

Fathoms

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Erhan Onfidan - Port Phillip Bay

When scuba gear was Australian made

Face to face with the dwarf minke whale

Maldivian Southern Atolls

A week in the Maldives

South Australia cuttlefish update

Why 50 m is not recreational diving

VSAG Photo competition winners



Contents

	Page
When SCUBA gear was Australian-made	1
Face to face with the dwarf minke whale	3
Maldives Southern Atolls	6
A week in the Maldives	9
South Australia cuttlefish update	11
Phillip Island Kelp Recovery and SeaGen Aquaculture tour	12
Why 50 m is not recreational diving	13
Photo Competitions	18
Club Equipment	24
Emergency Contact Information	25
VSAG Committee & Club Roles	26



When SCUBA gear was Australian-made

by Des Williams

Whilst Melbourne scuba engineer/designer Ted Eldred is recognized as the inventor of the world's first, commercially successful, single-hose regulator, the PORPOISE in 1952, there was another Melbourne diving pioneer, who followed closely behind Ted Eldred. That was Jim Ager (1928-2013), also in Melbourne, who in the mid-1950's, turned his grocery store and transport business at 438 High Street Prahran in Melbourne, into a dive shop, which traded as the Victoria Aqua Lung Centre.

With assistance from the late Lionel Martin and others, Jim developed the unique SEA BEE scuba regulator. This original, Australian designed single-hose regulator had features later copied by many overseas companies. Jim manufactured robust, hard-working regulators through his company AIRDIVE EQUIPMENT Pty Ltd for 54 years! Surely, a record of continuous production which could not be claimed by any other scuba manufacturer around the world.

The SEA BEE design was a single-hose, two-stage regulator which featured an upstream demand valve and a piston unbalanced first stage. The low-pressure hose was long enough to be fitted to twin air cylinders, which were carried inverted by the diver who controlled his air supply by decanting air from one cylinder to the other.

Jim introduced the first Australian submersible pressure gauge, with a unique protruding pin design. The diver could look at the calibrated rod and see his cylinder contents, or he could just feel it with his finger tips. Jim placed the exhaust valve in the centre of the second stage diaphragm, eliminating a separate exhaust system. It had a rubber front cover which resisted impact damage and acted as an exhaust cover. The front and back were held together by a wire ring clip, which allowed the diver to remove the front cover and clean grit and sand out. Jim also created a unique back-pack, which consisted of an inverted u-shaped tube, containing weights that could be jettisoned with the



pull of a ring at the open ends, probably the first diver's integrated weight system.

The SEA BEE brand was very popular with both recreational and most Australian commercial divers, as it was rugged and one of the best breathing scuba regulators in the world. AIRDIVE did not take to marketing outside the Australian region and as a result, Jim's operation was much smaller and more personalized than the diving equipment giants of today. AIRDIVE equipment was rugged enough to secure government contracts and was available with balanced or unbalanced reduction valves and a selection of LP ports. AIRDIVE also produced tank valves and many other diving equipment accessories, including wetsuits in the very early days of Australian sport diving.

While other sport diving equipment makers were finding accessories and buttons to add to their product, Jim was working to take them off! His product was not shiny, nor fancy, he did not sell the sizzle, he instead sold the steak.

Jim was one of the very early members of the Victorian Sub-Aqua Group (VSAG), Melbourne's first diving club dedicated to the use of scuba equipment, formed in 1954. Jim Ager served as Secretary for the VSAG for many years in the 1950s and was a dedicated hard-working Committee man. He was a prolific letter writer and marketing man for the VSAG, writing to introduce the club and offering its diver's services to organisations such as the Victoria Police, the 1956 Olympic Games Committee, CSIRO, Museum of Victoria, The Field Naturalists Club of Vic, Fisheries & Research Department, many media organisations, and the newly formed TV companies.



Through VSAG Jim organised scuba displays and 'try-dive' days, held at the Melbourne City Baths, to promote the sport of scuba diving.

The VSAG Committee considered that the growing number of new scuba divers were much safer as members of a scuba club, under the guidance of experienced members, than off by themselves, completely untrained, using a brand-new scuba kit. Jim Ager was also a scuba diving instructor with the VSAG.

Jim Ager saw to it, that the VSAG maintained a very high profile throughout the Australian diving scene and it was recognized as one of the most influential and professionally organised private recreational scuba clubs, a position it STILL enjoys today! Jim's hard work at VSAG also assisted his growing AIRDIVE business, which was in direct competition with the Eldred PORPOISE brand and imported twin-hose regulator systems from the USA and UK. In the 1950s Melbourne was home to the world's only two manufacturers of single-hose scuba regulators, long before this diving system caught on around the rest of the world, eventually superseding the twin-hose system. The single-hose scuba system is now the accepted system which we all use today.

AIRDIVE was Jim's life, he had rejected an offer by SCUBAPRO to purchase his business at one time, as he loved his work and could always be found at his factory, right up until he sold the business in 2010. Jim passed away on the 14th June 2013, so let us not forget the remarkable, five decades influence he had on the Australian scuba diving scene.

(Many thanks to Peter Matthews (VSAG) and Keith Batchelor (BHSDC) for their historic underwater images)

If you would like more information about diving pioneers, contact the Historical Diving Society Australia-Pacific by email at: info@historicaldivingsociety.com.au or visit our website www.historicaldivingsociety.com.au or Facebook at <https://m.facebook.com/groups/120950924589540/>

Face to face with the dwarf minke whale



by **Marcia Riederer**

If swimming with minke whales is part of your wish list, Queensland is the place to go.

Not much is currently known about dwarf minke whales, but every year, during the months of June and July, these whales can be seen in the remote outer reaches of the Great Barrier Reef. This is the only known predictable aggregation of dwarf minke whales in the world.

Meet the Dwarf Minke Whale

Dwarf minkes are the smallest form of baleen whale found in Australian waters — although “small” is relative, as adults can reach up to eight metres in length.

Sleek and streamlined, they are recognised by their distinctive colour patterns, including dark grey backs, pale undersides, and white shoulder patches that often glow underwater. Their pigmentation is highly complex and asymmetric. The markings, patches, and even the colours are often different on their left and right sides, making each individual unique and recognisable.

Their behaviour is subtler in comparison with other whales. They do not often breach, but they can perform a series of intriguing underwater behaviours, such as creating bubble trails or “blasts” by exhaling air while still submerged. They

may also roll onto their sides or present their bellies underwater.

In my opinion, the most fascinating behaviour is their habit of approaching snorkellers and engaging in interactions that can extend for hours — apparently driven purely by curiosity, theirs and ours.

How to Get There

Most encounters happen during dedicated liveaboard expeditions departing from Cairns or Port Douglas.

These trips typically run for several days, travelling overnight to reach the remote reef systems where the whales are known to gather during migration season.

To protect the whales, those interactions are managed under strict regulations. Only a limited number of licensed operators are permitted to conduct in-water encounters each year. This controlled approach helps minimise stress on the whales while allowing researchers to continue studying their behaviour.

Due to a short season and limited operators, it is recommended to book in advance to get your favourite boat and cabin.



How Is the Swimming Experience?

When a vessel encounters minke whales, it cuts its engines or drifts, and passengers enter the water quietly.

No two encounters are the same. Sometimes the whales pass by only once in the distance. Other times, one or more whales return repeatedly, circling beneath the group with slow, deliberate movements.

The interactions happen entirely on the whales' terms, which is what makes them feel so genuine.

One of the most remarkable aspects of these encounters is the eye contact. Minke whales often approach close enough that we can clearly see the details of their skin, the scars along their bodies, and their eyes. There is a palpable sense of awareness during these moments — a feeling that the whale is observing you just as much as you are observing it.

One of the most special moments for me was when a whale swam directly toward me. It came so close that its eye filled my viewfinder. In that instant, I lowered my camera and simply enjoyed the experience. Who knows when I will again find myself face to face with an eye the size of my head, looking straight into my own?

The passengers can stay in the line or get back to the boat as they wish, but in my opinion, the secret to a good interaction is staying as long as possible in the water, you never know when the great encounter is going to happen.

However, sometimes the passengers can head to the boat and observe the whales from top deck, this also offer a great experience.

Taking Photos

Photographing minke whales can be both exhilarating and incredibly challenging. The encounters are dynamic, as the whales move quickly. Visibility and ocean conditions can also change rapidly depending on weather, light direction, and plankton blooms.





Wide-angle or zoom lenses are essential (such as a 16–35mm equivalent). The whales can approach surprisingly close, often filling the entire frame. These setups allow photographers to capture both the whale and the surrounding environment, helping convey the scale of the encounter.

Artificial lights are not permitted but also not needed, as all the action is very close to the surface. Fast shutter speeds are equally important (1/250s or higher). Minke whales are agile swimmers and can change direction rapidly as they circle the group. Shooting continuous burst mode increases the chances of capturing moments of eye contact or elegant body curves.

Perhaps the most difficult part is anticipating behaviour. The best images often come from patience — staying calm, observing patterns, and being ready when curiosity brings a whale close to the lens or an unexpected behaviour happens.

Action cameras are also a great way to enjoy the experience and still getting some images or videos, but without the need to check settings and all.

If you are anything like me and enjoy seeing your photographs contribute to science and the well-being of the animals you encounter, take the opportunity to speak with the researchers on board and ask how you can donate your images to the Minke Whale Project project.

Images donated are incorporated in their photo-identification database and used by scientists at James Cook University to monitor population demographics, track seasonal returns of individual whales, and assess the impacts of human interactions on individual whale behaviour.

While You Are There, What Else Can You See?

The Ribbon Reefs are spectacular and home to some of the healthiest coral systems on the Great Barrier Reef, offering exceptional diving throughout the season.

Many operators combine whale encounters with diving, including dives at the famous Cod Hole, known for its enormous and charismatic potato cod.

Reef sharks, green turtles, and schools of barracuda are common sightings, while macro enthusiasts can find colourful nudibranchs, anemones, multiple species of anemonefish, and an array of reef critters hidden among the coral.

For me, sharing the waters and photograph marine creatures is a privilege that I don't take lightly. Each image has the potential to contribute to the research that will help safeguard these animals. In that sense, swimming with dwarf minke whales is an opportunity to become a partner in the ocean conservation.





Maldives Southern Atolls

by James Chong

This is a 10-Day cruise from Addu, the southern-most atoll to Male Atoll. The focus of the trip was Sharks and Mantas.

The Flight

I travelled from Melbourne (MEL) Tullamarine to Gan (GAN), Maldives via Colombo (CMB) Sri Lanka. The shortest flight, if taken without a stopover is 19 h: MEL:KUL 8.5 h, KUL:CMB 3.5 h, CMB:GAN 2.0 h, MLE:KUL 2.0 h, KUL:MEL 8.5 h.

The return economy flight, booked 5-months ahead can be as little as \$ 1,350 with MAS or AirAsia.

I took an opportunity to dive several wrecks on the west coast of Sri Lanka at Dehiwala and Hikkaduwa.

The LiveAboard Vessel

MV Adora is a modern sea vessel measuring 123 feet long and 33 feet wide, every inch of the MV Adora is arranged to give maximum comfort.

The MV Adora accommodates 21 guests in its fully air-conditioned 3 cabin types: Standard, Superior & Ocean View Suites. The journey begins in the southern-most Addu Atoll, home to graceful mantas gliding over massive cleaning stations and

the hauntingly beautiful British Loyalty wreck. It was not the average dive trip. It's a full-on descent into the wilder side of the Maldives, raw, remote, and utterly amazing.

I boarded the MV Adora with a group of Singaporeans, a German and a Dutch national. The Middle East issues meant that there were fewer Europeans and US travellers.



Addu Atoll

Addu (or Seenu) Atoll and the Gan Airport was the British air base built by the Royal Navy (RN) for its Fleet Air Arm (FAA) before being transferred to the Royal Air Force (RAF), becoming Royal Air Force Station Gan. It was used as a staging post for RAF aircraft flying to the Far East during World War II. The first aircraft, an RAF Westland Walrus biplane, landed on the crushed coral runway of Gan on 8 February 1943. It was decommissioned as a military airbase after 1976 and replaced with Diego Garcia, BIOT (British Indian Ocean Territory).

I dived with Addu Divers (<https://www.adduscubadive.com/>) two days before boarding the MV Adora liveaboard. Addu Scuba Dive provides technical and recreational dive services. Marc and Gigi run a fantastic professional operation.

The focus for Addu is diving with large pelagic fish. I was not disappointed with lots of Tiger Sharks and Reef Sharks, frequently at 15-20m and a visibility exceeding 40m. Oceanic and

Reef Mantas frolicked around the bommie (Thila) cleaning stations. Giant barracudas just hung in the current, quite oblivious of the divers.

The most interesting dive sites were:

- Shark Point (tiger shark, barracuda, napoleon wrasse, eagle rays)
- Marc's Dream (Fan corals, more sharks, manta rays, tuna)
- HMAS Loyalty wreck

Fuvahmulah Atoll & Big Mumma

Fuvahmulah (pronounced as Foormulah) features



around 20 incredible dive sites known for large pelagic encounters and apex predators. Fuvahmulah is a solitary atoll with no protective

barrier reef and drop-offs plunge directly into the deep open Indian Ocean. While Tiger Harbour is shallow (5–10m), many outer walls present deep profiles (>40m) washed by strong currents.

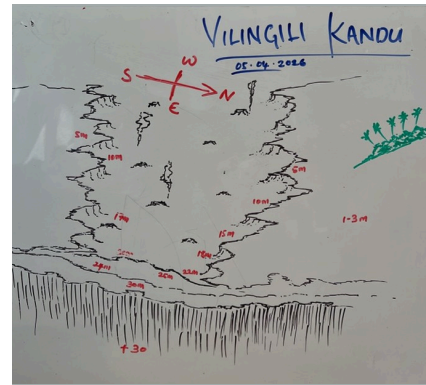
Tiger Zoo is a short distance from the local fish processing plant and the giant trevally, reef and tiger sharks know to hover around for an easy feast. This is an image of "Chippy" (notice the chip on her dorsal fin, likely the result of a mating bite), a very expectant 4m female tiger prowling beside discarded tuna head. Unfortunately, we missed the thresher sharks which were spotted around early morning sunrise.

Gaafu Alifu Atoll

Gaafu Alifu Atoll is located in the northern part of the massive natural Huvadho Atoll. The dive sites are often located in channels (kandu) between two adjoining atolls or islands where strong currents persist with the incoming or outgoing tidal streams.



Villingili Kandu has strong incoming currents that attract large schools of grey reef sharks, white-tip sharks and pelagic fish. Reef hooks are used to attach to rocks to watch the shark parade.



Maareehaa Kandu is a stunning channel dive featuring a sandy bottom, vibrant hard and soft

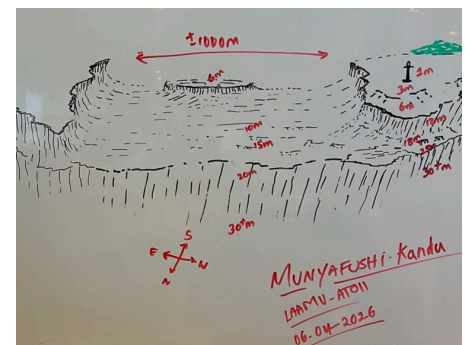
corals, and abundant marine life. It's a strange ticklish feeling to take off our fins and walk bare feet on the very fine drifting sand.

Turtle Point is a reliable shallow cleaning station with lots of encounters with large green sea turtles that just drift lazily over.

Koodoo Faru refers to the coral house reef (called a faru in Dhivehi) surrounding Kooddoo Island, located on the northeastern rim of the Gaafu Alifu Atoll in the southern region of the Maldives. It was an easy outer wall dive with overhangs and small caves featuring soft corals, reef fish, and resting nurse sharks.

Laamu Atoll

Diving in Laamu Atoll differs from the other atolls to the north. The atoll has relatively few channels allowing water to enter and escape the atoll, hence less plankton inside the atoll. There is less current and better visibility. There is a variety of marine critters including ghost pipefish, tuna, sharks, manta and schooling fish. The diving party hooked on the west wall at 20m to watch the passing shark parade then drifted to end the dive on the bommie in the middle of the channel.



Thaa Atoll

Dhiyamigili is a premier advanced dive location in the Kolhumadulu Atoll (Thaa Atoll) of the Maldives, famed for its dramatic channel corners and thriving pelagic life. Dhiyamigili Corner is a classic channel-edge reef corner sitting around an average depth of

30 meters (100 feet) with strong drift dives with encounters with grey reef sharks, white-tip reef sharks, eagle rays, and dogtooth tuna.

Gorgonian Garden was a deep sub-surface reef (thila) with depths to 30 meters, and displays of large gorgonian fan corals.

Meemu Atoll

Diving in Meemu Atoll is an amazing experience that offers a chance to explore a diverse underwater world filled with vibrant coral reefs, abundant marine life, and interesting dive sites. One of the standout dive sites in Meemu Atoll was Muli Kanduu, a breathtaking channel with strong currents, creating an ideal environment for encountering large pelagic spectacle of schools of barracudas, trevallies, and eagle rays gliding through the currents. Muli Kanduu is also famous for its rich coral formations, which provide shelter for an array of colourful reef fish and macro critters.

Medhufushi Thila is a submerged pinnacle, adorned with vibrant corals and with an incredible variety of fish species. Lots of moray eels, curious lionfish and manta rays cruising by. The strong currents provided a thrilling drift dive experience, gliding along the reef while observing the bustling marine life.

Kuruli Kanduu: A shallow channel dive (around 12 meters) at the southern tip featuring an active manta ray cleaning station, ghost pipefish, and nurse sharks. Famous for rich fish life, impressive overhangs at 25 to 30 meters, eagle rays, and reef sharks riding the currents.

Vaavu Atoll

Vaavu Atoll, nicknamed the "Wow Atoll," is famous in the Maldives for its strong ocean channels (kandus), vibrant soft corals, and heavy pelagic marine life.

The highlights are the exhilarating drift dives in the channel (kanduu) flying through hard coral and soft coral colonies.

Alimatha Jetty is a famous night dive location with docile nurse sharks and leopard sharks. Unfortunately the dive boats have built feeding stations that somewhat spoils the experience of swimming with these docile critters.

Vaavu atoll is well known for its coral caves. This was the site of a recent accident involving 5 divers from Italy.



South and North Male Atolls

The trip is almost over once we sail into the Male atolls. The diving is quite mediocre as the Male atolls tend to be crowded with tourists. One of the dive site was unusual being close to a fish processing plant.

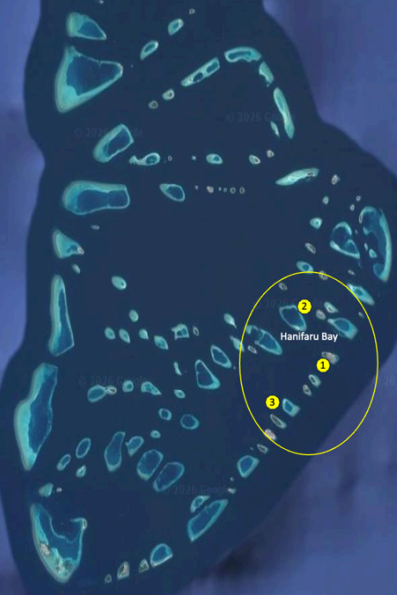
Again the sharks and sting rays are accustomed to being fed and have modified their normal predatory behaviours. I have not previously witnessed a 2m guitar fish so that was a sight.

Summary

In short, this was the best trip of the Maldives for me. MV Adora is a 3 - 4 star liveaboard vessel. Ten days is a really good duration. The MV Adora cruise and diving in the southern atolls is good value.

Cost of 10D Liveaboard: A\$ 5,500

Cost of Flights: A\$ 1,800



A week in the Maldives

by Peter Walters

Photos by Andrew McKernan

In late July, 5 intrepid VSAGers headed to the Maldives for a one-week adventure.

We had decided to give the tourism company Luxury Escapes a go as they were offering a great package. Thanks to James for organising it.

Luxury Escapes have been selling Maldives holiday packages for around 10 years and recently moved to partner with Maldivian, the Maldives' national airline, to charter a new weekly Melbourne–Malé direct service. Direct flights certainly make a difference. They were of 10.5 hours duration, but each flight was during the night. Beverages on board had to be of the non-alcoholic variety which, while healthy, does not help the flight go by quickly.

The Maldives sits in the Indian Ocean below India. It is made up of approximately 1,190 small coral islands, which are grouped into 26 natural atolls. The islands stretch for about 800 kilometres from north to south and 130 kilometres from east to west.

We arrived in Malé around 8am then headed across to a sea-plane port. The place was abuzz with dozens of flights heading out around the country from the centrally placed capital.

Day 1: Seaplane from Male to Dharavandhoo (1)

Day 2: Dhonfanu (2)

Day 3: Dhonfanu (2), Hanifaru Bay, Maalhoss (3)

Day 4: Maalhoss (3)

Day 5: Sail back from Maalhoss (3) to Malé.

Most islands rise only around 1–2 metres above sea level, making the country one of the lowest-lying places on Earth. The highest natural point is only about 2.4 metres above sea level. Motoring around we noticed that the highest land formation was a huge pile of sand which had been dredged up to create a new island which I assume will be another resort. We dived nearby and found that some coral areas had been covered by sand moving from the land reclamation works.

There has been a lot of land reclaimed around the Maldives. The population has grown from 260,000 thirty years ago to now be around 530,000 and so new land for city and industrial use has been added around Malé. In addition, there seems to be a large number of tourism companies building resorts with the famous over-water bungalows.

The liveaboard setup was made up of 2 quite large boats. The accommodation boat had 11 rooms with ensembles and could have 22 guests. This voyage had only 12 guests and we were looked after by 15 staff.

The second vessel was a large dive boat. Given that there were only 6 divers and 5 snorkelers on board, there was no shortage of room.

We were scheduled to do 11 dives, and we were able to do nine.

One of the diving highlights was being able to hang onto a Manta ray cleaning station using reef hooks and watch the action as 4 or 5 huge rays glided around us.

Another was hanging next to a feeding frenzy of half a dozen reef sharks.



The diving involved channels, drop-offs and underwater pinnacles. The water was around 28°C and the air temperature was similar. There was a maximum depth set by the government of 30m.

There were plenty of reef sharks, manta rays, eagle rays and large schools of tropical fish, including a favourite of mine – Bat fish. And one turtle. We unfortunately did not get to spot a Whale shark.



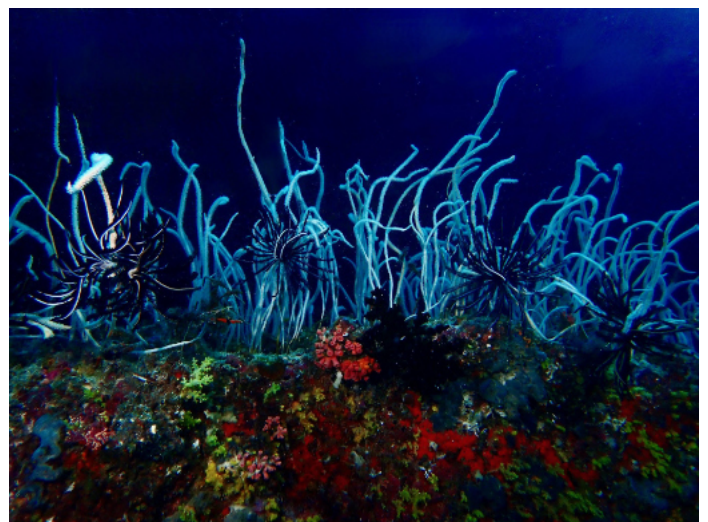
It was the end of monsoon season and so the sky was often grey and there was a moody atmosphere under water. I think the snorkellers on board would have been disappointed as there was often a bit of surface chop and so things would not match what is seen in the tourist brochures.

There was a big wind forecast for the end of the week, so we had an extra dive on a couple of days before this. Our last dive day involved a single early morning dive. The winds joined us while we

were under water and so we could see waves rolling on the surface as we ascended. I think this turned into the biggest water that I have ever exited from.

Overall, I thought the diving was mid-range as far as spectacular destinations. For me, the distance to the Maldives seems that bit too bit far for a one-week trip.

On our rest day before flying home we wandered around the city of Malé. I found it to be a pleasant, busy, welcoming and interesting place. The island is only around 2 km long and 1 km wide, yet it is home to hundreds of thousands of people. It is one of the world's most densely populated capitals. Because there is so little space, almost everything is close together. You can walk across much of the central city relatively quickly to take in Malé every-day life.



South Australia cuttlefish update

by Ian Gibbins



The Giant Cuttlefish season is definitely off for the Whyalla region this

year. Only a few have been seen in one small location so far. The area has been closed to most activities for the time being, which has upset some of the dive tour businesses although others accept it as necessary.

No one really knows what happened with the cuttlefish. Early on in the South Australian harmful algal bloom last year, there were massive mortalities of squid and smaller cuttlefish in Gulf St Vincent. Indeed, there have been few if any squid seen or caught since then, and the Gulf St Vincent squid fishery remains totally closed. Nevertheless, there have been a few sightings of squid eggs in some locations around the Gulf recently.

Although the bloom itself did not reach the Whyalla region where the cuttlefish aggregate for breeding, they would have swum through bloom-affected waters in southern Spencer Gulf as part of their migration. It's most unlikely that they would have survived that, even though numbers of dead giant cuttlefish or cuttlebones seen on beaches were nowhere near what you would expect if the whole population was wiped out. Perhaps all the remains are out to sea; perhaps the cuttlefish simply went somewhere else, as did many of the pelagic fish.

There is a fair bit of uncertainty in the literature about the status of the cuttlefish that go to Whyalla: some say they are a distinct subspecies; others that they are a subpopulation. The difference matters, since if they are a subspecies and they have been largely wiped out, then that's it for them. They only live for a year or two, so there's not a lot of resilience built into the populations, unlike most of the fish, which can repopulate areas from existing

stock in nearby waters (this is already happening for at least some of them, e.g. whiting and garfish). It's also worse than for at least some of the encrusting sponges, ascidians and bryozoans that were largely wiped out on pier pylons and inshore reefs, but which are also starting to come back via their planktonic spawn and larvae.

There is still massive uncertainty about other major groups of organisms: there is a real chance that the in-shore populations of elasmobranchs like fiddler rays, Port Jackson sharks and so on have completely gone. They were early casualties of the bloom with huge numbers washed up on the beaches of Gulf St Vincent. Few if any have been seen alive so far this year in these areas.

Many groups of invertebrates, including those that are rarely seen, such as sipunculid worms and sea cucumbers, were killed in their thousands, based on the numbers washed up at various times. But no one really knows how to survey them, and in any case, there are no baseline data.

Over the last few months, there have been several dead dolphins and sea birds washed up on the Adelaide metropolitan beaches, more than usual. There is no bloom now and it's likely that any residual toxins in the food chain are greatly reduced, but there is effectively nothing for these large animals to eat: many of the dolphins were emaciated consistent with that but the full autopsy reports on them have not been released yet.

It's obviously going to take years for some of these areas to recover, and some may never get back the species that once were abundant. The South Australian Research and Development Institute (SARDI) is doing a pretty good job working with Uni researchers and citizen scientists to try to monitor what is happening, which will get valuable new data, even if the bloom does not come back.

More information on the South Australian harmful algal bloom: <https://www.iangibbins.com.au/science/citizen-science/south-australian-harmful-algal-bloom-2025>

Consult images posted on the SA Marine Mortality Events 2025-2026 project on iNaturalist: <https://www.inaturalist.org/projects/sa-marine-mortality-events-2025-2026>

Phillip Island Kelp Recovery and SeaGen Aquaculture tour

by Andrew McKernan

This month's guest presentation previewed a plan to reestablish giant kelp along the south side of Philip Island. James Chong organised a tour of the hatchery and nursery for Island Kelp Recovery's community partner, SeaGen in Newhaven. The tour was led by Dr Chris Gillies and Kylie Barrett and attended by Peter Walters, Des & Julie Williams, Maggie May, Tania McKernan and myself.



There was not a lot to see on the Giant Kelp side at this time as the project is still in the scoping stage.

We were fortunate however to get an extensive tour of the commercial production line at SeaGen where they produce over 10 million oysters in a batch. The tour started with the algal cultivation and food production room. Next we looked at the grow out tanks where the feed is grown at a controlled rate. Chris explained how the breeding cycle of the oysters can be closely controlled by altering water temperature and briefly lowering water salinity. SeaGen does not grow the oysters to market size. The young oysters (spat) are transferred from tank to tank as they grow from a few microns out to a commercial-ready size of 5mm. They are then sold on to commercial farms that produce the adult size oysters.

The resources that were set up for the production of oyster spat also provides a base to support experiments in various other sponge and algal breeding programs. We looked at the sponge and golden kelp ponds where the specimens are

attached to small rocks for easy deployment. This facility will eventually be able to regenerate species that have been displaced during commercial project developments such as ocean wind farms, bridge pylon replacements etc.

The centre is built on an old slipway right next to the Philip Island bridge. Behind the building there is the remains of an experimental tidal generator. After the tour, James, Peter, and I had a short dive there to inspect the natural sponge garden. It was a very brief but colourful dive as we had to closely monitor the slack water for the tidal swing. Dive with caution!

Watch the video of Chris explaining the Giant Kelp program at our August club meeting:

<https://www.youtube.com/watch?v=xrPjrPAXbQA>



Why 50 metres is not recreational diving

by Oskar Chen

A technical diving instructor trainer's perspective on depth, gas planning, cave risk and human factors

The question is not only: "Can I get down there?"

The real question is: "If something goes wrong, can I get back?"

This article uses the recent Maldives cave diving tragedy as an educational reference point. It does not attempt to judge the individual divers involved, and it does not assume every detail of the accident is already known. The purpose is to explain why a 50 metre dive is not simply "a slightly deeper recreational dive".

At 50 metres, depth, breathing gas, gas density, decompression, equipment redundancy, cave environment and team decision-making all start to interact.

When several of these factors are wrong at the same time, risk does not add up - it multiplies.

1. From a diving perspective, what is wrong with 50 metres?

PPO2 too high: Nitrox 32 is not a deep diving gas

Many recreational divers are familiar with Nitrox 32. Within the correct depth range, it is a useful breathing gas because it can extend no-decompression time. But Nitrox 32 is not a deep diving gas.

PPO2 = oxygen fraction x absolute pressure

At 50 metres, the ambient pressure is about 6 ATA. If a diver breathes Nitrox 32 at that depth:

$$0.32 \times 6 = 1.92 \text{ bar PPO2}$$

That is well above the commonly used 1.4 bar working limit in technical diving, and also above the commonly used 1.6 bar exposure limit.

Nitrox 32 at common PPO2 limits

PPO2 1.4 bar MOD: about 33.7 m

PPO2 1.6 bar MOD: about 40 m

PPO2 at 50 m: about 1.92 bar

So if Nitrox 32 is used at 50 metres, it is not just "a little bit over". It is well outside sensible oxygen exposure limits.

CNS oxygen toxicity

The major concern with central nervous system oxygen toxicity is an underwater convulsion. If a diver convulses underwater, they may lose the regulator, inhale water and drown.

CONVENTID symptoms

Convulsions, visual disturbance, ear symptoms, nausea, twitching, irritability and dizziness. The issue is that warning signs are not reliable. A convulsion may occur without a useful warning underwater.

Narcosis: judgement is affected before the diver feels "out of control"

If a diver is breathing air or another high-nitrogen gas, 50 metres brings a significant narcosis risk. Nitrogen narcosis does not always make a diver obviously irrational.

A more common problem is that the diver can still function, but judgement is already degraded, showing:

- slower reaction time
- narrowed attention
- poor problem solving
- reduced monitoring of depth, time and pressure
- overconfidence
- emotional changes
- wrong turn or wrong exit choice
- a feeling that “it should be fine” even when it is not

In open water, that is already serious. In a cave, it is much worse because the diver must also manage direction, line awareness, buoyancy, visibility, lighting, team position and gas at the same time.

2. Gas planning: 50 metres consumes gas quickly

The following calculation is only an educational example. It is not a statement about the actual equipment used in the Maldives accident.

Example assumptions

Cylinder: 11 L
Starting pressure: 200 bar
Reserve pressure: 50 bar
Usable gas: 150 bar x 11 L = 1650 L
SAC rate: 20 L/min
Descent rate: 18 m/min
Target depth: 50 m, about 6 ATA

Descent gas

Descending to 50 metres at 18 m/min takes about 2.8 minutes. During the descent, pressure rises from 1 ATA to about 6 ATA. A rough average is 3.5 ATA.

$$20 \times 3.5 \times 2.8 = \text{about } 196 \text{ L} \\ 196 \text{ L} / 11 \text{ L cylinder} = \text{about } 18 \text{ bar}$$

Remaining theoretical bottom time

The diver started with 1650 L of usable gas after setting aside a 50 bar reserve. After descent gas is removed:

$$1650 - 196 = \text{about } 1454 \text{ L}$$

At 50 metres, a SAC rate of 20 L/min becomes:

$$20 \times 6 = 120 \text{ L/min}$$

So the theoretical time left at 50 metres is:

$$1454 / 120 = \text{about } 12 \text{ minutes}$$

That sounds like enough time, but it is an optimistic number. It does not properly include exit distance, ascent gas, decompression, a shared-gas exit, getting lost, zero visibility, stress breathing, or the fact that a cave diver cannot simply ascend to the surface.

What if the diver becomes stressed?

In technical diving, we do not plan only around calm breathing. Stress, high workload, CO2 retention, poor visibility or being lost can easily double or triple gas consumption.

Calm breathing

SAC 20 L/min
50 m breathing rate: 120 L/min
Theoretical time: about 12 min

Stressed breathing - 2x

SAC 40 L/min
50 m breathing rate: 240 L/min
Theoretical time: about 5 min

Severe stress - 3x

SAC 60 L/min
50 m breathing rate: 360 L/min
Theoretical time: about 3 min

And that is still only for one diver. If a buddy loses gas and two divers must share gas while exiting a cave, the calculation changes completely.

The real gas planning question is not:

“Do I have enough gas if everything goes well?”

It is:

“Do we have enough gas if the worst realistic problem happens?”

3. Gas density: breathing gas can be too heavy

Modern technical diving pays more attention to gas density. Dense gas increases work of breathing and makes CO₂ elimination more difficult. CO₂ retention can make a diver feel short of breath, anxious, narcosed and confused. It can also increase panic risk.

A commonly cited recommendation from diving medicine discussions is to aim for a gas density of around 5.2 g/L or lower, with 6.2 g/L treated as an upper practical limit.

Nitrox 32 at 50 metres

At the surface, oxygen is about 1.429 g/L and nitrogen is about 1.251 g/L. Nitrox 32 at the surface is approximately:

$$(0.32 \times 1.429) + (0.68 \times 1.251) = \text{about } 1.31 \text{ g/L:}$$

At 50 metres, about 6 ATA:

$$1.31 \times 6 = \text{about } 7.85 \text{ g/L}$$

Gas density comparison

Preferred maximum: about 5.2 g/L
Upper practical limit: about 6.2 g/L
Nitrox 32 at 50 m: about 7.85 g/L

So even if we ignore PPO₂ for a moment, Nitrox 32 at 50 metres is still a poor choice from a breathing performance perspective.

This is one reason that 50 metre technical dives often use trimix rather than simply forcing air or a high-nitrogen gas deeper.

4. A cave is not “just a dive site with a roof”

**The biggest difference is simple:
You cannot go straight up.**

In open water, ascent is usually an option. In a cave, it is not. That changes everything;

- there is a real overhead barrier
- a lost diver cannot simply ascend
- silt can turn visibility to zero
- without a continuous guideline, the exit may be lost
- a light failure can become a major emergency
- poor team position can escalate quickly
- rescue may be difficult and may place rescuers at risk

Cave diving needs specific training and procedures, including continuous guideline to open water, primary and safety reel use, lost line drill, lost diver drill, zero visibility exit, touch contact exit, light failure procedures, conservative gas planning, equipment redundancy and disciplined team communication. These are not fully covered by a normal Advanced Open Water or Deep Diver course.

5. Human factors: why would people still do it?

After the recent Maldives diving accident, many divers have asked me: “Why would they do that?” As a technical diving instructor, and with only limited public information available, I do not think most of us are in a position to judge the divers who died. The more useful question is not who to blame, but this:

Before the accident happened, why did this dive plan or decision look

Human Factors reminds us that accident analysis should not only ask, “Who made the mistake?” A better question is: what made the wrong decision look reasonable at the time?

“We came all this way” / “Just a quick look” / “We will be in and out”

Travel diving, research diving and expedition diving all create pressure. The team may have flown to the destination, paid for the trip, arranged the boat, gathered the team, reached the site and built the whole day around this one dive.

This creates plan continuation bias. The plan starts to feel more important than the changing risk.

Dangerous phrases

“We came all this way.”

“Let’s just have a quick look.”

“We will be in and out.”

“People have done it before.”

“If we do not do it today, we may not get another chance.”

“It was fine last time”

Many accidents do not happen the first time a team bends a rule. The first time, nothing happens. The second time, nothing happens. Overtime, the team learns the wrong lesson: “This must be safe.”

That is normalisation of deviance. Past success only proves that nothing went wrong last time. It does not prove that the method was safe.

“The experienced divers did not say there was a problem”

If the team includes an instructor, a senior diver, a researcher, a local guide or a boat leader, junior divers may hesitate to speak up. They may feel that the more experienced person must know what they are doing.

This is authority gradient. A safe team must make one rule very clear before entering the water:

**Anyone can abort the dive.
No debate. No vote. No
embarrassment.**

“I only noticed the evidence that supported the dive”

Confirmation bias is another common problem. Once divers want the dive to happen, they start collecting reasons to support it: the sea looks calm, the team is experienced, someone knows the site, it will only be short, and other divers have done it. At the same time, they may downplay the reasons not to dive: wrong gas, high gas density, no direct ascent, limited redundancy, uncertain cave layout and difficult rescue.

6. What should divers learn from this?

**Do not ask whether you can get down.
Ask whether you can get back.**

Many divers ask the wrong question:
“Can I get to 50 metres?”

The better question is:

If I am at 50 metres, inside an overhead environment, with poor visibility, a stressed buddy, a light problem, a gas problem or a wrong turn, can I still get out?

That is the difference between depth ambition and technical diving judgement.

Training has limits. Experience has limits.

A diver may have many dives and still not be prepared for a specific environment. Recreational deep experience is not cave training. Technical diving experience is not automatically exploration experience. Instructor status does not make a diver competent in every environment.

Mature divers know the limits of their training, equipment, gas plan and mental state.

Gas planning is not about “my cylinder should last”

Real gas planning considers the team and the failure scenario. It includes the diver, the buddy, the exit, ascent, decompression, gas sharing, stress breathing, lost time and whether direct ascent is possible. If the environment is a cave, the plan must be more conservative because the exit is not above you. It is behind you.

Build an abort culture

Every team should say this before the dive:

**Anyone can call the dive at any time.
No one has to justify it.
No one gets laughed at.
If one diver calls it, the team ends the dive.**

A diver should never have to prove that their discomfort is reasonable. The discomfort itself is enough to stop and reassess.

Recognise the dangerous sentences

- “Just a quick look.”
- “It should be fine.”
- “We will be in and out.”
- “We have always done it this way.”
- “We came all this way.”
- “Everyone else is doing it.”
- “Do not overthink it.”
- “This is a rare opportunity.”

When these phrases appear, the team should pause. They often mean that emotion, goal pressure or peer pressure is starting to replace risk assessment.

Closing: the real technical diving mindset

The final investigation into the Maldives accident will determine the actual sequence of events. This article is not about judging individual divers. It is about reminding the diving community that 50 metres is not ordinary recreational diving. A cave is

not an ordinary dive site. Nitrox is not a magic gas. Experience does not replace training. Past success does not prove safety.

Every time I teach a Rescue Diver course, I tell students:

“I hope that after this course, when the conditions are not right, you will be able to tell your buddy: we are not doing this dive.”

As technical diving educators, we should not only teach divers how to complete dives. We must also teach them when not to start, when to turn around, and when to stop the plan before the ocean stops it for them.

References and notes

This article is an educational discussion based on public reporting and general technical diving principles. The Maldives accident remains subject to official investigation. The example gas calculations are illustrative only and are not a claim about the actual equipment or gas used by the divers involved.

Key concepts referenced: PPO2, MOD, CNS oxygen toxicity, nitrogen narcosis, SAC rate, gas density, overhead environment, gas planning, plan continuation bias, normalisation of deviance, authority gradient, confirmation bias and abort culture.

PHOTO COMPETITION

Winner

March 2026



Imogen Manins - Blenny guarding eggs - Rye

PHOTO COMPETITION

Winner

April 2026



Elodie Camprasse - Anything I can do for you? - Rye

PHOTO COMPETITION

Winner

May 2026



Imogen Manins - Southern bobtail squid - Rye

PHOTO COMPETITION

Winner

June 2026

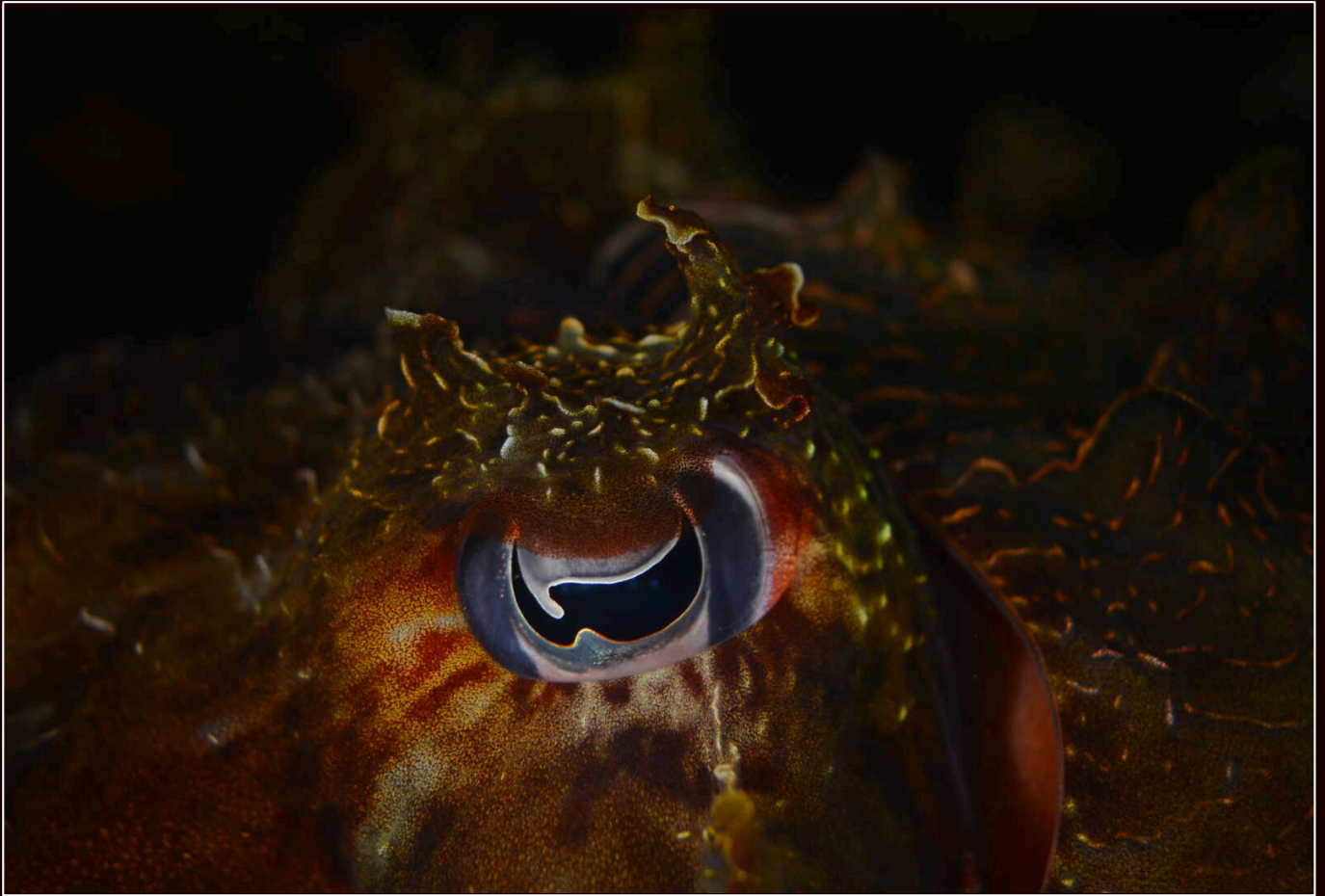


Corey Doughty - Lashes - Rye

PHOTO COMPETITION

Winner

July 2026



Peter Beaumont - Lurking in the weedy growth - Rye

PHOTO COMPETITION

Winner

August 2026



Terri Allen - Is it coffee time yet? - Bunaken



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.

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