Adaptive management response to a spatially confined rock lobster (*Jasus edwardii*) fishery in South Australia

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SOUTH AUSTRALIAN RESEARCH & DEVELOPMENT INSTITUTE
PIRSA

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PREMIUM FOOD AND WINE FROM OUR CLEAN ENVIRONMENT

FRDC FISHERIES RESEARCH & DEVELOPMENT CORPORATION

SOUTH AUSTRALIA

Government of South Australia

SARDI SOUTH AUSTRALIAN RESEARCH AND DEVELOPMENT INSTITUTE

N

0 100 200

kilometers

Ceduna

Streaky Bay

EYRE PENINSULA

Port Lincoln

YORKE PENINSULA

ADELAIDE

Victor Harbor

Kangaroo Is

Coffin Bay Peninsula

Cape Jaffa

Robe

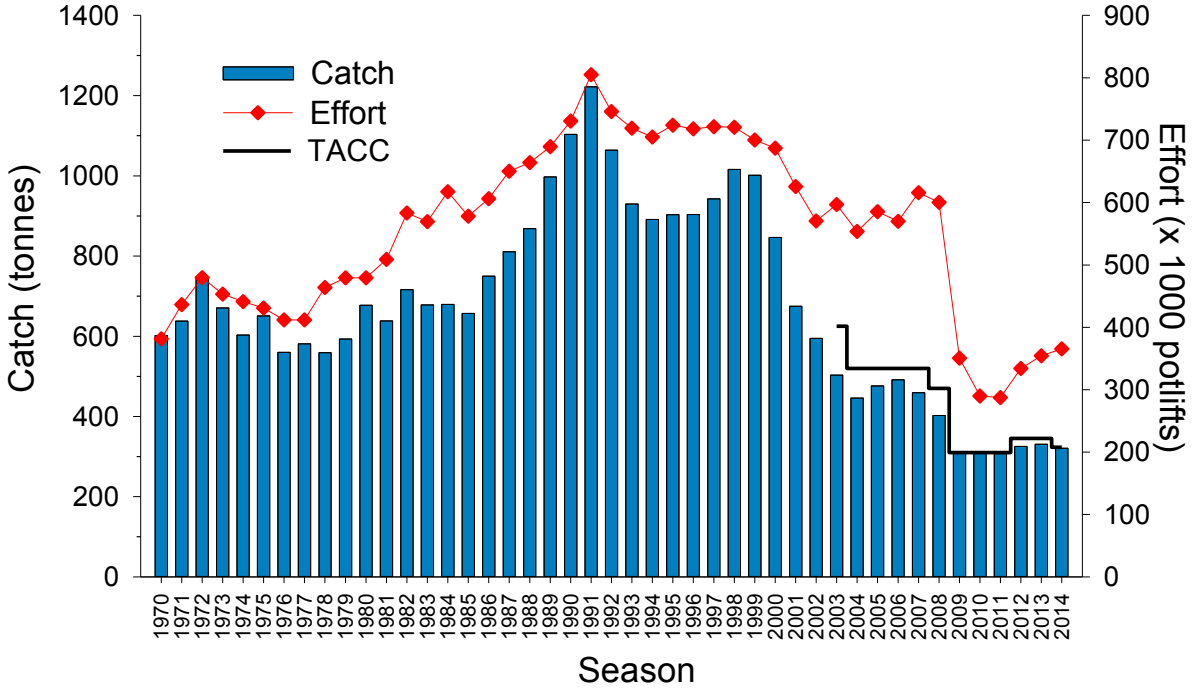
Port Macdonnell

NORTHERN ZONE

SOUTHERN ZONE

Northern Zone: 207,000 km²

Fishery



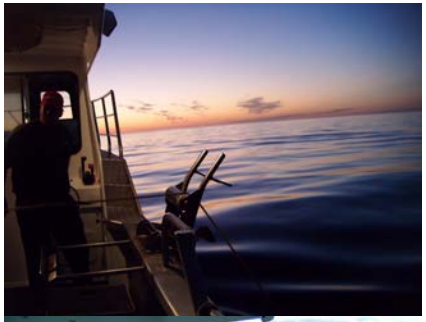
TACC introduced in 2003. Currently = 323 t.

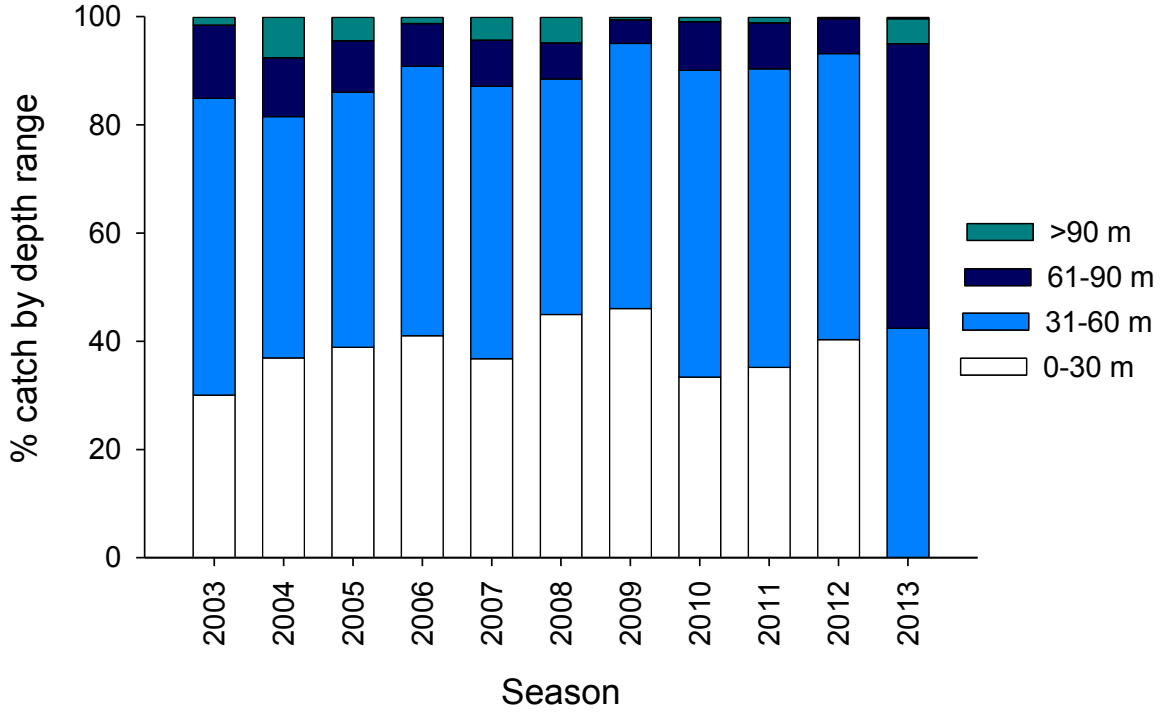
Chinese market demands

”Red” – inshore
(Eastern regions)

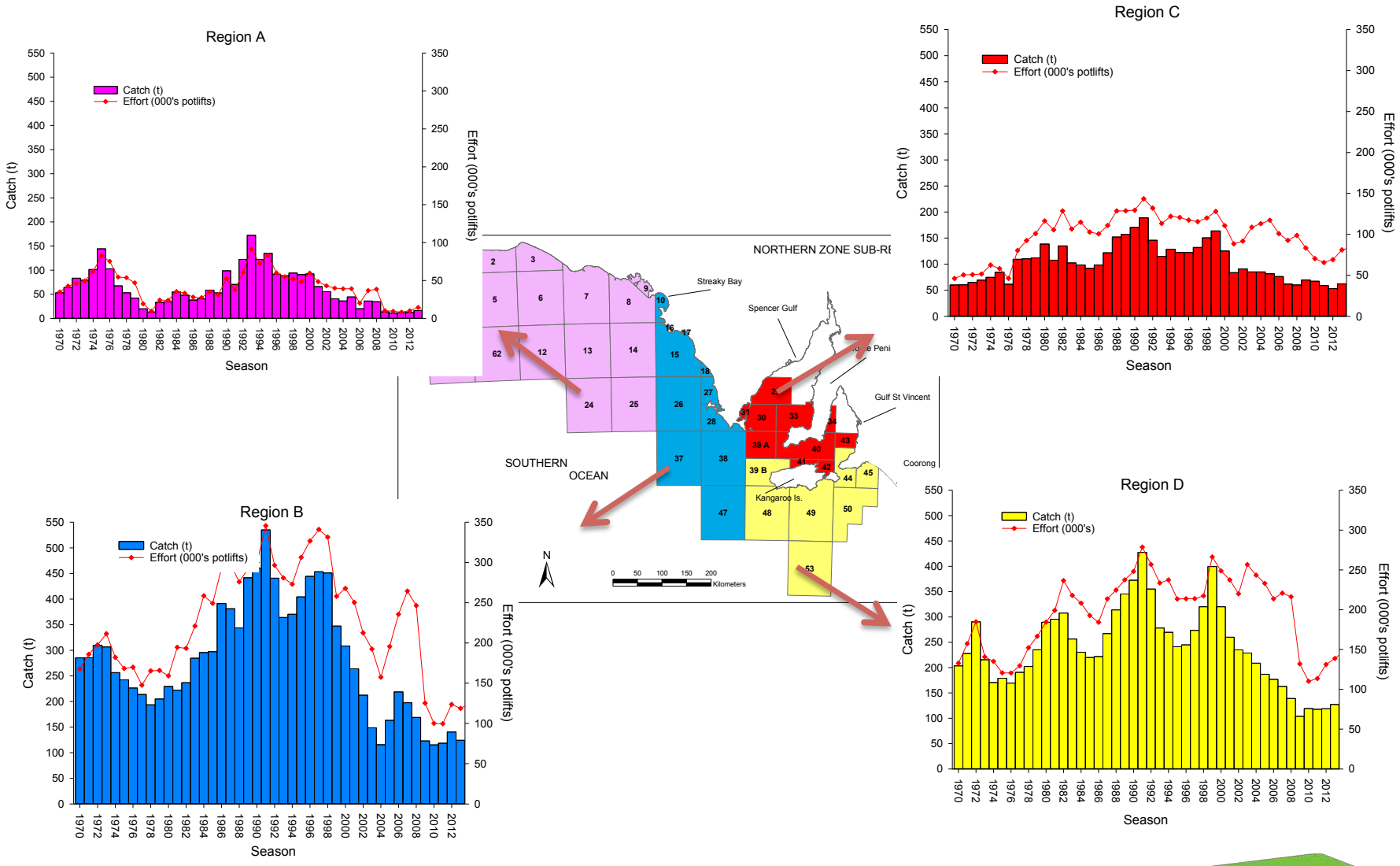
”Speckled” – offshore
(Western regions)

Spatial distribution of catch





Spatial distribution of catch



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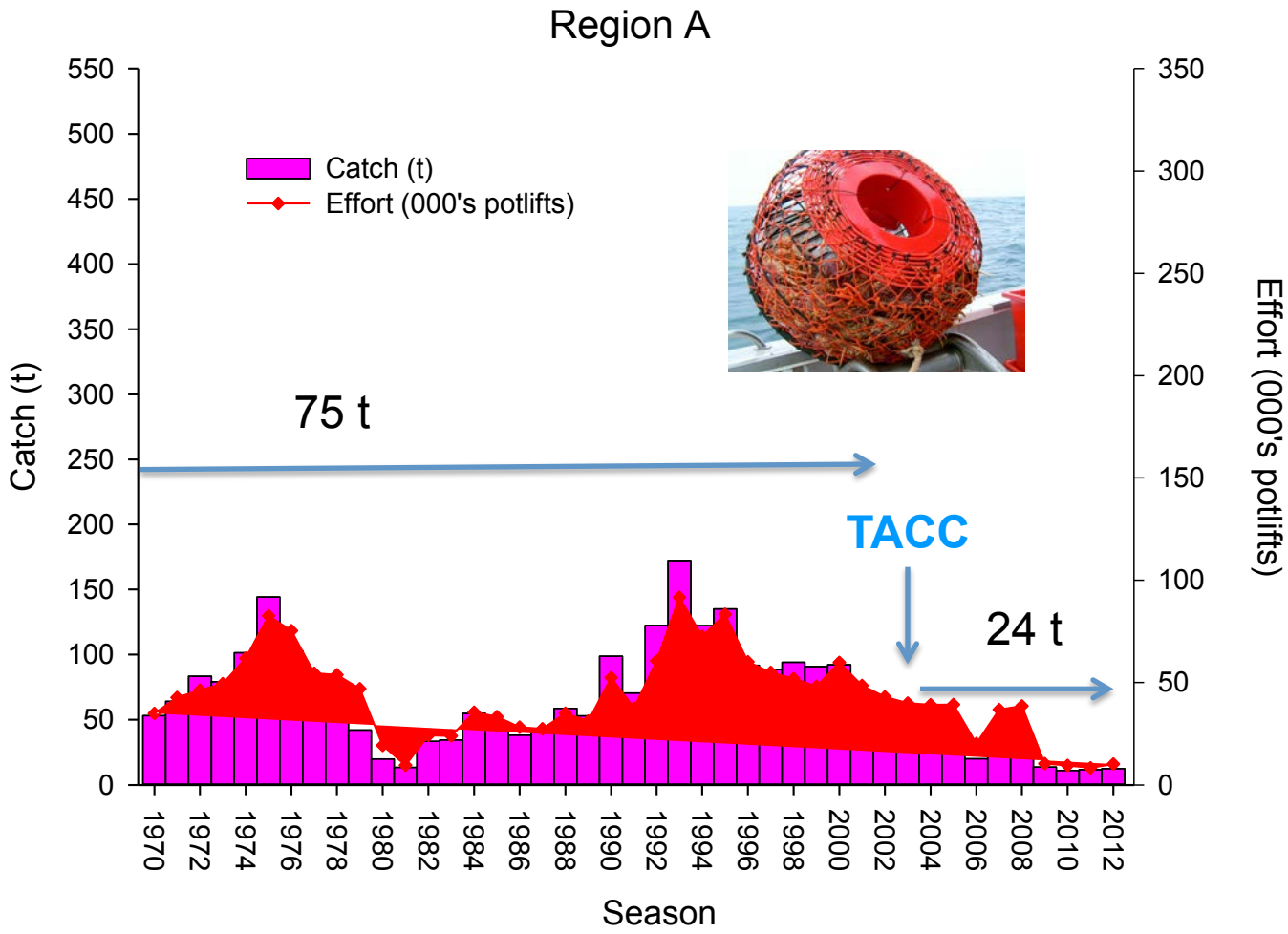
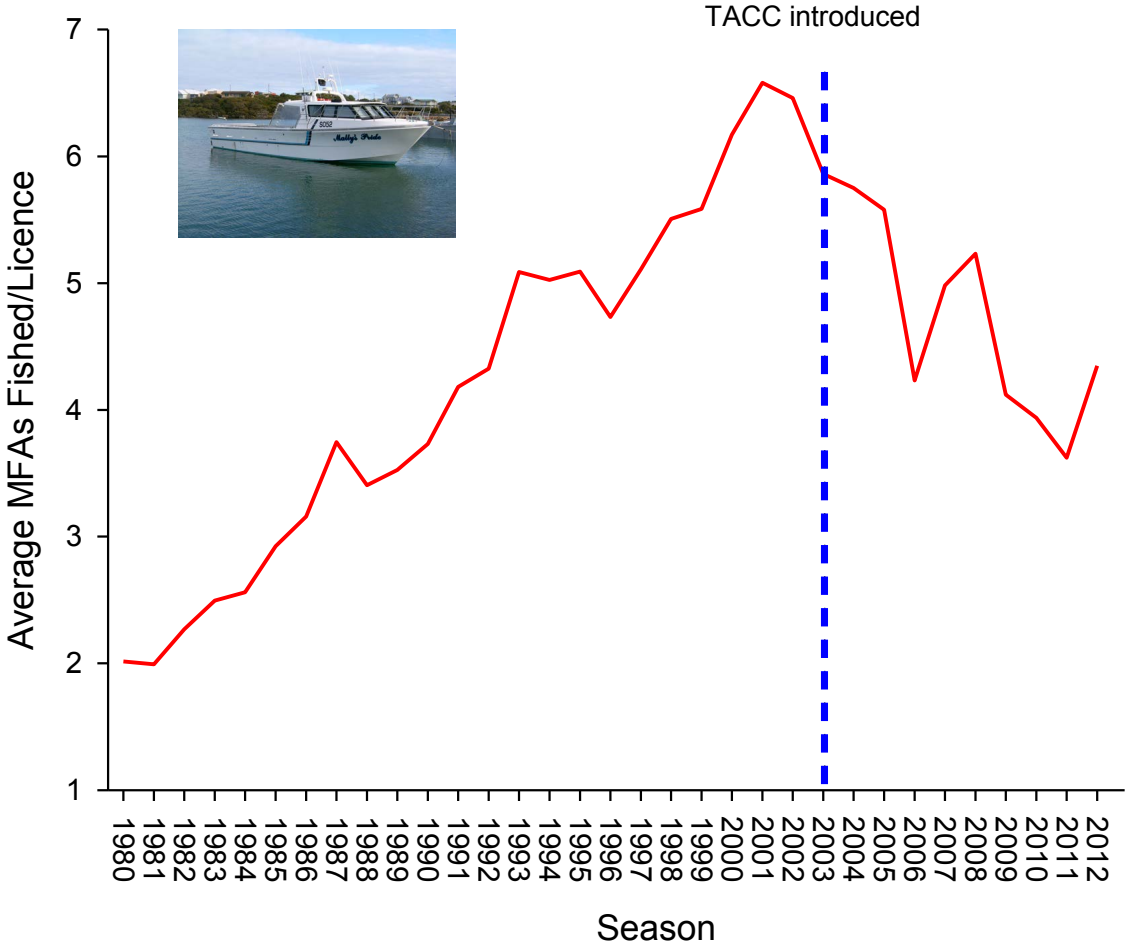
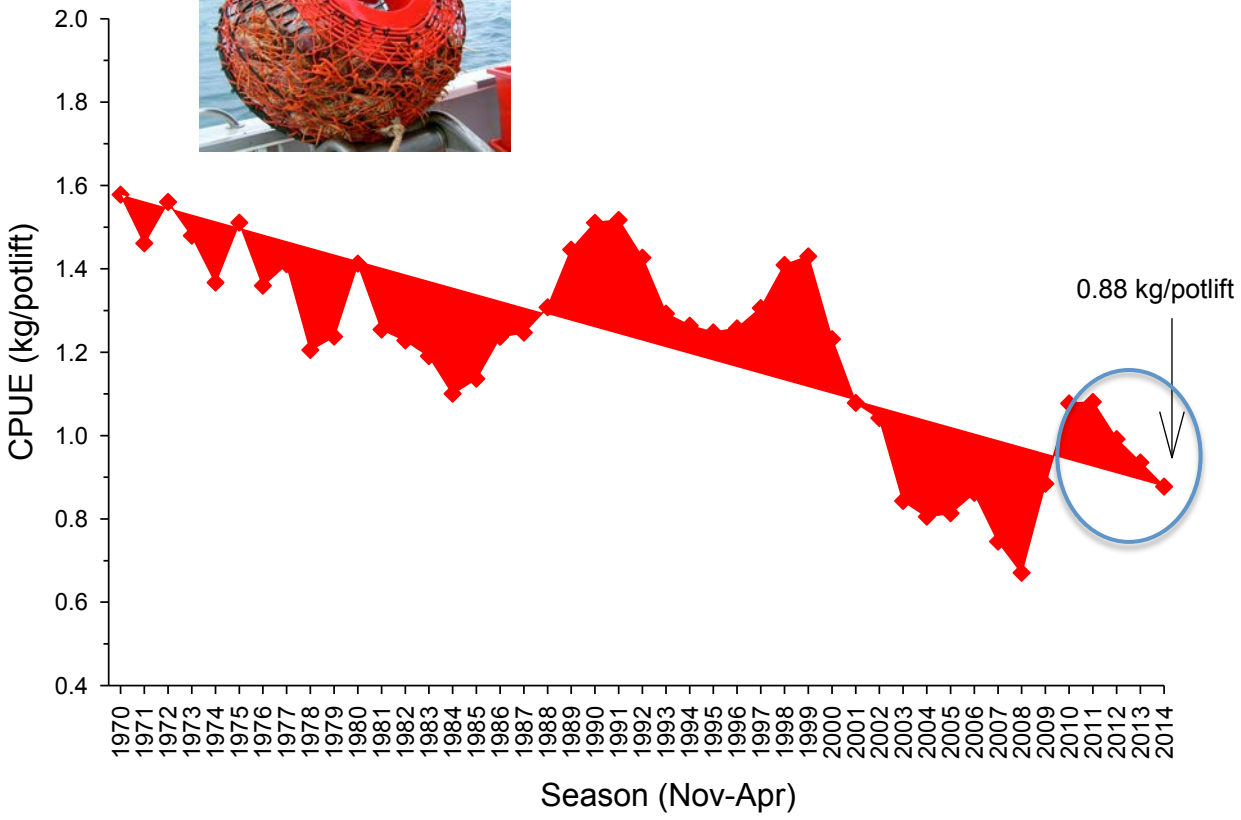

Region A
Catch (t)
Effort (000's potlifts)
75 t
TACC
24 t
Catch (t)
Effort (000's potlifts)
Season
550
500
450
400
350
300
250
200
150
100
50
0
350
300
250
200
150
100
50
0
1970
1972
1974
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012

Spatial contraction of fleet



Sustainability concerns



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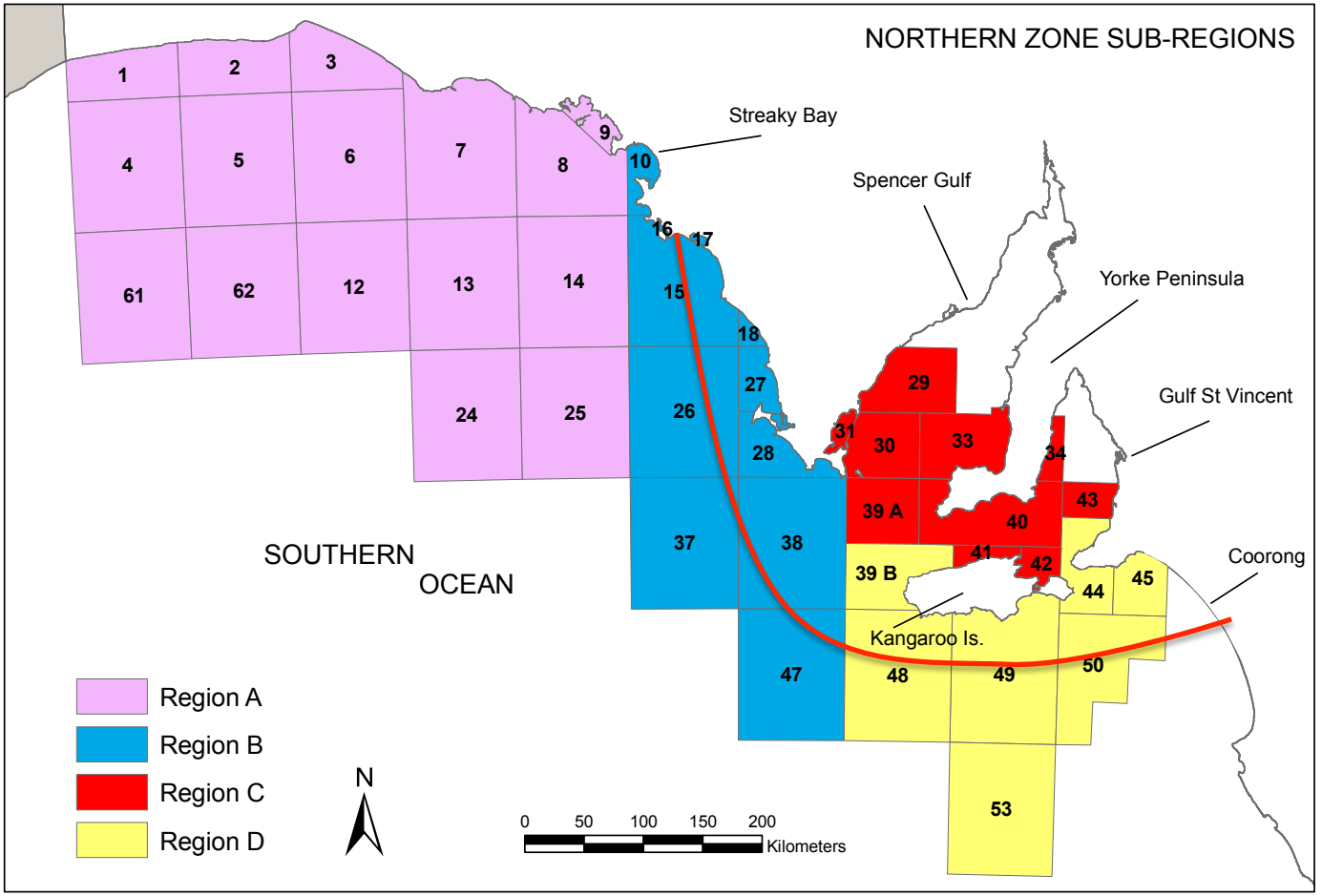
Adaptive management response: Spatial biomass estimates



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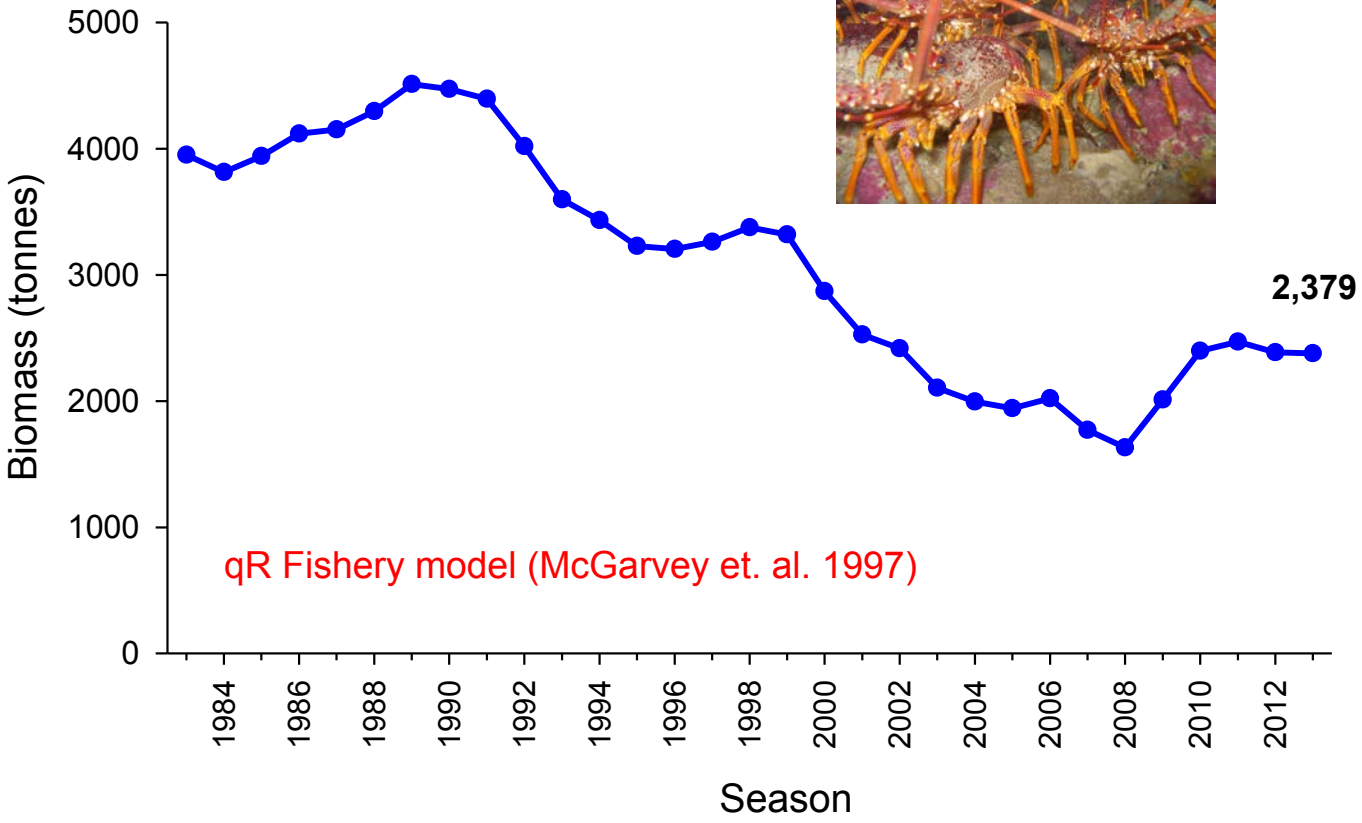
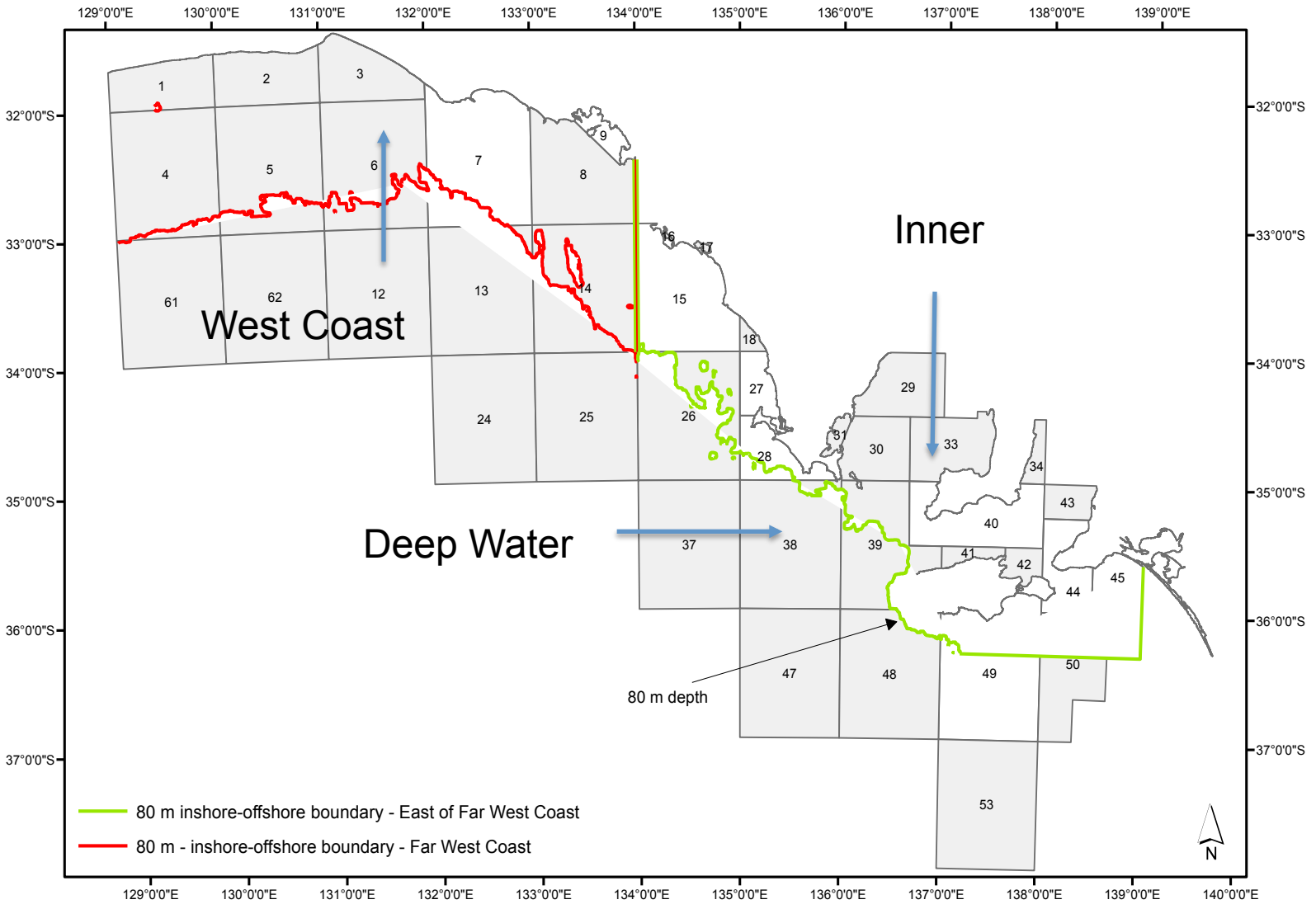
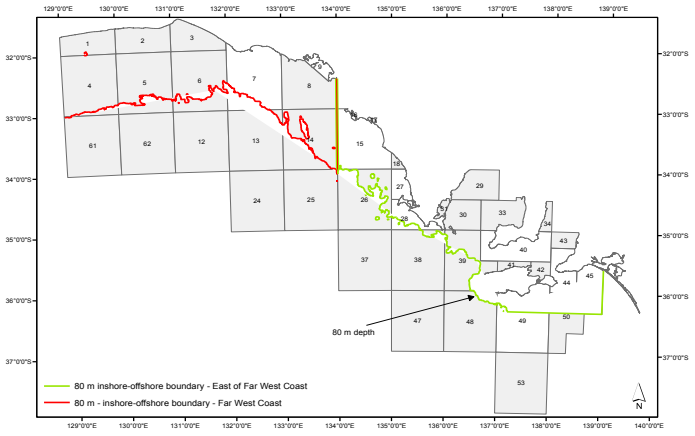
Biomass estimates: non-spatial

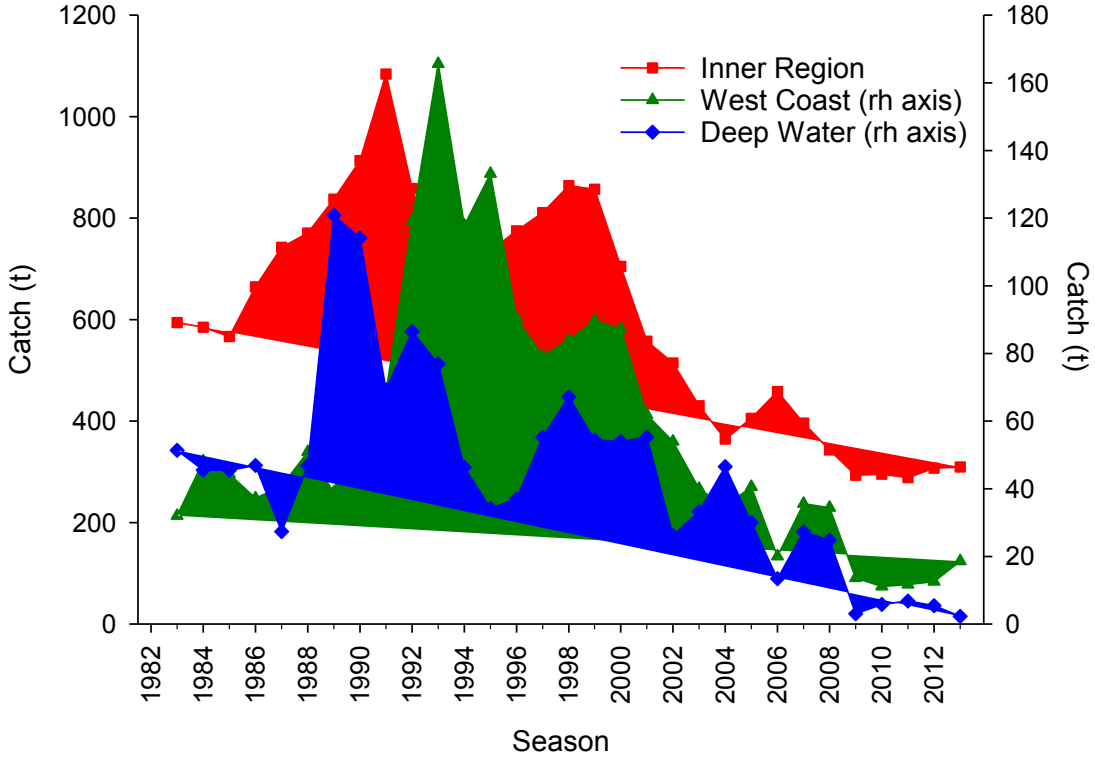


Spatial Regions

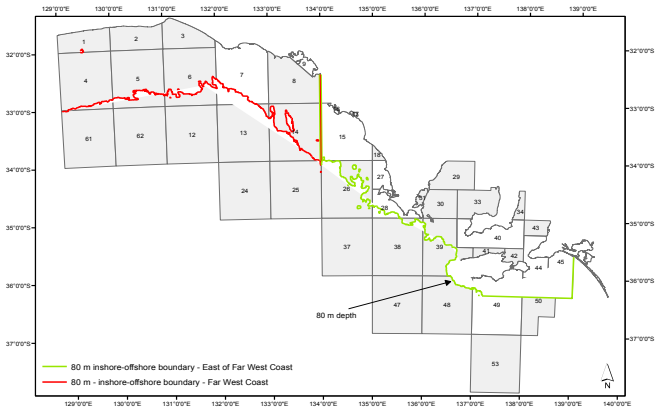


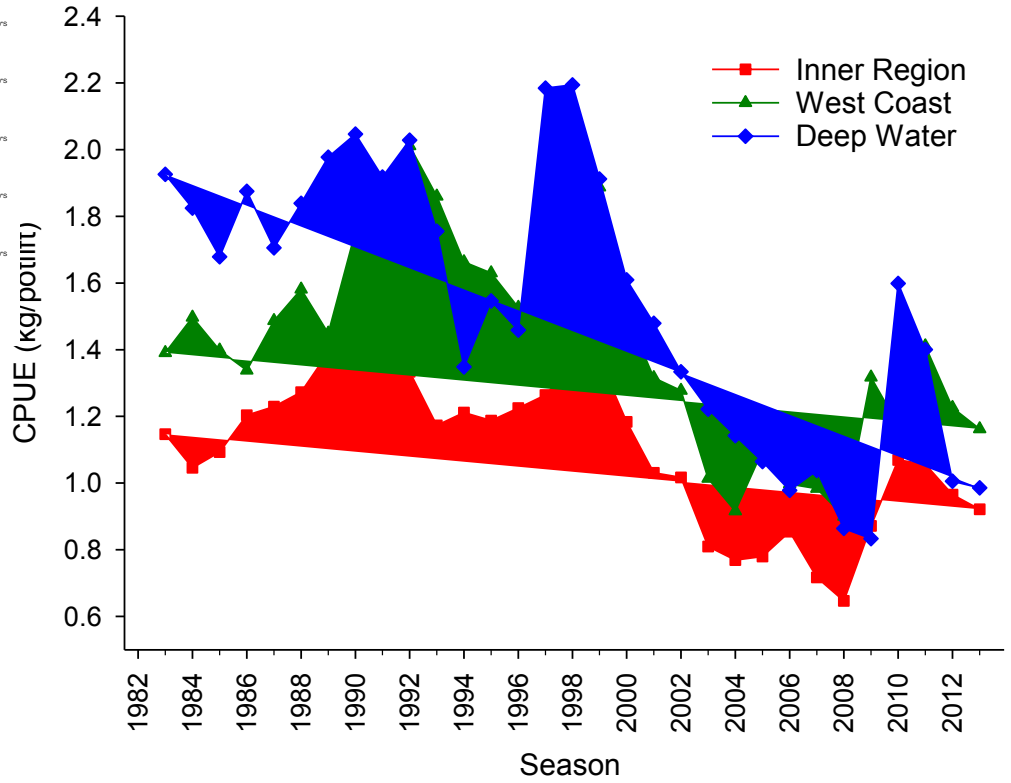
Spatial catch estimates



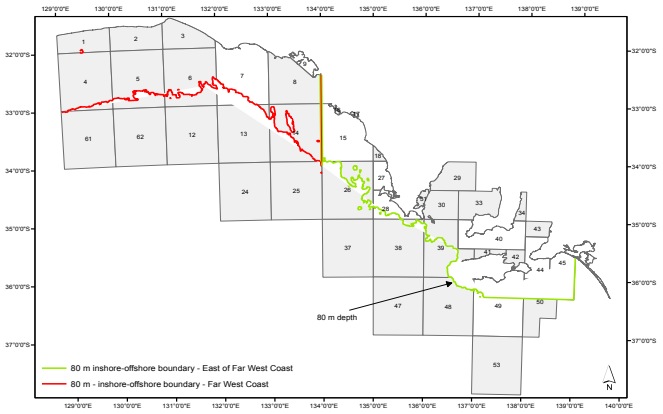


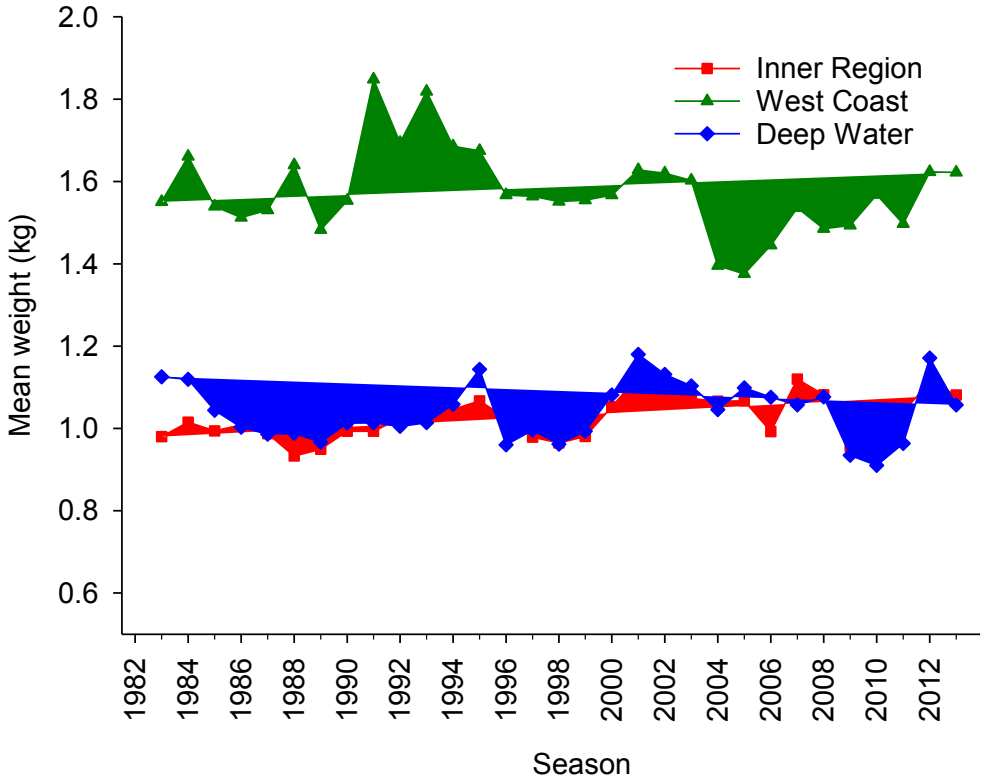
Spatial CPUE estimates





Spatial mean weight





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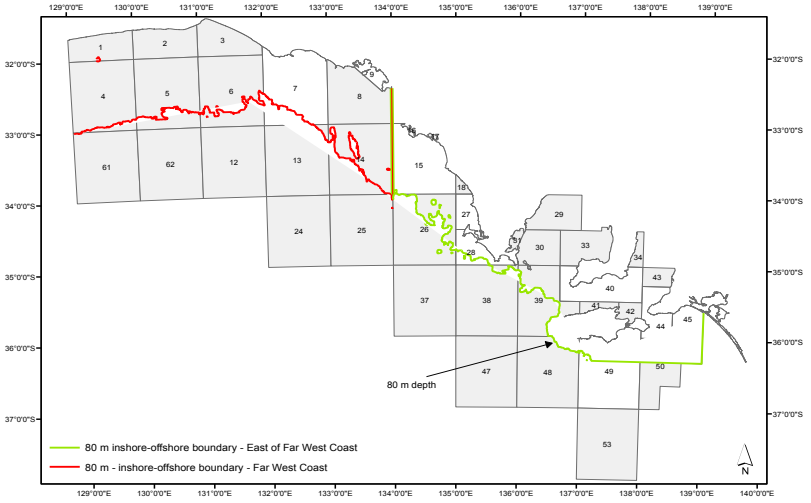
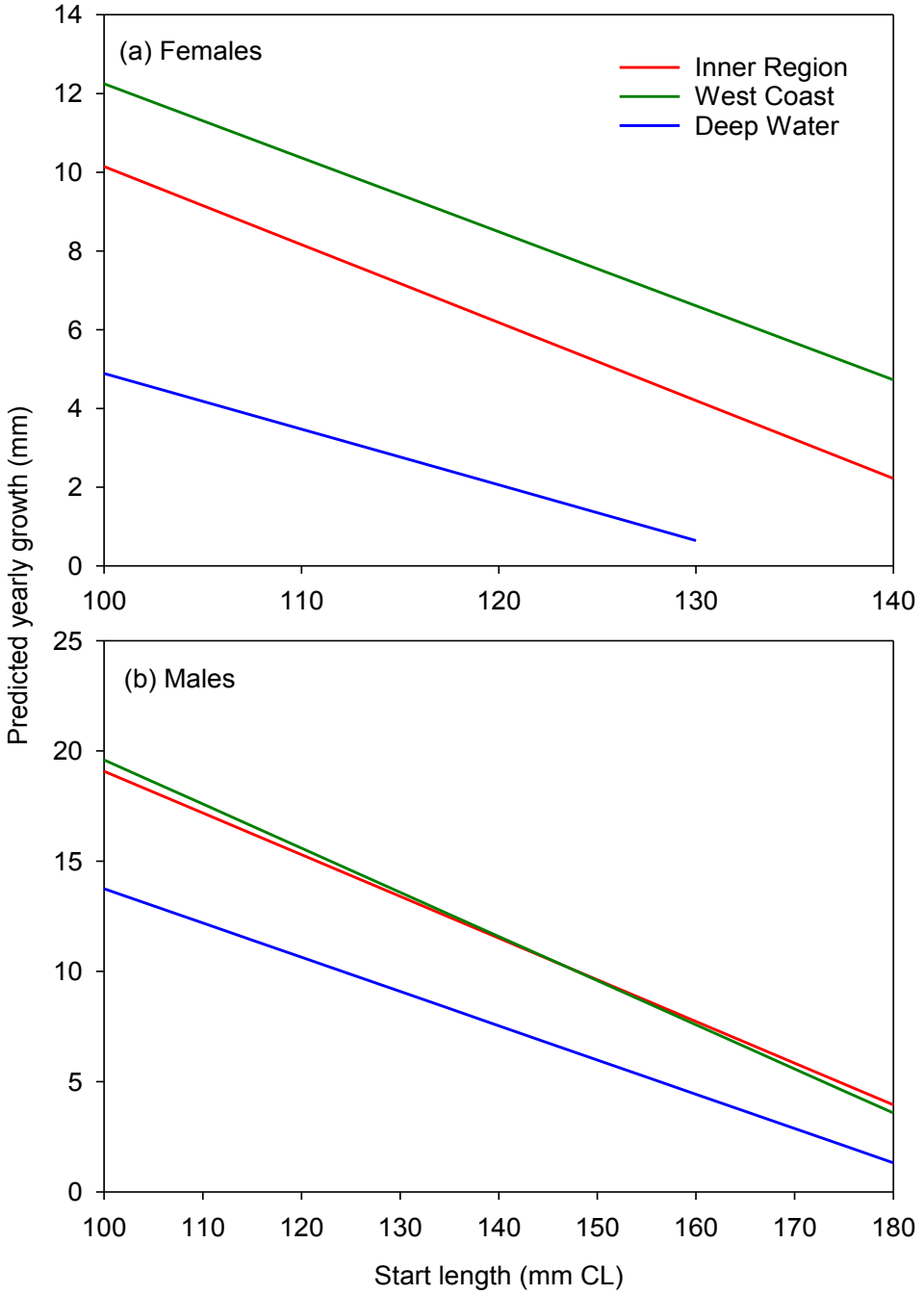
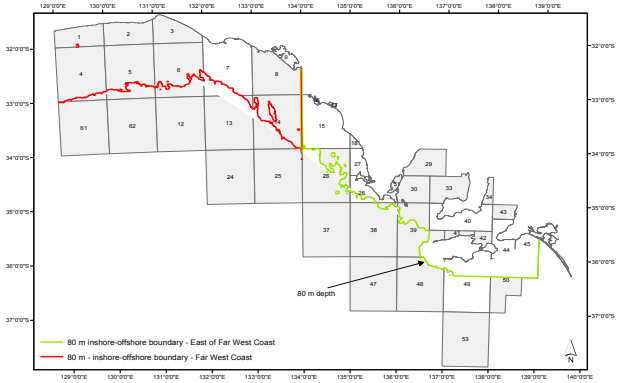
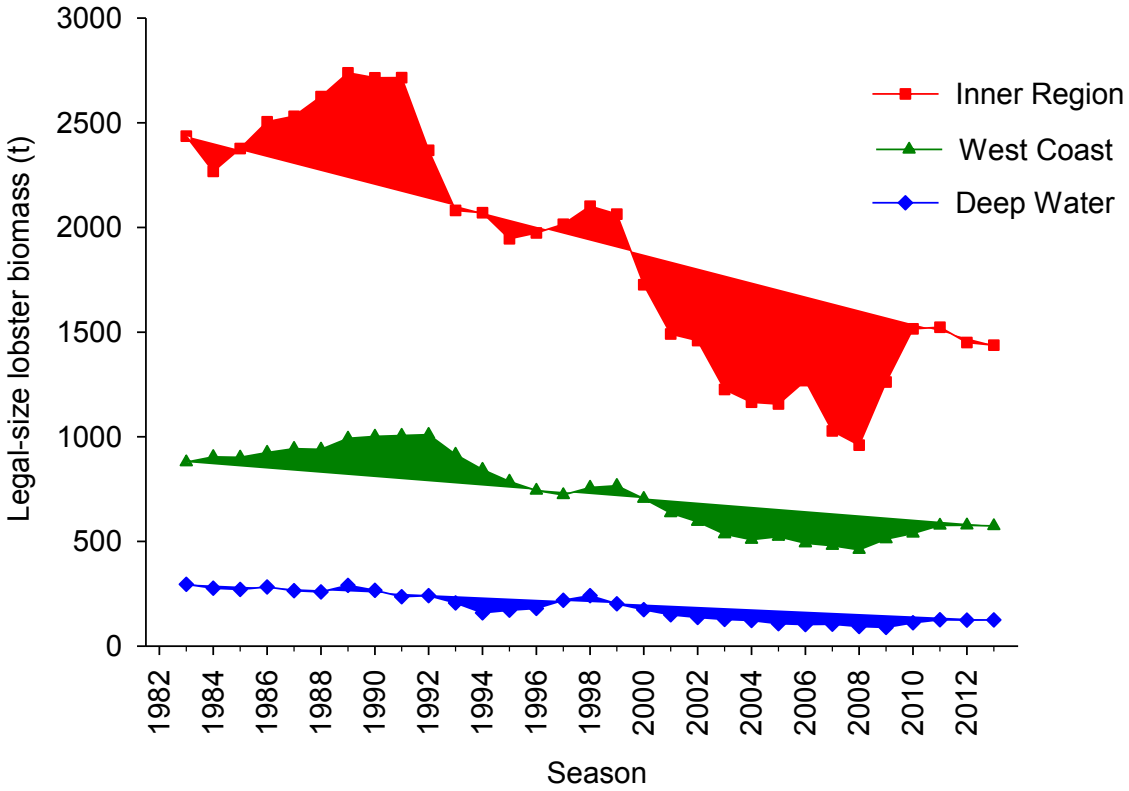
Spatial Growth





Spatial Lobster Biomass





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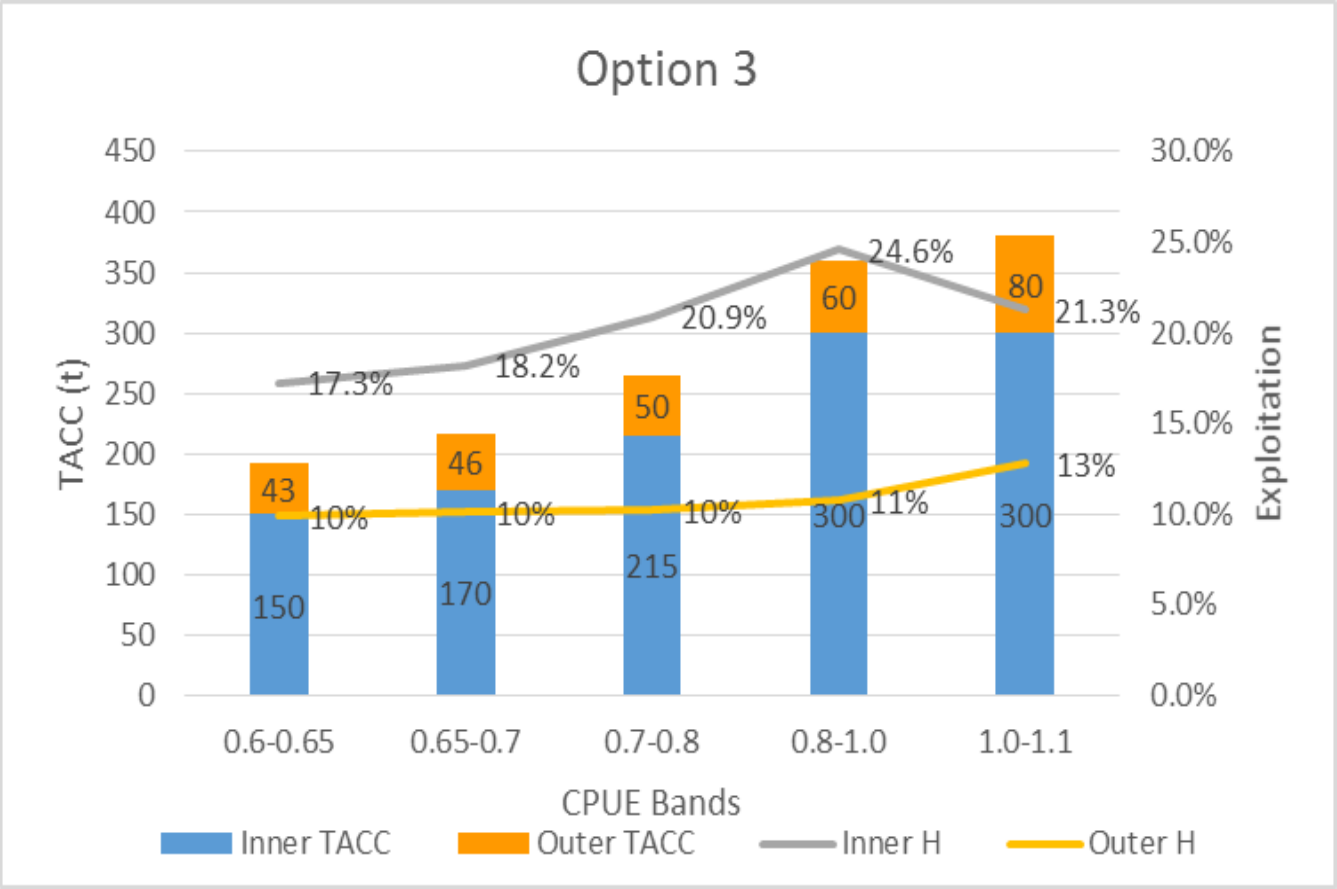
Exploitation Rates

Since TACCs constrained catch (2009), exploitation rates lower in West and Deep Water

Year	Inner Region	West Coast	Deep Water	Whole NZ
2000	41%	13%	31%	32%
2001	37%	11%	37%	29%
2002	35%	9%	19%	27%
2003	36%	7%	26%	26%
2004	32%	7%	38%	25%
2005	36%	7%	28%	26%
2006	37%	4%	13%	26%
2007	39%	7%	26%	28%
2008	36%	8%	27%	26%
2009	23%	3%	3%	17%
2010	20%	2%	5%	15%
2011	19%	2%	5%	14%
2012	21%	2%	4%	15%
2013	21%	4%	2%	16%
Average 2009+	21.0%	2.9%	4.1%	15.1%
Average 1983+	32%	8%	23%	25%

Harvest Strategy

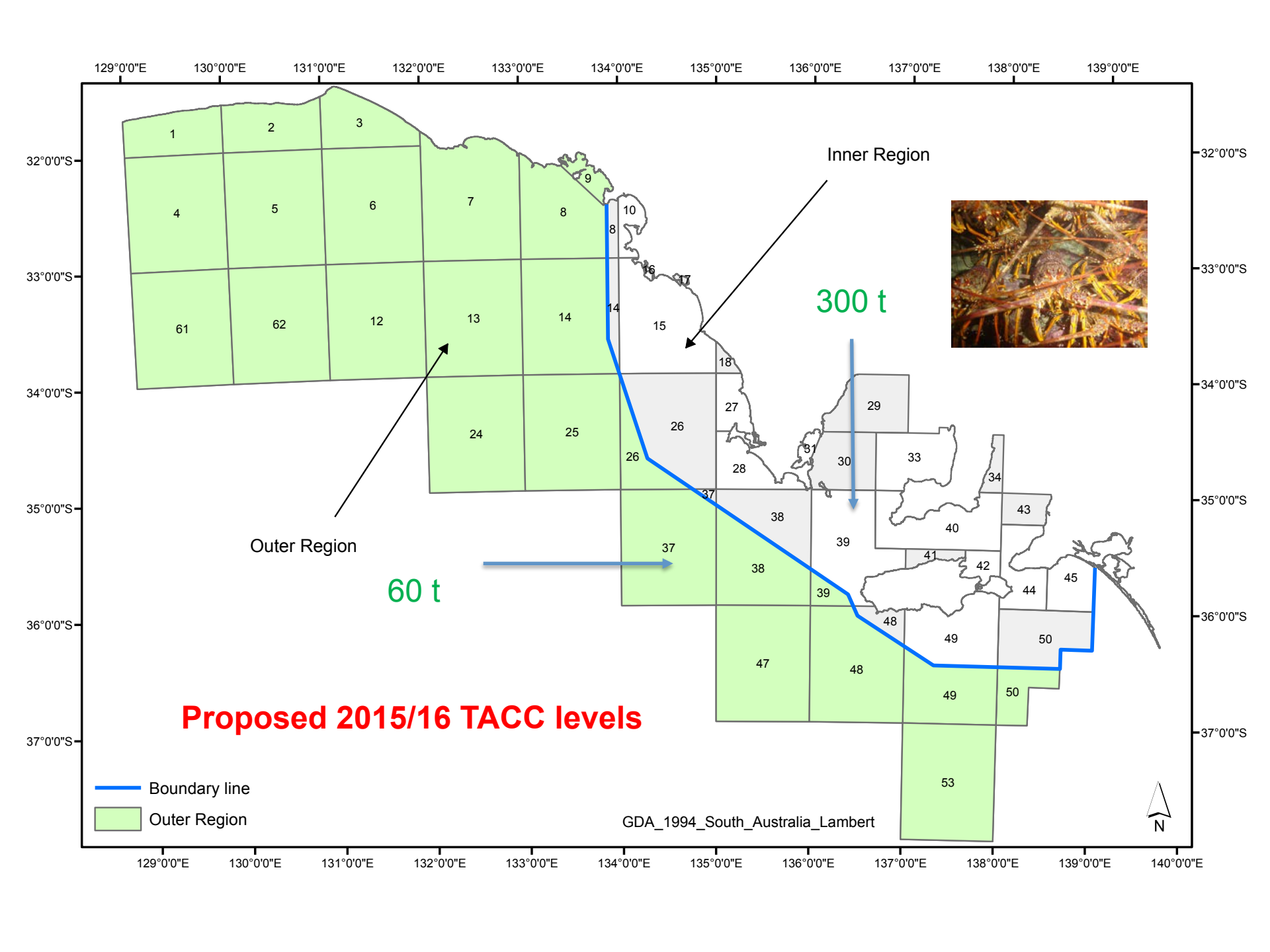


Constant Exploitation Rate Harvest Strategy

CPUE (kg/potlift)	Inner TACC	Outer TACC	Total TACC
<0.5	0t	0t	0t
0.5-0.55	43t	13t	56t
0.55-0.6	93t	27t	120t
0.6-0.65	150t	43t	193t
0.65-0.7	170t	46t	216t
0.7-0.8	215t	50t	265t
0.8-1.0*	300t	60t	360t
>1.0	300t	80t	380t

CPUE in 2014/15 = 0.88 kg/potlift.

TACC recommendation = 360 t TACC for 2015/16 season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140°0'0"E
32°0'0"S
33°0'0"S
34°0'0"S
35°0'0"S
36°0'0"S
37°0'0"S
Inner Region
Outer Region
300 t
60 t
Proposed 2015/16 TACC levels
Boundary line
Outer Region
GDA_1994_South_Australia_Lambert
N

Acknowledgements

- South Australian Northern Zone Rock Lobster Fishermen's Association

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