

THE
WE



RAG

FEBRUARY 1989

SOUTH

PACIFIC

DIVERS

SOUTH PACIFIC NOTES

*Entries for the George Roberts Trophy have been extended to the February meeting and the contest will continue for the next three months.

*Three travel prizes have been donated by Sea Life so get those entries in now.

*The next Bristol Point weekend is on the 11th and 12th of March, if you have any enquiries see or ring Penny and she will give you all the information you require. cost will be \$15 for members and \$20 for non-members.

*Saturday 18th February there is a Treasure Hunt organised by Decadent Divers and it will be held at Bare island, Botany bay. Cost is \$20.00 and plenty of prizes to be won. B.B.Q. on the beach after the hunt (included in \$20). Starts at 9.00am any enquiries phone 569-5588.

*Club dive on Sunday the 19th of February at Kurnell. 9.30am start and meet at Kurnell boat ramp (near long wharf). This will be a boat dive and picnic afterwards so bring the chicken and champagne.

*El Presidente launched his yacht last weekend and many of the rich and famous were there to see this gala occasion. Congratulations Jim on a job well done and I am sure the finished result justifies the time (6 years) and money (who knows) spent on the project.

*Thanks to Martin Kandilas and Neil Vincent for the articles in this month's newsletter any other contributions are most welcome.

*Also thanks to Penny for the map of the Shellharbor area.

The following is reprinted from the latest NSW Agriculture and Fisheries Publication regarding laws concerning the taking of fish and other sea creatures.

* The taking of any sea creature other than abalone by any means while using underwater breathing apparatus is prohibited. only a snorkel may be used.

* Recreational divers may take ten abalone per person per day, using Scuba gear or snorkel. No other underwater breathing apparatus may be used.

* The taking of any sea creature with spears or spearguns (including the spearing of crabs) with the aid of a light is prohibited.

* The taking of rock lobster (crayfish) with spears, spearguns or

similar devices is prohibited. Gaffs, pronged hooks or any other implements are prohibited. A gloved hand only may be used.

* It is illegal to spearfish from any ocean beach other than from within 20 metres of the extremities of the beach adjoining headlands, rocks etc.

* The taking of blue, brown or red groper with spears or spearguns is prohibited.

* FRESHWATER PROHIBITION : It is illegal to spearfish in any inland (non-tidal) waters or to use a bow and arrow to catch fish.

* CLOSED WATERS : many entrances , coastal lagoons and other tidal waters are closed to spearfishing. Possession of spears or spearguns in, or adjacent to these waters is an offence. Those who wish to spearfish should contact a Fisheries Inspector regarding local conditions.

THE COMMITTEE

PRESIDENT: JIM SMITH PH-570 4283 (H)

SECRETARY: JOHN MCDEMOTT PH- 726-0982

PHOTOGRAPHIC OFFICER: GRAHAM WAKELING PH-603-4224 (H) 605-1611 (W)

TREASURER: KATHY MCDERMOTT PH 726-0982 (H) 727-0177 (W)

SOCIAL SECRETARY: PENNY SMITH PH-759 4176 (H)

PUBLICITY OFFICER: NEIL KOOS PH-587-9030

DIVE ORGANISER : NOEL TAYLOR PH 78-6792 (H)

If you need to post anything to the club our address is:

SOUTH PACIFIC DIVERS

P.O. BOX 823

BANKSTOWN 2200.

Meetings are held every third Monday of the month at the Bankstown Sports Club in Greenfield Pde Bankstown. Time is 8.00pm in the Function Room. Members and visitors all welcome. Come early and eat in the Bistro downstairs.

NEXT CLUB MEETING IS ON THE 20TH OF FEBRUARY AT BANKSTOWN SPORTS CLUB
SEE YOU THERE

2. Jim, Karen and Chuck and coy sailed to Lord Howe Island over Xmas in big Jims yatch. The sailing was rough but at Lord Howe Island the weather was good with 200' viz and lots of sharks, whales & dolphins.

3. Jim Smith & Wendy tried to sail to Lord Howe Island about a week before Xmas but unfortunately the weather was so bad they had to turn around. The story Jim told was to funny to abbreviate hear so when you see him next make sure you ask him about it.

4. Andrew Oulianoff went to Fraser Island - big seas so he was unable to go diving. A dive holiday that wasn't a dive holiday.

5. Lyn & Pat Manly, Brian & Vicki Colwell, John & Kathy Mcdermott and Neil Koos and Eve Thomas spent Xmas and New Year to J.B. The weather and seas were lousy and diving was restricted to the scallop beds and one dive at the Docks.

6. Martin Kandilas has been diving the Woniora, off Botany Bay. The wreck hasn't been dived much (something to do with 210 feet deep I think) and Martins says there are plenty of goodies around.

Martin Kandilas reported (on good authority) that a ring worth several thousand dollars was found on the Dunbar over Xmas. Maybe we should start organising regular club dives at the Dunbar?

MINUTES OF THE SOUTH PACIFIC DIVERS CLUB
MEETING HELD 16th JANUARY AT BANKSTOWN SPORTS CLUB

Apoloies: LOTS

Minutes: Minutes read from November meeting and accepted

Correspondence: Incoming-DECEMBER Thank you cards from K. Smith and family and Chrtine & Bob Pratt. Dive Safari-Gum Tree Tours, Letter From R. Flanagan in Tasmania, Fun Dive Centre Christmas Gift Catalogue, Ryde Underwater Club, Decadent Diary-Petersham.

Incoming-JANUARY State Library of NSW Latest Film and Videos, State Library a week of Contemporary Comedy Films, Safety Education Article 53 amendment, Gumtree Tours - 20% Discount, Ryde Underwater Club, Brisbane Water Club, OTC Maritime Radio Services Guide, Aust Government Publishing Service-Sea Safety for Small Craft on sale for \$19.95ea offer closes 31/3/89.

Outgoing- Letter to Peter Harper

Treasurers's Report:

Balance of funds last report November 1988 1511.84

ADD: Incoming	Membership	20.00
	Club Badges	10.00
	Club Sloppy Joes	30.00
	Christmas Party	425.00
	Raffle	146.00
	TOTAL DEPOSIT	631.00

Expenditure	Raffle Costs	120.20
	Christmas Catering	965.00
	Diver Exp	70.00
	Bank Charges	1.93
	TOTAL	1,157.13

BALANCE 985.71

CASH ON HAND 20.00

INVESTMENT 3,306.12

BALANCE OF FUNDS AS AT 10th JANUARY, 1989 4,311.83

ACCEPTED: Chuck and 2nd by Brian Colwell

Dive Reports

1. Lyn & Neil Vincent holidayed over Xmas at Mt. Gambier. 18 dives in 6 days. Sinkholes offer diving with no swell and good viz and no need to wash the gear. On one particular nite dive, at depth of 30' they were ablt to see the stars and noon. Neil reported that photography was difficult - needing neutral bouyancy and making sure not to silt up the sinkholes.

SO YOU WANNA BE A WRECK DIVER.....

I am often asked to describe the big attraction in wreck diving. I get comments like "What is so exciting about diving to 150 feet to look at an underwater scrap yard?"

Fair comment to some maybe, but not this little black duck.

If these divers who criticise wreck diving took off their rose coloured glasses, a whole new world of underwater exploration could be waiting for them.

For that matter, what is so exciting about reef diving? Sure, there are some tame blue groper that like to be fed sea urchins, the inevitable green moray, nudibranch, sponges and the odd red gorgonian. Coral reefs offer more fish, blue water and pretty colours, especially for macro photography. And of course, there are the various corals. But lets face it, one reef is pretty much the same as another regardless of where you dive.

Of course it is a matter of personal preference, but why not have all a reef has to offer, and even more?

Any wreck which has been submerged for more than ten years or so will harbour an incredible variety of marine life. In most cases wrecks support many more times the life than a reef of equivalent size. The reason for this is surface area. A ship has expanses of iron and steel in the form of hull, decks, bulkheads, cabins, stairways and all sorts of nooks and crannies for marine creatures to make their homes.

Every square centimetre of wreck will be covered in all types of marine growth. The fish life on shipwrecks is prolific, and in most instances rivals even the best of reefs anywhere in the world. Oh, and sharks, dolphins, marlin.....

As the diver descends into the depths, the light gradually fades, and depending on water clarity ranges from reasonably good to twilight and down to pitch blackness.

On a typical Sydney wreck, the "Tuggerah" for example, visibility can be as great as 100 feet and more; but this is the exception rather than the rule. Typical vis is around 25-30ft and the brightness can only be described as semi twilight. The human eye quickly adjusts however, and torches are generally not needed, but should nevertheless be carried.

The wreck looms up quite suddenly, and materialises almost from nowhere as the diver nears the bottom.

Exploring a shipwreck is like taking a giant step back in time. A true shipwreck, as distinct from the "Claytons" wrecks (Dee Why, Calooli, Valiant etc) became so due to a tragic mishap. Lives were nearly always lost, and so few divers these days realise that for the most part they are visiting maritime graves.

So many "tourist" divers go out on organised charter boats to dive wrecks without realising what is really there. They swim along gazing at all this twisted metal, without fully appreciating what it once was, and what is actually still there. A ship is a beautiful thing, whether sailing or steaming the oceans of the world or lying twisted and broken on the seabed. It makes no difference.

Many artifacts (we call them 'goodies') are still to be found on wrecks supposedly scavenged clean by divers over the years. Take the Dunbar for example. Hundreds of divers have made thousands of dives at this wrecksite, and yet gold coins, jewellery and even diamond rings (yes, that's right) are still being found.

All this takes a keen eye, patience and perserverance. And above all, a love of shipwrecks. That lamp or porthole may be still there right under your nose. The prospect of perhaps finding a souvenir or a decent 'goodie' adds to the excitement of the dive; and even if you come up empty handed, it still make the dive more worthwhile.

A word here about recovering relics. Most shipwrecks, particularly those around Sydney, Newcastle and Wollongong have long been declared TCL (Total Constructive Loss) by the insurers. In many cases the ships have been down so long that the owners and insurers have disappeared, and open salvage exists. But be careful though, I know a Sydney diver who legally owns a wreck which sank before the turn of the century! Whether or not he is willing to guard it 24 hours a day remains to be seen.....

If you are lucky enough to find a nice porthole, it is not for me to say what you should or should not do with it. However, should you decide on its removal, do so with care. Many divers end up damaging the article, and in some cases damaging themselves.

A little planning can go a long way to a happy and successful recovery operation. Now comes the good part - cleaning it! Believe me, wreck divers who have nice collections of goodies have worked damned hard.

Wrecks can be found in only a few feet of water, and down as far as you want, or dare to go.

On average the better wrecks are found in water at least 120 feet deep, away from the current and wave action.

Wrecks in 150 ft and more are considered deep dives and great planning should be carried out before any diving commences. The Birchgrove Park (165ft) is a top dive, but is not for inexperienced divers. That is not to say the deep wrecks are unduly dangerous to dive, but we all must be aware of our limitations, and our gear must be in first class order.

Twin cylinders are a must for any dive in excess of 150 feet, as decompression times can be long. Ample air must be carried on the divers back. It's great to have spare air on the deco line, but it's not much help if you can't find your way back to the anchor, or for some reason have to do a free ascent.....

Even the buddy system can and does fall apart sometimes on really deep dives, so twin regs and contents gauges are good insurance. Having 2 independent systems on your back is very comforting when you are poking around at great depth.

Compass? Forget it on wrecks. All that steel makes a compass useless. Leave it in the boat. Oh, and two more things. Watch out for fishing line. It's easy to get very tangled, and in low vis it is very difficult to see. Take a sharp knife always. And WOBEGONGS. They may look pretty sluggish and dopy, but if you have ever seen one catch a fish from an apparent comatose condition, you will know what I mean. They bite and they love fingers.

Happy wreck diving, and save some portholes for me!

Martin

From SYDNEY via
Port Kembla

From SYDNEY via
Macquarie Pass
and
Wollongong.

SHELLHARBOUR

Boat Harbour

SWIMMING
POOL

X X Church
X X Grounds



WRECKS

- 1 Fairweather
- 2 Boston
- 3 Alexander Berry
- 4 Our Own



41 ADDISON ST.
SHELLHARBOUR
(042) 964266

SCATTERED DEBRIS
GRAVEL LOADER

SPONGE
GARDENS

PICTURE
HOLDS

Beaky Bay

SPONGE
GARDENS

THE MUMPS

Horseshoe Bay Reef

Pinnacles

Bushrangers
Bay

BLUE METAL QUARRY

ARCH
ENTRANCE

PICNIC
AREAS

THE ARCH
CAVE

HOLE IN THE WALL
THE GROTTO

Maloney Bay

BASS POINT

Atchinsons Rock

SPONGE
GARDEN

Killalea Beach

A bright future for clams

PALAUANS ARE very proud of their first patrol boat. Fitted out with the latest navigational equipment and capable of 13 knots, it was originally a Taiwanese fishing boat. In 1985 the boat was confiscated by the Palauan authorities while illegally collecting clam meat, given a paint job and a gun, and set to work to keep away other clam poachers.

All over the South Pacific, Taiwanese fisherman have been caught clam poaching. Many have lost their boats as well as being fined or jailed but it has taken more than this to discourage them. With prime quality clam muscle fetching up to \$100 per kilogram in Taiwan and Japan, the risk of capture in most countries has been outweighed by the value of the potential prize. Australia has retained good stocks of clams only by rigorous surveillance of our northern coastline.

In recent years, however, the number of clam boats active in the Pacific has declined enormously. The reason is simple — there are hardly any large clams left.

The rapidity with which clams have disappeared is not all the fault, however, of the Taiwanese — wider availability of masks and snorkels to traditional island fishermen have made accessible all the habitats where clams grow, eliminating potential brood stock from deeper waters where once they would have been protected. Today, the largest of the seven species of giant clam, *Tridacna gigas*, is considered extinct in half a dozen South Pacific countries and is threatened in the Philippines, while all the others are considered endangered.

But the clam is by no means lost. In the mid-1970s researchers working independently in Palau and Fiji managed to raise clams in captivity. It was then realised that giant clams had potential for farming in numbers large enough to supply both the denuded reefs and the market.

Today this potential is on the verge of being realised. Clams have turned out to be ideal farm animals. Early on it was discovered that their size reflected not great age, as had always been thought, but a remarkably fast growth rate. Although it probably takes 50 years to reach a metre, most of the growth is in the first few years when the shell can extend by 10cm annually.

This rapid growth rate is possible because the giant clam is autotrophic; that is, it produces its own food. In fact it is not the clam that produces the food but tiny algae called zooxanthellae that live in the clam's mantle tissue. These convert sunlight into sugars, some of which are passed on to the clam.

The clam's other needs are either filtered directly from the water or absorbed directly through the mantle tissue. The zooxanthellae benefit from living in the clam not only by having a safe home but also by having access to the nitrogenous wastes of the clam. These are converted in proteins which are passed back to the clam when the zooxanthellae die.

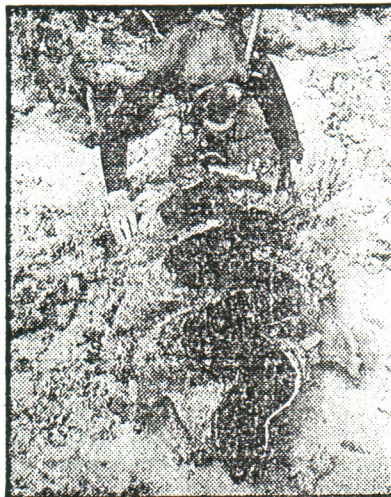
Recycling of wastes also makes clams environmentally benign. Most other forms of tropical aquaculture pollute the local envi-

STEPHEN GARNETT reports that clam farming has the potential to start a new industry in the South Pacific and save giant clams from extinction.

ronment. Fish and prawns not only require extensive earthworks in sensitive coastal habitats but have to be provided with high-protein diets that kill the benthic life in their ponds in the same way an overdose of superphosphate will kill a reservoir.

Even oysters at high densities pollute the sea bed beneath them and periodically have to be moved. Clams, by requiring no food and needing housing only while they are small and by using most of their waste products, are prone to none of these problems.

Over the past four years a team led by Professor John Lucas of James Cook University has developed a highly efficient



Farming offers new hope for giant clams and for an industry.

procedure for raising clams at the university's research station on Orpheus Island.

The process has five phases: spawning, hatchery, indoor nursery, ocean nursery and the grow-out phase. Spawning is induced by injecting a natural neurotransmitter into the gonad of a sexually mature clam. Minutes later the clam expels a cloud of sperm, followed an hour and a half later by up to 500 million eggs.

Sperm and eggs from different clams are mixed and those eggs successfully fertilised are transferred to the tanks in the hatchery. Over the next week the newly hatched clams go through a series of larval stages during which they are fed algae before settling to the bottom as minute versions of their parents, 0.2 mm across.

At this stage zooxanthellae scraped from an adult clam are added to the water and, then days later, appear in the mantle tissue of the juveniles. From then on no more food

need be provided — in fact, provision of extra food has resulted in lower growth rates.

Both the indoor and ocean nursery phases have a problem with algae growing over the young clams and stealing their light. However, Orpheus Island researchers have discovered that the problem is greatly reduced when another shellfish, the trochus, is introduced to the indoor nursery. The trochus is an algae grazer and has itself considerable market value so there may be potential for raising the two molluscs together.

In the ocean nursery, where the clams go when they have reached 20mm, it was discovered that the best way of combatting algae was to keep the clams in baskets just above the low-tide mark. While the clams happily withstand up to four hours' exposure to the air every 24 hours, the algae are less resilient. Initially it had been thought the clams would have to be raised in deeper water but growth rates have proved to be faster in the shallows. The present system also makes them much more accessible to farmers.

The clams are kept in baskets at this stage because they are still susceptible to predators such as larger shellfish or starfish. When they reach 20cm they are just about impregnable and can be moved to the open reef. Since they cannot move, being firmly attached to the reef by threads growing from near their hinge, they grow where they are put until ready for reaping.

The first clams from Orpheus Island are now in the grow-out phase, living unprotected on the reef surface. Professor Lucas and his colleagues predict that a hectare of reef may produce about 40 tonnes of marketable flesh per year, higher than the richest commercial mussel beds, but the actual rate depends on how well their clams survive. Although thought to be high, there is as yet no information on the survival of clams of this size in either captivity or the wild.

Already two north Australian companies are moving towards commercial production of giant clams and a hatchery has been established in the Solomon Islands. Other workers are already selling farmed clams from Palau for restocking of reefs and for the aquarium trade. The market for 12-18-months-old clams for tropical aquariums in Europe and America is so great that, if not careful, there would be none left for restocking.

The key to the success of clam farming is now the marketplace rather than the laboratory. Japan and China are obvious targets, as well as the Philippines, where it is the shells, not the meat, that have the highest value. Scarcity has driven the price of a pair up to \$100 but it is predicted that such high returns are unlikely to be maintained once farm shells become available.

The hope is that clam farming will provide a viable industry for South Pacific countries with few other sources of foreign currency. Unfortunately, with a creature so amenable to farming, one wonders whether farmers in South-East Asia will capture the markets.

Dr Stephen Garnett is a freelance science writer.