Management of Western Rock Lobster Fishery

Advice to Stakeholders - Assessment of Southern Zone Resource Sustainability Options

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CONTENTS

Meeting dates 4

Executive Summary 5

Introduction 7

2.0 Assessment of Prospective Management Options 9

3.0 Analysis of management options (biological, socio-economic and compliance considerations) 14

3.1 Pot Reductions 15

3.1.1 15% pot reduction from 15 November to 31 January 15
3.1.2 Compliance and economic considerations associated with a 15% pot reduction from 15 November to 31 January 15

3.2 Time period closures 15

3.2.1 Zone C November closure from 15 November to 30 November 16
3.2.2 Compliance and economic considerations associated with Zone C November closures from 15 November to 30 November 16
3.2.3 Four day closure (Christmas Day, New Year Day, Good Friday, and Easter Sunday) 16
3.2.4 Compliance and economic considerations associated with short-term closures (Christmas Day, New Years Day, Good Friday, and Easter Sunday) 16

3.3 Moon closures 17

3.3.1 Compliance considerations associated with 5-day moon closures (March - June) 17
3.3.2 Economic considerations associated with Zone C 5-day moon closures (March - June) 17

3.4 Reduction in female maximum size 18

3.4.1 Compliance and economic considerations associated with change in female maximum gauge size from 115 mm to 110 mm 18

4.0 Summary 18

5.0 Process – where to from here 19

The purpose of this paper is to:

- **Further inform stakeholders how the existing management system can be used to promote a stock status (particularly a level of breeding stock) that remains consistent with the long-term sustainability objectives as described within the Decision Rules Framework.**
- **Obtain the views of stakeholders on the current stock status situation (particularly breeding stock) and what management response is appropriate within a process that makes it possible for any resultant management action to be implemented for the 2005/06 season.**

Meeting dates

ZONE C

Assessment of Southern Zone Resource Sustainability Options

Venue: **Fremantle Sailing Club**
Date: **22 June 2005**

Time: **8:30 pm – 2:30 pm.**

TIME	WHO	TASK
8:30 am – 9:00 am	Participants	• Registration
9:00 am – 9:05 am	Mr Ron Edwards (Chair)	• Welcome and introduction
9:05 am – 9:35 am	Dr Peter Rogers	• Overview of long-term management arrangements
9:35 am – 10:00 am	Dr Roy Melville-Smith	• Stock assessment status of Zone C
10:00 am – 10:30 am	Mr Rhys Brown Neil Thompson	• Management implications of stock assessment status report for zone C • Economic impacts of management options
10:30 am – 11:00 am	**Morning tea**	
11:00 am – 12:30 pm	Workshop groups	• Workshop group discussion regarding advantages, disadvantages and rankings of each management measure presented.
12:30 pm – 1:30 pm	**Lunch**	
1:30 pm – 2:30 pm	Open discussion	• Ranking list results from workshop group exercise. • Open discussion. • Close of meeting.
2:30 pm – 5:00 pm	**RLIAC** (Closed Meeting)	**RLIAC members consider and discuss the southern zone workshop results**

Executive Summary

The management options presented in this paper have been developed in close co-operation with the rock lobster industry to address the short-term sustainability and economic concerns regarding the level of exploitation and its impact on the breeding stock in the southern region. The main focus in the short term is to consider options that reduce fishing effort during periods that may be economically inefficient to fish and at the same time reduce the level of exploitation.

The management package **does not** address the serious long-term sustainability or socio-economic issues (i.e. cost pressures and related fleet capacity) facing the industry. If the fishery stays with input controls there will need to be regular reviews of the level of exploitation and its impact on the breeding stock. If exploitation increases and the breeding stock continues to decline additional fishing effort reductions in the order of 2–4% annually or much more significant reductions on a 5 – 10 year basis (e.g. 10 – 15%) will be required to ensure biological sustainability.

A review of the fishery's current management system is being undertaken, which will provide detailed information to industry on how best to address the long-term socio-economic issues concerning the future management of the rock lobster resource within an ecological sustainable development framework. The review papers will be released in time for the Rock Lobster Industry Advisory Committee (RLIAC) Coastal Tour in October 2005.

Southern zone stakeholders have been advised that an increase in effective effort has caused an increase in the exploitation rate, reductions in residual biomass and decline in the egg production index. The degree to which these changes have occurred is not as great as observed in the northern region of the fishery and Zone C egg production is currently above the target level. **However, the causes of the downturn in the north are all present in the south and the southern fishery will not continue to be insulated by high abundance in the coming seasons as has been the case in recent years.**

RLIAC believes that a 5% reduction in effective effort is required in Zone C for the 2005/06 season to relieve some pressure on the breeding stock. While this document presents five resource management options for your consideration and comment, RLIAC encourages industry to put forward other management options for discussion that could be implemented in 2005/06 or future seasons.

RLIAC would like to see at least the following options implemented for the 2005/06 season;

- **5-day moon closure for the period March – June (equivalent to a 5% effective effort reduction); and**
- **four one day closures (Christmas Day, New Years Day, Good Friday, and Easter Sunday).**

RLIAC also recommends an increase in the mandatory number of escape gaps per pot from three to four from the 2006/07 season.

The other resource management options that RLIAC would like industry to consider for implementation in 2005/06 or **future seasons** include:

- November closure (15 November – 30 November);
- 15% pot reduction (15 November – 31 January); and
- an increase in the escape gap height from 54 mm to 55 mm.

Because egg production is still above the target level in Zone C, industry has the opportunity to have a significant input into any management options that may be proposed. This document provides useful information and advice on the management tools that are available, and estimates what contribution different management options would make to the overall goal of reducing effective effort and arresting the decline in the breeding stock. The document also considers the economic implications of the suggested management measures to help assess their relative impact on fishers.

This paper will provide the key discussion point at the upcoming meeting and workshop in Fremantle on **Wednesday 22 June 2005**, where the management options will be presented. You will be given the opportunity to workshop these management options and have your say as to which management options you would prefer (if any) to have included in any management package for 2005/06 and in the future.

Introduction

The management options presented in this paper have been developed in close co-operation with the rock lobster industry to address the short-term sustainability and economic concerns regarding the level of exploitation and its impact on the breeding stock in the southern region. The main focus in the short-term is to consider options that reduce fishing effort during periods that may be economically inefficient to fish and at the same time reduce the level of exploitation.

The management package **does not** address the serious long-term sustainability or socio-economic issues (e.g. cost pressures and related fleet capacity) facing the industry. If the fishery stays with input controls there will need to be regular reviews of the level of exploitation and its impact on the breeding stock. If exploitation increases and the breeding stock continues to decline additional fishing effort reductions in the order of 2 – 4% annually or much more significant reductions on a 5 – 10 year basis (e.g. 10 – 15%) will be required to ensure biological sustainability.

Economic issues 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;
- stagnant commodity price's (due to high exchange rate and increasing overseas competition in the market place);
- predicted significant 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.

This is likely to result in lower returns to industry that will create the need for further fleet rationalisation.

The 1993/94 fishing effort reduction package, which included an 18% pot reduction, was very successful in protecting and improving the breeding stock and it acted as a catalyst for fleet rationalisation (i.e. reduction in fishing vessels). However, these gains have been eroded over the intervening years as the fishing fleet has increased its fishing efficiency and exploitation of the stocks.

A review of the fishery's current management system is being undertaken, which will provide detailed information to industry on how best to address the long-term socio-economic issues concerning the future management of the rock lobster resource within an ecological sustainable development framework. The review papers will be released in time for the Rock Lobster Industry Advisory Committee (RLIAC) Coastal Tour in October 2005.

Southern zone stakeholders have been 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 region.

It is likely that the southern region has been insulated from the effects of efficiency gains by recent high recruitment throughout Zone C, 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 production 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. While this document presents five resource management options for your consideration and comment, RLIAC encourages industry to put forward other management options for discussion that could be implemented in 2005/06 or future seasons.

This document is the fifth in a series produced in 2004/05 by the Rock Lobster Industry Advisory Committee (RLIAC) that focuses on the sustainability of the western rock lobster (*Panulirus cygnus*). This series of documents has been produced by RLIAC in consultation with the rock lobster industry and the Department of Fisheries.

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 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'*, was a management report that considered the current stock status information in the context of long term sustainability objectives and how this fitted with the decision rules framework developed for the 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 Options*', set out to provide useful information and advice on the management tools that are available and estimated what contribution different management options would make to the overall goal of reducing effort and improving the key sustainability indicators for all three zones. Document 3 included a preliminary economic analysis of each of the management options. The economic analysis illustrated the possible impacts on the average fishing operation for 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.

Like Document 3, this document (number 5) does not set out to prescribe what management approach is best for the Fishery. Rather, its purpose is to provide useful information and advice on the management tools that are available and estimate what contribution different management options would make to the overall goal of reducing effort and improving the level of breeding stock in the southern region.

If Zone C were to be pro-active by implementing some small management options now, which may achieve small percentage reductions in fishing effort that would stop or slow the downward trend of the breeding stock index, it may, reduce the need to implement more significant management options in the next 2 – 5 years.

This document includes a preliminary economic analysis of each of the management options. The economic analysis shows the possible impacts of each separate management options on individual fishing operation based on 'Mr/s Average' fisher.

Successful compliance is significant in determining which management options should be adopted. The options should be able to be effectively enforced, and therefore, an analysis detailing the compliance issues associated with adopting each option in the Fishery has been included in this paper.

When considering the management options, you need to be particularly mindful of section 3.0 *Analysis of management options (biological, socio-economic and compliance considerations)*, which provides an overview of the impacts associated with each option.

The first section of this paper provides an overview of several management options that could be considered for the southern region and the economic impact of each of these on an average individual fishing operation. The paper further provides a detailed analysis of each of the management options regarding compliance and economic issues and details the process by which stakeholders can have a say and contribute to any management arrangements that may finally be adopted.

2.0 Assessment of Prospective Management Options

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

The assessment of options provided within this section is comprehensive and has been based on consultation with industry members.

The management options discussed in this paper fit within three categories:

(a) pot reductions for part of the season;
(b) seasonal and short-term closures; and
(c) female maximum gauge size change.

All of these options have their advantages and disadvantages from a biological, economic and social perspective and could potentially have a different effect on fishers depending on their circumstances and way of fishing.

Table 1 provides a comparison of the various management options proposed, enabling you to determine their net effect. This comparison has been done by calculating the impact of the time closures and maximum size changes in effective effort reduction

equivalences. This analysis takes into account the level of catch rate during the period that the time closure (eg November or moon closure) or the pot reduction is proposed.

Example: An average of 6.3% of the total annual pot lifts occur during November in Zone C, however, the November catch rates per pot are generally about half the average annual catch rate so that the estimated effective effort reduction is about 3.2%. This can be contrasted with a pot reduction during the whites period, which is a high catch rate period. A 15% pot reduction during the whites is estimated to result in 5.3% reduction in pot lifts for the year. However, the catches during this period are generally above the annual average catch rate and so the estimated impact on effective effort reduction is 6.8%. A similar assessment was undertaken to estimate the impact of closures during the relatively lower catch rate periods around the full moon. These assessments don't take into account any possible changes in fisher behaviour to counteract the management changes.

The impact of a change in the female maximum gauge size compared to an effective effort reduction could not be calculated as above. However, a comparison could be made on the basis of the relative impact on the breeding stock of the two management measures. It has been estimated by computer modelling, that the impact (in 5 years time) of changing the female maximum gauge size from 115 mm to 110 mm in Zone C would be similar to that achieved by about a 5% reduction in effective effort.

The impact of the effort reduction on catch is highest in the first year that the management measure(s) is introduced and is less in future years due to the catch not taken in one year growing and being available for capture in the following year. For example it is estimated from modelling that with a 5% effort reduction (achieved through the proposed combination of options) the reduction in catch will be in the order of about 3 – 4% in the first year and 2 – 3% in subsequent years (this is the worst case scenario as far as loss of catch is concerned). Previous effort reduction programs (e.g. 1993/94) have shown that these estimates could be high. However any cost savings associated with the management measures (pot reductions or time closures) are maintained in all seasons. Thus the economic impact of the package is greatest in the first year. This was certainly the case for the 1993/94 management package.

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

As explained above, this analysis has equated or standardised the components of the management measures presented for consideration, therefore the effect on catch (or the number of lobster left in the water) is comparable and is assumed to be proportional to the percentage effective effort reduction.

Table 1 provides information to assist industry to understand the likely economic effect each measure will have – in particular on the cost associated with fishing and therefore the relative margin between cost and revenue.

When considering this analysis it is important to note that numbers are based on an average for the southern region. Therefore individuals should only use this information as a guide to compare the relative benefits and costs of each management measure.

The key assumptions associated with the economic analysis are:

1. Catch and effort data are based on average catch and effort over the last 10 years.

2. An average price of $20 per kilogram has been assumed with fluctuations over the season reflecting normal seasonal fluctuations.

3. "Percentage reduction in value of catch over whole year" is in most cases based on the assumption that a 15% pot reduction results in 12% fewer rock lobsters being caught in the first year (considered to be the worst case scenario).

    a. In some cases where a specific month closure is proposed, specific catch/value data is used for given months;

4. Fixed costs per vessel are assessed to be the same for all Zone C vessels. Fixed costs include the:
    a. capital cost of boats ($500,000 per boat);
    b. boat overhaul costs ($15,000 per boat); and
    c. administration and other annualised costs ($36,000 per year).

5. Variable costs are broken up into costs for:

    a. bait ($2.50 per pot lift)
    b. fuel ($2.40 per pot lift, which works out to be about $45,000 per year per boat and is the cost net of the diesel fuel rebate); and
    c. labour (9% of catch for each of the two deck hands and 9% of the catch for the skipper, along with a fixed retainer/salary of $30,000 for the skipper).

6. Costs associated with the purchase of licences and leasing of units have not been included in this economic analysis.

7. The economic assessment provided in this paper only relates to the first year associated with the implementation of any management package for the Fishery. It is likely that the reduction in revenue in future years will be much less while the cost savings will be maintained.

Table 1. 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 reduction in value of catch annually (%) Year 1 only[A]	3 Estimated mean reduction in costs per vessel per year ($)	4 Estimated reduction in value of catch for year 1 ($)
November closure (15 November – 30 November)	3.2	2.6	$8,400	$10,000
15% pot reduction (15 November – 31 January)[1]	6.8	5.4	$10,100	$21,000
Change in female maximum gauge size from 115 mm to 110 mm.	5	2	$2,100[B]	$7,800
5-day moon closure (March - June)	5	4	$14,200	$15,600
Day closures: Christmas Day, New Year Day, Good Friday, and Easter Sunday	<1	<1	-	-

[A]Assumed impact on catch is 0.81 of effort reduction level for all effort reduction options (ie time closure and pot reduction). Impact of maximum size change on catch has been estimated separately.
[B] Cost savings are derived from reduced payments for labour (based on percentage of catch).

[1] Unit value of 0.70 – see page 14 for explanation.

Table 1 presents management options that could be included in the final proposed management package for the southern region of the fishery.

The overall impact (benefit) of the management options on the economics of the fishery is illustrated in Figure 1.

Figure 1. The relative impact of different proposed effort reduction strategies in Zone C

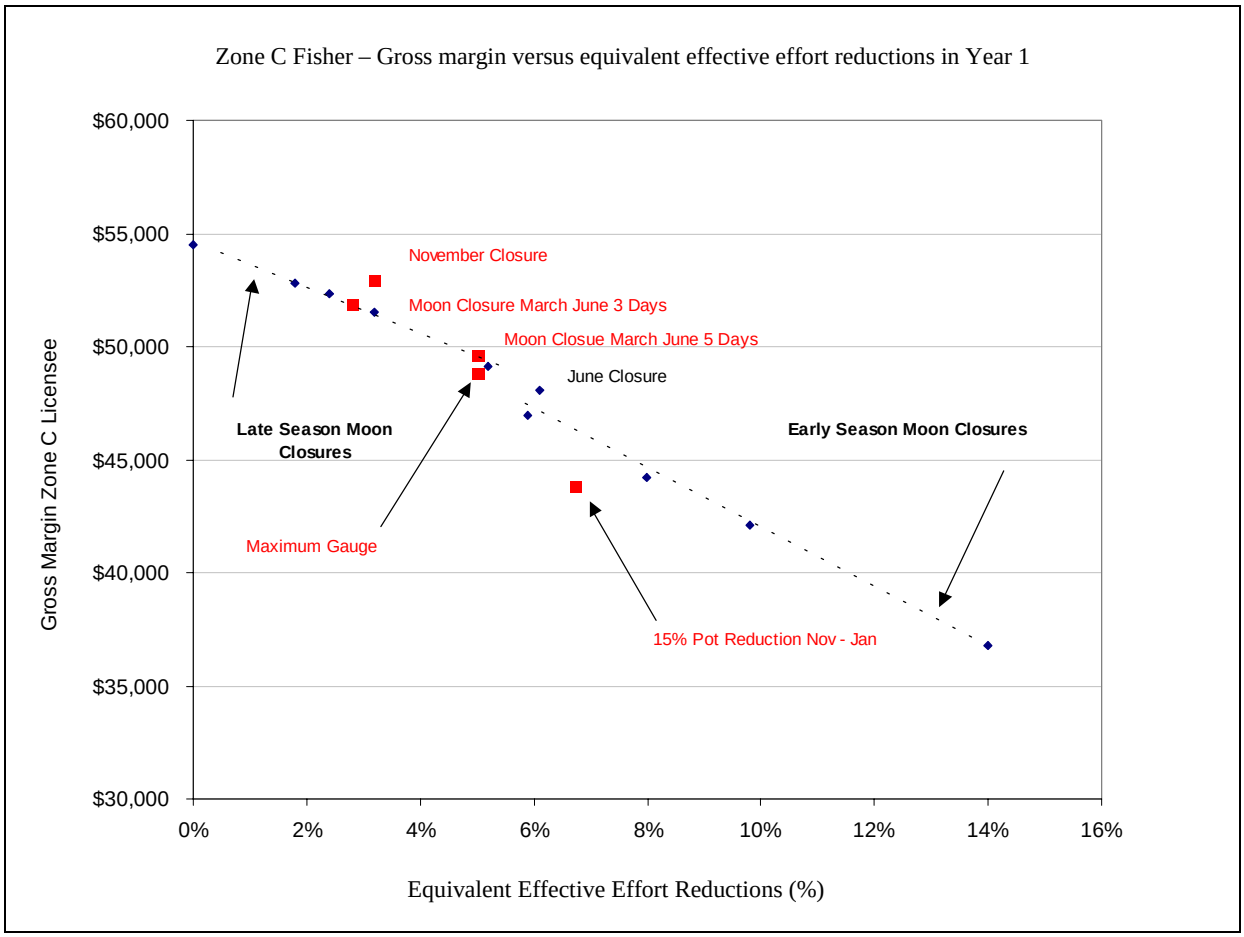

Figure 1 shows the effect of the different management options (standardised to their equivalent value in effective effort reductions) on the relative gross margin of Zone C licensees. It shows the level of impact associated with the introduction of each separate management measure on the current margin of a Zone C operator and its impact as an effort reduction measure.

Figure 1 estimates that currently operators in Zone C of the rock lobster fishery have an average gross margin of just under $55,000 per annum (i.e. the level of no effort reduction). Figure 1 should be interpreted as showing more economically efficient strategies being higher on the chart, while more effective strategies, in terms of effort reduction are further to the right. The November closure appears to be the most economically efficient strategy, followed by late season moon closures. The 15% pot reduction in the whites (Nov-Jan)[2] and early season moon closures are more effective at

[2] Unit value of 0.70 – see page 14 for explanation.

reducing effort but may have a more negative impact economically. However, it should be noted that any market benefit of transferring catch from whites to reds has not been evaluated.

It is important to note effective fishing effort is increasing at a rate of about 2 – 4% per year. Therefore the fishing industry will need to address this problem in the longer term if input controls continue to be used as the management arrangements for the fishery. This will mean that ongoing effort reductions in the range of 2 – 4% per year will need to be implemented if this rate of increase continues in the future

3.0 Analysis of management options (biological, socio-economic and compliance considerations)

The decline in breeding stock in the southern region of the Fishery has not been as severe as that observed in the north. The egg production indicators for Zone C are currently above the target level. **However, the causes of the downturn in the north are all present in the south and the southern fishery will not continue to be insulated by high abundance in the coming seasons as has been the case in recent years.**

Zone C fishers are in the more enviable position of having seen the effects on the breeding stock of increases in fishing efficiency in the northern zone. Zone C fishers have the opportunity to act sooner rather than later to address the possibility of a similar breeding stock decline in their zone.

It is recognised that any management change that targets a reduction in fishing effort produces both positive and negative socio-economic consequences and present new fisheries management challenges, particularly in the area of compliance.

When considering the management options presented in this paper, it is particularly important to be mindful of the compliance issues associated with implementing such changes.

The compliance considerations associated with each specific management measures have been detailed below for your information. 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 this Fishery. There is a major management initiative (Integrated Fisheries Management) that is examining options for allocating catch shares in the rock lobster resource between the recreational and commercial sectors, and other groups.

It is important to note that the proposed percentage pot reduction contained within this paper, i.e. a 15% pot reduction from 15 November to 31 January, is calculated in the following way:

If for example your permanent pot allocation is 100 and you are currently fishing 82 pots, then you will only be able to fish with 70 pots, i.e. 15% less than the number of pots you are currently fishing (or expressed in unit terms 0.70 (0.82 x 0.85 = 0.70) of your permanent pot allocation).

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 there will be increased incentives for fleet rationalisation i.e. some people will sell out of the industry and their pots will be distributed. From a purely economic perspective and on a fishery wide scale, further fleet rationalisation could be seen as a positive. Rationalisation (fewer vessels) can assist the industry to become more economically efficient and therefore more profitable. In fact some of the potential economic benefits that may come from pot reductions are dependent upon further rationalisation.

That said, it is recognised that there is another side to the coin. In particular rationalisation carries with it the social issues associated with a downsizing of the fleet that are likely to be most evident in the smaller "lobster dependent" coastal communities.

3.1.1 15% pot reduction from 15 November to 31 January[3]

3.1.2 Compliance and economic considerations associated with a 15% pot reduction from 15 November to 31 January

No additional compliance issues are expected. There are currently various 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. It should be noted that any further pot reductions would not impact on the compliance levels, strategies or costs for the Fishery.

Table 1 shows that a 15% pot reduction from 15 November to 31 January is estimated to be equivalent to a 6.8% effective effort reduction for a calendar year (column 1). The economic analysis performed, and illustrated in Table 1, shows that pot reductions of 15% from 15 November to 31 January reduced the value of the catch by $21,000 (column 4) over the duration of a whole year and the cost per fishing vessel by about $10,100 (column 3). This economic analysis does not take into account any economic benefit of transferring catch from the whites to the reds. It also does not take into account any changes that may occur in fishing efficiency as a result of using less pots (i.e. better targeting and increased bait usage).

3.2 Time period closures

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 effective effort reductions.

[3] Unit value of 0.70 – see page 14 for explanation.

The reduction in pot lifts during closures over low catch periods have been discounted when assessing their contribution to reductions in effective effort, on the basis that lower catch rates that are achieved. Although they need to be discounted, closures during low catch rate periods contribute to the overall effort reduction.

3.2.1 Zone C November closure from 15 November to 30 November

3.2.2 Compliance and economic considerations associated with Zone C November closures from 15 November to 30 November

No additional compliance issues are predicted if Zone C season does not open until 1 December. A six-day soaking period prior to 1 December would apply.

The results of the economic analysis in Table 1 shows that the impact of a 15 November to 30 November closure for the southern region, reduced the value of the catch by about $10,000 (column 4) over the duration of a year and the costs per fishing vessel by about $8,400 (column 3). This measure was estimated to be equivalent to a 3.2% (column 1) effective effort reduction for a year.

3.2.3 Four day closure (Christmas Day, New Year Day, Good Friday, and Easter Sunday)

3.2.4 Compliance and economic considerations associated with short-term closures (Christmas Day, New Years Day, Good Friday, and Easter Sunday)

Christmas Day, New Years Day, Good Friday and Easter Sunday closures would not pose an additional compliance risk if commercial rock lobster vessels are confined to their respective anchorages.

Issues to consider in association with Christmas Day, New Years Day, Good Friday and Easter Sunday closures:

- 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 officer. However, all rock lobster fishing gear will be allowed to remain in the water and contain bait for the duration of the closure;

- rock lobster product will not be permitted to be on board any commercial rock lobster fishing vessel during the closures.

The percentage equivalent reduction in effort for the four days of the closure (Christmas Day, New Years Day, Good Friday and Easter Sunday closures) was less than 1%, therefore for the purposes of this paper, they were not analysed further.

3.3 Moon closures

3.3.1 Compliance considerations associated with 5-day moon closures (March - June)

It should be acknowledged that the nature of the Fishery is such that administration of moon closures could, depending on the way they are implemented, result in a number of significant compliance issues.

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 rock lobster vessels would need to be confined to port during the moon closure.

The Department of Fisheries will continue to monitor recreational fishers during these periods to ensure they do not interfere 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, therefore the pot will be more effective during the moon closure period. If this occurs it will be necessary for the fishery to implement other management options to ensure the management package delivers the necessary outcome.

Proposed compliance strategy:

- 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.

- Zone C fishers will be required, during the closed period, to return vessels to port or anchorage. During the closure period vessels will not be able to leave unless authorised by a fisheries officer.

- No rock lobster product will be permitted to be on board any Zone C commercial rock lobster fishing vessel during the closure period.

3.3.2 Economic considerations associated with Zone C 5-day moon closures (March - June)

Table 1 shows that a Zone C 5-day moon closure (March - June) is estimated to produce the equivalent of a 5% (column 1) effective effort reduction for a year. The summary of results from the economic analysis shown in Table 1 illustrates that a Zone C 5-day moon closure (March - June) could reduce the value of the catch by $15,600 (column 4) over the duration of a year and reduce the mean costs per fishing vessel by about $14,200 (column 3). This assessment does not take into account any change in behaviour of fishers to deal with the moon closures such as fishing more days outside the closures, and further development of timed-bait release mechanism and/or long-lasting bait. Hence the assessment represents the maximum impact possible.

3.4 Reduction in female maximum size

There are no readily identifiable and direct socio-economic benefits associated with a female gauge change. In fact, while reducing the female maximum size can directly contribute to the breeding stock with minimal impact on catch. It could be argued that it also adds an additional inefficiency given that oversized animals will continue to be caught and handled, with no direct economic return.

3.4.1 Compliance and economic considerations associated with change in female maximum gauge size from 115 mm to 110 mm

No additional compliance issues are predicted, as similar options currently exist in the fishery. However, there will be some additional (small) costs in relation to the purchase of appropriate gauges for all operators in the Fishery.

The economic analysis performed on a reduction in the female maximum size from 115 mm to 110 mm (Table 1), shows that it could reduce the value of the catch by $7,800 (column 4) over the duration of a calendar year and reduce the mean costs per fishing vessel by around $2,100 (column 3). This measure is estimated to be equivalent to a 5% (column 1) effort reduction over a year.

4.0 Summary

The management options presented in this paper have been developed in close co-operation with the rock lobster industry to address the short-term sustainability and economic concerns regarding the level of exploitation and its impact on the breeding stock in the southern region. The main focus in the short term is to consider options that reduce fishing effort during periods that may be economically inefficient to fish and at the same time reduce the level of exploitation.

These management options **do not** address the serious long-term sustainability or socio-economic issues (e.g. cost pressures and related fleet capacity) facing the industry. If the fishery stays with input controls there will need to be significant additional fishing effort reductions to ensure biological sustainability.

RLIAC believes that a 5% reduction in effective effort is required in Zone C for the 2005/06 season to relieve some pressure on the breeding stock.

RLIAC would like to see at least the following options implemented for the 2005/06 season;

- 5-day moon closure for the period March – June (equivalent to a 5% effort reduction); and
- four one day closures (Christmas Day, New Years Day, Good Friday, and Easter Sunday).

RLIAC also recommends an increase in the mandatory number of escape gaps per pot from three to four for the 2006/07 season.

The other resource management options that RLIAC would like industry to consider for implementation in 2005/06 or **future seasons** include:

- increase in the number of escape gaps from three to four starting in 2006/07 (as mentioned above);
- November closure (15 November – 30 November);
- 15% pot reduction (15 November – 31 January)[4]; and
- an increase in the escape gap height from 54 mm to 55 mm.

The industry has on its side the benefit of previous experience in implementing management arrangements to deal with sustainability issues and the knowledge acquired as a result. This, and the fact that the issue has been recognised relatively early, are significant positives.

There are many considerations to take into account in trying to determine what combination of options is in the best interest of industry and it is important that the debate is comprehensive. That said industry must be encouraged to adopt a positive approach to this debate and seek a conclusion rather than falling into the trap of endless deliberations. RLIAC is mindful that if options are to be in place for the 2005/06 season it is necessary to draw some conclusions from the consultative process by July 2005.

5.0 Process – where to from here

Zone C puerulus settlement is indicating a downturn in catch over the next three seasons, therefore it is necessary for stakeholders to start thinking of small management options to help alleviate the future downward trend in breeding stock.

This paper has provided a range of management options for possible inclusion in a management package for Zone C. It is recommended, and has been supported by industry members, that pro-active management options that result in a small-scale reduction in overall fishing effort should be adopted for the 2005/06 fishing season. This may help to reduce the possible need for major fishing effort reductions in the future. These management options may also assist the economic performance of the Fishery.

RLIAC will be conducting a Zone C stakeholder meeting/workshop on **22 June 2005** at the **Fremantle Sailing Club**, to discuss management options and resource sustainability issues. This meeting offers an opportunity for Zone C stakeholders to discuss at length with managers and researchers any issues concerning management options and their impact on resource sustainability in the southern zone.

[4] Unit value of 0.70 – see page 14 for explanation.

Rock Lobster Industry Advisory Committee (RLIAC)

Our Ref: Mac 18

TO ALL SOUTHERN ROCK LOBSTER STAKEHOLDERS

RE: ASSESSMENT OF RESOURCE SUSTAINABILITY MEASURES

The Rock Lobster Industry Advisory Committee (RLIAC) invites all southern zone (Zone C) stakeholders to a meeting and workshop regarding the assessment of resource sustainability measures for the southern zone of the fishery in Fremantle to be held at **8:30 am Wednesday 22 June 2005** at the Fremantle Sailing Club. Please refer to page 4 of the enclosed options paper for the agenda.

RLIAC believes that a 5% reduction in effective effort is required in Zone C for the 2005/06 season to relieve some pressure on the breeding stock. While this document presents five resource management options for your consideration and comment, RLIAC encourages industry to put forward other management options for discussion that could be implemented in 2005/06 or future seasons.

RLIAC would like to see at least the following options implemented for the 2005/06 season;

- **5-day moon closure for the period March – June (equivalent to a 5% effort reduction); and**
- **four one day closures (Christmas Day, New Years Day, Good Friday, and Easter Sunday).**

RLIAC also recommends an increase in the mandatory number of escape gaps to four for the 2006/07 season.

The other resource management options that RLIAC would like industry to consider for implementation in 2005/06 or **future seasons** include:

- November closure (15 November – 30 November);
- 15% pot reduction (15 November – 30 January);
- an increase in the escape gap height to 55 mm.

RLIAC values your continued participation in this process, and looks forward to seeing you at the upcoming meeting and workshop to be held at **8:30 am Wednesday 22 June 2005** at the Fremantle Sailing Club, Fremantle. Should you have any questions please feel free to contact Mr Peter Trott, Commercial Fisheries Management Officer (Rock Lobster) on (08) 9482 7262.

Yours sincerely

Ron Edwards
CHAIRMEN – ROCK LOBSTER INDUSTRY ADVISORY COMMITTEE

25 May 2005

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