

**The western rock lobster fishery
2003/2004 and 2004/2005**

S. de Lestang and E.H. Barker



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Enquiries:

WA Fisheries and Marine Research Laboratories, PO Box 20, North Beach, WA 6920

Tel: +61 8 9203 0111

Email: library@fish.wa.gov.au

Website: www.fish.wa.gov.au

ABN: 55 689 794 771

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S. de Lestang and E.H. Barker

Western Australian Fisheries and Marine Research Laboratories

PO Box 20, North Beach WA 6920

Abstract

The 2003/2004 season produced the second highest catch recorded to date (13,684 tonnes), up markedly on the previous season's catch of 11,415 t. Nominal effort in 2003/2004 (10,180,444 pot lifts) did not vary by nearly as much as did the catch, with total pot lifts declining only slightly (<1%) on the previous season. Season 2004/2005 produced a catch of 12,236 tonnes, down on the previous season's catch of 13,684 t. Similar to the catch, total nominal effort in 2004/2005 (9,789,671 pot lifts) also declined fairly substantially (4%) on the previous season. Recreational catches for the above two seasons were also down on their respective previous seasons by 52 and 11% each.

Puerulus settlement coast wide during 2003/2004 was below average, especially towards the southern and northern extremes of the fishery (Port Gregory and Jurien Bay south). This was also the case during the following season (2004/2005), although the poor settlement was more evenly spread across the entire fishery. Catch predictions from these two settlement periods suggest that the 2006/2007 and 2007/2008 seasons will produce slightly below average catches.

The total value of the catch ex-vessel for the 2003/2004 and 2004/2005 seasons was approximately \$260 million. This was down slightly from the previous season (\$279 million during 2002/2003), and attributable to the very low beach price paid to fishermen in these two seasons (\$19 and \$21.50, respectively). A poor exchange rate with the US (average ~ \$0.75) and a large amount of lobsters flooding onto the market were to blame for the low beach prices.

Egg production in the Southern Zone of the fishery during 2003/2004 and 2004/2005 remained at a very healthy level, down only slightly on the record level achieved in 1999/2000. The Northern Zone however saw a continued decline in egg production, towards the minimum required level (i.e. that of 1980/1981). This decline in egg production was the impetus behind the development of an options paper, released in early 2004, aimed at reducing effective effort in the fishery by 15% in Zone B and 5% in Zone C. Through consultation with industry, agreement was reached on a set of effort reduction measures, which have now been endorsed by the Minister and were implemented in the 2005/2006 fishing season.

1.0 Introduction

The fishery for the western rock lobster, *Panulirus cygnus*, is the most important single species fishery in Australia and an important source of export income for Western Australia. During the two seasons covered by this report (2003/2004 and 2004/2005), Western Australia produced annual rock lobster catches of 13,700 and 12,200 tonnes. The fishery is governed by a complex management system designed to limit the harvest rate to an acceptable level and to enforce regulations such as a legal minimum size and full protection for breeding female lobsters (Bowen 1971, Hancock 1981, Bowen and Hancock 1989, Phillips and Brown 1989). Thus, it is important to monitor the state of the fishery constantly, both to ensure that the fishing effort remains within acceptable limits and that the regulations are adequately performing their function of maintaining sustainable catches and an adequate level of egg production. Inherent in this ongoing monitoring, is careful examination of changes in fishing practice and gear modifications, because these innovations can lead to increases in efficiency which may not be detectable through the usual calculations of fishing effort and therefore affect the real level of fishing effort (Brown, Caputi and Barker 1995), but which may cause declines in egg production.

This paper is the twenty second in a series of reviews of the rock lobster seasons which discuss fishing practice, catches, fishing effort, mean size and various other factors which affect the rate of exploitation of the stock. This knowledge provides a good understanding of the status of the fishery and is documented herein to ensure historical data for the fishery are readily available. Each review follows a standardised format to allow season to season comparisons and examination of long term trends. This particular report covers the two seasons 2003/2004 and 2004/2005. It includes, as an appendix, the Commercial Fisheries Production Bulletins issued for these two seasons.

2.0 Methods

Catch and effort data were extracted from figures obtained from fishermen's monthly returns, recorded on a 1° x 1° block basis (Fig 1a) supplied from the Department of Fisheries catch and effort system (CAES) and from voluntary rock lobster research log books. Catch composition and mean size information was gathered from measurements made by the Department of Fisheries research staff aboard commercial vessels fishing from Dongara, Jurien, Lancelin, Abrolhos, Fremantle and Kalbarri. Information on trends in fishing practice was gathered principally from interviews with fishermen at various ports as well as from comments made in research log books.

The percentage of rock lobster fishers who submitted rock lobster research records voluntarily during 2003/2004 and 2004/2005 was as follows:

Season	*Percentage
2003/2004	35.3
2004/2005	33.3

*This is based on returns received in December.

3.0 Results

3.1 Catch and effort data

The fishing season extends from 15 November to 30 June following and may be subdivided into three distinct components:

- (i) the “whites” fishery (George 1958) begins in late November, as pale-coloured newly-moulted rock lobsters migrate offshore from the shallow reef areas to the deeper water breeding areas, and finishes arbitrarily;
- (ii) the “coastal reds” fishery begins on 1 January and ends on 30 June; and
- (iii) the Abrolhos Islands fishery, which is restricted to the period 15 March to 30 June.

In fishing seasons prior to 1977/78, both the coastal and the Abrolhos Islands fisheries ended on 14 August. These seasons were shortened by six weeks in 1977/78 as a conservation measure (Hancock 1981). During the period covered by this report, the “whites” run commenced (defined as when the initial large increases in catches of “whites” occurs) in the Fremantle, Jurien and Geraldton areas approximately at the following times:

Season	
2003/2004	The “whites” run commenced approximately on 7 December in Fremantle, 11 December in Jurien and 2 December in Geraldton.
2004/2005	The “whites” run commenced approximately on 23 November in Fremantle, 28 November in Jurien and 28 November in Geraldton.

Total catches (kg) and nominal fishing effort (number of pot lifts), recorded by fishermen in their monthly returns, were as follows:

Catch and effort	2003/2004	2004/2005
“Whites” catch (15 Nov-31 Dec)	3,842,005	3,903,016
“Whites” effort (15 Nov-31 Dec)	2,250,171	2,223,152
“Coastal reds” catch (1 Jan-30 June)	7,948,750	6,142,048
“Coastal reds” effort (1 Jan-30 June)	6,734,136	6,359,264
Abrolhos catch (15 March-30 June)	1,894,065	2,191,051
Abrolhos effort (15 March-30 June)	1,196,137	1,207,255
Total catch	13,684,820	12,236,115
Total effort	10,180,444	9,789,671

	2003/2004	2004/2005
B Zone Catch	3,528,182	3,243,538
B Zone Effort	3,555,785	3,433,518
C Zone Catch	8,262,573	6,801,526
C Zone Effort	5,428,522	5,148,898

Abrolhos catch (A Zone) figures are derived from statistical blocks 27131, 28130, 28131, 28141, 29131, 29141 and 97011 to 97015 (Figures 1a-c).

Catch figures are corrected to match the independent processor's monthly production figures, to account for any unreported catches or missing records in the monthly returns. However, since season 1992/93 (Chubb and Barker 1998) the difference between the two figures varied by less than 0.2% and therefore is considered negligible.

Not included in the above production figures are the estimated annual recreational catches. These are based on the mail survey and are not adjusted for any recall bias:

Season	Annual recreational catch (kg) ¹	Percentage of commercial catch
2003/2004	428,000	3.1%
2004/2005	379,000	4.6%

Figure 2 shows comparative commercial total catch (excluding the recreational component), nominal fishing effort (*i.e.* the number of pot lifts [pulls] not adjusted for efficiency increases) and catch per pot lift data from 1944/45 to 2004/2005. Fishing effort is calculated from the average number of pots and number of days fished recorded by fishermen in their monthly returns. In the annual reports prior to 1977/78 fishing effort was calculated as effective fishing effort by the method of Gulland (1969). Catch and effort data from various statistical blocks (Figures 1a and b), are shown in Tables 1 and 2 with catches expressed by weight in kilograms and fishing effort as number of pot lifts. Tables 3 and 4 show catch per pot lift data for the same statistical blocks. The total levels of fishing effort recorded for each of the 2003/2004 and 2004/2005 seasons were as follows:

Season	Total fishing effort	Variation on previous season
2003/2004	10,180,444	0.3% down
2004/2005	9,789,671	4.0% down

3.2 Exports and grade categories

This section is based on data provided by all processing establishments from Fremantle to Geraldton. Over the years, the export of rock lobster products has changed from predominantly frozen raw tails to a mixture of live, frozen whole cooked, frozen whole raw and tails. Thus to compare the grade composition of the catch over the years, all product lines have been changed to the equivalent in numbers of cartons of tails (11.34 kg) in each grade. The following table represents each season's total production for all grades with all product lines expressed as percentages of the total equivalent number of cartons of tails by grade.

¹ The recreational catches given in previous reports in this series, up to and including the 1994/95 season, were adjusted by a factor which estimated the illegal take of rock lobsters. This practice has been discontinued and the recreational catch is given here only as the estimated catch as actually reported by recreational fishers through research surveys. Thus, in the 1994/95 season report, the recreational catch was reported as 526 tonnes. Without the correction factor it was 308 tonnes. For more information see Melville-Smith, R. and Anderton, S.M. (2000) Western rock lobster mail surveys of licenced recreational fishers 1986/87 – 1998/99. *Fisheries WA Fisheries Research Report No. 122.*

Percentage of each grade packed

Grades	Season	A	B	C	D	E	F	G	H
		(140-179g)	(180-239g)	(240-279g)	(280-359g)	(360-479g)	(480-599g)	(600-667g)	(>668g)
South (Augusta to Wedge Is)	2003/2004	35.77	33.23	15.00	9.45	3.20	1.56	1.32	0.48
	2004/2005	32.09	33.98	15.74	10.08	4.21	2.29	1.28	0.33
Central** (Green Islets to Green Head)	2003/2004	54.86	30.78	7.90	3.84	1.87	0.56	0.18	-
	2004/2005	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
North* (Leeman to Denham)	2003/2004	41.75	39.12	10.27	5.26	2.02	0.97	0.56	0.04
	2004/2005	40.23	38.40	10.65	6.32	2.72	1.19	0.49	-
Total	2003/2004	39.11	35.77	12.64	7.39	2.63	1.26	0.94	0.27
	2004/2005	35.82	36.01	13.41	8.36	3.52	1.78	0.92	0.18

Note: *North includes the Abrolhos Islands.

**Records only until March, inclusive for 2003/2004 season. Not available for 2004/2005 season. Processing plant closed down. Lobsters of central area moved to south and/or north area.

3.3 Mean size

Samples of rock lobsters were measured aboard commercial vessels (from Fremantle, Lancelin, Jurien, Dongara, Kalbarri and the Abrolhos Islands) in four depth categories. The sample included all commercial size rock lobsters, plus some undersize which would have been reduced in number due to the escape gap (54 mm) selection (Bowen 1963; Brown and Caputi 1986), breeding females and females above the maximum size limit. Mean carapace lengths of males and females taken throughout the fishing season from the various depth categories at all sites, are compared in Tables 5 and 6. This shows that larger lobsters are caught in deeper waters at all locations and Fremantle has larger lobsters than other locations. The omissions in the tables are due either to fishermen not fishing the area in question or to some circumstance which prevented the data from being collected (vessel breakdown, etc.).

3.4 Number of boats and pots

The number of boats licensed to fish for rock lobster in the various zones is controlled. Provided certain conditions are met, boat/licence owners are able to transfer their pot entitlement between fishing zones A and B (off season). The zones are defined as follows:

- Zone A – see Figures 1b and c;
- Zone B – coastal fishery from 21°44' S to 30° S excluding the A zone;
- Zone C – the waters between 30° south latitude and 34°24' south latitude excluding all the waters on the south coast east of 115°8' east longitude;
- Big Bank – see Figure 1c.

The number of boats licensed in the various zones was as follows:

Zone	Total number of licensed boats					
	2003/2004 (as at 26/7/2004)	Boats actually fishing (2003/2004)	% Difference on previous season (Boats actually fishing)	2004/2005 (as at 18/12/2004)	Boats actually fishing (2004/2005)	% Difference on previous season (Boats actually fishing)
A	150	139	-4.1	149	136	-2.2
B	150	139	+1.5	150	130	-6.5
C	302	276	-1.8	301	269	-2.5
Total	602	554	-1.6	600	535	-3.4

Listed below are the numbers of licensed pots by the various zones for the seasons 2003/2004 to 2004/2005:

Zone	Number of licensed pots	
	2003/2004 (as at 26/7/2004)	2004/2005 (as at 8/12/2004)
A	17,178	17,653
B	16,368	15,892
C	35,736	35,634
Total	69,282	69,179

Note: Under the current management arrangements only 82% of these pots were allowed to be fished.

3.5 Forecast of recruitment

The settlement of puerulus on collectors of artificial seaweed along the coast is monitored monthly on the full moon.

Annual indices of puerulus settlement to predict future recruitment were based on the mean of the number of puerulus settling per collector at Abrolhos, Seven Mile Beach and Alkimos (Caputi et al. 1995). To ensure comparisons with historical data presented in this series of reports, the total catch and average puerulus settlement from the Jurien and Seven Mile Beach sites are given in Figure 3.

Research indicates that puerulus settlement three years prior to a season provides a significant proportion of new recruits in the reds catch for that season, while the puerulus settling four years prior to the season of catch provides the majority of the whites catch (Caputi, et al. 1995).

2003/2004

Puerulus settlements in 1999/2000 (122), and 2000/2001 (190) produced the near record commercial catch of 13.6 million kg in 2003/2004.

2004/2005

Puerulus settlements in 2000/2001 (190) and 2001/2002 (118) produced an above average commercial catch of 12.1 million kg in 2004/2005.

3.6 Introduction of new legislation

Note: While these reports detail the legislative changes applicable to the Western Rock Lobster Fishery, it has been past policy to include legislative changes related to all rock lobster fisheries in Western Australia for information. This policy is continued herein.

2003/2004

On 2 July 2003, the Minister issued under requisition 164 of the Fish Resources Management Regulations 1995, guidelines in respect of the Assessment of Applications for Rock Lobster Processing Authorisations and Imposing License Conditions. This was published by the Department of Fisheries as Ministerial Policy Guideline No. 18.

From 22 June 2004 the West Coast Rock Lobster Fishery Management Plan Amendment 2004 amended the date by which the second and final payment fees by instalments were due. Schedule 7 was amended in subclause (b) by deleting 1 January and replacing by 1 February and in subclause (c) by deleting 1 April and replacing by 1 May.

The above Amendment, for reasons of a more orderly process, amended the date by which the final licence renewal fee instalment may be paid, from 1 October 2003 to 1 November 2004.

From 22 January 2004 Fish Processors Licence No. 1066, was transferred from Batavia Coast Fisheries P/L of Geraldton to Lobster Australia P/L of North Fremantle.

The West Coast Rock Lobster Fishery Management Plan Amendment (No. 3) 2003, removed the maximum pot holding restriction of 150 pots, known as the “150 rule”, in the Western Rock Lobster Fishery. This amendment came into effect from 11 July 2003. The minimum pot holding of 63 pots is to remain.

A number of other minor amendments, viz. rounding of the number of units within the unitised West Coast Rock Lobster Fishery, definition of “take”, creation of new Managed Fishery Licences and references to Director in the Act, have been changed to Executive Director for uniformity. Details of all these amendments are to be found in the Management Plan.

From 7 November 2003, for the period of the 2003/2004 rock lobster season the West Coast Rock Lobster Fishery Management Plan Amendment (No. 4) 2003 removed the 63 unit limit on temporary transfers. This change was brought about to accommodate industry needs and to facilitate greater efficiencies with the Department.

Following the adoption of the Geocentric Datum of Australia (GDA), previously referred to as Australian Geodetic Datum (AGD), the West Coast Rock Lobster Management Plan 1993, Windy Harbour – Augusta Rock Lobster Management Plan 1987 and West Coast Rock Lobster (Recreation) Fishing Notice 1992 were amended to re-describe the boundary line at Cape Leeuwin from 115°08' east longitude to 115°08.091' east longitude. This amendment was gazetted in the Government Gazette WA on 28 October 2003.

From 28 October 2003, clause 2 of the Prohibition on Taking Rock Lobsters (Seasonal Closures) Amendment Order 2003 was deleted; this deleted all reference to Australian Geodetic Datum (AGD) in the Order. All co-ordinators in subsidiary legislation are now referred to as Geocentric Datum of Australia (GDA) which is contained in the Fish Resources Management Act 1994.

From 28 October 2003, Clause 2 of the Fish Resources Management Act 1994, Prohibition on Taking Rock Lobster (Abrolhos Islands) Amendment Order 2003 was deleted, thereby removing reference to Australian Geodetic Datum (AGD) and replaced by Geocentric Datum of Australian (GDA).

From 21 May 2004, Prohibition on Fishing for Rock Lobster (Gnarabup, Hamelin Bay and Cowaramup Bay) Order 2004. Order No. 17 of 2004, prohibited fishing for rock lobster in three areas of the Capes region, in vessels greater than 8 metres in length. This closure was implemented to prevent interaction between commercial rock lobster vessels, surfers and recreational fishers etc. Details of the closures can be found in the Schedule of order No. 17 of 2004.

There are other areas of the State in which fishing has been prohibited and this may include rock lobster fishing. The “Index of Statues” lists this subsidiary legislation and should be referred to for more detailed information in regard to these closures.

During the 2003/2004 rock lobster season the following scale of licence fees and charges were introduced:

Rock lobster (managed fisheries)	2003/2004
West Coast	\$129.00 per unit
Windy Harbour/Augusta	\$40.80 per pot (fee waived to \$10.66)
Esperance	\$53.61 per pot
Rock lobster pot licence (for areas outside the existing managed rock lobster fisheries)	\$67.00
Fishing boat licence	
Boats greater than 6.5 metres	\$315.00 access fee
Boats less than 6.5 metres	\$85.00 access fee
Carrier boat licence	\$67.00
Professional fisherman’s licence	\$67.00
Recreational fishing licence (rock lobster)	\$31.00

Processor’s licences (land based establishments)

Rock lobster or prawns only	\$670.00
Rock lobster and prawns only	\$1,335.00
Rock lobster, prawns and wetfish	\$1,655.00
Rock lobster or prawns and wetfish only	\$995.00
Wetfish only	\$325.00
Seagoing processing establishment	\$325.00
Transfer of processor’s licence	\$365.00
Removal of processor’s licence	\$365.00

(The above fees do not include a \$72.00 application to renew fee, which has to be added on.)

2004/2005

The Prohibition on Fishing for Rock Lobster (Cape Naturaliste to Cape Leeuwin) Order (No. 2) 2005 revoked the previous order Rock Lobster (Cape Naturaliste to Cape Leeuwin) Order 2005 and established the following closed areas to rock lobster fishing for vessels over 8 metres in length.

1. Windmills, 2. Three Bears, 3. Yallingup, 4. Moses Rocks, 5. Goannas, 6. Moses Beach, 7. Gallows, 8. Guillotine, 9. Cowaramup Bay, 10. Thunder Bay, 11. Lefthanders, 12. Ellensbrook, 13. Margaret River – Boodjidup Beach, 14. Redgate and 15. Hamelin Bay.

Precise details of the closures are to be found in the schedule to the order.

These closures came into effect during the 2004/2005 season.

On 1 October 2004, under regulation 164 of the Fish Resources Management Regulations 1995, the Minister issued guidelines in respect of the “Assessment of Applications for Authorisations with Regards to Rock Lobster Aquaculture ”. This notice was published by the Department of Fisheries as Ministerial Policy Guideline No. 20.

Under the West Coast Rock Lobster Fishery Management Plan Amendment (No. 2) 2004, clause 14F was deleted and replaced by the following clause.

Temporary transfer of part of an entitlement.

1. Part of an entitlement under a licence may be temporarily transferred to another licence for a period ending at the time the licences expire.
2. Part of an entitlement under a licence may only be temporarily transferred to another licence where-
 - a) Both licences relate to the same zone of the fishery.
 - b) The proposed temporary transfer is of a whole number of units of entitlements.

Precise detail of the actual legislation is found in the gazetted amendment.

During the 2004/2005 rock lobster season the following scale of licence fees and charges were introduced:

Rock lobster (managed fisheries)	2004/2005
West Coast	\$134.00 per unit
Windy Harbour/Augusta	\$10.88 per pot
Esperance	\$56.05 per pot
<i>(All of the above also include a \$67.00 application to renew fee.)</i>	
Rock lobster pot licence (for areas outside the existing managed rock lobster fisheries)	\$67.00 application to renew fee only;
<i>(No application fee only application to renew fee of \$67.00.)</i>	
Fishing boat licence	
Boats greater than 6.5 metres	\$315.00 access fee
Boats less than 6.5 metres	\$85.00 access fee
<i>(Both of the above also include a \$67.00 application to renew fee.)</i>	
Carrier boat licence	\$67.00
Professional fisherman’s licence	\$67.00
Recreational fishing licence (rock lobster)	\$31.00
Processor’s licences (land based establishments)	
Rock lobster or prawns only	\$670.00
Rock lobster and prawns only	\$1,335.00
Rock lobster, prawns and wetfish	\$1,655.00
Rock lobster or prawns and wetfish only	\$995.00
Wetfish only	\$325.00
Seagoing processing establishment	\$325.00
<i>(All of the above fees include a \$72.00 application to renew fee.)</i>	

3.7 Effects of new legislation

Most of the legislative changes introduced during the 2003/2004 and 2004/2005 seasons were of an administrative nature and hence had minimal effect on catch and effort. However, two pieces of legislation, namely the “150 pot rule” and the Capes closures had a direct effect on fishing practice and require further comment.

The State Government committed to remove this rule as a part of the National Competition Policy funding agreements with the Commonwealth Government.

By removing this rule, licensees are now able to aggregate a greater number of units (entitlement to fish, pots) without being impeded by legislation.

As a consequence of this rule change there has been a move within the fleet towards larger pot holdings by some vessels.

The network of closures in the Capes area came about as a result of conflict between the South West Capes community and commercial rock lobster fishers who in recent years moved into the area to take advantage of the higher catches resulting from high recruitment of rock lobsters. The closures now in place cover both commercial and recreational fishers and have effectively resolved the issues.

3.8 Innovations to boats and gear (including costs)

Data supplied by the Department of Planning and Infrastructure showed that during the years 2003 to 2004 the following number of new boats were constructed each fiscal year (1 July to 30 June).

Year	Area	Construction material			Size range (m)	Average size (m)	% Change (No.) on previous season
		Wood	Fibreglass	Aluminium			
2003/2004	North 30° south	-	1	1	13.82-19.00	16.40	
	South 30° south	-	2	10	16.93-18.48	17.65	
	Total	-	3	11			30% down
2004/2005	North 30° south	-	-	3	16.95-18.30	17.85	
	South 30° south	-	-	-	-	-	
	Total	-	-	3			79% down

Listed below are the approximate costs of new aluminium or fibre-glass vessels (approximate size 17 metres) designed specifically for rock lobster fishing. Also listed are the approximate costs of navigational and fish finding equipment; GPS, auto-pilot, radio, radar, colour and black and white echo-sounders, etc., which must be added onto the basic vessel costs. The cost of a new vessel varied greatly, depending on design, type and number of motors, and the type and amount of equipment installed. The prices were supplied by a major builder of vessels for the rock lobster industry:

Season	Cost of vessel (\$)	Approx. average size	Cost of navigational & fish finding equipment (\$)
2003/2004	520,000	17 metres	30,000
2004/2005	525,000	17 metres	25,000

The approximate price paid by fishermen for boat fuel (distillate) during the two seasons is listed below. The price paid by fishermen varied greatly, depending on location (cartage) and distributor. The prices were provided by a major distributor in the northern sector of the fishery. Fishermen are entitled to claim a diesel fuel rebate which also is listed and has not been deducted from the basic fuel price:

Season	Fuel price range (¢/litre)	Approx. average price (¢/litre)	Fuel rebate price range (¢/litre)	Approx average rebate price (¢/litre)
2003/2004	80.34-90.92	84.44	-	38.14
2004/2005	91.37-105	98.36	-	38.14

Note: Fuel price range and average price does not include GST.

Data from research log books showed the following usage of the various types of rock lobster pots by fishermen north and south of 30° S:

Season	Area	TYPE OF POT		
		Stick & Cane Beehive	*Batten	Steel Beehive
2003/2004	North 30° south	-	99%	1%
	South 30° south	1%	99%	-
2004/2005	North 30° south	-	100%	-
	South 30° south	1%	99%	-

*Based on pot usage during December. A few fishers may use stick and cane beehive later in the season.

2003/2004 and 2004/2005 seasons

Two items of electronic technology which have been in use for several seasons are now at a stage of use where they are producing results, e.g. enhancing catches:

“Smart Catch” which comprises a keypad and associated computer program is used for on deck recording of catch and effort data and later analyses of this data. This piece of electronic technology is a further improvement on the original keypad designed by Neil Dorrington.

“Max Sea” which is a highly sophisticated piece of computer driven technology for seafloor discrimination and display. It provides an interface between GPS and echo sounding equipment to produce bathymetric charts of the sea floor.

	PRICE OF POTS (\$)			
	2003/2004		2004/2005	
	North 30° S	South 30° S	North 30° S	South 30° S
Batten ¹				
Steel Bottom	145.00	138.00	149.00-155.00	146.00
Wood Bottom	143.00	138.00	147.00	-
Steel Framed Batten ²				
Steel Bottom	151.00	-	161.00	-
Stick and Cane Beehive ³	-	93.00	-	96.00

1. Batten pots are constructed either with a steel or wooden bottom and come complete with two built-in bait baskets, plastic or wood finger neck, escape gaps, ballast and an anode (in steel bottom pots).
2. Steel framed batten pots are constructed with a removable top and side panels comprised of pine, karri or jarrah battens, depending on personal preference.
3. The price quoted for stick and cane beehive pots does not include ballast or a skid board. Skid boards were approximately \$5.00 per pot.

The above prices were supplied by selected pot manufacturers, however, pot prices vary between manufacturers.

Listed below are the prices charged by a major distributor of commercial fishing gear in the southern sector of the fishery for 11 mm pot rope and 200 mm pot floats. Once again prices varied depending on the distributor and in the case of rope, the country of origin. The prices quoted do not include GST.

Season	Pot rope (\$) (220 m coil)	Country of origin	Pot float (\$) (each)
2003/2004	59.40	South Korea	2.85
2004/2005	88.00	South Korea	3.10

3.9 Bait

Fishermen were able to choose from a wide range of both local and imported fish baits. During the 2003/2004 and 2004/2005 seasons the following baits were the most commonly used. Their popularity is indicated by a scale of 1-10, with 1 being the most popular.

Common names	2003/2004		2004/2005	
	North 30° S	South 30° S	North 30° S	South 30° S
Imported mackerel (<i>Scomber</i> spp.)	1	1	1	1
North Sea herring (<i>Clupea harengus</i>)	2	4	2	4
Australian salmon (<i>Arripis truttaceus</i>) and New Zealand Kahawai (<i>Arripis trutta</i>)	3	3	3	3
Orange roughy heads (<i>Hoplostethus atlanticus</i>)	4	2	4	2
Australian herring (<i>Arripis georgianus</i>)	5	-	7	-
Hoki heads (<i>Macruronus novaezealandiae</i>)	6	6	5	6
Tuna heads (<i>Thunnus</i> spp.)	7	7	8	10
Kangaroo (<i>Macropus</i> spp.)	8	-	9	-
Scaly mackerel (<i>Sardinella lemura</i>)	9	-	10	8
Pilchards (<i>Sardinops neopilchardus</i>)	-	5	-	5
Sardinella (<i>Sardinella aurita</i>)	-	-	6	-
Alfonsino (<i>Beryx splendens</i>)	-	-	-	7
Pig fat	-	-	-	9

Listed below are the retail prices paid by fishermen both north and south of 30° S for a variety of rock lobster baits. Prices quoted here are from selected processing establishments and do vary between suppliers:

Type of Bait	2003/2004 Retail price (\$)		2004/2005 Retail price (\$)	
	North 30° S	South 30° S	North 30° S	South 30° S
Australian salmon per kg	1.20-1.25	1.15-1.30	1.20-1.25	1.30
New Zealand salmon per kg	1.30	1.25	1.30-1.50	1.30
Australian herring per kg	1.20	-	1.20	-
Mullet per kg	0.80	1.10	0.80	-
Scaly mackerel per kg	-	1.15	1.00-1.15	1.15
Imported mackerel per kg	1.05-1.40	1.40	1.10-1.45	1.45
Tuna heads per kg	1.00	1.00	1.00	-
Kangaroo per kg	1.00	1.00	1.00	-
Pilchards per kg	-	1.15	1.20	1.15
North Sea herring per kg	1.10	1.15	1.10	1.15
Orange roughy per kg	1.15	1.05	1.15	1.05
Hoki per kg	1.00	0.95	1.00	0.95
Alfonsino per kg	0.90	-	1.05	-
Sardinella per kg	-	1.00	1.10	1.05

3.10 Distribution of fishing

The distribution of fishing, indicated by catch and effort records in fishermen's returns, is shown in Tables 1 and 2. The pattern of fishing does not vary greatly from season to season and is dependent on the density of rock lobsters in the various depths. Throughout a season, the usual pattern is concentrated fishing in the shallows during November and early December; followed by a move to deeper water fishing during the latter part of December and early January as the "whites" migration is followed; then back to the shallows, with some fishing in the middle grounds, during February, March and April; and finally fishing in mixed depths (mainly shallower), depending on weather and density of rock lobsters, throughout the remainder of the season.

During the period covered by this report, vessels fished for rock lobsters in the extreme northern and southern areas of the fishery, viz. in the area around South Passage in Shark Bay in the north and Augusta in the south. Although small in total quantity most of the rock lobsters caught in the Augusta area (statistical blocks 3414, 3415, 3515, 3516 and 3517) were outside the West Coast Rock Lobster Managed Fishery concession area.

Prior to the 1986/87 season, a small number of vessels fished for rock lobsters in deep water north-west of Kalbarri in an area known as Big Bank (Figure 1c). From 1986/87 through to 2004/2005 up to 119 vessels fished in the above area during January and February of each season, at times taking quantities of migratory rock lobsters in very deep water (70 to 100 fathoms) (Chubb, et al., 1994). Regulations controlling the timing of the commencement of fishing there have been in force since 1991.

3.11 Average number of days worked per boat per month

Listed below are the average total number of days worked per boat each month for both north and south of 30° S latitude and a total for the combined areas:

Month	North* 30° S		South 30° S		Total	
	2003/2004	2004/2005	2003/2004	2004/2005	2003/2004	2004/2005
November	11.1	12.7	9.6	10.9	10.4	11.8
December	28.7	26.5	29.4	28.1	29.0	27.3
January	13.5	11.9	24.5	22.1	19.0	17.1
February	23.1	22.9	25.3	24.1	24.2	23.5
March	24.6	25.0	29.7	28.8	27.2	26.9
April	28.9	28.4	27.1	24.6	28.0	26.5
May	25.3	25.6	21.6	20.4	23.4	23.0
June	19.4	17.7	16.2	14.7	17.8	16.2

*Note: North includes the Aboholos Islands.

3.12 Price of rock lobsters (per kg)

The prices gained by exporters for the sale of rock lobsters are governed by a complex set of factors, e.g. demand, size of lobster, product type, exchange rate, etc. Thus this section deals only with the average price paid to fishermen (the “beach price”) selling their catch directly to licensed rock lobster processors.

2003/2004

The average price paid for the whole season was in both the northern and southern areas approximately \$19.00 per kg. Using the average price per kg, the ex-vessel value of the landed catch was approximately \$260 million.

2004/2005

The price varied throughout the season, however, the average price paid to fishermen in both the northern and southern sectors of the fishery for the whole season was \$21.50. The ex-vessel value of the landed catch was approximately \$260 million.

3.13 Marketing

Each season, depending on market demand, rock lobsters were processed into various product types; frozen tails, frozen whole cooked (boiled), frozen whole raw and live. The processed rock lobsters, with the exception of a small quantity destined for the local market, were exported chiefly to Japan, Taiwan, USA and Hong Kong/China with a very small quantity marketed in France. Whole cooked, whole raw and live were marketed in Japan and Taiwan, live in Hong Kong/China, whilst the frozen tails were exported to the USA.

Average wholesale New York price and grades (oz) for Australian rock lobster tails. Information obtained monthly from Infofish Trade News Monthly:

Grade (oz)	\$US per Kg	
	2003/2004	2004/2005
5	-	51.15
5-6	-	53.90
6-7	41.29	-
7-8	41.98	49.15
8-10	43.19	47.85
8-12	-	47.15
10-12	42.39	48.40
12-16	-	52.25

Listed below are the percentages of each product type for the seasons 2003/2004 and 2004/2005 converted to landed live weight equivalents.

The production figures have been separated into three fishing/processing sectors, Augusta to Wedge Island, Green Islets to Green Head, Leeman to Denham, together with a total for the whole coast. It must be noted however, that due to transportation of some product between centres for processing, the figures are a combination of what was caught and what was processed in each area:

Area	Season	PRODUCT TYPE (%)			
		Tails	Cooked	Raw	Live
South (Augusta to Wedge Island)	2003/2004	34.57	26.50	4.31	34.62
	2004/2005	35.45	25.28	4.97	34.22
Central† (Green Islets to Green Head)	2003/2004	23.87	28.14	6.47	41.51
	2004/2005	n/a	n/a	n/a	n/a
North (Leeman to Denham)*	2003/2004	28.08	39.67	10.43	21.83
	2004/2005	27.28	41.94	9.72	21.06
Total	2003/2004	31.30	32.42	7.11	27.11
	2004/2005	31.71	32.92	7.15	28.19

Note: * Leeman to Denham includes the Abrolhos Islands.

† Records only until March inclusive for 2003/2004 season. Not available for 2004/2005 season, processing plant closed down.

3.14 Value per pot on pot redistribution (i.e. market price paid for a licensed pot)

The range of market prices paid for licensed pots both north and south of 30° S latitude were:

2003/2004

Zones A and B approximately \$25,000.

Zone C from approximately \$35,000 to approximately \$31,500.

2004/2005

Zones A and B approximately \$25,000.

Zone C from approximately \$28,000 to approximately \$31,000.

3.15 Sea water temperatures and salinities

These environmental variables have relevance to the behaviour and catch rates of rock lobsters (Morgan 1974). The average sea water temperatures (°C) and salinities (parts per thousand) together with maximum and minimum sea water temperatures and salinities during the following rock lobster seasons (i.e. 2003/2004 to 2004/2005, 15 November to 30 June) at the Western Australian Marine Research Laboratories (aquarium header tank) were:

Season	Max. temp. (°C)	Week commencing	Min. temp. (°C)	Week commencing	Avg. temp. (°C) (season)	Max. salinity	Week commencing	Min. salinity	Week commencing	Avg. salinity (season)
2003/2004	24.4	16/02/2004	17.0	07/06/2004	21.1	37.7	02, 16/02/2004	35.5	14, 28/06/2004	36.5
2004/2005	23.3	22/03/2005	19.4	02, 09/11/2004	21.3	36.8	01/02/2005	35.1	02/11/2004	36.1

Bottom temperatures and surface salinities in waters of various depths in the Fremantle, Lancelin, Jurien and Dongara areas were collected as part of the monitoring of rock lobster catches (see section 2.0) and are shown in Tables 7 and 8. Information is available for the Abrolhos Islands from March to June.

3.16 Spawning rock lobsters

Monitoring on board commercial vessels provides a detailed description of the lobsters caught in commercial pots, particularly with respect to the breeding stock and undersize animals that are returned to the sea. The sex ratios between males and females in different depth categories are given in Tables 9 and 10.

Most of the breeding females are found in the 20-50 fathom (37-92 m) range with no significant variation in the size of first breeding observed from one depth category to another. Hence the data for December, January and February from all depths may be pooled to indicate the size frequency of breeding (i.e. “berried” and/or mated) females (Figures 4a and b). The mean sizes of breeding females from monitoring data collected during the period 2003/2004 to 2004/2005 were as follows:

Season	CARAPACE LENGTH (mm)				
	Fremantle	Lancelin	Jurien	Dongara	Kalbarri
2003/2004	109.9	97.3	83.2	89.5	82.0
2004/2005	103.6	91.2	85.6	88.7	84.0

By comparison the mean sizes at first breeding (*i.e.* the smallest carapace length at which 50% are “berried” and/or mated) were found to be:

Season	CARAPACE LENGTH (mm)				
	Fremantle	Lancelin	Jurien	Dongara	Kalbarri
2003/2004	95.1	90.1	89.8	89.6	80.0
2004/2005	93.0	89.2	88.2	86.7	85.0

4.0 Discussion

The 2003/2004 season produced the second highest catch recorded in this fishery (13,684 tonnes), up markedly on the previous seasons catch of 11,415 t. Such a large catch was the result of very good puerulus settlement at most sites along the coast both three and four years previously. Most notably was the puerulus settlement and subsequent commercial catches recorded from south of latitude 33° in the “Capes” region. Prior to 2003/2004 the largest total catch from this region was 480 t, but in this season over 830 t was landed, almost double the previous maximum catch and representing over 6% of the total catch for the fishery. Nominal effort in 2003/2004 (10,180,444 pot lifts) did not vary much, with total pot lifts declining only slightly (<1%) on the previous season. Zones A and C both experienced small increases in nominal effort (3 and 1%, respectively), while in B Zone nominal effort decreased by 3%. Season 2004/2005 produced a catch of 12,236 t, down slightly on the previous seasons catch of 13,684 t. This catch was the combination of an average and a very good puerulus settlement three and four years previously, respectively. Again an unusually high proportion of the catch was produced from the “Capes” region (5% of the total catch or 560 t). Total nominal effort in 2004/2005 (9,789,671 pot lifts) followed a similar trend to the catch, also declining (4%) on the previous season. A Zone experienced a small increase in nominal effort (1%), while along the coast in zones B and C nominal effort decreased by 3 and 5%, respectively.

Puerulus settlement during the 2003/2004 season (May – April) was above average towards the centre of the fishery (Abrolhos Islands and Seven Mile Beach, and below average in the southern and northern extremes of the fishery (Port Gregory and Jurien Bay south). Combined with the 2002/2003 puerulus data (which was a very poor settlement year) this level of settlement will result in a below average catch of approximately 9,350 t in 2006/2007. This reduction in catch will especially be felt towards the southern end of the fishery with the expected catch for Zone C being the lowest in 15 years. In 2004/2005 the puerulus settlement was again below average, this time at all sites along the coast. When combined with the 2002/2003 puerulus settlement the resultant catch will be slightly below average in 2007/2008 (9,250 t), with the southern region of the fishery again being impacted the most. These predictions assume no change in fishing effort.

A total of 554 and 535 boats fished during the 2003/2004 and 2004/2005 seasons, respectively, which was down from 563 boats in 2002/2003. This reduction has resulted in the numbers of

pots being fished per boat increasing from an average of 101 in 2002/2003 to 106 pots per boat in 2004/2005. The declining fleet size has also been reflected by demand for new fishing vessels. Season 2003/2004 saw 14 new boats commissioned, this then dropped to only 3 in 2004/2005. With increasing numbers of pots being fished per boat, it is not surprising to see that the average length of new boats being constructed is also changing, having increased now to around 17m.

Declining boat numbers are the result of a number of factors, the most prominent of which is surely the ever-increasing costs the industry has been subjected to over the last couple of seasons. Spanning just the time covered by this report the price of the most popular baits such as imported mackerel and New Zealand salmon has risen by about 7%, while that of diesel has increased by nearly \$0.15 per litre (over 15%). Unfortunately this has not been reflected in the beach price for lobsters. The large catch of 2003/2004 saw the average price of lobsters drop to the lowest value since 1992/1993 (\$19) and although it did increase somewhat in 2004/2005 (\$21.5) this was still significantly down on the prices experienced during the early 2000s. These costs combined with a poor beach price has resulted in the total value of the ex-vessel catch during the 2003/2004 and 2004/2005 seasons both being worth approximately \$260 million. This was down markedly on the previous seasons \$279 million (2002/2003), even though this season recorded a smaller total catch. The main causes of these low beach prices were a poor exchange rate with the US (average ~ \$0.75) and the large amount of lobsters flooding onto the global market.

Egg production in the Southern Zone of the fishery during 2003/2004 and 2004/2005 remained at a very healthy level, down only slightly on the record level achieved in 1999/2000. The Northern Zone however saw a continued decline in egg production, to a level very close to the minimum required level (i.e. that of 1980/1981). This decline in egg production, mainly in the northern region of the fishery, was the impetus behind the development of an options paper, released in early 2004, aimed at reducing effective effort in the fishery by 15% in Zone B and 5% in Zone C. Through consultation with industry the paper developed into an agreed set of effort reductions, which have now been endorsed by the Minister for implementation in the 2005/2006 fishing season.

5.0 Acknowledgments

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7.0 Tables

Table 1. Catch (in kg weight) and fishing effort (in pot lifts) for the 2003/2004 rock lobster season in various statistical blocks.

BLOCK		DATE								TOTAL
		NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	
27132	Catch	400	3,921	1,794	184,674	50,209	20,769	30,232	21,595	313,594
27132	Effort	804	2,734	2,520	80,383	30,875	12,806	22,656	19,176	171,954
27140	Catch	6,032	37,885	19,676	14,202	37,043	47,923	28,261	16,789	207,811
27140	Effort	12,469	25,702	28,637	26,290	34,188	31,288	29,857	25,547	213,978
28132	Catch	-	-	-	-	-	342	-	-	342
28132	Effort	-	-	-	-	-	345	-	-	345
28142	Catch	43,635	330,389	54,955	93,960	141,946	134,933	59,315	40,970	900,103
28142	Effort	104,288	232,132	108,934	200,791	129,520	101,090	85,414	75,294	1,037,463
29132	Catch	-	6,373	2,365	2,076	2,389	3,757	1,473	926	19,359
29132	Effort	-	3,720	1,240	3,192	3,844	3,596	3,348	3,224	22,164
29141	Catch	-	-	-	-	-	6,081	-	-	6,081
29141	Effort	-	-	-	-	-	3,567	-	-	3,567
29142	Catch	71,512	898,658	190,268	150,893	226,098	290,725	151,504	101,234	2,080,892
29142	Effort	184,025	527,423	227,550	311,458	252,137	235,801	198,447	169,473	2,106,314
30140	Catch	10,412	385,925	193,540	62,844	87,866	149,274	79,069	42,049	1,010,979
30140	Effort	34,374	139,004	83,360	73,054	94,032	96,342	74,675	61,393	656,234
30150	Catch	5,149	186,764	81,892	31,677	58,822	115,094	53,844	28,432	561,674
30150	Effort	17,814	69,482	41,682	38,285	56,980	74,074	45,719	32,895	376,931
31140	Catch	1,534	37,149	33,748	8,867	12,989	8,133	5,691	1,180	109,291
31140	Effort	5,024	14,266	13,904	10,183	12,490	6,345	4,764	2,861	69,837
31150	Catch	77,370	1,269,506	681,372	344,218	627,628	618,981	289,285	190,958	4,099,318
31150	Effort	188,867	480,371	340,070	383,136	503,373	420,169	309,973	245,542	2,871,501
32140	Catch	-	2,297	11,009	4,750	2,137	-	2,895	3,093	26,181
32140	Effort	-	1,041	5,056	1,391	1,860	-	3,484	2,172	15,004
32150	Catch	11,902	433,657	344,470	172,742	218,451	187,917	145,647	109,660	1,624,446
32150	Effort	33,376	154,697	138,423	136,911	174,284	130,658	122,324	106,627	997,300
33140	Catch	291	100	215,002	89,642	6,259	59,023	49,114	14,434	433,865
33140	Effort	720	240	74,556	59,906	5,560	36,535	31,523	9,900	218,940
33150	Catch	233	8,819	5,269	4,919	5,643	6,179	25,849	15,867	72,778
33150	Effort	808	3,030	2,626	4,408	4,331	3,428	16,054	10,886	45,571
34141	Catch	290	-	59,029	45,302	13,399	33,037	28,457	1,479	180,993
34141	Effort	600	-	16,393	23,497	12,690	21,936	18,190	2,439	95,745
34151	Catch	-	-	3,868	12,845	6,111	11,525	11,612	3,715	49,676
34151	Effort	-	-	1,488	7,670	6,132	5,318	6,367	2,344	29,319
34152	Catch	539	11,263	13,429	22,203	5,116	8,486	9,099	9,084	79,219
34152	Effort	4,350	8,810	4,350	3,400	4,200	6,300	7,050	6,480	44,940
35150	Catch	-	-	2,017	6,491	1,942	3,703	-	-	14,153
35150	Effort	-	-	1,800	1,500	1,800	2,100	-	-	7,200
97011	Catch	-	-	-	-	62,366	23,554	45,463	17,291	148,674
97011	Effort	-	-	-	-	15,298	12,609	26,451	12,035	66,393
97012	Catch	-	-	-	-	345,810	263,870	141,763	58,057	809,500
97012	Effort	-	-	-	-	107,027	163,336	152,019	108,093	530,475
97013	Catch	-	-	-	-	186,984	160,362	74,500	38,716	460,562
97013	Effort	-	-	-	-	63,340	100,347	84,401	51,625	299,713
97014	Catch	-	-	-	-	109,155	153,721	70,939	20,480	354,295
97014	Effort	-	-	-	-	37,646	92,848	65,767	36,024	232,285
97015	Catch	-	-	-	-	18,547	68,464	27,295	6,728	121,034
97015	Effort	-	-	-	-	7,204	31,155	20,817	8,095	67,271
Total	Catch	229,299	3,612,706	1,913,703	1,252,305	2,226,910	2,375,853	1,331,307	742,737	13,684,820
	Effort	587,519	1,662,652	1,092,589	1,365,455	1,558,811	1,591,993	1,329,300	992,125	10,180,444

Table 2. Catch (in kg weight) and fishing effort (in pot lifts) for the 2004/2005 rock lobster season in various statistical blocks.

BLOCK		DATE								TOTAL
		NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	
26120	Catch	-	-	-	1,524	-	-	-	-	1,524
26120	Effort	-	-	-	1,440	-	-	-	-	1,440
26131	Catch	-	-	-	-	-	6,051	3,060	-	9,111
26131	Effort	-	-	-	-	-	2,900	2,600	-	5,500
27132	Catch	1,214	1,860	9,425	97,480	30,534	51,485	25,630	5,561	223,189
27132	Effort	1,785	1,424	10,100	93,732	21,147	26,718	20,781	3,962	179,649
27140	Catch	7,232	39,388	23,797	13,469	39,108	48,242	27,143	12,394	210,773
27140	Effort	13,076	31,403	42,018	17,411	30,422	30,882	26,382	17,044	208,638
28132	Catch	-	-	-	-	-	1,195	-	-	1,195
28132	Effort	-	-	-	-	-	595	-	-	595
28142	Catch	65,481	282,528	48,765	108,340	162,707	105,407	73,676	62,273	909,177
28142	Effort	114,336	214,985	99,654	217,082	151,090	89,600	94,554	92,220	1,073,521
29132	Catch	1,120	6,305	436	954	3,666	6,351	2,382	1,264	22,478
29132	Effort	1,240	3,472	1,612	3,472	3,844	3,596	3,596	3,100	23,932
29142	Catch	159,100	712,497	78,663	126,898	235,047	256,991	173,453	123,728	1,866,377
29142	Effort	215,621	477,715	165,112	283,601	244,221	205,410	187,138	161,884	1,940,702
30140	Catch	28,214	329,708	84,827	68,612	109,112	127,021	86,420	49,479	883,393
30140	Effort	33,582	111,812	58,072	72,895	111,200	102,425	85,380	53,796	629,162
30150	Catch	21,556	308,026	51,534	29,516	87,593	99,948	54,460	37,552	690,185
30150	Effort	26,456	104,116	40,684	37,775	84,696	83,738	56,226	47,987	481,678
31140	Catch	3,625	35,421	16,129	12,903	19,706	11,063	2,295	2,101	103,243
31140	Effort	4,484	12,845	13,884	18,292	19,862	9,227	2,939	5,115	86,648
31150	Catch	189,360	1,217,386	359,663	268,711	500,966	424,827	245,177	150,675	3,356,765
31150	Effort	220,039	432,327	292,873	396,210	482,635	373,647	293,862	221,994	2,713,587
32140	Catch	-	9,755	3,186	1,962	-	1,591	1,452	1,557	19,503
32140	Effort	-	3,606	2,902	2,533	-	1,500	1,125	1,125	12,791
32150	Catch	26,691	401,143	222,342	80,396	121,280	133,267	121,663	72,718	1,179,500
32150	Effort	29,971	143,362	113,828	125,013	135,004	121,851	118,016	82,285	869,330
33140	Catch	108	26,167	140,205	17,595	6,558	21,250	21,427	16,560	249,870
33140	Effort	232	5,687	68,163	19,014	5,055	15,546	14,250	11,331	139,278
33150	Catch	502	7,651	15,540	7,429	75	-	13,124	8,772	53,093
33150	Effort	749	2,987	8,435	7,498	232	-	9,124	6,285	35,310
34141	Catch	128	-	78,952	26,560	-	17,051	14,444	3,520	140,655
34141	Effort	690	-	40,558	21,493	-	11,941	12,548	2,760	89,990
34151	Catch	-	-	11,195	5,259	4,246	464	6,417	-	27,581
34151	Effort	-	-	9,285	6,282	3,864	580	4,428	-	24,439
34152	Catch	878	19,972	26,918	15,294	8,247	10,951	9,905	5,573	97,738
34152	Effort	4,850	10,300	10,150	6,225	9,250	9,330	9,050	7,530	66,685
97011	Catch	-	-	-	-	125,589	107,827	67,769	6,664	307,849
97011	Effort	-	-	-	-	26,705	41,534	41,140	10,013	119,392
97012	Catch	-	-	-	-	316,234	278,980	167,226	54,319	816,759
97012	Effort	-	-	-	-	96,824	149,320	145,045	86,825	478,014
97013	Catch	-	-	-	-	199,347	167,361	84,116	30,575	481,399
97013	Effort	-	-	-	-	65,190	97,324	85,079	56,252	303,845
97014	Catch	-	-	-	-	104,058	201,282	82,718	17,650	405,708
97014	Effort	-	-	-	-	38,257	92,880	68,632	26,964	226,733
97015	Catch	-	-	-	-	30,717	104,064	37,662	6,607	179,050
97015	Effort	-	-	-	-	9,019	38,728	22,513	8,552	78,812
TOTAL	Catch	505,209	3,397,807	1,171,577	882,902	2,104,790	2,182,669	1,321,619	669,542	12,236,115
	Effort	667,111	1,556,041	977,330	1,329,968	1,538,517	1,509,272	1,304,408	907,024	9,789,671

Table 3. Catch (kg) per unit of fishing effort (i.e. kilograms of rock lobster per pot lift) data for the 2003/2004 season in various statistical blocks (see figures 1a, b).

BLOCK	DATE							TOTAL	
	NOV	DEC	JAN	FEB	MAR	APR	MAY		JUN
27132	0.498	1.434	0.712	2.297	1.626	1.622	1.334	1.126	1.824
27140	0.484	1.474	0.687	0.540	1.084	1.532	0.947	0.657	0.971
28132	-	-	-	-	-	0.991	-	-	0.991
28142	0.418	1.423	0.504	0.468	1.096	1.335	0.694	0.544	0.868
29132		1.713	1.907	0.650	0.621	1.045	0.440	0.287	0.873
29141	-	-	-	-	-	1.705	-	-	1.705
29142	0.389	1.704	0.836	0.484	0.897	1.233	0.763	0.597	0.988
30140	0.303	2.776	2.322	0.860	0.934	1.549	1.059	0.685	1.541
30150	0.289	2.688	1.965	0.827	1.032	1.554	1.178	0.864	1.490
31140	0.305	2.604	2.427	0.871	1.040	1.282	1.195	0.412	1.565
31150	0.410	2.643	2.004	0.898	1.247	1.473	0.933	0.778	1.428
32140		2.207	2.177	3.415	1.149	-	0.831	1.424	1.745
32150	0.357	2.803	2.489	1.262	1.253	1.438	1.191	1.028	1.629
33140	0.404	0.417	2.884	1.496	1.126	1.616	1.558	1.458	1.982
33150	0.288	2.911	2.006	1.116	1.303	1.803	1.610	1.458	1.597
34141	0.483	-	3.601	1.928	1.056	1.506	1.564	0.606	1.890
34151	-	-	2.599	1.675	0.997	2.167	1.824	1.585	1.694
34152	0.124	1.278	3.087	6.530	1.218	1.347	1.291	1.402	1.763
35150	-	-	1.121	4.327	1.079	1.763	-	-	1.966
97011	-	-	-	-	4.077	1.868	1.719	1.437	2.239
97012	-	-	-	-	3.231	1.616	0.933	0.537	1.526
97013	-	-	-	-	2.952	1.598	0.883	0.750	1.537
97014	-	-	-	-	2.900	1.656	1.079	0.569	1.525
97015	-	-	-	-	2.575	2.198	1.311	0.831	1.799
TOTAL	0.390	2.173	1.752	0.917	1.429	1.492	1.002	0.749	1.344

Total catch = 13,684,820 kg

Total effort = 10,180,444 pot lifts

Table 4. Catch (kg) per unit of fishing effort (i.e. kilograms of rock lobster per pot lift) data for the 2004/2005 season in various statistical blocks (see figures 1a, b).

BLOCK	DATE								TOTAL
	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	
26120	-	-	-	1.058	-	-	-	-	1.058
26131	-	-	-	-	-	2.087	1.177	-	1.657
27132	0.680	1.306	0.933	1.040	1.444	1.927	1.233	1.404	1.242
27140	0.553	1.254	0.566	0.774	1.286	1.562	1.029	0.727	1.010
28132	-	-	-	-	-	2.008	-	-	2.008
28142	0.573	1.314	0.489	0.499	1.077	1.176	0.779	0.675	0.847
29132	0.903	1.816	0.270	0.275	0.954	1.766	0.662	0.408	0.939
29142	0.738	1.491	0.476	0.447	0.962	1.251	0.927	0.764	0.962
30140	0.840	2.949	1.461	0.941	0.981	1.240	1.012	0.920	1.404
30150	0.815	2.958	1.267	0.781	1.034	1.194	0.969	0.783	1.433
31140	0.808	2.758	1.162	0.705	0.992	1.199	0.781	0.411	1.192
31150	0.861	2.816	1.228	0.678	1.038	1.137	0.834	0.679	1.237
32140		2.705	1.098	0.775	-	1.061	1.291	1.384	1.525
32150	0.891	2.798	1.953	0.643	0.898	1.094	1.031	0.884	1.357
33140	0.466	4.601	2.057	0.925	1.297	1.367	1.504	1.461	1.794
33150	0.670	2.561	1.842	0.991	0.323	-	1.438	1.396	1.504
34141	0.186	-	1.947	1.236	-	1.428	1.151	1.275	1.563
34151		-	1.206	0.837	1.099	0.800	1.449	-	1.129
34152	0.181	1.939	2.652	2.457	0.892	1.174	1.094	0.740	1.466
97011	-	-	-	-	4.703	2.596	1.647	0.666	2.578
97012	-	-	-	-	3.266	1.868	1.153	0.626	1.709
97013	-	-	-	-	3.058	1.720	0.989	0.544	1.584
97014	-	-	-	-	2.720	2.167	1.205	0.655	1.789
97015	-	-	-	-	3.406	2.687	1.673	0.773	2.272
TOTAL	0.757	2.184	1.199	0.664	1.368	1.446	1.013	0.738	1.250

Total catch = 12,236,115 kg

Total effort = 9,789,671 pot lifts

Table 5. Mean carapace lengths (mm) of male and female rock lobsters in various depth categories at Fremantle, Lancelin, Jurien, Dongara, Kalbarri and Abrolhos Islands throughout the 2003/2004 fishing season.

Location	Month	0-10 Fathoms		10-20 Fathoms		20-30 Fathoms		30+ Fathoms	
		Male	Female	Male	Female	Male	Female	Male	Female
Kalbarri	Nov	76	76	77	76	-	-	-	-
	Dec	77	77	78	77	-	-	-	-
	Jan	82	80	82	79	-	-	-	-
	Feb	75	74	76	76	-	-	-	-
	Mar	75	73	79	78	-	-	-	-
	Apr	81	77	88	84	90	87	93	89
Abrolhos	Mar	81	78	82	79	80	79	81	78
	Apr	85	80	-	-	82	78	85	79
Dongara	Dec	77	74	78	75	78	76	79	75
	Jan	76	75	77	76	81	79	76	74
	Feb	72	72	76	76	-	-	-	-
	Mar	77	76	77	76	81	81	-	-
	Apr	78	76	78	76	85	80	-	-
	May	73	72	79	76	81	79	-	-
	Jun	77	75	80	76	-	-	-	-
Jurien Bay	Dec	76	75	77	75	76	74	77	74
	Jan	-	-	79	76	81	79	77	74
	Feb	74	72	77	76	81	78	-	-
	Mar	77	74	78	76	82	80	86	81
	Apr	74	72	77	75	83	79	82	80
	May	79	75	78	75	86	81	81	80
Lancelin	Nov	76	74	-	-	-	-	-	-
	Dec	77	75	78	75	83	79	84	78
	Jan	75	73	-	-	85	87	83	80
	Feb	78	89	76	76	84	80	82	79
	Mar	76	74	78	76	83	87	-	-
	Apr	75	74	90	89	84	81	-	-
	May	76	74	85	80	85	82	95	81
Jun	76	74	89	79	85	80	-	-	
Fremantle	Nov	79	76	-	-	-	-	-	-
	Dec	81	79	80	78	87	87	86	81
	Jan	78	75	105	89	94	95	88	83
	Feb	78	74	82	87	83	89	-	-
	Mar	78	76	86	86	-	-	-	-
	Apr	79	76	80	79	86	91	-	-
	May	78	76	87	81	92	83	-	-
Jun	79	76	89	81	99	84	-	-	

Table 6. Mean carapace lengths (mm) of male and female rock lobsters in various depth categories at Fremantle, Lancelin, Jurien, Dongara, Kalbarri and Abrolhos Islands throughout the 2004/2005 fishing season.

Location	Month	0-10 Fathoms		10-20 Fathoms		20-30 Fathoms		30+ Fathoms	
		Male	Female	Male	Female	Male	Female	Male	Female
Kalbarri	Nov	78	77	77	76	-	-	-	-
	Dec	78	79	81	80	-	-	-	-
	Jan	79	79	82	78	87	81	-	-
	Feb	75	74	80	79	-	-	-	-
	Mar	74	-	77	76	90	84	-	-
	Apr	81	80	81	78	89	86	-	-
Abrolhos	Mar	81	77	82	78	84	81	-	-
	Apr	82	77	84	78	85	79	-	-
	May	79	76	77	75	80	77	82	78
	Jun	81	76	86	79	81	77	-	-
Dongara	Nov	74	73	-	-	-	-	-	-
	Dec	78	76	78	76	78	76	80	77
	Jan	74	71	77	76	83	82	75	74
	Feb	74	71	79	74	82	79	76	75
	Mar	77	75	77	75	83	81	-	-
	Apr	76	74	77	75	81	77	83	80
	May	80	76	78	75	82	77	85	79
	Jun	77	75	79	76	85	80	-	-
Jurien bay	Nov	75	74	-	-	-	-	-	-
	Dec	78	75	78	75	78	75	82	79
	Jan	78	75	77	75	81	79	78	75
	Feb	78	75			83	80	81	78
	Mar	77	74	78	75	84	81	90	85
	Apr	76	73	79	77	87	82	87	86
	May	77	74	84	78	-	-	97	90
	Jun	77	73	86	80	91	80	-	-
Lancelin	Nov	77	76						
	Dec			83	81	86	83	89	85
	Jan	76	73	83	81	81	79	84	80
	Feb	77	75	85	87	85	82	-	-
	Mar	77	75	85	90	90	85	94	87
	Apr	76	74	88	82	97	89	83	84
	May	76	75	92	83	93	85	-	-
	Jun	76	74	80	78	-	-	-	-
Fremantle	Nov	80	77	-	-	-	-	-	-
	Dec	87	83	-	-	90	94	86	81
	Jan	-	-	-	-	95	93	89	85
	Feb	79	77	80	80	94	98	97	101
	Mar	81	78	85	83	90	94	-	-
	Apr	80	77	92	87	85	84	-	-
	May	83	80	-	-	92	85	-	-
	Jun	81	78	85	79	90	84	-	-

Table 7. Bottom temperature (°C) and surface salinity (in parts per thousand) in various depth categories in waters out from Fremantle, Lancelin, Jurien and Dongara throughout the 2003/2004 fishing season, and from the Abrolhos Islands in March to June.

Location	Depth (fathoms)	November		December		January		February		March		April		May		June	
		Temp	Sal	Temp	Sal	Temp	Sal	Temp	Sal	Temp	Sal	Temp	Sal	Temp	Sal	Temp	Sal
Kalbarri	0-10	-	35.10	-	36.55	-	37.00	-	37.00	-	36.60	-	35.20	-	-		
	10-20	-	35.20	-	36.70	-	36.70	-	37.00	-	36.30	-	35.20	-	-		
	20-30	-	-	-	-	-	-	-	-	-	-	-	35.40	-	-		
	30+	-	-	-	-	-	-	-	-	-	-	-	35.20	-	-		
Abrolhos	0-10	-	-	-	-	-	-	-	-	-	37.00	-	34.80	-	-		
	10-20	-	-	-	-	-	-	-	-	-	37.00	-	-	-	-		
	20-30	-	-	-	-	-	-	-	-	-	36.25	-	34.90	-	-		
	30+	-	-	-	-	-	-	-	-	-	36.30	-	34.80	-	-		
Dongara	0-10	-	-	20.80	37.00	20.80	36.90	22.70	37.00	21.00	-	21.20	37.00	19.30	19.40		
	10-20	-	-	20.80	-	22.00	36.80	22.10	37.00	21.65	-	21.40	37.00	21.10	19.80		
	20-30	-	-	20.00	-	20.40	35.80	-	-	21.60	-	22.20	36.20	-	-		
	30+	-	-	19.90	-	20.60	35.80	-	-	-	-	-	-	-	-		
Jurien Bay	0-10	-	-	22.00	36.80	-	-	22.10	37.00	21.40	-	20.80	36.60	19.60	19.40		
	10-20	-	-	-	-	21.50	36.10	21.20	37.00	21.40	-	21.40	36.00	20.20	19.40		
	20-30	-	-	19.60	36.50	21.40	37.00	21.10	37.00	22.30	-	22.00	37.00	22.00	20.80		
	30+	-	-	19.60	-	20.10	36.40	-	-	22.60	-	21.80	37.00	20.20	-		
Lancelin	0-10	20.20	36.20	20.80	-	22.40	37.00	25.00	37.00	22.10	37.00	21.50	-	19.60	19.40		
	10-20	-	-	20.00	-	-	-	22.50	37.00	22.10	37.00	21.70	-	-	19.80		
	20-30	-	-	19.40	37.00	19.90	36.90	22.60	36.80	21.00	37.00	21.80	35.10	20.20	20.90		
	30+	-	-	-	-	19.90	37.00	22.90	37.00	-	-	-	-	21.20	-		
Fremantle	0-10	19.70	36.70	20.00	-	22.50	37.00	22.20	37.00	21.85	36.90	21.10	-	19.05	17.70		
	10-20	-	-	19.80	-	-	-	-	-	21.35	37.00	21.50	-	20.03	19.55		
	20-30	-	-	19.60	-	19.80	37.00	19.50	37.00	-	-	21.40	-	20.40	19.90		
	30+	-	-	19.30	36.40	18.60	37.00	-	-	-	-	-	-	-	-		

Temperatures were taken using a protected reversing thermometer and surface water samples were taken and later analysed to determine salinity.

Table 8. Bottom temperature (°C) and surface salinity (in parts per thousand) in various depth categories in waters out from Fremantle, Lancelin, Jurien and Dongara throughout the 2004/2005 fishing season, and from the Abrolhos Islands in March to June.

Location	Depth (fathoms)	November		December		January		February		March		April		May		June	
		Temp	Sal	Temp	Sal	Temp	Sal	Temp	Sal	Temp	Sal	Temp	Sal	Temp	Sal	Temp	Sal
Kalbarri	0-10	-	-	-	-	-	35.90	-	-	22.90	-	-	35.80	-	-	-	-
	10-20	-	-	-	-	-	35.80	-	-	22.80	-	-	35.60	-	-	-	-
	20-30	-	-	-	-	-	36.00	-	-	23.40	-	-	35.80	-	-	-	-
Abrolhos	0-10	-	-	-	-	-	-	-	-	23.50	-	-	36.00	-	-	-	-
	10-20	-	-	-	-	-	-	-	-	-	-	-	35.95	-	-	-	-
	20-30	-	-	-	-	-	-	-	-	-	-	-	35.80	-	-	-	-
	30+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dongara	0-10	20.00	-	21.60	35.70	21.20	-	21.40	-	23.20	-	22.20	35.80	22.20	35.90	19.10	-
	10-20	-	-	21.70	35.80	20.75	-	21.40	-	22.10	-	22.20	35.75	22.10	35.80	19.90	-
	20-30	-	-	21.50	35.75	21.20	-	20.40	-	22.40	-	22.80	35.20	22.90	35.70	20.90	-
	30+	-	-	21.40	-	20.60	-	-	-	-	-	22.80	35.20	23.10	35.60	-	-
Jurien Bay	0-10	19.80	-	21.95	36.00	20.80	-	22.40	-	23.50	-	-	-	21.10	-	17.20	-
	10-20	-	-	22.10	36.00	19.90	-	-	-	22.60	-	21.60	35.50	21.80	35.60	18.40	-
	20-30	-	-	21.80	35.60	21.20	-	20.60	-	22.00	-	22.90	35.20	-	-	20.60	-
	30+	-	-	21.40	35.50	21.30	-	22.60	-	22.30	-	22.80	35.20	22.80	-	-	-
Lancelin	0-10	21.30	36.00	-	-	22.80	36.50	22.60	36.80	23.00	-	21.00	36.10	20.40	35.80	16.30	-
	10-20	-	-	21.50	37.00	22.60	35.90	21.30	35.90	22.47	-	21.20	35.80	22.40	35.70	-	-
	20-30	-	-	21.30	36.80	22.70	35.90	21.30	35.90	22.40	-	22.60	35.90	22.75	35.60	-	-
	30+	-	-	20.40	37.00	22.20	35.80	-	-	22.45	-	22.20	35.70	-	-	-	-
Fremantle	0-10	20.70	35.80	20.30	36.60	-	-	20.90	36.10	22.60	-	20.50	36.60	20.50	35.90	19.20	-
	10-20	-	-	-	-	-	-	19.95	36.07	22.00	-	20.90	37.00	-	-	18.40	-
	20-30	-	-	20.40	37.00	21.00	35.80	19.60	36.00	21.70	-	22.40	36.80	20.90	35.75	18.60	-
	30+	-	-	20.60	-	-	35.70	20.35	35.95	-	-	-	-	-	-	-	-

Temperatures were taken using a protected reversing thermometer and surface water samples were taken and later analysed to determine salinity.

Table 9. 2003/2004 sex ratio by location, depth category and month. Figures are the percentage of female rock lobster in the total sampled catch.

Location	Depth (fathoms)	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Kalbarri	0-10	53	51	65	52	51	47	-	-
	10-20	56	56	55	54	48	57	-	-
	20-30	-	-	-	-	-	60	-	-
	30+	-	-	-	-	-	64	-	-
Abrolhos	0-10	-	-	-	-	42	52	-	-
	10-20	-	-	-	-	41		-	-
	20-30	-	-	-	-	49	48	-	-
	30+	-	-	-	-	51	50	-	-
Dongara	0-10	-	56	53	53	55	60	55	65
	10-20	-	65	53	63	61	67	62	63
	20-30	-	66	69	-	65	68	58	-
	30+	-	72	78	-	-	-	-	-
Jurien Bay	0-10	-	56	-	42	51	53	51	48
	10-20	-	58	53	47	51	52	51	52
	20-30	-	57	48	52	61	60	59	47
	30+	-	75	73	-	60	62	68	-
Lancelin	0-10	51	58	47	79	58	62	59	52
	10-20	-	55	-	54	52	59	58	44
	20-30	-	58	67	68	71	48	62	52
	30+	-	71	65	76	-	-	60	-
Fremantle	0-10	49	61	52	54	54	58	51	56
	10-20	-	51	55	62	66	58	61	50
	20-30	-	71	69	70	-	76	61	42
	30+	-	72	67	-	-	-	-	-

Table 10. 2004/2005 sex ratio by location, depth category and month. Figures are the percentage of female rock lobsters in the total sampled catch.

Location	Depth (Fathoms)	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Kalbarri	0-10	52	62	60	53	-	61	-	-
	10-20	52	60	62	54	50	53	-	-
	20-30	-	-	55		49	59	-	-
Abrolhos	0-10	-	-	-	-	52	51	47	45
	10-20	-	-	-	-	49	50	46	38
	20-30	-	-	-	-	36	48	49	56
	30+	-	-	-	-	-	-	51	-
Dongara	0-10	54	55	60	54	54	57	55	58
	10-20	-	61	61	54	57	60	62	71
	20-30	-	66	73	75	71	64	64	57
	30+	-	65	69	73	-	67	67	-
Jurien Bay	0-10	53	50	40	45	40	54	52	41
	10-20	-	52	40	-	47	53	41	35
	20-30	-	59	53	49	66	73	-	45
	30+	-	60	64	64	66	76	59	-
Lancelin	0-10	58	-	48	55	58	59	56	57
	10-20	-	64	61	65	72	54	51	45
	20-30	-	57	59	65	75	70	55	-
	30+	-	56	74	-	68	86	-	-
Fremantle	0-10	59	54	-	49	51	51	52	54
	10-20	-	-	-	55	62	58	-	35
	20-30	-	66	55	68	72	52	60	37
	30+	-	70	64	85	-	-	-	-

8.0 Figures

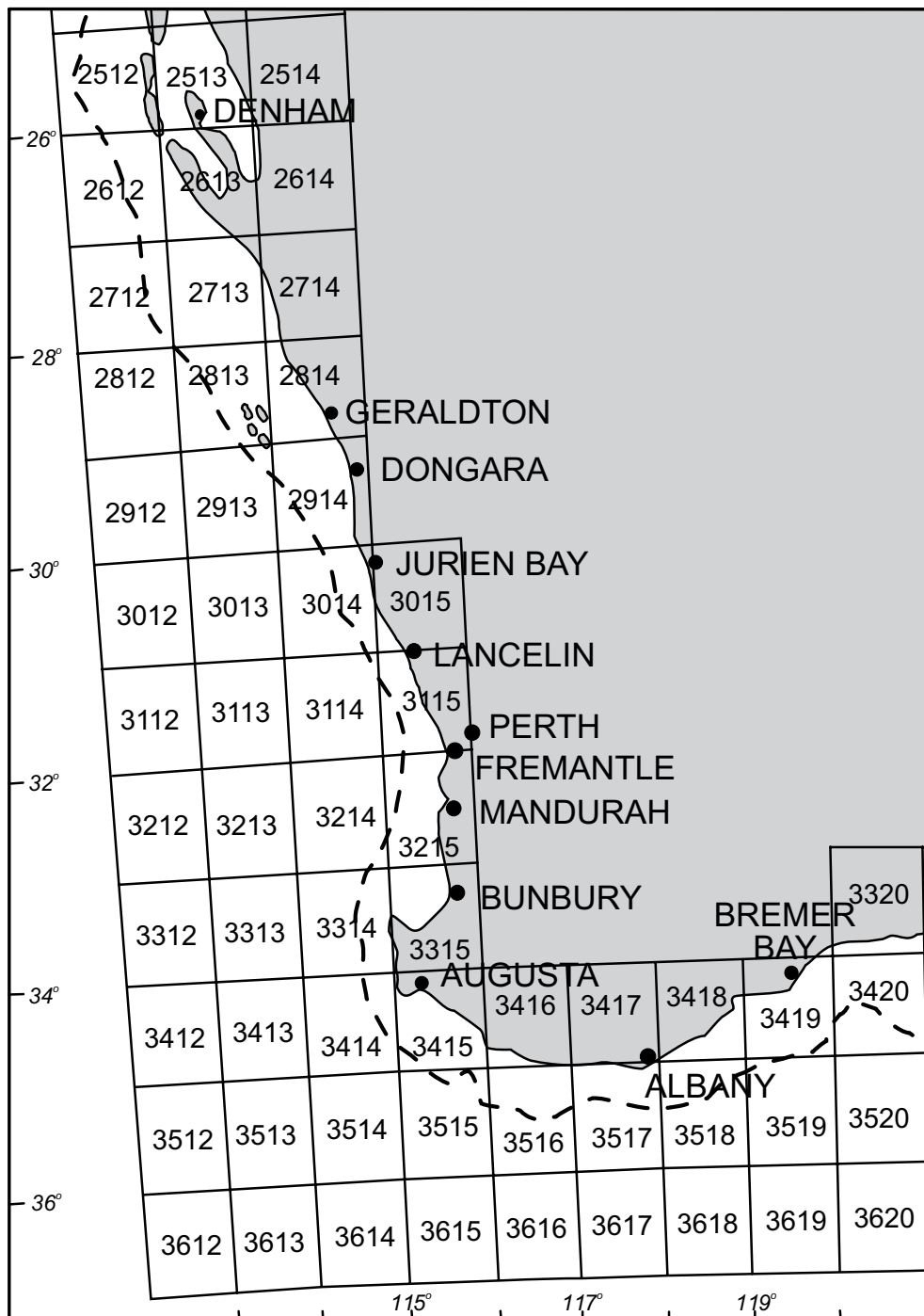


Figure 1a. Rock lobster fishing areas.

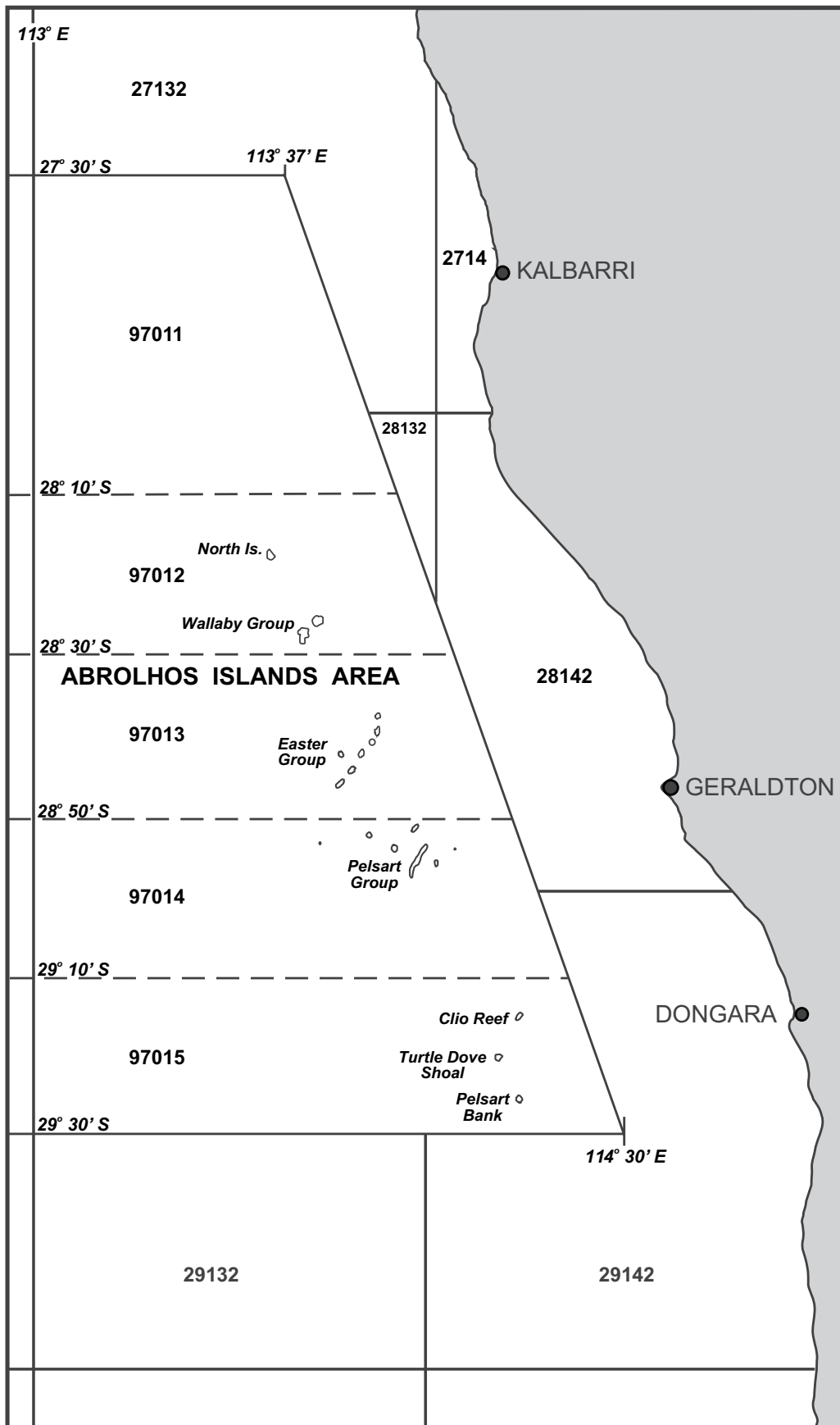


Figure 1b. Rock lobster fishing areas. (The new series of Abrolhos Island statistical blocks were introduced at the commencement of the 1989/90 season).

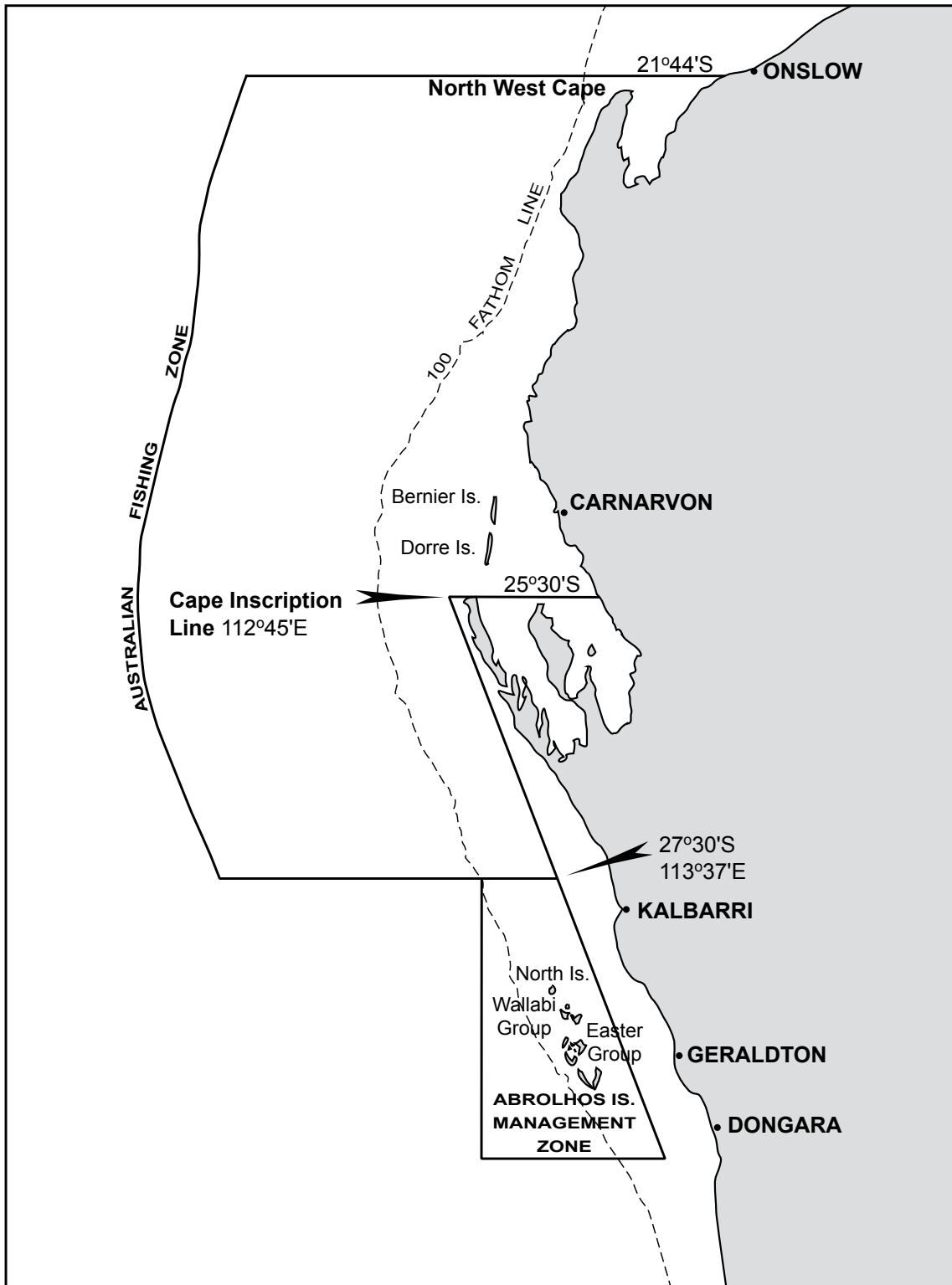


Figure 1c. Big Bank fishing area (adapted from Chubb et al. 1994).

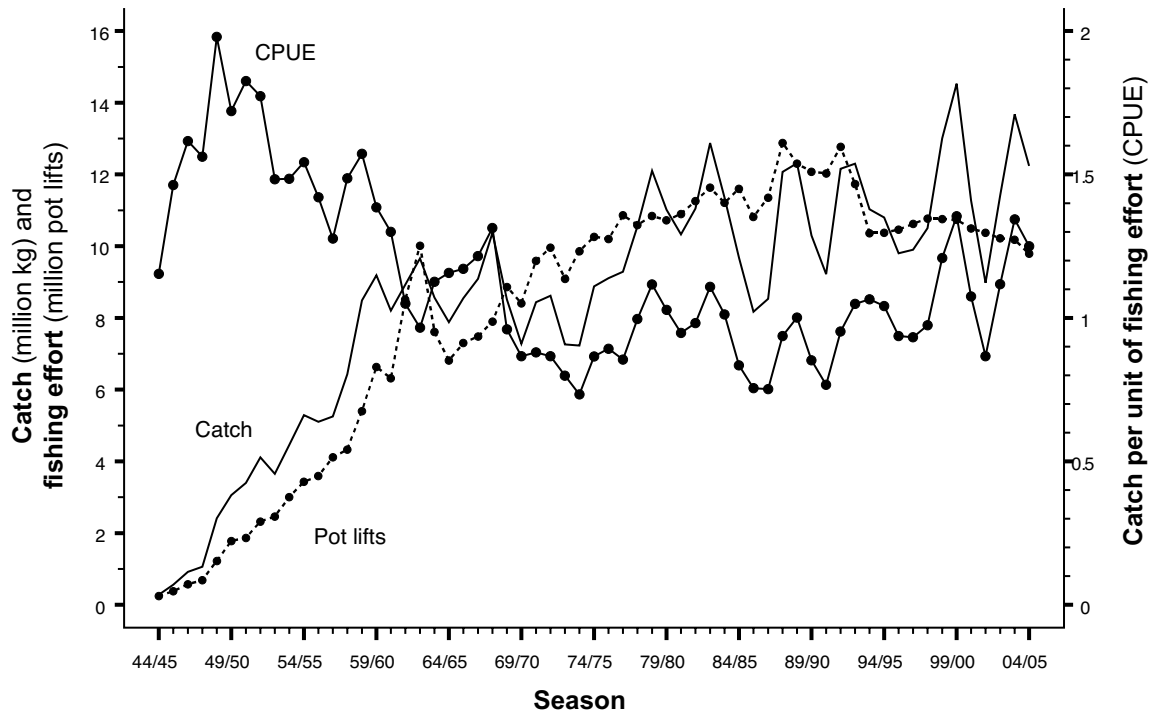


Figure 2. Rock lobster catch (kg), fishing effort (pot lifts) and catch per unit of fishing effort (kg/pot lift) data.

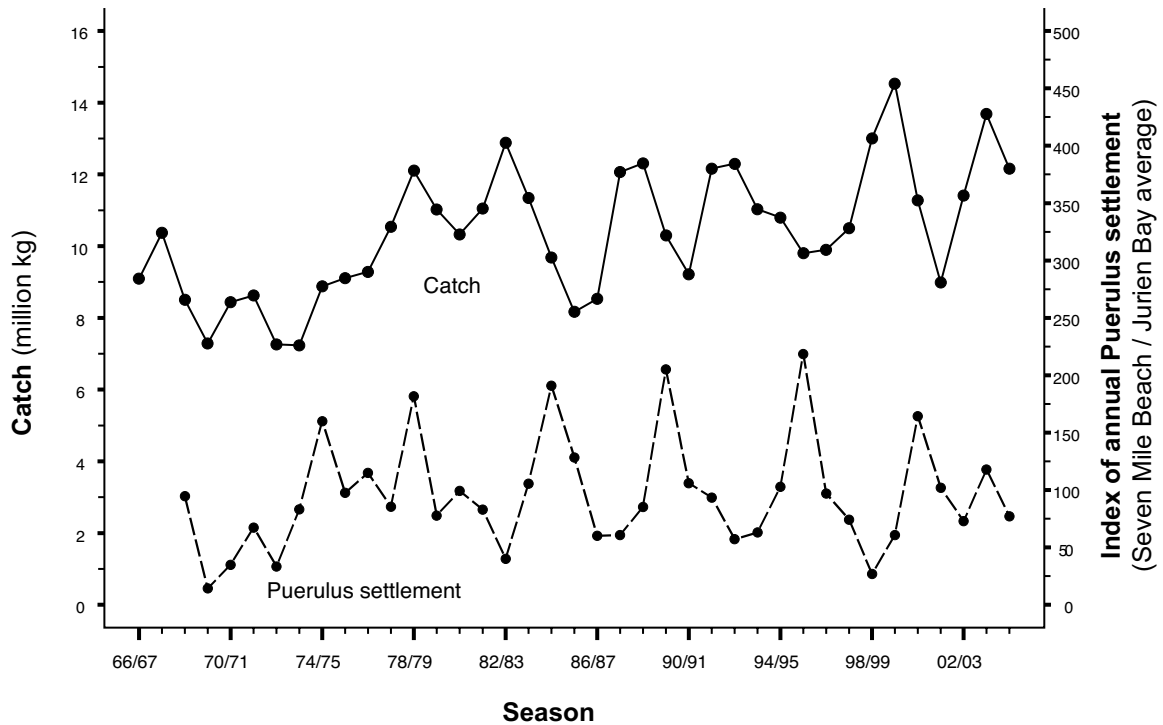


Figure 3. Rock lobster catch and index of annual puerulus settlement (puerulus take three to four years to grow to legal size).

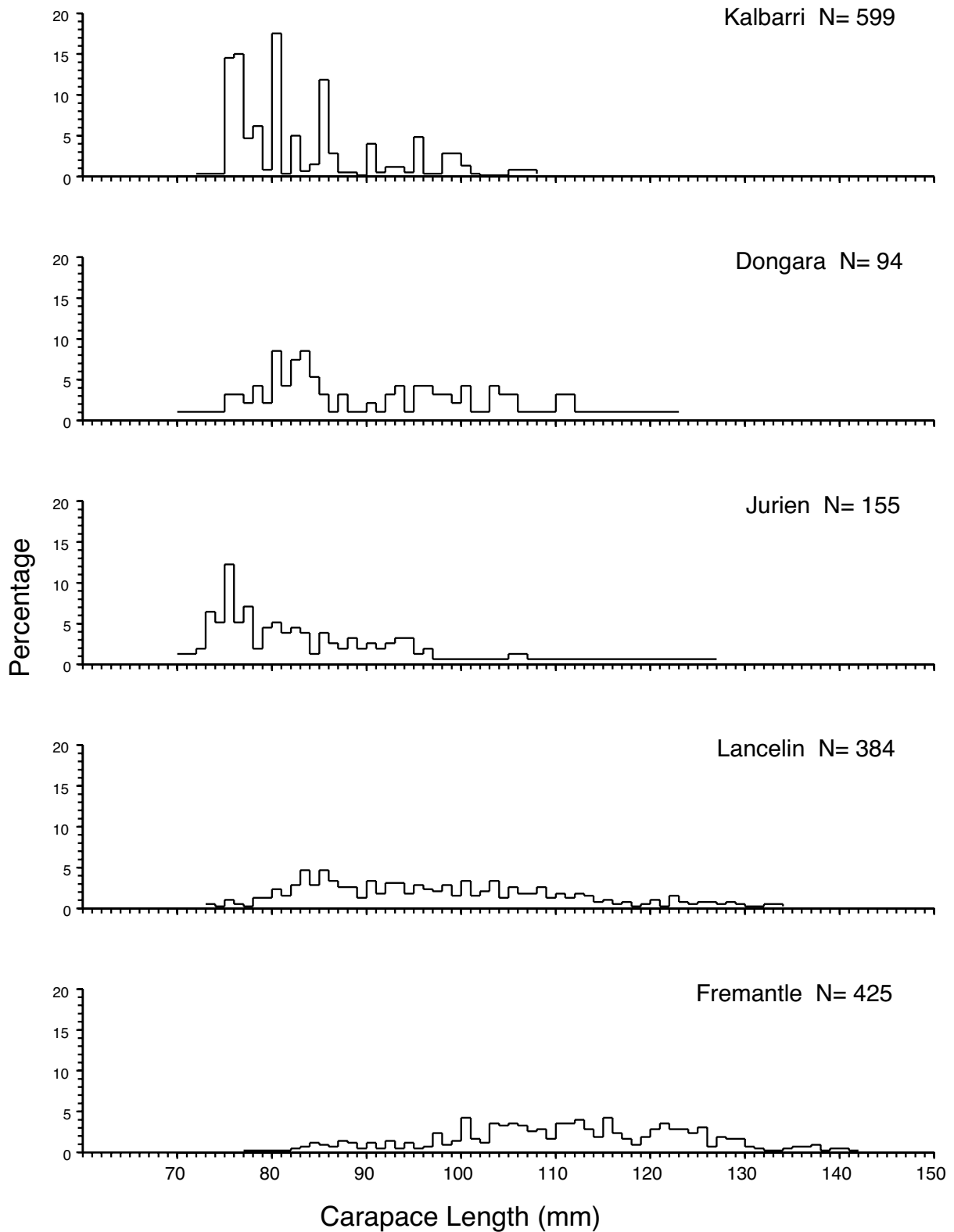


Figure 4a. Length frequency of breeding female rock lobsters (berried and/or mated) taken from December 2003 to February 2004.

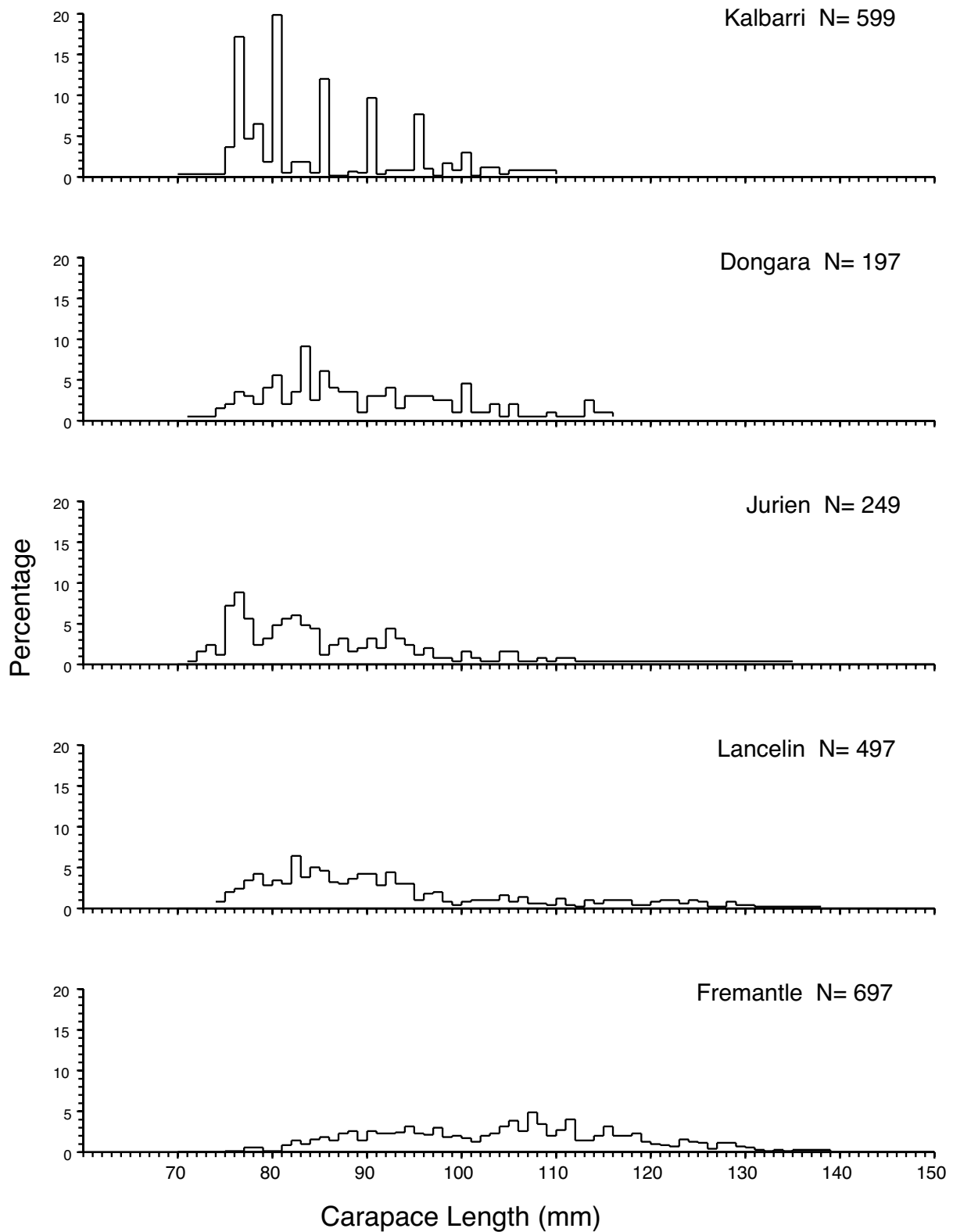


Figure 4b. Length frequency of breeding female rock lobsters (berried and/or mated) taken from December 2004 to February 2005.

FACTS SHEET

“LICENCE CREATION” AND “RETIREMENT” INITIATIVE FOR THE WEST COAST ROCK LOBSTER FISHERY MANAGEMENT PLAN



FISHERIES
WESTERN AUSTRALIA

Prerequisites for “Licence Creation”

Applicants for a new Managed Fishery Licence (MFL) will need to apply for an MFL, nominating the zone required. They will also have to supply the following:

- Valid applications to transfer at least the minimum number of pots on to the new MFL. (These pots should be exclusively from one zone in the fishery and that zone must also be the zone nominated in their MFL application).
- Evidence that they hold, in the applicant’s name, a valid Fishing Boat Licence (FBL) to which the MFL will be associated, or a valid application to transfer an FBL into the applicant’s name. (Note: Only one West Coast Rock Lobster MFL can be associated with any one FBL).
- Full application fees for all applications.

New Managed Fishery Licences (MFLs)

Before a new MFL is issued, licensing officers will:

- Seek a report from Regional Services Prosecution Section confirming that:
 - a) the applicant is considered “fit and proper” to hold a West Coast Rock Lobster MFL, or
 - b) the application is not likely to be deliberately or incidentally associated with confounding existing or proposed prosecution action by Fisheries WA, or
 - c) the application is not likely to be deliberately or incidentally associated with avoiding or reducing the impact of the “black marks provisions” of *Section 224* of the *Fish Resources Management Act 1994*.
- Ensure all related fees have been paid.
- Ensure the applicant has supplied the appropriate application forms to transfer 63 or more pots exclusively from one zone of the fishery on to the licence.
- Ensure the Executive Director of Fisheries WA, or an officer delegated with authority by the ED, has approved the application and the issue of the new MFL.
- Ensure, as relevant, all those who have registered an interest on the Agency’s licensing system are advised of proposed transfers.
- Complete all transfers and variations associated with an MFL application.

DISCLAIMER:

This leaflet is for guidance only. Copies of the relevant legislation can be obtained from Fisheries WA offices or from the Fisheries WA web site: <http://www.wa.gov.au/westfish>

Fish for the future

FACTS SHEET (cont'd)

Prerequisites for "Licence Retirement"

To sit on an inactive FBL and MFL package with one or more pot entitlements, fishers will need to submit:

- A valid transfer application that will reduce their pot entitlement to less than 63 but not less than 1. (Note: Applicants need to be aware that the impact of reducing the total pot entitlement on an MFL to less than 63 is that the associated FBL will become "of no effect" and cannot be used for fishing.)
- Evidence that two or more FBLs are held if applicants intend using their rock lobster boat in another fishery, or valid applications to vary licences so there will be both a valid FBL pending against the West Coast Rock Lobster MFL and a valid FBL to use the rock lobster boat in another fishery (including wet-lining).
- Valid applications to transfer pots
- Full fees for all the above applications.

For more information contact:

Ross Gould, Fisheries WA,
3rd Floor SGIO Atrium,
168-170 St George's Terrace, Perth, WA, 6000.
Ph: 9482 7333 Fax: 9482 7389
Web site: <http://www.wa.gov.au/westfish>

Application to "Retire" an MFL

Before approval is given to allow the pot entitlement to be reduced below 63 and the associated FBL and MFL to become inactive, licensing officers will:

- Seek a report from Regional Services Prosecution Section confirming that:
 - a) The applicant is considered "fit and proper" to hold a West Coast Rock Lobster MFL, or
 - b) the application is not likely to be deliberately or incidentally associated with confounding existing or proposed prosecution action by Fisheries WA, or
 - c) the application is not likely to be deliberately or incidentally associated with avoiding or reducing the impact of the "black marks provisions" or Section 224 of the Fish Resources Management Act 1994.
- Ensure all related fees have been paid.
- Ensure the Executive Director of Fisheries WA, or an officer delegated by the ED, has approved the application and the issue of the new MFL.
- Ensure all those who have registered an interest on the Agency's licensing system are advised of both proposed transfers and applications to make the associated FBL and MFL inactive.
- Complete all transfers and variations associated with MFL application.
- Check that the letter of approval emphasises that initial and ongoing approval is subject to the completion of monthly "nil" catch returns against the MFL, and that an inactive or pending FBL is held against the MFL.
- Undertake any other action they consider necessary for the purposes of meeting the objects of the Fish Resources Management Act 1994.

8 September 2000

Fish for the future



Department of
Fisheries

Bulletin No 30

30 January 2004

Commercial Fisheries Production Bulletin



Fish for the future

WESTERN ROCK LOBSTER FISHERY

2003/04 SEASON

THE COASTAL FISHERY TO DATE

Towards the end of November, whites started to appear in the catches, rapidly increasing until approximately the end of the first week in December, by which time the whites run was well and truly underway. As expected the early whites catches were taken essentially in the shallows, however by mid December vessels were starting to move into the "teens" (13 – 19 fathoms).

In Zone B, vessels were in the mid-water grounds by the third week in December and rapidly established themselves in deep water prior to the end of the month. By early January catches had started to decline. With the exception of the large vessels remaining in deep water, the remainder of the fleet was scattered from the inshore area to the middle grounds and deeper.

Due to declining catches, together with the low price being paid for rock lobsters, many fishers brought their gear ashore for the duration of January. The Kalbarri fleet, which normally moves south to Dongara and other anchorages following early start-up catches in Kalbarri, was back in Kalbarri by mid December. The Kalbarri whites run, albeit patchy, was possibly the best in three years.

In Zone C the movement of the fleet to deep water was similar to Zone B, however, with the high densities of rock lobsters on the grounds the fleet remained scattered from the mid-grounds out to deep water. Deep water catches were maintained with some vessels staying outside, pulling gear every two or three days until well into February. By mid-February most of the fleet had returned to the inshore grounds. Many fishers also reported on very large numbers of undersize particularly in deep water, along the entire coast, together with large numbers of breeding females, particularly in Zone C and north of Kalbarri. These undersize reflect the forecast good catches for this and the next season.

Preliminary processors production figures indicate that a total of 5,719 t. of rock lobsters were taken to the end of January. This good catch was predicted based on the good puerulus settlement 3 – 4 years before. Table 1 shows the processors production figures to the end of January cumulative, for the three fishing regions, viz. Fremantle (from the Capes region to Wedge Island), Jurien (Green Islands to Green Head) and Geraldton (Leeman to Shark Bay).

The production figures to the end of January 2004 indicate that rock lobster catches were 78% up in the Fremantle region, 32%

up in the Jurien region and 15% up in the Geraldton region compared to the same period in the 2002/2003 season (Table 1). Overall landings for the fishery to January 2004 were 47% higher than last season and 37% above the average of the past ten seasons (Table 1). The catch during January of about 2,000 t is the highest January catch on record.

Table 1. Preliminary rock lobster production figures.

Production (t) to end of January 2004

Fremantle	Jurien	Geraldton	Total
3,208	894	1,617	5,719

Production (t) to end of January 2003

Fremantle	Jurien	Geraldton	Total
1,801	676	1,409	3,886

Difference (t) and percentage difference

Fremantle	Jurien	Geraldton	Total
1,408	218	207	1,833
78.2% up	32.3% up	14.7% up	47.2% up

10 yr. cumulative average

<i>to end of January 2003</i>	=	4,161 t
<i>Production to end of January 2004</i>	=	5,719 t
<i>Difference</i>	=	1,558 t
<i>% Difference</i>	=	37.4% up

THE CAPES AREA

By mid-January vessels were in the Capes area and were taking large catches in very deep water between the Capes. These early catches comprised post whites (pink in colour and not recently moulted), just legal size, together with significant numbers of undersize. These large catches were most likely the result of a spike in puerulus settlement to the area in 1999/2000, together with the possibility of a southern migration into the Capes area from further north. It is not expected that these catches will continue after next season, when more normal recruitment is forecast. Of interest the Windy Harbour/ Augusta Fishery (south of 34° 24' south) fired up with very large catches taken also in deep water. During the latter part of February the Capes fleet had returned to the inshore area and by late February vessels were returning to northern anchorages. It is estimated that as many as sixty boats fished in the Capes area during January and February.

This Bulletin is produced by the Research Division of the Western Australian Department of Fisheries

BIG BANK

A total of 37 boats nominated to fish in the Big Bank area of the fishery this year compared to 52 the previous season. Following a very disappointing first few days, deep water fired up with some very large catches taken by some of the boats in the Big Bank area. The big catches were essentially taken just north of the Abrolhos line area and comprised A through to C grades, together with undersize. Catches were also taken well north although not as good as the catches taken in the line area. The optimum depth was between eighty and ninety fathoms. Towards the end of the month catches declined considerably, in line with previous Big Bank experience.

PUERULUS SETTLEMENT

The puerulus settlement year is taken as May of one year to April of the next, with the majority of pueruli settling between August and February. Numbers of pueruli settling on collectors during the 2003/2004 settlement period were average in the north and below average in the south from Jurien down to Cape Mentelle (Fig. 1). The indications from the numbers settling this season, from May to January are that settlement at South Passage (Shark Bay) are average at this time. Pueruli settled consistently through December, January and February at the Abrolhos resulting in slightly above average numbers for the season at this location. It is likely that South Passage also will have about average settlement given that, due to storm damage of the collectors, no counts were obtained in one month when good settlement was likely, so the 2003/04 count for South Passage is slightly underestimated. There was an unusual spike in settlement at the Abrolhos and Dongara in December, which was a significant contribution to the annual settlement. These post-larval lobsters will start to recruit to the fishery in the "reds" of 2006/2007 and the "whites" of 2007/2008.

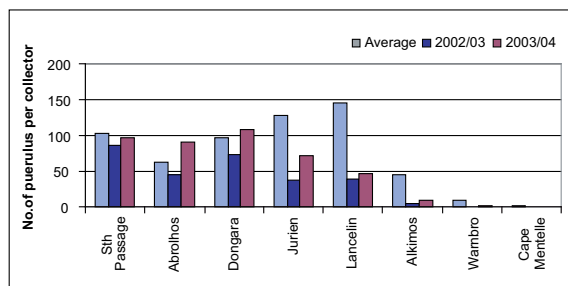


Figure 1. The average annual indices of puerulus settlement for the ten seasons to 1999/2000 (grey), the annual indices for the 2002/2003 season (blue) and the total settlement so far in the 2003/04 settlement year (ie May-January) in red.

The below average puerulus settlement in the southern locations in the last two years will result in a low catch in 2006/07 in Zone C.

Events in the Pacific Ocean still favour El Nino conditions and are forecast to remain at a weak to borderline level for the next few months (NOAA-Climate Prediction Centre 2004). With a weak Leeuwin Current flowing at the present time and a forecast of much the same, the puerulus settlement can also be expected to continue at low levels through 2004.

WRLDA MARKETING NEWS*

Position at the Start of the Season

The inventory position in both Japan and Taiwan in November was reasonably high, which in all probability was SARS related, noting consumption during and post SARS was extremely low. The situation in the USA was healthy with limited stocks in store. There were virtually no stock holdings in Hong Kong/China. All of these comments should have indicated a buoyant market for early season's catches, however the 'curse' of all exporters took over and the Australian Dollar continued to lose value against the US Dollar so in effect any gains in prices were offset against the dollar which since the start of the season has lost close to 12% compared with the end of last seasons prices/ conversions.

Taiwan

Sales into Taiwan started at fairly low levels due primarily to competition from other countries supplies of whole frozen lobsters. The upside in Taiwan has been the lesser volumes of lobster from Cuba and Florida. The Cuban catch has been estimated as being as much as 35% down on last years production as well as smaller volumes of Mexican product being offered.

Japan

Japan's market had a very slow start which was not helped by some 300 t of South African cooked lobster being sold in at very low levels thus setting a bench mark for buyers to compare with offers from Western Australia. Indications are that whilst sales volumes have been low, April through to the end of season sales will pick up noting the Japanese reluctance to hold stocks at the end of their financial year (March). These comments relate to sales of 'reds'.

Hong Kong/ China

There has been very strong demand for 'lives' since the opening of the season, culminating in Chinese New Year celebrations when demand was excellent. There appears to have been less Government interference at the border check points which has ensured a smoother access into the Chinese markets. Hopefully this will continue in the future.

European Union

Noting the reverse seasonal situation which exists, naturally demand has been slow, however, as the northern hemisphere moves out of its winter, indications are that for the remainder of the season we will see more product heading into the EU. This together with the reduced tariff rate combined with a greater recognition of Western rock lobster in Europe, which has been slowly happening over the last 5/6 years, augurs reasonably well for continued expansion into the EU markets.

Currency

Whilst much has been written about the plight of Aussie exporters it is fair to say that the movement of our dollar has been the singular largest problem all packers face. The variation since November from around US\$0.68 up to US\$0.80 together with the accompanying movement in the Yen have wiped off any positive gains in sales.

This as we all know clearly demonstrates our dependence on a favourable dollar position as the key to our export success, which in turn impacts on the capacity to pay for raw material.

The dollar position in effect 'forced' packers to place much larger volumes of lobster into the domestic market prior to Christmas, and whilst the selling prices achieved were not as high as many would have hoped for, approx 800 t of product was sold locally up to December 24 last. Local sales are price sensitive and it appears that the general public will buy at \$20.00 for two lobsters, however, consumption in the main is limited to special occasions ie. Christmas and Easter.

General

There are fairly positive signs for the remainder of the season, however, as is always the case we must add the caveat that so much depends on the position of our dollar.

Cuban production is down by an estimated 35%, Brazil and Caribbean lobsters down by 10–15%. Product from Florida will be mostly consumed internally in the USA (election year) as will the near record catches of Maine (*Homarus*) lobster.

VOLUNTARY RESEARCH LOG BOOKS

Last season a record number (40.5%) of skippers and deckies participated in the research log book program and forwarded research data to the Laboratories of Waterman. To date (end of February) 30% of skippers/deckies have sent data to the Laboratories on their catches and observations.

We would like to maintain last season's participation rate, therefore, if you have any data that you have not already forwarded, we would be delighted to receive it.

If you were forwarded a log book at the commencement of the season and have not started keeping records, please "have a go", as it is most certainly not too late in the season to start and any information covering the remainder of the season will be gratefully received.

Please call Eric Barker collect on 9246 8444 if you would like to join the program and a log book will be promptly forwarded to you, free of charge of course.

*This information was provided by the Western Rock Lobster Development Association (Inc.), Suite 6, 41 Walters Drive, Osborne Park WA 6017. Chairman Mr Tony Gibson ph: (08) 9244 2933 fax: (08) 9244 2934.

Except where acknowledged, the information in this bulletin has been supplied by the FISHERIES RESEARCH DIVISION of the DEPARTMENT OF FISHERIES (WA). Contact Mr Eric Barker or Mr Mark Rossbach ph: (08) 9246 8444 fax: (08) 9447 3062.



Department of
Fisheries

Bulletin No 31

31 August 2004

Commercial Fisheries Production Bulletin



WESTERN ROCK LOBSTER FISHERY 2003/04 SEASON

THE COASTAL FISHERY TO DATE

Preliminary processors production figures indicate that the total catch for the 2003/2004 season was 13,630 tonnes, which was within the predicted range for the 2003/2004 season of 13,450 to 13,750 tonnes. The total catch was 19.4% up on the previous seasons catch of 11,419 tonnes and 22.8% up on the 10 year average catch. This season's catch was the second highest catch in the history of the fishery, only exceeded by the 14,433 tonnes caught in the 1999/2000 season.

Listed below are the processors production figures to the end of June for the three fishing regions, viz. Fremantle (Capes area to Wedge Island), Jurien (Green Islands to Green Head) and Geraldton (Leeman to Shark Bay).

Table 1. Preliminary rock lobster production figures.

Production (kg) to end of June 2004

Fremantle	Jurien	Geraldton	Total
6,788,018	1,575,777	5,265,754	13,629,549

Production (kg) to end of June 2003

Fremantle	Jurien	Geraldton	Total
5,039,745	1,466,532	4,912,319	11,418,596

Difference (t) and percentage difference

Fremantle	Jurien	Geraldton	Total
1,748,273	109,245	353,435	2,210,953
34.7% up	7.4% up	7.2% up	19.4% up

10 yr. cumulative average to end of June 2003	=	11,101,000 kg
Production to end of June 2004	=	13,629,549 kg
Difference	=	2,528,549 kg
% Difference	=	22.8% up

Preliminary processors production figures indicate that the Abrolhos Islands (Zone A) catch of 1,861 tonnes exceeded the Zone A prediction of 1,650 tonnes by 211 tonnes (12.8%) and Zone B (excluding Big Bank) catch of 3,217 tonnes failed to meet the zone B prediction of 3,800 tonnes by 583 tonnes (15.3%) whilst Zone C catch of 8,364 tonnes was the highest on record for the zone and exceeded the prediction of 8,000 tonnes by 364 tonnes (4.6%).

Throughout the season in both coastal zones there was a constant movement of vessels between the shallows and deep water to

opportunistically take advantage of areas of higher densities of rock lobsters. In Zone C, much of the fleet was also moving north and south along the coast, also targeting areas of high densities. Long periods of calm, still weather and sea conditions were quite common, during which catches declined, followed by periods of increased swell when catches increased.

In many areas fishers reported high numbers of breeding females, together with large numbers of undersize, particularly in very deep water. Generally, catches in Zone B were not outstanding, whilst in Zone C many fishers caught exceptionally well, in both shallow and deep water, particularly in areas such as Ledge Point through to Mindarie, Mandurah, the Capes area and in the Windy Harbour-Augusta fishery.

THE CAPES AREA

Throughout the season, vessels moved opportunistically depending on catch levels, to and from the Capes area. In late April quite a few vessels moved into the Capes area, fished and returned to northern ports during May. A small nucleus of vessels did stay and fish for almost the entire season. Catches during the period March to June were good, however, not as good as the previous season.

Of interest, abalone divers reported seeing large numbers of undersize western rock lobsters as far east as the Gardner River, together with reports from shark netters meshing western rock lobsters in their nets as far east as Chatham Island (east of Broke Inlet). As well as good puerulus settlement in previous years in the southern sector of the fishery, these sighting and catches add credence to the possibility of a migration of rock lobsters from the Capes area.

Good catches of western rock lobsters were also taken in the Windy Harbour and Augusta area.

The fishing in the Capes area, until the end of February was covered in Bulletin No. 30.

BIG BANK

Big Bank was covered in Bulletin No. 30. The catch for the area in February from processors returns is 188 tonnes which is well and truly up on last season's catch of 19 tonnes. This catch was taken by 37 boats compared to 52 the previous season.

In March a number of boats who had not nominated to fish in the Big Bank area in February, fished in this area for very good catches.

This Bulletin is produced by the Research Division of the Western Australian Department of Fisheries

A number of Zone B vessels also fished in deep water north of the northern Abrolhos line, taking very good catches for the remainder of the season.

Of interest Big Bank fishers reported that large numbers of undersize migrated north in deep water during the “whites” and moved into shallower water north of Kalbarri.

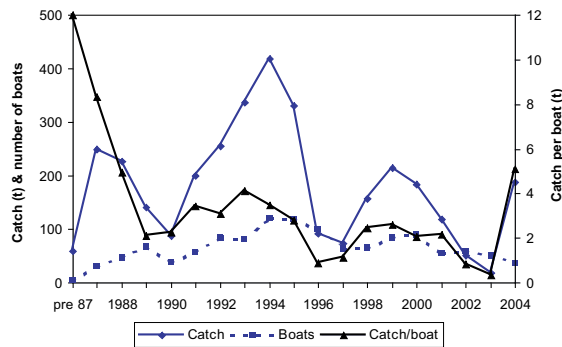


Figure 1. The historical time series of catch in tonnes (solid blue line), number of boats (dotted blue line) and catch (tonnes) per boat (black line) for the Big Bank region.

THE ABROLHOS ISLAND FISHERY

Preliminary processors production figures indicate that the total catch for the islands amounted to 1,861 tonnes, 8.6% up on the previous season's catch of 1,713 tonnes.

Generally from Rat Island north catches were good whereas south of Rat Island, catches, particularly in deep water, were not so good.

A fleet of vessels, which was slightly larger than the previous season's deep water fleet, fished in deep water from North Island to the northern Abrolhos line for very good catches, throughout most of the Islands season.

By mid June many Zone A boats were on two and three days pulls (some weather related) and at the same time some fishers were ceasing fishing and returning to the mainland. As one processor commented, by mid June many Abrolhos fishers were in “party mode”!

PUERULUS SETTLEMENT

The 2003/2004 puerulus settlement period was average in the northern areas from Shark Bay to Seven Mile Beach and below average in the southern areas from Jurien to Cape Mentelle. These lower settlements will first impact on the “reds” of 2006/07 (Table 1) and then as poor “whites” throughout the fishery in 2007/08.

Events in the Pacific Ocean continued to reflect the neutral phase of the ENSO cycle during June 2004. And the outlook is for ENSO- neutral conditions to continue for the next 3 months (NOAA-Climate Prediction Centre 2004). This has resulted in a Leeuwin Current of average strength this year and hence an average level of puerulus settlement is expected.

CATCH PREDICTIONS

Forecasts of catch are available for the next three seasons (2004/05- 2006/07). These are based on the puerulus settlements

three and four years prior to the season for which catch is being predicted. Table 1 indicates the forecasts by zones.

Season	A Zone	B Zone	C Zone	Total
2004/05	1,650	4,100	6,900*	12,650
			7,100**	12,850
2005/06	1,600	3,750	4,800*	10,150
			5,100**	10,450
2006/07	1,750	3,800	3,850*	9,400
			4,300**	9,850

Table 1. Predictions for rock lobster catches (tonnes) for the next three seasons. *Indicates C Zone forecast from Alkimos puerulus settlement alone and ** indicates predictions from a combination of C Zone settlement sites.

As can be seen in Table 1, generally, the Abrolhos (A Zone) catch remains stable over the next three seasons, whilst, the forecast catch for 2004/05 season in B Zone and C Zone are above average. However, in the 2005/06 and 2006/07 catches in both zones decline below average.

WRLDA MARKETING NEWS*

At the commencement of the last season in November 2003 the inventory position (that is the volume of lobsters held in cold storage by our buyers overseas) was at a level which looked promising from our perspective noting the predicted catch of 13,500 tonnes.

It was anticipated that the buyers would be keen to negotiate sales!

This anticipation was further enhanced by the lower sales in the off-season than the previous off-season.

As the season unfolded it was obvious that the domestic (Australian) market was prepared to accept fairly large volumes as the price was attractive. In the New Year period including Christmas, sales of approximately 1250 tonnes of lobster had been consigned to the local domestic market. It is worthwhile noting that not all of this product was consumed domestically as some volumes were destined for what may become a niche market namely cruise liner consumption.

As is always the case for exporters, currency adjustment played its normal crucial role during the season. We witnessed some fairly dramatic fluctuations in a range of 25% which in effect negated most of the market increases. The predictions by currency experts for the season varied considerably. Thus the only conclusion to be drawn is that if the experts (read banks) can't be exact in their reading of where the A\$ is heading, it makes it very difficult for the processors and marketers!

Development of the European market continued during the season with container lots being sold into the European Union (EU). From reports received it appears that whilst volumes have certainly increased there is a barrier on the price the Europeans are prepared to pay. We can only hope that as more product finds its way into the EU and consumers become more aware of WRL, prices paid will continue in an upwards trend.

Whilst SARS has long gone, one of the upsides during the season was that many weddings and special events that were cancelled

due to SARS took place during the season which assisted with possibly larger than normal consumption in Japan. It is also generally accepted that the overall economic conditions in both the USA and Japan improved somewhat during the last twelve months. Some suggest that the US Presidential elections have had some impact on the strength of the USA 'tails' market. The flip-side of the USA situation is that post September 11 conditions have created a greater awareness of 'risk' by importers. This has been evidenced in the huge increase in insurance premiums on lobsters held in cold stores in the States and a tendency to minimise stock levels in cold storage. Doing business in the USA since September 11 has changed and in my opinion will continue to do so as the US buyers fully appreciate the extent of the US Bio-Terrorism Act combined with the recognition of 'risk' being so important in determining profit.

During the season we saw yet further inroads into new product lines. WRLDA members continue to develop new pack-styles in response to market demands. It is of interest to note that whilst Cuba had its worst catch for over 20 years it is converting three of its major lobster plants to nitrogen freezing. This typifies the ever changing 'face' of lobster production in the international arena. Our competitors are investing large amounts of capital into infrastructure which we must also do to remain competitive in the global lobster marketplace. If we fall behind in the 're-investment' race all stakeholders will be affected. This is difficult to achieve with the highly competitive position we face in purchasing raw material from fishermen.

The past season was relatively free of the international crises of the previous season. Bird flu did not have any impact and any terrorist threats similarly failed to impact on the market. For this we must be thankful! All of the catch found a 'home' and whilst prices received may not have been as good as some would have hoped for completion of the WRLDA initiative of preparing the Global Lobster market database (which has been made available to all fishers on CD Rom via the Processors) highlights the fact that prices received for western rock lobster are still at the 'top of the ladder'. To retain our world ranking is the issue we must all face in the light of major investment by our competitors in seeking to strengthen their positions at our expense. Yet again I raise the need for a generic promotional campaign to keep the profile of the western rock lobster at the highest point. This will be costly however, perhaps the Lobster Council (on behalf of the catching sector) could revisit this very important issue and work together with WRLDA for the benefit of all in the industry.

I hope the off-season provides all stakeholders with a well earned rest before we all line up again on November 15th.

TAGGING

After not conducting any tagging of western rock lobsters for several years, the Department commenced a new tagging program in October 2003, with a total of approximately 2000 lobsters tagged at Lancelin, Dongara and the Abrolhos Islands. Previous tagging was primarily aimed at following the migration of white lobsters, but this new program will focus on collecting more accurate information on growth rate. By monitoring growth, any annual variation and/or long-term changes in moult increments will be detected. This is important because any change in growth rate will impact on the productivity of the fishery.

Since it is vital that accurate carapace measurements are obtained from recaptured tagged lobsters, fishers have been requested as of the 2003/04 season, to return recapture information slightly differently than in the past. Instead of measuring the tagged lobsters themselves, **fishers are asked to record tag information and location of capture for each recaptured tagged lobster on supplied cards and then consign the tagged lobsters separately from the rest of their catch to their usual processor**, where Fisheries Officers can accurately measure them. The number of tag returns from each tagging location is shown in Table 2 and the valuable growth data collected is shown in Figure 2a-c.

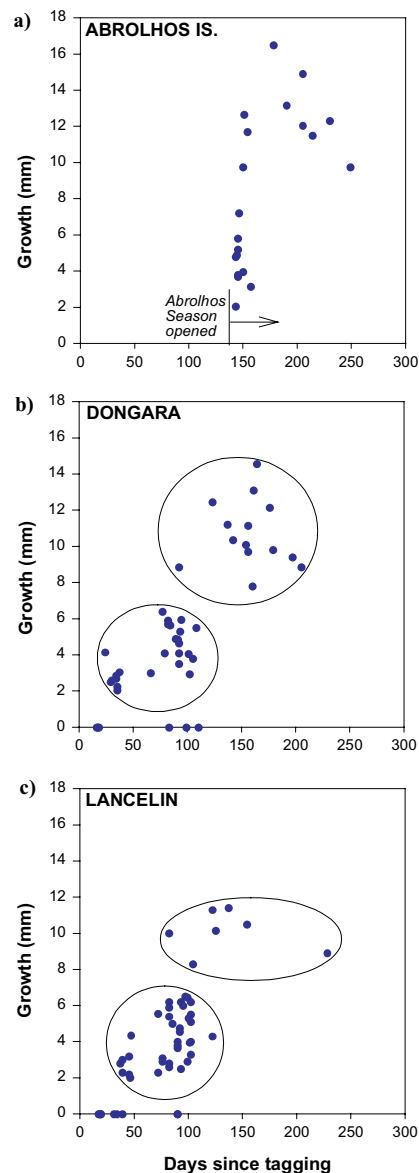


Figure 2. Growth increment plots for tagged western rock lobsters recaptured during the 2003/04 season from a) Abrolhos Islands b) Dongara and c) Lancelin. Note that data for lobsters that had lost any appendages or had been measured by fishers rather than a Fisheries Officer were excluded in these plots. The circled clumps of data points indicate the likely growth increments for those lobsters that moulted either once or twice before recapture.

Table 2. Number of western rock lobsters tagged in October 2003, the number of tagged lobsters measured at the factories and tag return rates for each of the three tagging locations.

Location of tagging	No. tagged	No. returned	Return rate %
Abrolhos Islands	1,017	38	4%
Dongara	413	65	16%
Lancelin	673	45	7%
Total	2,103	148	7%

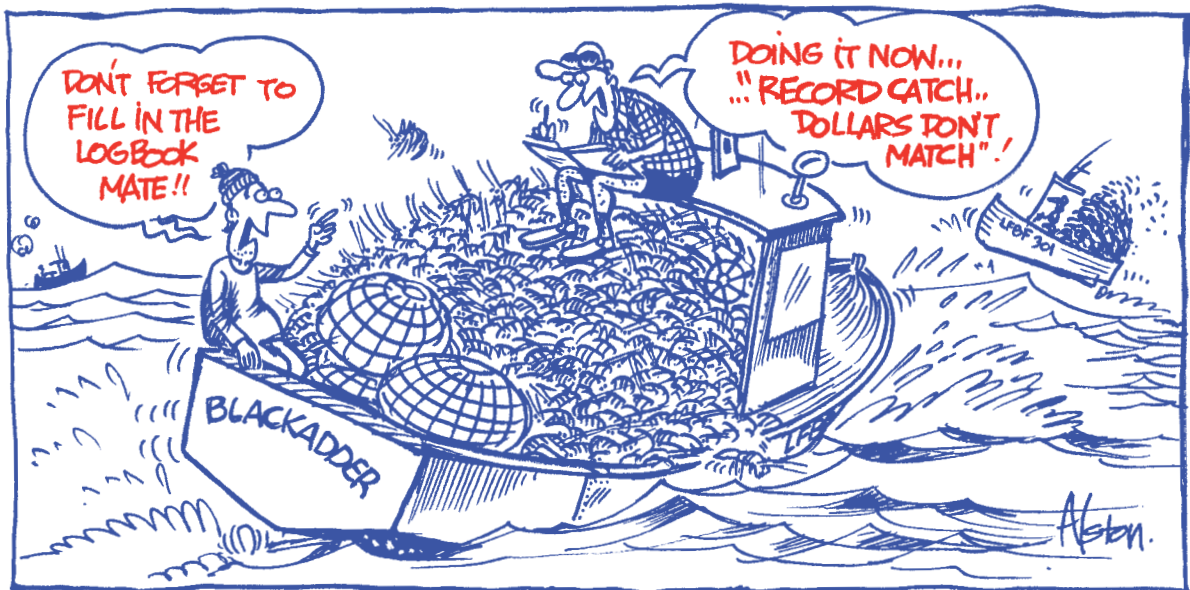
The Rock Lobster Research Section would like to say a big thank you to all the fishers and processing factory staff for helping with the tagging program during the 2003/04 season. The program will be continuing in the 2004/05 season (Lancelin, Jurien and Dongara) and it is hoped that tag return rates will increase as more rock lobster fishers become aware of the importance of this research and of the need for their support and cooperation. Thanks again and if you have any queries regarding the tagging program please do not hesitate to call Nadia Tapp (ph: 9246 8444).

VOLUNTARY RESEARCH LOG BOOKS

This past season 35% of skippers/deckies participated in the log book programme, which was somewhat down on the previous season's highest ever participation rate of 40.5%. The current level is most commendable and provides a good statistical coverage of the entire fishery. Unfortunately, each season fishers drop out of the program for varying reasons, particularly older skippers retiring and leasing their pots and as such it becomes necessary to recruit new skippers/deckies into the programme to maintain the coverage.

If you were forwarded a log book last season and did **not** keep a record of your fishing activities and observations in the log book, I would urge you to **PLEASE** "have a go" next season! Even if you just record your daily catch or an estimate thereof, by the depth in which it was caught, would be of immense value to the research team. The compulsory monthly returns are not in fine detail and only contain the catch on a monthly basis by large statistical blocks.

To those of you who kept and forwarded research data last season, please accept sincere thanks from the research team and you can be assured that your efforts are well and truly appreciated. If you have not returned your completed returns please do so as soon as possible. If you would like to join the program, please phone Eric Barker collect on 9246 8444 or simply pick up a log book from your local Department of Fisheries office.



*This information was provided by the Western Rock Lobster Development Association (Inc.), Suite 6, 41 Walters Drive, Osborne Park WA 6017. Chairman Mr Tony Gibson ph: (08) 9244 2933 fax: (08) 9244 2934.
 Except where acknowledged, the information in this bulletin has been supplied by the FISHERIES RESEARCH DIVISION of the DEPARTMENT OF FISHERIES (WA). Contact Mr Eric Barker or Mr Mark Rossbach ph: (08) 9246 8444 fax: (08) 9447 3062.



Department of
Fisheries

Bulletin No 32

6 April 2005

Commercial Fisheries Production Bulletin



WESTERN ROCK LOBSTER FISHERY 2004/05 SEASON

THE COASTAL FISHERY TO DATE

Preliminary processors production figures indicate that the total "whites" catch (to the end of January) was 5,065 tonnes, which was 11% down on last year's catch and slightly lower (2.2%) than the predicted catch of approximately 5,175 tonnes.

Listed below are the processors production figures to the end of January for the three fishing regions, viz. Fremantle (Capes area to Wedge Island), Jurien (Green Islands to Green Head) and Geraldton (Leeman to Shark Bay).

Table 1. Preliminary rock lobster production figures.

Production (kg) to end of January 2005

Fremantle	Jurien	Geraldton	Total
2,835,637	835,374	1,394,183	5,065,194

Production (kg) to end of January 2004

Fremantle	Jurien	Geraldton	Total
3,208,376	894,326	1,616,796	5,719,498

Difference (kg) and percentage difference

Fremantle	Jurien	Geraldton	Total
372,739	58,952	222,613	654,304
11.6% down	6.6% down	13.8% down	11.4% down

10 yr. average catch (t)

to end of January 2003 = 4,306

Production (t) to end of January 2004 = 5,065

Difference (t) = 759

% Difference = 17.6% up

Processors production figures indicate that Zone C "whites" catch of 3,671 tonnes was 10.5% down on last year's catch but exceeded the prediction of 3,375 tonnes by 296 tonnes (8.8%). Whereas in Zone B the "whites" catch of 1,394 tonnes was 13.8% down on last year's catch when an increase was expected.

It will be interesting to see if this trend continues for the rest of the season.

Although whites were present in the catch from day one throughout the fishery, it was not until late November/early December that "whites" really started to be taken in good quantities. The timing of the start of the "whites" run varied along the coast. By early December the fleet was scattered from the shallows out to the

mid-grounds and by mid December vessels were fishing the deep water. Fishers reported very large numbers of undersize in all depths, together with plenty of breeding females, particularly in Zone C.

By early January, Zone B boats were returning mainly to the shallows. The few vessels remaining in deep water were on multiple day pulls.

Mid January saw much of the fleet removing gear from the water in Zone B and ceasing fishing for the remainder of January. These vessels commenced fishing again by early February.

With the exception of some good catches north of Kalbarri early in February, Kalbarri fishers have experienced below average catches so far this season.

Largely, due to some very calm clear sea conditions, a moult and the moon on the 24, generally, February was very quiet in both zones, with the fleet confined mainly to the shallows and a few vessels in the mid-grounds.

As in previous seasons the efficiency of the fleet was most apparent with many vessels not only moving across the shelf to opportunistically target high densities of rock lobsters, but also along the entire length of the coast to maximise catch.

THE CAPES AREA

Following very good catches in deep water towards the end of December, a large number of vessels moved south into the Capes area to take advantage of the deep water bonanza. Unfortunately, these catches were short lived and whilst a number of skippers did well, many did not.

Following the decline in catches in deep water, some vessels moved into the shallows, whilst others returned to northern ports.

Towards the end of January another short spike in catches occurred in deep water which again resulted in a movement of boats into the area. A small group of vessels remained in the area until almost the end of February.

The two vessels fishing out of Augusta took exceptionally good catches of western rock lobsters in deep water right through to the end of February when catches started to decline. The large catches taken by the two vessels fishing out of Augusta during the last two seasons is the result of a spike in recruitment some

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years ago, together with the possibility of a migration of rock lobsters into the area.

Six vessels also fished in the Windy Harbour area, which is part of the South Coast fishery, two of which based their operations out of Albany. Reasonable catches of western rock lobsters were taken until early January, when catches started to decline. Southern rock lobsters also comprised part of the catch.

BIG BANK

58 boats nominated to fish in the Big Bank area this season, which was 53% more than the 38 boats that fished the area during 2004. This year's February catch for the area was 99 tonnes, well down (47%) on last year's February catch of 188 tonnes.

Catches have been restricted to the actual bank (hard substrate) with very few migratory whites being taken in deep water (mud substrate). It is highly likely that this season's catches taken on the Bank itself is the result of last year's migration of undersize into the area. Fishers also reported good numbers of setose in the catches. Vessels also fished well to the north of the line in search of migratory whites but to no avail. During the latter part of February vessels were returning to home ports.

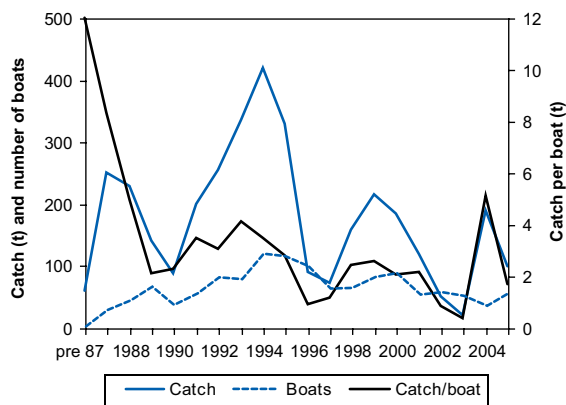


Figure 1. The historical time series of catch in tonnes (solid blue line), number of boats (blue dashed line) and catch (tonnes) per boat (solid black line) for the Big Bank Region.

PUERULUS SETTLEMENT

The 2004/05 puerulus settlement period has so far resulted in average to below average settlement at all sites with the exception of Jurien located near the centre of the fishery. These lower settlements will first impact on the "reds" of 2007/08 and then as poor "whites" throughout the fishery in 2008/09.

Since early 2002, environmental conditions along the Western Australian coast have been dominated by an El Niño-Southern Oscillation (ENSO) event which resulted in a weaker Leeuwin Current and generally was responsible for the poor puerulus settlement experienced. (Figure 2) This event affects the strength of the current together with water temperatures, and also plays an important role in the abundance and distribution of puerulus settlement.

SOI and SST update

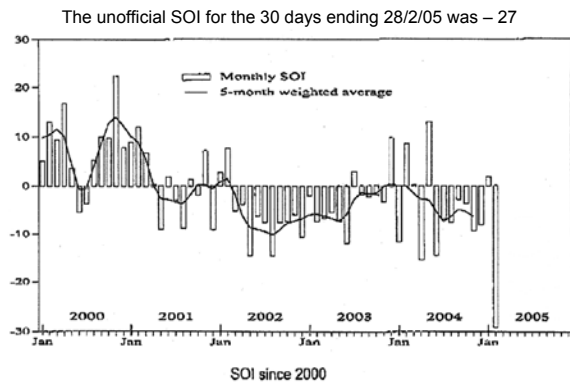


Figure 2. Southern Oscillation Index and the 5 month weighted average since 2000 until present (Australian Government- Bureau of Meteorology)

Based on the recent oceanic and atmospheric conditions and on the model forecasts, it seems most likely that weak El Niño conditions will gradually weaken during the next three months and that ENSO-neutral conditions will prevail during the last half of 2005 (NOAA-Climate Prediction Centre 2004).

WRLDA MARKETING NEWS*

At the start of the current season the inventory (stocks of lobster on hand in cold stores) was relatively low which is always a desirable position to 'kick off' a new season with.

Unfortunately our catching season commenced with very high landings early in the season and it was generally accepted that we were two weeks ahead of what would be deemed 'normal landings' in a season.

What this meant was that the market was not ready to accept large volumes of product due to this early factor not co-inciding with the pre Christmas and Christmas party period when consumption of live lobster is very high. As a consequence a larger than normal level of 'tails' were produced for the USA market.

At the time of preparing this report the 'tail' market is holding up fairly well despite the large volume produced in both December and January (1,293,971 kgs and 467,190 kgs respectively for the two months which represented 40% of total landings for the period). Anecdotal reports of production for February indicate that we will not produce a very high percentage of 'tails' for the month which will help by not adding additional pressure on this market.

Production in the latter part of January and early part of February was concentrated heavily on meeting the demand for live product for Chinese New Year celebrations.

The Japanese market has been very slow this season and has been reluctant to buy 'pink' lobster due to the level of sales by South Africa and Cuba at prices much lower than Aussie packers would accept. However, there are good signs that the Japanese buyers will be active in securing good levels of 'red' lobster. This situation may well become the normal pattern in the future.

There have been larger than normal levels of sales into China this season and the interesting thing to note here is that the Chinese buyers are starting to accept more smaller sized lobster than previously purchased. Whilst there have been a number of border closures into China again, the number of direct sales into China (not via buyers in Hong Kong) have increased. Combine this with the progress towards the Free Trade Agreement then the future of the Chinese market is looking quite healthy!

Europe continues to accept more product which can be attributed to the acceptance of our lobster and the knowledge that it represents excellent quality. This will continue to happen and there is an air of confidence about the future level of sales into the EU. Market growth will take time, however, it is generally accepted that it is happening and will continue to grow.

Yet again as exporters, WA Lobster packers have suffered at the 'hands' of currency fluctuations. It is of little comfort to make this statement, however, the reality is that since the Australian dollar floated we are at the mercy of the global view of the strength or weakness of our dollar and the associated view of our economy from a world perspective. This is a situation we have absolutely no control over and yet it is of such crucial importance to lobster exporters.

WA lobster processors have led the world in a number of developments and I refer here specifically to the development of 'Sashimi' style lobster (developed by the M G Kailis Group), however, it doesn't take long for other producers to catch up. For example, I understand that the four largest Cuban processors are or have converted their freezing plants to Nitrogen (tunnel) freezers within the last 6/8 months and are or will very shortly be in direct competition to Western Sashimi style rock lobster. The issue facing processors is how to stay ahead of the product development game whilst at the same time service existing and emerging markets whilst competing with the rest of the world's lobster producers. I suggest it is a huge task !

As the season progresses :

- provided the Japanese buyers interest in our 'reds' catch continues
- provided the level of 'tails' remains at what is considered 'normal'
- provided Taiwan's price for 'lives' is maintained (and it should in the absence of competition from Mexico noting their season is finished)
- provided the Aussie Dollar stays around the USD 0:75 to USD 0:80 (preferably the 0:75 mark, although this is probably wishful thinking)
- provided all other factors remain 'normal' (and they invariably do not)

Then the outlook for the remainder of the current season is reasonable.

Some interesting trends are starting to emerge from the Global Lobster Data Base studies.

It is intended to prepare a detailed account for presentation to the end of season Coastal Tour this year which will highlight the Global lobster situation and the positioning of Western Rock Lobster.

Everyone involved in the industry should never lose sight of the fact that we are not the only lobster producing nation in the world. Other lobster producers can offer their catches for sale often at much less than the price we are attempting to achieve due to their cost structures and the realisation that the lobster buyers around the world are trading in a commodity for profit.

TAGGING

In October to December 2004, approximately 1300 western rock lobsters were tagged in Dongara, Jurien and Lancelin with yellow 'spaghetti' tags. This tagging program is focussed on collecting accurate information on growth rate. By monitoring growth, any annual variation and/or long-term changes in moult increments will be detected. This is important because any change in growth rate will impact on the productivity of the fishery.

The Rock Lobster Research Section would like to say thank you to all the fishers and processing factory staff who are helping with the tagging program this season and encourage other fishers to support the program by completing tag-recapture cards and consigning tagged lobsters to their usual processing factory. The number of 'spaghetti' tag recaptures that have been reported so far during the 2004/05 season are shown in Table 2. As in the past, any fisher returning a tag recapture card will receive details of the lobster's movement and growth together with a \$2 Scratch 'n' Win.

Fifty-one lobsters were tagged in Jurien late last year, with special, orange 'backpack' tags. The 'backpack' tags are attached to the carapace and are therefore lost at moulting. They are positively buoyant so that once the lobster moults they can rise to the surface and possibly find their way onto the beaches, thereby increasing the chances of recovery. Depending on their recovery rates, these tags may be used in the future to carry expensive temperature and depth storage tags, but at this stage they are only being trialed. Of the 51 lobsters that were tagged with a 'backpack', 20 of them have already been recaptured. A \$50 cheque is rewarded for each 'backpack' tag returned to us so keep your eyes peeled for the other 31 that are still out there!

If you have any queries regarding the tagging program or need more tag recapture cards please do not hesitate to call Nadia Tapp.

Table 2. Number of western rock lobsters tagged, the number of recaptured tagged lobsters measured at the factories and tag return rates in the 2004/05 season for each of the three tagging locations. The recapture rates for the entire 2003/04 season tagging program are also shown for reference.

Spaghetti tags	2004/05 season so far...			Entire 2003/04 season
Location of tagging	No. tagged	No. returned	Recapture rate	Recapture rate
Dongara	605	59	10%	16%
Jurien	180	7	4%	-
Lancelin	528	27	5%	7%
Total	1313	93	7%	10%

RESEARCH LOG BOOKS

To date 29.7% of skippers/deckies have forwarded data on their catches/observations this season. This is down on last season's participation rate of 36% and well down on the record of 40.5% received during the 2002/03 season. Hopefully there are more fishers who have kept records but to date have not forwarded their data to the laboratories at Waterman. It would be most rewarding to maintain last season's participation rate of 36%!

Therefore, to this end fishers are urged to fill in a research log book, even just the daily catch or an estimate thereof and pot lifts by the depth that the catch was taken in, would be a great help to us.

To those of you who have kept and forwarded research data so far this season, please accept sincere thanks from the rock lobster team at Waterman. You can be assured your efforts are well and truly appreciated. If you would like to join the program please phone Eric Barker collect on 9246 8444 or simply pick up a log book from your local Department of Fisheries Office.

*This information was provided by the Western Rock Lobster Development Association (Inc.), Suite 6, 41 Walters Drive, Osborne Park WA 6017. Chairman Mr Tony Gibson ph: (08) 9244 2933 fax: (08) 9244 2934.
Except where acknowledged, the information in this bulletin has been supplied by the FISHERIES RESEARCH DIVISION of the DEPARTMENT OF FISHERIES (WA). Contact Mr Eric Barker or Mr Mark Rossbach ph: (08) 9246 8444 fax: (08) 9447 3062.



Department of
Fisheries

Bulletin No 33

1 September 2005

Commercial Fisheries Production Bulletin



WESTERN ROCK LOBSTER FISHERY 2004/05 SEASON

THE COASTAL FISHERY TO DATE

Preliminary processors production figures indicate that the total catch for the 2004/2005 season was 12,142 tonnes, 10.9% less than the 2003/2004 catch of 13,630 tonnes but 6.8% above the average catch of the last 10 years. It was 4.8% tonnes lower than the predicted catch of approximately 12,750 tonnes.

Listed below are the processors production figures to the end of June for the three fishing regions, viz. Fremantle (Capes area to Wedge Island), Jurien (Green Islands to Green Head) and Geraldton (Leeman to Shark Bay).

Table 1. Preliminary rock lobster production figures.

Production (kg) to end of June 2005

Fremantle	Jurien	Geraldton	Total
5,173,872	1,538,422	5,429,698	12,141,992

Production (kg) to end of June 2004

Fremantle	Jurien	Geraldton	Total
6,788,018	1,575,777	5,265,754	13,629,549

Difference (kg) and percentage difference

Fremantle	Jurien	Geraldton	Total
1,614,146	37,355	163,944	1,487,557
23.8% down	2.4% down	3.1% above	10.9% down

10 yr. average catch (t)

to end of June 2004 = 11,364

Production (t) to end of June 2005 = 12,142

Difference (t) = 778

% Difference = 6.8% up

Processors production figures indicate that Zone C catch of 6712 tonnes was just below the predicted catch of approximately 7000 tonnes by 288 tonnes (4.1%). Zone B catch of 3221 tonnes was below the predicted catch of 3900 tonnes by 679 tonnes (17.4%). Of interest, Zone A catch of 2208 tonnes exceeded the expected catch by a similar quantity (558 tonnes). There may be some correlation between the very high Abrolhos catch and the lower than expected catch in Zone B. It must also be noted that in recent seasons there has been a shift in pots from Zone B into Zone A which could also have contributed to the high Islands catch and to the lower catch in B Zone.

Throughout the coastal fishery long periods of unfavourable catching conditions, viz. calm and clear sea conditions may have contributed to the lower than expected catch.

Anecdotal reports by many fishers indicate that catches in the shallows in Zone B were not good, however, this was somewhat offset by reports of good catches in the mid grounds to deep water in the same zone.

Fishers also reported, particularly in Zone C, that large numbers of setose females were present in the catches.

In all zones, catches of octopus were high, as was predation by octopus in the pots.

THE ABROLHOS ISLANDS

The 2004/2005 Abrolhos catch of 2208 tonnes (processors figures) was the highest catch in the history of the fishery exceeding the previous highest catch (1900 tonnes) in 1995/96 by 308 tonnes. Much of the higher than expected catch can probably be attributed to the success of the very mobile fleet of large vessels that fished north of North Island in deep water and also in deep water south of Southern Group. Generally, Island catches remained good for a long period, however, towards the middle of May, catches started to decline and some fishers commenced multiple day pulls. Due mainly to good catches being maintained, fishers continued fishing longer, however, by mid June, vessels were returning to the mainland.

Very good catches were also taken in deep water by a small number of vessels fishing just north of the northern Abrolhos line.

THE CAPES AREA

The peak catching period in the Capes area was covered in Bulletin No. 32. Since then a small number of vessels have remained permanently in the area, with other vessels moving opportunistically to and from. Apart from isolated catches in deep water during the latter part of the season, most vessels confined their activities to the shallows and beyond. By the end of May, catches and weather had started to decline and most boats departed from the area.

As predicted, catches during the 2004/2005 season were not as good as the previous season and it is likely that catches will further decline in the coming season.

This Bulletin is produced by the Research Division of the Western Australian Department of Fisheries

RESEARCH LOG BOOKS

A very sincere thanks to all those skippers/deckies who recorded and forwarded data on their catches and observations during the 2004/05 season. Unfortunately, over the past seasons, for a number of reasons, viz. a reduction in the size of the fleet and retirement of skippers/deckies who have traditionally provided research data, together of late, with strong feelings in some fishers, particularly in Zone B, against effort/time reductions during the forthcoming 2005/2006 season, the level of participation in the log book program has been declining.

It cannot be stressed strongly enough the importance the rock lobster team places on long term fine scale research data provided by fishers for the responsible future management of this extremely important fishery.

Please do **NOT** take the line that “you, (the Agency) are using the data against us”, because nothing could be further from the truth! In fact, not filling in a log book for reasons of angst is tantamount to “cutting off your nose to spite your face”!

Season 2002/03 saw the highest level ever of 40.5% fishers filling in log books which declined to 35% in 2003/04 and at the time of writing this had dropped further to approximately 33% in 2004/05. The current level still provides a good coverage of the entire coast, however, from a statistical point of view it would be unwise to allow the level of participation to fall below 33%. To this end it is hoped that those fishers who were on the mailing list last season but did **NOT** provide research data will do so in the forthcoming season. It is also hoped that those skippers/deckies who provided the research team with data last season, will again do so during the 2005/06 season. If it is too difficult to record the information on the breeding stock and environmental data, then perhaps you could just record your daily catch (or an estimate thereof), number of pots and the depth that the catch was taken from?

Each participant on the mailing list receives production figures each month, two Commercial Fishery Production Bulletins throughout the season and a personal summary showing catch per pot per month by depth and a comparison of catch per pot per month by depth by the zone in which you fished.

If you would like to join the program and I hope you will, please phone Eric Barker, collect on 9203 0111 or simply collect a research log book from your local Department of Fisheries office. Please leave your name, address, boat number and name so that you can be recorded on the mailing list.

PUERULUS SETTLEMENT

The 2004/2005 puerulus settlement season (which is from May 2004 until April 2005) produced below average settlement at all sites with the exception of Jurien as can be seen in the Figure 1. The impact of these poor settlements will first be felt on the “reds” of 2007/08 and then as poor “whites” throughout the fishery in 2008/09.

A majority of the statistical and coupled model forecasts indicate that SST anomalies will likely remain positive during the next 3-6 months, but still within the ENSO-neutral range.

The risk of an El Niño developing this year is low. Although most of the equatorial Pacific Ocean remains about half a

degree warmer than average, it has cooled slightly over the past fortnight. There are no obvious triggers to increase temperatures to an El Niño state. Whilst the SOI remain neutral (Figure 2) then an average Leeuwin Current is expected and puerulus settlement is likely to be average this coming collection season.

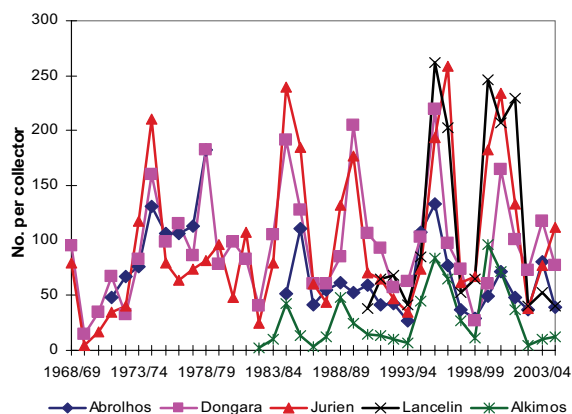


Figure 1. Puerulus settlement from regional sites.

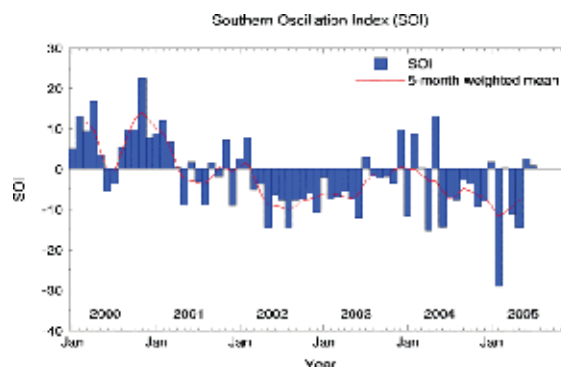


Figure 2. Southern Oscillation Index and the 5 month weighted average since 2000 until present (Australian Government – Bureau of Meteorology).

YEAR	Zone A	Zone B	Zone C	TOTAL
05/06	1,750	3,600	4,800* 5,200**	10,150 10,450
06/07	1,800	3,750	3,900* 4,400**	9,400 9,850
07/08	1,750	3,700	4,500* 4,750**	9,950 10,200

Table 2. Catch predictions for rock lobster catches (tonnes) for the next three seasons. *Indicates C Zone one forecast from Alkimos puerulus settlement alone and ** indicates predictions from a combination of C Zone settlement sites.

Predictions of catch are available for the next 3 seasons (2005/06-2007/08). These are based on puerulus settlements three and four years prior to the season for which catch is predicted. Table 2 shows the forecasts by zone. Generally the Abrolhos catch (Zone

A) remains stable. The season just completed produced a record catch of 2200 tonnes and it will be interesting to see whether this is repeated. Zone B forecasts are slightly up on the actual 2004/05 season catch whilst Zone C shows catches are declining over the next 2 seasons, with a slight increase in catch in 2007/08.

WRLDA MARKETING NEWS*

The season opened up with relatively low inventories in the major markets which on the face of it should indicate good prospects for WA Exporters, however, a number of factors must be taken into account including:

- The Japanese preference for 'red' lobster hence that market is not keen to buy frozen 'white' lobsters. Although demand for 'lives' was reasonable.
- Whilst Mexico is not a huge producer its season is in full swing for its 'lives' normally at lower prices than WA exporters deem acceptable.
- Domestic sales appear to be maintaining levels of demand (price driven) over the last two/three seasons beyond what has been the normal demand level.
- The strength of the Aussie Dollar remains one of the greatest issues facing our Industry & indeed all Aussie exporters.
- Other lobster producing countries continue to catch up to WA lobster both in volume and price, thus substantiating the view that WA lobster is now one of a whole range of lobster commodities available. As a separate issue WRLDA will report on this years Coastal Tour on the Global Lobster Database.

The USA 'tail' market remained fairly steady throughout the season which was assisted by the fact that the buyers were aware of the lesser volumes available than in the previous season and consumption patterns remain fairly constant in America.

The following table gives the production levels on a monthly basis of 'lives' and frozen/cooked:

	Lives	Frozen/cooked
November	26%	51%
December	18%	39%
January	44%	12%
February	48%	20%
March	21%	42%
April	22%	38%
May	35 %	25%
June	50%	18%

The 'tails' production whilst peaking at 41% in January remained fairly constant in the 20% to 30% range.

What these production levels tell us amongst other things is that the demand for the various major pack styles varies fairly markedly due to a whole array of factors not the least being the availability of other lobster countries production at the time the decision is taken as to what the Processor deems to be the best pack style to achieve the highest return!

Demand for frozen product is continuing to rise in Europe in the main occasioned by favourable currency movements, however,

the world 'crisis' in the oil industry may temper any advantage if we witness a severe northern winter with higher demand for oil heating requirements.

The global oil situation may also impact on our ability to meet demand for live lobster insofar as we believe the airlines are all currently reviewing their flight schedules and more importantly their costs of fuel. They may consider dropping off some scheduled flights which clearly WRLDA would oppose to the best of our ability, however, we are not considered a major player in the international airline business where the major emphasis is 'bums on seats'!

It has long been the view of many that in low production years price always rises. We suggest that this is not the case in recent years within the global lobster marketplace where currency and competition factors are now the keys to ensuring the best available return to the Industry. On both counts Australian exporters continue to be faced with the daunting task of a fluctuating dollar and price takers and other countries setting selling price levels.

WRLDA has for many years been a strong advocate for generic promotion of western rock lobster. We still are and watch interestingly as many other Australian primary producers continue to not only support levies for export promotional purposes but increase the levies. We suggest these Industries are not doing this simply to spend money!

Why is it that the western rock lobster fishery as an industry doesn't spend one cent on generic promotion? Individual processors try and promote their own brands, however, for reasons unknown to me we seem to believe, I suggest rather naively, that we don't need to attempt to win back the premium position we enjoyed for many years (if it not already too late). Perhaps we are satisfied with simply being just 'another lobster commodity'?

TAGGING

In October last year, as part of the continuing Western Rock Lobster Tagging program, a total of approximately 1,300 lobsters were tagged with yellow 'spaghetti' tags at Lancelin, Jurien and Dongara. This tagging program continues to focus on collecting accurate information on growth rate. By monitoring growth rates, any annual variation and/or long-term changes in moult increments will be detected. This is important because any change in growth rate will impact on the productivity of the fishery.



Over the 2004/05 season, just over 200 tag recapture cards were received from fishers that had recaptured a lobster with a 'spaghetti' tag while Fisheries Officers measured approximately 150 of these tagged lobsters at the processing factories. This equates to a recapture rate of 11%, which is a good improvement on last year's recapture rate of 7%. Since we request that fishers consign all tagged lobsters to their usual processor (after filling out a recapture card) we hope that in the future, as more fishers become aware of the correct return process, the number of tag recapture cards we receive will more closely match the number of tagged lobsters measured at the processing factories and hence, the recapture rate will increase.

All fishers were rewarded with a \$2 Scratchie for each tagged animal that they recaptured with the record being held by a Dongara fisher who returned tag recapture information for 29 tagged animals this season!! The number of tag returns from each tagging location are shown in Table 3 and the valuable growth data collected is shown in Figure 3a-c.

Location of tagging	No. tagged	No. returned	Recapture rate
Lancelin	528	37	7%
Jurien	231	11	5%
Dongara	605	108	18%
Total	1364	156	11%

Table 3. Number of western rock lobsters tagged in October 2004, the number of tagged lobsters measured at the factories and tag recapture rates for each of the three tagging locations.

The Rock Lobster Research Section would like to say a big thank you to all the fishers who have provided us with valuable information regarding 'spaghetti' tag recaptures during the 2004/05 season. We really appreciate your support and cooperation. Since this tagging program is ongoing, we hope that support of this important research will continue to grow in the future.

If you have any queries with regard to the tagging program please do not hesitate to call Nadia Tapp on (08) 9203 0172.

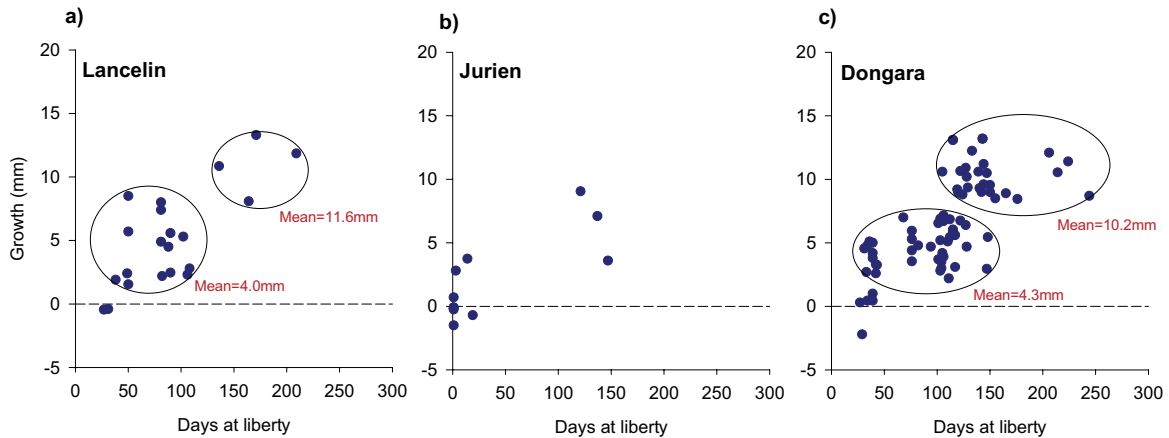
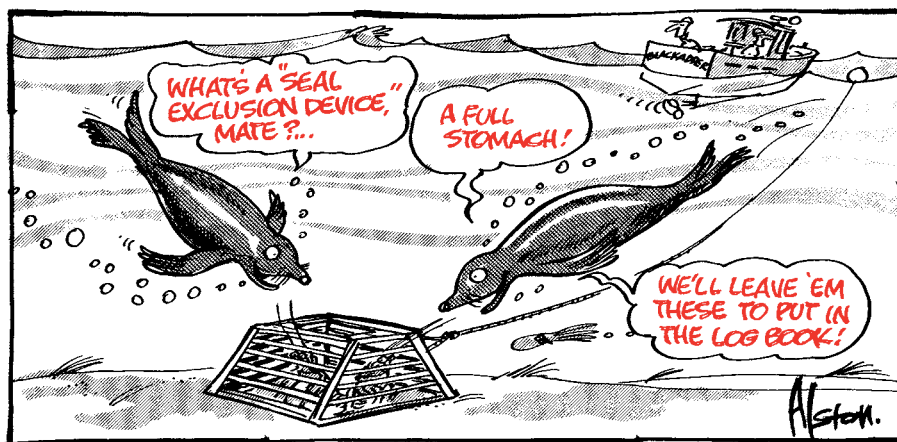


Figure 3. Growth increment plots for tagged western rock lobsters recaptured during the 2004/05 season from a) Lancelin b) Jurien and c) Dongara. Note that data for lobsters that had lost any appendages or had been measured by fishers rather than a Fisheries Officer were excluded in these plots. The circled clumps of data points indicate the likely growth increments for those lobsters that moulted either once or twice before recapture. Mean growth for each 'moult' is displayed in red.



*This information was provided by the Western Rock Lobster Development Association (Inc.), Suite 6, 41 Walters Drive, Osborne Park WA 6017. Chairman Mr Tony Gibson ph: (08) 9244 2933 fax: (08) 9244 2934. Except where acknowledged, the information in this bulletin has been supplied by the FISHERIES RESEARCH DIVISION of the DEPARTMENT OF FISHERIES (WA). Contact Mr Eric Barker or Mr Mark Rossbach ph: (08) 9203 0111 fax: (08) 9203 0199.