

Management of Western Rock Lobster Fishery

Proposed Resource Sustainability Management Package for the Northern Zones (A and B)

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The purpose of this paper is to:

1. Inform stakeholders how the existing management system can be used to promote a stock status that remains consistent with the long-term sustainability objectives as described within the Decision Rules Framework.
2. Inform stakeholders of RLIAC's proposed resource sustainability management package to be implemented for the 2005/06 fishing season.
3. Obtain the views of stakeholders at a meeting in Geraldton on 1 July 2005 on the proposed resource sustainability management package.

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Meeting dates

ZONE A & ZONE B

Stakeholder consultation regarding proposed resource sustainability management package for the northern zones

Venue: Geraldton (Entertainment Centre)

Date: Friday 1 July 2005

Time: 8.30 am – 5:00 pm.

TIME	WHO	TASK
8:30 am – 9:00 am	Participants	<ul style="list-style-type: none">• Registration
9:00 am – 9:05 am	Dr Peter Rogers for Mr Ron Edwards (Chair)	<ul style="list-style-type: none">• Welcome and introduction
9:05 am – 9:35 am	Dr Peter Rogers	<ul style="list-style-type: none">• Overview of long-term management arrangements
9:35 am – 10:00 am	Dr Nick Caputi	<ul style="list-style-type: none">• Stock assessment status of Zone A and Zone B
10:00 am – 10:30 am	Mr Rhys Brown	<ul style="list-style-type: none">• Management options to address breeding stock decline;• Brief overview of process to date; and• Summary of January 2005 Geraldton meeting.
10:30 am – 11:00 am	Morning tea	
11:00 am – 11:30 am	Mr Ron Edwards	<ul style="list-style-type: none">• RLIAC's proposed resource sustainability package;
11:30 am – 12:00 pm	Mr Tony Cappelutti Mr Rhys Brown	<ul style="list-style-type: none">• Compliance issues;• How and when management package implemented.
12:00 pm – 12:30 pm	Mr Neil Thompson	Assessment of the impact of the proposed management package on economics – individual, zone, market.
12:30 pm – 1:30 pm	Lunch	

1:30 pm – 3:15 pm	Open floor discussion	<ul style="list-style-type: none"> • Discussion with RLIAC members regarding the proposed management package
3:15 pm – 3:30 pm	Mr Ron Edwards	<ul style="list-style-type: none"> • Summary of days outcomes; • Process – where to from here; • Close public meeting.
3:30 pm	Afternoon tea	
3:30 pm – 4:00 pm	Presidents of PFA's/RLIAC	Presidents of Professional Fishermen's Associations to meet with RLIAC
4:00 pm -	RLIAC (Closed Meeting)	RLIAC members to discuss and finalise proposed management package - Zones A & B

Executive Summary

The proposed effort reduction management package presented in this paper was developed in close co-operation with rock lobster industry to address the short-term sustainability concerns regarding the level of breeding stock in the northern region.

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.

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.

This document is the forth in a series produced in 2004/2005 by 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.

The current advice to stakeholders is that the increased effective effort in the northern region of the Fishery has resulted in:

- significant increases in the exploitation rate;
- reductions in residual biomass; and
- decline in the egg production index to the point where it has now 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 intervention and that a management package **equivalent** to a 15% reduction in effective effort is required to have a significant and positive impact on the breeding stock.

It has become evident from the extensive consultation processes undertaken thus far, that there are mixed views on what management measures should be adopted to achieve a 15% reduction in effective fishing effort in the northern zones of the fishery for the 2005/06 fishing season. However, it is abundantly clear that the option of leaving sustainability of the fishery to the whim of environmental fluctuations is not reasonable or responsible management.

In accordance with industry's request, RLIAC and the Department developed a sustainability options paper '*Advice to stakeholders – Assessment of Resource Sustainability Measures*' in January 2005.

The options paper was developed following discussion at each of the three October 2004 Coastal Tour meetings where sustainability was the focus of the program. This document provided stakeholders with 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 effort and arresting the decline in breeding stock levels.

This document provided the focus for discussion at the meeting and workshop in Geraldton on Monday 24 January 2005, where stakeholders were presented with management options. Stakeholders were given the opportunity to workshop the options and provide advice on which ones they preferred.

On 7 – 8 February 2005, RLIAC considered all comments and discussion provided by stakeholders during the meeting/workshop in Geraldton and provided by the RLIAC Marketing Sub-committee. RLIAC decided that the resource sustainability management package (to reduce effective effort by 15% in the northern zones) should contain:

- 15% pot reduction (15 November – 14 January);
- Zone B 5-day moon closures (March – June);
- Zone A 10% pot reduction (15 March – 15 April);
- 15 January – 10 February closure;
- Zone A fishers to remove fishing gear from Zone B from 1 – 14 March; and
- Time off – fishery closed for Christmas Day, New Years Day, Good Friday, and Easter Sunday.

RLIAC has also proposed several additional management measures, some are for consideration while others will be implemented in the 2006/07 season,

Management measures for implementation in 2006/07 season:

- All pots to contain 4 escape gaps.

Management measures for industry to consider for implementation in the 2006/07 season:

- Increase escape gap height from 54 mm to 55mm;
- Reduction in the female maximum size from 105 mm to 100 mm;
- Zone B 5% pot reduction (1 March – 30 April); and
- Zone A 15% pot reduction (15 March – 15 April) to replace the 10% pot reduction being introduced for the 2005/06 season.

It is proposed by RLIAC that an industry meeting, to discuss this paper, be held on **Friday 1 July 2005** in Geraldton. It is envisioned that the current *West Coast Rock Lobster Management Plan 1993* will be amended to include the approved management package for the 2005/06 fishing season.

1.0 Introduction

The proposed effort reduction management package presented in this paper was developed in close co-operation with rock lobster industry to address the short-term sustainability concerns regarding the level of breeding stock in the northern region.

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 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 management system is currently being undertaken and discussion papers are being prepared on catch quota management (output controls) versus effort management (input controls). These review papers 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. These papers are due to be released in time for the Rock Lobster Industry Advisory Committee (RLIAC) Coastal Tour in October 2005.

This document is the forth in a series produced in 2004/2005 by 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 Department of Fisheries.

Document 1, '*Western Rock Lobster Fishery Status Report, January 2004*', is a scientific report that presents 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 and during the RLIAC Coastal Tour meetings in October 2004.

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. In particular, this consideration is presented within the draft 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 for all three zones. 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.

This document, '*Proposed Resource Sustainability Management Package for the Northern Zones (A and B)*', has been developed to inform you of RLIAC's proposed resource sustainability management package to be implemented for the 2005/06 fishing season and details the likely impact on stock status and the economics of fishing. **This paper also proposes several additional management measures, some are for consideration while others are recommended to be implemented in the 2006/07 season. These are on going measures to help address the longer-term sustainability and economic rationalisation issues.**

Successful compliance was a major driving force in determining the management measures to be adopted. This management package will be able to be effectively enforced, and therefore, a comprehensive analysis detailing the compliance issues associated with this management package has been included.

The above approach is in keeping with the philosophy of the decision rules framework for this Fishery. The decision rules framework (described in detail within Document 2) describes what sustainability means in practical terms and establishes trigger points to alert stakeholders and fisheries managers as to when action is required. The green (healthy), orange (marginal) and red (unsustainable) zones on the egg production index graph (see Document 2) illustrated the description of what 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. This philosophy is designed to ensure the long-term sustainability of the Fishery, while also giving consideration to how measures can optimise the economic and social benefits that can flow from the business of fishing. The framework also establishes 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.

The current advice to stakeholders is that the increased effective effort in the **northern region** of the Fishery 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.

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 is required to have a significant and positive impact on the breeding stock. Section 3.0 of this paper – *Analysis of proposed resource sustainability management package (biological, socio-economic and compliance considerations)* provides an overview of the impacts associated with each of the management measures presented (pot reductions – time limited, long-term closure, short-term closures and moon closures).

The first section of this paper provides an overview of each of the specific management measures included in the proposed management package for the northern zones and the economic impact of each management measure on individual operators. The paper further provides a detailed analysis of each of the separate management measures regarding compliance and economic issues and details the process in which stakeholders can contribute to the process.

2.0 Proposed Resource Sustainability Management Package

In the sustainability options paper '*Advice to stakeholders – Assessment of Resource Sustainability Measures*' presented at the workshop in Geraldton on Monday 24 January 2005, a broad selection of management options were presented and you were given the opportunity to workshop the options and have a say as to which management options you preferred to have included in a management package.

Stakeholders present at the Geraldton meeting/workshop rated several management options higher than others, these included;

- Zone B January closure;
- Zone B November closure;
- Zone B pot reduction – time limited (November – December);
- Zone A June closure;
- Zone A pot reductions – 15 March – 30 June;
- Zone A pot reductions – time limited (15 March – 15 April);
- Sundays off; and
- Zone A fishers to stop fishing between 1 March – 14 March (this was not a formally rated option at the workshop held in Geraldton on 24 January 2005, however, it was a suggestion put forward by industry members that has gained considerable support).

RLIAC, at its 7 – 8 February 2005 meeting, carefully considered the outcomes, comments and suggestions presented by stakeholders at the industry meeting/workshop held in Geraldton on 24 January 2005 and advice from its marketing subcommittee. RLIAC also considered that any management package

needed to be equitable across Zones A and B, with respect to contribution to the overall sustainability issues and the impact upon licensees. As a result, RLIAC and the Department have developed a resource sustainability management package that includes a discussion of the socio-economic impacts.

RLIAC decided that the resource sustainability management package (to reduce effective effort by 15% in the northern zones) should contain:

- 15% pot reduction (15 November – 14 January);
- Zone B 5-day moon closures (March – June);
- Zone A 10% pot reduction (15 March – 15 April);
- 15 January – 10 February closure;
- Zone A fishers to remove fishing gear from Zone B from 1 – 14 March; and
- Time off – fishery closed for Christmas Day, New Years Day, Good Friday, and Easter Sunday.

It is important to note that any proposed percentage pot reductions contained within this paper are calculated in the following way:

If for example your permanent pot allocation is 100 and you are currently fishing 82 pots, then during the 15% pot reduction period 15 November to 14 January, 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 ($0.82 \times 0.85 = 0.70$) 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 you are currently fishing (or expressed in unit terms 0.74 ($0.82 \times 0.90 = 0.74$) of your permanent pot allocation).

RLIAC has also proposed several additional management measures, some are for consideration while others are recommended for implementation in the 2006/07 season,

Management measures recommended for implementation in 2006/07 season:

- All pots to contain 4 escape gaps (a greater number of escape gaps will reduce the catch of undersize rock lobsters, minimising damage due to handling and thus maximising survival and growth).

Management measures for industry to consider for implementation in the 2006/07 season:

- Increase in the number of escape gaps from 3 to 4 as mentioned above;
- Increase escape gap height from 54 mm to 55mm (a larger escape gap would reduce the catch of undersize rock lobsters, minimising damage due to handling and thus maximising survival and growth);
- Reduction in the female maximum size from 105 mm to 100 mm;
- Zone B 5% pot reduction (1 March – 30 April); and

- Zone A 15% pot reduction (15 March – 15 April) to replace the 10% pot reduction being introduced for the 2005/06 season.

If adopted the management package proposed for 2005/06 equates to an estimated effective effort reduction slightly greater than the target of 15%. This represents the maximum possible effort reduction 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). Therefore an estimated effective effort reduction somewhat higher than the target is required to deliver an actual 15% effective effort reduction.

The proposed management package will have 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.

It should be noted that the economic analysis conducted on the management measures contained in the proposed management package have been split into their effect on Zone A and B fishers.

Table 1 and 2 provide a summary analysis of each of the management measures included in the resource sustainability management package. Table 1 presents a summary analysis for management measures concerning Zone A, while Table 2 provides the analysis for Zone B. This will enable you, the stakeholder, to determine the average net effect of the proposed management measures in relation to your operation. This comparison has been done by determining the impact of the time closures and maximum size changes in terms of the equivalent level of pot reductions.

Tables 1 and 2 also provide 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 terms of effective effort reductions. This analysis takes into account the level of catch rate during the period that the time closure (eg January or moon closure) or the pot reduction is proposed.

Example: An average of 11% of the total annual pot lifts occur during the proposed January closure period in Zone B. However the catch rates during this period are generally about half the average annual catch rate so that the estimated effective effort reduction is about 5% (Table 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 5.6% 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 the effective effort is a reduction of 6.3%. A similar assessment was undertaken to estimate the impact of closures during the relatively lower catch rate periods near 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 was able to 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 110 mm to 105 mm in Zone B would be similar to that achieved by about a 3.5% 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 left over in one year growing and being available for capture in the following year. For example it is estimated that with a 15% effort reduction (achieved through the proposed combination of measures) the reduction in catch will be in the order of 9% in the first year and 2-4% in subsequent years. However, any cost savings associated with the management measures (pot reductions or time closures) are maintained in future 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 proposed management package 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.

Tables 1 and 2 have also been provided to assist industry to understand the likely economic effect of the management package – 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 each of the Zones. Therefore individuals should use this information only 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 provision for intra-seasonal fluctuation.
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 about 9% fewer rock lobsters being caught in the first year.
 - 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 each Zone, however, the number of vessels is different in each zone. 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 \$40,000 per year per boat); 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 A summary analysis of the sustainability management measures included in the RLIAC management package for 2005/06

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 (\$)
Zone A 10% pot reduction (15 March – 15 April)¹	5.9 ^B	3.5 ^B	\$5,700	\$15,800 ^B

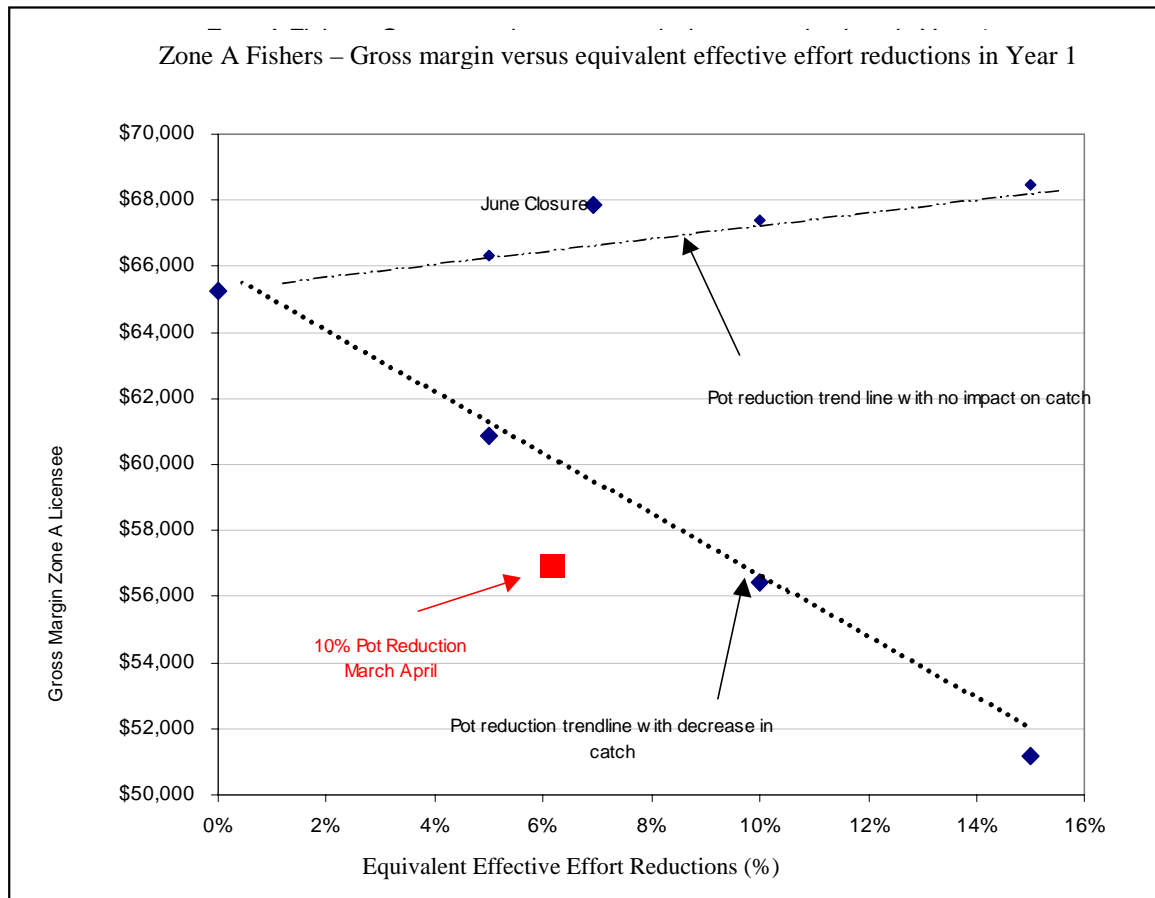
^A Assumed impact on catch is 0.59 of pot reduction for all effort reduction management measures.

^B This may be an over-estimate as the 1993/94 pot reductions did not result in any significant impact on total catch or catch distribution per month.

Note 1: Effort reduction strategies in Zone B when occurring between November and February will impact on the costs and revenues of Zone A fishers in the same way as they do on Zone B fishers – see Zone B tables for reductions in revenue and costs.

¹ Unit value of 0.74 – see page 11 for explanation.

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



Note that the points denoted as squares are new strategies, while the points denoted as diamonds are the strategies considered earlier in the year.

Figure 1 shows that a 10% pot reduction in March-April is not that efficient when compared to an annual pot reduction (say a 5% pot reduction), because it sits below the lower trendline of annual pot reductions versus Gross Margin. This analysis does not take into account any possible market benefits of transferring the catch from the peak catch period to later in the year. If Annual pot reductions or the March-April pot reduction does not impact on the level of catch taken in Zone A (as occurred with the 18% pot reduction in 1993/94), then the strategy would result in a net benefit according to the upper trendline, due to a saving on costs but no reduction in catch (income).

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

Management measure	Impact on Zone B		Impact on Fisher (Zone A Fishers and Zone B Fishers)	
	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 (\$)
15% pot reduction (15 November – 14 January) ²	6.3	3.7	\$6,000	\$9,100
Closure 15 January – 10 February	5.1	3.0	\$10,700	\$8,100
Time off (Christmas Day, New Years Day, Good Friday, Easter Sunday)	<1	<1	-	-
	Impact on Zone B		Impact on Fisher (Zone A Fishers Only)	
Zone A fisher to remove gear from Zone B from 1 - 14 March	1.7	1.0	\$1,100	\$4,000
	Impact on Zone B		Impact on Fisher (Zone B Fishers Only)	
Zone B 5-day moon closure (March – June)	5.6	3.3	\$12,700	\$17,300

^A Assumed impact on catch is 0.59 of pot reduction for all effort reduction management measures.

² unit value of 0.70 – see page 11 for explanation.

Figure 2: The relative impact of different proposed effort reduction strategies in Zone B on Zone B fishers (note that the impact on Zone A fishers is not depicted).



Note that the points denoted as squares are new strategies, while the points denoted as diamonds are the strategies considered earlier in the year.

Figure 2 shows the most economically efficient strategies are higher on the chart and the most effective in terms of reducing fishing effort are further to the right. The most economically efficient strategies in order are:

- 15 January – 10 February closure;
- change in maximum gauge size;
- 15% pot reduction (November to January)³;
- early season moon closures; and
- late season moon closures.

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 unit value of 0.70 – see page 11 for explanation.

3.0 Analysis of proposed resource sustainability management package (biological, socio-economic and compliance considerations)

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 package 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 the implementation of RLIAC's management package have been detailed below for your information. The management package only relates to commercial rock lobster fishing and does not relate to the recreational sector.

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.

Concern has been expressed about the ability of movement of pots and vessels between Zones A and B to undermine sustainability measures – in particular pot reductions. RLIAC has outlined the details of a policy that will fix the pot capacities of Zones A and B in November 2005, therefore any effort reduction measures will not be undermined through pot movement between the two zones.

3.1.1 15% pot reduction (15 November – 14 January)⁴

3.1.2 Compliance and economic considerations associated with a 15% pot reduction from 15 November – 14 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.

From the economic analysis provided in Table 2, a pot reduction of 15% from 15 November – 14 January, was equivalent to a 6.3% (column 1) effective effort reduction for the whole year and a reduction in the value of the catch of \$9,100 (column 4), over the duration of a whole year. The cost per fishing vessel was also reduced by \$6,000 (column 3) annually.

3.1.3 Zone A 10% pot reduction from 15 March – 15 April⁵

3.1.4 Compliance and economic considerations associated with a Zone A 10% pot reduction from 15 March – 15 April

No additional compliance issues are predicted. 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.

From the economic analysis performed for Zone A, and provided in Table 1, a pot reduction in Zone A of 10% from 15 March – 15 April, was equivalent to a 5.9% (column 1) effective effort reduction and a reduction in the value of the catch of \$15,800 (column 4), over the duration of a calendar year. The cost per fishing vessel was reduced by \$5,700 (column 3) annually. Figure 1 also shows the economic impact of this measure if there is no reduction in catch from the pot reduction.

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 with further pot reductions then the estimated impact on catch will be significantly overestimated.

3.2 Moon Closures

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

⁴ unit value of 0.70 – see page 11 for explanation.

⁵ unit value of 0.74 – see page 11 for explanation.

of significant compliance issues. In particular the fact that moon closures are only for Zone B.

For moon closures to be cost effectively enforced all the pots within Zone B, would be allowed to be baited prior to the closure. For the compliance to be fully effective all commercial Zone B 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 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, therefore pots will be more effective during the moon closure period.

Proposed compliance strategy:

- Over the duration of the closure all commercial rock lobster pots in Zone B 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 B 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 B commercial rock lobster fishing vessel during the closure period.

There are a number of other compliance issues associated with the adoption of a moon closure for Zone B. The main compliance issue is when Zone A operators wish to transport their catch to the mainland through Zone B during the moon closures.

If Zone A operators can travel through Zone B waters during the closure (where Zone B operators have left baited pots) there may be an incentive for them to pull Zone B pots. This would lead to an equity issue between the two zones and could also increase the cost of compliance if complaints that require investigation are received.

The Department of Fisheries has investigated a number of possible compliance requirements to help alleviate such issues. The options are:

1. Status Quo

Continuation of normal compliance surveillance strategy, with possible increased patrols within Zone B waters during moon closures.

2. Post and Prior Reporting

This option will be based on similar requirements in place for other commercial fishers around Australia.

Zone A fishers would have to lodge a report with the Department of Fisheries prior to leaving Zone A waters, this report would require the fisher to detail;

- estimated weight of rock lobsters on board vessel;
- estimated time of arrival at port of destination;
- port of destination; and
- standard information (skipper/vessel name and number/MFL number, etc).

When considering the report given to the Department of Fisheries, it is important to note that there are some circumstances when an operator may fail to meet their expected estimated time of arrival (mechanical failure, weather conditions, etc). Under these circumstances it is expected that the compliance officer would use his/her judgement regarding the issuing of any penalty.

3. Vessel Monitoring System (VMS)

This option would require every vessel in Zone A and B to be fitted with a VMS unit. Zone A vessels would still be required to report prior to entering Zone B waters.

RLIAC will recommend a trial of option 2 (Post and Prior Reporting) for the 2005/06 season, however, in the longer-term a vessel monitoring system will need to be considered for the whole fishery.

3.2.1 Zone B 5-day moon closures (March – June)

3.2.2 Economic considerations associated with Zone B 5-day moon closures (March – June)

A 5-day moon closure in March – June is equivalent to a 5.6% (column 1) effective effort reduction over a whole year. The economic analysis shows that a 5-day moon closure (March – June for Zone B, Table 2) could reduce the value of the catch by \$17,300 (column 4) over the duration of a calendar year and reduce the costs per fishing vessel by about \$12,700 (column 3).

3.3 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 fishery who choose not to fish parts of January - March and similar decisions are made by individuals to varying extents around low production full moon periods.

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 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 catch rates are lower. Although they need to be discounted, closures during low catch rate periods do contribute to the overall effective effort reduction.

3.3.1 15 January – 10 February closure

3.3.2 Compliance and economic considerations associated with a 15 January – 10 February closure

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 predicted. 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 fisheries officer. Vessels and rock lobster fishing gear 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.

This closure is equivalent to a 5.1% (column 1) pot reduction over a calendar year. The economic analysis shows that the impact of a 15 January – 10 February closure for the northern Zones (Table 2), reduced the value of the catch by \$8,100 (column 4) in the northern Zones over the duration of a calendar year, while the reduction in costs per fishing vessel was about \$10,700 (column 3).

3.3.3 Zone A fishers to remove gear from Zone B from 1 – 14 March

3.3.4 Compliance and economic considerations associated with Zone A fishers removing gear from Zone B from 1 – 14 March

No additional compliance issues are expected.

From the economic analysis provided in Table 1, Zone A fishers removing gear from Zone B from 1 – 14 March, is equivalent to a 1.7% (column 1) effective effort reduction for the whole year and a reduction in the value of the catch of \$4,000 (column 4), over the duration of a whole year. The costs per fishing vessel were also reduced by \$1,100 (column 3) annually.

3.3.5 Short term closures (Christmas Day, New Years Day, Good Friday, Easter Sunday).

3.3.6 Compliance and economic considerations associated with Christmas Day, New Years Day, Good Friday and Easter Sunday closures.

These closures pose some compliance risks. It is expected that commercial rock lobster vessels will be confined to their respective anchorages for Christmas Day, New Years Day, Good Friday and Easter Sunday, and therefore no additional compliance issues are expected.

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 closures;
- 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 pot lifts 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.

4.0 Summary

The proposed effort reduction management package presented in this paper was developed in close co-operation with rock lobster industry to address the short-term sustainability concerns regarding the level of breeding stock in the northern region.

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.

RLIAC will recommended to the Minister for Fisheries that the resource sustainability management package (to reduce effective effort by 15% in the northern zones) should consist of the following:

- 15% pot reduction (15 November – 14 January)⁶;
- Zone B 5-day moon closures (March – June);

⁶ unit value of 0.70 – see page 11 for explanation.

- Zone A 10% pot reduction (15 March – 15 April)⁷;
- 15 January – 10 February closure;
- Zone A fishers to remove fishing gear from Zone B from 1 – 14 March; and
- Time off – fishery closed for Christmas Day, New Years Day, Good Friday, and Easter Sunday.

RLIAC has also proposed several additional management measures, some are for consideration while others re recommended for implementation in the 2006/07 season,

Management measures recommended for implementation in the 2006/07 season:

- All pots to contain 4 escape gaps.

Management measures for industry to consider for implementation in the 2006/07 season:

- Increase escape gap height from 54 mm to 55mm;
- Reduction in the female maximum size from 105 mm to 100 mm;
- Zone B 5% pot reduction (1 March – 30 April)⁸; and
- Zone A 15% pot reduction (15 March – 15 April)⁹ to replace the 10% pot reduction being introduced for the 2005/06 season.

5.0 Process – Stakeholder consideration of Proposed Sustainability Management Package

RLIAC will provide stakeholders with a northern zone resource sustainability forum on **Friday 1 July 2005** in Geraldton (please see agenda on page 3). Stakeholders attending this forum will be given a final opportunity to comment on the proposed management package before RLIAC recommends to the Minister the management package to be implemented for the 2005/06 fishing season.

It is important to note that all feedback received from stakeholders at the 24 January 2005 meeting/workshop, 1 July meeting and from this (the forth) sustainability paper presenting the proposed management package, will be provided to the Minister for his consideration when deliberating on this matter.

I encourage you to consider the above information on the northern zones and to attend the meeting in Geraldton at the Entertainment Centre on **Friday 1 July 2005** to provide comment and input on RLIAC’s proposed management package.

⁷ unit value of 0.74 – see page 11 for explanation.

⁸ unit value 0.78 – see page 11 for explanation.

⁹ unit value of 0.70 – see page 11 for explanation.



Rock Lobster Industry Advisory Committee (RLIAC)

Our Ref: Mac 18

TO ALL NORTHERN ZONE ROCK LOBSTER STAKEHOLDERS

RE: PROPOSED RESOURCE SUSTAINABILITY MANAGEMENT PACKAGE FOR THE NORTHERN ZONES

The Rock Lobster Industry Advisory Committee (RLIAC) invites all northern zone (Zone A and B) stakeholders to a resource sustainability meeting regarding the proposed resource sustainability management package for the northern zones of the fishery in Geraldton to be held at **8:30 am Friday 1 July 2005** at the Entertainment Centre. Please refer to page 4 and 5 of the enclosed management paper for the agenda.

RLIAC considered all comments and discussion provided by stakeholders during the meeting/workshop in Geraldton in January and by the RLIAC Marketing Subcommittee and decided that the resource sustainability management package (to reduce effective effort by 15% in the northern zones) should contain:

- 15% pot reduction (15 November – 14 January);
- Zone B 5-day moon closures (March – June);
- Zone A 10% pot reduction (15 March – 15 April);
- 15 January – 10 February closure;
- Zone A fishers to remove fishing gear from Zone B from 1 – 14 March; and
- Time off – fishery closed for Christmas Day, New Years Day, Good Friday, and Easter Sunday.

RLIAC has also proposed several additional management measures, some are for consideration while others are to be implemented in the 2006/07 season,

Management measures for implementation in 2006/07 season:

- All pots to contain 4 escape gaps.

Management measures for industry to consider for implementation in the 2006/07 season:

- Increase escape gap height from 54 mm to 55mm;
- Reduction in the female maximum size from 105 mm to 100 mm;
- Zone B 5% pot reduction (1 March – 30 April); and
- Zone A 15% pot reduction (15 March – 15 April) to replace the 10% pot reduction being introduced for the 2005/06 season.

The enclosed document, '*Proposed Resource Sustainability Management Package for the Northern Zones (A and B)*', has been developed to inform you of RLIAC's proposed resource sustainability management package to be implemented for the 2005/06 fishing season.

RLIAC values your continued participation in this process, and looks forward to seeing you at the upcoming meeting at **8:30 am on Friday 1 July 2005** in Geraldton at the Entertainment Centre.. 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

A handwritten signature in black ink, appearing to read 'Ron Edwards', with a long horizontal flourish extending to the right.

Ron Edwards

CHAIRMEN – ROCK LOBSTER INDUSTRY ADVISORY COMMITTEE

25 May 2005