

**Status Report
to PIRSA Fisheries**

**Southern Zone
Rock Lobster (*Jasus edwardsii*)
Fishery Status Report 2005/06**

A. Linnane, R. McGarvey, and J. Feenstra

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Authors: A. Linnane, R. McGarvey, and J. Feenstra.

South Australian Research and Development Institute
SARDI Aquatic Sciences
2 Hamra Avenue
West Beach SA 5024

Telephone: (08) 8207 5400
Facsimile: (08) 8207 5406
<http://www.sardi.sa.gov.au>

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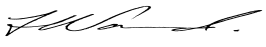
Author:	A. Linnane, R. McGarvey and J. Feenstra
Reviewers:	Simon Bryars, Shane Roberts and Kelly Crosthwaite
Approved by:	Dr Tim Ward
Signed:	
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1 EXECUTIVE SUMMARY

- In 2005 (i.e. the 2005/06 season), the TACC in the SZRLF was 1,900 tonnes. The total reported commercial catch from logbook data was 1888.7 tonnes. A total of 1,183,037 potlifts was required to catch the TACC, which was an increase of 12.5% from 2004 (1,051,520 potlifts) when the TACC was also 1,900 tonnes. In 2005, catch was highest in January (393 tonnes) and lowest in May (43 tonnes).
- In 2005, a total of 98.5% of catch came from four Marine Fishing Areas (MFAs) i.e. 51, 55, 56 and 58. The highest catch came from MFA 55 (39%) while the lowest catch came from MFA 51 (2%). In terms of depth, 52% of the catch was taken in the 31-60 m depth range with 96.2% of the catch taken in depths of <90 m.
- The CPUE in the SZRLF increased substantially between 1996 (0.92 kg/potlift) and 2002 (2.1 kg/potlift). CPUE in 2003 and 2004 was ~1.80 kg/potlift. In 2005, CPUE decreased to 1.6 kg/potlift. Current catch rates do not take into account discard rates due to highgrading, which in 2005 was estimated to be 111 tonnes.
- The 2005 decrease in CPUE was observed in all of the four major MFAs in the SZRLF. This is the third season in succession in which CPUE has decreased in MFAs 56 and 58.
- Mean lobster weight increased from 1999 (0.75 kg) to 2003 (0.85 kg). Over the last two seasons it has marginally decreased and in 2005 was 0.84 kg. In 2005, mean weight was lowest in November (0.78 kg) and highest in May (1.16 kg). As with CPUE, this estimate was largely affected by highgrading.
- Since 1994, the pre-recruit index (PRI) as calculated from voluntary catch sampling (where the escape gaps, if fitted, are closed), has generally increased. In 2005, it was 1.03 undersized/potlift.
- Biomass, as determined by the qR model, has been increasing since 1996, peaking at 6,856 tonnes in 2002. Over the last three seasons, estimates of biomass have decreased and in 2005 was 5,734 tonnes. Current estimates of biomass do not take into account the effects of highgrading.
- Egg production, as determined by the qR model, has been increasing since 1996, peaking at 1,462 billion eggs in 2003. In 2005, it decreased to 1,293 billion eggs.
- In 2005, all of the performance indicators in the SZRLF were within, or positively outside, the reference points as defined in the Fishery Management Plan (Zacharin 1997). Despite optimistic outputs at a zonal level, this report identifies a number of localised downward trends that require highlighting. Specifically, decreasing catch rates in MFAs 56 and 58 will require close monitoring in future assessments. More detailed spatial analyses will be presented in the SZRLF 2005/06 Stock Assessment Report due for completion in March 2007.

2 FISHERY STATISTICS

2.1 Catch, effort and CPUE

2.1.1 Interannual trends

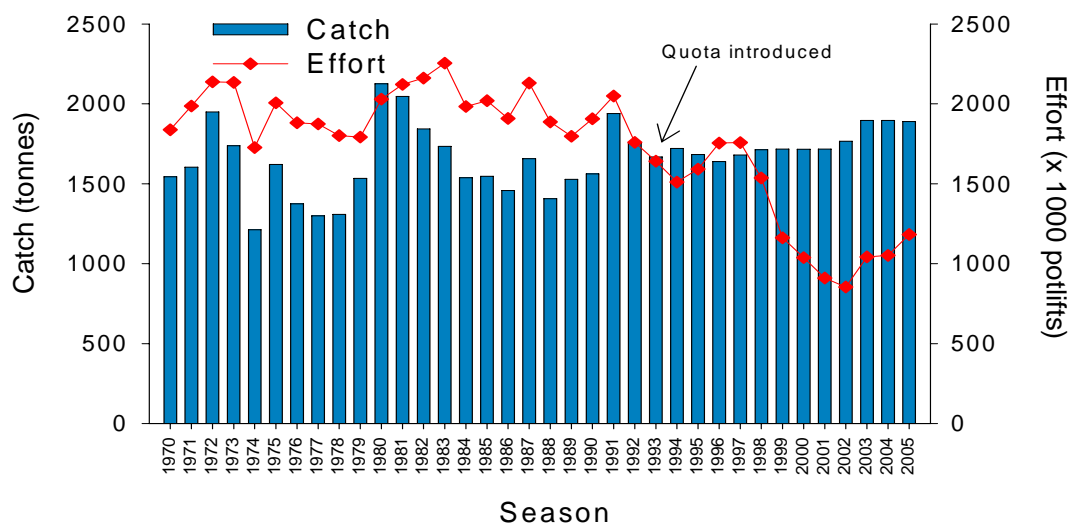


Figure 1 Inter-annual trends in catch and effort in the SZRLF from 1970 to 2005.

In 2005 (i.e. the 2005/06 season), the TACC in the SZRLF was 1,900 tonnes (Figure 1). The total reported commercial catch from logbook data was 1888.7 tonnes. Effort in 2005 was 1,183,037 potlifts, which was an increase of 12.5% from 2004 (1,051,520 potlifts) when the TACC was also 1,900 tonnes.

2.1.2 Within season trends

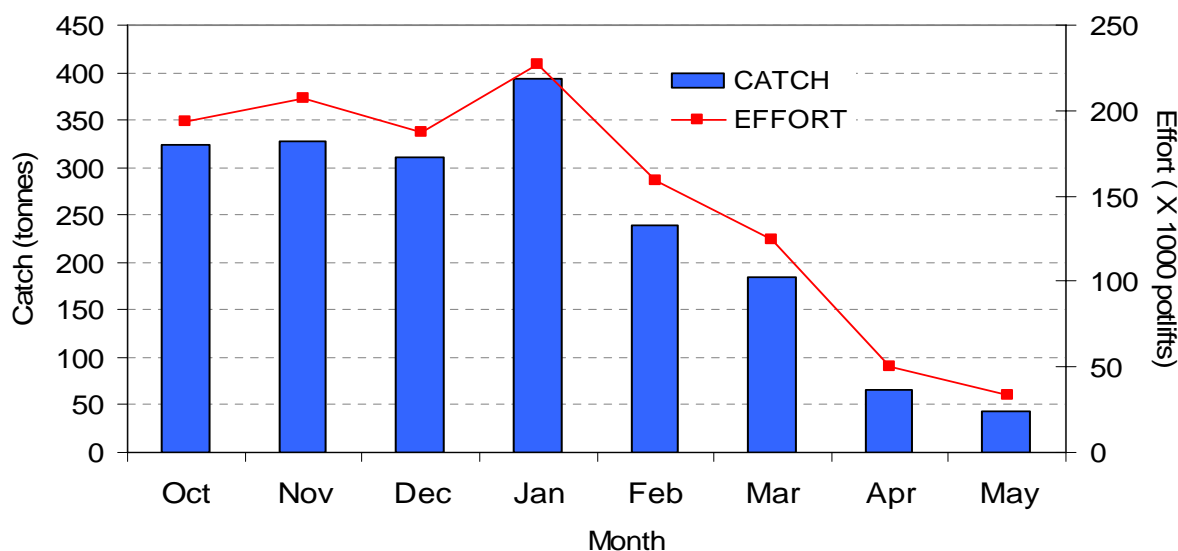


Figure 2 Within season trends in catch and effort in the SZRLF for the 2005 season.

In 2005, the highest catches were taken in the first four months of the season from October to January (Figure 2). The highest catch month was January at 393 tonnes while the lowest was May at 43 tonnes. The trend in effort reflected catch levels by month.

2.1.3 Patterns across Marine Fishing Areas (MFAs)

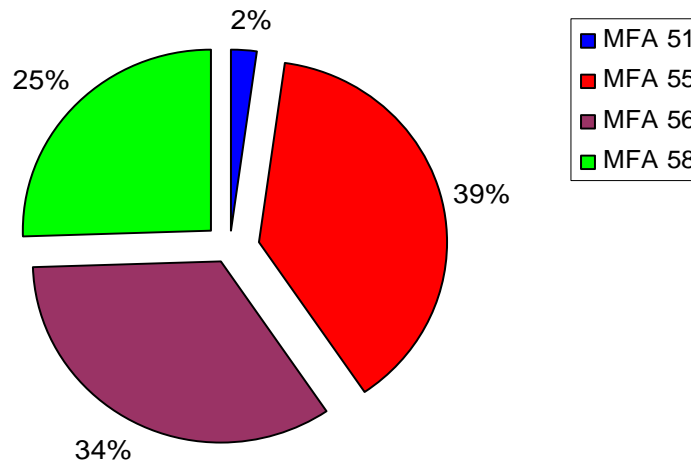


Figure 3 Percentage of total catch taken in the four major MFAs (in terms of tonnage landed) of the SZRLF in 2005.

In 2005, a total of 98.5% of catch came from four MFAs in the SZRLF (Figure 3, refer to Figure 18 for location of MFAs). The highest catch came from MFA 55 with 39% while only 2% of catch came from MFA 51.

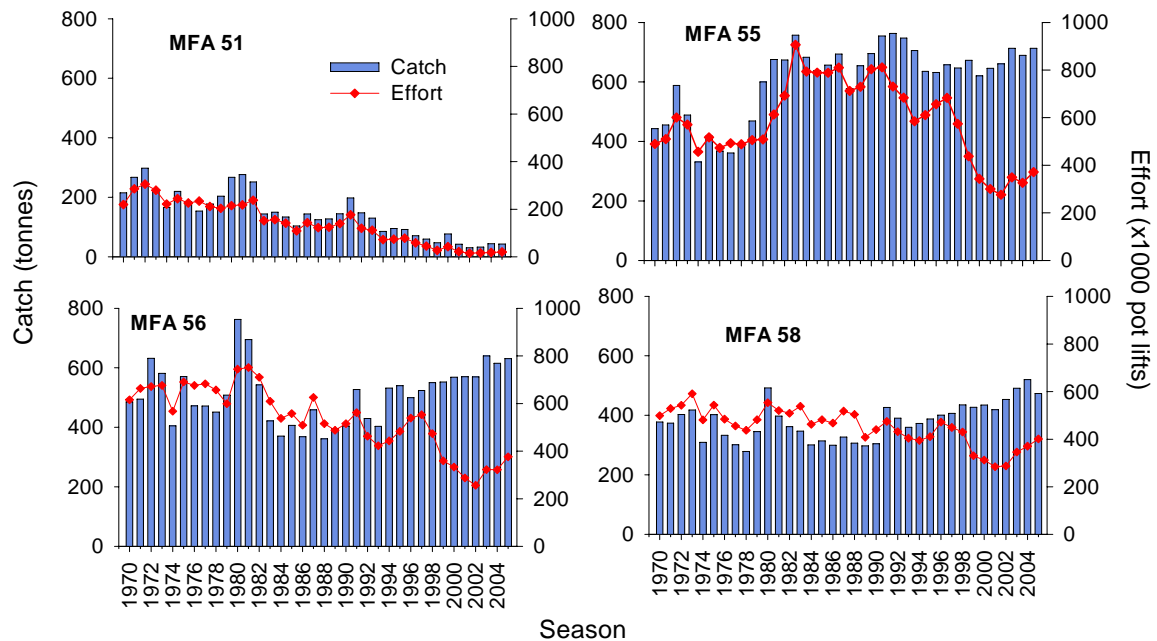


Figure 4 Inter-annual trends in catch and effort in the main Marine Fishing Areas (MFAs) of the SZRLF for the fishing seasons between 1970 and 2005 (note: alternate seasonal ticks on X-axis).

In 2005, both catch and effort increased in MFAs 55 and 56 compared to 2004 (Figure 4). Of note, however, was MFA 58 where catch decreased from 520 to 473 tonnes despite an increase in effort. Effort in MFA 58 has increased consecutively over the last three seasons.

2.1.4 Catch by depth

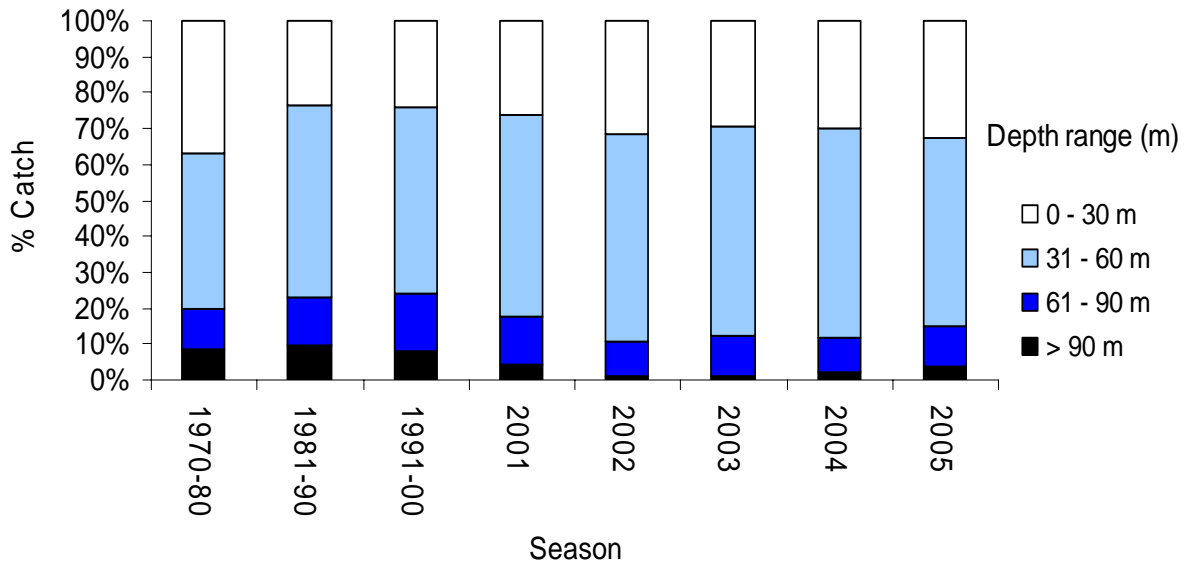


Figure 5 Percentage of catch taken from four depth ranges in the SZRLF during the 1970s, 1980s, 1990s and the last five fishing seasons.

In the 2005 season, 52% of the catch was taken in 31-60 m depth range with 96.2% of the catch taken in depths of <90 m (Figure 5).

2.1.5 Annual CPUE

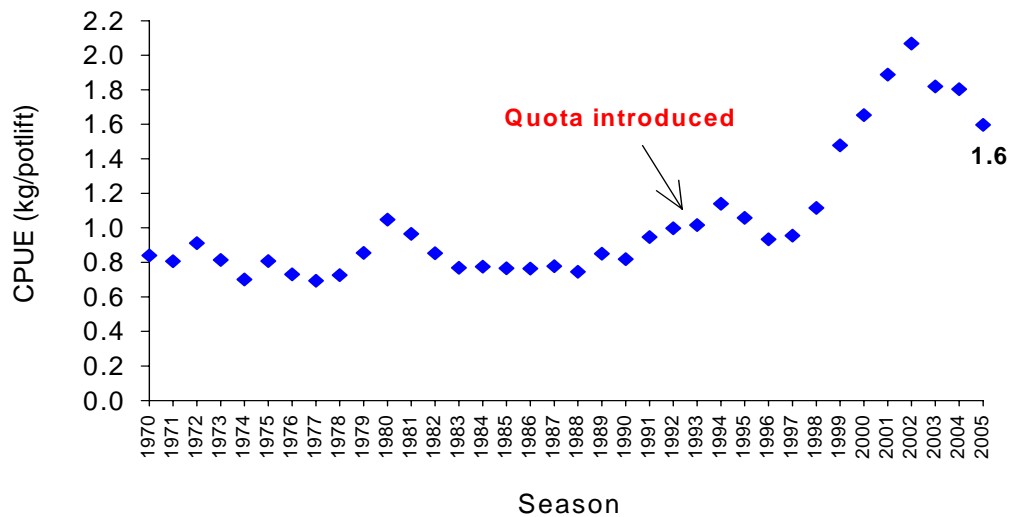


Figure 6 Inter-annual trends in CPUE in the SZRLF between 1970 and 2005.

The CPUE in the SZRLF increased substantially between 1996 (0.92 kg/potlift) and 2002 (2.1 kg/potlift) (Figure 6). CPUE in 2003 and 2004 was ~1.80 kg/potlift. In 2005, CPUE decreased to 1.6 kg/potlift. Note that this estimate does not take into account discard rates due to highgrading (see Figure 10).

2.1.6 CPUE by Marine Fishing Area

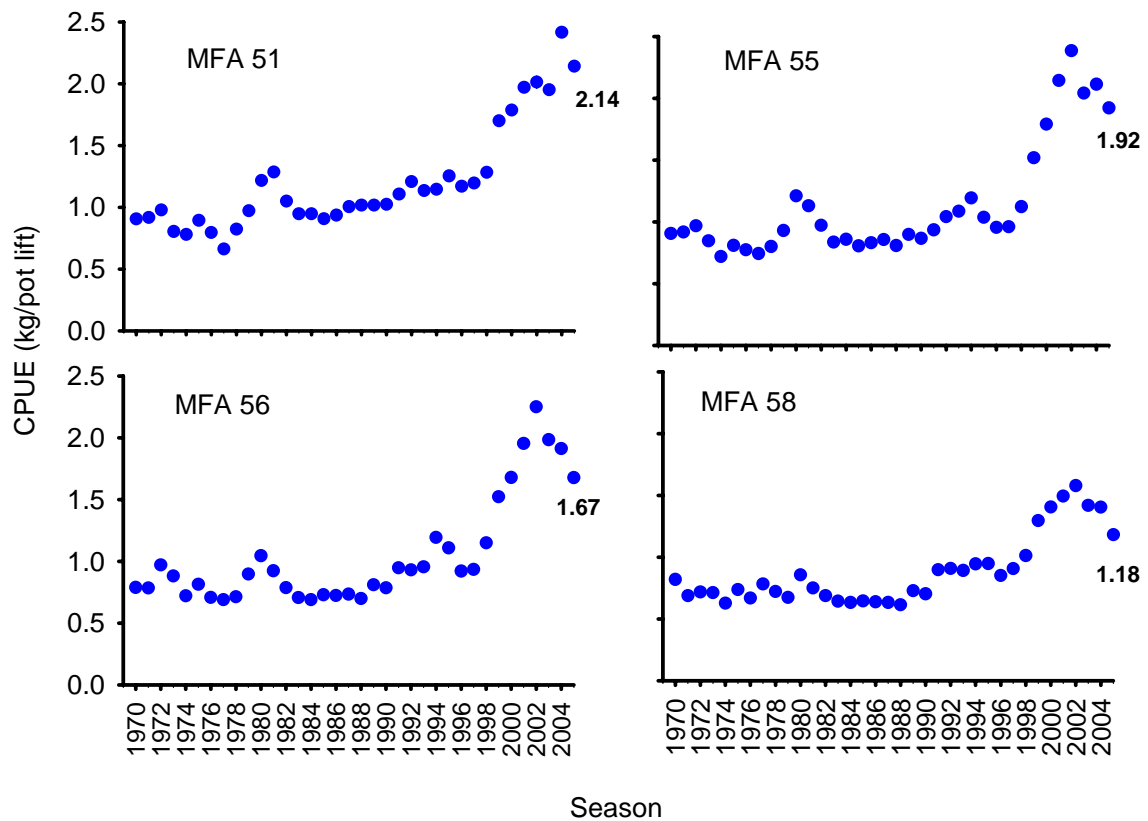


Figure 7 Inter-annual trends in CPUE in the four main MFAs of the SZRLF between 1970 and 2005 (note: alternate seasonal ticks on X-axis).

Catch rates in the four main MFAs of the SZRLF increased significantly from 1996 to 2002 (Figure 7). Highest catch rates are generally observed in MFA 51 although catch in this MFA has been decreasing in recent seasons and in 2005 represented only 2% of the total catch for the SZRLF (Figures 3 and 4). In 2005, catch rates decreased in all four MFAs. This is the third season in succession in which catch rates have decreased in MFAs 56 and 58.

2.2 Annual mean weight

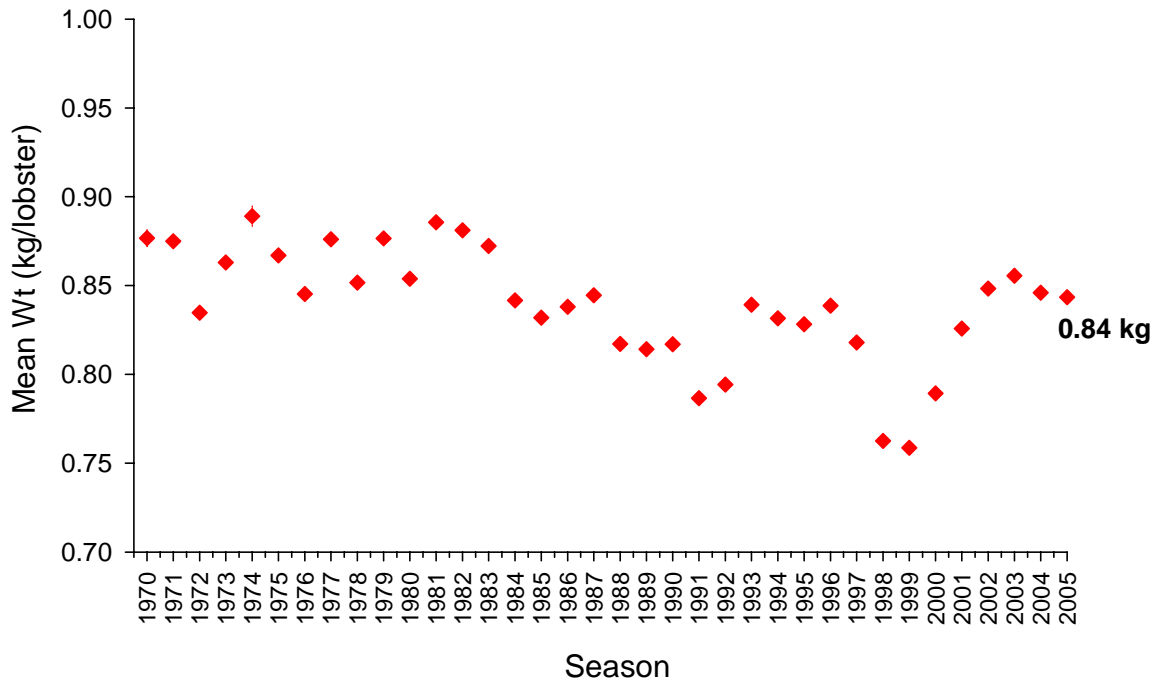


Figure 8 Inter-annual trends in mean lobster weight in the SZRLF from 1970 to 2005.

Mean lobster weight increased from 1999 to 2003 (Figure 8). Over the last two seasons it has marginally decreased and in 2005 was 0.84 kg. As with CPUE, this estimate is largely affected by highgrading in the zone (see Figure 10).

2.2.1 Monthly mean weight

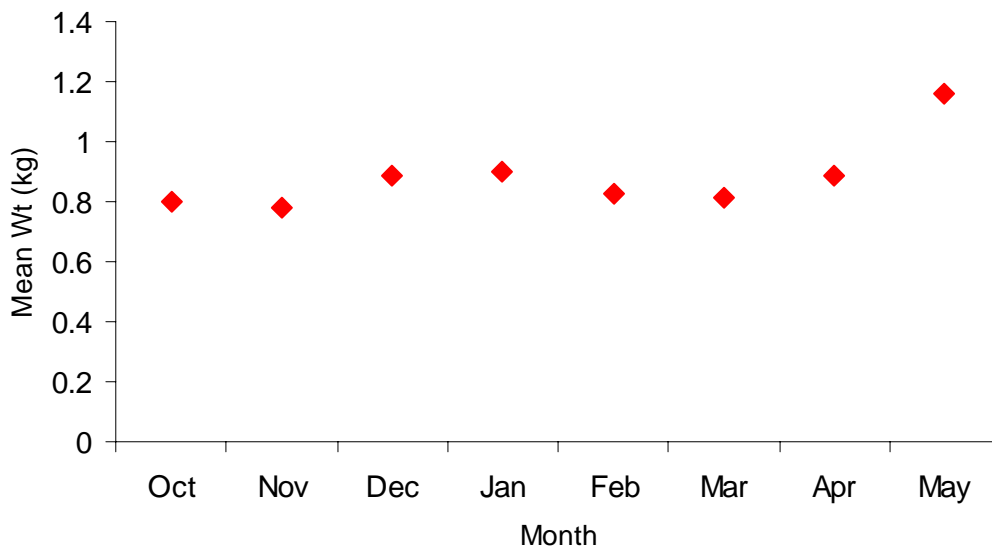


Figure 9 Within season trends in monthly mean lobster weight in the SZRLF for season 2005.

Mean weight in 2005 was lowest in November (0.78 kg) and highest in May (1.16 kg) (Figure 9).

2.3 Highgrading

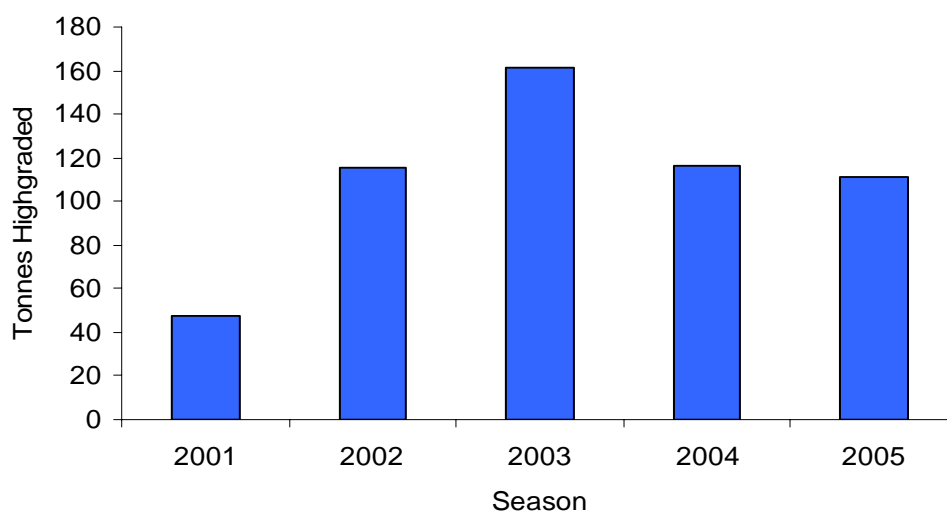


Figure 10 Estimates of highgrading in the SZRLF over the last 5 seasons.

Estimates of highgrading (i.e. the selection of smaller sized or non-damaged individuals due to higher unit value) have ranged from 47 to 161 tonnes over the last five seasons (Figure 10). As the recording of highgrades in logbooks is undertaken on a voluntary basis, this is likely to be an underestimation of true values. In 2005, a total of 111 tonnes were recorded as highgrades.

2.4 Annual Pre-recruit Index

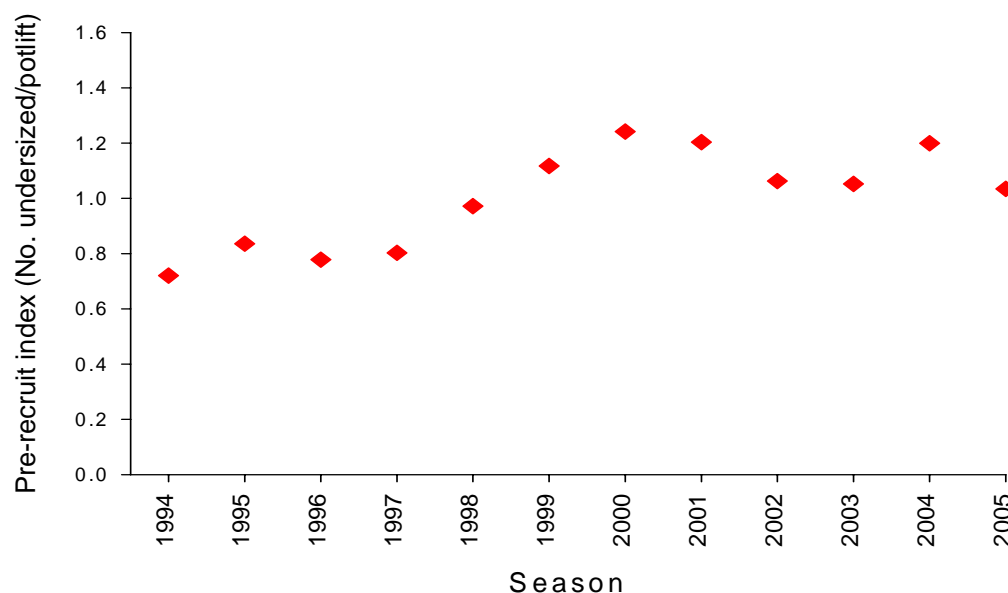


Figure 11 Inter-annual trends in pre-recruit index (PRI) in the SZRLF from 1994 to 2005 as calculated from voluntary catch sampling.

Since 1994, the PRI as calculated from voluntary catch sampling (where escape gaps, if fitted, are closed), has generally increased (Figure 11). In 2005, it was 1.03 undersized/potlift.

2.5 Sex ratios

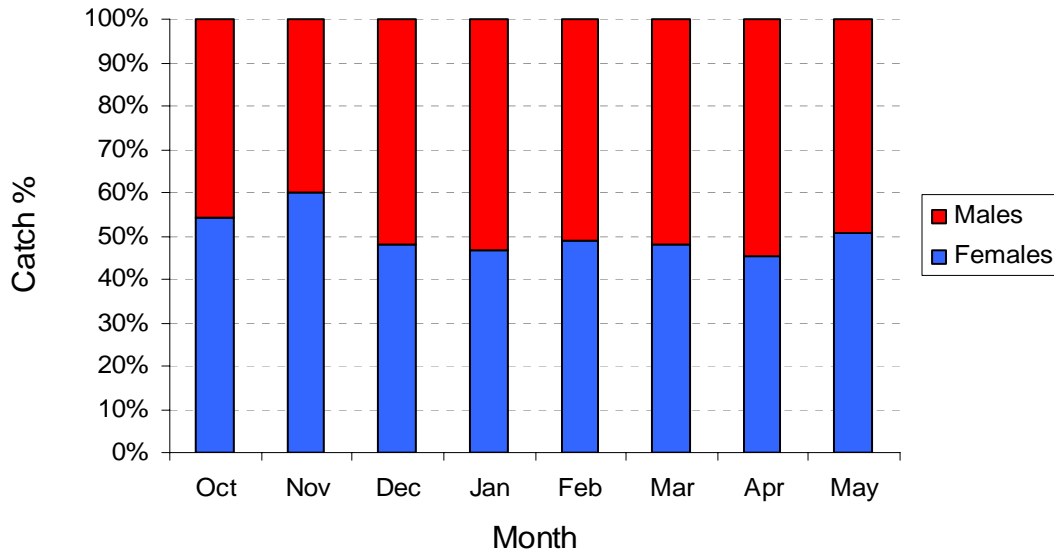


Figure 12 Within season trends in sex ratios in the SZRLF 2005 season.

In 2005, the proportion of females in the catch was lowest in April (45%) and highest in November (60%) (Figure 12).

2.5.1 Reproductive condition of females

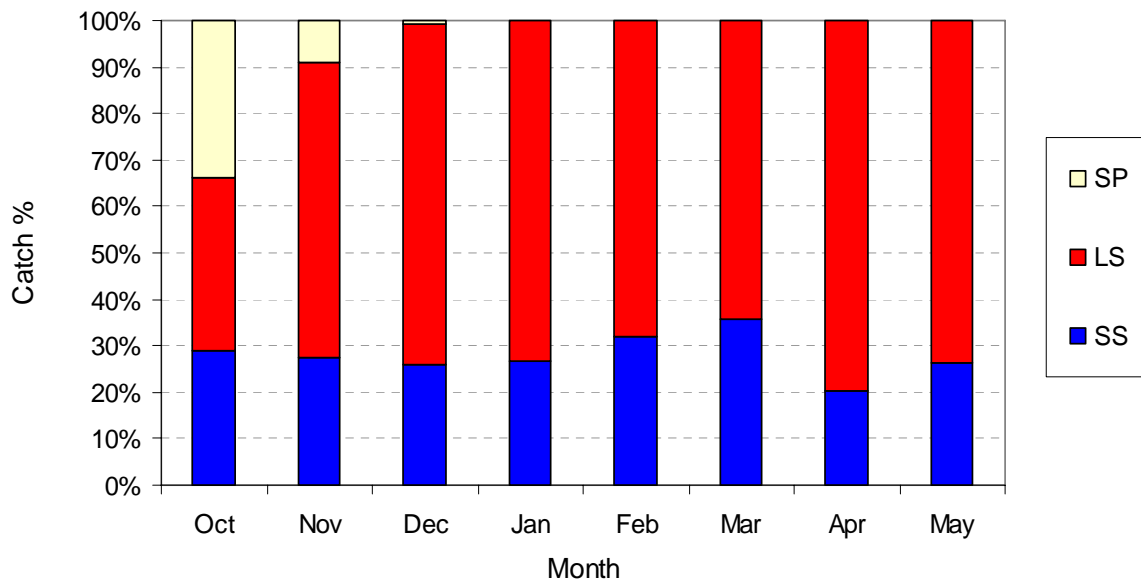


Figure 13 Within season trends in reproductive condition of females during the SZRLF 2005 season. SP = Spawning (ovigerous); LS = Long Setae (sexually mature); SS = Short Setae (sexually immature).

In 2005, spawning (ovigerous) females represented 34% of the female catch in October with a steady decline in proportion to <1% in December (Figure 13). No spawning females were observed from January to May where sexually mature individuals represented approximately 64-80% of the catch.

3 qR MODEL OUTPUTS

3.1 qR Biomass

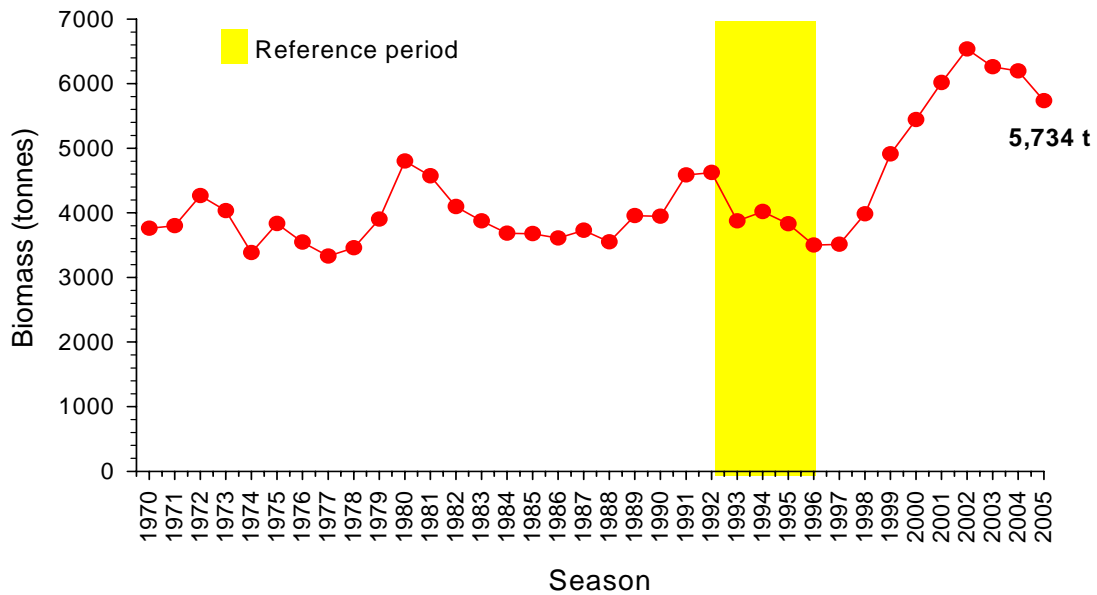


Figure 14 Estimates of exploitable biomass for the SZRLF obtained from the 2005 qR model. Biomass, as determined by the qR model, has been increasing since 1996 in the SZRLF, peaking at 6,536 tonnes in 2002 (Figure 14). Over the last three seasons, estimates of biomass have decreased and in 2005 was 5,734 tonnes. Current estimates of biomass do not take into account the effects of highgrading (Figure 10) within the zone.

3.2 qR Egg production

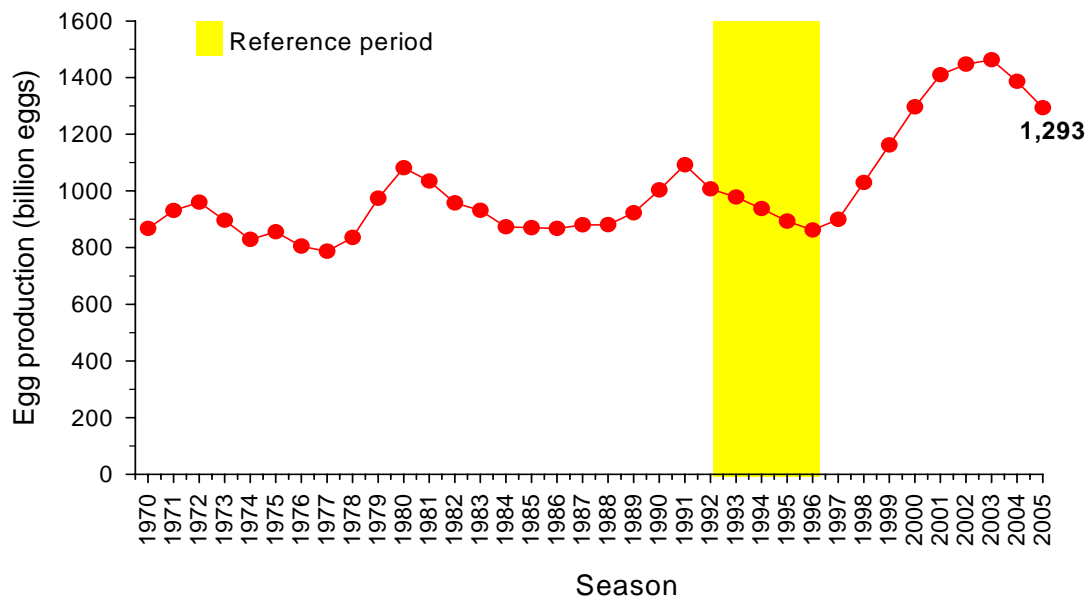


Figure 15 Estimates of egg production for the SZRLF obtained from the 2005 qR model. Egg production in the SZRLF has been increasing since 1996, peaking at 1,462 billion eggs in 2003 (Figure 15). In 2005, it decreased to 1,293 billion eggs.

3.3 Percent of virgin egg production

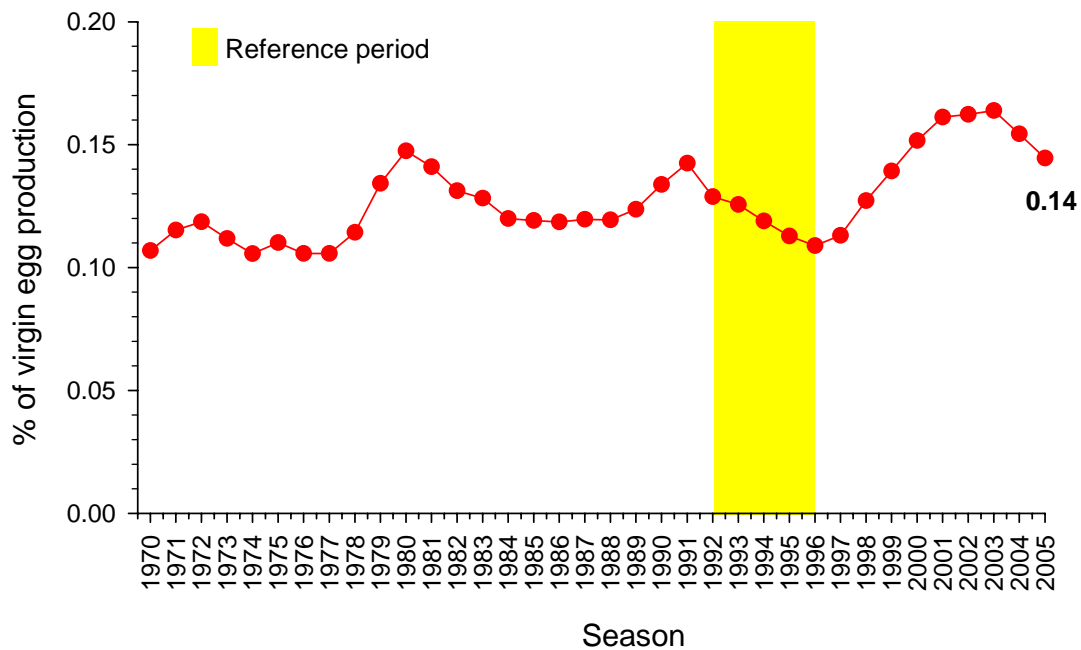


Figure 16 Estimates of % of virgin egg production for the SZRLF as obtained from the 2005 qR model.

Model outputs for the 2005 season suggest that current egg production equates to 14% of virgin (Figure 16).

3.4 Exploitation rate

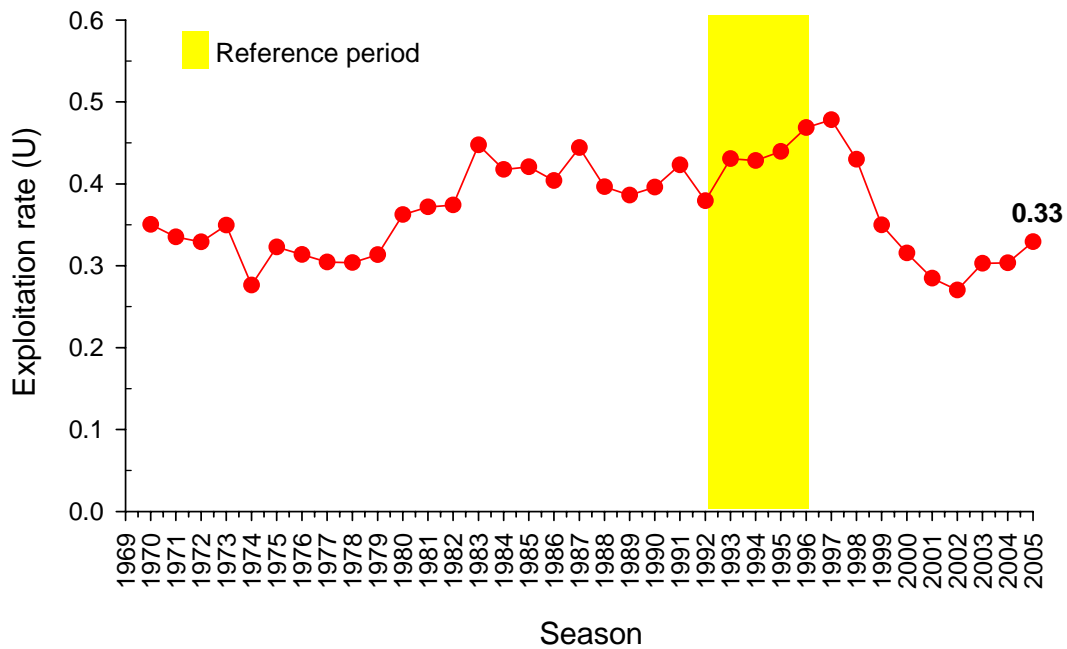


Figure 17 Estimates of exploitation for the SZRLF as obtained from the 2005 qR model.

Exploitation rate in the SZRLF decreased between 1997 and 2002. Over the last three seasons however it has increased and in 2005 was estimated to be 33% (Figure 17).

4 BIOLOGICAL PERFORMANCE INDICATORS

Table 1 Biological performance indicators for the SZRLF and current status levels for the 2005 season.

INDICATOR	2005/06	Lower	Upper
Exploitation Rate (qR)	0.3293	0.3792	0.4685
Egg Production (billions; qR)	1,293	862	1,007
Pre-recruit index	1.03	0.71	0.83
Catch rate (kg/potlift)	1.60	0.93	1.13
Biomass	5,734	3,499	4,625
Mean size (kg)	0.84	0.78	0.83

The historical data from 1992 through 1996 have been used to define the range of the biological performance indicators. In the 2005 season, all of the performance indicators in the SZRLF were within, or positively outside, the reference points as defined in the Fishery Management Plan (Zacharin 1997).

5 SUMMARY

Based on the performance indicators for the fishery from the 2005 season, the outlook for the SZRLF at a zonal level remains positive. However, this report identifies a number of localised downward trends that require highlighting. Specifically, decreasing catch rates in MFAs 56 and 58 will require close monitoring in future assessments. More detailed spatial analyses will be presented in the SZRLF 2005/06 Stock Assessment Report due for completion in March 2007.

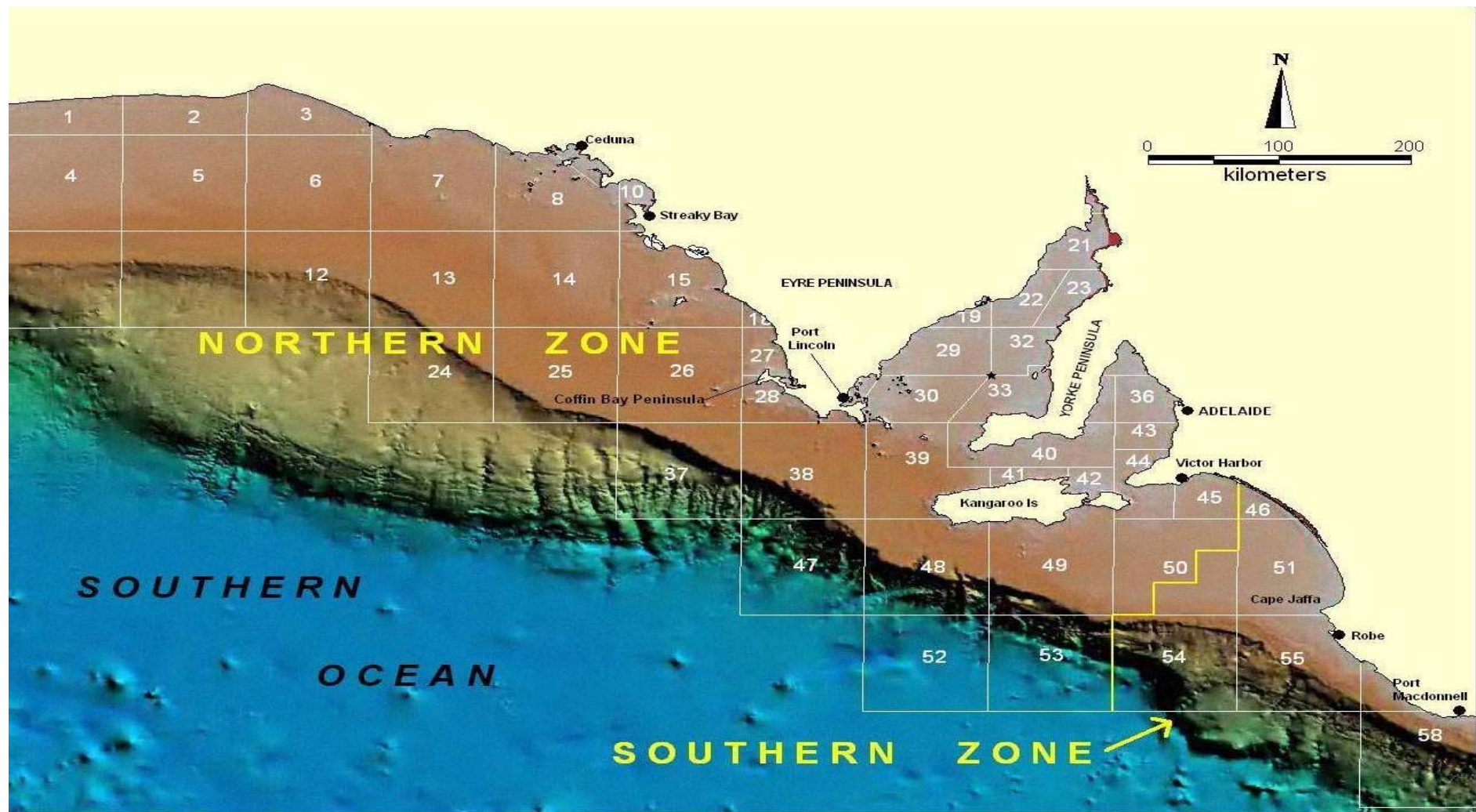


Figure 18 Northern and Southern Zones and Marine Fishing Areas in the South Australian Rock Lobster Fishery.