

# Pearling and Aquaculture

## North Coast Bioregion

### Regional Management Overview

The north coast bioregion is dominated by the production of pearls from the species *Pinctada maxima*. Activities within the industry range from the hatchery production of oysters suitable for the seeding of round pearls to the fishing of wild stock oysters for the culturing of pearls on a large number of pearl leases situated in the waters of the State.

Pearl oyster farms are predominantly situated in sheltered waters and range from the Montebello Islands to the northern waters of the Kimberley. One company generally transports part of its wild stock quota to the Northern Territory for the culturing process, however this company has begun to develop the necessary pearl farm infrastructure in the north Kimberley area to allow farming in Western Australia. Pearl farm lease applications are assessed through a public consultation process in accordance with Ministerial Policy Guideline no. 8. The assessment of pearl farm lease applications continued to be a major activity in 2000/2001.

The wild stock pearl oyster fishery is managed on a system of individual quotas with a total allowable catch. The status of stocks is reviewed each year by Fisheries WA in liaison with the Pearling Industry Advisory Committee (PIAC). During 2000/2001, the TAC for the 2001 fishing season for Zone 2/3 remained at 502,500 shells (one quota unit equals 1,100 shells).

The status of stocks in Zone 1 was also reviewed. A TAC of 40,000 shells for the Exmouth Gulf component of the Zone 1 fishery was maintained for the 2001 fishing season. A maximum size limit of 160 mm was also continued for shell taken in Exmouth Gulf to ensure that any residual animals following fishing in a season were not open to future exploitation and flowed through to the breeding stock.

This year all vessels operating in Zone 1 were required for the first time to be fitted with an automatic location communicator to assist in monitoring compliance with the TAC.

The seeding of hatchery-produced oysters was continued by some companies through licensees utilising hatchery options available to industry. Licensees also had the option of substituting hatchery production for wild shell quota.

The annual value of production for pearls in 2000 was estimated at about \$220 million for the whole Western Australian pearl industry.

PIAC met on three occasions, with an extraordinary meeting held in January 2001 to consider the report on the National Competition Policy review of pearling legislation. The reports were released for public comment in May 2001.

The agency, in consultation with the Pearl Producers' Association and PIAC, agreed to review the legislative framework for pearling, taking into account the new

environmental reporting requirements under the Commonwealth's *Environmental Protection and Biological Diversity Conservation Act 1999*, the outcomes of the National Competition Policy review of the pearling industry, and the industry's future business needs. Some additional changes to the pearling regulations to facilitate pearling compliance and industry management practices will be considered in the short term.

Other issues, including budget development and management, operational planning and management of pest incursions, continued to be a focus of attention during 2000/2001.

Other aquaculture management initiatives in the north coast bioregion were focused on pearl production for *Pinctada margaritifera* and reef reseeding for trochus and other reef-top molluscs. Significant resources were also directed to a prawn aquaculture proposal for the Wyndham area. A licence has been issued for a 650 ha prawn farm on a site near Derby.

North Coast Aquaculture Figure 1 shows the major licensed aquaculture sites in this bioregion.

### Regional Compliance and Extension Overview

During 2000/2001, Fisheries Officers based in Broome and Karratha undertook a compliance monitoring program across all zones of the pearl oyster fishery. Companies have continued to increase production of hatchery-reared shell and the compliance focus shift to the monitoring and control of this product has increased. Major compliance issues are the verification of shell numbers and size prior to seeding operations, and the movement of hatchery shell within and also between farms. Regular nursery site audits are conducted to monitor hatchery shell growout and to verify progress for the conversion of hatchery options to hatchery quota. Approvals to allow the use of hatchery shell for technician training and for mantle tissue in seeding operations have also increased compliance requirements in this area.

Several companies have now converted their hatchery options to quota and there has been an increase in the quantity of hatchery-reared shell being used for seeding operations in lieu of wild stock.

Wild stock quotas continued to be monitored through a combination of quota tags and a paper audit trail using catch, dump, transport and seeding operations logbooks submitted by licensees to the agency. The production and translocation of hatchery-produced pearl oysters is also monitored by the system of hatchery and transport logbooks combined with a system for disease testing, quarantine and health certificate clearances from the Fish Health section of Fisheries WA. Conversion of hatchery options to hatchery quota is monitored by a combination of operations logbooks, nursery and operations audits, and at-sea compliance presence during operations.

Field officers based in Karratha and Broome patrolled from Exmouth Gulf (Zone 1) to the Kimberley development zone (Zone 4). Patrols to verify compliance

with tagging and associated logbook systems utilised diving inspections, aircraft, both large and small agency patrol vessels and industry boats. The majority of at-sea inspections and patrols were carried out using the joint agency (Fisheries WA and Department of Transport) ocean-going patrol vessel *Walcott*, with small agency vessels being used as dive platforms.

### Regional Research Overview

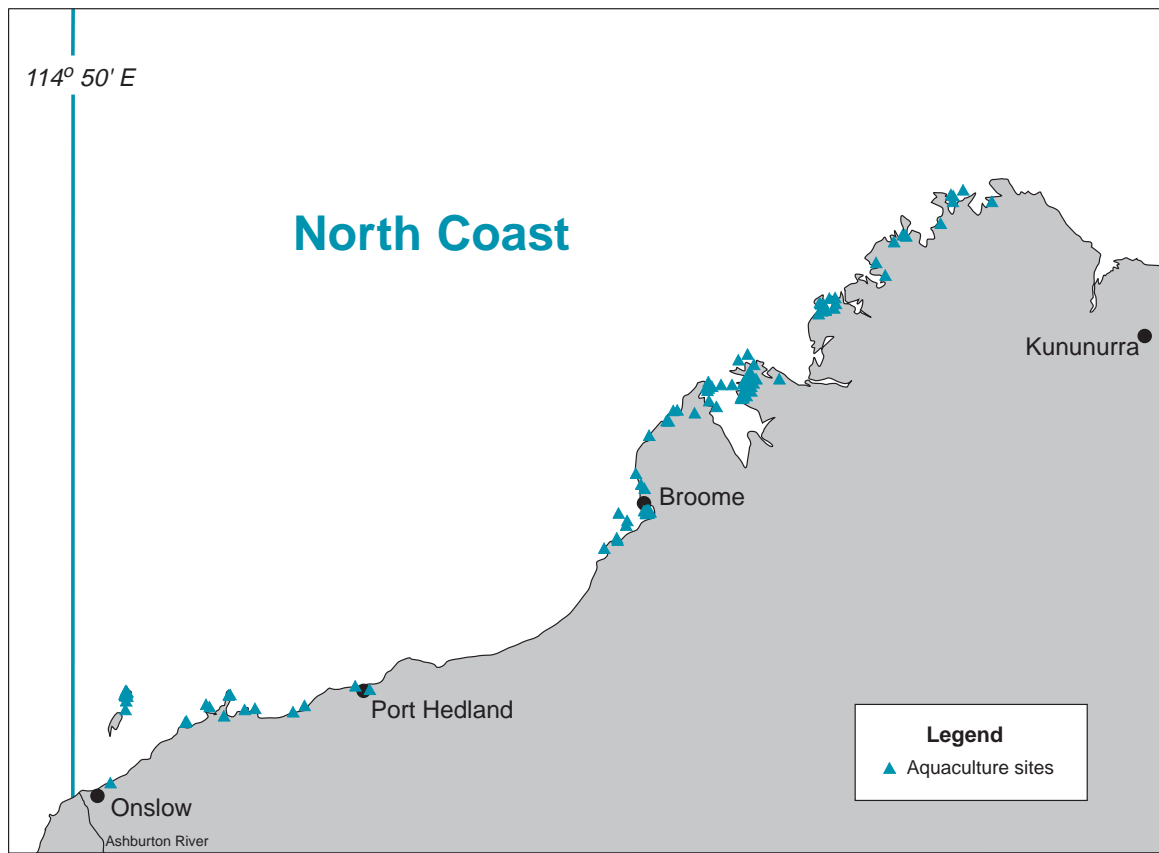
Research for managing the pearl oyster stocks utilises detailed diver logbook records (catch and effort), at-sea sampling of catches and information gathered during research projects. This information is used to monitor the status of the stocks and to review and set catch quotas each year.

FRDC-assisted research into the mother-of-pearl (MOP) component of the pearl oyster stocks (pearl oysters > 170 mm shell size) is now in its final year. A second FRDC project, which began in July 2000, seeks to determine an index of recruitment for the pearl oyster fishery by assessing settlement of spat of *Pinctada maxima* on adult oysters (piggyback spat). The Division's fish pathology group also provides a comprehensive

disease testing program to monitor pearl oyster 'health' issues within the industry.

During 2000/2001, Fisheries WA handed over to the Bardi Community of One Arm Point a pilot-scale trochus hatchery to provide stock for assessing the effectiveness of enhancing reefs near King Sound. The establishment of the hatchery was part of an international project funded by the Australian Centre for International Agricultural Research, the Aboriginal and Torres Strait Islander Commission (ATSIC) and the ADF. Significant progress has been made with the construction of a large, Aboriginal-owned multi-species hatchery at Broome Aquaculture Park, with research staff providing scientific and design advice. ATSIC has also assisted Fisheries WA and TAFE at Broome with the development of an Aboriginal aquaculture training initiative.

In a major study of salt field biota, the artemia (brine shrimp) resources have been characterised in one major salt field. Fisheries WA has helped fund hatchery production trials with barramundi at TAFE in Broome. Research staff based in this region have undertaken national liaison to assess the opportunities and constraints for indigenous aquaculture in Australia.



**NORTH COAST AQUACULTURE FIGURE 1**

Map showing the major licensed aquaculture sites of the north coast bioregion.



# Pearling and Aquaculture

## Pearl Oyster Fishery

### Pearl Oyster Fishery Status Report

Prepared by K. Friedman and C. Skepper

#### FISHERY DESCRIPTION

##### Boundaries and access

The pearl oyster fishery of Western Australia accesses silver-lipped pearl oysters, *Pinctada maxima*, in shallow coastal waters along Western Australia's North West Shelf. There are currently 16 licences operating in the fishery, with a total of 12–16 vessels fishing for pearl oysters in any given year. The fishery is separated into four zones (Pearl Figure 1), and each licence is allocated an individual shell quota as part of an overall total allowable catch.

The four management zones of the pearl oyster fishery are as follows:

*Pearl Oyster Zone 1:* NW Cape (including Exmouth Gulf) to longitude 119°30' E. 5 licensees.

*Pearl Oyster Zone 2:* East of Cape Thouin (118°10' E) and south of latitude 18°14' S. 9 licensees.

Note: full access for Zone 2 licence holders to Zone 3.

*Pearl Oyster Zone 3:* West of longitude 125°20' E and north of latitude 18°14' S. 2 licensees.

Note: partial access for Zone 3 licence holders to Zone 2.

*Pearl Oyster Zone 4:* East of longitude 125°20' E to WA/NT border.

Note: although all licensees have access to this zone, exploratory fishing has shown that stocks in this area are not viable. However, pearl farming does occur.

##### Main fishing method

Diving.

#### RETAINED SPECIES

**Commercial production (season 2000): 617,500 shell**

##### Landings

The total allowable catch is controlled by a quota system. In 2000 the TAC for the pearl oyster fishery of north-western Western Australia was 617,500 shell (including a 2,000 shell special allowance for tourism purposes).

The bulk of landings were taken from Zone 2/3 (88% of all shell fished). The Zone 2/3 TAC for 2000 was 10% greater than for 1998 and 1999. This increase in TAC, to 502,500 shell, was allocated because average catch rates within Zone 2 for the previous season were at least 50% greater than a pre-defined 10-year average. The 2,000 shell special 'tourism' allowance was not increased. The reported catch for Zone 2/3 for the 2000 season was 501,419 shell (Pearl Table 1).

Zone 1 of the pearl fishery had a TAC of 115,000 shell for 2000. The reported catch of 66,772 shell (Pearl Table 2) was well below this allocation, as some licensees chose to use hatchery-reared shell in preference to wild stock in the 2000 season. This conversion to hatchery stock, as

envisaged in the management arrangements, has been caused by decreased availability of wild stock due to cyclone damage to traditionally productive areas, particularly in Exmouth Gulf.

##### Fishing effort

Total effort for 2000 in all zones was 15,151 dive hours. The total effort for 2000 in Zone 2/3 was 9,258 dive hours, which represented a 10% decrease on the 1999 Zone 2/3 effort of 10,300 dive hours. This reduction was mainly due to increased stock abundance and better than average diving conditions. The total effort in Zone 1 during 2000 was 5,893 dive hours, representing a 23% increase on the 1999 total effort of 4,789 dive hours. This increase occurred despite there being a decrease in catch (Pearl Table 2), and may be attributed to three main factors: firstly, a lower stock abundance, particularly in the northern sectors of the fishery; secondly, an increase in speculative diving (searching time) as industry attempted to locate new fishing grounds within the middle sector of Zone 1; and thirdly, poor diving conditions experienced on traditional fishing grounds.

##### Catch rate

The catch rate for the pearl oyster fishery (all zones) was 37.5 shells per dive hour (shells/hr). This represents a slight increase on last season's overall catch rate (36.5 shells/hr). The overall catch rate in the pearl oyster fishery was predominantly influenced by catch rates in Zone 2/3 where landings were greatest.

Catch per unit effort in Zone 2/3 in 2000 was the highest ever recorded at 54.2 shells/hr, which represented a significant increase on the previous record catch rate of 1999 (44.5 shells/hr), and a 84% increase on the 10-year (1988–1997) average of 29.5 shells/hr (see Pearl Table 1). This improvement in catch rates was not spread equally between Zones 2 and 3. In Zone 2, the catch rate was 55.5 shells/hr, while the catch rate in Zone 3 alone was 32.4 shells/hr. The increase in catch rate when compared to historical records is somewhat tempered by the increased efficiency of industry vessels, which have adopted GPS and 'plotter' technology since about 1992. However, the ever more stringent shell size selection and quality grading methods applied by industry may have negated potential gains realised through the use of technology.

The Zone 1 catch per unit effort was 11.3 shells/hr in 2000, which represented a significant decrease of 40% from the 1999 figure of 18.9 shells/hr (Pearl Table 2). Effort in 1998 and 1999 shifted across Zone 1, from Exmouth Gulf in the south to the Port Hedland region (including the buffer zone extension) in the north. In 2000, Exmouth Gulf yielded just 36% of the catch (53% less than the average for 1990–1997), while the Port Hedland region was the source of 52% of the shell (11% less than last year but still 64% greater than the 1990–1997 average). In 2000, previously under-utilised areas in the middle sectors of the fishery have begun to show promise again (12% of the Zone 1 catch). Whereas the catch rate in the Port Hedland region has steadily decreased from 26.4 shells/hr in 1998 to 11.5 shells/hr in 2000, the catch rate in the middle sector of the fishery has steadily increased in the last three years from

10.8 shells/hr in 1998 to 17.2 shells/hr in 2000. Exmouth Gulf (the southern sector of the Zone 1 fishery) saw an increased catch rate between 1998 and 1999 (from 11 shells/hr in 1998 to 19.3 shells/hr in 1999) but this has again declined to 10.1 shells/hr in 2000.

**Recreational component (2000):** Nil

**Stock assessment completed:** Yes

The primary measure of stock availability is catch per unit effort. In Zone 2/3 the high level of catch rate recorded in recent years (1994–1996 and 1999–2000) had previously only been experienced during the late 1970s and early 1980s when the pearling fleet was fishing both culture and mother-of-pearl shell. The increased catch rates in 1999 and 2000 are believed to have resulted from high abundance, favourable diving conditions and the influence of technological efficiencies on industry practices.

The state of the fishery is of primary importance when one considers changes in catch per unit effort. The unprecedented high catch rate results indicate that recruitment to the Zone 2/3 pearl oyster stock is at a level sufficient to maintain or increase stock levels, permitting safe and economic fishing operations. As with most bivalve fisheries, the *P. maxima* fishery is characterised by large variability in recruitment. The high catch rates recorded in 1999 and 2000 are undoubtedly partially due to a large pulse of recruits passing through the size range targeted by the fishery. This increase in recruitment can be partially attributed the presence of favourable environmental conditions for larval and juvenile survival. In addition to environmental effects on larval development, settlement, juvenile growth and survival, the weather conditions were unusually settled during the main fishing periods in 2000 which assisted divers through good water visibility. This was despite the occurrence of Cyclone Rosita in April 2000 which caused wide-scale damage to pearling facilities located near the cyclone's path just south of Broome.

Increases in catch rates have occurred in Zone 2/3 as the fleet decreases the effective search and fishing area. Catches in 2000 were made in less than half the area (as reported in 10 x 10 mile grid squares) that was utilised at the beginning of the 1990s. Fishers have concentrated fishing effort on productive pearling grounds in shallower water (< 12 m on average). In the last five years the average depth fished has fallen every year. Assessment of the sizes of oysters fished in Zone 2/3 show that around 60% of the catch comes from the 120–140 mm shell height size classes, which are the smaller, newly recruited oysters preferred for pearl culture. These results reveal that the wider range of pearl oyster grounds off the Eighty Mile Beach are subjected to low levels of fishing pressure, while yearly recruitment is supporting the fishery within its most productive locations. Within Zone 2/3 there is, however, a history of differential catch rates between major fishing areas. For example, although catch rates in Zone 3 were higher than those recorded in Zone 2 during 1994–1996 (peaking at 50.2 shells/hr in 1995), catch rates were lower in Zone 3 than in Zone 2 in 1999 and 2000, suggesting that the factors responsible for the increased catch rates in Zone 2 were not as apparent

in Zone 3 during the past two years.

The distribution of catch and effort in Zone 1 in 2000 was similar to that recorded in 1998 and 1999 as a result of management decisions designed to reduce fishing pressure in Exmouth Gulf. These decisions involved setting a TAC of 40,000 shell for Exmouth Gulf, and extending the Zone 1 buffer zone 30 nautical miles east to allow operators access to previously under-utilised grounds in the southern areas of Zone 2. The overall importance of the northern sector catch decreased for the first time this season as declining catch rates began to impact total catch. Although this decline is to be expected due to the fact that unfished built-up stock was available after 1998, catch monitoring in this northern sector reveals that fishers are still reliant on taking a percentage of catch from larger, less sought-after shell sizes (150–165 mm shell height). In addition, trial 'piggyback' spat collection results were low relative to other sectors in the fishery. Although the link between spat sampling and future recruitment is preliminary at this stage, the generally low spat collection results are in line with the general perception that recruitment in this sector of the fishery is more sporadic and less regular than in Zone 2/3. The indicators presented above suggest that fishing pressure on traditionally fished ground in this sector of Zone 1 is too high, despite the wild shell quota not being fully fished by licensees.

Catches from under-utilised areas in the middle sectors of the fishery are again nearing more promising levels (12% of the Zone 1 catch). The steadily increasing catch and catch rate recorded from pearl grounds in the middle sector of the Zone 1 fishery, which show signs of recent recruitment (based on length frequency sampling), provide a welcome relief for the more heavily fished northern and southern sectors of the fishery. Catch rates in Exmouth Gulf (southern sector) returned to 1998 levels despite management changes (1998) reducing fishing pressure in this sector. It seems the destructive effects of Cyclone Vance on the eastern side of the Gulf, and generally poor diving conditions in 2000, have negatively affected catches despite 40% of the Exmouth Gulf TAC not being fished. In addition to the loss of productive ground through cyclone activity, some traditional fishing areas in the south of the Gulf are not being fished because they are positioned within pearl farm lease boundaries. Management controls in Exmouth Gulf will be retained during the 2001 season to limit effort and encourage the rebuilding of pearl oyster stocks in that area. If there is a decline in abundance indicators in 2001, further controls in this fishery will be needed.

**Exploitation status:** Fully exploited

The pearl oyster stocks are considered to be fully exploited within the management parameters of diver safety and maximisation of the value of the pearl crop.

**Breeding stock levels:** Adequate

As *P. maxima* are protandrous hermaphrodites, oyster stocks do not have a full complement of females until shell sizes reach approximately 180 mm shell height. Pearl oyster fishers prefer to harvest oysters between 120 and 165 mm shell height, hence oysters larger than



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165–170 mm usually remain in the fishery as breeding stock. The fishery focus has also moved away from the deep-water pearling grounds, that now remain unfished or only lightly fished. Stocks remaining on these deep-water pearl grounds are likely to contribute to overall broodstock abundance and recruitment in both shallow and deep-water areas.

The current annual quota for the fishery is less than the annual recruitment of oysters, therefore the breeding stock is being maintained or in some areas increased. This is especially true for Zone 2/3, which has seen excellent recruitment in recent years. Current management arrangements for Exmouth Gulf in the southern sector of Zone 1 (160 mm maximum size) are designed to ensure that breeding stocks in that sector are improved in the longer term. In contrast, heavy fishing pressure on some pearling patches in the northern sector of Zone 1 could have a negative effect on broodstock populations if flow-through of recruits to broodstock sizes was limited by high fishing effort.

## NON-RETAINED SPECIES

**Bycatch species impact:** Negligible

Divers have the ability to target pearl oysters of choice (species, sizes and quality of *P. maxima*) and do not inadvertently harvest any bycatch in their normal fishing activities. Pearl oysters brought to the vessel after hand collection are young and have relatively little epiphytic growth (fouling organisms). Any such organisms are removed from the oyster and put back in the water prior to the oysters being placed in mesh panels. A small number of over-sized or under-sized oysters are returned to the substrate.

**Protected species interaction:** Negligible

There is no interaction between the pearl oyster fishing operation and protected species.

## ECOSYSTEM EFFECTS

**Food chain effects:** Negligible

The fishery removes only a small proportion of the biomass of pearl oysters on the fishing grounds, and is considered to have negligible impact on the food chain in the fishing area.

**Habitat effects:** Negligible

The pearl divers have minimal contact with the habitat during fishing operations. The more significant habitat contact is by pearl oysters held in mesh panels on holding sites following capture. These sites, however, cover a very small proportion of the habitat, and the activity concerned is unlikely to cause any lasting effect.

Similarly, the pearl farming operation, which uses longline systems to culture pearls, has limited impact on the environment. Physical effects are limited to static anchoring systems in typically sand/mud habitats.

## SOCIAL EFFECTS

Pearl oyster fishing vessels operate from the Lacepedes north of Broome down to Exmouth Gulf in the south. The 12–16 fishing vessels presently operating each have

10–14 crew involved with the fishing of oysters between January and July each year. These vessels also support a number of other pearl farm functions throughout the year. Fleet managers are employed by pearling companies to coordinate and support vessel operation.

## ECONOMIC EFFECTS

**Estimated annual value (to fishers) for year (2000):**  
\$220 million

The value of cultured pearls and by-products is considered to be approximately \$220 million for the year 2000. However, a precise estimate of the value of product is difficult to achieve owing to the variable time lags which occur between harvesting and sale to offshore buyers, and the costs incurred in marketing before sales take place.

## FISHERY GOVERNANCE

**Acceptable effort range:** 15,331–22,599 dive hours

Catch figures in Zone 2/3 showed significantly elevated catch rate in the last two seasons, above the agreed threshold that triggers quota considerations. Owing to this indication of increased stock abundance, the 2000 and 2001 quota for Zone 2/3 was increased from its traditional level by 10% to 502,500 shell. It is expected that Zone 2/3 of the pearl oyster fishery should achieve its 2001 quota within or below the five-year range (1994–1998) of 12,003–16,576 dive hours, given the higher catch rates expected. If the elevated catches in 2000 were taken into account, one would expect from experience (1994–1996) that the 2001 catch rate will continue to be elevated (though not as high as 2000), reflecting the protracted time period that an elevated pulse of recruits takes to pass through the targeted size classes of the fishery.

In Zone 1, approximately 70,000 shell (of the 115,000 shell TAC) is expected to be caught from wild shell stocks in 2001, with the remainder of the quota to be filled from hatchery production. The acceptable effort range for Zone 1 to achieve a catch of 70,000 shell is 3,328–6,023 dive hours (based on a pro rata effort estimation for 70,000 shell for the five-year period 1994–1998). If Zone 1 is not able to achieve this catch within this acceptable effort range then additional management controls are recommended for 2002 to ensure adequate numbers of oysters flow through to the breeding stock in all sections of Zone 1. This will mean that pearling companies will need to rely on greater quantities of hatchery-produced shell from the facilities established for that purpose, and work on a reduced wild stock catch quota under ever-stricter spatial controls.

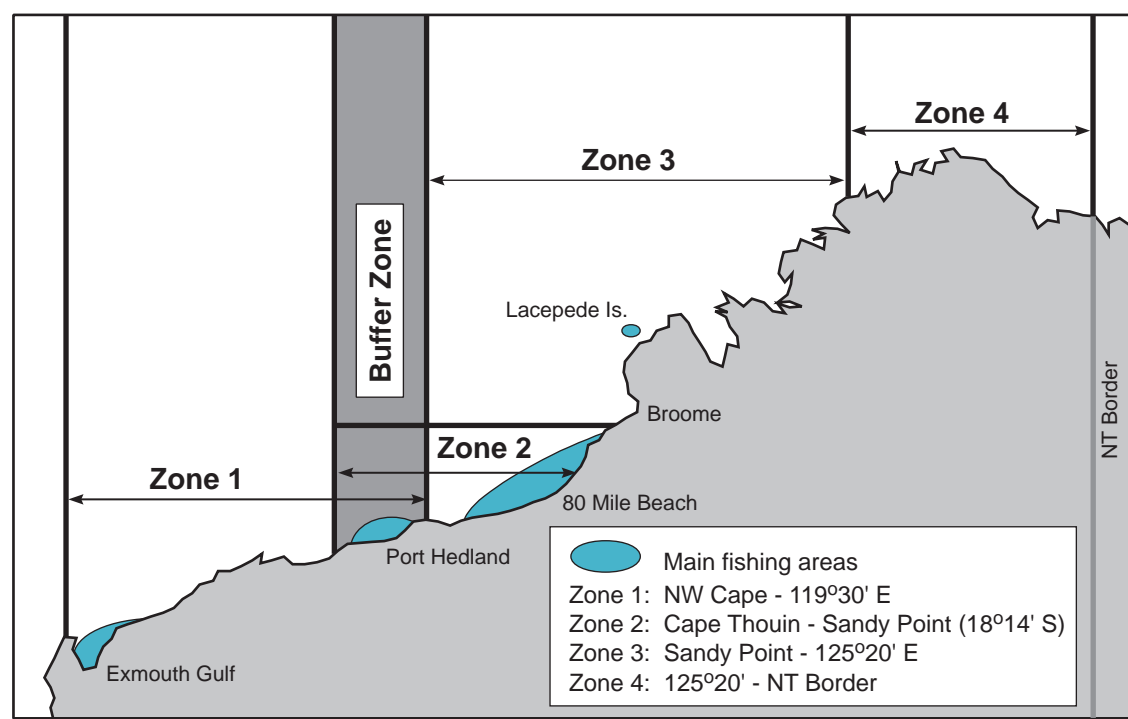
## EXTERNAL FACTORS

The pearl oyster stocks underpinning the fishery in Zone 2 (88% of total pearl oyster catch in 2000) continue to provide an elevated level of production to support this major Western Australian industry. The new FRDC-funded project, which seeks to determine the predictability of the relationship between numbers of spat of *P. maxima* on adult oysters (piggyback spat) and future catch rates, will potentially give the fishery data on abundance of upcoming stock. This information would

greatly assist managers in determining quota allocations, as there is currently a heavy reliance on retrospective catch data to determine future management controls. In a fishery that targets pearl oysters for approximately three years once they reach legal size, projections based on retrospective catch data can under-estimate and over-estimate available stock.

There is a recognised need to document the uptake of

GPS/plotter technology, and the seasonal variance in diving conditions such as visibility, to assess how catch rate is affected by factors other than shell abundance. Documentation of the adoption and operation of GPS and plotter technology will be prepared in 2001. Methods for assessing and documenting diving conditions within the framework of catch reporting will be discussed at industry research meetings in October 2001.



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**PEARL TABLE 1**

Pearl shell catch and effort – Broome area (Zone 2/3).

Year	Quota	No. of culture shells	No. of MOP shells	Total shells	Dive hours	Culture shells/hr	MOP shells/hr	Total shells/hr
1978		404,952	146,692	551,644	10,583	38.3	13.9	52.1
1979		371,806	355,599	727,405	16,068	23.1	22.1	45.3
1980		364,502	260,714	625,216	18,568	19.6	14.0	33.7
1981		481,193	210,649	691,842	23,320	20.6	9.0	29.7
1982	460,000	439,092	132,931	572,023	15,710	27.9	8.5	36.4
1983	520,000	365,381	87,049	452,430	19,019	19.2	4.6	23.8
1984	375,000	242,828	47,230	290,058	11,615	20.9	4.1	25.0
1985	342,000	272,869	53,831	326,700	12,423	21.0	4.3	26.3
1986	360,000	337,566	10,929	348,495	16,478	20.5	0.7	21.2
1987	380,000	365,397	0	365,397	17,476	20.9	0	20.9
1988	445,000	379,657	0	379,657	14,600	26.0	0	26.0
1989	445,000	445,364	0	445,364	18,625	23.9	0	23.9
1990	457,000	453,705	0	453,705	23,263	19.5	0	19.5
1991	457,000	460,608	0	460,608	21,657	21.3	0	21.3
1992	457,000	461,599	0	461,599	19,455	23.7	0	23.7
1993	457,000	457,186	0	457,186	14,733	31.0	0	31.0
1994	457,000	456,832	0	456,832	12,384	36.9	0	36.9
1995	512,000	511,633	0	511,633	12,217	41.9	0	41.9
1996	512,000	511,756	0	511,756	12,774	40.1	0	40.1
1997	512,000	512,314	0	512,314	16,893	30.3	0	30.3
1998	457,000	457,266	0	457,266	14,499	31.5	0	31.5
1999	457,000	457,842	0	457,842	10,300	44.4	0	44.4
2000	502,500	501,419	0	501,419	9,258	54.2	0	54.2

**PEARL TABLE 2**

Pearl shell catch and effort in Zone 1 since the 1993 quota increase.

Year	Quota	No. of culture shells	No. of MOP shells	Total shells	Dive hours	Culture shells/hr	MOP shells/hr	Total shells/hr
1993	115,000	79,465	0	79,465	2,395	33.2	0	33.2
1994	115,000	132,316	0	132,316	6,291	21.0	0	21.0
1995	115,000	121,312	0	121,312	6,247	19.4	0	19.4
1996	115,000	80,163	0	80,163	5,013	16.0	0	16.0
1997	115,000	110,348	0	110,348	9,494	11.6	0	11.6
1998	115,000	108,056	0	108,056	6,094	17.7	0	17.7
1999	115,000	90,414	0	90,414	4,789	18.9	0	18.9
2000	115,000	66,772	0	66,772	5,893	11.3	0	11.3