

Commercial Fisheries

General Overview

The Commercial Fisheries Program is responsible for the management of commercial fisheries throughout Western Australia. This work is undertaken by a team of commercial program officers located in Fisheries WA Head Office in Perth as well as in Regional Offices in Fremantle, Albany, Carnarvon and Broome. Management of the major fishing activities is achieved through formal management plans declared under the *Fish Resources Management Act 1994*, while other forms of fishing activity are managed through a combination of controls derived from the *Fish Resources Management Regulations 1995*, orders under the Act and conditions attached to fishing boat and commercial fishing licences.

The major commercial fisheries rely on relatively high-value, low-volume products for their viability. Tight management controls ensure that species are not over-fished. The management controls may be input controls, such as limitations on the number of licences, seasonal closures and gear restrictions, or output controls (quotas) which directly limit the quantity of fish that can be caught. There are often also permanent closed areas or other measures to protect juvenile or breeding fish or to protect important habitats.

A key factor in the successful management of fisheries is the rational implementation of advice on management issues and industry recognition of the need for a particular management approach. Consultation with industry is a key factor in achieving management approaches which have strong support, and this is achieved through a variety of forums. In the major managed fisheries, management advisory committees (MACs) provide key advice to the Minister for Fisheries, while in the smaller fisheries, Fisheries WA commercial program staff meet directly with industry. Consultation also takes place through the production of discussion papers on proposed fisheries management arrangements. MACs currently provide advice on the West Coast Rock Lobster, Shark Bay Prawn, Shark Bay Scallop, Exmouth Gulf Prawn and Abalone Managed Fisheries, the purse seine fisheries, the demersal gillnet and longline fisheries, and the Northern Demersal Scalegfish Interim Managed Fishery.

The five major commercial fisheries (West Coast Rock Lobster, Abalone, Exmouth Prawn, Shark Bay Prawn and Shark Bay Scallop) operate in a cost-recovered management environment, which requires that

licensees in these fisheries cover their cost of management. Cost recovery has been phased in over a number of years, with the level of cost recovery reaching 100% of agreed cash costs in 1998/99. The remaining fisheries pay a contribution towards their management costs of 1.35% of their gross value of production (GVP). All fisheries also contribute to the Development and Better Interest Fund at a rate of 0.65% of their GVP.

KEY ACHIEVEMENTS

During 1998/99, a number of milestones were achieved in commercial fisheries, including:

- Gazettal of the Broome Prawn Managed Fishery Management Plan.
- Implementation of Fisheries Adjustment Schemes for the Leschenault, Hardy, Swan-Canning and Mandurah estuaries.
- Release of a discussion paper on the future management of the South Coast Estuarine Fishery.
- Development of a trial for crab pots in Mandurah estuary.
- Release of draft policy on developing fisheries.
- Vessel Monitoring System (VMS) fully operative in Northern Demersal Scalegfish Interim Managed Fishery fleet and undergoing trial in the Shark Bay Prawn and Shark Bay Scallop Managed Fisheries.
- Development of a program to examine bycatch and bycatch reduction devices in the Shark Bay Prawn Managed Fishery (with Fish and Fish Habitat Protection Program).
- Gazettal of a major amendment to the Abalone Management Plan incorporating the recommendations of the Abalone Management Consultative Group.
- Finalisation of extensive consultation on inshore crab fishing.
- Implementation of interim management arrangements for crab fishing in Geographe Bay.
- Development of new crab fishing arrangements for Shark Bay.

West Coast Rock Lobster Managed Fishery

MANAGEMENT OVERVIEW

In 1998/99, as in the previous six seasons, the policy objective for the West Coast Rock Lobster Managed Fishery was to rebuild the breeding stock to provide future recruitment of young lobsters to the fishery. Although catches in 1991/92 and 1992/93 were high, a major concern was advice received from the Fisheries Research Division that the breeding stock of

rock lobster had been fished down to about 15% of the unfished or virgin size. This was below the internationally accepted safe level of approximately 25% of the original breeding biomass.

A management package, attempting to address this problem by leaving more breeding stock in the water, was introduced for the 1992/93 season. The effect of the package in enhancing the breeding stock was not considered sufficient and a new package was developed during 1993 by the Rock Lobster Industry Advisory Committee (RLIAC). This new package for the 1993/94 season aimed at leaving an additional 1,000 tonnes (approximately 10% of the average catch) of lobsters in the water at the end of that season.

Management controls included an 18% reduction in the number of lobster pots allowed to be used by each boat, a total ban on taking females in breeding condition (setose and tarspot), and an increase in the legal minimum size of lobsters from 76 mm to 77 mm from 15 November to 31 January. Separate maximum sizes for female lobsters in the north and south of the fishery were also set to reflect the latitudinal differences in both growth and maturation rates of the lobsters.

This package of management measures was originally intended to remain in place for two years while RLIAC developed options for the long-term management of the fishery. However, as the package appeared to be succeeding in its objective of rebuilding the breeding stock, and as its retention was supported by most fishermen, it was extended and has continued through to the 1998/99 season.

Extensive consultation on management arrangements for future seasons took place during 1997/98, with increased focus on the markets for lobsters and an examination of a variety of strategies to optimise the value of the lobster catch. However, most of the fishing industry did not support changes to the season and the management package has remained essentially unchanged.

Since indications are that the management package has been very successful in achieving the objective of rebuilding the breeding stock, no major changes are contemplated for the 1999/2000 season.

The majority of fishermen still appear to be committed to supporting the maintenance of most components of the existing management regime, and particularly those parts that protect breeding females. Nevertheless, some fishermen have questioned the need to maintain the 18% pot reduction and the protection of larger lobsters. Fisheries WA is undertaking research to determine the relative impact of each of the measures designed to protect the breeding stock so that better informed decisions can

be made about possible changes to the management package.

First draft National Competition Policy Reviews have been undertaken for both the processing and catching sectors, and both have raised interesting issues about alternative management regimes. In addition to the anticipated question about the alternative of output- or quota-based management, these papers have also suggested that a less regulated processing sector may provide greater community benefits. A proposed Parliamentary Inquiry into the industry by the Standing Committee on Ecologically Sustainable Development may also have implications for the future management of the fishery.

Catch in the 1998/99 season is anticipated to be a record high, in excess of 13,000 tonnes. While the Asian economic crisis has decreased prices in some traditional markets the industry has, through aggressive marketing, been able to develop new market opportunities in Europe, China and the United States, as well as expanding domestic consumption, both of which have contributed to maintaining healthy prices for rock lobster.

COMPLIANCE AND COMMUNITY EDUCATION OVERVIEW

Management of this fishery has achieved a continued high level of compliance during the 1998/99 season through a combination of sea and land patrols. Fisheries Officers carried out licence and gear inspections and provided advice to industry during the season.

The infringement notice system was in its fourth year of operation. There were 305 infringement warnings given, 46 infringement notices issued and 8 breach reports filed in the 1998/99 season (Rock Lobster Table 1).

Significant breaches during the season included a conviction for removing lobsters from another fisherman's pots which resulted in a 12-month cancellation of the offender's commercial fishing licence. A further conviction was recorded for stretching of the carapace (to achieve 'legal length'), and a commercial fishing licence cancellation is being heard before the Objections Tribunal. Conviction was also gained for possession of totally protected fish by holding of under-sized rock lobster in pots pending gauge change from 77 mm to 76 mm.

The lobster processing sector demonstrated a high level of compliance this season for the 1997/98 season.

Rock Lobster Table 1 Summary of commercial rock lobster breaches, warnings and infringements for the years 1997/98 and 1998/99.

Offence Type	1997/98			1998/99		
	Breaches	Warnings	Infringements	Breaches	Warnings	Infringements
Closed Season	2	0	1	0	0	0
Illegal Gear	1	1	4	2	1	1
Obstruction	1	0	0	-	-	0
Processing	0	0	3	1	-	2
Records>Returns	2	4	1	0	0	0
Spawners	3	54	6	0	114	9
Under Size	10	173	36	3	190	34
Excess Gear	2	0	3	0	0	0
No Licence	2	0	0	0	0	0
Over Size	0	10	1	0	0	0
Closed Waters	0	0	0	2	0	0
Other	1	1	0	2	1	0
Total	24	243	55	8	305	46

RESEARCH OVERVIEW

Research activities continued to focus on forecasting future catch levels, monitoring of breeding stock levels and assessing migration and growth rates. During the year, a new simulation model to assess management options for maximising the value of the fishery was developed. In addition, a major document detailing the effects on the fishery of the five years of stable management 1993/94 to 1997/98 was presented to industry. The objective of the management package, to return breeding stock abundance to safe levels, was shown to have been achieved by the breeding stock indices provided by the Fisheries Research Division.

The following status report summarises the research findings for this fishery.

Fishery Status Report

Main Features

Stock assessment complete:

Yes

Exploitation status:

Fully exploited

Breeding stock levels:

Adequate

Previous catch projections for year 1997/98:

10,000-11,000 tonnes (commercial)

Catch current season (1997/98):

10,463 tonnes (commercial)

continued over

Estimated annual value (to fishers) for year 1997/98:

\$210 million

Catch projection next year (1998/99):

13,000-14,000 tonnes (commercial)

Recreational component (1997/98):

807 tonnes (estimated)

Boundaries and Access

The boundaries of this fishery are 'the waters situated on the west coast of the State bounded by a line commencing at the intersection of the high water mark and 21°44' south latitude drawn due west to the intersection of 21°44' south latitude and the boundary of the Australian Fishing Zone; thence southwards along the boundary to its intersection with 34°24' south latitude; thence due east along 34°24' south latitude to the intersection of 115°8' east longitude; thence due north along 115°8' east longitude to the high water mark; thence along the high water mark to the commencing point and divided into zones'. The fishery is managed in three zones: south of latitude 30° S (C Zone), north of latitude 30° S (B Zone) and, within this northern area, a third offshore zone (A Zone) around the Abrolhos Islands.

Annual Production

Main fishing method

Rock lobster pots.

Landings

Trends in the annual catches from the West Coast Rock Lobster Managed Fishery (WCRLMF) are shown in Rock Lobster Figure 1. The Australian Bureau of Statistics catch recorded from 1944/45 to 1970/71 was replaced by processors' production

figures in 1971/72. The 1997/98 catch in the WCRLMF was forecast from puerulus settlement to be 10,000–11,000 tonnes. Processors' figures show the catch from the WCRLMF for the 1997/98 season was 10,463 tonnes, 3.6% below the long-term average catch of 10,850 tonnes but 5.7% greater than the previous season's 9,902 tonnes. In 1997/98, the catches in A Zone and B Zone were 1,792 tonnes and 3,573 tonnes respectively, 0.2% higher and 1.2% lower than the previous season; however, the C Zone landings of 5,098 tonnes were 13.4% better than the 1996/97 season.

In 1997/98, a survey of recreational rock lobster fishers estimated that they caught approximately 807 tonnes, which was a 56.4% increase on the catch estimate for 1996/97 of 516 tonnes. The increase apparently was due to larger catches in the southern sector, adjacent to the metropolitan area. These estimates provide a good 'index' of recreational catches, however the method of estimating the recreational catch is presently the subject of a research review.

The total catch of western rock lobster from this fishery (commercial and recreational) was 11,270 tonnes, 8.2% higher than the previous season's catch of 10,418 tonnes.

Fishing effort

The nominal fishing effort for 1997/98 was 10.73 million pot lifts, 1.1% higher than the 10.62 million pot lifts for the previous season (Rock Lobster Figure 1). The 1997/98 nominal effort for the A, B and C Zones of the WCRLMF was 1.25 million, 3.84 million and 5.64 million pot lifts respectively, similar to the previous season's 1.2, 3.94 and 5.48 million pot lifts. Effort equivalent to 0.83 million commercial pot lifts was used by the recreational fishery to land their catches. This was 48% higher than the 0.56 million pot lifts used in 1996/97.

The total effort used in the WCRLMF during 1997/98 was 11.56 million pot lifts, 3.4% higher than the 11.18 million pot lifts made in 1996/97.

Catch rate

Catch per unit of fishing effort in 1997/98 increased slightly (5.4%) over the rate in 1996/97 (0.98 and 0.93 kg/pot lift respectively) (Rock Lobster Figure 2). Trends in catch rates show a 'cyclical' pattern due to variations in puerulus settlement; however, the overall decline in catch rate (abundance) from the 1950s to the early 1990s (Rock Lobster Figure 2) was one of the contributory reasons for the introduction in 1993/94 of management arrangements designed to rebuild breeding stock levels. The catch rates in the past five seasons have remained relatively high due to the effects of the management package introduced in 1993/94.

Stock Assessment

The stock remains fully exploited. The current management arrangements introduced in 1993/94, aimed at rebuilding the breeding stock, have achieved their objective. The 18% pot reduction and minimum size increase to 77 mm carapace length (15 November to 31 January) has meant that a proportion of the 'whites' catch has been shifted through to the 'reds' fishery in each season since 1992/93. However, because of the geographic variation in the size distribution of lobsters, this had a greater impact in the northern regions than in the south. Greater overall survival meant that some lobsters grew to a larger size before contributing to the catches in each of those years, with greater recruitment to the breeding stock and a flow of product through to following seasons.

Pot usage under the management arrangements introduced in 1993/94 remained at 82%, or 56,819 pots allowed to be used during 1997/98.

Industry continued to restructure and a further eight vessels have left the fishery since August 1996, bringing the number of active commercial rock lobster boats in the fleet to 602. Since latent effort has largely been removed from the fishery at this stage, pot reductions are now an effective tool with which to manage fishing effort in the WCRLMF. However, effort 'creep' has become evident, with nominal effort levels now 3.4% greater than the 10.38 million pot lifts of 1993/94 and 1994/95. Therefore, effective fishing effort continues to increase, not only from effort 'creep' but also from the improved use of sophisticated fish-finding and navigational technology, resulting in an increase in efficiency. This will have to be factored into both future management decision-making and stock assessments.

Breeding Stock Levels

The north and south coastal fishery-dependent spawning stock indices, which are based on commercial monitoring data, are presented in Rock Lobster Figure 3, and the fishery-independent survey of the breeding stock is presented in Rock Lobster Figures 4 and 5.

Both indices show that there was a substantial response to the management package, aimed at improving egg production, introduced for the 1993/94 season. Current indications from both methods used to monitor the breeding stock index are that egg production has recovered significantly since 1993/94 and has now reached a rate around the target of 25% of unfished breeding stock levels.

Fishery-independent breeding stock surveys to monitor the strength of egg production in the fishery will be continued. Indices derived from fishery-based data, however, may become distorted as a result of the

effects of technology on fishing effort efficiency, variations in the distribution of fishing effort in response to annual variations in puerulus settlement and subsequent recruitment to the fishery, and/or market-driven factors.

Catch Projection for Year 1998/99

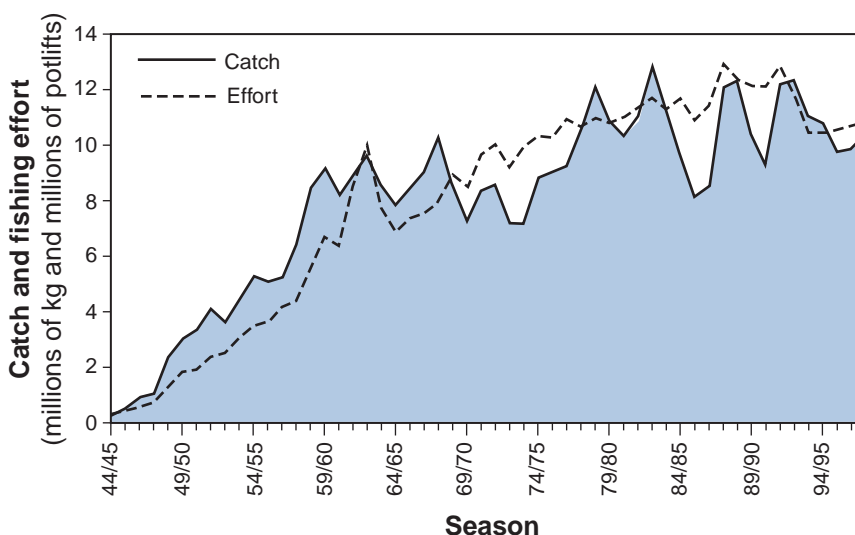
Total catch predictions for the WCRLMF are now made by summing the regional catch predictions based on puerulus settlement at the Abrolhos Islands (A Zone), Seven Mile Beach (B Zone) and Alkimos (C Zone) (Rock Lobster Figure 6). Seasons 1998/99 and 1999/2000 are expected to produce around 13,000-14,000 tonnes and 14,000-14,500 tonnes respectively, as a result of exceptional puerulus settlement in 1995/96 and good settlement in 1996/97 (Rock Lobster Figure 6).

Product Value for Year 1997/98

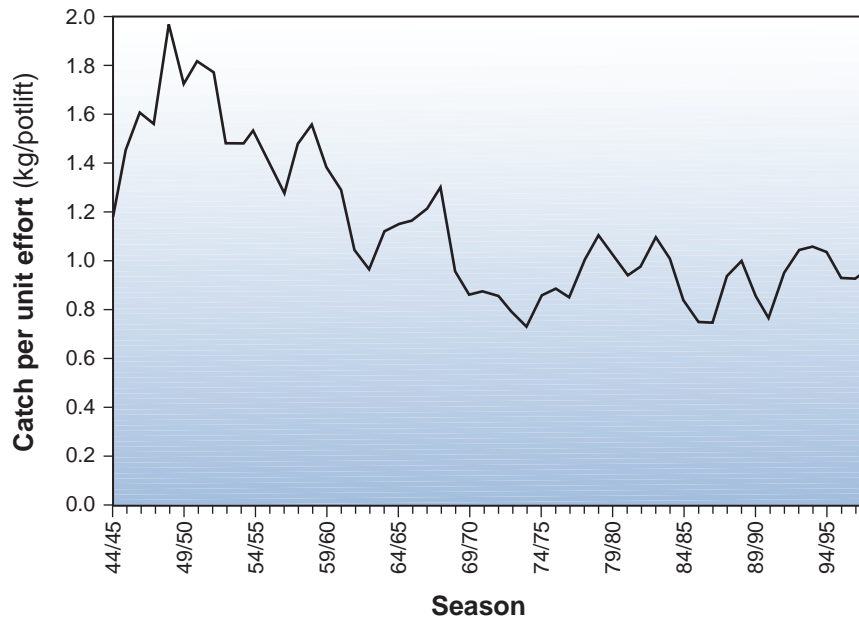
The prices fishermen received for the western rock lobster varied considerably throughout the season. In the northern and southern sectors of the fishery the average prices paid to the fishermen in 1997/98, of \$20.20/kg and \$19.25/kg respectively, were about 26% lower than the previous season. The value of the landed catch in the WCRLMF was approximately \$210 million in 1997/98.

General Comments

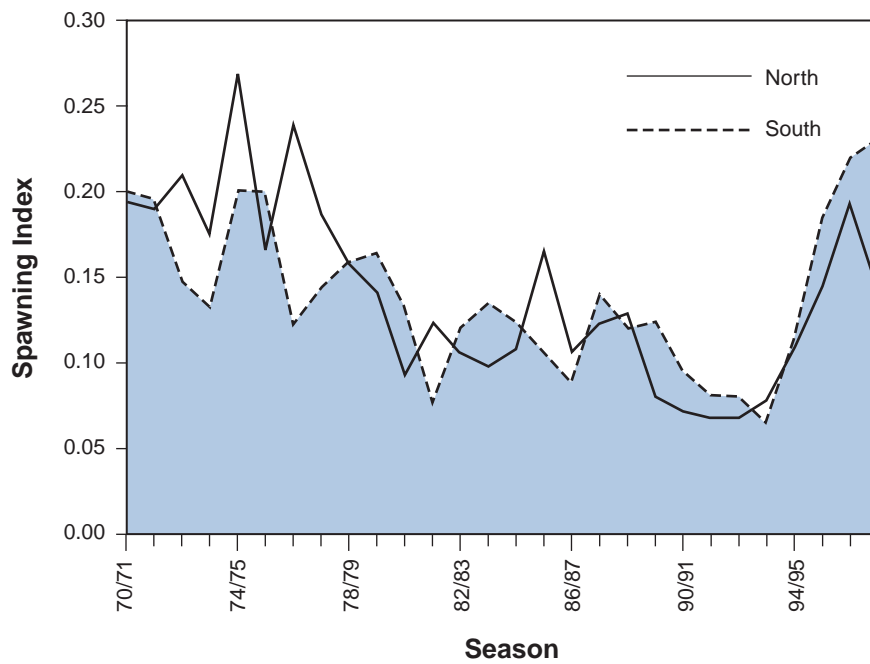
The current management package has achieved its objectives of reducing the exploitation rate, increasing the breeding stock and allowing egg production to be maintained at the target levels. Catches are forecast to increase in 1998/99 and 1999/2000, then to decline to average levels as result of recent lower puerulus settlement. The increased recreational catch in 1997/98 was primarily due to a greater number of licences being issued and a higher proportion of licensees actually undertaking some fishing activity. This response may have been due in part to the higher forecasts for catches in the southern sector of the fishery for the 1997/98 season.



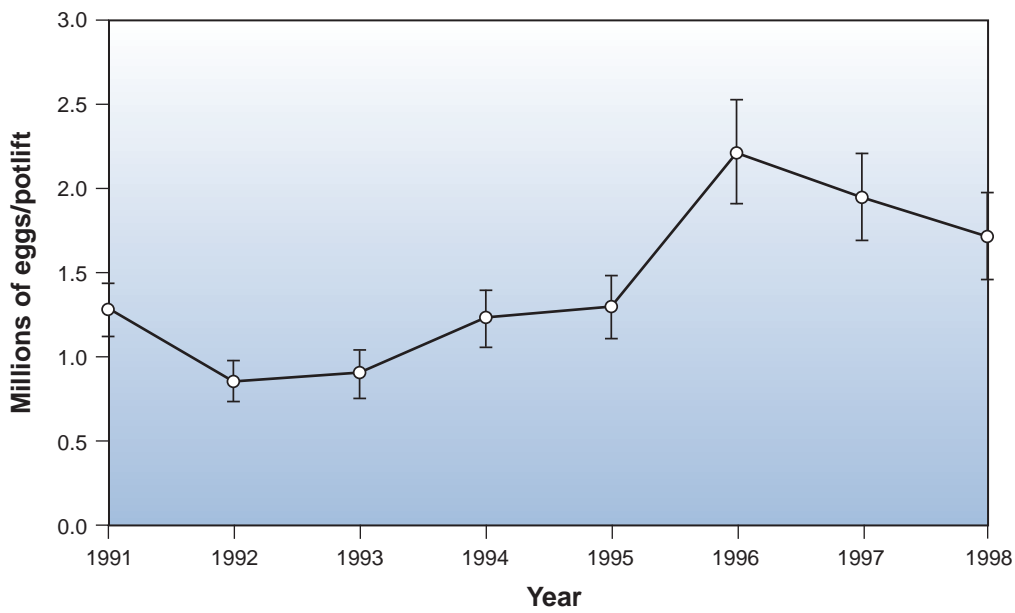
Rock Lobster Figure 1 Annual catch and nominal fishing effort from fishers' compulsory monthly returns for the West Coast Rock Lobster Managed Fishery from 1944/45 to 1997/98.



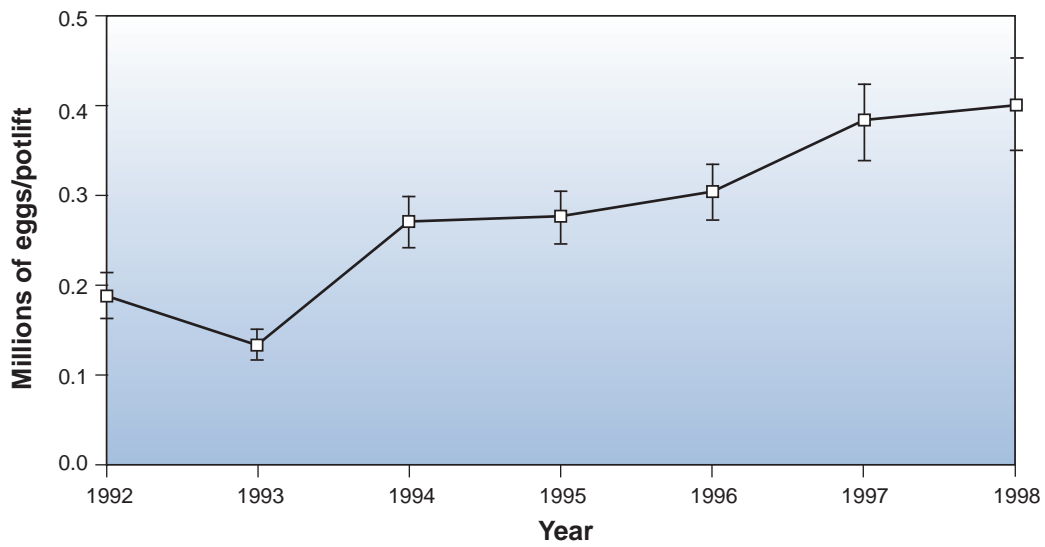
Rock Lobster Figure 2 Annual catch rate (kg/pot lift) for the West Coast Rock Lobster Managed Fishery from 1944/45 to 1997/98.



Rock Lobster Figure 3 Time series of monitoring spawning stock index (an index of numbers of eggs/pot lift integrated over the whole season) for the north (Jurien and Dongara) and south (Fremantle and Lancelin) coastal regions.



Rock Lobster Figure 4 Egg production indices as measured by the independent breeding stock survey at the Abrolhos Islands.



Rock Lobster Figure 5 Egg production indices as measured by the independent breeding stock survey at the five coastal sampling sites.