o-ring story cont.

It is quite possible that 1930s O-rings were not initially used as pressure seals, as there may have been a type of rubber problem. The arrival of synthetics needs looking into now to enhance this brief overview of the O-ring story. Pressure O-rings need a hard and wear resistant rubber as the above list of synthetic materials indicate.

All hail the humble synthetic O-ring that has found so many uses in diving equipment (Image 4).

But that humble O-ring has also found use in many other applications. For example, in food storage containers (Image 5). Note that in this application the O-ring is used in a non-circular design, notably a rectangle which is also commonly found in underwater cameras.

Image 4. A typical double O-ring seal (black arrow) found in underwater torches. Note also the presence of a separate rubber gasket (yellow arrow) contributing to make up a triple seal.

Image 5. An O-ring used in the lid of a food storage container.

Care and Maintenance

And while the O-ring is simple in design and function, if it fails it can totally ruin an individual dive or dive holiday. You don't have to look very far to find examples of abused O-rings, just waiting to fail but still in use by divers. To avoid this unwanted and sometimes scary and potentially life-threatening outcome, there are some practical steps to avoid it happening.

- Inspect all O-rings that can be easily exposed. Remove them carefully using a dentist pick (Image 6) and look for cracks or signs of wear or chaffing. You could ask your dentist for an old one or they are easily available on the internet.
- Be careful not to scratch the O-ring groove or damage the O-ring with the sharp end of the dentist pick. Replace the O-rings if in doubt. Make sure the replacement O-rings are the same size. Your dive shop can help here. Just because it seems to fit doesn't mean it is the correct O-ring!
- Thoroughly clean the O-ring groove using a clean cotton bud.
- If you plan to reuse the existing O-ring, clean it thoroughly and make sure there is no sand, grit or hair on the surface. Licking the O-ring with your tongue works quite well to remove small bits of grit.
- Lightly grease the O-ring with an O-ring grease which you can get from a dive shop or a tube which may have come with your camera or torch. Don't use any old grease.
- Make sure you refit the O-ring into the groove so that it fits snugly and is flat before closing over the O-ring.
- Some O-rings are fully enclosed in a cylindrical hole where a moving shaft passes through (for example piston regulators). These are called captive O-rings and are really hard to get out and even harder to get back in. Best left to the professionals.

Image 6. A dentists pick.

PHOTO COMPETITION

Winner

September 2025

Elodie Camprasse - The Protector - Rye

PHOTO COMPETITION

Winner

October 2025

Elodie Camprasse - Anemone kissl - Clifton Gardens

PHOTO COMPETITION

Winner

November 2025

Imogen Manins - Dropping by - Hogan Island

PHOTO COMPETITION

Winner

December 2025 & Overall 2025 Winner

Marcia Riederer - Blue smille - Cottage By The Sea

PHOTO COMPETITION

Winner

January 2026

Tiffany Kosch - Look at my babies - Lembeh Strait

PHOTO COMPETITION

Winner

February 2026

Elodie Camprasse -Daddy - I don't want to leave - Rye

Club Equipment

As a reminder to all, we have a range of club equipment for use by VSAG Club Members.

This includes Emergency Oxygen Administration and First Aid kits. These are typically provided on long-term loan to active Club boat owners and permanently located on their boats for the safety of Club Members.

Other equipment available for short-term loan includes:

- 2.8 litre pony bottles including 1st/2nd stage regs; redundant gas for deep or wreck diving
- Ambient carbon monoxide (CO) meter; for monitoring member's compressors.
- Automated External Defibrillator: with plans to increase the number of units over time
- Sand Launching Ropes

In addition, the Club owns a number of standard aluminum dive cylinders and a few smaller sized cylinders.

A full list of equipment available for loan by VSAG Club Members, and instructions on how to access this equipment, is available at the VSAG site: https://www.revolutionise.com.au/vsag/vsag-equipment/

For Club Members to access this equipment, the first point of contact is the Equipment Officer - Brian Heatherich.

The general email address to enquire about accessing of equipment is equipment@vsag.org.au.

The Equipment Officer will know the current location of pieces of equipment and can assist with arranging access. It is advised to make arrangements as far in advance as possible to ensure availability and sufficient time to collect the equipment.

For any further questions or requests, please contact Peter Walters.

Emergency Contact Information

Anywhere on Victorian Waters, your first response should always be to call

000

or call the Water Police on 1800 135 729

In the event you cannot place a call, use

VHF Channel 16

and follow the Radio Emergency Message Protocols shown below.

If all of the above fail, activate your

EPIRB

Radio Emergency Message Protocols

Ensure all vessel passengers are familiar with the operation of a VHF radio and the following process for placing a Mayday or Pan Pan call

Speak slowly and clearly

Mayday call

Vessel or an occupant is in grave and imminent danger and requires immediate assistance

Distress call

Mayday, Mayday, Mayday

this is

"*Name of your vessel*", "*your call sign*" x 3

Distress message after call has been acknowledged

Mayday

"*Name of your vessel*", "*your call sign*"

Vessel position (GPS, bearing, what3words)

Nature of distress and assistance required

Other useful information such as number of persons on board, vessel description, life-rafts, EPIRB, etc.

Pan Pan call

An urgent situation exists but there is no imminent danger

Urgency call

Pan Pan, Pan Pan, Pan Pan

All Stations x 3 (or "*specific station*" x 3)

"*Name of your vessel*", "*your call sign*" x 3

Urgency message after call has been acknowledged

Pan Pan

"*Name of your vessel*", "*your call sign*"

Vessel position (GPS, bearing, what3words)

Nature of distress and assistance required

Other useful information such as number of persons on board, vessel description, life-rafts, EPIRB, etc.

VSAG Committee & Club Roles 2025-2026

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