



*Rock Lobster Industry Advisory Committee*

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**Recommendation Report to the Minister For  
Fisheries on Resource Sustainability  
Management Packages for northern (Zones A  
and B) and southern (Zone C) Regions of the  
West Coast Rock Lobster Limited Entry Fishery**

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## CONTENTS

EXECUTIVE SUMMARY .....	3
1.0 INTRODUCTION.....	5
2.0 RECOMMENDED RESOURCE SUSTAINABILITY MANAGEMENT PACKAGES .....	8
2.1 RECOMMENDED PACKAGE FOR THE NORTHERN REGION.....	8
2.2 RECOMMENDED PACKAGE FOR THE SOUTHERN REGION.....	9
3.0 ANALYSIS AND JUSTIFICATION OF RECOMMENDED RESOURCE SUSTAINABILITY MANAGEMENT PACKAGES (BIOLOGICAL, ECONOMIC, MARKET, SOCIAL AND COMPLIANCE CONSIDERATIONS) .....	14
3.1 POT REDUCTIONS .....	14
3.1.1 Zone B - 10% pot reduction (15 November – 14 March) .....	16
3.1.2 Zone A - 10% pot reduction from 15 March – 15 April.....	16
3.2 TIME PERIOD CLOSURES.....	16
3.2.1 Zone B - Summer closure (15 January – 9 February) .....	17
3.2.2 Zone B – Sundays off (15 March – 30 June).....	18
3.2.3 Zone C - 3-day moon closure (1 February – 30 June).....	19
3.2.4 Zone C - November closure from 15 November to 24 November .....	21
3.2.5 Whole Fishery (Zones A, B and C) - Short-term closures (Christmas Day and New Year’s Day). .....	22
APPENDIX 1 - DOCUMENTS PROVIDED TO STAKEHOLDERS IN 2004 AND 2005 AS PART OF THE CONSULTATIVE PROCESS.....	24

## EXECUTIVE SUMMARY

In this report the Rock Lobster Industry Advisory Committee (RLIAC) sets out its recommendations to the Minister for Fisheries on the resource sustainability management packages to be implemented for the northern (Zones A and B) and southern (Zone C) regions of the commercial West Coast Rock Lobster Limited Entry Fishery (the Fishery) for the 2005/06 season. RLIAC does not make any management recommendations regarding the recreational fishery.

The management packages have been developed in close co-operation with the rock lobster industry to address the short to medium term (one to three years) sustainability risks regarding the level of breeding stock in both the northern (Zones A and B) and southern (Zone C) regions of the Fishery. All the components of the package will be assessed at the end of the 2005/06 season and the total management package for the Fishery will be reassessed in three years time at the end of 2007/08 season.

Current advice to stakeholders is that the increased effective effort in both the northern and southern regions of the Fishery could eventually lead to:

- significant increases in the exploitation rate, i.e. fishers continue to get better at catching lobsters;
- reductions in residual biomass that is resulting in less lobsters being left on the grounds at the end of the season; and
- eventually a decline in the egg production index.

The egg production index in the northern coastal region of the Fishery has now reached the transition from *sustainable* to *marginal* according to the Fishery's decision rules framework and management action needs to be taken. The egg production index in Zone A (the Abrolhos Is) is at a healthy level, due to the fact that a very significant number of mature spawning lobsters are undersize and therefore cannot be taken.

The egg production index in the southern region is still in a healthy condition, however, the next three seasons are predicted to produce below average recruitment and catches for the Fishery, hence the number of lobsters that will enter the breeding stock over this period is also expected to decline.

Stakeholders have been advised that it is not likely that the current trends in breeding stock abundance/egg production will reverse without management intervention. Therefore RLIAC recommends that for the northern coastal region a management package **equivalent** to a 15% reduction in effective effort is required to have a significant and positive effect on the breeding stock in that region. RLIAC recommends for the southern region that a precautionary approach be taken due to the predicted decline in recruitment to the Fishery predicted over the next three seasons. Therefore a management package **equivalent** to a 5% reduction in effective effort is recommended.

On 1 July 2005, RLIAC considered all comments and discussion provided by industry and other stakeholder groups that came through the extensive consultative process that included meetings and workshops with the rock lobster industry over the past two years. RLIAC recommends two resource sustainability management packages, one for the northern (Zones A and B) region and one for southern (Zone C) region.

### **Management Package Northern Region (Zones A and B)**

RLIAC recommends that in order to reduce effective effort by 15% in the northern coastal region the management package contain:

- 10% pot reduction (15 November – 14 March);
- Zone A 10% pot reduction (15 March – 15 April);
- 15 January – 9 February closure;
- No fishing on Sunday's in Zone B (15 March – 30 June); and
- Time off – Fishery closed for Christmas Day and New Year's Day.

#### ***Note:***

- To match up with the summer closure, the minimum gauge size will change from 77 mm to 76 mm on the 9 February in the northern region of the Fishery rather than of 1 February.
- The start time for Big Bank Fishery remains 10 am on 10 February.

### **Management Package Southern Region**

RLIAC recommends that in order to reduce effective effort by 5% in the southern region the management package contain:

- 10-day November closure (15 November – 24 November);
- 3-day moon closures from the 1 February - 30 June (one day prior to the full moon, the day of the full moon and the day after the full moon); and
- Time off - Christmas Day and New Year's Day.

#### ***Note:***

There was significant support in the southern region for closures to include Good Friday and Easter Sunday, therefore when the Easter full moon falls close to Easter Friday (which it normally does), the three-day full moon closure scheduled for this period will be shifted slightly to coincide with Good Friday, Easter Saturday and Easter Sunday (this is **not** an extra closure).

RLIAC is of the view that the management packages it has recommended should stay in place for the next three seasons with only minor modifications depending on the effectiveness of the components of each package. This will give industry time to discuss and make a decision regarding the longer-term management arrangements for the Fishery, i.e. input/effort controls, quota or changes to management to increase the value of the catch.

## 1.0 INTRODUCTION

The recommended management packages presented have been developed in close co-operation with the commercial rock lobster industry to address the short-term sustainability concerns regarding the level of breeding stock.

The Rock Lobster Industry Advisory Committee (RLIAC) has not made any recommendations regarding the management of the recreational sector. There is a major management initiative (Integrated Fisheries Management) that is examining options for allocating catch shares of the rock lobster resource between the recreational and commercial sectors, and other groups.

RLIAC has also taken into consideration the complex equity issues between Zones A and B fishers, large and small boats/unit holders and the different fishing strategies used by fishers throughout the Fishery.

The management packages address the medium-term sustainability issue, but do not address the long-term socio-economic issues (e.g. significant cost pressures and related fleet capacity) facing the industry. There will always be the need for regular reviews of the level of exploitation and its impact on the breeding stock. If exploitation continues to increase and the breeding stock declines, additional fishing effort reductions of about 1 – 4% annually (depending on the zone) or much more significant reductions on a 5 – 10 year basis will be required to ensure biological sustainability.

Economic factors that are likely to impact on the industry include:

- rising input costs (e.g. fuel, bait), which are putting ever increasing pressure on fisheries world wide;
- relatively low rock lobster prices if exchange rates remain high;
- increasing overseas competition in the market place;
- predicted reduction in catches over the next 3 – 4 seasons (particularly in Zone C);
- likely trends in interest rates in the medium term; and
- wage pressures due to competition for labour in the market place.

These factors are likely to result in lower returns to industry generally over the next three years, which could put some fishers under considerable financial pressure.

The 1993/94 fishing effort reduction package, which included an 18% pot reduction, was successful in protecting and improving the breeding stock in some zones of the Fishery. However, these gains have been eroded over the intervening years as the fishing fleet has increased its fishing efficiency and exploitation of the stocks. In the case of Zones A and B, pots came out of Zone A into Zone B in the early 1990s, which put additional pressure on the coastal breeding stock. This trend has recently been reversed as pots have moved back into Zone A.

A review of the Fishery's long-term management options is currently being undertaken and discussion papers are being prepared on catch quota management

(output controls) versus effort management (input controls, the current management system) and they are due to be released in time for the RLIAC coastal tour in October 2005. These papers will provide detailed social and economic information to industry so it will be in a position to make the best choice for the future long-term management of the Fishery within an ecological sustainable development framework.

A series of documents on the sustainability of the western rock lobster (*Panulirus cygnus*) resource has been produced by the RLIAC in consultation with the Department of Fisheries in 2004 and 2005.

**Document 1**, '*Western Rock Lobster Fishery Status Report, January 2004*', was a scientific report that presented extensive analysis and assessment of available data relevant to the Fishery. The details of this report were presented to stakeholders at RLIAC coastal tour meetings in October 2004 and the February 2004 RLIAC open stakeholders forum held in Geraldton.

**Document 2**, '*Management of the Western Rock Lobster Fishery – Advice to Stakeholders on Resource Sustainability Matters, September 2004*', is a management report that considers the current stock status information in the context of long term sustainability objectives and in particular, within the decision rules framework developed for this Fishery. The details of this report were presented to stakeholders during the RLIAC coastal tour meetings in October 2004.

**Document 3**, '*Advice to Stakeholders – Assessment of Resource Sustainability Measures*', provided useful information and advice on the management tools that were available and estimated what contribution different management measures would make to the overall goal of reducing fishing effort and improving the level of the breeding stock in all three zones of the Fishery. Document 3 also included a preliminary economic analysis of each of the management options and how they might impact on individual fishing operations in Zones A, B and C.

**Document 4**, '*Proposed Resource Sustainability Management Package for the Northern Zones (A and B)*', was developed to inform northern zone stakeholders of RLIAC's proposed resource sustainability management package to be recommended to the Minister for implementation in the 2005/06 fishing season.

**Document 5**, '*Advice to Stakeholders – Assessment of Southern Zone Resource Sustainability Options – May 2005*' provided useful information and advice on the management tools that are available and estimated what contribution different management options made to the overall goal of reducing effective fishing effort and improving the level of breeding stock in the southern region.

The effectiveness of compliance was a significant consideration in determining the management measures to be included. The management packages that RLIAC has recommended in this report are considered to be effectively enforceable.

The above approach is in keeping with the decision rules framework for the Fishery regarding the level of breeding stock. The decision rules framework (described in detail in Document 2, Appendix 1) describes what sustainability means in practical terms and establishes breeding stock trigger points (levels) to alert stakeholders and

fisheries managers when action is required. The green (healthy), orange (marginal) and red (unsustainable) zones on the breeding stock/egg production index graph (see Document 2, Appendix 1) illustrate which level of breeding stock is sustainable, what is unsustainable and when management action should be taken.

The decision rules framework formally recognises that industry should play a lead role in developing management measures to ensure the long-term sustainability of the Fishery and how they can be applied to try and optimise economic and social benefits. The decision rules framework also recognises the need for Government to make decisions in order to protect the breeding stock should industry not adopt measures that maintain it at or above a safe level.

## **NORTHERN REGION**

The current advice to stakeholders is that the increased effective effort in the northern coastal region of the Fishery (Zone B) has resulted in significant increases in the exploitation rate, reductions in residual biomass, and a decline in the egg production index to the point where it has now reached the transition from sustainable to marginal. The egg production index in Zone A (the Abrolhos Is) is at a healthy level due to the fact that a very significant number of mature spawning lobsters are undersize and therefore cannot be taken.

Stakeholders are also advised that it is not likely that the current trends will reverse without intervention and that a management package equivalent to a 15% reduction in pot usage (effective effort) is required to have a significant and positive impact on the breeding stock.

## **SOUTHERN REGION**

Southern zone (Zone C) stakeholders were advised that an increase in effective fishing effort has caused an increase in the exploitation rate, a reduction in residual biomass, and a decline in the egg production index. However, the degree to which these changes have occurred is not as great as observed in the northern coastal region. At the October 2004 coastal tour in Fremantle, southern zone stakeholders requested that RLIAC investigate possible options for a small effort reduction in Zone C to help conserve the breeding stock.

It is likely that Zone C has been insulated from the effects of efficiency gains by recent high recruitment, which has seen a good spread of fishing effort over the entire zone. The possibility of a continued, and perhaps more rapid, downward trend in the breeding stock cannot be discounted as the southern region enters into lower recruitment and catch years in 2005/06 and 2006/07. Puerulus settlement in 2004/05 indicates that the 2007/08 season is also likely to experience a below-average catch.

RLIAC believes that a 5% reduction in effective effort is required in Zone C for the 2005/06 season to relieve some pressure on exploitation and the breeding stock. A pro-active approach is needed in Zone C by implementing some small management changes, which may achieve small percentage reductions in effective fishing effort that could stop or slow the downward trend of the breeding stock index that is expected over the next 3 to 4 seasons. By taking a precautionary approach now; while

the breeding stock level in the southern region is still at a safe level, it may reduce the need to implement more significant management changes in the next 2 – 5 years.

## **2.0 RECOMMENDED RESOURCE SUSTAINABILITY MANAGEMENT PACKAGES**

The existing management plan is capable of catering for a number of management measures that include pot reductions, limiting the time available to be fished, and the size classes of lobsters that can be taken. Within these measures there are many variations with respect to the mix of measures and the manner in which they may be applied.

The management measures discussed in this paper fall within two categories:

- (a) pot reductions for part of the season; and
- (b) seasonal and short-term closures.

### **2.1 RECOMMENDED PACKAGE FOR THE NORTHERN REGION**

RLIAC recommends that in order to reduce effective effort by 15% in the northern coastal region the package contain:

- 10% pot reduction (15 November – 14 March);
- Zone A 10% pot reduction (15 March – 15 April);
- 15 January – 9 February closure;
- No fishing on Sunday's in Zone B (15 March – 30 June); and
- Time off – Fishery closed for Christmas Day and New Year's Day.

**Note:**

- To match up with the summer closure, the minimum gauge size will change from 77 mm to 76 mm on the 10 February in the northern region of the Fishery rather than of 1 February.
- The start time for Big Bank Fishery remains 10 am on 10 February.

***Explanatory Note: Pot reduction calculation.***

*The percentage pot reductions contained within this paper are calculated in the following way:*

*If you take the permanent pot allocation as 100% (also referred to as your initial unit entitlement) then you are currently fishing 82% of your permanent allocation (due to the 18% pot reduction that occurred in 1993/94). During the 10% pot reduction period 15 November to 14 March, fishers in Zone B will only be able to fish with 74% of their permanent pot allocation, i.e. 10% less than the number of pots you currently fish (or expressed in unit terms 0.74 or 74% ( $0.82 \times 0.9 = 0.74$ ) of your permanent pot allocation). The 10% pot reduction in Zone A, from 15 March to 15 April, represents a 10% reduction in the number of pots currently fished (or expressed in unit terms 0.74 or 74% ( $0.82 \times 0.90 = 0.74$ ) of the permanent pot allocation).*



The northern region management package equates to an estimated effective effort reduction of 15.3% in Zone B, where the breeding stock and egg production index have declined significantly (Table 2). This represents the maximum possible effective effort reduction the package could deliver, as it assumes that fishers will not change their behaviour to compensate for the changes. In reality fishers will change their fishing behaviour to offset the restrictions (as was shown to occur after the 1993/94 management package was implemented).

It should also be noted that in the past two seasons there has been a movement of pots from Zone B back to Zone A. At the start of 15 March 2006 45% of the pots in northern region will be in Zone B and 55% will be in Zone A. This has resulted in about an 8% increase in the number of pots in Zone A compared to the average for the years 2000/01 to 2003/04. It is estimated that this will reduce effective effort in Zone B by 3.2% and hence further reduce the pressure on the breeding stock in that zone. The impact of the shift in pots from Zone B to Zone A will reduce the effectiveness of the Zone A pot reduction. The pot numbers in Zone A and B have been fixed, i.e. from 15 November 2005 only one-for-one pot transfers will be able to take place.

## **2.2 RECOMMENDED PACKAGE FOR THE SOUTHERN REGION**

RLIAC recommends that in order to reduce effective effort by 5% in the southern region the package contain:

- 10-day November closure (15 November – 24 November);
- 3-day moon closure from 1 February to 30 June (one day prior to the full moon, the day of the full moon and the day after the full moon); and
- Time off - Christmas Day and New Year's Day.

### **Note:**

There was significant support in the southern region for closures to include Good Friday and Easter Sunday, therefore when the Easter full moon falls close to Easter Friday (which it normally does), the three-day full moon closure scheduled for this period will be shifted slightly to coincide with Good Friday, Easter Saturday and Easter Sunday (this is **not** an extra closure).

## **ASSESSMENT OF THE NORTHERN AND SOUTHERN MANAGEMENT PACKAGES**

Tables 1, 2 and 3 provide a summary analysis of each of the management measures included in the resource sustainability management packages. The analysis has been done by calculating the impact of the time closures in terms of effective effort reductions. The analysis also takes into account the level of catch rate during the period of the time closure or the pot reduction. Table 1 presents a summary analysis for management measures concerning Zone A, Table 2 presents a summary analysis for management measures concerning Zone B and Table 3 provides the analysis for Zone C.

It is important to note that the impact of the management packages on catch is highest in the first year and is significantly less in future years due to the catch left over in one year growing (increasing in weight) and being available for capture in the following

year. For example it is estimated that with a 15% effort reduction the reduction in catch for the first year will be in the order of 9%, but this will fall to about 2 – 4% in subsequent years. However, what is important to understand is that the cost savings associated with the management measures are maintained in future seasons. Hence from the second year onwards the measures become more cost effective, i.e. you begin to save more on operating costs than you lose in catch value.

The effectiveness of management measures implemented are lessened over time as fishers use new technology, methods, etc, to maximise their share of the catch.

As explained above, this analysis has equated or standardised the components of the management package therefore the effect on catch or the number of lobster left in the water at the end of the season is comparable across all components of the package and is assumed to be proportional to the percentage effective effort reduction that each component produces.

It is important to note effective fishing effort is increasing at a rate of about 1 – 4% per year depending on the zone of the Fishery. Therefore the fishing industry will need to address this problem in the longer term if input controls continue to be used as the prime management arrangements for the Fishery.

**Table 1: Zone A – summary analysis of the sustainability management measures included in the management package for 2005/06**

Management measure	1 Equivalent effective effort reduction for a year (%)	2 Estimated mean percentage reduction in the catch - Year 1 only <sup>A</sup>
<b>Zone A 10% pot reduction (15 March – 15 April)<sup>C</sup></b>	5.9 <sup>B</sup>	There is unlikely to be any reduction in catch, as the 18% pot reduction in 1993/94 did not result in any significant impact on total catch or catch distribution per month in Zone A.

<sup>A</sup> Assumed impact on catch is 0.59 of pot reduction for all effort reduction management measures.

<sup>B</sup> Over the last two seasons (in particular) there has been a movement of pots from Zone B into Zone A, which will significantly reduce the impact of the 10% pot reduction (15 March to 15 April) in Zone A.

<sup>C</sup> Unit value of 0.74 – see box page 9 for an explanation

**Note:** Effort reduction strategies in Zone B (see Table 2) when occurring between 15 November and 14 March will impact on the costs and revenues of Zone A fishers in the same way as they do on Zone B fishers.

**Table 2: Zone B – summary analysis of the sustainability management measures included in the management package for 2005/06**

Management measure	Impact on Zone B	
	1 Equivalent effective effort reduction for a year (%)	2 Estimated mean percentage reduction in catch - Year 1 only <sup>A</sup>
10% pot reduction (15 November – 14 Jan) <sup>1</sup>	4.2	2.5
10% pot reduction (10 Feb – 14 March) <sup>2</sup>	1.5	0.9
Closure 15 January – 9 February	5.1	3.0
Time off (Christmas Day and New Year's Day)	0.1	<0.1
	Impact on Zone B	
Zone B Sunday's off (15 March – 30 June)	4.4	2.6
<b>TOTAL</b>	15.3	9.0

<sup>A</sup> Assumed impact on catch is 0.59 of pot reduction for all effort reduction management measures.

**Note 1:** The reduction in catch in year one is the maximum that is anticipated. In year 2 and subsequent years the reduction in catch will be significantly less.

**Note 2:** Over the last two seasons (in particular) there has been a movement of pots from Zone B into Zone A. This will add to the impact of the effort reduction package in Zone B.

<sup>1</sup> unit value of 0.74 – see box page 9 for an explanation.

<sup>2</sup> unit value of 0.74 – see box page 9 for an explanation.

**Table 3: Zone C – summary analysis of the sustainability management options and an estimate of the approximate equivalent as an effective effort reduction for the whole year.**

Management measure	1 Equivalent effective effort reduction for a year (%)	2 Estimated mean percentage reduction in catch annually Year 1 only <sup>A</sup>
Time off (Christmas Day and New Year Day)	0.2	<0.2
10 day November closure (15 November – 24 November)	1.3	1.1
3-day moon closure (1 February – 30 June)	3.5	2.8
<b>TOTAL</b>	5.0	4.0

<sup>A</sup>Assumed impact on catch is 0.81 of effort reduction level for all effort reduction options (ie time closure and pot reduction).

**Note:** The reduction in catch in year one is the maximum that is anticipated. In year 2 and subsequent years the reduction in catch will be significantly less.

### **3.0 ANALYSIS AND JUSTIFICATION OF RECOMMENDED RESOURCE SUSTAINABILITY MANAGEMENT PACKAGES (BIOLOGICAL, ECONOMIC, MARKET, SOCIAL AND COMPLIANCE CONSIDERATIONS)**

Current advice to stakeholders is that the increased effective effort in both the northern and southern regions of the Fishery could eventually lead to:

- significant increases in the exploitation rate, i.e. fishers continue to get better at catching lobsters;
- reductions in residual biomass that is resulting in less lobsters being left on the grounds at the end of the season; and
- eventually a decline in the egg production index. This has already occurred in the northern coastal region of the Fishery where it has reached the transition from *sustainable* to *marginal* according to the fisheries decision rules framework.

Stakeholders have been advised that it is not likely that the current trends will reverse without management intervention.

RLIAC recommends that for the northern coastal region a management package equivalent to a 15% reduction in effective effort and for the southern region 5% are required to have a significant and positive impact on the breeding stock.

It is important to note that these specific management options only relate to commercial rock lobster fishing and do not relate to the recreational sector of the Fishery. There is a major management initiative (Integrated Fisheries Management) that is examining options for allocating a catch share of the rock lobster resource between the recreational and commercial sectors, and other groups.

#### **3.1 POT REDUCTIONS**

Pot reductions have the potential to reduce the cost associated with fishing. This assertion is based on the simple fact that with less gear the cost of inputs such as pots, ropes, floats, bait, fuel and time required to operate gear is reduced.

Previous experience with gear reductions in this and other fisheries indicates that should there be further reductions in the number of usable pots that the incentive for fleet changes will increase, i.e. some people will sell out of the industry and their pots will be distributed. The degree to which this will happen will depend on long-term cost/price trends and the capacity for industry to change fleet size composition.

RLIAC has considered many of the advantages and disadvantages associated with pot reductions that have been identified by industry. Table 4 summarises some of the advantages and disadvantages considered when developing its management recommendations.

**Table 4: Advantages and disadvantages associated with pot reductions that were identified by industry**

ADVANTAGES	DISADVANTAGES
<ul style="list-style-type: none"> <li>• Contributes to the breeding stock.</li> <li>• Encourages fleet rationalisation, i.e. a decline in boat numbers or fleet composition.</li> <li>• Seen as equitable for all fishers.</li> <li>• Has economic benefits.</li> <li>• Less pots in water and hence less competition between fishers.</li> <li>• Some smoothing of high catch peaks (spread catch over the year), which could have economic benefits.</li> <li>• No increase in compliance cost.</li> </ul>	<ul style="list-style-type: none"> <li>• Encourages fleet changes i.e. a decline in boat numbers and any consequential social impacts.</li> <li>• Could force smaller boats out of Fishery.</li> <li>• Encourages fishers to fish harder and smarter and put more pressure on the Fishery.</li> <li>• Seen to shift value of the Fishery to larger operators.</li> <li>• Less cost effective compared to other options.</li> <li>• Could impact more on lease operators.</li> <li>• Small pot holding could become less economic</li> </ul>

### **Market considerations**

RLIAC believes that the level of pot reductions recommended will not adversely affect the domestic or export markets, rather it may have a positive effect because it may reduce the very high catch peaks that cause problems for processors. RLIAC have been informed by major processing companies that there is a major peak in the volume of landed catch during the whites (first six weeks of the season) and the first three weeks of the opening of Zone A. Processors have stated that these peaks in catch are difficult to deal with and they are flooded with product. RLIAC have been informed that both processors and fishers would benefit financially from a smoothing of the catch peaks during these times. To achieve a complete smoothing of these peaks would require far larger pot reductions than have been recommended. However, RLIAC considered that a small pot reduction during these times would help achieve some reduction in the whites and Abrolhos catch peaks.

### **Social considerations**

RLIAC has taken into consideration the impact pot reductions could have on small operators and the equity between Zone A and Zone B fishers.

### **Compliance considerations**

No additional compliance issues are expected. There are currently strategies in place to ensure that the correct number of pots are used in the rock lobster Fishery, and this is a key component of the current compliance system. Further pot reductions would not impact on the compliance levels, strategies or costs for the Fishery.

### **3.1.1 Zone B - 10% pot reduction (15 November – 14 March)<sup>3</sup>**

#### ***Biological considerations***

The 10% pot reduction in Zone B from 15 November to 14 March is equivalent to a 5.7% (4.2% + 1.5% = 5.7%) effective effort reduction for the whole year (Table 2).

#### ***Economic considerations***

From the analysis provided in Table 2, a pot reduction of 10% from 15 November – 14 March, would result in a reduction in the catch of 3.4% (2.5% + 0.9%, Table 2) over a whole year.

### **3.1.2 Zone A - 10% pot reduction from 15 March – 15 April<sup>4</sup>**

#### ***Biological considerations***

The 10% pot reduction from the 15 March to 15 April in Zone A is estimated to be the equivalent to a 5.9% (Table 1) effective effort reduction.

It should be noted that in the past two seasons there has been a movement of pots from Zone B back to Zone A. At the start of 15 March 2006 45% of the pot in northern region will be in Zone B and 55% will be in Zone A. This will result in about an 8% increase in the number of pots in Zone A compared to the average for the years 2000/01 to 2003/04. It is estimated that this will reduce effective effort in Zone B by 3.2% and hence further reduce the pressure on the breeding stock in that zone. The impact of the shift in pots from Zone B to Zone A will reduce the effectiveness of the Zone A pot reduction. From the 15 November 2005 pot numbers in Zone A and B will be fixed, i.e. only one for one pot transfers will be able to take place.

#### ***Economic considerations***

The 1993/94 pot reduction of 18% did not result in any significant impact on total catch or catch distribution per month in Zone A, as the catch rate increased in the remaining pots being used. This is assumed to be due to pot saturation at the Abrolhos and if this occurs again it is not expected the 10% pot reduction will have any impact on the total catch in Zone A, however, it may slightly lower the peak in catch at the beginning of the season.

## **3.2 TIME PERIOD CLOSURES**

In respect to the use of time period closures, it is relevant to note that for a mix of social and economic reasons there are already a significant number of operators in the northern region of the Fishery (Zone B) who choose not to fish parts of January – February and similar decisions are made by individuals to varying extents around low production full moon periods.

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<sup>3</sup> unit value of 0.74 – see box page 9 for an explanation.

<sup>4</sup> unit value of 0.74 – see box page 9 for an explanation.



Time period closures have various economic and social benefits including reduction of fishing cost and the opportunity for increased leisure time as well as contributing to effort reduction.

The fact that the closures are over low catch rate periods has been factored into the contribution they make to reducing effective effort.

### **3.2.1 Zone B - Summer closure (15 January – 9 February)**

#### ***Biological considerations***

The summer closure is equivalent to a 5.1% (Table 2) effective effort reduction over a year.

RLIAC considers that there are many biological benefits of having a closure in Zone B for a period of time. These benefits include;

- reduced handling of lobsters;
- reduced predation and damage of lobsters in pots; and
- contribution to the breeding stock.

#### ***Economic considerations***

RLIAC has been informed that there will be economic benefits for the Fishery by having a closure during the January/February lower catch period. The reduction in fishers' operating costs can be set off against the 3.0% loss of catch (Table 2). In the second and subsequent years the loss in catch will be significantly less, however, the savings in operating costs will remain the same, i.e. the summer closure will become more cost effective from year two onward.

#### ***Market considerations***

RLIAC was made aware of initial concerns regarding the length of the summer closure by a major processor. It was stated that the closure would adversely impact on the marketing of lobster in China. RLIAC was informed that the Chinese New Year (which falls on a full moon in January or February) was a particularly good time of year to sell lobsters into that market. It was stated that the closure period would interrupt supply of lobsters to that market which could be detrimental to gaining access in the future and other competitors around the world could take advantage of this.

In response however, other processors claimed that this period of the season was a generally low catch period and it was uneconomic. The processors remained open because some fishers were coming in with small amounts of product that needed to be processed. These processors, through the Rock Lobster Development Association, informed RLIAC that if the closure went ahead as planned it would not affect their marketing arrangements and could in fact result in some cost savings for them. Zone C lobsters that are caught while there is a closure in the northern region are also available for marketing.

### *Social considerations*

RLIAC was concerned about the issue raised by industry that operators would be unable to maintain crews over the duration of the closure. It was stated that crew may look elsewhere if they were not paid for the duration of the closure. RLIAC believes that the issue about maintaining crews maybe somewhat exacerbated by the closure, but felt that it was up to industry to manage this problem. These risks were seen as manageable.

### *Compliance considerations*

For a 15 January – 10 February closure to be effectively enforced, all affected vessels and gear would be required to be confined to port or anchorages during the closure. Accordingly no additional compliance issues are anticipated. This statement is predicated on the following management arrangements supporting the closure:

- Zones A and B fishers would be required to remove all rock lobster fishing gear from the water and return vessels and gear to their respective mainland ports or anchorages by the gazetted start time of the closure.
- The vessels and gear will not be able to leave port unless authorised by a Department of Fisheries Officer. Vessels and baited rock lobster pots may be redeployed in the Fishery on the last day of the closure period specified in the management arrangements.
- No rock lobster product will be permitted to be on board any commercial rock lobster fishing vessel during the closure period.
- Eliminates the compliance problems of fishers “stockpiling” 76 mm lobsters prior to the changing of the gauge from 77 to 76 mm, which occurs under the current arrangements where there is no summer closure.

### **3.2.2 Zone B – Sundays off (15 March – 30 June)**

#### *Biological considerations*

Fishing closures on Sundays in Zone B between 15 March and 30 June produces a 4.4% effective effort reduction and therefore as a component of the package it is likely to make a significant contribution to the conservation of the breeding stock.

#### *Economic considerations*

Fishing closures on Sundays in Zone B from 15 March to 30 June are estimated to produce a 2.6% reduction in the catch in the first year, however, this will be offset to a significant degree by a corresponding reduction in operating costs. In the second and subsequent years the loss in catch will be significantly less, however, the savings in operating costs will remain the same, i.e. the Sunday closures will become more cost effective from the second year. Experience will demonstrate whether fishers will change their behaviour to reduce the effectiveness of this measure. Hence this estimate represents the maximum impact in year one.

### ***Market considerations***

There are no adverse impacts anticipated due to closing Sundays from 15 March to 30 June in Zone B.

### ***Social considerations***

Industry has informed RLIAC that it considers there will be positive social impacts from having Sundays off. It is also considered to be a good Occupational Safety and Health practice.

### ***Compliance considerations***

There will be no compliance implications as all Zone B commercial rock lobster vessels will be confined to port for the duration of the closure. Baited pots will be allowed to remain in the water during the closure.

The Department of Fisheries will closely monitor any problems of interference with commercial pots during the closure.

### **3.2.3 Zone C - 3-day moon closure (1 February – 30 June)**

The 3-day full moon closure will take place one day before the full moon, the day of the full moon and the day after the full moon. When the full moon falls close to Easter it will be shifted slightly to coincide with Good Friday, Easter Saturday and Easter Sunday (this is **not** an extra closure).

For moon closures to be cost effectively enforced all the pots within Zone C, would be allowed to be baited prior to the closure. For the compliance to be fully effective all commercial Zone C rock lobster vessels would be confined to port during the moon closure.

The Department of Fisheries will continue to monitor recreational fishers during these periods to check whether there is any interference with commercial fisher's pots.

Once these compliance measures have been adopted there should be no additional compliance costs associated with moon closures.

RLIAC recognises that industry will be innovative in the ways it deals with moon closures. Fishers are likely to develop longer lasting slow release baits to make pots more effective during the moon closure period.

RLIAC has considered many of the advantages and disadvantages associated with moon closures that were identified by industry. Table 5 summarises some of the advantages and disadvantages that were considered.

**Table 5: Advantages and disadvantages associated with a Zone C 3-day moon closure**

ADVANTAGES	DISADVANTAGES
<ul style="list-style-type: none"> <li>• Social benefits, eg skippers and crew get time off.</li> <li>• Contributes to the conservation of the breeding stock.</li> <li>• Cost savings due to not operating during low catch periods.</li> <li>• Good Occupational Safety and Health practice.</li> </ul>	<ul style="list-style-type: none"> <li>• There could be some increase in predation on rock lobster.</li> <li>• Relatively small contribution to breeding stock.</li> <li>• Interference with pots.</li> </ul>

***Biological considerations***

Table 3 shows that a 3-day moon closure (February - June) in Zone C is estimated to produce the equivalent of a 3.5% effective effort reduction for a year. This assessment does not take into account any change in behaviour of fishers such as fishing more days outside the closures, and further development of timed-bait release mechanisms and/or long-lasting bait. Hence the assessment represents the maximum impact possible in the first year.

RLIAC is aware that predation on lobsters in pots that have been left for a three day pull needs to be assessed, as it could be higher than for three one day pulls.

***Economic considerations***

The summary of results from the analysis shown in Table 3 illustrates that a 3-day moon closure (February - June) in Zone C could reduce the catch by 2.8% over the duration of a year. However the reduction in catch will be offset to a large degree by a reduction in operating costs. In the second and subsequent years the loss in catch will be significantly less, however, the savings in operating costs will remain the same, i.e. the moon closures will become more cost effective from the second year onward.

***Market considerations***

Processors have advised that they don't believe there will be any adverse effect on the market.

***Social considerations***

It is expected that the 3-day moon closure will benefit all those involved in the operational side of the Fishery, allowing skippers and crew to have at least three days per month off.

RLIAC believes that a 3-day moon closure may impact on those issues listed in Table 5. The extent will remain unknown until the Fishery has operated under such management arrangements for a season. It is expected that the ability for operators to maintain crew will be the same with or without 3-day moon closures as the major

problem is the increasing competition in the labour market, which is largely driven by the boom in the State's resources sector.

### ***Compliance considerations***

- Over the duration of the closure all commercial rock lobster pots in Zone C will be allowed to remain in the water and to contain bait in them, as long as the pots were baited prior to the closure coming into effect. Fishers can if they wish remove their pots from the water during the closure.
- Zone C fishers will be required to return vessels to port or anchorage during the moon closures. Vessels will not be able to leave unless authorised by a Fisheries Department Officer.
- No rock lobster product will be permitted to be on board any Zone C commercial rock lobster fishing vessel during the closure period.

In the longer-term a vessel monitoring system (VMS) may need to be considered for the whole Fishery. Under this system every vessel in Zones A, B and C would be fitted with a VMS unit so that vessel movements can be tracked in detail. This proposal has yet to be discussed with industry.

### **3.2.4 Zone C - November closure from 15 November to 24 November**

#### ***Biological considerations***

This measure was estimated to be equivalent to a 1.3% (Table 3) effective effort reduction for a year.

#### ***Economics considerations***

The results of the analysis in Table 3 show that the impact of a 15 November to 24 November closure for the southern region, could reduce the catch by 1.1% over the duration of a year. However the reduction in catch will be offset to a large degree by a reduction in operating costs. In the second and subsequent years the loss in catch will be significantly less, however, the savings in operating costs will remain the same, i.e. the 15 – 24 November closure will become more cost effective from the second year onward.

#### ***Market considerations***

RLIAC was informed by processors that there were unlikely to be any adverse impact on the markets by starting the season on 24 November instead of 15 of November.

#### ***Social considerations***

No adverse social impacts of starting the season 10 days later were identified.

### *Compliance considerations*

No additional compliance issues are predicted if the Zone C season does not open until 24 November. The normal six-day pot soaking period prior to the opening of the season on 24 November would apply.

#### **3.2.5 Whole Fishery (Zones A, B and C) - Short-term closures (Christmas Day and New Year's Day).**

The percentage equivalent reduction in pot lifts for the two single day closures - Christmas Day and New Year's Day - was about 0.1% in the northern coastal region and 0.2% in the southern region, therefore for the purposes of this paper, they were not analysed further.

There was a very high level of consensus for closing Christmas Day and New Year's Day across the whole Fishery. There was not such good support for closing Good Friday and Easter Sunday in the northern region, therefore it has not been included in their management package. However, Good Friday and Easter Sunday closures did receive very good support in the southern region and therefore it has been combined with the 3-day moon closure, i.e. where the full moon falls close to Good Friday (as it usually does) the moon closure will be shifted slightly to coincide with Good Friday, Easter Saturday and Easter Sunday (this in **not** an extra closure).

### *Biological considerations*

Adds a small amount to effective effort reductions.

### *Economic considerations*

The reduction in catch in the northern region was estimated at less than 0.1% and in the southern region less than 0.2%. These small reductions in catch will be offset to some degree by a reduction in operating costs.

### *Market considerations*

No impacts anticipated.

### *Social considerations*

The closures for Christmas day and New Year's Day were seen to be very positive from a social point of view.

### *Compliance considerations*

Commercial rock lobster vessels will be confined to their respective anchorages for Christmas Day and New Year's Day and therefore no additional compliance issues are expected.

- Fishers will be required to return vessels to port or anchorage by the gazetted start time of the closures. The vessels will not be able to leave port or anchorage during the closure period unless authorised by a Fisheries Department Officer. However, all rock lobster pots will be allowed to remain in the water and contain bait for the duration of the closures.
- Rock lobster product will not be permitted on board any commercial rock lobster fishing vessel during the closures.

## **APPENDIX 1 - DOCUMENTS PROVIDED TO STAKEHOLDERS IN 2004 AND 2005 AS PART OF THE CONSULTATIVE PROCESS**

*Document 1*, ‘*Western Rock Lobster Fishery Status Report, January 2004*’, was a scientific report that presented extensive analysis and assessment of available data relevant to the Fishery. The details of this report were presented to stakeholders at RLIAC coastal tour meetings in October 2004 and the February 2004 RLIAC open stakeholders forum held in Geraldton.

*Document 2*, ‘*Management of the Western Rock Lobster Fishery – Advice to Stakeholders on Resource Sustainability Matters, September 2004*’, is a management report that considers the current stock status information in the context of long term sustainability objectives and in particular, within the decision rules framework developed for this Fishery. The details of this report were presented to stakeholders during the RLIAC coastal tour meetings in October 2004.

*Document 3*, ‘*Advice to Stakeholders – Assessment of Resource Sustainability Measures*’, provided useful information and advice on the management tools that were available and estimated what contribution different management measures would make to the overall goal of reducing fishing effort and improving the level of the breeding stock in all three zones of the Fishery. Document 3 also included a preliminary economic analysis of each of the management options and how they might impact on individual fishing operations in Zones A, B and C.

*Document 4*, ‘*Proposed Resource Sustainability Management Package for the Northern Zones (A and B)*’, was developed to inform northern zone stakeholders of RLIAC’s proposed resource sustainability management package to be recommended to the Minister for implementation in the 2005/06 fishing season.

*Document 5*, ‘*Advice to Stakeholders – Assessment of Southern Zone Resource Sustainability Options – May 2005*’ provided useful information and advice on the management tools that are available and estimated what contribution different management options made to the overall goal of reducing effective fishing effort and improving the level of breeding stock in the southern region.