

Abrolhos Islands and Mid West Trawl Managed Fishery Status Report

Prepared by M. Kangas, E. Sporer and G. Parry

FISHERY DESCRIPTION

The Abrolhos Islands and Mid West Trawl Managed Fishery (AIMWTF) is based on the take of southern saucer scallops (*Amusium balloti*), with a small component targeting the western king prawn (*Penaeus latisulcatus*) in the Port Gregory area. The catch is taken using otter trawl.

Governing legislation/fishing authority

Abrolhos Islands and Mid West Trawl Management Plan 1993
Abrolhos Islands and Mid West Trawl Managed Fishery Licence

Consultation process

Department–industry meetings

Boundaries

The boundaries of this fishery are 'all the waters of the Indian Ocean adjacent to Western Australia between 27°51' south latitude and 29°03' south latitude on the landward side of the 200 m isobath'.

Management arrangements

The AIMWTF operates under an input control system, with restrictions on boat numbers and trawl gear size as well as seasonal closures and significant spatial closures protecting all near-shore waters.

The fishing gear (net size) in this fishery is unitised, with one headrope unit converting to 4 fathoms (7.32 m). For the 2003 season, the entire entitlement of 46 headrope units was utilised by 16 boats that operated in the fishery.

The Abrolhos scallop fishing season normally runs for three months (April–June), though recent improvements in catch prediction permit the setting of a shorter season when catches are expected to be low. In 2003 the season opened on 1 April and closed on 30 June. During the latter part of the fishing period, high densities of scallops were taken along the eastern boundary within the permitted trawl area near the Port Gregory prawn fishing area. Several surveys were completed on the eastern side of the boundary in the rock lobster B Zone during June and July. A small portion in the southern sector of the survey area was found to contain a significant scallop resource with large meat size of high quality. Consultation between research, managers and the rock lobster industry resulted in an agreement to permit fishing for scallops in this small area, which opened on 5 August and closed on 13 August.

The Port Gregory prawn trawl area of the fishery opens annually on 1 March and closes on 31 October.

Bycatch reduction devices to release large species are fully implemented in the AIMWTF as a licence condition.

The vessel monitoring system (VMS), a satellite tracking system used to monitor the movement of vessels within the waters of a fishery, has been part of the management arrangements since 2000/01.

Research summary

Research monitoring of the scallop stocks in this fishery is undertaken utilising fishers' monthly returns data and an industry-based pre-season survey. Advice on the status of stocks and appropriate season opening and closing dates is provided to industry.

RETAINED SPECIES

Commercial production (season 2003):

5,840 tonnes whole weight

Landings

The total landings for the 2003 season were a record 5,840 t whole weight of scallops compared to a very low catch of 195 t whole weight in 2002 (Abrolhos Islands Scallop Figure 1). The catch prediction for the 2003 season, based on a pre-season survey, was between 2,900 and 4,350 t whole weight. The actual catch exceeded this prediction and included an additional 360 t whole weight caught in the area east of the fishery boundary, which had not been included in the pre-season survey. The total landings were above the upper limit of the acceptable range for this fishery based on historical catches, owing to the exceptional recruitment resulting from good environmental conditions.

In 2003 no fishing took place in the Port Gregory area.

Fishing effort/access level

A total of 10,382 trawl hours (nominal effort) were recorded for the 2003 season, equivalent to 9,124 standardised trawl hours (standardised to 14 fathoms headrope length). This is much higher than the 912 standardised trawl hours recorded in 2002 owing to the much higher abundance of scallops in 2003 and the additional days of fishing in August (Abrolhos Islands Scallop Figure 1). This effort level represents a fishing season of 97 days duration in 2003, compared to 6 days in 2002.

Catch rate

The catch rate in 2003 was 640 kg/hr (whole weight, standardised effort), compared with 218 kg/hr for 2002, reflecting a significant (approximately threefold) increase in abundance.

Recreational component:

Nil

STOCK ASSESSMENT

Assessment complete:

Yes

This fishery is highly variable, being dependent on sporadic recruitment which appears to be strongly influenced by environmental conditions, e.g. the Leeuwin Current. A pre-season recruitment survey is undertaken annually. A relationship between catch rates during surveys and subsequent catch is evident, and the high recruitment abundances seen during the pre-season survey in 2002 enabled very high scallop catches to be forecast for 2003. However,

WEST COAST
BIOREGION

GASCOYNE COAST
BIOREGION

NORTH COAST
BIOREGION

SOUTH COAST
BIOREGION

NORTHERN INLAND
BIOREGION

SOUTHERN INLAND
BIOREGION

West Coast Bioregion

the average catch rate for the 2002 pre-season survey was well beyond the catch rates from previous surveys carried out between 1997 and 2001, requiring extensive extrapolation beyond the data available to date.

Due to the patchy spatial distribution of recruits it is not possible for pre-season surveys to cover all potential settlement areas, particularly in high abundance years. Derivation of a reliable survey abundance–catch relationship will require several more years of data and an extension of the survey to cover more of the potential settlement area.

Exploitation status: Fully exploited

Breeding stock levels: Adequate

The annual fishing season is managed so that the majority of the mature scallops are able to spawn before fishing occurs. Breeding stocks are therefore protected, ensuring recruitment is dependent only on environmental conditions each year.

Projected catch next season (2004):
155–245 tonnes whole weight

Using the November 2003 survey data, the projected catch range for 2004 is likely to be 155–245 t whole weight for the surveyed areas.

NON-RETAINED SPECIES

Bycatch species impact: Low

The trawl fleet operates over a small portion of the licensed fishing area, focusing on scallop aggregations on the relatively bare sand habitat associated with this species. In 2003, the total area of the fishery that was fished by scallop boats was 11% compared to 1.4% in 2002. Owing to the focused nature of this fishery and the large mesh size (100 mm), little bycatch is taken during the fishing season.

Protected species interaction: Low

While turtles do occur in the Abrolhos Islands, these species are towards the southern extent of their range, and do not breed in the Abrolhos Islands area because water temperatures are too low. Consequently, interactions with turtles were always minimal, and now that grids are compulsory in the fishery their capture should be eliminated. No records of turtle captures were made in 2003. Few other protected species occur in this area.

ECOSYSTEM EFFECTS

Food chain effects: Low

The total biomass taken by this fishery is generally very small. Moreover, due to the high natural variability of scallop stock abundance it is unlikely that any predators are highly dependent on this species.

Habitat effects: Low

The fishers generally operate over a very small proportion (approximately 4% on average) of the licensed area and therefore the total area impacted by trawling is small. However, the trawling was more extensive during 2003 due to high scallop abundances throughout the fishery. Also, a small portion outside the fishery boundary was fished in 2003. The

areas associated with scallops are sandy habitats and these are not impacted significantly by trawling activity. An underwater survey was undertaken by the Department of Fisheries in 1994 to delineate trawlable habitats in the Abrolhos Islands and trawling is largely contained within these areas.

SOCIAL EFFECTS

This scallop fishery utilises large numbers of crew (up to 13 per vessel) to carry out on-board processing during the short period of fishing in the season. The estimated employment for the year 2003 was 200 skippers and crew.

ECONOMIC EFFECTS

Estimated annual value (to fishers) for year 2003:
\$19.6 million

The estimated value of the catch has been based on the average wholesale price per kilogram obtained in the Shark Bay fishery, that is \$3.36/kg whole weight or \$16.80/kg meat weight. Meat weight is approximately 20% of the whole weight.

FISHERY GOVERNANCE

Acceptable catch range for next season:
95–1,830 tonnes whole weight

The acceptable catch range for this fishery has been amended during 2003/04 using improved methodology. The revised range is derived by applying an autoregressive moving average (2,2) control quality procedure to the annual catch data from 1985 to 2003. The confidence intervals are obtained by estimating the variation of the observations compared with the variation of the predictions for these 19 years.

New management initiatives (2003/04)

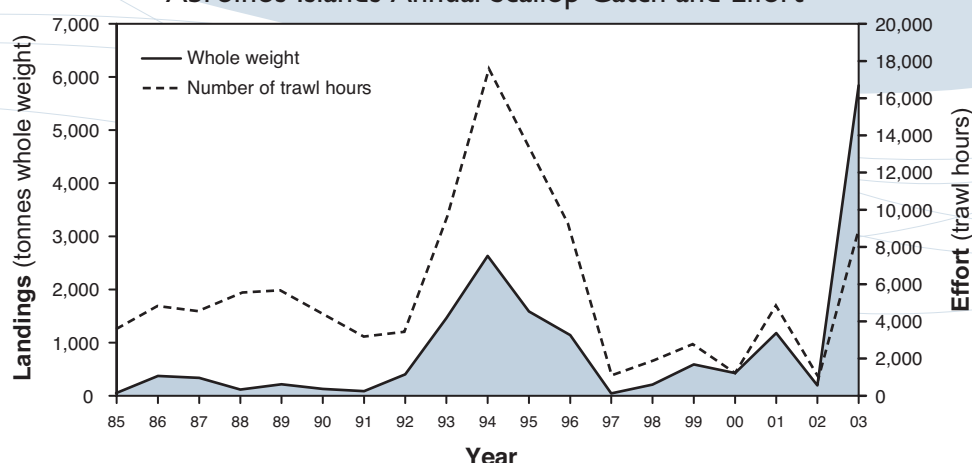
A final application is being developed for certification of the AIMWTF as environmentally sustainable under the provisions of the Australian Government *Environment Protection and Biodiversity Conservation Act 1999*. It is anticipated that this will be submitted to the Department of Environment and Heritage in the latter part of 2004.

Discussions are currently occurring between the scallop and rock lobster industries to further delineate sensitive or rock lobster habitats to be avoided by scallop trawlers whilst fishing. Also there has been an increased use of spatial closures when small shell was detected during surveys.

EXTERNAL FACTORS

The high level of recruitment seen in late 2002 following a very low catch season, and the subsequent low abundance of newly recruited scallops on the grounds in late 2003, highlights the dependence of recruitment success upon environmental conditions such as the Leeuwin Current rather than spawning stock levels. It also illustrates the extreme level of annual variability in recruitment. As more years of pre-season survey and fishing season catch and effort data become available, the relationship between environmental factors and recruitment success can be further evaluated, providing a better understanding of the scallop fishery.

Abrolhos Islands Annual Scallop Catch and Effort



ABROLHOS ISLANDS SCALLOP FIGURE I

Annual scallop landings for the Abrolhos Islands and Mid West Trawl Managed Fishery, 1985–2003.

South West Trawl Managed Fishery Status Report

Prepared by M. Kangas, with management input by M. Holtz

FISHERY DESCRIPTION

This fishery includes two of the state's smaller scallop fishing grounds, Fremantle and Geographe Bay. It is a multi-species fishery which targets western king prawns (*Penaeus latisulcatus*) and saucer scallops (*Amusium balloti*) using otter trawls.

Governing legislation/fishing authority

South West Trawl Management Plan 1989
South West Trawl Managed Fishery Licence

Consultation

Department–industry meetings

Boundaries

The boundaries of this fishery are 'all the waters of the Indian Ocean adjacent to Western Australia between 31°43'27" south latitude and 115°08' east longitude where it intersects the high water mark at Cape Leeuwin, and on the landward side of the 200 m isobath'.

The area is further divided into four management zones, with a limited number of operators (indicated in brackets) permitted access to fish within each zone as follows:

| | | |
|--------|--------------------------------|------------|
| Zone A | from 31°43'27" S to 32°16' S | (3 boats) |
| Zone B | from 32°16' S to 115°08' E | (12 boats) |
| Zone C | north-east of Cape Naturaliste | (0 boats) |
| Zone D | Comet Bay off Mandurah | (3 boats) |

Management arrangements

The fishery is managed under an input control system limiting boat numbers, gear sizes and fishing areas. A total of 14

boats are licensed to operate in this fishery, some in more than one zone. Zone A and B boats may fish between 1 January and 15 November and Zone D boats can fish all year round. Although access to Zone C is permitted between 1 July and 30 September, following a Fishery Adjustment Scheme all four authorisations to fish in Zone C were removed prior to the 2003 season. The management plan also includes large closures to protect sensitive coastal habitats (including seagrass beds) and fish nursery areas such as Cockburn Sound, Warnbro Sound and inshore Geographe Bay.

Research summary

Research monitoring of the scallop stocks in this fishery is undertaken utilising fishers' monthly returns data.

RETAINED SPECIES

Commercial production (season 2003):

Prawns 20 tonnes
Scallops 12 tonnes whole weight

Landings

The total landings for the season were 20 t of western king prawns and 12 t whole weight of scallops. The catch of king prawns was 23% up on the catch of 2002 and 27% up on average catch levels for the last five years (14.3 t). The scallop catch was 50% up on catches of 2002. The fishery also lands a mixture of by-product species, of which the most abundant species recorded were 7 t of western sand whiting (*Sillago schomburgkii*), 4 t of blue swimmer crabs (*Portunus pelagicus*) and 2 t each of squid and mixed skates and rays.

Fishing effort/access level

A total of 428 days were recorded as being fished by 6 boats in 2003 compared to 258 days by 8 boats in 2002.

Catch rate

Not available.

Recreational component:

Nil