Dive WESTERN AUSTRALIA

by JEFF MULLINS

ACKNOWLEDGEMENTS

This book has been compiled from my own diving experiences over 20 years of exploring 'Underwater' Western Australia. Its compilation would not have been possible without the help of other people. I have regularly dragged diving friends away to remote and obscure dive sites, where we have 'bogged' four wheel drive vehicles, waited at anchor for days while strong winds eased, slept on beaches being eaten alive by insects, driven hundreds of kilometres to find seas too rough to dive then driven home again.

These same people have remained as friends throughout the ordeals, some of the more prominent are Lindsay Treby, John Brown, Barry Garvey, Brian Sorensen, Mike 'Biggles' Bellis, Warren Looker and Rob Van Trigt. Also my late father-in-law Alby Harman, who often sat patiently waiting in a tossing boat while I dived.

I would like to thank Wally Rowlands and Bob Kent of Karratha who both helped me considerably with information on the Dampier Archipelago and Monte Bello Islands, Jim Thomasson for checking my manuscript and last but not least my wife Dawn and children Michael and Leanne, who have happily been to the end of the Earth and back, in search of elusive dive spots. They have been my greatest source of inspiration.

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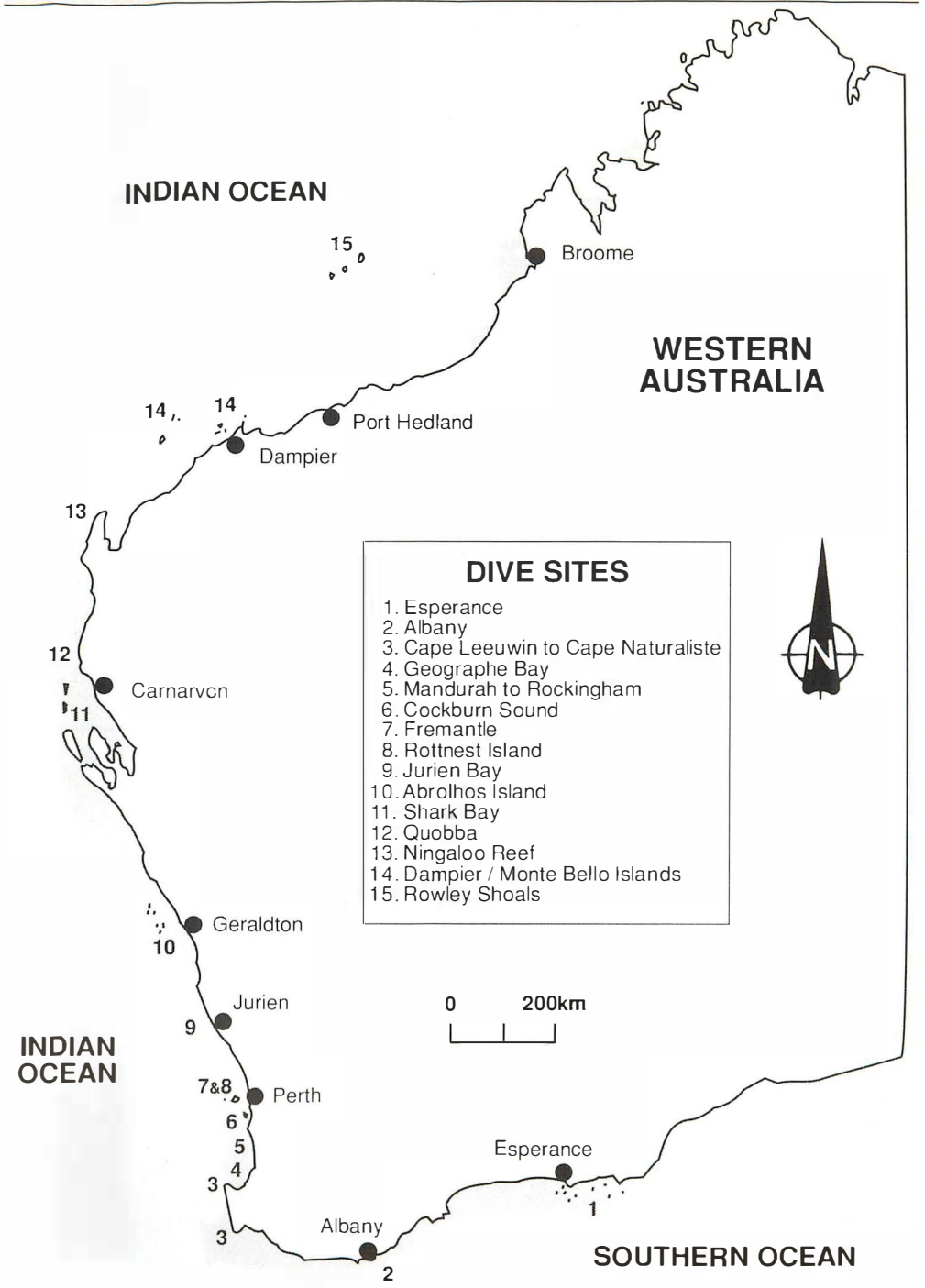
FOREWORD

This handbook is intended to serve as a sport diver's guide to the coast and offshore islands of Western Australia. Each area is covered as broadly as possible, with emphasis on sites of particular interest.

Because of the remote nature of the WA coastline, those areas described are not the only sites worth visiting. They are simply areas with interesting diving that are visited by organised boat charters or are accessible from the shore or small boat.

It would be impossible in a guide of this size to describe all of the dive sites along the WA coast, so out of necessity there are some areas which are not included. A good example is the south coast from Cape Leeuwin to Eucla. This is a huge area with many good dive sites, of which only Esperance and Albany are described. Both of these centres have boat ramps, dive shops, charter boats and accommodation, as well as an excellent taste of south coast diving close at hand. There are other outstanding dive sites, but divers would be disappointed to arrive there and find they need to drive a hundred kilometres to the nearest scuba filling station, boat ramp or other facility.

Included with each area description are further details regarding weather conditions to expect, distance from Perth or nearest major centre, any restrictions with regard to marine parks or reserves, types of accommodation available, and any other facilities relevant to visiting divers.


INDIAN OCEAN
WESTERN AUSTRALIA
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0 200km

THE PHYSICAL ENVIRONMENT

Western Australia has one of the most diverse marine environments in the world. From granite headlands pounded by huge swells on the south coast, through to the river strewn tropical Kimberley coast. A coastline over 7000 kilometres long that borders on two oceans, with some marine species borne by cold Southern Ocean currents, and others from the tropical waters of Indonesia. A coastline of extreme contrasts.

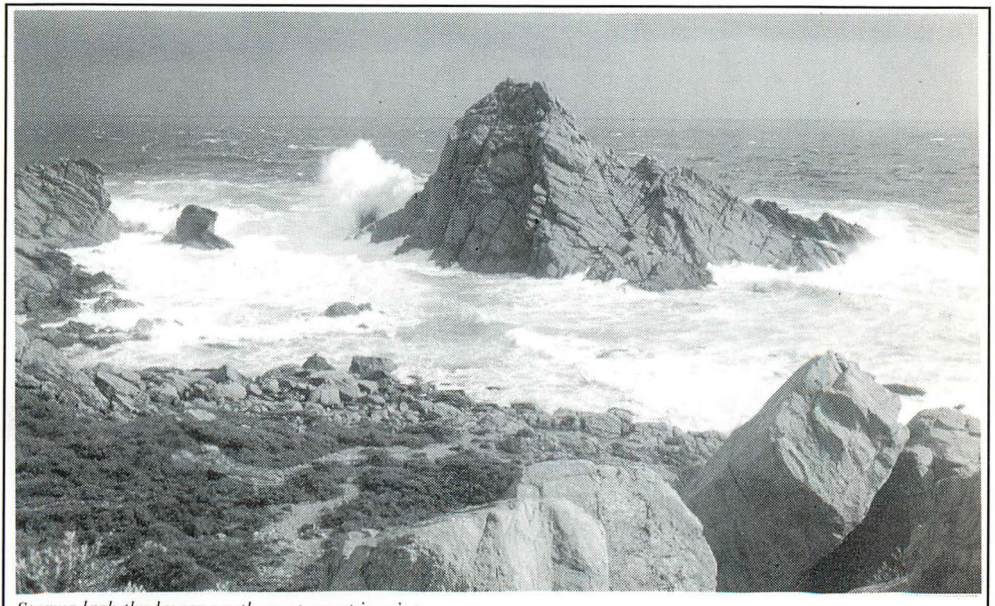
Many of the reefs and islands off this 7000 kilometre long coast have not been explored underwater. Shipwrecks lie waiting to be discovered, new fish, shell and coral species live on reefs still uncharted. West Australians have adventure diving on their door steps. The opportunity to explore and discover is available to all divers.

Sea and weather conditions over such a length of coastline are as variable as the marine environments themselves. Gale force winds, high seas and rain buffet the lower south-west coast during the winter months of June to September – while 1500 kilometres away on the north-west coast, light winds, calm seas and warm weather are the order of the day.

Conversely during the summer months of November to March, the north-west coast is under threat of cyclones, the mid-west coast is 'cooled' by 30 knot southerly winds on most days, while the south-west experiences offshore easterlies with calm seas and clear water. Although 'breaks' in the general weather patterns for a particular area can be expected, some areas are best avoided during their annual windy periods.

Underwater, Western Australia has two basic environments; The temperate waters and rocky reefs of the south and south-west coasts and the tropical waters and coral reefs of the north-west. In between these are many areas of 'overlap' where tropical and temperate species are found alongside each other. These are often the most interesting areas in terms of diversity and scenic beauty.

We shall explore the better known and more popular dive sites in the chapters following. Starting at Esperance on the south coast, we will travel west to Cape Leeuwin, then north along the coast to Exmouth, where we turn north-east and finally north to the end of our exploration at Rowley Shoals; one of the most remote dive sites in the world!



Storms lash the lower south-west coast in winter.

ESPERANCE

Esperance is located on the south-east coast of Western Australia, 720 km from Perth. Set on one side of a large bay, Esperance boasts some of WA's best beaches, as well as a magnificent view of the Recherche Archipelago. The town has excellent facilities for visiting divers. Accommodation in the form of caravan parks, guesthouses, motels, hotels and chalets line the town beach, and an excellent boat ramp is available for public use at Bandy Creek, on the outskirts of town.

The 'Bay of Isles' has been very aptly named. A glance in any direction from the town lookout, reveals islands as far as the eye can see. The ***Recherche Archipelago*** is spread along 200 km of coastline from Esperance east to Israelite Bay. Some of the hundred or more granite islands are within a stone's throw of the shore, others are up to 45 km out into the Southern Ocean. All except one or two have steep sides with no beaches and are surrounded by deep water. Scattered among the islands are many rocks and reefs hidden below the surface. These often make the most interesting diving. The Esperance area has a good selection of dive sites, many of them accessible from the shore and unlimited potential lies offshore among the islands.

Frederick Island 24 km south-east of Esperance Bay is typical of the islands of the Archipelago. Frederick is a large single lump of granite rising steeply out of 40 metres of water and reaching a height of 88 metres above sea level. A large reef on the island's western-most tip is a good dive. The top of this is mostly kelp weed with patches of large southern plate corals here and there. Over the steep sides of the reef the kelp weed thins out, revealing sponges and small gorgonia corals growing on the vertical walls. At the 25 to 35 metre level are many boulders, some stacked on others forming overhangs and caves. Fish life is thickest around these boulders, especially blue groper and queen snapper that follow divers around, quite unafraid.

In one area is a two metre wide crevice in the reef, like a crack formed by an earthquake. Its sides are 15 metres high and on the sides of this crevice are many yellow sea tulips and some small pink soft corals. A large rock sits at the end of the 20 metre long crevice. Ascending to the top of the crack brings a diver out onto the reef top at 15 metres. A particularly large section of leaf coral dominates the peak of the reef and a group of magpie perch are often in residence here, along with schools of yellow and black pullers.

A shallower dive site can be found for a second dive at nearby ***Remark Island,*** one of the highest islands in the group. Its 220 metre peak is not visible up close, as its sides are so steep. On the leeward (north) side of the island are some boulders in only 18 metres of water. These are a little less colourful than the reefs in deeper water but fish life is just as prolific. Leaf corals grow densely on the peaks of the boulders. Swimming among them gives the feeling of being in tropical waters. A fish unique to Western Australia is found around the leaf corals - the Bi- colour Scalyfin. This fish is quite territorial, firmly standing its ground against intruding divers. The Bi-colour Scalyfin is half black and half yellow with an electric blue line around its tail and back, very striking among the green corals.

Other fish sighted around this reef are schools of salmon that circle divers inquisitively and bright red harlequin fish which are found under almost every ledge. On the seaward face of Remark Island the underwater scenery is spectacular. Sheer walls reach from the surface down to 50 metres, with huge slabs of granite that have fallen from the island above forming big caves from 20 metres down. Blue groper drift among two metre high pink and mauve soft corals, and fat harlequin fish lie hidden in sponge beds that coat every rock surface.

Esperance was once a port of call for fuel tankers which unloaded their cargo at the one kilometre long jetty in Esperance Bay. Today the jetty is no longer commercially utilised but its recreational use is far from dead. ***The tanker jetty*** is one of the best shore dives in close proximity to town. It can be dived from the parking area adjacent to the beach, or scuba gear can be carried to the end of the jetty where a ladder leads down to the water. I have sometimes borrowed a wheelbarrow to cart my gear along the 'rickety' old structure. This raises a few eyebrows from the old timers fishing along the jetty, but serves the purpose well.

The wooden jetty pylons have attracted rich growths of telesto soft corals, as well as colourful sponges, gorgonia fan corals and ascidians. Among broken pylons on the bottom an occasional scorpion cod lies perfectly camouflaged, its poisonous spines erect as a warning to intruders. Unusually coloured biscuit starfish are also seen on the pylons. Magpie perch are the most common fish sighted. These black and white members of the morwong family are very tame, not moving from their resting place until almost touched.

A small group of sea lions also live here. A pair of them have followed me nervously, probably worried I may steal fish heads thrown in for them by fishermen on the jetty. A species of brightly coloured nudibranch is particularly prevalent at the jetty. The short tailed ceratostoma is seen in all shades of red and orange along the jetty's entire length. The tanker jetty is an ideal beginner's dive with very little surge or current. Depth ranges from two metres close in shore to 6-10 metres at the seaward end. Visibility is usually around 10 metres during fine weather.

Cape Le Grand National Park encompasses the south-east end of Esperance Bay. Its rugged coastline is dominated by Frenchmans Peak, a single rock 286 metres high. The peak overlooks some of the best shore dives in the area, including places like ***Hellfire Bay*** which has easy access from rocks straight into relatively deep water. A hundred metre walk from the car park is all that is necessary.

A car can be driven on to the hard beach at ***Lucky Bay,*** where a short swim around the headland at the western end of the bay puts you onto some nice diving with caves and fish in abundance. The whole of Cape Le Grand's coastline has deep water just offshore, hence many potential dive sites are accessible from the shore, some of which still remain undiscovered.

A further 50 km east of Cape Le Grand is ***Duke of Orleans Bay.*** A boat can be launched from the main beach to explore dozens of islands and reefs scattered well out into the Southern Ocean. There are also a handful of headlands that can be dived without a boat. ***Little Wharton,*** the southern most bay is protected from most winds and a 50 metre snorkel south to a small island, followed by a short rock hop, will give the diver a taste of Esperance diving. The colourful fish life on the island's seaward face is remarkable. Queen snapper, foxfish, samson fish and blue devils live among green plate corals and granite boulders. The rock face drops quickly to 20 metres and in places to 30 metres.

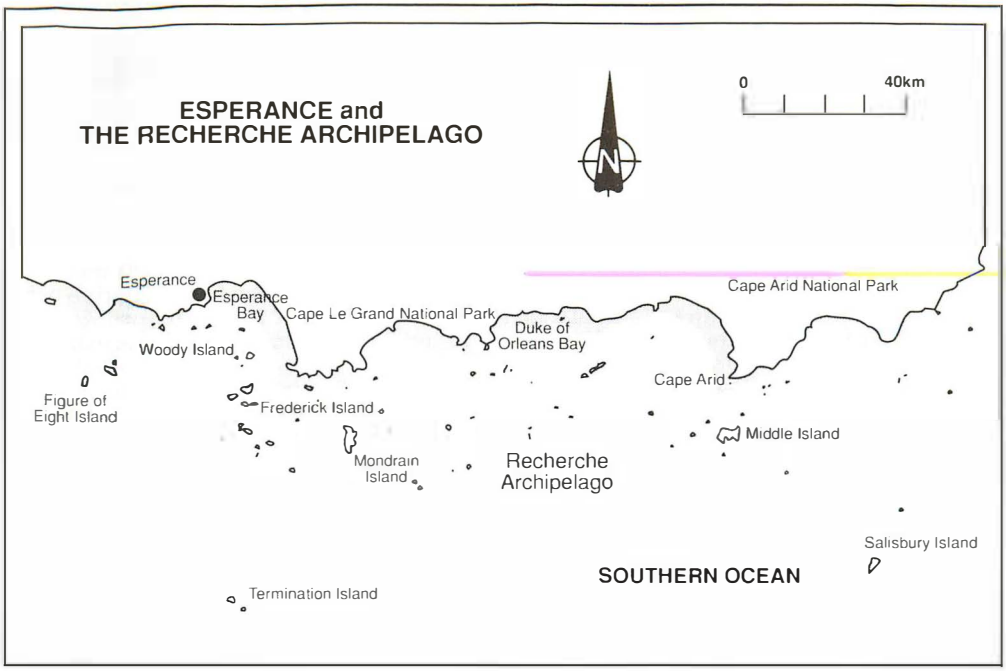
Other headlands can be reached by four wheel drive vehicles along beaches and sand tracks. These are often the best diving in terms of marine life as they are not often visited and the fish are unafraid of divers. Closer to Esperance, ***Twilight Cove,*** a couple of kilometres west of town is a popular swimming hole. Just offshore are two large rocks and between them is a cave with invertebrate life covering the inside walls. The rocks are a pleasant dive only five minutes from the beach.

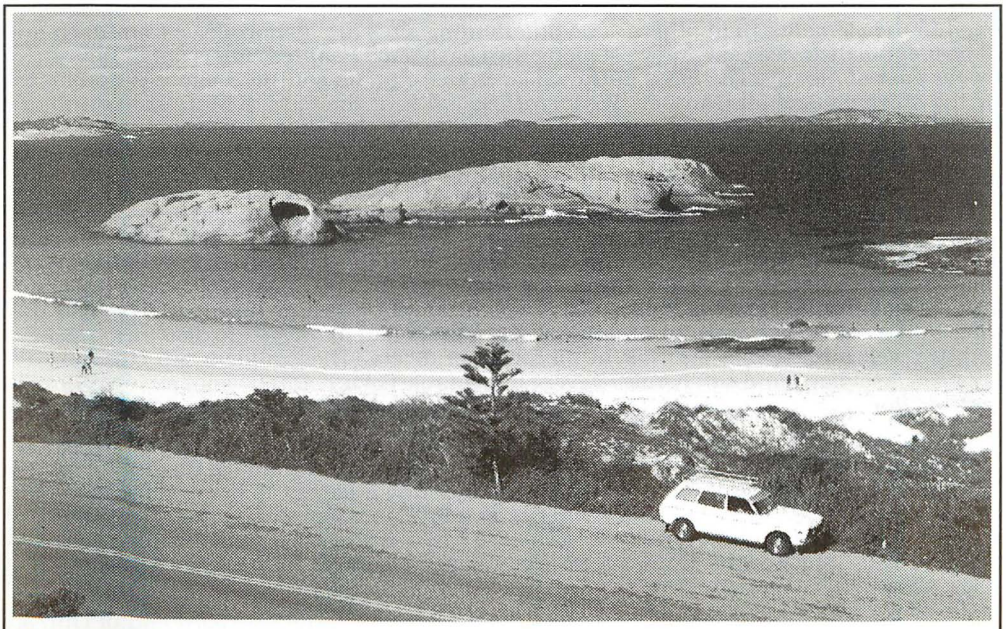
Best times of the year to visit the Esperance area are during early summer (November-December) and autumn (March-May). These months generally bring the lightest winds, though many of the shore dive sites lie in sheltered bays that remain diveable even during adverse conditions. The water temperature is cool and often cold during late winter, but the air temperature is surprisingly mild and often hot during summer. Underwater visibility offshore is often over 30 metres during good weather and sometimes reaches 60 metres.

DIVE FACILITIES

Esperance Diving Academy Unit 3-56 The Esplanade, Esperance, 6450. Ph. (090) 71 5111, (Peter & Leslie Hudson) — Dive instruction, Hire equipment, Equipment Sales and Service, Scuba Fills, Charter trips on 11.5 metre power cat.

Dempster Sporting 65 Dempster Street Esperance, 6450. Ph. (090) 71 1823 (Graham Donovan) — Equipment Sales, Hire, Scuba Fills.





Twilight Cove near Esperance is a good shore dive.

ALBANY

Albany town is located 410 km south of Perth on the shores of King George Sound, among some of W.A.'s most picturesque and treacherous coastline. A seemingly endless line of bays, islands and cliff faces stretch in every direction. King George Sound offers protection from all wind directions except east by Flinders Peninsula and two large islands – Breaksea and Michaelmas.

Excellent dive sites are found around the islands in King George Sound. Breaksea and Michaelmas Islands are big enough to offer protection from most winds and are surrounded by relatively deep water.

Breaksea Island has submerged reefs all along its northern face in 20-30 metres of water. One of the most popular is at the base of the lighthouse, where a submarine cable once ran from the island to the mainland. The reef is located by lining up a row of 'star pickets' that run down the face of the island and heading out on this line approximately 100 metres. Big boulders of granite lie close to each other forming swim-throughs and crevices in depths of 15-25 metres. Lying among the boulders is the old submarine cable and in places plate corals have grown all around it.

Some large gorgonia corals are found along the southern and eastern sides of the boulders, in various shades of orange and pink. Black coral 'trees' and colourful sponges are found all over the reef, along with many reef fish including queen snapper, fox fish, harlequin, breaksea cod, cuttlefish and samson fish. The eastern and western ends of Breaksea Island have deeper water, reaching depths of 30-40 metres. These areas are a little less protected from ocean swells, but on good days are excellent diving.

Michaelmas Island has similar reefs on its southern and eastern sides in depths up to 30 metres. Once again they are dominated by boulders with gorgonia, black corals and sponges. These complement the reefs on Breaksea Island, as one area or another is generally diveable whatever the wind direction - within reason.

There are many other dive sites in and around the Albany area, some sites being more open to the elements than others. Two outstanding sites are a short drive from town and almost equal distance east and west along the coast. ***Two Peoples Bay*** is a half hour drive by car east of Albany. The bay's entrance faces east and its southern shore is dominated by the steep cliffs of Mt Gardner. ***Waterfall Beach*** is at the base of Mt Gardner and can be used as an entry point for a dive around the rocky shoreline and reefs just offshore. Depths vary from 1-2 metres at the entry, to the offshore reefs at 15 metres where some boulders with colourful sponges sit on a sand and weed bottom.

The ***north side of Two Peoples Bay*** offers excellent diving during northerly winds with a low swell and the area is accessible from the shore or by boat. The shore entry requires a long walk and rock hop, into depths of 15 metres from the southern side of Bettys Beach Road. A boat is necessary to dive the deeper waters on the end of ***North Point,*** where large boulders of granite form big ledges and caves in 25-30 metres of water. Blue groper and queen snapper are the most prevalent fish but others like nannygai, foxfish and breaksea cod are well represented and not at all afraid of divers. The boulders are covered with sponges, ascidians and soft corals of every imaginable colour. Often visibility is around 30 metres. North Point is well worth the 3 km boat trip from the ramp on the southern shore of Two Peoples Bay.

West Cape Howe is 35 km west of Albany along the lower Denmark Road. The cape is WA's southernmost point of land, and is subsequently adjacent to deep water and some very rugged and beautiful coastline. ***Dunsky Beach*** is on the eastern side of the Cape near its southern end. The beach can be reached by four wheel drive vehicles through some sandy tracks that lead off from the Shelleys Beach Road, or by boat from Cosy Corner 6 km away.

A rocky headland with steep shore extends seaward from the southern end of Dunsky Beach. A track leads down to a large mound of rocks and this is the best entry into the deeper waters at the end of the headland. The depth is only 3 metres off the rocks, but

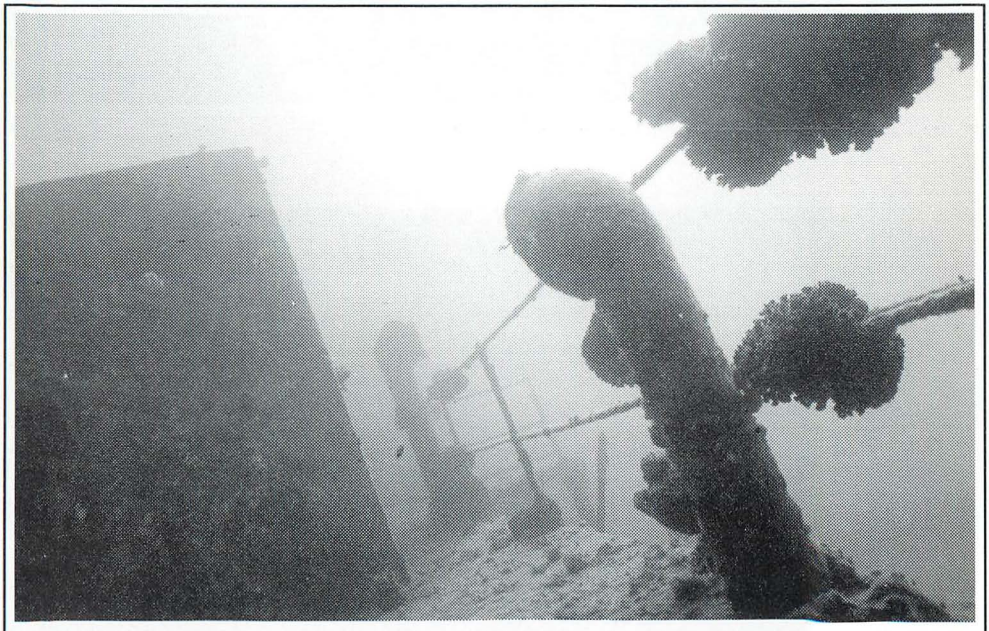
Albany diver Warren Looker with Gorgonia Coral at West Cape Howe.

The Harlequin Fish is very distinctive with its bright colouration. This fish was found at Remark Island, near Esperance.

drops quickly to 15 metres where the rocky bottom becomes sand with granite boulders and large plate corals. Sponge growth covers most of the rocks along with kelp weed, but beyond 20 metres the kelp thins out and the sponges become larger. A cold water species of gorgonia fan coral is found on most boulders. Some of these pink fan corals are over a metre across.

Fish life is prolific, sergeant baker are seen in all depths, lying very still among sponge growth. In some dark ledges blue devils and breaksea cod hide. Nannygai school around boulders along with skipjack trevally and bullseyes. At 25 metres some very large granite boulders stand high off the bottom. One in particular 10 metres high has huge gorgonia fans growing at all angles from its surface. This boulder appears to be a magnet to marine life, with big samson fish often cruising past, also bi-colour scaly fin, mosaic leatherjacket, some large harlequin fish and queen snapper are seen around the base of this huge pinnacle. The east side of West Cape Howe is best dived during west or north-west winds when the swell is low as a strong current has been experienced during times of heavy swells. Please note that Dunsky Beach area is regarded by locals as a marine sanctuary, so please respect this and leave spearguns etc. at home.

The Southern Ocean adjacent to Albany was once the hunting ground of whale chasers from the Cheynes Beach Whaling Co. Whaling ceased there in 1978 due to pressure from conservation groups and public outcry. The demise of the whaling fleet left Albany with a surplus of whale chasers and two of them – *Cheynes III* and *Cheynes IV* sat at the deep water jetty in Princess Royal Harbour rusting away for four years.



On the aft deck of the sunken whale chaser Cheynes III.

In 1982, Les Bail, a local diving identity acquired the 47 metre long *Cheynes III* to sink as an artificial reef. After stripping her of all equipment and receiving permission, the ex whale chaser was scuttled. She now sits as a guard near the entrance to King George Sound in 25 metres of water. Her killing days done, the ship is home to a variety of marine life which has been attracted in a relatively short time on the bottom.

A boat is necessary to dive the ***Cheynes III*** wreck as she is 12 km from Albany Port. The wreck is within 100 metres of the west end of Michaelmas Island, protected from the strong

easterly winds that blow throughout Albany's summer season. The wreck is marked by a surface buoy which can be used as mooring by small boats. She presents an awe inspiring sight to most divers who are accustomed to seeing wrecks as a pile of twisted metal overgrown with weed, as the *Cheynes III* is mostly intact.

The bridge is the first part of the wreck clearly visible from the surface and it is here that divers first become aware of the amount of marine life that has been attracted to the ship. Truncate coralfish and old wives hover around the rigging, small groper and cod hide in the shadows. Further below on the main deck a group of colourful telesto corals are growing on the side of a companionway structure. The soft corals white polyps contrast with the orange sponge encrusting its skeleton.

On the deck at a depth of around 18 metres the ship looks huge. The bridge towers eight metres overhead, the slight list to port gives the impression that you may fall over the side a further six metres to the sand/rock bottom. Schools of old wives parade along the safety railings on the sides of the cabins and countless numbers of schooling nannygai surround the engine room exterior and stern.

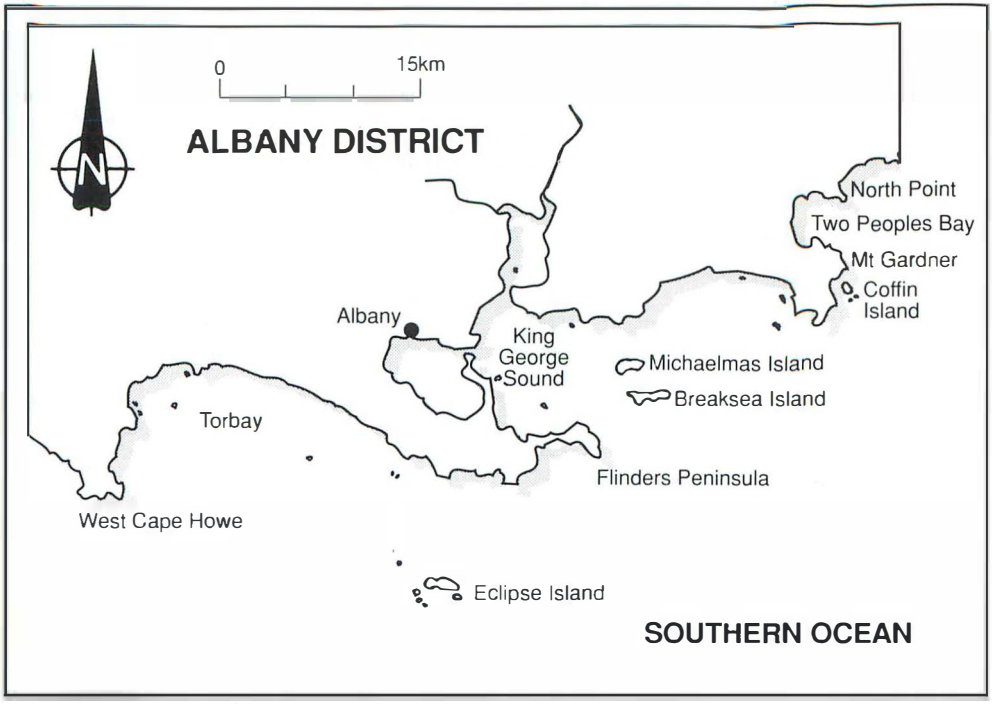
Larger fish often swim out from the ship's interior. Queen snapper, metre long dusky morwong and the odd larger groper are some that I have seen. Inside the cabins the decks are open into the holds of the ship and in one cabin a toilet still sits in the corner recess. But the ship's main attraction is its exterior and plentiful marine life, so visitors to the wreck are asked not to spear fish or remove any part of the ship.

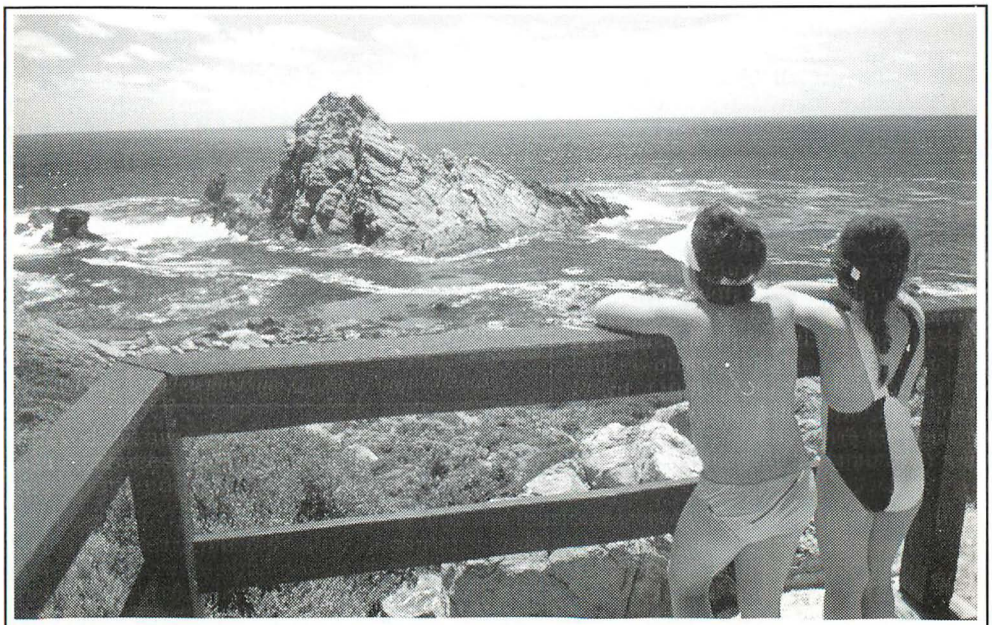
Albany, being the 'capital' of the south coast, has some of the best accommodation available. There are many hotels, motels, chalets, caravan parks and guest houses in and around Albany town. A list of these is available from the Tourist Bureau. For the boat owner Albany has some excellent launching facilities very close to the town centre. Large boats can be launched at Emu Point or the Town Jetty. From either ramp only a short journey brings you out into King George Sound's north-west corner. In the Two Peoples Bay area boats can be launched from a sandy ramp near the picnic area on the south side of the bay. In the West Cape Howe region, Cosy Corner is only suitable for launching boats in calm weather.

Albany's weather is a little unpredictable and rain can set in at any time, summer or winter! The summer months of November to January are dominated by east and south-easterly onshore winds that make many areas unsuited to diving. From February to May there are many days with light or no winds. This creates ideal dive conditions with crystal clear waters. Winter, between June and October, brings strong winds from the north-west to south-west. When these ease between storms, good diving conditions exist while other areas in the south-west of the state are totally wiped out. Bring your winter clothes and a good wetsuit and you won't be disappointed.

DIVE FACILITIES

South Coast Divers 84B Serpentine Road Albany, 6330. Ph. (098) 41 7176 (Les Bail) — Dive Instruction, Equipment Hire, Sales and Service, Air Fills, Charter trips throughout the year on 14 metre dive boat.





Sugarloaf Rock just south of Cape Naturaliste.

CAPE LEEUWIN – CAPE NATURALISTE

Some of the most rugged coastline in Western Australia lies in the south-west between Cape Leeuwin and Cape Naturaliste. This section of coast receives the full force of westerly gales during winter and is open to big swells rolling in from the Southern Ocean even during summer. The few weeks of the year during summer and autumn that bring calm weather to the area open up almost untouched dive sites within short distances of shore.

Cape Leeuwin is a few kilometres west of the town of Augusta, at the extreme south-west of our continent. Recognised as the point where the Indian and Southern Oceans meet, the cape is surrounded by reefs and islands. It also marks a significant change in marine life found from here north. West Australian jewfish, only occasionally sighted on the south coast, become increasingly abundant. Also western rocklobsters (crayfish) become a regular sight in caves and under ledges. The WA jewfish population increases in November, no doubt after following the rocklobsters into shallow water during their moulting process, when the soft shelled crustaceans make an easily digested meal!

Dive sites of moderate depth (up to 12 metres) are accessible from the shore near Cape Leeuwin. ***Groper Bay,*** a few kilometres east of the cape, has access down a gravel track. A rock entry into a few metres of kelp covered rock bottom slopes steadily out to a depth of 12 metres. Some overhangs and ledges are home to the odd small groper or queen snapper. ***Quarry Bay*** north of Cape Leeuwin has a reef protecting its seaward entrance and during calm weather this is a good shore dive. Large rocklobster are often found here and can be taken by hand during the season.

St Alouarn and ***Flinders Islands*** are 5 kilometres south-east of Cape Leeuwin, lying in very open water with little protection. The reefs surrounding the islands are untouched underwater and fish life is the main attraction. large blue groper, WA jewfish, queen snapper, pink snapper and sharks are the mainstay of the population. Large boats are necessary to dive the area, as both islands are exposed to all winds.

Closer in to Cape Leeuwin is ***Seal Island.*** This island, along with surrounding reefs, is in more sheltered waters and the area is accessible by small boats from Flinders Bay (4 km) in good weather. Bottom reefs in 8-12 metres of water lie between Seal Island and Groper Bay on the mainland. These reefs have some caves and ledges with colourful sponge growth, though once again fish life is the main drawcard. WA jewfish, groper, samsonfish and rocklobster are common sights. A handful of good caravan parks and a hotel/motel in Augusta serve the needs of visiting divers, with only a short drive to boat ramps and shore dive sites.

Travelling north from Cape Leeuwin are many potential dive sites, with access the only limiting factor. Boat ramps are located at Flinders Bay (Augusta), Hamelin Bay, Prevelly Park (Margaret River), Cowaramup Bay, Canal Rocks, and Dunsborough. Of these ramps only Flinders Bay and Dunsborough are suitable for large boats (7 metres plus). The others are suited only to small boats in good weather.

Hamelin Bay 20 km north of Cape Leeuwin, is renowned for its shipwrecks, four of which lie in the immediate area; *Chaudiere* (1883), *Katinka* (1900), *Agincourt* (1882) and *Cumberland* (1830). Hamelin Bay was once a thriving timber port and the remains of the loading jetty can still be seen adjacent to the boat ramp. The offshore reefs and islands are very popular with divers during the summer months. ***Mushroom Reef*** is only a couple of hundred metres offshore from the main beach and can be reached by snorkelling out from the shore. Small caves and ledges in 8 metres of water house large rocklobster, banded sweep, buffalo bream and morwong. Sponges and small gorgonia corals are also found in the odd sheltered ledge.

A little further offshore are ***Hamelin Island, Peak Island*** and ***Mushroom Rock.*** All are accessible in small boats and are surrounded by limestone reefs in 10-15 metres of water. Many reefs lie further offshore as well as north and south of Hamelin Bay. Deep water (greater than 20 metres) is not found until well offshore. A caravan park and general store are located just inland from the beach. These are the only facilities nearby.

Kilcarnup is a tiny fishing camp approximately 50 km north of Cape Leeuwin, not far from the mouth of Margaret River. A large limestone reef forms a shallow lagoon north from Cape Mentelle for a hundred metres or more. Inside the lagoon, up against the inside of the reef is excellent snorkeling or shallow scuba diving. Small ledges and reef outcrops harbour many juvenile fish, particularly crested morwong, scaly fins, red morwong and even the odd small reef eel. Outside the reef are many bottom reefs that are relatively unexplored. Access into Kilcarnup is via an unmarked four wheel drive track. The 'turn-off' is the first dirt road on the left after crossing northbound over Margaret River on Caves Road. There are no facilities at Kilcarnup, but nearby Prevelly Park has a boat ramp, caravan park and shop.

Cowaramup Bay is 38 km south of Cape Naturaliste and is a popular surfing spot. A caravan park, holiday chalets and a shop are located at Gracetown on the south-east shores of the bay. A second rate boat ramp is located on the north side of the bay, very open to sea and swell as well as being surrounded by shallow rocks. This is a pity as the offshore reefs are relatively unfished and with deep water not far offshore, good underwater visibility can be expected in reasonable weather.

Cowaramup Reef is a few kilometres north-west of the bay, and is best located with an echo sounder. The whole area is dotted with bottom reefs which are all good diving, the best being deeper than 20 metres. During calm weather a reasonable shore dive can be found at ***North Point,*** the northern extremity of Cowaramup Bay. Although the maximum depth is only six metres, the reefs are very undercut and harbour rocklobsters and the occasional groper. I once saw a 3 metre long wobbegong (carpet shark) off the point.

Canal rocks, 16 km south of Cape Naturaliste, has brilliant diving within a stone's throw of the shore. The area receives its name from a peninsula of large rocks with water filled gullies. These 'canals' are open to the sea through deep channels. One canal has a short bridge built over it for access onto an island formed by this unique rock formation. The seaward end of the rocks on a calm day is probably the best dive close inshore, but requires a short boat journey or a long swim (200 metres) from the car park. Some of my earliest scuba dives were at the end of Canal rocks. Unlike more popular sites close to Perth, fish life is as abundant today as it was in the 1970s.

The granite face falls quite steeply in a series of 'steps' to a depth of 25 metres. In the shallower sections kelp weed sways in the ever present surge and under crevices and ledges large rocklobsters hide among brightly coloured gorgonia corals and sponge growth. Densely packed schools of buffalo bream swim around the reef face, their silver sides glistening in the sunlit shallows. Over the edge of one ledge at 12 metres, a weed wall looks devoid of life. Swim a further five metres down and a big gap in the kelp reveals the entrance to a cave. Formed by fallen boulders from the rock face above, the cave houses a WA jewfish who disappears out the 'back door'. In the shadows among sponges and brightly coloured invertebrates are a variety of fish – foxfish, leatherjackets, harlequin, wrasse and swimming upside down near the ceiling, a breaksea cod.

Continuing down to the sand at 25 metres are more boulders, some covered with kelp weed, others with gorgonia corals, soft corals, sponges and everywhere fish! At one point on the south-west corner of the rocks is one sheer rock face from 22 metres up to the surface. Here I have regularly seen two big inquisitive blue groper. Although wary when first sighted, these two fish usually end up looking over my shoulder while I take photos.

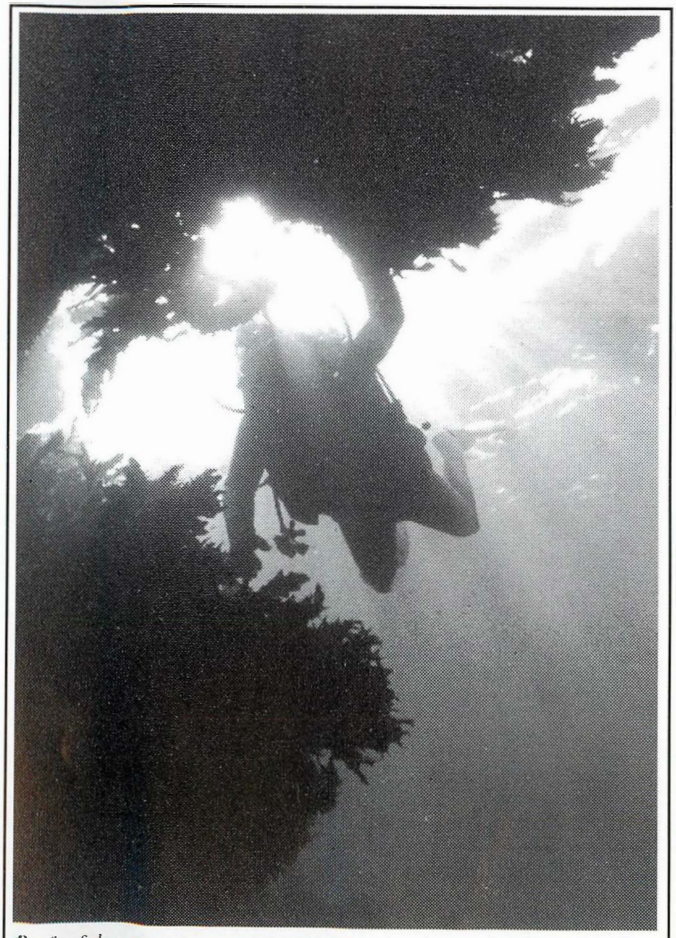
Shallower diving is possible in the canals themselves during calm weather. Some small caves and ledges add some colour to the generally weedy bottom, with depths no greater than five metres. The lee side of Canal Rocks can be a good beginner's dive. Between the car park and the boat moorings a hundred metres offshore, are rocks and boulders sloping down to a depth of 14 metres. Some fish and fixed life can be found around the boulders. This area can be dived during moderate south-west winds because of the protection afforded by Canal Rocks.

A boat ramp adjacent to the car park at Canal Rocks is suitable for launching trailer boats to 6 metres in length in good weather. This leaves the whole offshore area north to Cape Naturaliste, or south to Cowaramup Bay, wide open for exploration. Some quite steep

drop-offs are within a couple of kilometres of shore along this untouched section of coast. A caravan park and general store are just around the corner at Smiths Beach.

Cape Naturaliste lies very open to winds from all directions and has no direct access to the shore, although boats can be launched from Dunsborough to reach the Cape (13 km). In perfect weather bottom reefs within a kilometre of the north-east corner of Cape Naturaliste are excellent diving. Huge quantities of rocklobsters adorn each and every rock ledge in around 15 metres of water. Fish life, although good, is not what would be expected of such a remote area. Currents flowing from Geographe Bay can be quite strong and should be checked before entering the water. Deep water lies close inshore and whales often congregate here during their Antarctic migration, adding another dimension to diving the area.

Further around Cape Naturaliste, into the calmer waters of Geographe bay, are some bottom reefs just offshore in the ***Eagle Bay*** to ***Bunkers Bay*** area. Some of these extend outwards on the bottom from the many rocky headlands and would be diveable from the shore, but the more interesting reefs are 300-400 metres offshore. On most days with average underwater visibility (10-15 metres) these reefs are easily spotted from the surface as dark areas on the generally sandy bottom. Depths vary on the reefs according to their distance from the shore, ranging from 5 metres close to shore up to 15 metres further out. The reefs are composed mainly of granite, but some areas especially towards Cape Naturaliste are limestone and granite intermingled.

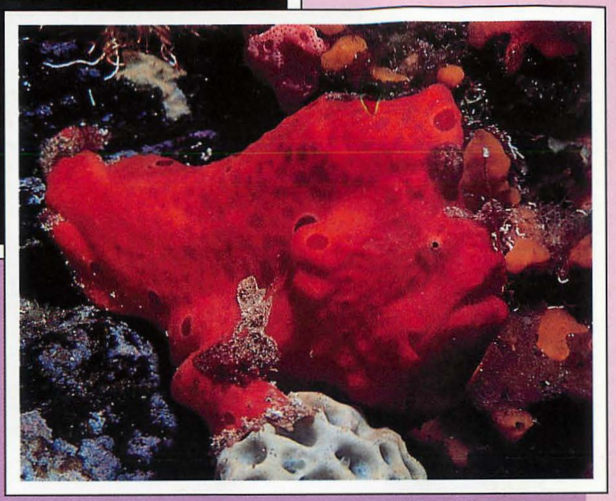


Reefs of the south-west are often undercut by caves and ledges.

Of particular interest is the first line of reef offshore from ***Eagle Bay,*** made up of granite with a lot of small ledges. Fish life is sparse but more variable than the open ocean reefs. The main point of interest is a large coral 'bommie' which rises 4.5 metres from the bottom in 8 metres of water. The bommie is a southern species of Acropora or leaf coral. It dwarfs the surrounding seascape and supports a healthy variety of fish and invertebrates.

In between the leaves of the coral are feather starfish with outstretched arms of orange, green or black feeding in the gentle current. Ascidians filter the nutrients from the surrounding water and perched on the larger leaves are predatory fish, banded sea perch, harlequin or sergeant baker waiting for unwary smaller fish to pass close enough to pounce on.

Left: *Old Wife Fish are commonly found around jetties and reefs in the south-west of WA.*



Right: *Looking for all intents like an orange sponge, this Frogfish has a tiny 'baited fishing line' near its mouth. It uses this to attract small fish which it feeds on.*

Leanne Mullins holds an inflated Porcupine Fish. Its erect spines form an impenetrable fortress against predators.

The base of the bommie is about 5 metres wide and is undercut with small caves which sometimes harbour WA jewfish. Nearly always schools of buffalo bream dart through the passageways and fish such as six banded coralfish, and foxfish are generally also seen here. Yellow and black pullers, old wives, green chromis, bullseyes and truncate coralfish surround the upper surface of the bommie. It is not unusual to see a school of large samson fish circling the base when you first approach the coral structure.

The bommie is hard to find on the first dive. The only real directions involve heading out from the beach at the eastern end of Eagle Bay until the first reef line is reached approx. 300 metres north-east. The reef is only about 30 metres wide and the easiest way to locate the bommie is to tow a diver slowly behind the boat, zigzagging along the length of the reef. In this way it may be easily spotted from the surface. Other coral bommies can be found in Geographe Bay but are much harder to locate and are further from the shore than the Eagle Bay bommie.

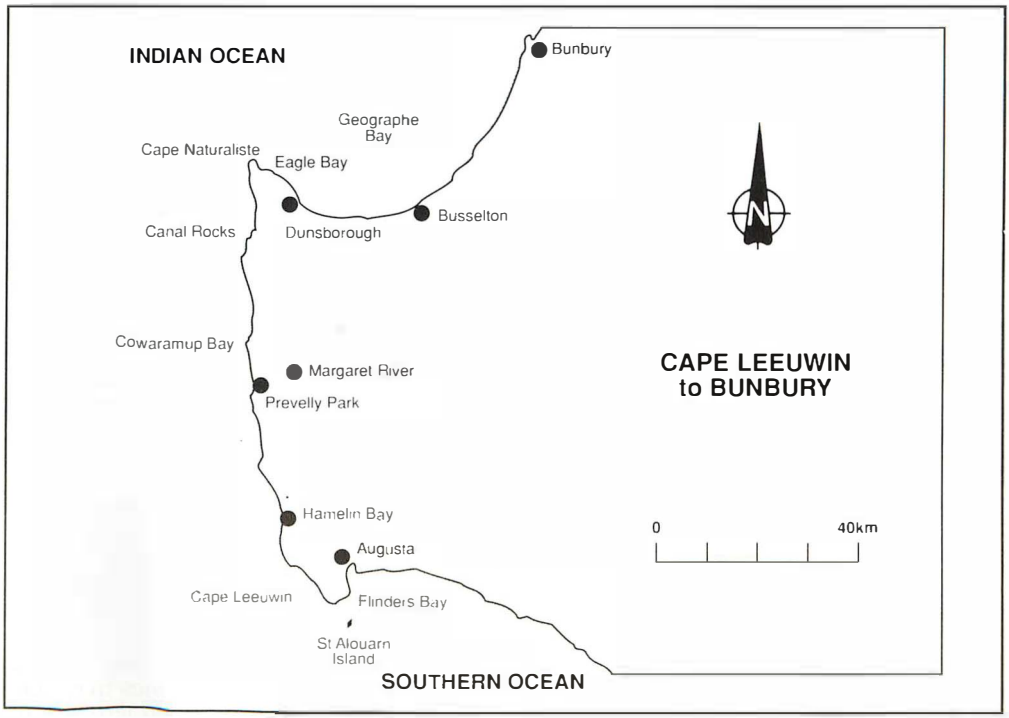
Accommodation in the Cape Naturaliste area is found at Dunsborough. A caravan park, shopping centre, hotel and chalets, are all here. But book early - the area is very popular during the summer months.

DIVE FACILITIES

Augusta Sporting & Hardware 56 Blackwood Avenue Augusta, 6290. Ph. (097) 58 1770 (Terry Nuttall) — Scuba Fills, Hire Equipment, Equipment Sales and Service, Tank Testing.

Augusta Underwater Adventures 29 York Street Augusta, 6290. Ph. (097) 58 1927 (Tom Pike) — Charter Trips arranged to local areas.

Dunsborough Bay Village Resort Dunn Bay Road Dunsborough, 6281. Ph. (097) 55 3397 (Kim Hancock) — Air Fills, Trailer boat charters, Accommodation.



GEOGRAPHE BAY

Geographe Bay is approximately 200 km south of Perth. The main feature is Busselton, a large town and thriving holiday resort midway around the shore of this vast bay. One long beach lapped by the clear calm waters of the Bay stretches all the way from Busselton to Dunsborough, a distance of 24 km. The Bay is protected from the ground swells of the Indian Ocean by the huge land mass of Cape Naturaliste extending 13 km north-west from Dunsborough. A lack of breaking reefs and islands indicates an uninteresting area for divers, but the bay does have some underwater attractions not found elsewhere.

The area is renowned for its excellent caravan parks which are nearly all right on the ocean front or only a short walk away. Most also have parking space for boats and trailers, making them the ideal form of accommodation for the visiting diver. Busselton also has motels, hotels and guest houses for divers with a larger hip pocket. Nearby Dunsborough has a caravan park and chalets.

The whole Geographe Bay area is also well equipped as far as boat ramps are concerned. Public ramps are situated at Dunsborough, Quindalup, Vasse, Dolphin Road (4 km west of Busselton) and two ramps at the town beach. All the ramps have parking and are suitable for launching boats up to 7 metres long.

Busselton Jetty is 2 km long and situated right on the town beach. It is the most popular and prominent dive location in Geographe Bay. The jetty extends in a slow curve from the shore in a northerly direction and it is made entirely of timber sections, which underwater form a maze of upright and occasionally criss-crossed karri pylons. Each one is covered from the bottom to the surface with almost every form of sedentary and invertebrate life found in south-western Australia. Littered among the uprights are old fallen pylons and beams which form small overhangs and grottos.

Although the jetty can be dived from the shore, a boat of some sort (or a long walk with equipment) is needed to dive the end of the structure where the most marine life is found. Launching a small inflatable or alloy dinghy is easy from either the beach car park or boat ramp, both at the start of the jetty.

On a typical dive at the end of the structure you are likely to be greeted by 10-25 metre visibility in 7-8 metres of water. Under the shaded areas in among the pylons large schools of yellowtail and pike literally pour through the rows of pylons. Each and every pylon is coated with sponge encrusted soft corals, bryozoans, sponges and ascidians.

When the schools of yellowtail thin out, other species of fish move in to inspect the visiting diver. Porcupine fish, old wives, truncate coral fish, bullseyes, buffalo bream and skipjack are seen on every dive. The diver with a keen eye may spot such oddities as large scorpion fish sitting motionless on a fallen beam, an orange frogfish 'fishing' for prey, a tiny crab scuttling for cover on the upright pylons or a leggy octopus hiding in the hollow end of a fallen pylon. These scenes would be typical of any day at the Busselton Jetty.

Also an excellent night dive, the jetty turns on a whole new show after dark. Yellowtail that cruised casually during the day are now pursued by speedy samson fish, breaking the schools of baitfish into a shower of silver bullets. Nervous porcupine fish become sleepy and able to be caught by hand, inflating themselves into a large prickly ball. The scorpion fish, who in the day could not be moved without a gentle prod, moves in short bursts, hunting for a fish he might catch napping.

A banjo shark cruises slowly over a sandy area in search of fish and bait scraps dropped over the side by fishermen on the jetty. Occasionally WA jewfish are sighted and on fallen beams sea cucumbers, foot long caterpillar like creatures, move slowly in search of food. The jetty by night is a hunting ground for many of its residents, but others common during the day such as dusky morwong, boxfish and the brilliant red/orange nudibranch 'Ceratosoma', find a cosy corner and lie motionless, asleep until sunrise.

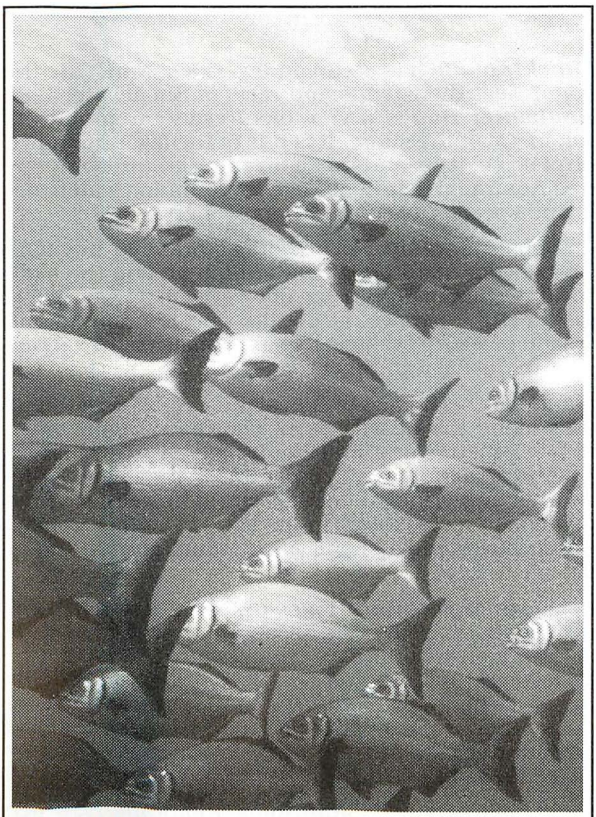
Busselton jetty was built for loading supplies onto American whaling ships that worked the area in the mid 1800s. It was then only short, but was extended many times to enable the loading of timber from the local forests onto ships. Today the 130 year old jetty lies in

a state of dis-repair and is in need of constant renovation. Many local fundraising events are held to pay for repairs.

No substantial reefs lie close to the shore in Geographe Bay (except near Cape Naturaliste – see previous chapter), but for divers with a boat longer than five metres, there are some ***deeper bottom reefs*** offshore. These lie between 7 and 11 kilometres north of Busselton and are located by echo sounder, or if the water is clear, by spotting from the surface. The reefs extend across the bay in north-east to south-west lines, but are broken in some areas and almost disappear to re-appear a short distance further along.

The reefs are limestone and of a very low profile, only coming off the bottom 2-3 metres, and a careful eye is needed on the echo sounder to avoid missing them. Low ledges dominate the reefs and these house many members of the local fish community. Of particular note are red scorpion cod, harlequin fish, WA jewfish, breaksea cod and leatherjackets. Some corals are found among the sponge and weed dominated bottom. These are mostly brain, star and honeycomb corals that form some quite large sections of reef. Visibility this far from shore is generally very good, with 20 metres about average. Depths vary with the distance from the shore, starting at 15 metres 7 km out, through to the deepest reefs I have found at 23 metres, 11 km out.

The best time of the year to visit Geographe Bay and Busselton is between October and May. The remaining winter months bring strong west and north-west winds which ruin underwater visibility in the Bay. The jetty can still be dived in quiet spells between storms in the winter months, but visibility will probably be down to 3 or 4 metres.



Schools of Buffalo Bream are common throughout W.A.

During summer, spring and autumn the area sometimes experiences strong south-east to south-west winds. These do not affect diving in most areas as the bay faces in a north to north-east direction – hence the wind blows offshore. The bay makes an ideal afternoon dive (perhaps after diving the west side of Cape Naturaliste in the morning.)

DIVE FACILITIES

Naturaliste Dive Centre 103 Queen Street Busselton, 6280. Ph. (097) 52 2096. (Andre Billstein) — Equipment Sales and Hire, Air Fills, Dive Club, Dive training.

Dunsborough Bay Resort Dunn Bay Road Dunsborough, 6281. Ph. (097) 55 3397 (Kim Hancock) — Tank Fills, Charter Boat, Accommodation.

South West Diving Centre Hennessy Road Bunbury, 6230. Ph. (097) 21 8322 (Udo Kruger) — Equipment Sales and Service, Hire Equipment, Dive Training, Tank Fills.

Sportsmarine 113 Victoria Street Bunbury, 6230. Ph. (097) 21 4961 (Roy Collett) Equipment Sales and Service, Air Fills.

MANDURAH – ROCKINGHAM

North of Geographe Bay the next major dive attractions are the reefs and islands offshore from Mandurah and Rockingham. Both of these towns are popular holiday resorts within one and a half hours drive from Perth. ***Mandurah*** is located on the shores of a huge natural inlet and estuary 80 km south of Perth. There are two major sections of reef in the vicinity of Mandurah.

Firstly the ***Bouvard Reefs*** south-west of town and only a few kilometres offshore, are renowned for the quantity of reef fish that populate this large area of limestone reef. Secondly – north-west of Mandurah, ***James Service Reef*** is named after the wreck of a three masted barque, the *James Service*, wrecked during a storm in July 1878. This reef is the southernmost of a group known as the Murray Reefs. Probably the most popular dive site in the area, the *James Service* wreck has some intact sections in the stern area at about 6 metres. Her bow is very broken up and lies in shallow water. The reef, 8 km north-west of the entrance to Mandurah Estuary, breaks in all but the calmest weather and a buoy marks the southern extremity.

A line of broken reefs extend north from James Service Reef and parallel to the shore. These are the ***Murray Reefs*** and they are less frequented by divers than those closer to Mandurah and Rockingham. Hence they are less heavily fished and have more marine life. These reefs mostly break the surface but some are submerged just below the surface. Rocklobsters are abundant and can be caught during the season. The occasional WA jewfish, samson fish or queen snapper are still found around the Murray reefs. Access is from Mandurah or Safety Bay by boat.

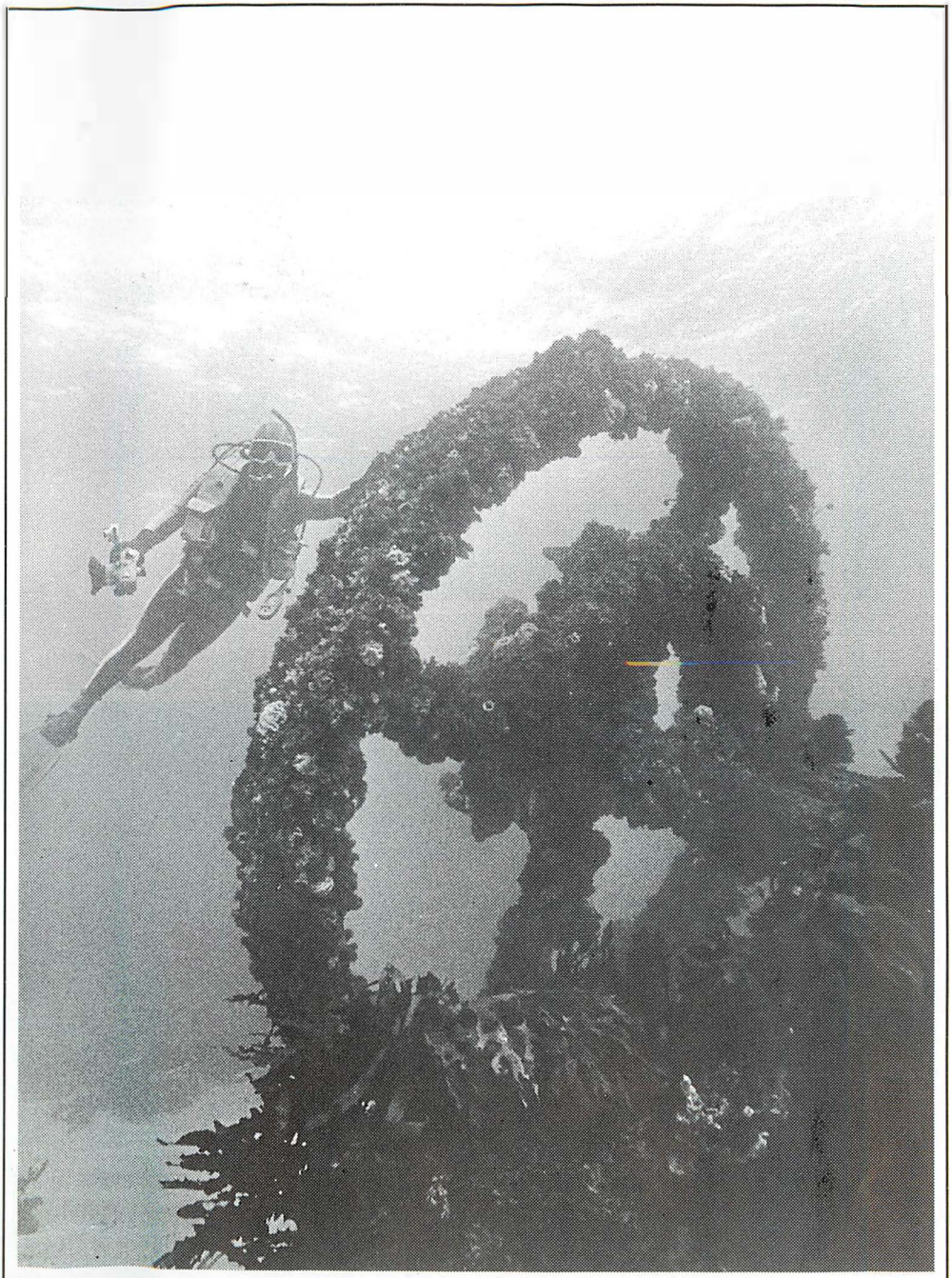
Slightly closer to Perth, the town of ***Rockingham*** has ocean on two sides. North are the protected waters of Cockburn Sound and west the islands and reefs of Shoalwater Bay. Declared a marine park in 1990, ***Shoalwater Bay*** is a very picturesque area with its limestone islands and reefs within a kilometre of the shore. It is one of the few untouched marine environments within easy reach of Perth. Its islands are a breeding ground for many seabirds and a refuge for the endangered Australian sea lions. The surrounding waters are dotted with reefs, rich with marine life and spectacular underwater scenery.

Penguin Island, the largest island in Shoalwater Bay, is a breeding ground for tiny fairy penguins. These 30 cm high birds can be seen by torchlight, waddling among the sand dunes at night time. The island is an ideal beginners dive, being one of the most accessible 'offshore' sites in the area. A ferry runs a regular service during the warmer months and on school holidays in the winter. The island is also accessible by small boats or by walking across the shallow sand bar running out to the eastern tip of the island.

The reefs surrounding the northern and southern ends of the island can be dived in all but extremely large swells and the reefs along the western front offer good diving when easterly winds prevail. Depths vary from 2-7 metres around Penguin Island. The cliff face on the south end of the island has growths of gorgonia fan corals under the ledges at its base, as well as large feather duster worms and crinoids (feather starfish) feeding in the current. The reefs at the north end are home to rocklobsters in the period October to May. Most of the dive sites are accessible from the island's shore, but a small aluminium or inflatable boat makes life a little easier.

First Rock is the first exposed rock south of Penguin Island, the area between these being the main channel for the local rocklobster boats and pleasure craft. The rock is surrounded by a reef platform which has an almost continuous underwater ledge running around it, in depths of 2-5 metres. This ledge is unusual as a close look under some of the dark overhangs will reveal isolated patches of tubastrea coral. This coral is normally found further to the north in warmer waters. In other areas of the reef and in some places next to the colourful tubastrea coral, can be found telesto soft corals. These are more likely to be seen in deeper water or cooler protected areas like Geographe Bay 160 km to the south.

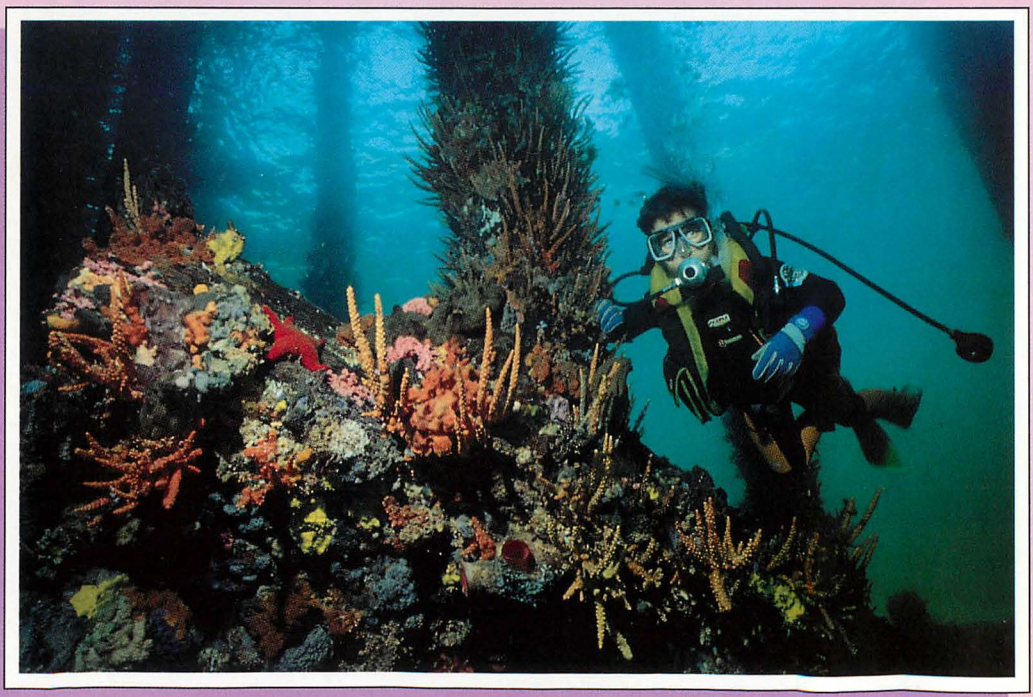
I have also, on odd occasions, found and photographed Ceratosoma nudibranchs, which appear to only be found in the vicinity of telesto corals and probably feed on the sponge encrusting the skeleton of the soft coral. The odd wobbegong (carpet shark) can be found



The Orizaba shipwreck is huge. here diver John Brown inspects part of the steering mechanism.

Above: *This Nudibranch species is found in sheltered waters on the lower west coast.*

The Red Scorpion Fish is closely related to the Stonefish family, its dorsal spines are needle sharp and venomous.



Beneath the Busselton Jetty, Michael Mullins inspects coral and sponge growth on fallen pylons.

lying around the caves and ledges of this reef and cuttlefish appear in this region at the end of summer. They usually find a dark hole or cave to set up home in and tend to be a bit aggressive if cornered or pestered by divers.

Seal Island in the centre of Shoalwater Bay quite often has as many as 20 sea lions sleeping on its wide beach. These playful mammals are easily persuaded into the water by the sight of a diver snorkeling around the beach area. Once in the water the sea lions will approach a diver at quite close quarters – exhilarating to say the least as some of these sea lions are 2.5 metres long and weigh upwards of 180 kg! Yet their underwater movements are as graceful as any ballerina.

Divers who wish to visit Seal Island should be aware that the sea lions must be approached with extreme caution whilst they are on dry land. Inside those puppy like lips are a formidable set of teeth capable of tearing a large piece of flesh from an over confident visitor.

200 metres south of Seal Island is ***Shag Rock.*** Between the two is an area of reefs protected from the swells of the open ocean by a reefline to the west. These reefs are home to a variety of small reef fish and almost appear to be a fish nursery, with some of the smallest examples of local fish found here in abundance. Fish such as truncate coral fish, breaksea cod and colourful juvenile scaly fins hide in every hole and crevice in the reef. Diving depths in the area vary from three metres between the islands to seven metres on the outer 'lumps'.

Another reef worth a visit is ***Horseshoe Reef,*** one kilometre north of Seal Island; which has interesting caves and ledges protected from the constant south-west swells by a solid line of reef. Nudibranchs and starfish are particularly prominent. The limestone reef is riddled with huge caves on the north-east corner. The real show piece here is the blue devil fish, his iridescent bright blue spots and yellow eye giving him an almost unreal appearance as he sits motionless in crevices and ledges.

Point Peron is a rocky prominence at the north end of Shoalwater Bay. The Point offers good shore based diving with many limestone reefs only a matter of 100-150 metres offshore. These reefs are full of sponge, coral and fish life, each ledge covered in either gorgonia coral, encrusting sponges, ascidians or other sedentary life. Here and there among the corals and sponges, a starfish, one of a dozen varieties, walks through the colourful backdrop. Fish are plentiful, but years of spearfishing have cut short the list that could once be seen. Wrasse, morwong, scaly fins, leatherjackets and sweep are the most common, with the occasional larger game fish also being sighted.

The easiest entry point is from a large parking area at the end of the dirt track. Proceed straight down to the rocky foreshore and from there swim out to the closest set of reefs 100 metres to the north-west. This reef has some ledges and small caves, but if the weather permits, the larger reefline to the west is a more challenging area. Underwater visibility throughout Shoalwater Bay in summer is normally around 5 metres, but during calm spells in autumn 15 metres can be experienced. Winter and spring generally bring big swells with dirty water and surgy conditions.

The ***Five Fathom Bank*** is a shallow line of reef and sand which rises out of considerably deeper water on either side. It lies in an approximate north-south line 5 km west of Garden Island and runs 30 km south to finish offshore from the coastal resort of Mandurah. The waters along and around the bank are generally clearer than the inshore reefs and richer in marine life. More importantly for wreck enthusiasts, the bank is the resting place of two very interesting wrecks - the *Carlisle Castle* on Coventry Reef, and 4.8 km north the RMS *Orizaba.*

Coventry Reef is 5 km south-west of Penguin Island. On the north west edge of this reef, eight metres below the surface lies the wreck of the ***Carlisle Castle.*** The wreck is almost unrecognisable, but some sections of deck frames and ribs lie scattered around the rocky bottom. Two anchors sit on the reef at a depth of 10 metres, pointing skyward from wreckage on the west side of the reef. Nearby are hundreds of ballast bricks under tight ledges formed by the iron hull. The bricks all bear the name 'Gartcraig' engraved into their upper flat face.

Long water pipes stick out of one side of a ledge, trapped by larger sections of the broken hull. Close by are some caves in the reef itself and more bricks and some broken bottles can be found scattered around the bottom. The life in these caves is colossal. Strong currents created by the breaking swells overhead provide a never ending supply of food to sponges, ascidians, bryozoans and corals which cover the entire roof and walls of the caves. One particularly large ledge nearby glows gold on an overcast day, the extended polyps of tubastrea coral covering its full nine metre length. The caves are also home to dozens of blue devil fish which hang like suspended puppets in the dark recesses.

A little further away from the breaking reef is a ledge full of bottles which still have the remains of their packing cases buried beneath the sand. Some bottles are still complete with cork and lead seals, although the contents appear to have 'thickened' after a century on the seabed.

The *Carlisle Castle* is regarded as a historic shipwreck as she sank before the year 1900. The wreck occurred on the night of either the 11th or 12th July 1899, when wreckage was washed ashore in the Rockingham area. The 229 foot barque left Glasgow – Scotland on 22nd March 1899 with a cargo of water pipes, railway lines, bricks, whisky, general cargo and according to some sources, £50,000 in gold!

In complete contrast to the wreck of the *Carlisle Castle,* the wreck of the **RMS *Orizaba*** is not particularly easy to find, has no artifacts or cargo visible, and sank under vastly different circumstances to those applicable to the Scottish ship. However the *Orizaba* site is also more recognizable as a 'shipwreck' than many of the wrecks in West Australian waters and is also the largest diveable wreck in local waters.

The wreck lies with its bow pointing in a north-westerly direction and the basic shape of the hull is still visible. Starting at the huge bow (the most intact section) in eight metres of water, one gets an idea of the original size of this once proud ship. A diver can enter chambers in the bow which lead out through corroded plates to the exterior. Inside these chambers are a huge array of invertebrate life forms. Often a few port jackson sharks lie among the colourful ascidians and sponges.

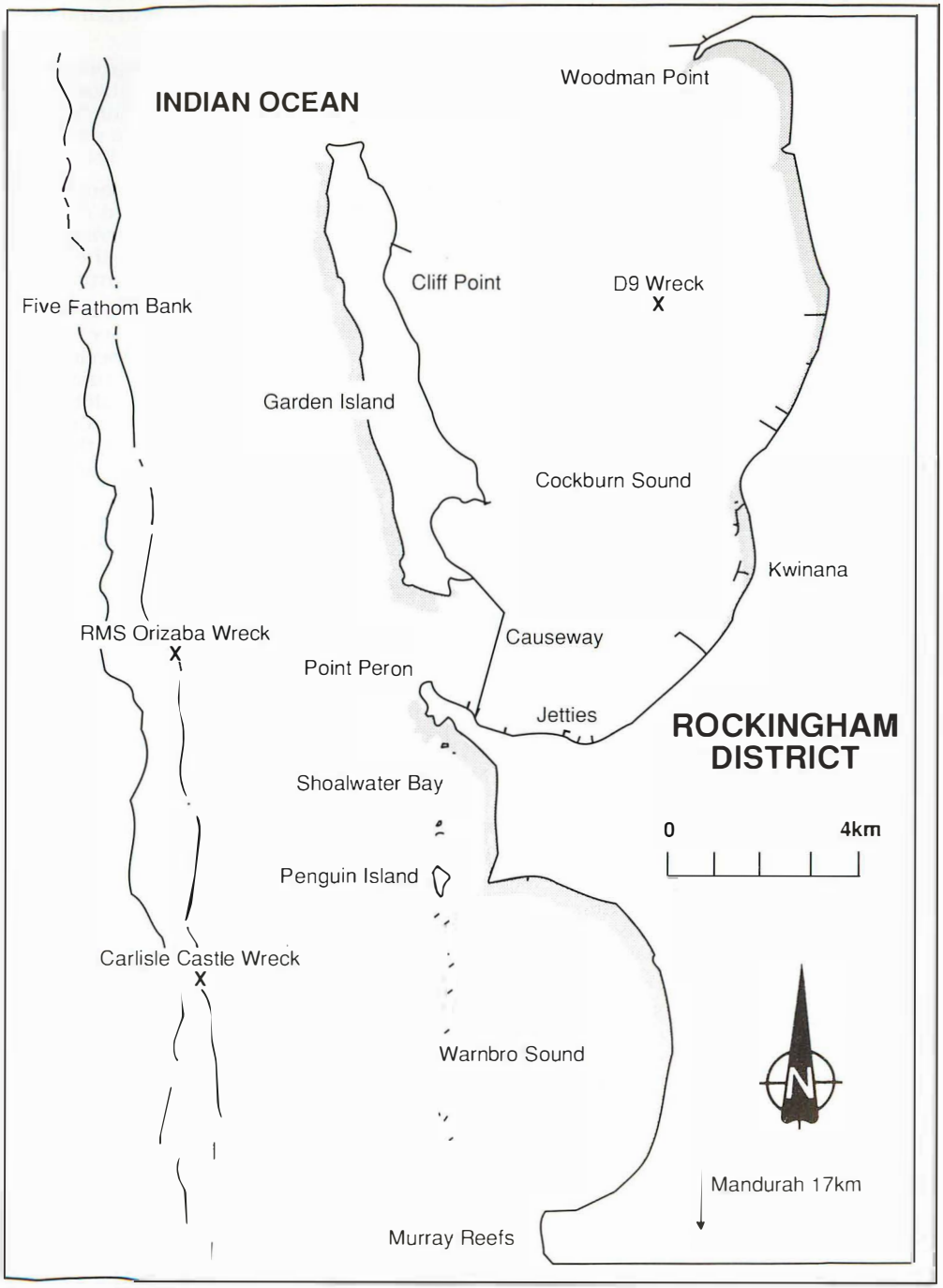
Heading south-east from the bow, the wreck is made up of large box sections covered in kelp weed. These were the framework of the hull, the outside plates having corroded away. A little further along the framework are two boilers on the left and still further are another five to the right. The general area around the boilers is also home to some of the most territorially aggressive fish I have come across. Scaly fins dart out from their hideaways like charging bulls, only to turn away centimetres before striking the diver and head back to their refuge.

The hull, in the vicinity of the boilers, has what appears to be the lower deck still intact and through some small openings the inside of the hull can be seen. The hull and parts of the bottom are visible on either side. These areas are occupied by big schools of bullseyes and buffalo bream dart in and out of the hull. A little further south-east of the boilers, a huge crankshaft sits on mounting blocks attached to the bottom of the hull. It appears that this is where the ship broke its back, as here the bottom starts to slowly get deeper and the crank and propeller shaft angle toward the sand at the stern in around 12 metres of water.

At the stern is a four metre high wheel and axle, probably the wheel which activated the rudder from inside the hull. The bottom in this area is mainly sand and a few rocks and often yellowtail kingfish are seen feeding around the stern. These are not a particularly common fish, but are one of the fastest moving predatory species in local waters.

The RMS (Royal Mail Steamer) *Orizaba* was built by the Barrows Ship Building Co. in 1886. She was a four masted steamer 460 feet long. She left London on 13th January 1905 bound for Fremantle and other Australian ports. She had onboard board 160 passengers and 250 tons of general cargo.

While she was approaching Fremantle on the 16th February the land was hidden from sight by smoke from bush fires in the Darling Ranges and the master of the *Orizaba* first spotted dry land when the ship had already passed over the Five Fathom Bank. When he


INDIAN OCEAN
Woodman Point
Cliff Point
D9 Wreck
Five Fathom Bank
Garden Island
Cockburn Sound
Kwinana
RMS Orizaba Wreck
Causeway
Point Peron
Jetties
ROCKINGHAM DISTRICT
Shoalwater Bay
0
4km
Penguin Island
Carlisle Castle Wreck
Warnbro Sound
N
Mandurah 17km
Murray Reefs

realised that the land was not the coast near Fremantle he had expected (it was Garden Island), he immediately ordered 'slow steam' and that the ship be turned around on a westerly course. Soundings were taken, but it was too late.

On her way in over the bank the ship must have been very close to running aground with her 24 foot draft, but on the way back she bumped bottom once and then struck hard where she sits today. The passengers and mail were off loaded onto the tug *Gannet* on the same day as she ran aground. The next day, things looked a little grim as there was some doubt that she could be refloated, owing to water in the engine room and a bad list to port.

After the cargo was unloaded and some fittings salvaged she was left for a number of weeks while salvage attempts were planned, but these were to no avail and she was eventually stripped of all furniture and fittings and left to the elements. The *Orizaba* is not a historic wreck as she sank after the year 1900, but is still privately owned by the Orient Line who have agreed to allow diving on the wreck. However, no removal of artifacts or destruction of the wreck is allowed.

Both of these wrecks make interesting dives, but a little note of warning! The Five Fathom Bank is no place to be if the ocean swell is above low-moderate (2 metres). Especially, do not dive on these wrecks as the surge on the bottom can push a diver at an alarming rate towards jagged steel framework – not a healthy pastime! Another point is boat safety, even in perfect conditions a boat of at least 4.5 metres is necessary to safely transport divers to the wreck sites. The best time to visit the bank is late summer or autumn, when the swell is lowest and the water clearest. Other shipwrecks do exist close to the 'bank' and one of the more famous is the *Sepia*, south-west of Carnac Island, wrecked in 1898.

For the boat owner there are a number of boat ramps in the general area. Three excellent public ramps for small and medium sized boats are located at the mouth of the Mandurah Estuary (note: the Mandurah Estuary entrance is sometimes closed due to silting of the sand bar). There is a ramp suitable for large boats at Point Peron adjacent to the Garden Island Causeway and another three in Shoalwater Bay and Safety Bay suited to smaller boats. For the non-boat owner hire surf cats for use inside Shoalwater Bay are available along the beach.

Accommodation of all types is found at Mandurah, from a tent site at a caravan park through to a time share unit at one of a dozen million dollar resorts. All tastes can be satisfied! Rockingham and nearby Safety Bay have caravan parks, rental homes, chalets and hotels.

DIVE FACILITIES

Malibu Diving 43 Rockingham Road, Rockingham, 6168. Ph. (09) 527 9211 (Steve Sturgeon) — Hire Equipment, Tank Fills and Testing, Equipment Salesand Service, Scuba Courses, Charter Boat - 4 trips per day.

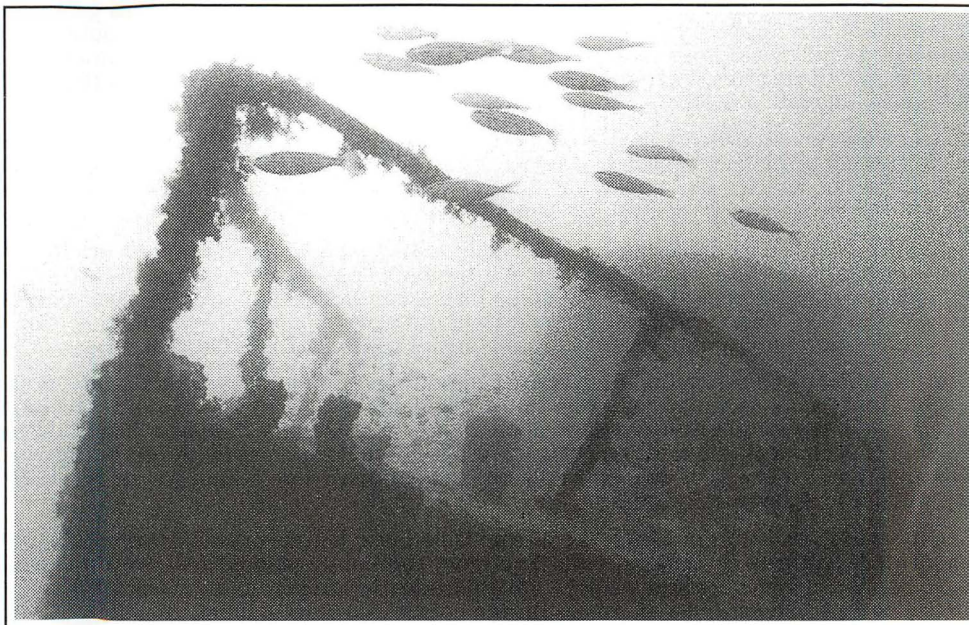
David Budd Watersports Shop 3 The Plaza Shopping Centre, Mandurah, 6210. Ph (09) 535 1520 (David Budd) — Hire Equipment, Tank Fills, Equipment Sales and Service, Scuba Courses, Charter Boat Trips.

The Watershed Shop 1/17 Sholl St Mandurah, 6210. Ph. (09) 581 3224 (Geoff Rees) — Hire Equipment, Equipment Sales and Service, Scuba Courses, Weekend Boat Charters arranged.

COCKBURN SOUND

Cockburn Sound is a large sheltered expanse of ocean 30 km south-west of Perth. It is almost completely cut off from the open ocean by Garden Island and shallow sand banks to the south and north-east. The sound doesn't offer the best underwater visibility in WA, nor does it have the rich marine life of the ocean west of Garden Island. But it does offer a dive when the ground swell is too big in the open ocean and some sites are accessible from the shore.

The body of water contained in Cockburn Sound covers an area of approximately 118 square kilometres. Two thirds of this area is a basin 18-22 metres deep. The underwater environment of this deep basin is basically soft bottom and as such lacks the brilliant colours of the limestone reefs along the WA coastline, but the animals and plants that do live here are found in few other locations.



Trumpeter Fish swim past the bow of the sunken Tug M.V. Petrel.

The shallow surrounding fringe of Cockburn Sound is mostly covered by sand and seagrass. These are very important nursery areas for young fish and crustaceans, but offer little of interest to divers. During the early summer months snorkelers can pick up a feed of blue manna crabs from these shallow sand banks. The deeper waters of the Sound tend to have a generally green colour and this in itself deters a lot of divers, but the calm conditions underwater can be a pleasant change from the continual back and forth surge found on the open ocean reefs.

Shore diving in Cockburn Sound starts at ***Rockingham Jetty*** about two kilometres east of Garden Island Causeway. Here the deep waters of the Sound reach in very close to the shore. The Rockingham Jetty has changed shape many times, from its beginnings as a deep water jetty where sailing ships loaded timber in the 1800s, to its present-day shortened length of around 50 metres. The jetty now falls short of the deep water, leaving about 10 metres to swim to the edge which steadily drops into 18 metres of water.

On the way down the slope are many old timbers from the original structure. On these are quite a few varieties of ascidians, starfish, sponges, seahorses and nudibranchs. At one

spot is a pile of rubble where some fish congregate, species include wrasse, morwongs, snapper and a few coral fish. Occasionally red scorpion cod can be spotted near the rubble pile. Various colours of this fish are seen in Cockburn Sound, varying from red to a grey/blue colour. They blend in well with the surrounding terrain, so be careful not to land on top of one as their venomous dorsal spines can inflict a very painful wound.

Further down the slope at 18 metres the bottom levels out. This flat, featureless mud bottom has been transformed into an artificial reef in recent years by local divers who have placed hundreds of car and truck tyres in mounds adjacent to the ruins of the old Rockingham Jetty. These 'reefs' are joined together by ropes which guide divers around the whole area. Many fish have set up home in the artificial reef - boxfish, stingrays, cardinal fish, morwongs, and stripeys are the most prominent.

The ***wreck of the* MV *Petrel*** lies less than a kilometre east of Rockingham Jetty in 12-14 metres of water. The *Petrel* sits almost upright with her bow pointing north down a slight slope. She has begun to deteriorate since being scuttled there in 1985. In the few years the 15 metre ex steam tug has been on the bottom, she has attracted hundreds of gobbleguts, trumpeter and yellowtail, which constantly patrol the wreck. Some ascidians and anemones have attached themselves under the stern section. The tug was built in Albany in 1895 and has had an interesting history.

Local divers have scuttled a ferro cement yacht and a smaller vessel close to the *Petrel*, to form another artificial reef system. Regular fish feeding has already attracted larger fish to the area. The wrecks are directly offshore from Churchill Park and directions can be obtained from the adjacent dive store - Malibu Diving.

A dive out from ***Churchill Park*** on the slope into the basin of the sound will reveal 'sea pens' a form of soft coral that lives in the silt bottom. These sea pens are a pale orange colour. Some stand 70 cm high and in some places can be seen all around, their polyps feeding in the slight current. They are generally found in water deeper than 7 metres where diver traffic is low, and are more abundant on slopes rather than on flat bottoms.

Northward along the shoreline from Rockingham there are literally no dive sites among the industrial complexes that dominate the eastern shores of Cockburn Sound. The next site reached is ***Woodman Point,*** a natural peninsula that extends 2 km seaward from the mainland at Jervoise Bay. On the end of this low lying sandy point are two limestone groyne structures. The left one is of interest to divers. The southern side of this groyne has quite steep walls into 8 metres of water.

The limestone rocks, from which the groyne is constructed, form small overhangs that attract small fish and invertebrate life. The most commonly sighted fish are bullseyes, gobies, boxfish, gobbleguts and stripeys. Invertebrate life varies from tube worms of a few varieties to sea horses and red warratah anemones that add a touch of colour to the generally drab shades of these waters.

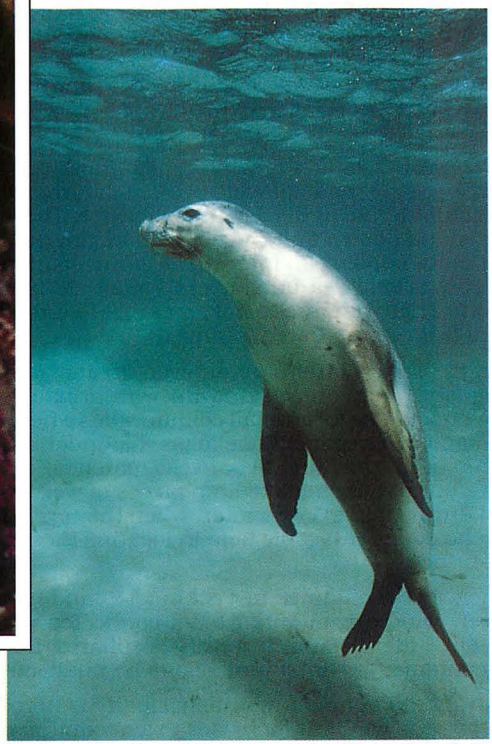
At the base of the slope, the bottom becomes soft and silty, much like the terrain off the beach at Rockingham. The dominant life forms here are large anemones that dot the bottom. Their thick bodies and long arms appear almost alien as they feed in the nutrient rich waters, with some growing as wide as 40 cm. Sea pens are also found here but are not as plentiful as at Rockingham.

Boat diving in the southern section of the sound is limited to the ***Causeway*** connecting the Naval Base on Garden Island to the mainland. The Causeway has attracted various reef fish, plants and animals. The water is only 3-5 metres deep and is generally calm. Limestone boulders form small caves where stripeys, morwong, bullseyes and other fish hide. In the dark recesses are rocklobster and this is the only area of Cockburn Sound where they are found in any quantity. The area makes an interesting night dive. I once found an electric ray and a miniature scorpion cod on one dive here.

Further north in the sound is the wreck of the ***Suction Dredge D9.*** This 30 metre long dredge was being used to dredge shipping channels in Cockburn Sound when it sank in a storm in 1962. The wreck is in 13 metres of water on the edge of the drop into the main basin, approximately 3 km west of the Alcoa Refinery. The huge wreck is completely intact

Above: *Orange Tubastrea Corals are found under shaded ledges where swift currents flow.*

Below: *An Endangered Species, the Australian Sea Lion is found as far north as Shark Bay.*



Brightly coloured starfish are found along the entire WA coast.

and sits upright on the sand bottom. The bow and stern sections can be entered safely, but the central area is very dark and has few exits. The exterior of the dredge is covered with growths of invertebrates, including sponges, ascidians and the odd small coral. Seahorses and nudibranchs can also be found among these growths.

The interior of *D9* is home to a large number of small stingrays, as well as schooling yellowtail, bullseyes, old wives, truncate coral fish, wrasse and porcupine fish. The bow can be entered through the suction intake, a four metre by two metre opening in the northern end of the wreck. The stern is open from the top and has overhangs down either side. Care should be taken in any of the confined spaces as the wreck silts up easily, dropping visibility to almost nil in a short time.

Cliff Point is a limestone headland on the north-east side of Garden Island. Approximately one kilometre offshore from the headland are numerous patches of limestone rubble in 6-15 metres of water. These patches are on a fine sand bottom which rises up and down quite steeply. There are no ledges or caves as the rubble is only small, but it does support an interesting group of animals. On the peaks of most mounds of rock are 15 cm long sea cucumbers (beche de mer) with arms outstretched, feeding in the plankton rich waters. Sea horses can be found among ascidians and algae growth in various colors from cream to red/orange.

On the sand bottom are an even greater number of animals. Huge anemones of every imaginable shape reach upward with arms as thick as a man's finger. Small clumps of simple ascidians form small communities where sea horses, sea cucumbers and compound ascidians congregate in one mass. Flounder are seen here and there, camouflaged so well in the sandy terrain. Near weed patches, small cuttlefish try to blend in with their background, hanging like limp pieces of weed. Juvenile port jackson sharks are a regular sight during mid to late winter, when they are found in small groups resting on the bottom. An echo sounder is a big help in locating these rubble patches as they are not visible from the surface.

The waters contained in Cockburn Sound have their own circulatory currents which are entirely wind driven and are not connected with oceanic currents that exist on the west side of Garden Island. It is this peculiarity that causes the underwater visibility to vary from summer to winter and also to be unaffected by oceanic swell conditions.

During the summer months visibility is normally as low as 1.5 metres, but during late autumn and winter it increases to a maximum of 10-15 metres. This ties in nicely with the time of year when storms and gales reach up from the Southern Ocean, destroying underwater visibility in the open ocean. This combination of conditions makes Cockburn Sound an ideal poor weather, winter dive site.

Accommodation for visiting divers includes an hotel and caravan park at Rockingham, a caravan park at Kwinana, another caravan park at Woodman Point and rental chalets throughout. Boats can be launched from excellent ramps at Woodman Point, Garden Island Causeway, Palm Beach, and Kwinana Beach.

DIVE FACILITIES

Malibu Diving 43 Rockingham Road, Rockingham, 6168. Ph. (09) 527 9211 (Steve Sturgeon) — Air fills, Hire equipment, Charter boat trips, Dive instruction, Equipment Sales and Service, Hydrostatic tank testing.

FREMANTLE

Just outside Fremantle Harbour are two of Perth's most popular shore dives. The wreck of a ***Lighter*** sits a hundred metres off the north mole and the ruins of the ***Long Jetty*** run seaward from the America's Cup Groyne just South of Fremantle.

The *Gareenup* was a lighter involved in a collision inside Fremantle Harbour. She was subsequently scuttled off North Mole shortly after the mishap in 1923. A 20 metre long steel wreck lying just off North Mole has for many years been regarded as being the wreck of the *Gareenup*. However records show that the *Gareenup* was a wooden hulled vessel, of different dimensions to those of the North Mole wreck.

The lighter is more probably the *Black Swan*, a converted Swan River dredge also involved in a collision inside Fremantle Harbour a few years later, in 1927. The self propelled dredge had possibly been cut down and converted into a lighter with a crane on deck, its drive gear partially removed to facilitate towing. No matter what the name, the wreck has remained remarkably intact considering the fact that it sits in only 9 metres of water and is exposed to winter north-westerly storms.

In 1988, during construction of extensions to Fremantle Harbour, the lighter was to be buried under a limestone breakwater. The Fremantle Port Authority, with the aid of barge mounted cranes, had the wreck shifted 100 metres west to its current position just off the breakwater. It now sits 190 metres from the North Mole Lighthouse. For many years the lighter has been used by various dive schools as an introductory ocean dive for students. Not just a good beginner's dive, the wreck is an excellent site with plenty of marine life.

The interior of the wreck has an eerie feel about it. Sunlight sends rays through many hull openings that light the interior with a green hue. Old wives, truncate coralfish and bullseyes live inside the empty engine room. During summer, rocklobsters often hide in the dark recesses. Nudibranchs are found on the exterior, along with the odd octopus, ascidians and small fan corals. A keen eye will see samson fish, snapper, boarfish, and yellowtail kingfish that often cruise in from surrounding waters and curiously whisk past the wreck.

The best time to visit the lighter is during late summer when the Swan River's outfall is at its cleanest. The wreck is an easy 10 minute snorkel from the rocks. The North Mole Lighthouse is on a compass bearing of 220 degrees from the wreck and an incinerator chimney further back along the mole is on a bearing of 110 degrees. From above the wreck, the last rock on North Mole lines up precisely with the northern end of Carnac Island off to the south-west. Underwater visibility is usually around 4 metres. The wreck has around 4.5 metres of water over it, so sometimes it is not visible from the surface. On a good day with south or south-east winds when the surface is calm, visibility can reach 10 metres or better.

The ruins of the ***Long Jetty*** at Fremantle are a bottle and relic collector's paradise. The jetty was used during the 1800s for loading and unloading of sailing ships prior to the opening of Fremantle Harbour. As with most port facilities, anything no longer needed on-board ship was simply dumped over the side. Bottles of many shapes and sizes and other bric-a-brac are buried in the silty sand bottom adjacent to the old pilings of the Long Jetty.

Access is from the beach or Challenger Harbour breakwater adjacent to the McDonald's Hamburger store, or by boat. There are a few isolated patches of marine growth here and there, including sponges and ascidians, but don't visit the area expecting a visual pot-pourri. Depth is 8 metres maximum and the best wind is from the south east.

DIVE FACILITIES

(See Perth Yellow Pages telephone directory for up to date listing)

ROTTNEST ISLAND

Rottnest Island – 'Rotto', to the locals, is a large island located 18 km north-west of Fremantle. The island is 10 km long and 4 km across at its widest point and is composed of limestone, with dozens of pure white sandy beaches separated by reefs and headlands. Each bay is lapped by the clear blue waters of the Indian Ocean. When William De Vlamingh discovered the island in 1696, he named it 'Rats Nest Island', after the small rat-like marsupials - Quokkas, that are abundant on the island. The name Rats Nest has since become Rottnest.

The island's major attraction to non divers is the carefree lifestyle. There are no motor vehicles allowed on the island (excepting the island's service vehicles and buses), bicycles being the only mode of transport. It is also very accessible, with high speed ferries leaving Perth, Fremantle and Sorrento, every few hours and aeroplanes from Perth four times a day.

The island also has a good cross section of holiday accommodation. At present there are rental cottages, a hotel, lodge resort and two tent parks, with plans for resort hotels and marinas to be built in the near future. Most of the island's accommodation is on the north eastern corner, in the Thomson Bay – Geordie Bay area, leaving much of the island 'a la naturale', so there is always a nice secluded bay to cycle off to for a quiet swim or snorkel.

Rottnest's big attraction to divers are the many limestone reefs in both shallow and deep water which surround the whole island. These reefs are well populated with southern reef fish, as well as some species of tropical fish and during the period November - June, rocklobsters are found in large numbers and are able to be caught by hand. The island can be reached by small boats (4.5 metres or longer) as long as conditions are good. Most dive shops and clubs in Perth run charter trips on weekends. But the island can even be dived by catching one of the ferries and then hiring a dinghy from Thomson Bay. You can then dive the shallower reefs close to shore. The Rottnest Dive Store also runs dive trips leaving from Thomson Bay, or will take divers in a mini bus to shore dive sites around the island.

Following is a description of popular sites, starting in an anti- clockwise direction around the island from Thomson Bay;

Transit Reefs are just offshore from the main settlement. The reefs are only shallow, but very rich in marine life and a handful of shipwrecks are scattered around. The Transit Reefs cover a fairly large area approximately 1.5 km north-east of the main jetty. The area is a marine reserve and as such no fish or rocklobsters may be taken, along with corals and shells which are protected.

The reefs are mainly limestone, as are all the reefs around the island, but there are odd outcrops of brain coral and some encrusting plate corals here and there. Depths vary from 3-8 metres and what the reefs lack in depth they make up for in colour and diversity of life. Even some of the larger game species such as blue groper and yellowtail kingfish are seen frequently, especially on the outer areas where the reef and sand meet. There are also a lot of reef species living in the area - wrasse, leatherjackets, breaksea cod, blue devil and foxfish are all high on the population list.

The shipwrecks on Transit Reefs are headed by the *Macedon* and *Denton Holme*. The iron steamer ***Macedon*** was sailing from Fremantle on her first voyage to the north-west of WA on the 21st March 1883, when she struck Transit Reefs. Salvage was attempted but she began taking in large volumes of water and promptly sank.

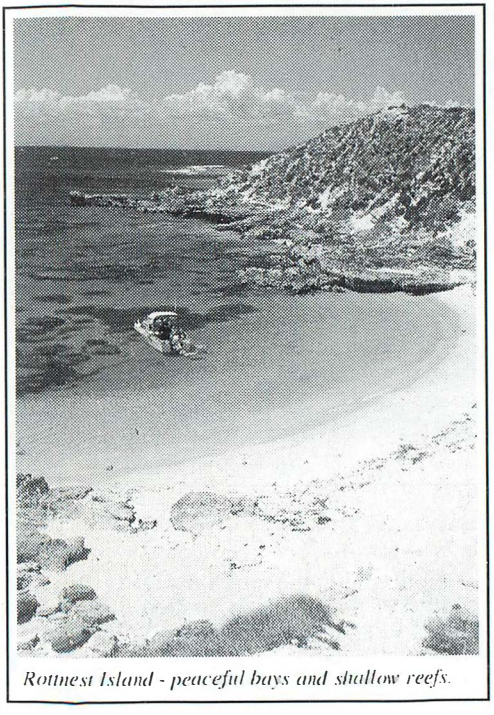
The *Macedon's* remains lie in a straight line facing south-east, 20 metres from the bow of another wreck, the *Denton Holme*. The sides of the ship are intact from the hull's bottom to a height of approximately 1.8 metres. Some of the decking frames are still intact, but the bow and stern have completely disintegrated. Some cargo lies among fallen decking inside the hull. Broken bottles and porcelain are the most recogniseable items. The remains of a boiler are at the north-west end of the wreck and some coal lies on the bottom around it.

An iron sailing barque of 998 tons, the ***Denton Holme*** was sailing from Glasgow to Fremantle in 1890 carrying a cargo of water pipes and general cargo. Her captain had

become disoriented in the early hours of 25th September and she struck Transit Reefs. The ship sat being pounded further onto the reef and became a total loss within 24 hours of running aground.

Very little of the ship's superstructure remains, but one section of the bow is partially intact and reaches within 1-2 metres of the surface. Much of the hull's framework lies on the bottom and among box sections are many pieces of porcelain, broken bottles and clay smoking pipes. Large water pipes are jammed under some pieces of the hull and all are parts of the ship's cargo.

Both of the above wrecks are marked underwater with plaques describing the history and sinking of the ships, as are many of the wrecks around Rottnest. Other wrecks do exist in quite close proximity. The list includes the *Transit*, *Janet* and the *Gem*. A lot of caves and large ledges can be found in the areas of reef that break the surface. These hide a mass of different coloured sponges, corals and ascidians. The Transit Reefs are an excellent night dive, being only five minutes from the boat moorings at the settlement. Visibility in Thomson Bay varies from 10 metres in average conditions, to 30 metres on a glassy summer's day.



Rottnest Island - peaceful bays and shallow reefs.

The Basin is the second bay west of Bathurst Point and is a perfect spot for snorkel divers or inexperienced scuba divers. The reef is attached to the shore and has a maximum depth of 4 metres, there are a lot of small swim-through 'caves' close to shore. Although fish life is limited to a few species, there are a lot of buffalo bream schools and I remember seeing a huge eagle ray here on one of my early dives at the island. Please leave spearguns at home as this area, like most shore dives at Rottnest, has a ban on spearfishing within 200 metres of the shore. This applies to most of the north and south sides of the island, while on the east side the ban extends 800 metres offshore.

Roe Reef is approximately 1.8 km north of the Basin. The reef is located by heading out from the Basin area over generally sand bottom until the dark outline of the reef becomes visible. The swells generally 'lift' a little higher than normal over the reef also giving away its location. Roe Reef varies in depth according to location. In one part the reef is only 3-4 metres under the surface and has some great caves and big ledges. Surrounding this is lumpy limestone reef bottom with smaller ledges and caves in 12-15 metres of water. The bottom then steadily slopes away to a depth of 20-25 metres before becoming broken reef on a sandy bottom.

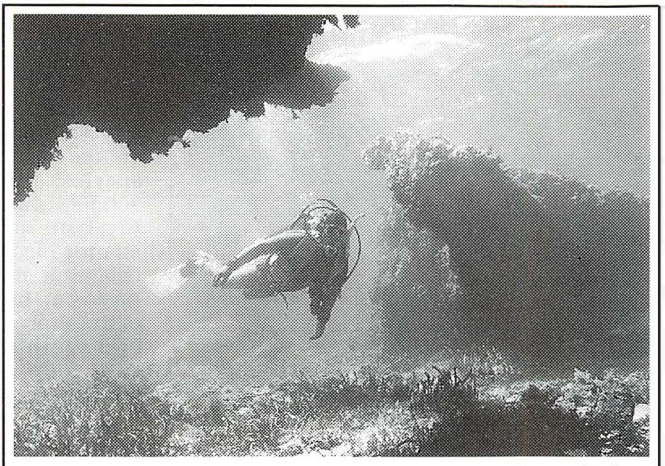
There is substantial sponge growth on the deeper portions of reef and also some encrusting plate, brain and honeycomb corals. Fish life is made up of reef varieties like wrasse, harlequin, footballer sweep, foxfish, sea sweep, truncate coral fish and the odd ray or fiddler shark. The larger game species can be found but have felt the constant pressure of fishermen and 'spearos' over many years.

Between one and three kilometres north of an area between ***Longreach Bay*** and ***North Point*** is a large area of 'patch reefs'. These reefs are dotted on a mostly sand bottom in varying depths from 12 metres close to shore and up to 30 metres, three kilometres out. They are located by spotting the dark patches on the bottom. The sand is a much lighter

blue colour and an echo sounder makes the job a little easier.

These limestone reefs are riddled with caves and ledges. Many fish find shelter in them, particularly breaksea cod, WA jewfish and queen snapper. In darker holes a stingray, wobbegong or port jackson shark may hide in the shadows. The interior of these caves are coated with the colours of an abstract painting. Red sponges, blue ascidians, orange tubastrea corals, yellow gorgonias and pink soft corals compete for each square centimetre of space. Often scarlet red harlequin fish with iridescent blue and yellow spots lie camouflaged among these sponge and coral beds.

The upper surfaces of the reef are a garden of sponges, each a different shape from the next. Some are shaped like birthday cakes – complete with candles, others like a huge outstretched hand or a large flower vase. Small fish life is also rich with wrasse of every colour following divers. Scorpion fish hide among sponges, red foxfish fin along ledges and blue devil fish share holes with rocklobster. Often large samson fish thunder in from the surrounding sandy areas to inspect divers on the deeper reefs. Once their curiosity is satisfied, their endless patrol of the reef resumes.



Catherine Bay at Rottnest Island has many underwater caves and ledges.

This area, like most on the north side of Rottnest, is diveable during fresh south-westerly winds experienced on hot summer afternoons when the southern side of the island becomes a mass of whitecaps.

There are large areas of deep reef north of Catherine Bay, but another attraction is the shallow sheltered side of the reef inside ***Catherine Bay.*** In only 3-5 metres of water lies some of the most colourful reef at Rottnest. The ocean swells break on the outside reef and pour nutrients and oxygen rich water over the reef and into the lagoon. These nutrients feed a healthy community of reef fish, sponges, corals and pelagic fish.

The inside of the reef is undercut with large ledges and some caves and it is here that the fish congregate. They consist mainly of small reef fish such as foxfish, blue devils, truncate coral fish, porcupine fish, boxfish and scaly fins. In one particular section a small group of knight fish hide in a small dark ledge. The knight fish is a light-shunning creature which is armour plated and looks like a swimming pineapple. Pelagic species are also found here, in the shape of large schools of herring, huge buffalo bream and even the odd samson fish. These fish species along with sponges, gorgonia and tubastrea corals have created a very colourful dive spot.

Swirl Reef is situated in open water approximately 1.5 km north of Abraham Point and 1.8 km west of Crayfish Rock. It may be a little hard to find first time up. The reef's name is derived from the fact that in normal swell conditions, the surface 'swirls' above the shallowest section of reef only two metres down. During a heavy swell it breaks and would be unsafe to dive.

The shallowest section of the reef is packed with colourful corals and anemones under ledges in only 3-4 metres of water. This part of the reef is only small, covering perhaps 30 square metres. To the west of this shallow section is a sheer drop into 16 metres to the sand/kelp weed bottom, where large 'jumbo' rocklobsters can be found under ledges on

the reef face and on the surrounding bottom. WA jewfish are often found here during warmer months as well.

The remaining area of reef has varying depths between 8-16 metres. There are a lot of ledges and one particularly large cave which has a resident population of blue devilfish hiding in small niches in the cave wall. Port jackson sharks are seen on almost every dive. These pre-historic looking sharks lie still under ledges or near kelp weed and the only sign of movement is their rhythmic breathing pattern. The larger specimens make for an interesting tow around if you can get one motivated to move more than a couple of metres, but watch out for the sharp spines near the dorsal and pectoral fins.

Cape Vlaming is the official name for the western most tip of Rottnest Island, but it is known by most locals as ***'West End'***. Being 26 km offshore from the mainland, West End and its nearby reefs are understandably well stocked with marine life. Cliffs completely surround the end of the island. A little to seaward from the base of these are some of the largest caves, ledges and holes found in local waters. Many of the bigger caves are the size of the average suburban home, one or two are as big as a church. Underwater visibility on a good day at West End is around 30 metres and this along with the spectacular reef formations provides a memorable dive.

Pelagic fish continually parade past the area. Spanish mackerel are the most common, but bonito, yellowtail kingfish, samson fish and tuna are regularly sighted. In addition to this, whales pass the island during their annual migration to the Antarctic in spring. Reef life is just as abundant as the other deeper reefs and rocklobsters are particularly plentiful. So too, the wirrah and breaksea cod favour this end of the island with its many dark caves, ideal places for ambushing an unwary prey. Here and there banded coral shrimps have set up 'cleaner stations' among the large holes and ledges and fish visit these to have parasites removed by the tiny - colourful shrimps.

Strickland Bay is a popular surfing spot on Rottnest's south side. Out beyond the surf line, 100 metres south, the bottom drops from the kelp covered reef at 7 metres down to 18 metres on broken reef and sand bottom, making the area attractive to divers as well. In some areas the drop is vertical and undercut with ledges. In others are small caves where the drop-off is a series of 'steps'. The fish species here are similar to those found in most of the deeper areas at Rottnest and include WA jewfish, queen snapper, harlequin, blue devils, rocklobsters and the odd small whaler shark. Turtles often turn up on the south side of the island during late summer and although they are hard to approach they certainly add to an already exciting dive site. Underwater visibility is at its best on this side of the island in early winter when north-east to north-west winds blow.

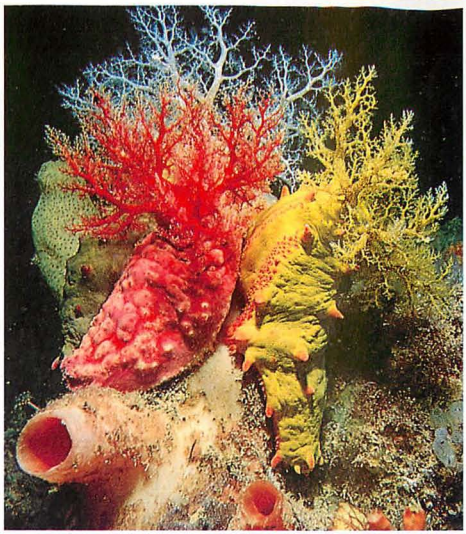
Parker Point is reminiscent of a Caribbean isle. Crystal clear waters with steep cliffs and sand dunes on two sides and a coral- limestone reef protecting all but one narrow opening. The reef is the only coral community close to the metropolitan area. Located on the south-east end of Rottnest, it extends in a northerly direction from Parker Point for approximately one kilometre at an average distance from the beach of 150 metres.

The reef is named after a species of coral, 'pocillopora' that grows quite densely in patches on the mostly limestone reef. The lagoon formed by the long unbroken reef is a haven in the warmer months for boat owners and its clear sandy bottom is an ideal anchorage for large boats. The waters contained by the reef are safe in all weather, particularly so during north-west to south- west winds. The greatest concentrations of hard corals are at the southern end of the reef inside the lagoon. Here the depth varies from 2-3 metres on a generally sand bottom with interspersed coral patches and limestone reef.

Fish life is generally made up of tropical and semi-tropical species, with wrasse, parrotfish, sweetlip and butterflyfish being the most common. Most of the temperate fish found around the island are also seen here – scaly fins, blennies, small rocklobsters, bullseyes, buffalo bream and silver bream. The outside of the reef also has large concentrations of hard corals but not as much fish life and a lot of kelp weed. Part of the Parker Point area is a marine reserve and no marine life may be taken by any means.

The preceding dive sites are only the popular sites at Rottnest. Other areas worth a visit are ***Fish Hook Bay*** at the south west end of the island, which is worth a snorkel dive in

Cuttlefish are capable of changing colours and adding appendages for camouflage in a split second.



In the dark cold depths of Cockburn Sound, a group of 'Sea Cucumbers' feed in a gentle current.

The ghostly interior of a 'lighter' wreck assumed to be the 'Black Swan', just off North-Mole, Fremantle.

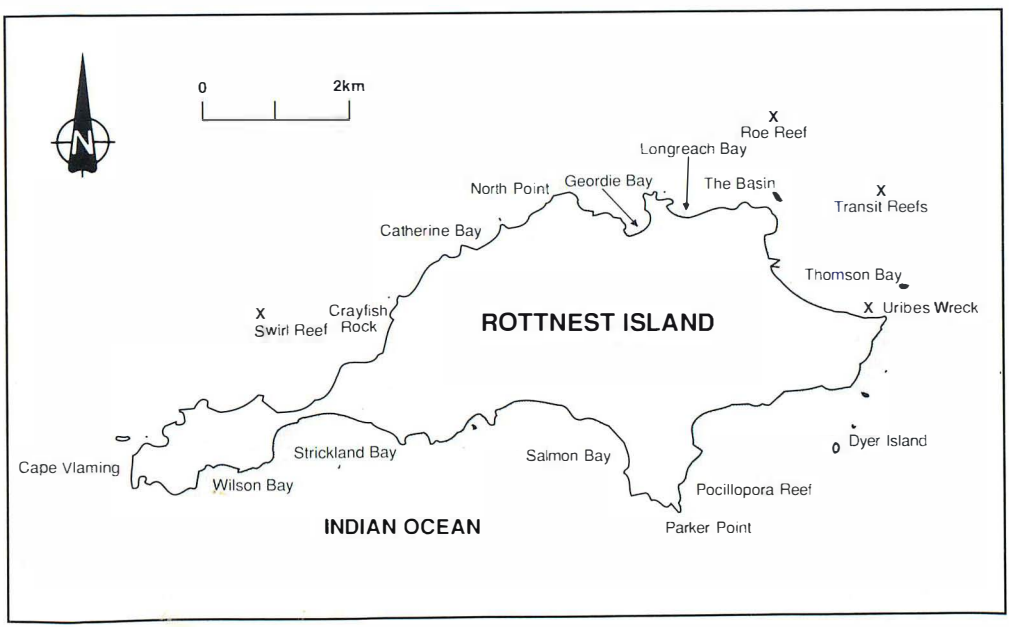
the shallows where a lot of juvenile fish congregate. ***Wilson Bay*** on the south side is a good spot for a feed of rocklobsters in calm weather (during the season) in against the base of the cliffs. ***Dyer Island*** on the east side is a good all weather dive with clear water in all but a full force gale. Two wrecks, the ***Lady Elizabeth*** (1878) and ***Raven*** (1891) make the area even more attractive.

The ***Horseshoe Reefs*** north of Abraham Point start at around 7 metres deep and continue out to 18 metres – these reefs offer very good large fish life. ***Natural Jetty*** on the eastern most tip of the island is a good shore dive. Here even snorkelers can see a shipwreck the ***Uribes*** (1942), with its bow section intact and within 5 metres of the shore. Any of a dozen or more small bays on the north side of the island make for a relaxing afternoon snorkel when the south- westerly sea breezes set in on summer afternoons.

Diving is at its best in late summer and autumn when the water clears to better than 30 metres visibility at times and the winds are not as strong as those experienced in winter and mid summer. Spring is often as clear as summer but the weather is a little less predictable. Winter occasionally brings sunny days with calm seas. These can often be the best with cobalt blue waters and abundant fish.

DIVE FACILITIES

Rottnest Dive Ski & Surf Thomson Bay, Rottnest Island, 6161. Ph. (09) 292 5167 (Harry Welmink) — Hire equipment, Air Fills, Equipment Sales and Service, Charter boat trips, Dive Instruction.



JURIEN BAY

A three hour drive north of Perth sits the rocklobster fishing settlement of Jurien Bay. The townsite is spread along the shores of a large bay facing north-west. The view from the main road into town is one of turquoise blue waters, dotted with rows of reefs and islands running across the bay. A new marina complex established in 1988 has opened up the area for small boats and its trailer boat launching facility is one of the best in WA. ***Favorite Island*** is centrally located and lies 3 km offshore in the bay, with sea lions often found basking on the beach. Shallow limestone reefs are found near the island and here rocklobster antennae wave from nearly every ledge. These can be caught by hand during the season if they are legal sized specimens.

The southern end of Jurien Bay has a handful of islands closely grouped together, inter-connected by sandbanks and shallow reefs. ***Whitlock, Boullanger*** and ***Escape Islands*** are fairly large with limestone reef platforms surrounding them. ***Osprey*** and ***Tern Islets,*** just north of Whitlock Island, are large rocks sitting on the reef platform. This area is outstanding as a photographic site, with many caves and ledges cut into the reefs. The colours and variety of marine life are matched by very few dive sites in such shallow water. The maximum depth is no more than four metres in 'holes' in the limestone reef platform and visibility is sometimes 20 metres.

Bright orange tubastrea coral, alongside pink, yellow and orange soft corals cover every space not taken up by sponges, ascidians, bryozoans or gorgonians. Outside the ledges in the daylight are lots of hard reef-building corals such as plate, brain, porites and honeycomb corals Among the corals and limestone some very large and inquisitive blennies dart for cover when approached too closely, but always come out to have another look at the persistent diver. Other fish to be seen in the general area are foxfish and blue devils that frequent caves and ledges. Six banded coral fish, schools of stripeys, buffalo bream and blue parrot fish live among the broken bottom reefs. On one dive at Tern Islet I found a blue and white nudibranch, an all black nudibranch and a pair of banded coral shrimps all in one hole in the reef.

An area has been set aside for research purposes on the north side of Boullanger Island. This area is used by the CSIRO to study the settlement of late larval stage rocklobsters onto inshore reefs. Large buoys with a weed-like net have been set in the area. These are not to be touched, nor can rocklobsters be taken by any means.

Around one kilometre north of Boullanger Island lies the wreck of the steamship **Lubra.** The wreckage is scattered around the reef in depths of 3-6 metres. A large boiler sits on top of the limestone reef protruding from the surface. The reef is known locally as ***Boiler Reef*** and marks the southern passage into Jurien Bay from the open ocean. The ship was wrecked here in January 1898 while on a voyage from Geraldton to Fremantle. The *Lubra* struck a reef south of Dongara but was still able to continue her voyage, however heavy seas opened the ship's already damaged hull and after anchoring offshore from Jurien, she eventually crashed onto the reef where she now rests. The wreck is historical and no remains should be disturbed or removed.

The deeper waters beyond the main reefline are very similar to reefs at Rottnest Island, 175 km south. Limestone reefs run from a depth of 10 metres out to deeper than 30 metres, with sponge growth among kelp covered boulders and ledges. Fish life is a little more prolific than at Rottnest but encompasses similar species. Particularly plentiful are WA jewfish, baldchin groper and rocklobsters. These bottom reefs are open to the elements and generally visibility is not better than 18 metres on a day with low swell and light winds.

Shore diving is limited at Jurien townsite, but a dirt road leading north out of town leads to ***North Head*** at the northern extremity of Jurien Bay. Reefs extend in against limestone cliffs at North Head and only a hundred metres offshore these reefs are honeycombed with caves and ledges in 10-15 metres of water. The area is very open to the weather, but during offshore winds is an excellent shore dive with abundant fish life. North Head was also the scene of a fatal shark attack on a skindiver in 1967. Robert (Bob) Bartle, a spearfisherman, was bitten in half by a shark only 700 metres from the headland. Bartle was diving with his

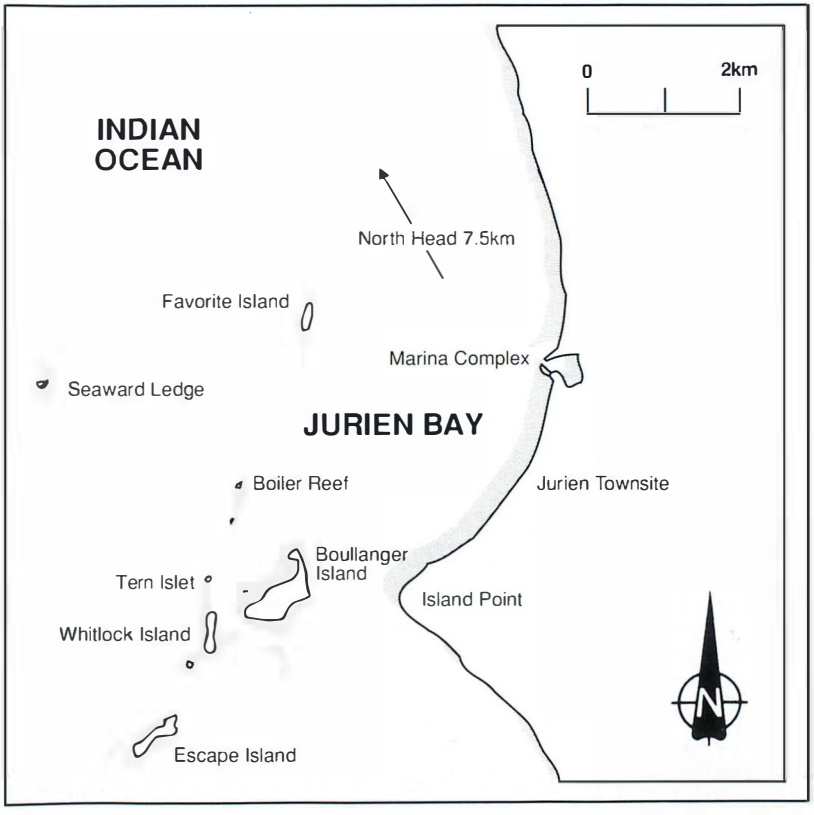
partner of many years, Lee Warner. They were both on a practice dive for an organised spearfishing competition to be held at the head. It was on this dive that Warner saw his friend taken by a large unidentified shark that circled afterward with Bartle still in its jaws. Warner escaped unscathed physically, but his memory was scarred for life. A memorial was erected by family and friends a year later atop the cliff overlooking the area where Bartle was taken.

To me, the main attractions at Jurien Bay are the shallow, colourful reefs of the islands. The best time of the year to visit is October-November or between March and May, when offshore winds and low swells bring the clearest waters. The months of December - February bring strong southerly winds from mid morning, although early mornings are still good. Winter, from June-September is written off by big swells and dirty water.

Accommodation-wise, Jurien townsite has an hotel/motel, rental cottages and a caravan park. Other facilities include a general store, post office and two service stations.

DIVE FACILITIES

Kailis & France Depot Jurien Boat Harbour 6516. Ph. (096) 52 1378 or (096) 52 1175 (Jeff Bruce) — Air Fills only.



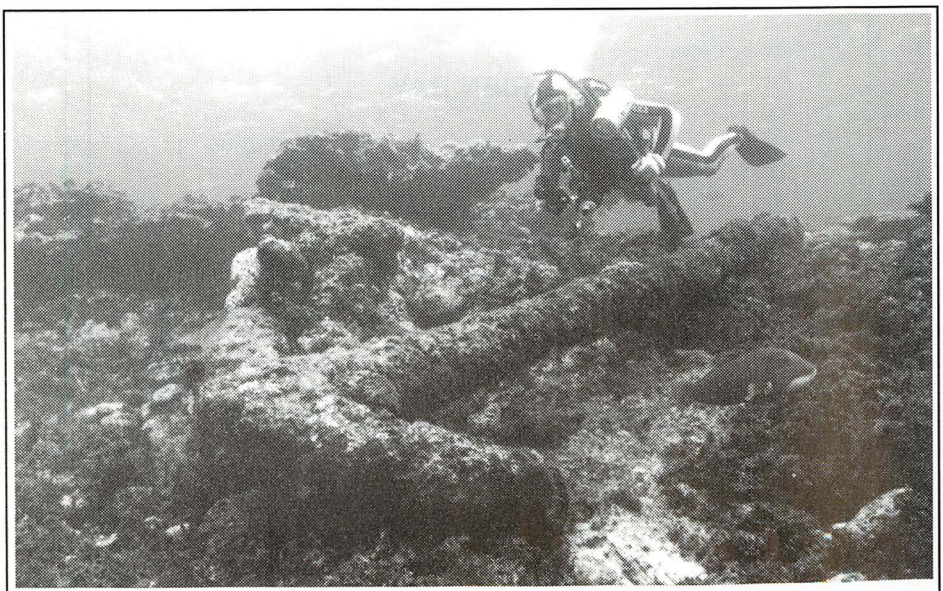
THE ABROLHOS ISLANDS

The Abrolhos Islands are 60 km west of Geraldton, on the mid-west coast. Three groups of islands lying approximately in a north/south line are surrounded by an intricate maze of reefs. These are the Indian Ocean's southern-most extensive coral reefs. The tiny windswept islands sit in a zone of overlapping warm and cool ocean currents. This has encouraged a mixture of inhabitants from southern reefs and tropical species found to the north to co-exist on the same reef system.

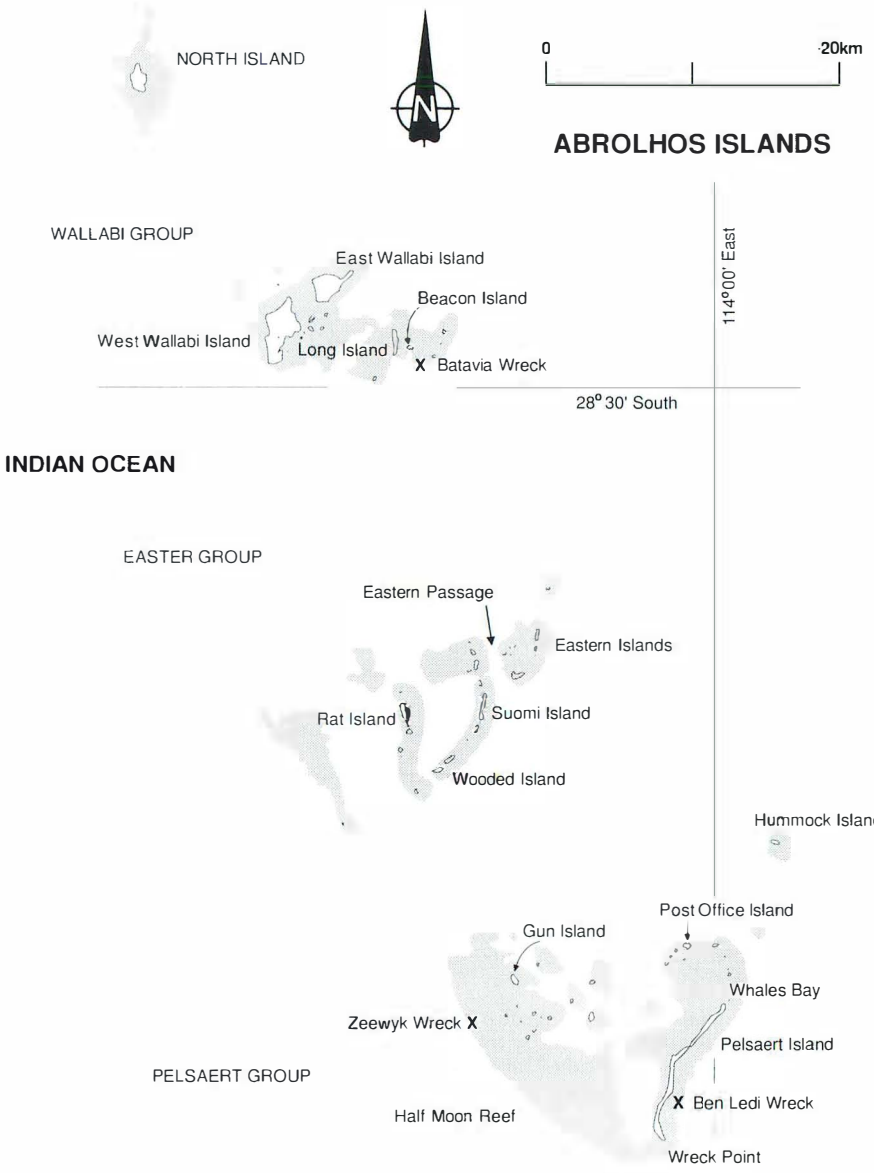
The 108 islands that make up the archipelago are spread over 80 km of ocean in three main groups. The ***Pelsaert Group*** is the most southerly, the ***Easter Group*** is in the middle, and the ***Wallabi Group*** lies to the north. Located off to the north-west of Wallabi Group is solitary ***North Island.*** The islands are very low lying and mostly very small. Rock lobster fishermen live on the islands during a three and a half month fishing season, from Mid March to June each year. Their ramshackle homes are built on some of the islands, within a stone's throw of the water, and only a metre or so above the high water mark. First impressions are that a higher than normal tide would engulf them and sweep the rusting 'shacks' out to sea.

Underwater the reefs of the Abrolhos Islands are stunning. The outer reefs are characterised by steep coral drop-offs that start in sunlit shallows, dropping sharply down to sparse coral and sponge growth at around 30-40 metres. The shallows are mostly staghorn and plate corals interspersed with short kelp weed. These slope slowly from a depth of 6-10 metres to where the sheer drop-offs start. This area is the hunting ground for spanish mackerel that patrol the edge of the drop, baldchin groper and hump headed wrasse that pick among the corals and small tropical fish that duck and weave around the delicate coral formations.

The walls of the drop-offs can vary dramatically from boring kelp weed with occasional corals, to huge plate corals stacked one above the other, each home to a large coral trout, rock lobster or colourful coralfish. The base of the walls are usually the most interesting. Large cabbage corals, colourful sponge covered boulders, feather starfish, anemones with clownfish and fish of every description inhabit the deeper reefs.



Diver Chris Powell with an anchor on the Batavia wreck.


NORTH ISLAND
N
0
20km
ABROLHOS ISLANDS
WALLABI GROUP
East Wallabi Island
Beacon Island
West Wallabi Island
Long Island
X Batavia Wreck
114°00' East
28° 30' South
INDIAN OCEAN
EASTER GROUP
Eastern Passage
Eastern Islands
Rat Island
Suomi Island
Wooded Island
Hummock Island
Post Office Island
Gun Island
Whales Bay
Zeewyk Wreck X
Pelsaert Island
PELSAERT GROUP
X Ben Ledi Wreck
Half Moon Reef
Wreck Point

The inner 'lagoon' areas of the Abrolhos reefs are generally very shallow, but dotted here and there are deep blue holes that underwater look like huge craters. The shallow rims of these blue holes resemble aquariums, with small tropical fish and delicate coral formations in abundance. Clown fish dart among anemones, bright green parrot fish feed on coral and pairs of butterflyfish hide beneath coral ledges. From the shallows, steep slopes of staghorn coral roll down to depths of 20-30 metres. Fish and coral life is sparse in these deeper waters, and cool water thermoclines are evident as the silty bottom is reached.

Excellent diving can be found almost anywhere on the outer reefs of the Abrolhos Islands, with even some sheltered areas offering good diving. Following is a brief description of some dive sites starting from the south.

Pelsaert Group

The east side of ***Pelsaert Island*** is a continuous steep drop-off from approximately 6-25 metres. All along this ten kilometre long wall are numerous hard corals of every shape and colour. Fish are plentiful and include species such as butterfly cod, WA jewfish, baldchin groper and dozens of types of small coral fish.

Out from the base of the wall are large clumps of coral growth (bommies). These are home to even more varieties of fish and an average dive may produce an angelfish picking for food at the base of a coral bommie or small schools of goatfish resting on plate corals. A sergeant baker may sit at his observation point high on the reef, or a big coral trout may carefully disguise itself in a staghorn coral patch, warily watching the intruding diver. Whaler sharks are a common sight in this area though normally they keep their distance, circling at the limit of visibility.

The wreck of the ***Ben Ledi*** (1879) lies on the eastern shore of Pelsaert Island, in a fairly sheltered position adjacent to the coral drop off. Much of the ship's framework is still intact and an anchor sits in the shallows. The wreck makes for an excellent decompression stop after diving the adjacent drop-off.

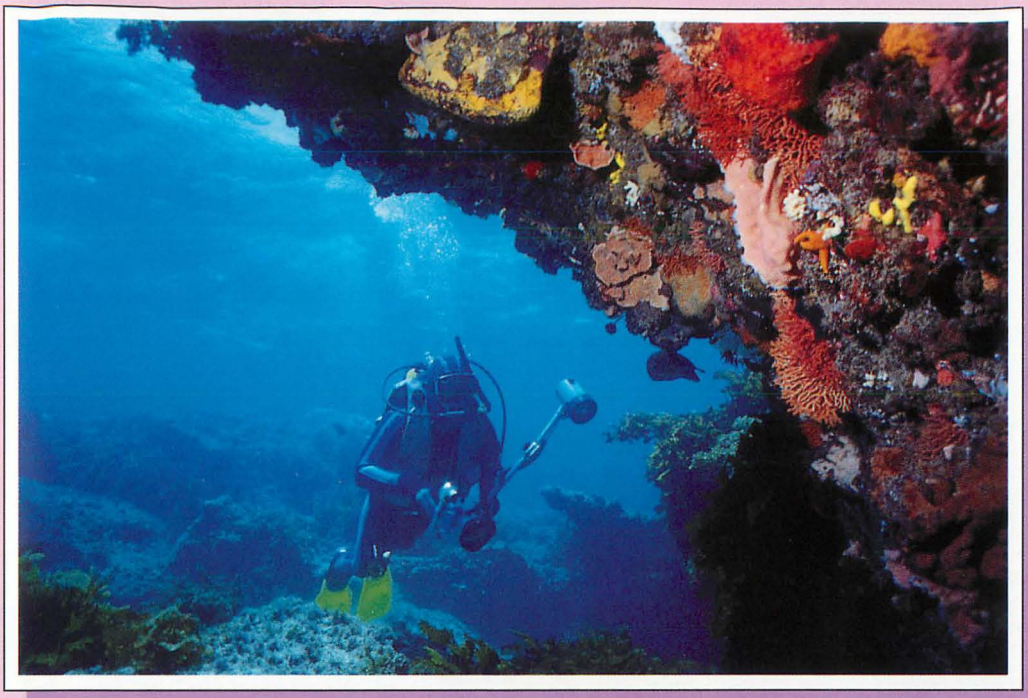
Half Moon Reef extends in a long north-westerly curve from the south end of Pelsaert Island. The seaward side of the reef is beyond question a fine weather dive only. Big Indian Ocean swells hit the reef unhindered straight from the continental shelf only a few kilometres away and the surge has to be felt to be believed.

The delicate branching corals of the leeward reefs are totally absent. In their place is kelp weed growing on limestone ridges and the occasional plate coral in gullies that run down the sloping reef front. Hidden in almost every ledge and cave in the reef are large fish of every description – coral trout, WA jewfish or cod. In the surrounding waters, pelagic fish such as spanish mackerel, yellowtail kingfish, shark mackerel, tuna, samson fish and sharks continually parade past.

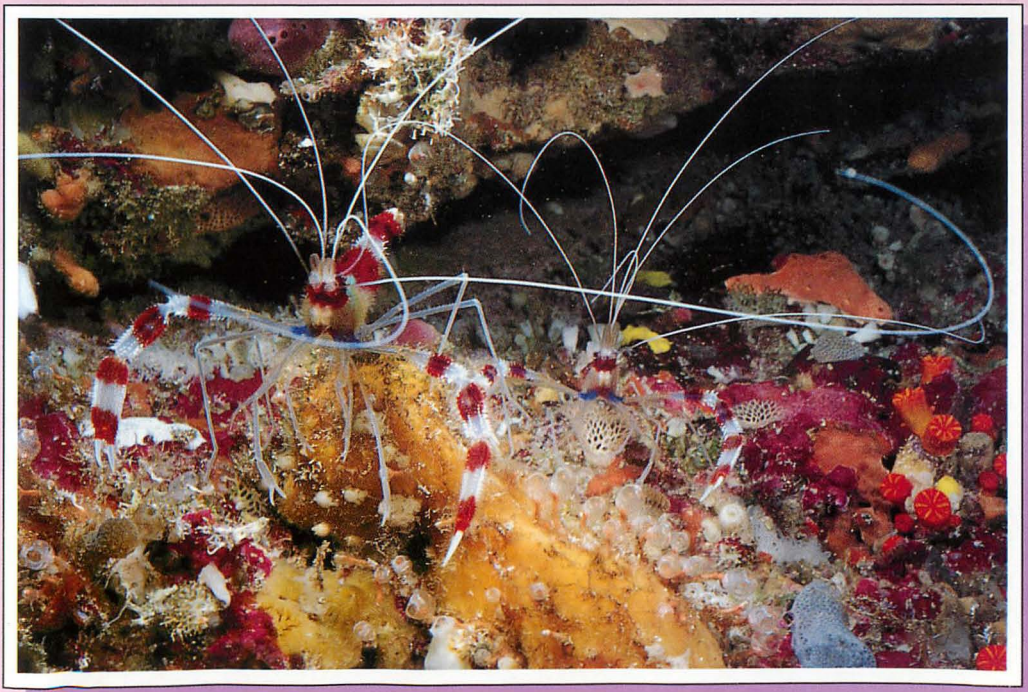
The wreck of the ***Zeewyk*** (1727) is located on the northern section of Half Moon Reef. The wreck site is very exposed to swell and very little can be recognised as wreckage among kelp weed and coral. Although rich in history the wreck is not spectacular, but the wreck of the ***Windsor*** (1908), south east from the *Zeewyk*, has recogniseable remains scattered around the reef. A huge four bladed propeller sits high above the bottom and the remains of the ship's steam engine lie not far away. On a good day the *Windsor* is an excellent dive.

Whales Bay is situated among a group of tiny islands close to the north end of Pelsaert Island. The islands are surrounded by an extensive reef system that can be dived during strong southerly or westerly winds (the prevailing winds at the islands). The reefs are not effected by ground swell, as they are inside the huge lagoon formed by Pelsaert Island and Half Moon Reef.

The diving here is good, though the fish life is a little more sparse. However, this area is ideal in some respects as the water is generally clear and the lack of surge provides a comfortable dive area. The shallow tops of the coral bommies are jam-packed with damsel, clown and parrot fish. The corals here are the branching varieties such as staghorn and plate corals. Dotted among these are stinging anemones with their associated clown fish. In the deeper waters surrounding the bommies are many valleys and walls dropping to a



Diver John Brown enters a colourful cave on Transit Reefs, Rottnest Island.



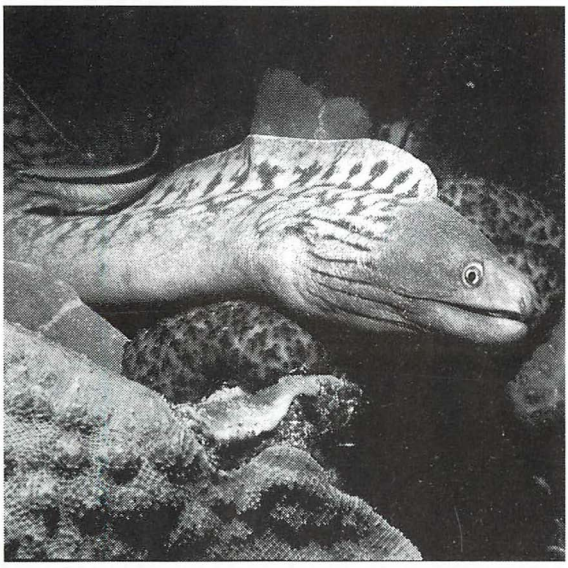
A pair of Banded Coral Shrimps, these tiny crustaceans clean parasites from fish that visit their home in the reef.

depth of over 30 metres in places. Occasional WA jewfish or baldchin groper frequent these areas, along with rocklobsters hiding under coral ledges.

Just north east of Whales Bay is an area known as the ***Coral Patches*** – an area with stunning coral formations and very clear water, but few fish. While diving here a few years ago a friend and I were left stunned as a large humpback whale suddenly appeared, rising from the deeper water on the edge of the reef perimeter, coming within 10-15 metres of us. These gentle 'singing' giants often shelter at the islands during their migration to the Antarctic each year.

Easter Group

The ***Eastern Islands*** are a handful of largely uninhabited islands in the Easter Group. The eastern edge of this group is a similar area to the drop-off on Pelsaert Island, but the water is slightly deeper, 30-35 metres. Also the face of the wall is very steep, vertical in some areas. Fish and coral life in the deeper waters are as abundant as at Pelsaert Island. Water depth at the edge of the drop-off is 6-7 metres, but between here and the island shore the bottom drops away to depths of up to 15 metres. This forms large holes which are a haven for delicate corals and smaller fish life, such as many varieties of beaked coral fish and butterflyfish.



A Reef Eel at the Abrolhos Islands.

Eastern Passage separates the main section of Easter Group and the Eastern Islands. Large bommies rise to within 5 metres of the surface in the passage, which is mostly 35-40 metres deep. The tops of these bommies are sometimes a little surgy but the surrounding walls and bottom are excellent diving.

Huge cabbage corals and staghorn outcrops are found here, all occupied by a large variety of fish. Almost every plate and cabbage coral ledge houses large coral trout, angel fish, coral cod or moral eel, and in the open water spangled emperor, snapper and WA jewfish idle around the corals. On the tops of the the coral outcrops are a multitude of different coloured feather starfish feeding in the light current. Any areas not covered by corals are the attachment point for sponges decorated in all the colours of the rainbow.

The area is open to winds from south-west around to south-east. While these winds are blowing some shelter can be gained along the edges of the islands on either side of the passage, which offer similar diving to the bommies. The passage is one of the best dives around the Abrolhos Islands.

Suomi Island is the longest island in Easter Group. At its northern tip is a narrow entrance into a deep lagoon where private boats and charter boats often anchor. The entrance is a good dive in southerly winds and is best dived from a dinghy or from the shore. Depths vary from 10-28 metres with sheer walls on both sides. The bottom is a haven for small coral trout, anemone fish and chinaman cod, as well as other varieties of coral fish which are abundant at most Abrolhos dive sites. The narrow passage has a slight current which varies in intensity but appears to increase with the approach of high tide. The water tends to be a little hazy on a rising tide.

Just north of Rat Island, the central island of the Easter Group, is ***White Bank,*** a small island with a pure white sandy beach surrounded by shallow coral reefs. In depths of 3-10 metres are reefs made up of limestone and coral. These are interesting diving for snorkel divers or less experienced scuba divers. There is certainly no lack of fish as schools of snapper, small coral trout and baldchin groper are prevalent around the broken coral bottom.

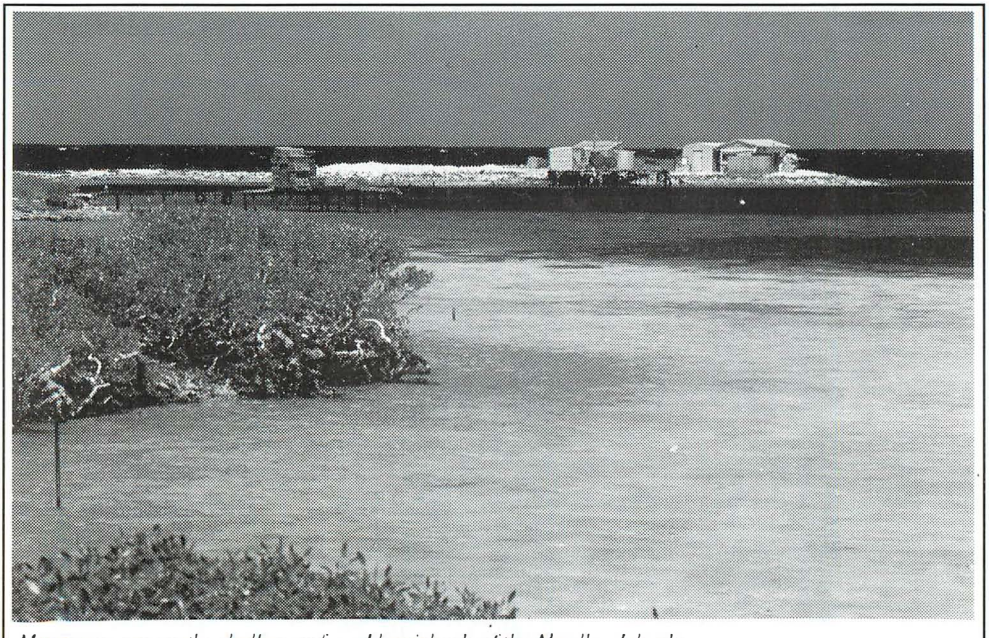
Wallabi Group

The most popular dive site at the Abrolhos Islands would probably be the wreck of the Dutch ship – ***Batavia*** (1629), on the southern end of ***Morning Reef***. The flagship of the Dutch East India Company, the forty metre long *Batavia* was on her maiden voyage from Amsterdam to Batavia (present day Jakarta), when she met her end on the jagged coral reef.

Prior to the ship being wrecked, the senior crew had planned a mutiny against the commander of the fleet, Francisco Pelsaert. Many of the passengers and crew made it safely to nearby ***Beacon Island,*** others drowned while escaping the wrecked ship. Within two days of the ship's grounding, Pelsaert sailed in one of the ship's boats for Batavia with 47 people on board.

In Pelsaert's absence the mutineers murdered 125 people, planning to seize a returning rescue ship. A loyal group of soldiers escaped to a nearby island and warned Pelsaert when he returned in the yacht *Sardam*. Seven of the mutiny ring-leaders were hung on nearby ***Long Island.*** When the *Sardam* sailed for Batavia in November 1629, little evidence remained on the islands of the shipwreck or of the bloodthirsty aftermath. In 1963, rocklobster fishermen from the islands discovered cannons and anchors in the shallows of Morning Reef and human skeletons were excavated from graves on Beacon Island.

Today little remains of the wrecked flagship. A section of the stern of the ship was excavated by the WA Museum in the 1970s, and has been restored and re-assembled for display along with cargo remains, cannons and anchors in the Maritime Museum at



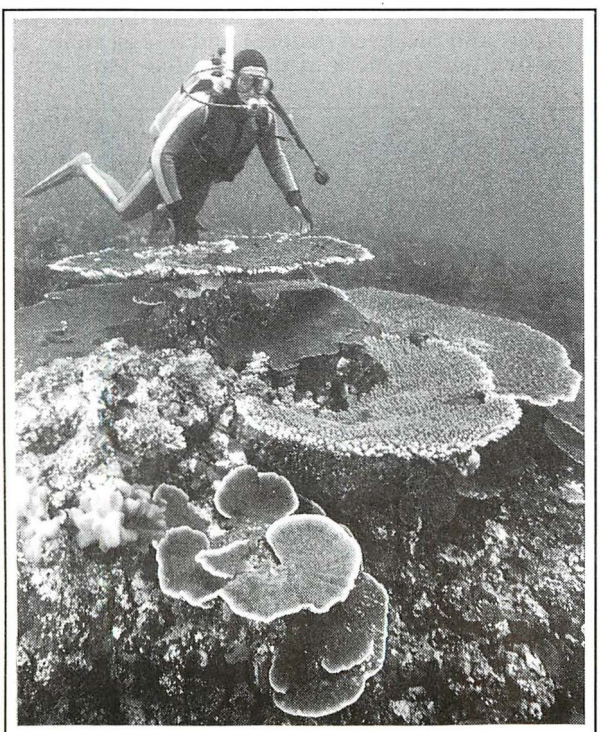
Mangroves among the shallow reefs and low islands of the Abrolhos Islands.

Fremantle. Two large anchors and half a dozen cannons lie scattered in 5-7 metres of water, on rock bottom interspersed with coral ledges. Swells breaking over the site hinder diving on all but the calmest days. Fish in the area are friendly and rocklobster are found in huge quantities, which is a pity as they cannot be taken by divers in the Abrolhos area and only pots may be used to catch them.

North of the *Batavia* wrecksite is the shallow lagoon area of ***Morning Reef.*** This is an outstanding shallow dive site. The delicate coral gardens are alive with colourful coral fish. This is an ideal area for less experienced scuba divers or snorkelers, with shallower diving and still plenty of colourful marine life. The reef has holes and gullies dropping off to 8 or 9 metres in places. Some of these holes are like huge aquariums, with the fish being very tame and with superb clear water.

Long Island sits on the eastern edge of ***Noon Reef*** separated from Morning Reef by Goss Passage. The east side of Long Island has a sheer drop into 40 metres of water. Big fish are more prevalent here than in the more southerly groups and WA jewfish are found schooling at certain times of the year.

Access to the Abrolhos Islands for divers is limited to charter or private boats. No camping is allowed on the islands, nor can the rocklobster fishermen's shacks be used for accommodation. Dive shops and charter boat operators in Perth and Geraldton run regular group trips on large, live-aboard boats. Private boat owners should be aware of the strong, persistent southerly winds experienced throughout the warmer months (November-February). Although the islands are still diveable during strong winds, they are best visited during the months of March-May or August- October, when winds are generally lighter. The area has come under the close scrutiny of a taskforce made up of representatives from government and the public. With their combined input a plan has been formulated to protect the future of the islands. Declaration of three large marine parks will offer protection from line fishing and spearfishing, but rock lobster fishing (one of the major causes of coral destruction) is to continue!



Rob Vantrigt explores the shallow reefs of the Easter Group.

DIVE FACILITIES

PACE Sports 189 Marine Terrace, Geraldton, 6530. Ph. (099) 21 4229 (Trevor Beaver) — Hire equipment, Dive courses, Air fills, Equipment Sales and Service, Regular dive trips to Abrolhos Islands and inshore reefs.

Force Five Charters 5 Lawson Place Geraldton, 6530. Ph. (099) 21 3792 (Gary & Kim Brown) — Charter Trips to Abrolhos Islands on Motor Cruiser.

SHARK BAY

Shark Bay has been recognised for many years as one of Australia's richest marine environments. Its calm, clear waters are home to some unique and very interesting life forms. Consisting of a large embayment of ocean approximately 700 km north of Perth, the area comprises the western most region of Australia. Three islands - Bernier, Dorre, and Dirk Hartog, along with a section of the WA coastline known as Edel Land, form a protective barrier from the Indian Ocean.

Inside this barrier are many inlets and bays among an endless maze of peninsulas, islands and sand bars. To explore them would take a lifetime. It is estimated that there are over 2000 km of coastline between Carnarvon and Steep Point, while the distance between the two points in a straight line is only 153 km. The area has often been neglected as a dive destination, but for those equipped with a four wheel drive or a small boat, the bay's almost untouched marine life lays waiting.

Of the two major towns in Shark Bay, ***Denham*** is regarded as the 'capital' of Shark Bay, with the shire offices, police station, etc. all based there. ***Useless Loop*** is the other town but it is privately owned by Shark Bay Salt, a company that extracts salt from the sea by the process of evaporation in large ponds. The general public are not welcome in this area except in dire emergency, so this township should not be relied on for any supplies at all.

Number one on the list of dive destinations, ***Steep Point*** is the southern entrance from the ocean into Shark Bay's tranquil waters. A narrow channel known as ***South Passage*** winds between the mainland and ***Dirk Hartog Island,*** eventually leading into the deeper waters of Denham Sound. The many headlands and rocky bays around Steep Point and Dirk Hartog Island offer excellent snorkel diving in water mostly shallower than 3 metres. Access to some headlands is from the shore, but a small dinghy opens up the entire passage to divers. Don't be put off by the depth, all the rocky shorelines have large undercut ledges and small caves just below the surface.

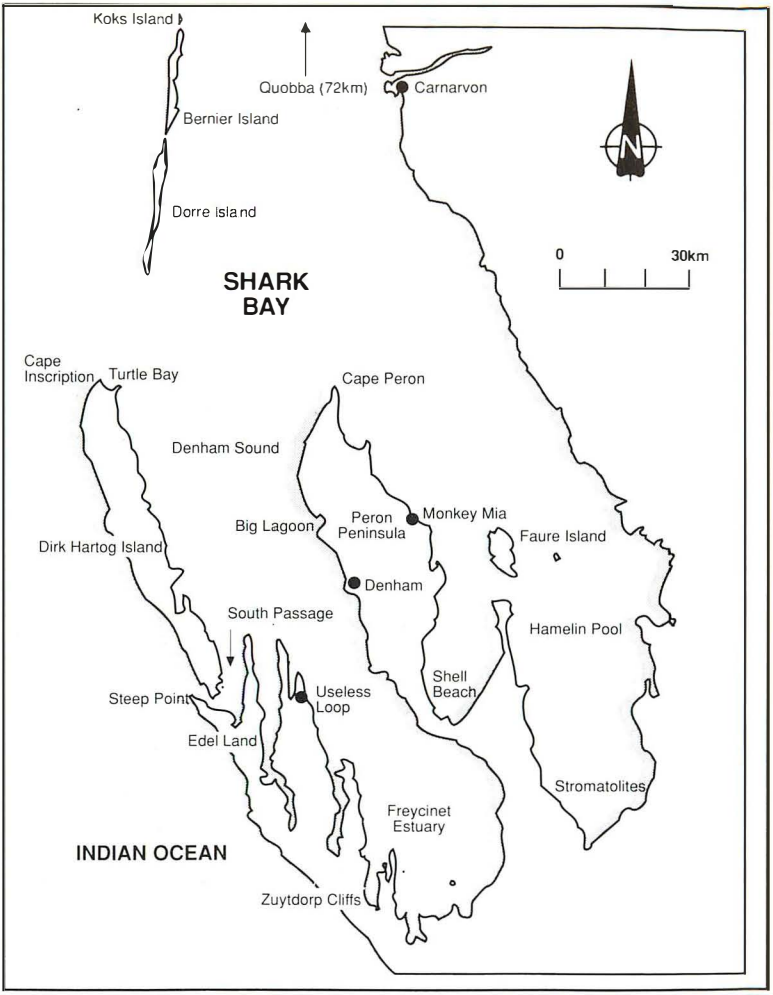
In and around the ledges are a multitude of tropical fish species and many southern species as well. The most common are colourful wrasse species and small snapper. Snapper are the most sought after fish in Shark Bay. Professionals and amateurs fish the bay fairly heavily during the winter months of May to August, for the pink and norwest snapper (spangled emperor). Both species are found in large numbers and are quite often found together in mixed schools.

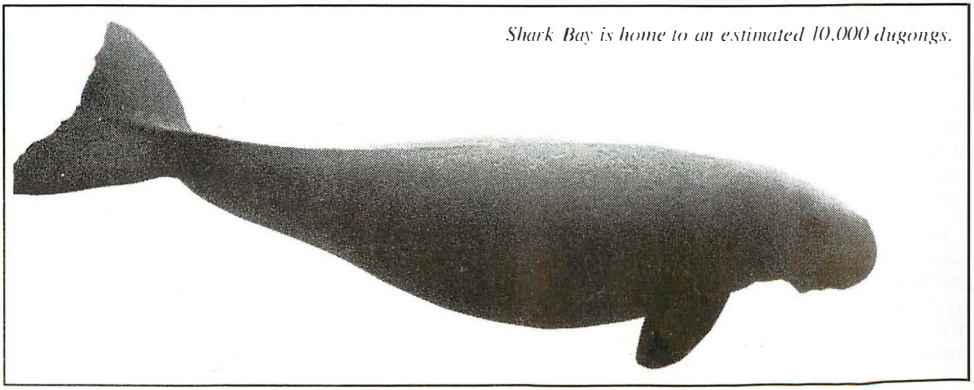
On many of the headlands a close inspection of the darker holes could reveal a moray eel, butterfly cod or cuttlefish, all of which are common and found on nearly every headland. On the sandier bottom large stingrays and shovelnose sharks congregate. They are no doubt attracted to the headlands by stronger currents bought about by tidal extremes experienced in South Passage. These same currents also bring nutrients to tubastrea corals, feather starfish, tube worms and other invertebrate life found under the ledges lining South Passage.

In complete contrast to the shallow rocky headlands, the bottom reefs of South Passage are open to ground swells that roll in from around Steep Point. Fish life and reef topography here are different. The bulk of the bottom reefs in the passage are on the north-western side and extend approximately one kilometre offshore. The clearest water and largest variety of marine life is found on the deeper reefs in the mid section of the passage. Large limestone ledges rise 2-3 metres from the bottom in a depth of 7 metres. There are no caves and few corals growing on the reef, excepting an odd brain or plate coral, but fish are plentiful.

On a recent dive from a boat I was greeted at the anchor by a pair of banded coral shrimps, both peering inquisitively at the boat anchor that had hooked in their rocky home. Twenty metres away was the large reef we had spotted from the surface, surrounded by a large undercut ledge. The surface of the reef appeared to be coated in small tropical fish, all going about their daily business. Fish such as beaked coral fish, pullers, wrasse, damsels and butterflyfish of half a dozen varieties abound in this area.

Around the base of the reef, a small group of moderate sized baldchin groper picked





Shark Bay is home to an estimated 10,000 dugongs.

A pair of Racoon Butterfly fish beneath a plate coral ledge.

The elusive Sea Urchin is common at the Abrolhos Islands. its colourful spines are poisonous.

among a few broken shells on the sandy bottom. As I approached the darker shaded section of the overhanging ledge, I could see the large legs of five or six 'jumbo' rocklobsters in the 4-5 kg range. As I watched, they came out from underneath their protective ledge to check me out. Something made me turn around at this point - a sixth sense perhaps, a sense that tells you, 'you're being watched'!

A two and a half metre long dugong was almost looking over my shoulder and just behind it was another. The closest one circled me nervously and its strong tail beats were stirring up sand from the bottom. They quickly disappeared as fast as they had appeared. One returned a few minutes later and circled at a very high speed and then disappeared for good. It all happened so quickly that it didn't really register until later that I had just dived with an animal that is rarely sighted underwater.

A healthy population of dugongs reside in the Shark Bay area, where it is estimated ten thousand of these gentle mammals live in relative safety. In many other areas of Northern Australia they are hunted by Aborigines. The dugong feed on weed beds, which are found in most bays and inlets of Shark Bay. The dugong's elephant-man face has evolved to tear up seagrass which it grazes on like a cow in a paddock. The dugong herds migrate each winter to South Passage, to escape cooling waters deep inside the bay. The waters of South Passage remain warm due to the arrival of the Leeuwin Current in early winter.

Surf Point is the south-west tip of Dirk Hartog Island. A long row of white breakers usually marks a coral reef that runs south for a kilometre from the point. Surf Point is very aptly named, as even on the calmest of days a break is evident along the reef line. On average days a 2-3 metre swell rolls over the reef. The leeward side of this reef offers the clearest water in South Passage and often 20 metre visibility is experienced.

The continual supply of clean ocean water passing over the reef has encouraged a strong growth of both hard and soft corals in water between 2 and 4 metres deep. There are huge clumps of thick staghorn coral, large plate corals, brain and honeycomb corals and encrusting corals. Covering a large percentage of the sandy bottom are two or three varieties of soft corals.

Fish life is also abundant. Hundreds of bullseyes shelter beneath ledges formed by plate and branching corals and in dark recesses are found large rocklobsters, black tipped cod, breaksea cod and sand bass. Out among the corals are the ever present tropical fish, wrasse, damsels, butterflyfish, surgeon fish, beaked coralfish, parrotfish, sergeant majors, humbugs and the occasional clown fish, complete with anemones. Larger fish are found here as well, with baldchin groper and sweetlip the most common. Pink and norwest snapper are also found on most dives.

Dugong and turtles appear to congregate in the shallows at the back of the reef in the late afternoon. This could be to avoid the large sharks that prowl the passage at night. Where the coral reef joins in to Dirk Hartog Island there is a large sandy bay with odd small patches of reef. During the day dozens of small grey whaler sharks congregate here and a snorkel dive in only one metre of water will almost guarantee seeing at least half a dozen of these metre long sharks darting around in the shallows.

The attraction for the sharks is possibly the thick schools of whiting that shelter around the odd coral clumps in the bay. Often on a low tide I have seen hundreds of these sharks feeding within a few metres of the beach, their dorsal fins protruding from the surface because the water is so shallow. Shell collectors could find this bay of interest as little effort is required to find egg and tiger cowries among the soft corals, and bailers, spiders and clams are in abundance.

Monkey Rock is just inside the western entrance to South Passage, close to Steep Point. A limestone reef platform surrounds the small exposed rock and is also joined to the shore. The reef's seaward face is undercut with ledges and caves. It drops fairly steeply to rock and sand bottom at a depth of 15 metres. Baldchin groper, rocklobsters and cod dominate the larger fish life. Very few corals are found here, but small coral fish are still abundant. The rock can be dived from the shore in good weather, or alternatively a dinghy can be launched from sandy beaches further inside the passage.

Whaler Sharks are abundant in the shallows of Shark Bay.

Access to the Steep Point/South Passage area can be gained by sea or by road, but neither is particularly easy. The 'road' to Steep Point turns off from the dirt road leading to Useless Loop. It is a good dirt road for a short distance, but deteriorates into a four wheel drive track for the last 30 km. Much of it passes through steep sand hills, and this restricts the size of boat which can be towed in to a maximum of 4.5 metres. A large 4WD is necessary to tow any boat in! Once at Steep Point a boat can be launched into South Passage from many low beaches off the main track, leaving only 2-3 km to travel to the furthest diving in this area.

Access by boat to Steep Point involves a long boat journey from Denham, a distance of 45 km. Because of the distances involved the trip should not be undertaken in a boat of less than 5 metres in length. There are three good boat ramps at Denham. The best for launching large boats is directly alongside the town jetty.

Because there are no facilities at Steep Point or Dirk Hartog Island, all fuel, water, food and boat/vehicle spares must be taken either in your car or boat when leaving civilisation. This also applies to accommodation and a tent or boat with sleeping facilities is also needed. In recent times a ranger has been stationed at Steep Point, who will charge an entry fee for each person staying at the point.

Cape Peron is at the northern tip of Peron Peninsula, accessible by four wheel drive vehicle or boat from Denham. Shallow reefs are found along the shores of the cape, and many species of tropical fish can be found among the broken rubble and coral bottom. Depths are mostly less than 6 metres, but underwater visibility is rarely better than 5 metres.

Throughout ***Denham Sound*** odd patches of coral reef can be found among generally weedy terrain. The east side of Dirk Hartog Island, although the most inaccessible, has some reefs just offshore that are sheltered in north-west to south-west winds. ***Useless Loop Saltworks*** has coral patches north and south of the loading facility, as do the shallower banks on either side of the shipping channel in the middle of Denham Sound. ***Eagle Bluff,*** south of Denham, has two small islands just offshore that would be accessible by small

boats launched from nearby beaches. All of these areas have reef that provides isolated refuges for coral reef fish, but visibility is generally limited to less than 6 metres.

Hamelin Pool is only a few kilometres off the main road into Shark Bay. This huge embayment contains the world's largest stronghold of marine stromatolites. These mushroom shaped, rock like formations are one of the earliest life forms known to science. Stromatolites are found around the shoreline of Hamelin Pool, where they form 'reefs' covered by sea water on high tides and exposed to air on low tides. This is not a prime dive site, due to very shallow water and almost non-existent marine life. However the stromatolites in Hamelin Pool are interesting to visit and the shallow warm waters are generally crystal clear.

The easiest access to the Hamelin Pool stromatolites is via the Hamelin Station turn-off and through the old Flint Cliff Telegraph Station. Camping and basic facilities are available here and some stromatolites start at the water's edge just 200 metres away and extend a few hundred metres to seaward.

Further north in Shark Bay and around 48 km offshore are ***Bernier*** and ***Dorre Islands.*** Both are accessible by boat from Carnarvon. Because of their distance offshore a boat of 6-7 metres minimum is required to reach the islands. Marine life around Bernier and Dorre is similar to South Passage, except that larger fish species like cod and coral trout are found in larger numbers. Underwater visibility is possibly the best of the whole Shark Bay area, 20 metres is about average, and coral reefs are found in slightly deeper water than South Passage.

Some of the best diving is at a depth of around 5-10 metres on the eastern side of the islands. Here corals thrive in waters protected from ocean swells. Cabbage and plate coral reefs extend over most of the 50 odd kilometres combined lengths of Bernier and Dorre Islands. A little to the north of Bernier Island is a small rocky island called ***Koks Island.*** This island has limestone ledges and caves in 15 metres of water on its northern face, as well as hard coral growth. This area experiences strong currents which have attracted rocklobsters, baldchin groper, cod, mackerel, and other pelagic fish. During calm conditions on neap tides the island is a good dive.

Boats can be launched from Carnarvon, but like South Passage, all fuel, water, food, etc. must be taken along. The islands are 'A' class reserves which only allows daytime access, hence overnight camping onshore is not allowed.

Varied accommodation is available throughout the Shark Bay area. There are hotels at Carnarvon and Denham, caravan parks at Carnarvon, Nanga, Denham and Hamelin. Chalets and rental homes are also available in Denham and Carnarvon. Monkey Mia, famous for its friendly dolphins, has a caravan park, chalets and motel resort. The best time of the year to visit Shark Bay is from June - October when the winds are lightest and temperatures in the mid 20s. The ground swell can be strong in exposed areas at this time of year, but the calm spells bring very clear water. The hotter Summer months bring strong south to south-west winds and dirtier water.

DIVE FACILITIES

Top Gun Charters (book through Perth dive stores) — Live-aboard charter boat trips throughout Shark Bay.

Geoff Bellwood 30 Douglas Street, Carnarvon, 6701. Ph. (099) 41 2035 — Air Fills only.

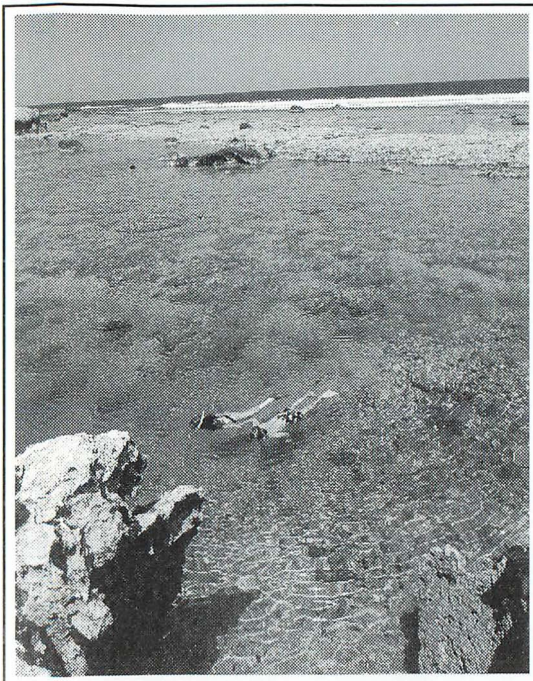
MV Explorer 19 Durlacher Street, Denham, 6537. Ph. (099) 48 1246 (Al Dyson) — Charter Boat trips in Shark Bay - group of 10-16 Divers.

QUOBBA

Point Quobba is situated 72 km north of Carnarvon by road. Nearby are the 'blowholes', a tourist attraction where waves produce spouts of misty spray through holes in the low cliffs. A sheltered area of water lies south of the point and this has been a marine reserve since 1968, when locals called on the Fisheries Department to give the area protection.

A small rocky island 50 metres offshore is connected to the point by a rock platform. This island and a line of reef have created a lagoon area protected from the ocean swells. The lagoon is only a maximum of 2 metres deep and even shallower on low tides, but it has outstanding fish and coral life in clear waters.

The memories of my first dives here with my children are still vivid - a short swim to the darker reef-line about 10 metres from the beach revealed tropical fish of every description among small branching, plate and brain corals. Snorkeling over the reef top, we saw a large reef eel that backed into his lair. A small turtle startled by our presence raced away to find a quieter resting place.



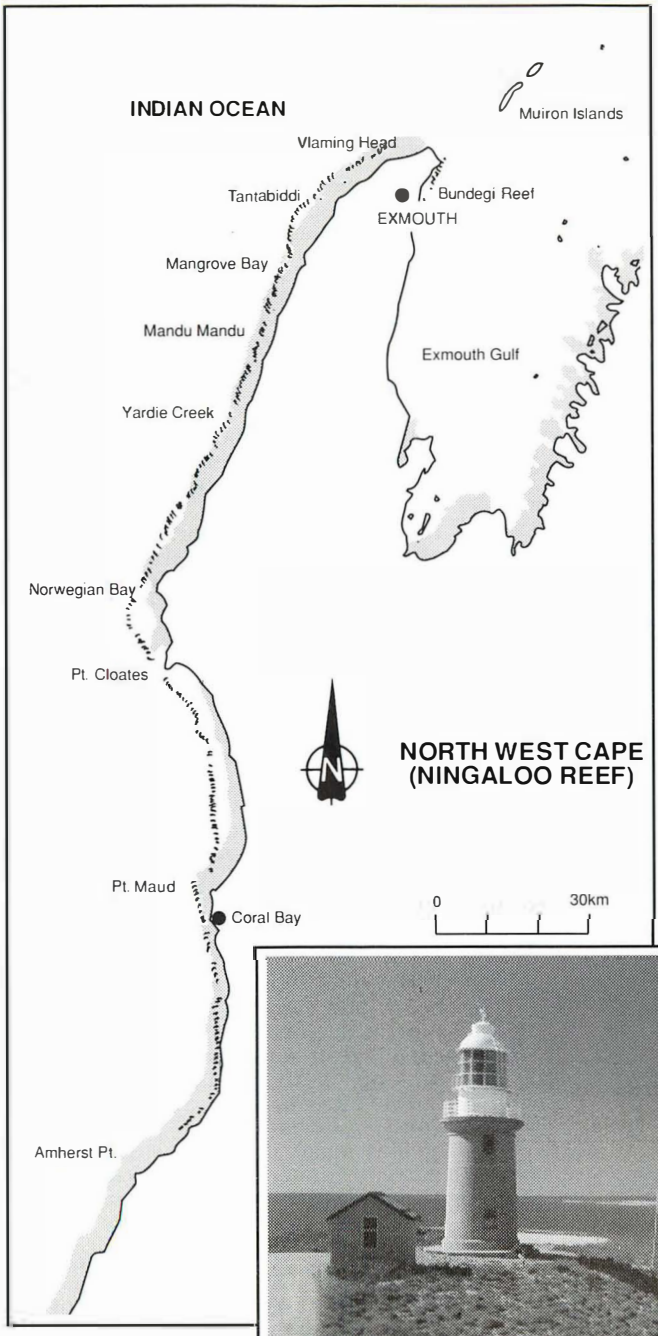
Children snorkel at the Point Quobba Marine Reserve.

In a large sandy hollow in the reef were a dozen racoon butterfly fish that darted and weaved around the staghorn corals. In the same hole were 3 or 4 parrot fish feeding on the hard corals. Small clam shells were dotted all around the reef and we found an octopus that tried to hide next to one. The clam's quick movement frightened the octopus into flight and we watched in amazement as eight legs ran across the corals, squirting black ink on the way.

For a reef so close to shore, the Point Quobba marine reserve is one of the prettiest coral reefs in Western Australia. Its ease of access, with no boat required and a good dirt road leading to within a short distance of the beach, makes the area attractive to families. Children are perfectly safe if accompanied by an adult in the shallow, protected waters at the point.

There are sun shelters on the long beach and camping areas provided by the Carnarvon Shire, adjacent to the road. Fresh water is available from a tank just off the road behind the point, but no other facilities exist in the area. Point Quobba is very popular with holiday makers who come to enjoy the relaxed 'get away from it all' atmosphere. Plans are currently under way to replace privately owned shacks along the road leading south from the point with a tourist village set a little further inland.

The area's future has been assured by the marine reserve status, which stops any form of marine life from being taken - including corals, fish and shells. The area affected is within a 400 metre radius of Point Quobba. The only exception is the taking of rock oysters in the marine reserve. These can be collected from the rock ledge leading to the small offshore island. Best time to visit the area is from May to September, during this period warm days and light winds can be expected. During the period November to March stronger southerly winds and hotter days can limit out-door activities.



Vlaming Head lighthouse with North West Cape behind.

NINGALOO REEF

Ningaloo Reef, 1200 km north of Perth, is Australia's most accessible coral reef and also our second largest marine park. Lying almost parallel to North-West Cape and mostly only a few kilometres offshore, a huge lagoon dotted with coral outcrops has been formed between the reef and shoreline. The reef plays host to over 500 types of fish, some of which are temperate water species. This area is the furthest north on the WA coast that southern species may be found. Over 200 species of coral are also found along the reef system, which is the southern-most major coral reef system adjacent to mainland Australia.

Exmouth is the only town on 80 km long North West Cape and is located near the northern tip. A fringing barrier reef protects the west coast of NW Cape and extends around into the northern section of Exmouth Gulf. The coral reef's distance from the shore varies considerably. At ***Chabjuwardoo Bay*** it is 7 km out, while at ***Mandu Mandu,*** on a low tide, you can walk out a mere 200 metres to the reef front. However, over the majority of its length the reef is 2-3 km from the mainland.

The huge lagoon created by the reef's proximity to the coast is a haven for divers. Clear water and coral outcrops stretch along the entire 260 km of reef. Water depth inside the lagoon area is rarely greater than 8 metres, the seaward side of the reef is a vastly different matter. The continental shelf reaches in to its closest point to the Australian mainland at NW Cape and in some areas the water is 200 metres deep only 8 km from the shore. A further 4 km out the bottom has shelved to a depth of over 500 metres. This helps to explain the clarity of water and abundance of oceanic reef species found along the reef system.

Interesting areas to visit for diving can be found all along the reef's length. Three of the most popular areas visited by divers are:- Coral Bay, Norwegian Bay and Tantabiddi.

Coral Bay is situated in the southern end of the marine park. This area of water bounded by ***Point Maud*** to the north was declared a marine reserve in 1969. A small town on its southern shore is connected to the main road into Exmouth by a sealed road. Boats can be launched from the hard beach in front of the hotel. From here any direction will find thick coral reefs and clear water. In some places the coral growth ends only metres from the beach, so that even snorkelers can see the many tropical fish and the myriad coral formations for which this bay is renowned.

In the centre of the bay the coral formations are quite spectacular, with large pillar corals rising from the bottom at a depth of 5 metres right up to the surface. Around the base of these are large cabbage, plate and staghorn corals. Big fish life is fairly thinly spread throughout the bay, probably due to heavy spear and line fishing that once took place. An occasional big spangled emperor, parrotfish or sweetlip, will be seen among the smaller tropicals that abound on all reefs.

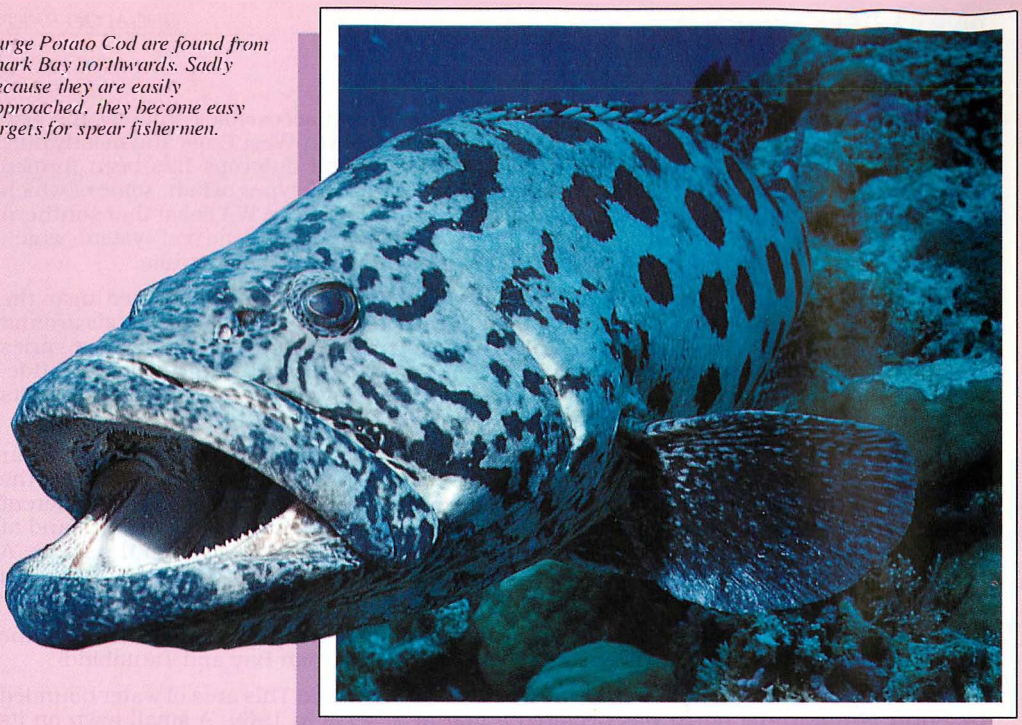
The barrier reef is broken in one section south-west of Point Maud. Here deeper water extends inside the lagoon, reaching a depth of 12 metres in some spots. The area is known as ***Skippy Rocks,*** named after the large schools of trevally that frequent the big coral outcrops. In among the breaking reefs, barracuda, potato cod, mackerel and baldchin groper are also regularly seen.

Just south of the townsite at Coral Bay, some sand tracks lead down to the water. Here coral reef grows right in against the sand and limestone shore. This is an ideal spot for children or less experienced divers to explore the corals in only a few metres of water. Tropical fish, brain corals, staghorns, soft corals and plate corals are all found here, away from most of the boat traffic.

Norwegian Bay is approximately half way down the western side of NW Cape. The bay was the site of a whaling station early this century. Rusting remains of boilers and building frames from the station still sit in the northern corner of Norwegian Bay. ***Point Cloates*** forms the southern arm of the bay and is marked by an old stone lighthouse. Just inland from here is the Ningaloo Station Homestead.

Norwegian Bay contains the only 'island' in the marine park. ***Frazer Island*** was the site of a lighthouse tower which was dismantled and replaced by the land based automatic

Large Potato Cod are found from Shark Bay northwards. Sadly because they are easily approached, they become easy targets for spear fishermen.



Soft Corals inflate their flexible bodies to reach out into currents where the polyps feed on tiny organisms.

beacon on Point Cloates. The island is really only a sand cay just inside the reefline and approximately 4 km from the shore. Just south of the cay is the wreck of a Norwegian whaler, the ***Fin,*** which sank in 1923. The wreck lies on a shallow sand bottom, with much of the ship's machinery, including boilers and winches, protruding from the surface on a low tide. The hull is fairly broken up, but the drive gear is remarkably intact. The *Fin* is an historical wreck and is protected along with three other wrecks in and around Norwegian Bay. These wrecks include the ***Rapid,*** which was loaded with silver coins when it sank in only 3 metres of water on 4th January 1811. The wreck was discovered by a group of spearfishermen in 1978.

Fish life inside Norwegian Bay has not felt as much pressure as the likes of Coral Bay, hence the fish are larger and more prevalent. Delicate coral formations are a little further spread apart then in Coral Bay, but many fish species make up for this. In the entrance to Norwegian Bay, south-west of the whaling station ruins, large schools of pelagic fish frequent the stronger currents near the edge of the drop-off into deeper water. Mackerel, trevally and turrum are regular visitors to this area, but cod, coral trout, sharks and sweetlip are also seen.

Access to the Norwegian Bay/Point Cloates area is via dirt roads either from Coral Bay north, or from the Exmouth road. Larger boats are best trailed via the Exmouth road turn-off, as the track north from Coral Bay is rough in some sections. Boat launching requires the aid of a four wheel drive vehicle and visitors to the area should bring fresh water and food along as no facilities are available in the area. Camping can be arranged on the Ningaloo station - ask at the Homestead.

Tantabiddi is actually the name of a creek in the northern section of the park, but the area adjacent to the mouth of the creek is also known as 'Tantabiddi'. A new concrete boat ramp was installed in 1987. This gives easy access to the reefline west of the creek, where a series of deep channels cut through the reef. Gamefishermen catch marlin and sailfish on the edge of the continental shelf, a few kilometres west of here. Just outside the reef and in the channels leading through the reef are many coral bommies where fish of all descriptions abound.

Large unicorn fish travel in schools, continually on the prowl. Sweetlip are seen hanging under shady ledges and big slimy cod live in caves at the bottom of the coral lumps. Tropical fish of every colour imaginable hover above plate and staghorn corals, while beaked coralfish, butterflyfish, parrotfish, damsels, angelfish and many more are seen on every dive in this very rich area.

Tantabiddi Creek is only a half hour's drive from Exmouth on a bitumen road. Accommodation can be found at Yardie Homestead a kilometre north of the boat ramp, at Exmouth or Vlaming Head. Camp sites adjacent to the ocean are found south of here and these are sign posted along the main coastal road that leads south to ***Yardie Creek.***

Apart from these areas other dive sites can be found at; ***Bundegi Reef*** just inside Exmouth Gulf and a short distance offshore is a shallow coral reef protected from south-westerly winds. The ***Naval Jetty*** close to the tip of North West Cape. This 300 metre long structure is renown for its fish life – large cod, barracuda, mackerel, lionfish and stonefish are regularly sighted, (Naval permission required to dive here). The entire seaward side of the barrier reef along the western coast is excellent diving when the sea is calm. The ***Muiron Islands*** are 18 km north-east of North West Cape. These two islands are not yet part of the Ningaloo Marine Park, but some of the locals have asked for future consideration of the area as a Marine Park. The Muiron Islands are surrounded by shallow coral reefs with abundant marine life and deeper coral reefs can be found to the west of the islands. A boat of at least 5 metres is needed to visit the area, and the trip should be attempted only in good sea conditions. There are no facilities at the islands, but charter boats from Exmouth regularly travel here for diving trips.

During early autumn an added bonus is the arrival of whale sharks in the waters around Ningaloo Reef. These huge plankton-devouring sharks arrive in March or April and often stay until July or August. Another phenomenon attracting divers is the annual coral spawning which usually takes place in March. This is a night time event when the corals

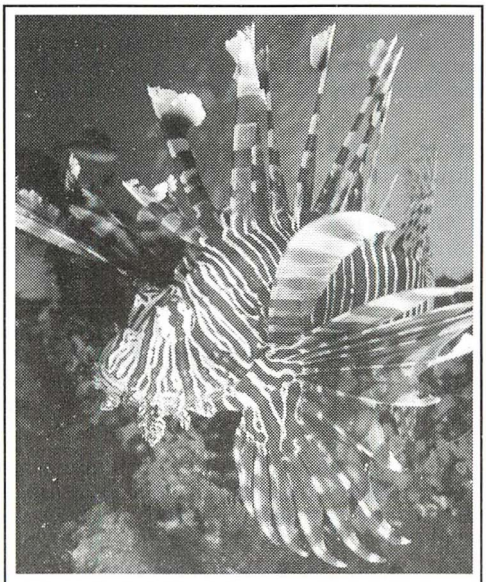
release tiny pink eggs and sperm into the surrounding water. This event has been monitored at Coral Bay since its discovery in 1985.

The reef system is now part of the Ningaloo Marine Park. A ten year management plan was released in 1989, formulated to protect the parks natural assets for future generations. The management of the park allows maximum usage by differing interest groups. The marine section of the park has been broken up into three zone types:-

1) **Sanctuary Zones** which are closed to all forms of fishing, shell or coral collecting and spearfishing. Access into these areas is permitted but nothing must be disturbed. Eight sanctuary zones currently exist and these are spread throughout the length of the park.

2) **Recreational Zones** which cover the majority of the lagoon not zoned as sanctuary, from the coast out to the reefline and 100 metres to seaward. This zone is completely closed to all forms of commercial fishing. Amateur spearfishing on scuba or hookah and net fishing are not permitted. Amateur bag limits apply to line and spearfishermen.

3) The **General Use Zone** which extends from the recreation zone outer boundary to seaward, to a point approximately 10 nautical miles from the coast. This zone is open to recreational fishermen and divers, although spearfishing on scuba or hookah is not permitted. Commercial fishermen can operate under licence in this zone.



A Butterfly Cod (Lionfish).

Note: Further details regarding these zones are available from the Fisheries Department or Conservation & Land Management offices in Perth or Exmouth.

Accommodation and facilities are available throughout the park, although these are limited in some areas. Coral Bay has two caravan parks, a resort hotel, chalets, a dive shop and two general stores. Exmouth has two caravan parks, two hotels, rental chalets, a dive shop and a large shopping centre. Vlaming Head, close to the tip of NW Cape, has a caravan park and shop. The Yardie Homestead near the Tantabiddi Creek Boat Ramp has recently been converted to a caravan and tent park. The coast from Tantabiddi south has designated camping areas close to the ocean, but water supplies and provisions are only available from Exmouth or Vlaming Head.

Winter is the prime time to visit North West Cape, when the air temperature varies between 21-30 degrees with little rainfall. During the Summer months of December through to March, the temperature can hover around 40 degrees for days on end and the wind blows consistently strong from the south, making uncomfortable conditions on the ocean.

DIVE FACILITIES

Exmouth Diving Centre Payne Street, Exmouth, 6707. Ph. (099) 49 1201 (Tony Medcraft) — Air fills, Hire equipment, Dive instruction, Equipment Sales and Service, Dive club, Two charter boats.

Coral Dive 49 Robinson Road, Coral Bay via Carnarvon, 6701. Ph. (099) 42 5940 (Peter Harding) — Air Fills, Boat Dive Trips, Equipment Sales, Dive instruction, Hire equipment.

Exmouth Sea Charters P.O. Box 249, Exmouth, 6707. Ph. (099) 49 1094 (George King) — Boat Charters to Ningaloo Reef and Muiron Islands, Whale Shark Dives.

DAMPIER /MONTE BELLO ISLANDS

Lying within a 45 kilometre radius of the town of Dampier, the 42 rocks and islands of the Dampier Archipelago are a small boat owner's paradise. The archipelago is made up of a dozen large granite and red-volcanic rock islands with a similar appearance to the adjacent mainland. Scattered among these are smaller islands and rocks. Some of the islands which are situated around the northern perimeter of the archipelago are lower lying and have sandy beaches backed by low limestone cliffs.

In 1980 many of the larger islands were declared as nature reserves, with some areas reserved for recreation. Camping for up to five nights is allowed on over a dozen of the islands. Others have been declared conservation zones with daytime access only, largely to protect turtle nesting beaches. Others still have no public access at any time, to protect sea bird nesting areas from disturbance.

The best diving to be found in the archipelago is around the outer islands and on bottom reefs spread between these islands. Here coral reefs are found fringing the islands and water clarity is at its best. ***Legendre Island*** is 37 km north-east of Dampier and its northern face is a limestone drop-off into 30 metres of water. The north-western tip of Legendre is an excellent site with many caves in the limestone wall. Sulphur coloured gorgonia and hard corals reach out from the face to feed in the strong currents of the area. Pelagic fish are plentiful here and trevally often surround a diver in densely packed schools.

Sailfish Reef is a good snorkeling spot on the north-west face of ***Rosemary Island,*** 25 km north-west of Dampier. Tropical fish species are prevalent on the shallow coral reef. Butterflyfish, parrotfish, small cod and beaked coral fish hide among the hard corals. A few kilometres west of Rosemary Island are ***Kendrew Island*** and ***Roly Rock*** and a little further south-west is ***Bare Rock.*** These are all small rock 'islands' that rise vertically from a depth of around 20 metres of water on their seaward faces. Underwater may be found many submerged rocks with lush coral growth and plentiful marine life, including painted rocklobsters that are sought after by local divers. Spanish mackerel are also regular visitors to these pinnacle type rocks. Pinnacles lie on the outer fringe of the islands, and between them are many submerged reefs, with thick coral growth and some drop-offs around the 30 metre contour.

Enderby Island is one of the largest islands in the Dampier Archipelago and lies approximately 20 km west of Dampier. The west end of the island has a fringing coral reef that drops off into a depth of 10-15 metres. This reef has caves and ledges that harbour sponge and coral growth. Camping is permitted on Enderby Island, Rosemary Island and ***Collier Rocks,*** which are close to some of the dive sites mentioned. Underwater visibility on these outer areas is often only 10-15 metres, but occasionally drops as low as 5 metres.

The inner islands such as ***East*** and ***West Lewis, Malus*** and ***Angel*** have shallow diving around their shores with plentiful marine life, particularly sponges, some corals, smaller tropical fish, nudibranchs and shells. It is is a pity that visibility is usually poor - rarely exceeding 5 metres. Night diving is popular among locals, as some sites are adjacent to the inner islands with camping access. Malus Island and Angel Island are two examples that have sites accessible for night diving adjacent to beaches used for camping.

Although the Dampier Archipelago is regularly dived by local and visiting divers, it still holds some hidden secrets. A group of keen local divers has found the anchor chains and anchor of what they believe is the wreck of the schooner ***Rosette.*** The ship sank at anchor during a cyclone in October 1879, with the loss of 17 lives. The chains and anchor lie in 8-10 metres of water between *Enderby* and Goodwyn Islands and as yet the wreckage of the ship's hull has been a little more elusive.

Diving among the islands of the archipelago can be a rewarding experience, but prior knowledge of local tides and seasonal wind conditions is a necessity. The extreme tidal conditions of the area can bring 5 metre variations in sea level on spring tides. The only safe way to dive under these conditions is to drift and have the dive boat pick up divers when they surface. During neap tides diving can be achieved at anchor by entering the water half an hour before the peak of the tide.

Much of the best diving is on the north-west side of the outer islands and westerly winds can ruin boating and diving conditions in these exposed areas. Summer (December-March) brings generally westerly weather in the afternoons, with very hot air temperatures (40 plus degrees). These conditions make reaching offshore waters very uncomfortable. The winter months (June- August) bring warm comfortable days (25-30 degrees) and mostly lighter winds from a generally easterly direction. These months offer the best diving conditions of the whole year, when underwater visibility sometimes reaches 20 metres on neap tides.

Accommodation is available in Dampier/Karratha in the way of hotels, caravan parks and chalets. There are at least three good public boat ramps in Dampier, where trailer boats of all sizes can be launched easily.

MONTE BELLO ISLANDS

Further out to sea and 125 km west of Dampier are the Monte Bello Islands. Over 100 islands and rocks make up the group, though only a handful of these are large. The balance of these islands and rocks are very similar in appearance to each other – small, flat-topped and featureless. The Monte Bello Islands were used by the British Navy in 1952 and 1956 to test atomic bombs. Three bombs were detonated, one on a British Navy Frigate in the lagoon south-west of Trimouille Island, another on the northern tip of Trimouille Island and another on Alpha Island. These areas were until recently out of bounds due to residual radioactivity. Information should be obtained from the Department of Conservation and Land Management before visiting these islands.

The north-west and west sides of the island group are protected by a solid line of shallow coral reef, but the eastern side has the best diving. ***Trimouille*** and ***South East Islands*** have a coral ledge running along their eastern shores. This ledge drops into 10 metres of water. Although they do not provide spectacular scenery, these reefs are in protected waters, sheltered during all but east winds. Huge rocklobsters of three varieties are found on the limestone and coral reefs, painted, coral and green rocklobsters are seen side by side, along with many tropical fish species like parrotfish, trevally, cod, butterflyfish and emperor.

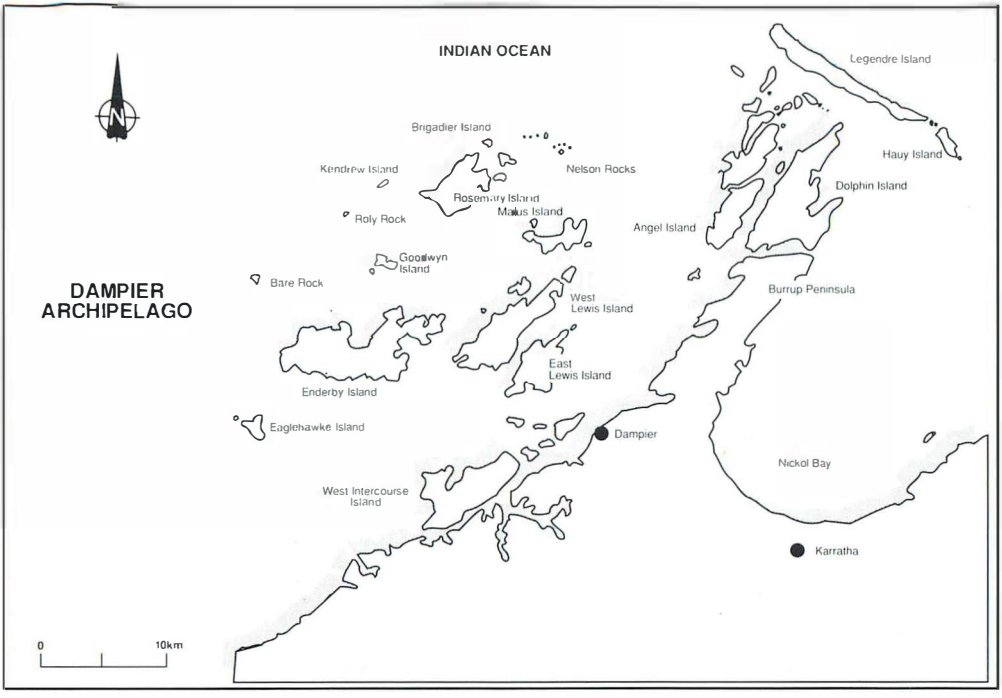
Deep water reaches in closest to the Monte Bello Islands north-east of Trimouille and North West Island, where at depths in between 30 and 40 metres coral reefs with abundant marine life may be found. These are probably the best reefs in the immediate area, with coral trout, big cod, trevally, mackerel, sharks and smaller varieties of coral fish populating the hard and soft coral bottom and bommies.

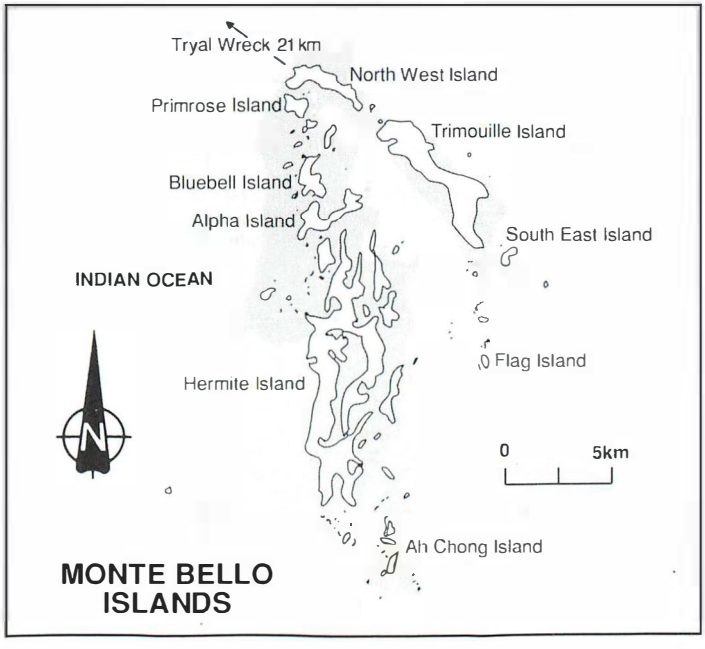
The ***main lagoon*** between Hermite, Trimouille, South East and Flag Islands has many coral bommies in up to 5 metres of water. These offer sheltered diving among nice coral formations, though larger fish life is limited. The waters surrounding the south- west end of Trimouille Island felt the full force of an atomic bomb test in 1952. Remains of the frigate used to test the destructive forces can be found in shallow water here, along with coral growth which appears to have recovered since the blast. Reports of strange marine life have come from the islands, but are not substantiated. The waters surrounding the Monte Bellos are largely unexplored with strong currents restricting diving in more open waters.

The wreck of the *Tryal* is on ***Tryal Rocks,*** 21 km from North West Island. The *Tryal* is Australia's earliest known shipwreck. She foundered in May 1622 after sailing from Plymouth, England, bound for Java in September 1621. The wreck was discovered in 1969 by a well known adventurer, the late Alan Robinson, who located many wrecks along the West Australian coast. The wrecksite is in exposed waters where diving is restricted by strong tidal currents. Many cannons, anchors and ballast bricks litter the wrecksite.

DIVE FACILITIES

Karratha Adventure Sports 1441 Sharpe Avenue Karratha, 6714. Ph. (091) 85 4242 (Adam Ambrosiak) — Hire equipment, Air fills, Dive training, Dive club, Equipment Sales and Service, Club dive charters on 10 metre alloy jet boat, tank testing facility.


INDIAN OCEAN
DAMPIER ARCHIPELAGO
Legendre Island
Brigadier Island
Hauy Island
Kendrew Island
Nelson Rocks
Dolphin Island
Rosemary Island
Malus Island
Roly Rock
Angel Island
Goodlwyn Island
Bare Rock
Burrup Peninsula
West Lewis Island
East Lewis Island
Enderby Island
Eaglehawke Island
Dampier
Nickol Bay
West Intercourse Island
Karratha
0
10km

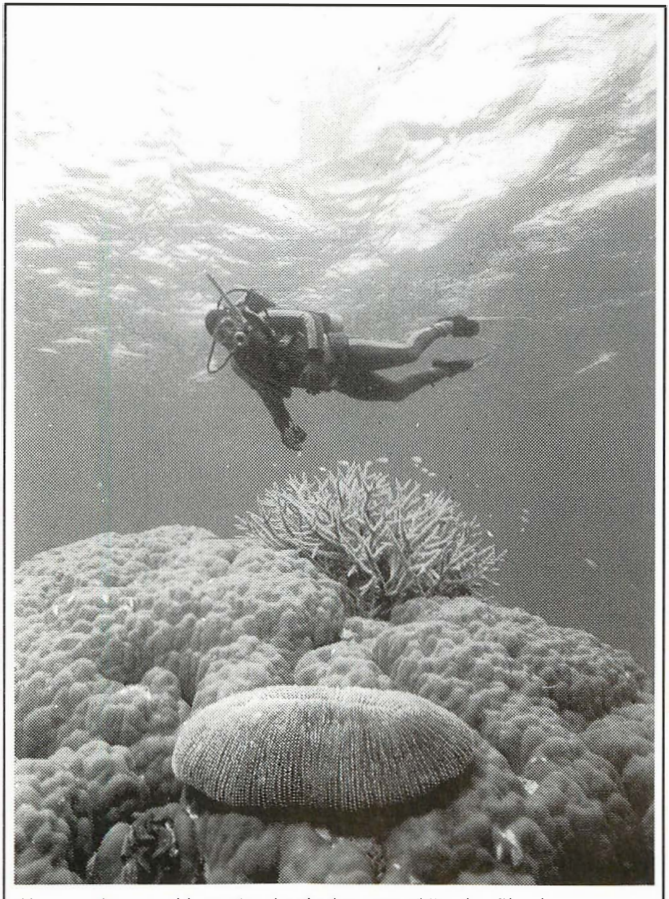

Tryal Wreck 21 km
North West Island
Primrose Island
Trimouille Island
Bluebell Island
Alpha Island
South East Island
INDIAN OCEAN
Flag Island
Hermite Island
0
5km
Ah Chong Island
MONTE BELLO ISLANDS

ROWLEY SHOALS

North of Dampier, the 8 metre tidal variations experienced near the coast make diving in inshore waters almost impossible, with generally very poor underwater visibility. However, 300 km west of Broome are three coral atolls which boast what is possibly the best diving in Australia in terms of marine life and water clarity. The ***Rowley Shoals*** are a group of coral reefs just beyond the edge of the continental shelf. The remote nature of the atolls becomes apparent when sailing from Broome or Port Hedland, with the trip taking between 20 and 24 hours.

The reefs seaward rims fall sharply at an almost vertical angle to a depth of between between 300 and 400 metres – what a drop-off! The outside walls are alive with soft corals in every colour of the rainbow. Huge red gorgonia fan corals and feather starfish adorn each coral head. Whip corals sprout from the wall and schools of trevally, mackerel and tuna parade past. Underwater visibility is normally in the vicinity of 30-60 metres and the water is a comfortable 25 degrees. Sharks are a common sight and white tip reef sharks are the most common. Whalers are often present and even oceanic white tips cruise the reef edge.

Coral trout, coral cod and sweetlip peer from their homes in the reef. Smaller fish like angel fish, damsels, clownfish, butterflyfish and butterfly cod are less timid than most other areas of Western Australia, solely because most fish here have never seen a diver. New species of fish and shells are being discovered each year at the 'shoals'. Because of their isolation from coastal reefs these have evolved separately and include species normally found in the Indonesian Archipelago.



Huge porites coral bommies dot the lagoons of Rowley Shoals.

The three oval shaped reefs, ***Mermaid*** to the north, ***Clerke*** in the middle and ***Imperieuse*** to the south, are separated from each other by 25-30 km of open ocean. Each has a huge lagoon formed by an almost complete line of reef around their perimeters. The entrances to these lagoons vary from an easily navigable 60 metre wide channel on Mermaid, to a very tricky 10 metre winding channel with coral heads at Clerke and an impenetrable maze at Imperieuse, where only small runabouts can enter. Each of the reefs is approximately 18 km long and 10 km wide.

Inside the lagoons, maximum depths vary from 20 metres at Mermaid, 15 metres at Clerke and 8 metres at Imperieuse. There are small permanent sand cays inside Imperieuse and Clerke Reefs and these are the only areas of 'land' at Rowley shoals. Inside their respective lagoons the reefs do offer protection from rough seas, but during high tides waves can wash over the reefs and create uncomfortable conditions.

All three lagoons share a similar layout, with shallow coral bommies in all directions, each one untouched and supporting its own community of tropical life. Sweetlip, angelfish, spangled emperor, eels, clown fish and anemones are seen among the coral gardens. Huge clams are dotted around the bommies, giant potato cod and maori wrasse wait below the stern of dive boats to be hand-fed fish. The potato cod are constant companions, often peering under the same coral ledge as a diver. More than once I have put cameras on the bottom and returned a few minutes later, to find a one and a half metres long cod happily munching on the electronic flash unit.

On low tides, when outflow of water across the reef crests has slowed, the reef tops around the perimeter of the atolls offer excellent snorkel diving. In depths of less than 2 metres hard and soft corals of every description may be found. Thick staghorns, porites coral bommies totally covered by christmas tree worms and red gorgonia corals spread their arms from under coral ledges. Cowrie shells are found among soft corals and spider shells are littered about the sand, along with huge sea cucumbers. Fish forage around while the current is at its lightest, morays emerge from ledges, parrot fish crunch on corals and reef sharks idle lazily in the steady current.

Each dive at the shoals brings forth some bizarre creature, either normally rare or perhaps yet unidentified. In January 1987, the significance of Rowley Shoals was officially recognised. The West Australian Government announced restrictions on fishing and specimen collecting in the area. Commercial fishing is now prohibited there and amateur fishing restrictions apply around the shoals. Amateur fishermen (including spearfishermen) are prohibited from taking any of the following within 1.6 km of Rowley Shoals – live molluscs, live coral and fish of the families potato cod, maori wrasse, queensland groper and coral trout.

Recently Clerke and Imperieuse Reefs have been declared Marine Parks, though Mermaid Reef lies just outside of State waters and is at this stage not included in the Marine Park. A management plan had not been released at the time of publication of this book, but the main objectives are that fishing and spearfishing within the lagoon areas will not be permitted. Shell, coral or fish collecting for aquariums will be banned. Rubbish is not to be dumped inside the lagoons or buried on the sand cays. Boat bilges should not be pumped out within the lagoons.

In 1981, during one of the first organised dive expeditions to Rowley Shoals, remains of an earlier shipwreck were discovered on the western perimeter of Mermaid Reef. The wreck is thought to have been the *Lively*, a 240 ton British whaler sunk in the early 1800s. Five cannons, an anchor and smaller wreckage have so far been discovered on the shallow site exposed to wind and swell. The coral growth has all but devoured any other remains, which are possibly buried beneath a layer of living reef.

The area's isolation is its only set back for divers as large boats are needed to carry passengers to Rowley Shoals. Charters normally run from Broome between June and September each year. These are usually large motor sailers or converted fishing boats. The monsoon and cyclone season sets in from November to March and the best time to visit is August or September, when winds are generally lightest and the average air temperature is in the high 20s.

DIVE FACILITIES

North Star Charters P.O. Box 654 Broome, 6725. Ph.(091) 92 1829. (Craig Howson) Charter Trips to Rowley Shoals & Kimberley coast.

Broome's 1st Professional Dive Store 54 Hamersley Street Broome, 6725. (Neville Polina) Ph. (091) 93 5138, Dive training, Air fills, Equipment Hire, Sales and Service.

EPILOGUE

The remote nature of the Western Australian coast, its islands and offshore reefs has allowed marine life in most areas to be less affected by spearfishing, trawling, line fishing and coral collecting than other more populated areas of Australia. Marine Parks have already been set up and others are planned along the WA coast to protect unique areas from deterioration in the future. Hopefully this will preserve the present day levels of marine life for our children to enjoy in years to come.

Although a percentage of the population are opposed to marine parks, I am sure that these are a narrow minded minority who only see the ocean as their own personal provider of short-lived enjoyment or profit. Spearfishermen who complain that there are now few WA jewfish at Rottnest, line fishermen who complain of a lack of coral trout along Ningaloo Reef or Rock Lobster fishermen who need to go further offshore and operate bigger boats to achieve the same catch rate as last year, may fall into this category. None of these fishermen blame their own actions for the depleted number of fish or rock lobster to be found at fishing and diving sites.

Some areas of WA's coast have already felt the pressure of industry. Cockburn Sound is a prime example. In the 1960s it was a convenient place to pump everything that the sprawling industrial complexes of Kwinana didn't want. Through the 1970s the seagrass beds of the sound died faster than researchers could monitor them. In the 1980s industry was told to clean up its act, which it did for a short time. Now in the 1990s, close monitoring by the Environmental Protection Authority has shown that some of the polluters have started again. Is it too late - Have the waters of Cockburn Sound taken their last breath?

When Marine Park plans are raised, don't sit back and complain later that 'They shouldn't have allowed that'. Marine Parks are formulated from scientific research, industry input and most importantly - public input. You have as much say as anyone else! Watch the newspapers for information on Marine Park Public Submissions. Submit ideas, put your 'two bobs' worth in. It is only through such input that plans are modified to suit the public rather than professional fishing interests or the interests of other industry groups. The coastal waters, reefs and marine life of WA are our own heritage and we as divers see the deterioration and destruction of these natural resources first hand. It is our responsibility to pass on what we see, to protect what is ours, before we are left facing an empty ocean, asking questions too late to be answered!