

FISHING AND DIVING ACTIVITIES IN JERVIS BAY

Past and Present Usages

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INTRODUCTION

The popularity of Jervis Bay as a recreation area is, in large part, due to the diversity and abundance there of marine life of interest to those involved in fishing and diving activities. The fish life of the Bay provided food for the Aborigines over a period of many thousands of years, but white settlement brought with it a dramatic change in the types and levels of fishing activities. This article provides a brief outline of some of the history of fishing activities in the Bay and then describes the main present-day recreational and commercial fisheries of the area. A brief consideration of diving activities is included to give some appreciation of the importance of SCUBA diving to the economy of the Jervis Bay area.

HISTORICAL ASPECTS

Aborigines are thought to have inhabited the eastern coastline of Australia for nearly 40,000 years, from long before sea level rose to its present position. The formation of Jervis Bay and its environs created a bountiful food source, as evidenced by the large numbers of shell middens to be found in its vicinity. Pippis were collected from the beaches, cockles from the mud flats and oysters from the rocky shores in this area (Sullivan 1977). An examination of the fish bones found in two studies on the Beecroft Peninsula showed that the main fish caught, in order of decreasing abundance, were snapper, bream and several species of wrasses (Lampert 1973). There is a wealth of information still to be gleaned from these middens and other Aboriginal sites to be found around the Bay.

Following white settlement of the area in the early nineteenth century, the Aborigines' way of life changed markedly as their lands were progressively converted into European-style farms. A re-involvement in fishing took place at Wreck Bay, where a settlement was founded after World War I. Currently, this village is owned by the Aborigines, and fishing, although reportedly less productive than in earlier days, is still carried out (Egloff 1981).

The early explorers were closely followed by white fishermen, while early records show that whalers used the Bay as an anchorage in the early 1790's. A whaling station operated by a Captain Kinghorn was located at New Bristol (near Hole in the Wall) in the 1840's. Norwegian whaling ships used Jervis Bay as their base in 1912 and 1913, catching a total of 536 whales (Department of the Capital Territory 1979).

The fish communities of Jervis Bay were described in the 1973 special issue of *Operculum* mentioned in the Introduction to this special issue (Pollard 1973).

COMMERCIAL FISHERIES

Jervis Bay does not support a large commercial fishing fleet and Huskisson is only a minor fishing port. However, many more fishing vessels are based to the north of the Bay at Greenwell Point, near the mouth of the Shoalhaven River. There are about 60 fishing vessels in the Greenwell Point/Huskisson area, with trawlers and tuna boats being located primarily at the former port and anchovy/pilchard seiners at the latter. The major areas fished and the target species caught are depicted in Figure 1a and b. In 1982/83 the value of the catch landed at Huskisson was about \$500 000 and that at Greenwell Point around \$1 300 000 (SCP Fisheries 1985). However, Jervis Bay does support some fisheries of significance to the New South Wales industry, including the following:

Yellowtail (*Trachurus novaezelandii*)

Jervis Bay is near the northern limit of the Southern Bluefin Tuna Fishing Zone but is one of only two prime sites on the south coast where tuna fishermen can reliably obtain this species, which is commonly used as live bait for tuna, under most weather conditions (the other is at Twofold Bay near Eden). The fishermen use live yellowtail as "chum" in the pole and line fishery for the tuna which migrate in oceanic waters along the southern New South Wales coastline. The bait is obtained at night-time by shining lights into the waters on the western side of Bowen Island and off Murrays Beach and then purse-seining the schools of baitfish as they rise to the surface. This technique requires very calm waters, hence the reliance on sheltered bays.

The total catch each year is unknown but there appears to be no overall decline in the yellowtail populations after many years of live-bait fishing.

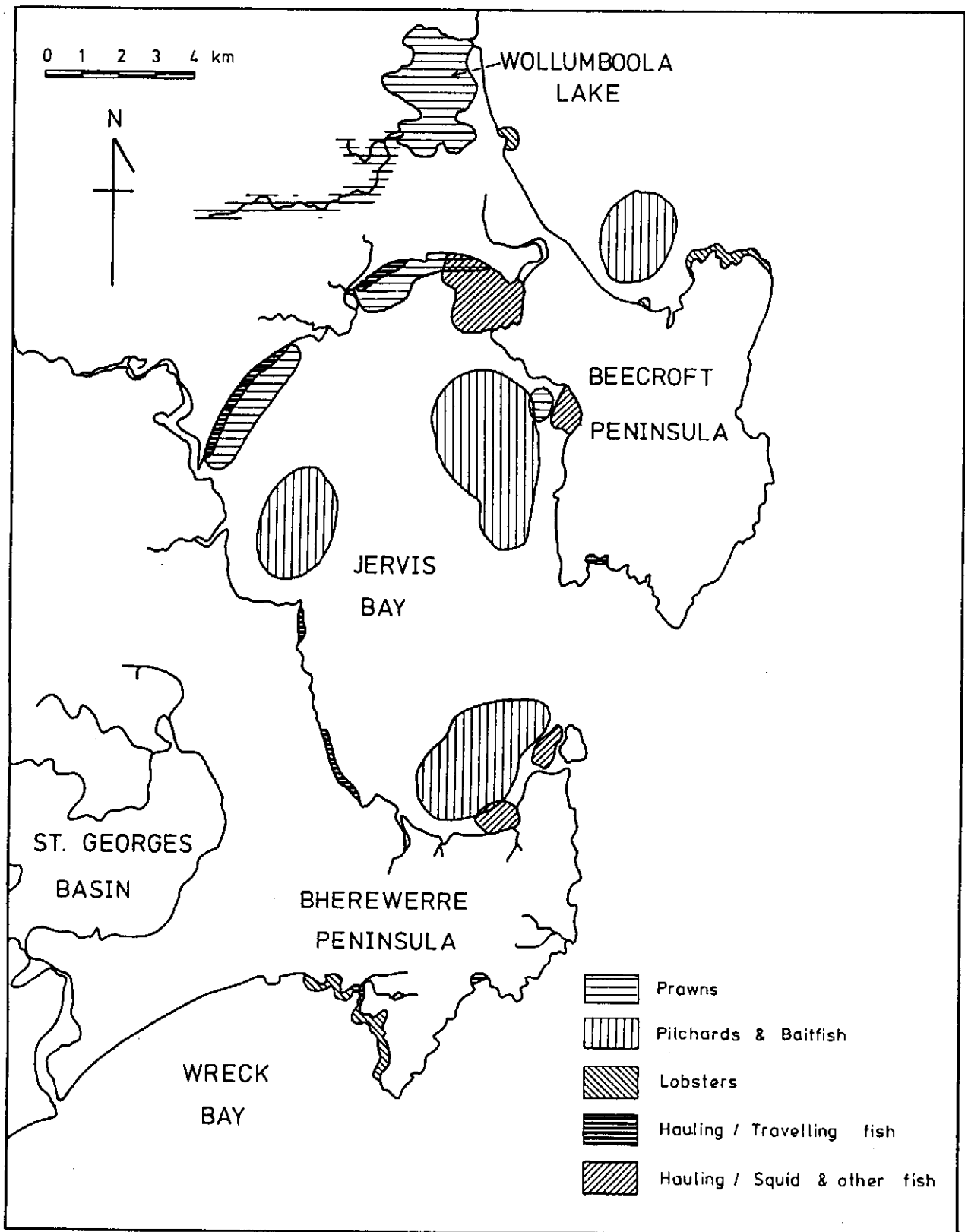


Figure 1a. Commercial Fishing areas in and around Jervis Bay.

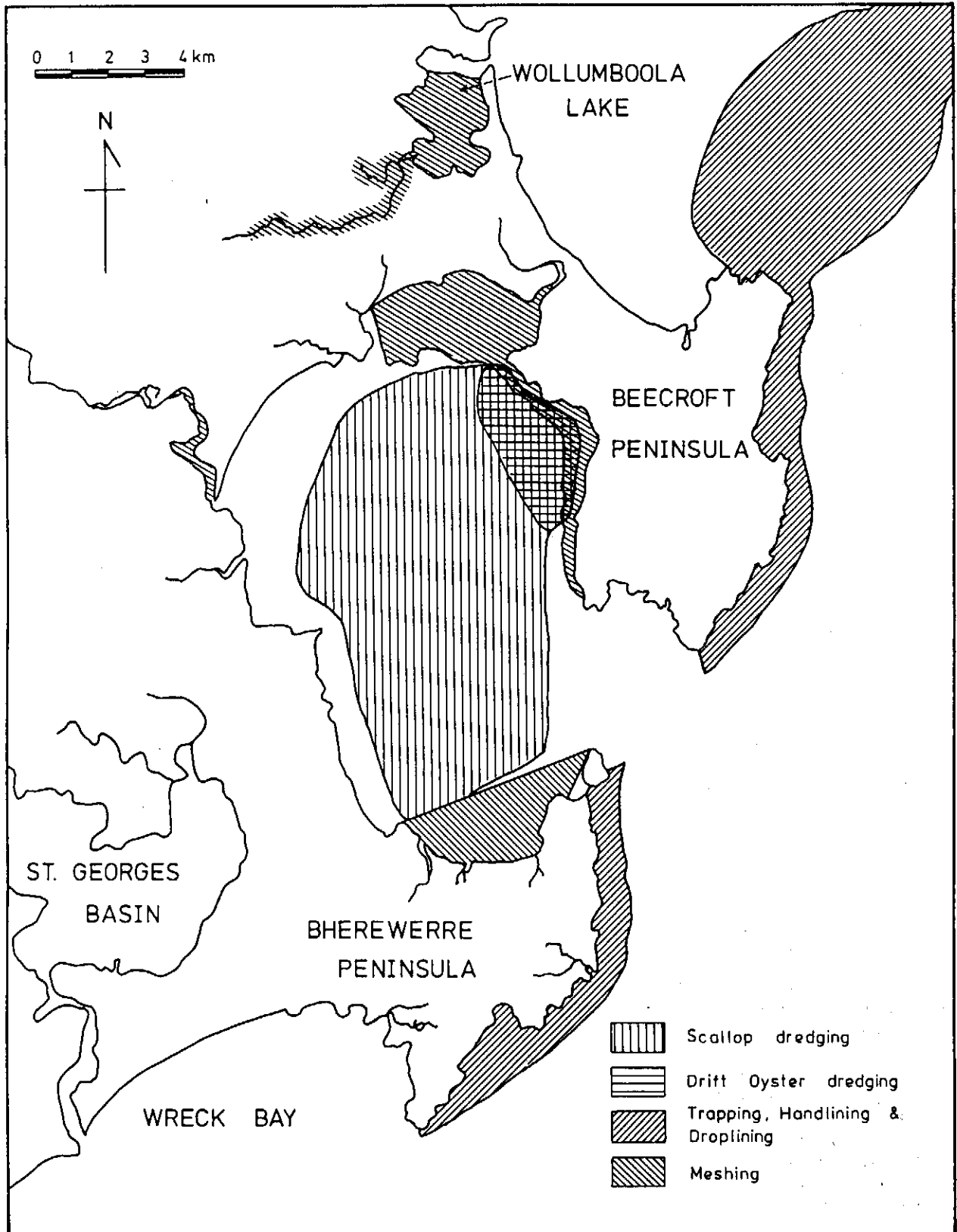


Figure 1b. Commercial fishing areas in and around Jervis Bay. (Note: the two mesh-netting areas shown within the Bay proper have recently been closed to this method of fishing.)

Some tuna boats use the Bay for shelter, but unloading facilities are inadequate and Ulladulla harbour to the south is too close-by for most boats to use Jervis Bay as other than an anchorage on a regular basis.

Pilchard (*Sardinops neopilchardus*)

The pilchard fishery has been studied by Joseph (1981) and found to be a small, underexploited fishery involving only three boats. Pilchard fishing is carried out, in a similar fashion to that for yellowtail, using lights at night to attract the fish to the surface. The light is placed on board a small tender which keeps the fish near the surface whilst the mother ship encircles the school with a purse-seine net. Alternatively, the tender may manoeuvre the net into its correct position.

Although highly variable, the Jervis Bay pilchard fishery currently supplies about 80-90% of the pilchards marketed in New South Wales. Small quantities of mackerel are also taken by purse seiners in conjunction with the pilchard fishery (Fisheries Research Institute 1987).

Scallop (*Pecten fumatus*)

The Jervis Bay scallop fishery has been the centre of considerable controversy following claims and counter-claims of overfishing and widespread destruction of bottom communities by scallop dredges. Although several species of scallops are to be found in the Bay, the abundance of the main species of edible scallop (*Pecten fumatus*) increased dramatically after a heavy spatfall in 1978/79 (see Hamer and Jacobs 1987, this volume). The number of dredgers working the scallop beds also increased dramatically as boats from outside the area moved to the Bay. This scallop boom contributed to the dramatic increase in the catch statistics for the Bay, as shown in the following table (Jervis Bay scallop catches from 1979/80 to 1983/84; G. Hamer, pers. comm.).

| Year | Catch (tonnes) |
|---------|----------------|
| 1979/80 | 45 |
| 1980/81 | 480 |
| 1981/82 | 2200 |
| 1982/83 | 100 |
| 1983/84 | 30 |

Concern over the environmental effects of scallop dredging led to the formation of the Jervis Bay Protection Committee and subsequent calls for investigations into the environmental effects of the fishery. Studies by the Division of Fisheries (Butcher *et al.* 1981) have indicated that little damage was occurring, as most of the scallop beds were on sandy substrates with very little other marine life being present. In addition to dredging, scallops are also taken commercially by divers using hookah and SCUBA gear.

The Jervis Bay scallop population is mainly self-sustaining but there are occasional contributions from oceanic beds depending upon ocean currents. The number of scallops needed to sustain a dredge fishery is only occasionally present and the causes of these population "explosions" are unknown. The most likely theory is that the resident population produces a huge spatfall but it is also possible that the boom periods result from planktonic imports from distant beds (G. Hamer, pers. comm.). Very few scallops have been taken on a commercial basis in the last three years.

Abalone (*Haliotis (Notohaliotis) ruber*)

The rocky headlands and reefs in this area (to a depth of 35m) are a reasonable, although not prolific, source of abalone, which are generally exploited by divers working from Ulladulla, where there are holding tanks to store the catch prior to transportation. Catch rates are variable but the area from Greenwell Point to Wreck Bay supplied 10.8 tonnes in 1982/83 and 8.2 tonnes in 1983/84, representing 1.7% and 1.2%, respectively, of the total New South Wales abalone catch.

Other commercial fisheries

Small quantities of whiting, salmon, tailor, garfish, luderick, leatherjackets and mullet are taken each year by beach-seine fishermen working the shorelines of the Bay. Hare Bay is netted by fishermen using small boats to lay seine nets which are then hauled onto the shore by hand or using winches. Squid has recently become one of the most important target species for fishermen in this area. Access to the beaches near these fishing grounds is by four wheel drive vehicle via bush tracks. Limited mesh netting for mullet, luderick and bream is carried out in Currumbene Creek (the remainder of the Bay is now closed to this form of fishing), and some prawn trawling is undertaken off the Bay's north-western shoreline (Fisheries Research Institute 1987).

Small trap and handline fisheries yield snapper, kingfish, morwong and shark, amongst others, from areas outside the Bay coinciding with sublittoral rocky reefs. These reefs are also fished for rock lobsters using traps .

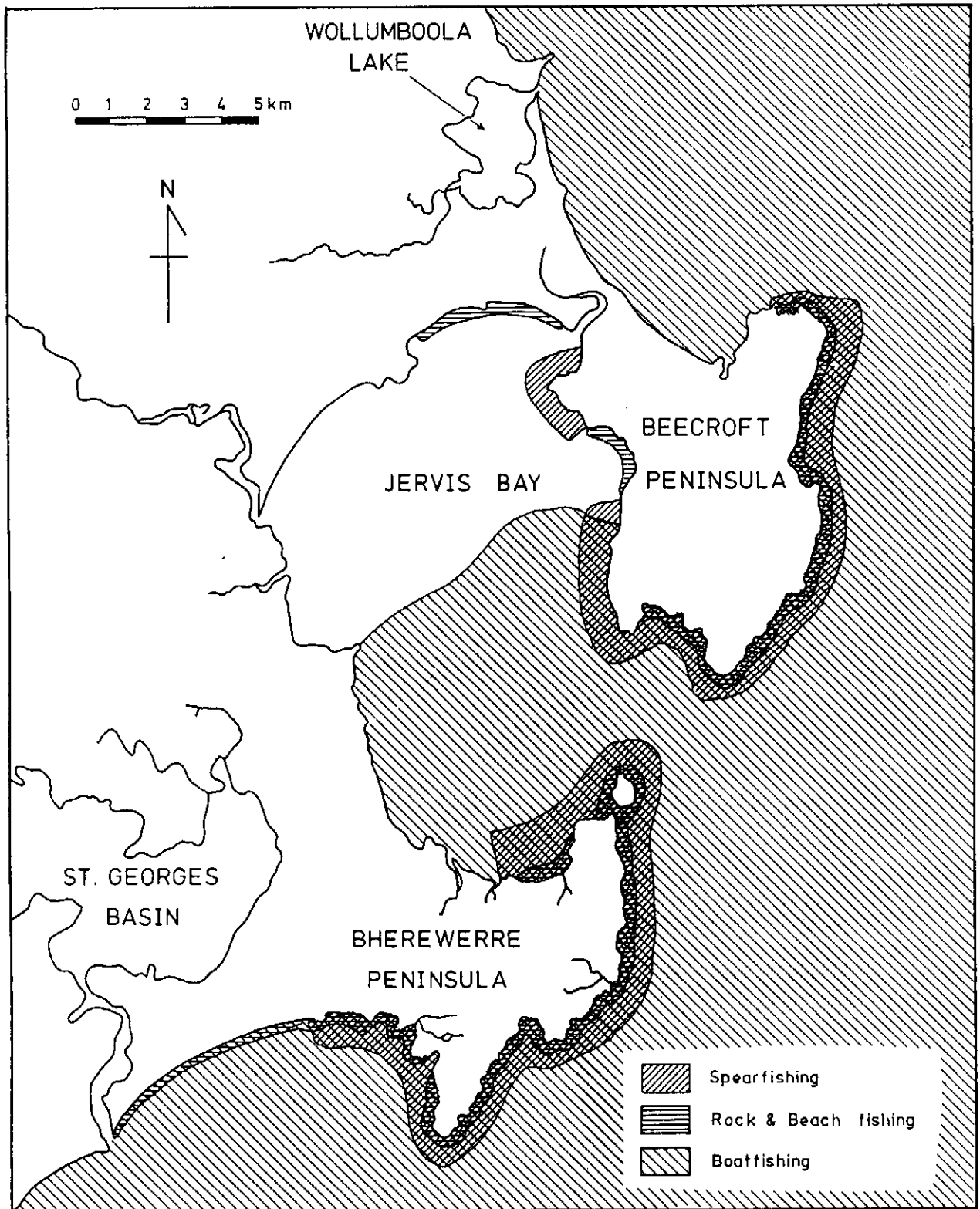
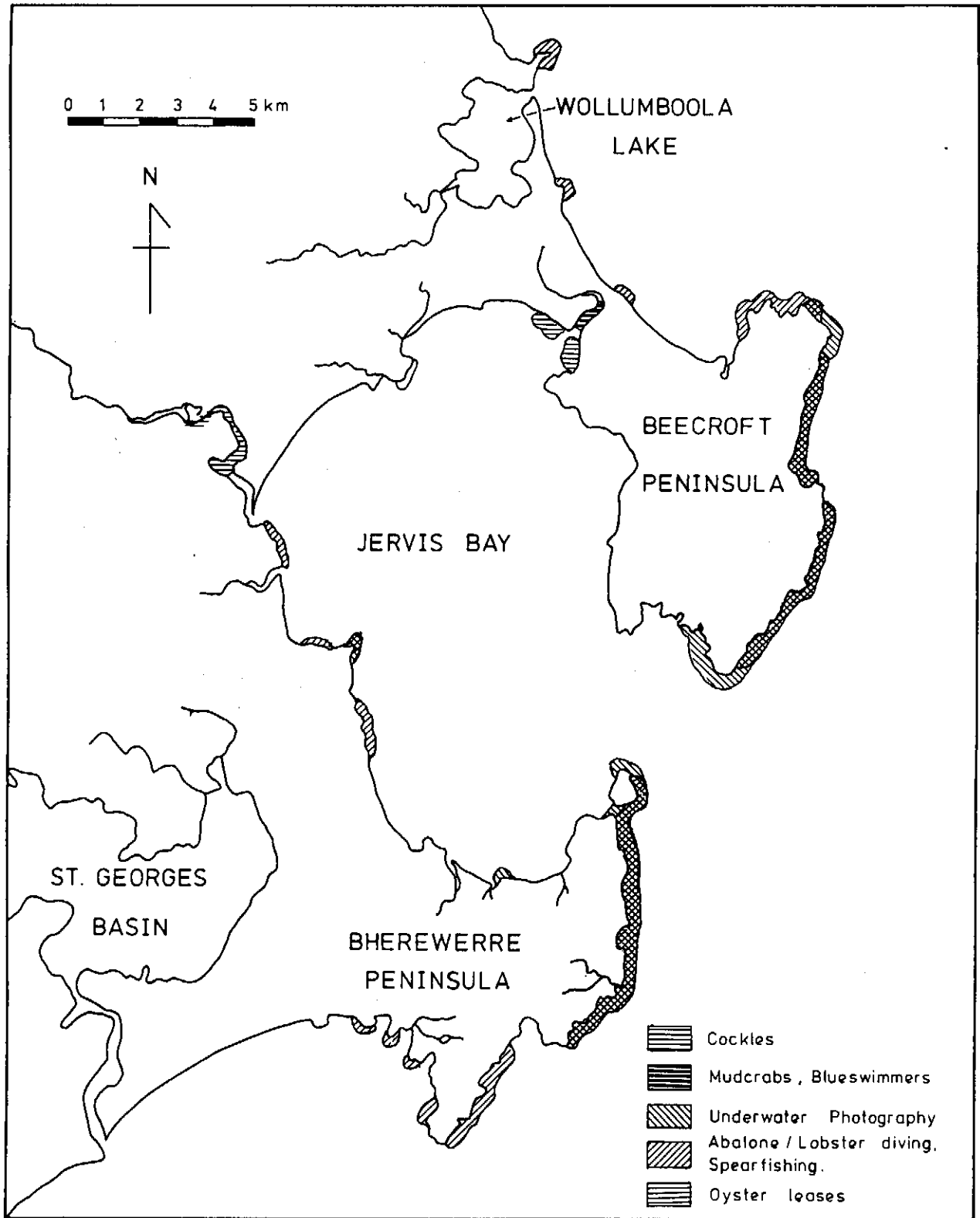


Figure 2a. Recreational fishing areas in and around Jervis Bay.



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Figure 2b. Recreational fishing, underwater photography and oyster lease areas in and around Jervis Bay.

A small fishery for mud oysters (*Ostrea angasi*), which are marketed locally as "drift" oysters, is presently developing. The oysters are obtained by dredging the bottom in areas in the vicinity of Green Point and are also being cultured on rafts in Currumbene Creek. Some have been exported to Hong Kong, and European (particularly French) markets are presently being investigated (Settree 1986).

Limited Sydney rock oyster farming is also carried out on several leases in Currumbene Creek, and a small mussel farm operates to the north of Plantation Point.

RECREATIONAL FISHERIES

Jervis Bay's recreational potential to a great extent revolves around recreational fishing, which is one of the most popular outdoor pastimes in Australia. The more popular areas for recreational fishing activities are shown in Figure 2a and b.

Amateur angling

Studies of participation in recreational angling in Botany Bay (SPCC 1981) and Sydney Harbour (Henry 1984) revealed the following general characteristics:

- i. very few anglers catch more than a few fish per day,
- ii. most anglers are content to be outside and enjoying the scenery, and
- iii. angling activity peaks in the summer months.

It is highly likely that these patterns are also representative of recreational angling activity in the Jervis Bay area.

Boat and shore-based anglers catch a wide variety of fish species, including bream, flathead, kingfish, whiting, salmon, tailor and tuna.

The entrance to the Bay offers some of the most specialised gamefishing in Australia, as Jervis Bay is one of the few places where black marlin (*Makaira indica*) may be caught from the shore. The Torpedo Tubes, on the northern shore inside Point Perpendicular, is a popular spot where water depths are great enough to allow marlin and other large pelagics (e.g. yellowfin tuna) to come close inshore. The deep waters just off the cliffs to the north of the lighthouse also encourage keen fishermen to clamber nearly 100m down rope ladders to narrow ledges. Here, snapper, kingfish, black drummer and blackfish may be caught.

Several species of invertebrates are also commonly taken by amateurs. These include abalone, rock lobsters, mud (drift) oysters, scallops and cockles. The former four species are taken by divers, and the latter by digging in the intertidal sandflats of the northern sector of the Bay during the summer months (B. Walker, Jervis Bay Protection Committee, pers. comm.)

Spearfishing

The prolific fish life of the Bay is also utilized by spearfishermen who frequent the rocky shores and shallow reefs such as those at Longnose Point. The sport of spearfishing fell into some disrepute during the early 1970's when spearfishing competitions resulted in not only the wholesale slaughter of vast numbers of fish but often the dumping of much of the catch once the weigh-in was over. A concerted effort by spearfishing bodies such as the Australian Underwater Federation has created a more conservationist approach not only to everyday spearfishing but also to spearfishing competitions.

The carrying of spearguns and hand spears in the Nature Reserve area is banned, and boat-based spearfishing is discouraged although there are currently no areas closed to this type of fishing in the Bay. The range of fish species available to spearfishermen is generally smaller than that caught by the line fishermen in this area.

DIVING ACTIVITIES

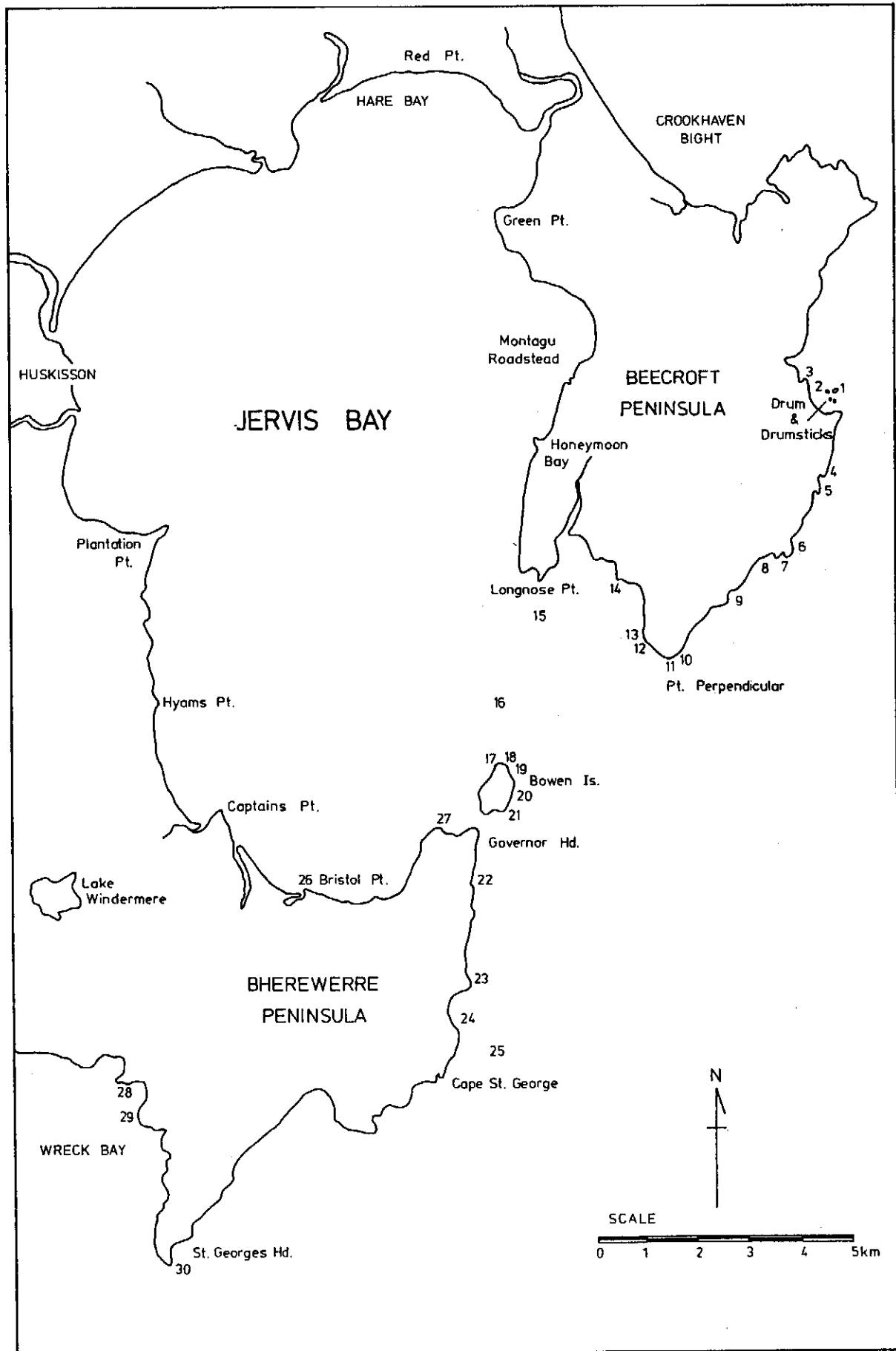
Jervis Bay is an extremely popular snorkel and SCUBA diving area because of its water clarity, spectacular underwater scenery and proximity to major population centres. Most of the SCUBA diving sites are accessible only by boat (Figure 3a and b) and the Jervis Bay area supports two dive shops, both located at Huskisson, which cater for a variety of diving services. Boat dives are offered by both shops, one of which makes up to four trips per day during the peak season. Several smaller businesses offer more restricted services, e.g. SCUBA air fills or boat trips only, and many Sydney, Canberra and Wollongong based shops organise regular trips to the Bay.

The value of the diving industry to the local economy is significant. About 30 000 to 35 000 divers visited the area in 1983/84 and it is conservatively estimated that over \$1.3m was spent there by divers during that year (R. de Groot, pers. comm.).

Shore diving is generally restricted to shallow waters in the Summercloud Bay, Honeymoon Bay to Green Point, and Bristol Point to Murrays Beach areas. These dives, though less visually spectacular, are nonetheless interesting. In the Honeymoon Bay to Green Point area the large expanses of seagrass meadows, algal beds and the wide variety of fauna which prefer quiet waters provide not only a pleasant diving experience but a rich source of underwater photographic subjects.

| JERVIS BAY | | REGULAR DIVE LOCATIONS |
|------------|-----------------------------------|------------------------|
| NO | LOCATION | LEVEL |
| 1 | DRUM & DRUMSTICKS | 1 |
| 2 | ECHO POINT | 1 |
| 3 | SS WANDRA | 1 |
| 4 | SMUGGLERS CAVE | 2-1 |
| 5 | DEVILS CAVERN | 2-1 |
| 6 | CROCODILE HEAD DROP-OFF | 3 |
| 7 | CROCODILE HEAD CAVE | 1 |
| 8 | CROCODILE HEAD LANDSLIDE | 1 |
| 9 | THE ARCH / BLOCKS | 2-1 |
| 10 | PT. PERP. GORGONIA WALL | 2 |
| 11 | PT. PERP. BOULDERS | 2-1 |
| 12 | PT. PERP. SPONGE GARDENS | 2 |
| 13 | PT. PERP. CHIMNEYS | 1 |
| 14 | THE DOCKS | 1 |
| 15 | LONGNOSE BOMBORA | 1 |
| 16 | MIDDLE GROUND | 1 |
| 17 | NORTH - WEST BOWEN | 1 |
| 18 | NORTH BOWEN | 1 |
| 19 | NORTH - EAST BOWEN | 2 |
| 20 | EAST BOWEN | 2 |
| 21 | SOUTH - EAST BOWEN SPONGE GARDENS | 2 |
| 22 | THE CAVES | 1 |
| 23 | LIGHTHOUSE RUINS | 2 |
| 24 | TIMBER YARDS | 1 |
| 25 | STONEY CREEK | 3 |
| 26 | GREEN PATCH | 1 |
| 27 | MURRAYS BEACH | 1 |
| 28 | SUMMERCLOUD BAY | 1 |
| 29 | SUMMERCLOUD BAY | 1 |
| 30 | ST. GEORGES HEAD | 2 |

Figure 3. SCUBA diving localities in and around Jervis Bay (levels indicate degree of difficulty of dive).



Aquarium fish collecting is also undertaken by divers in Jervis Bay, particularly around Bowen Island. The types of fish taken and their conservation status are unknown. However, it is likely that juveniles of tropical fish brought into the Bay by warm currents in summer are a prime target. These fish can be found in many sheltered bays on the New South Wales south coast in summer but the majority of specimens generally die in the winter months as the water temperature decreases. As such, the collecting of these fish may have no significant impact on their overall populations or prospects for recruitment, although once collected they are denied to underwater photographers and other interested divers.

CONCLUSIONS

There is a rich diversity of marine and estuarine organisms in the Jervis Bay area, and these have inherent conservation values as well as being a source of food and recreational pleasure for people visiting this region. The continued viability of this diversity of species and their habitats is dependent upon sensitive management which focusses on the limitation of both exploitation and further habitat destruction. Such an approach will ensure that the benefits of a healthy environment and associated ecosystems are available to many future generations.

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