

***Rock Lobster Industry Advisory Committee***

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**DEVELOPMENT OF A  
FISHERIES MANAGEMENT DECISION  
RULES FRAMEWORK FOR THE  
WEST COAST ROCK LOBSTER FISHERY**

**By Tim Bray, RLIAC Executive Officer  
on behalf of the**

**ROCK LOBSTER INDUSTRY ADVISORY COMMITTEE**

**January 2004**

## Executive Summary

On successive coastal tours the rock lobster industry has argued that the processes through which management decisions have been made can be: inconsistent; lacking a clear purpose or objective; not sufficiently strategic; or create instability within industry.

In response to these concerns, and similar calls from other rock lobster stakeholders, the Rock Lobster Industry Advisory Committee has developed a new and explicit framework for making fisheries management decisions with clear and targeted objectives. This new framework addresses industry's concerns, and actually provides greater opportunities for industry to take more responsibility in determining what management rules should be for its benefit. Furthermore, by laying out the decision making process clearly, it is also expected that management processes will become more efficient and effective.

The decision rules framework encourages responsible management and rewards industry by providing it with the ability to determine its own path.

The framework is able to provide these opportunities to industry because indicators of sustainability are built into the decision making process to ensure that the stock status remains healthy. For this reason the framework will have appeal to other rock lobster stakeholders whose primary concerns are resource and ecological sustainability.

The guiding principle of the decision rules framework is to:

*Utilise the available fisheries management tools in such a way that maximises the long-term economic return to the State from use of the western rock lobster resource in the context of an Ecologically Sustainable Development framework and the pursuit of recognised commercial, recreational, conservation and social values.*

The framework proposed focuses initially establishing decision rules designed to ensure resource sustainability. This is a logical first step given the depth of knowledge on western rock lobster biological and sustainability indicators. Rules that explicitly deal with ecological sustainability and socio-economic management objectives will be developed and expanded in the framework as better information becomes available. Processes to improve our understanding these areas is underway as part of the review of the fisheries management system and as part of the Fishery's Environmental Management Strategy.

From the outset this decision-making framework has been developed with input from key stakeholders.

## 1.0 Introduction

The West Coast Rock Lobster Fishery is in a privileged position. The success of the 1993/94 management package in achieving its goal of rebuilding the breeding stock, and therefore egg production, has been evident in 1998/99 and 1999/00 with successive record catches by the commercial sector and 2003/04 with the expectation of a near record catch. The healthy status of western rock lobster combined with the ability for the Department to accurately predict catches in coming seasons has allowed industry to enjoy a period of management stability and certainty. With sound management there is no existing reason why the status of the western rock lobster cannot continue to be sustainable and productive.

This said, it has to be acknowledged that fisheries management is an evolutionary process, and in a changing management environment resource sustainability is a big advantage because it provides the opportunity to keep pace with and plan for this evolution.

The natural resource management concept known as Ecologically Sustainable Development (ESD) embodies the current evolution in fisheries management. The advent of new Commonwealth Government legislation in the form of the *Environmental Protection and Biodiversity Conservation Act 1999* and amendments to Schedule 4 of the *Wildlife Protection Act 1982* have resulted in the principles of ESD becoming more clear and the obligations to manage in accordance with them very real. Within Australia ESD has been defined as:

*“using, conserving and enhancing the community’s resources so that the ecological processes, on which life depends, are maintained and the total quality of life, now and in the future can be increased.”*

The rock lobster industry is also receiving exposure to the principles of ESD as part of the process to ensure continued accreditation with the Marine Stewardship Council (MSC).

In the Western Australian fisheries context, ESD provides an inseparable link between the ecological, social and economic objectives that are at the heart of the *Fish Resources Management Act 1994* (FRMA).

Already the Department of Fisheries and RLIAC have made significant advances in addressing the wider management questions surrounding the impacts of the rock lobster fishery on the ecosystem. In particular an Ecological Risk Assessment (ERA) process has been used to identify and rank what risks there are to the rock lobster related ecology. Based on the findings of this process an Environmental Management Strategy (EMS) has been drafted to manage the risks.

These actions were critical in securing the necessary export certification from Environment Australia while also maintaining ongoing accreditation by the MSC.

In addition to ESD, but not mutually exclusive from it, is the National Competition Policy (NCP). NCP requires legislators and those who advise the legislators to

question the effectiveness and efficiency of the rules and regulations in place and to consider ways in which competition can be enhanced through the development of new management approaches. Viewed constructively, NCP can complement and provide balance to the principles of ESD.

The State Government has already announced a number of changes to the rock lobster regulatory framework as a result of the NCP review<sup>1</sup>. The Government has come under some criticism for the way in which these initial NCP decisions were made, and while the criticism is not entirely valid it is important that the process for future and far more significant NCP reviews is more explicit and more targeted to the fisheries management process.

In addition to the two national and international level guiding forces for management (i.e. ESD and NCP) the fisheries management process in Western Australia has introduced a relatively new concept known as Integrated Fisheries Management (IFM). Very much about ensuring that fish resources are used and harvested in a way that benefits all Western Australians, IFM has at its foundation a multi-stakeholder approach to fisheries resource management. Just as is the case for ESD and NCP, it is important that future resource sharing debates occur within a decision-making process that explicitly links outcomes to established and accepted objectives.

This paper presents the case for establishing a fisheries management decision-making framework in the context of the current and evolving challenges for rock lobster management. If progressed past the discussion phase, it is envisaged that this initiative will be implemented through a new Ministerial Policy Guideline.

The development of this paper has occurred with considerable input from rock lobster stakeholders. It has also been the subject of discussion on the 2001, 2002 and 2003 coastal tours and, of course has been considered by RLIAC itself.

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<sup>1</sup> Key changes included the partial deregulation of the rock lobster processing sector and the abolition of the 150 maximum holding rule.

## 2.0 The Need for Management Objectives in the West Coast Rock Lobster Fishery

The FRMA contains objects that govern the manner in which fish resources and fish habitat are to be managed in Western Australia<sup>2</sup>. These objects have been written in such a way that gives due recognition to the fact that fisheries resources are community resources, and therefore the community should derive economic, social and other benefits from the use of those resources.

Given that these objects are relevant to all fisheries management processes in Western Australia (including aquaculture) they are at an appropriately high level, and while relevant to the rock lobster management process it is also important that there be rock lobster specific management objectives.

There are notional rock lobster management objectives that relate primarily to western rock lobster sustainability and secondarily to maximising the economic benefits to the rock lobster industry. However, these objectives have not been expressed in a way that gives them any real standing or requires that they be explicitly considered when policy is formulated or decisions made.

For a decision rules framework to be successful, it is crucial that there be a set of clear and recognisable rock lobster specific management objectives. Given this need, it is appropriate to take the opportunity to revise and update what have been the rock lobster objectives so that they remain relevant for the coming 5 – 10 year period.

### 2.1 Western Rock Lobster Specific Objectives

The following objectives have been developed in such a way as to ensure they are consistent with the FRMA while recognising the history and future of rock lobster management.

To assist in the interpretation of the proposed objectives, the following is the vision for western rock lobster management.

*Utilise the available fisheries management tools in such a way that maximises the long-term economic return to the State from use of the western rock lobster resource in the context of an Ecologically Sustainable Development framework and the pursuit of recognised commercial, recreational, conservation and social values.*

#### 2.1.1 Biological objective [incorporates stock conservation requirements for the commercial, recreational and conservation sectors]

- That management arrangements maintain or return to, as the case may be, the abundance of breeding lobsters at or above the levels in 1980, i.e. at or above 25% of the unfished parental biomass.

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<sup>2</sup> Section 3 in Part 1 of the *Fish Resources Management Act 1994* lists the particular objects for the management of fisheries in Western Australia.

### **2.1.2 Ecological objectives**

- That management arrangements are consistent with the principles of ecosystem based management and in particular:
  - i. ensure that bycatch of marine mega-fauna is minimised to acceptable levels; and
  - ii. that the effects of fishing do not result in irreversible changes to the ecological processes upon which life depends.

### **2.1.3 Commercial objectives**

- That management arrangements maximise the opportunity for optimum economic returns to the Western Australian community from the use of the western rock lobster resource.
- That management arrangements foster the maintenance and development of regional communities while not unnecessarily restricting normal business practices.

### **2.1.4 Recreational objective**

- That management arrangements which impact upon the recreational fishery promote the fundamental ethos of recreational fishing, i.e. it is an enjoyment motivated activity.

## **3.0 The case for a fisheries management decision rule framework**

RLIAC, the Department of Fisheries, sections of industry and other stakeholders have promoted the establishment of a fisheries management decision rule framework to assist in dealing with such issues as:

- increased efficiency within the commercial fishery;
- the need to more explicitly incorporate social and economic factors into the management process; and
- the need to more adequately explain management in the context of ESD and NCP.

The expected benefits of implementing a decision rules framework are considerable, and if introduced properly there are few negatives. To do it properly it is vital that the decision rules framework marries the specific fisheries management objectives (see section 2.0) with the management tools that are designed to achieve these objectives. This occurs by stating what processes, and in some cases, what actions should be taken when certain indicators are triggered.

Identifying, as this paper does, the potential for changes to unit values, gauge sizes etc in such an explicit way may not be a comfortable proposition – particularly for those who have businesses based on access to the resource. However, it is essential to cover these elements and some discussion as to why it is essential is appropriate.

In 1994, the Department of Fisheries published a four volume series of western rock lobster discussion papers. Volume 1 of this series, written by Bernard Bowen compared a theoretical quota management system for rock lobster and the current style of management – Total Allowable Effort / Individually Transferable Effort (TAE / ITE) management<sup>3</sup>. Without this paper digressing into the quota debate, the comment made in the Bowen paper on the needs of a TAE / ITE system of management is relevant.

*“For sound fisheries management, the manager needs to have the ability to vary the TAE to be used depending on the state of the fishery, and especially on the state of the breeding stock. The TAE / ITE is usually the principal management control, but it also has to be operated within a framework of other input controls such as closed seasons, size limits and the type of animals allowed to be retained. The management system should determine the approximate catch allowed to be taken in the ensuing season, and set an appropriate TAE to achieve the required catch.”*

The message is that under a TAE / ITE management system, such as that in place for western rock lobster, there is no guarantee of achieving the stated management objectives such as resource sustainability in the long term if the system remains static and inflexible.

The need for greater flexibility in fisheries management systems is also supported within international literature. In particular Rova and Carlsson published a paper in *Marine Policy, The International Journal of Ocean Affairs*<sup>4</sup> that attributes the failure of conventional fisheries management practices to a lack of management flexibility. It is argued that because the majority of fisheries management systems have become static and inelastic they are simply not able to respond to new and challenging management scenarios, including simple stock management concerns, despite the best intentions of those within the process.

The weight of evidence suggests that the western rock lobster fishery is not facing a crisis as is often the case in other fisheries around the world<sup>5</sup>, but it is true that the management system is static. With a large number of management tools already in place with no explicit guide as to how they should be used, it is easy to see how any proposal for change could get bogged down in a “what to do?” debate. The cost, time and angst associated with solving the “what to do?” question would most likely be considerable<sup>6</sup>.

The development of a decision rules framework can provide some of the necessary management flexibility. Doing it now while in an environment of resource sustainability eradicates the need to adopt radical change at a time when the resource

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<sup>3</sup> Long term management strategies for the Western Rock Lobster Fishery – Evaluation of management options Volume 1, Bernard K Bowen, October 1994, Fisheries Department of Western Australia.

<sup>4</sup> When regulation fails: vendance fishery in the Gulf of Bothnia, Carl Rova, Lars Carlsson, Marine Policy, The International Journal of Ocean Affairs, Volume 25 No. 5, September 2001.

<sup>5</sup> For status of the Western Rock Lobster Fishery refer to “Western Rock Lobster Fishery Status Report, January 2003, Chubb, Caputi, Melville-Smith, Wright and Thomson, Department of Fisheries Research Division.”

<sup>6</sup> The costs of such a management process would be part of the normal cost recovered service provided by the Department of Fisheries.

status may not be sustainable which would be unsettling to stakeholders and governments alike. Furthermore it actually provides incentives for industry to adopt proactive management strategies designed to ensure the fishery remains “healthy” i.e. the crisis point is never reached. In particular, the reward for industry is greater autonomy and self-determination with respect to how it manages its sustainable access.

The decision rule proposal in this document represents a user guide to the management system with built in safety parameters. This approach is seen to have three primary benefits:

1. It provides flexibility to the management system so that smaller incremental management changes can occur to safeguard the resource and pursue other objectives and thus avoid radical change;
2. It documents (and advertises) the management process for stakeholders, government and the wider community and in doing so provides a degree of transparency and accountability not yet experienced; and
3. Because the management process is truly transparent it provides greater opportunities for stakeholder input and initiative into the management process – i.e. it advances the concept of co-management<sup>7</sup>.

It should also be noted that the existence of a decision rules framework would be beneficial to the further review of the rock lobster regulatory regime required by the NCP process. In particular, assessment of rules within the current inventory against the newly established and explicit objectives may identify areas for reform, while any decision made through a decision rules framework would be both difficult to criticise and immediately justifiable.

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<sup>7</sup> The Minister has made a commitment to explore the potential for there to be a devolution of some of his decision making power to stakeholders. Co-management is a concept that could facilitate this approach to management. One of the most important elements of co-management is the presence of guidelines and established processes that deliver good management outcomes, and in doing so provide the Minister with the confidence to delegate certain powers.

#### **4.0 Description of management tools currently in use**

Having established a set of proposed objectives for management, some analysis of the current set of arrangements in the context of these new objectives is relevant. It is also important to note that in a very basic way it is this type of analysis that will be necessary to satisfy further NCP requirements.

The management package currently in place employs a variety of measures to pursue the legislative objectives – at the heart of which is resource sustainability. The rock lobster management package is widely recognised as successfully meeting this objective, but the extent to which other fisheries management objectives are pursued is a matter of considerably more debate.

On a broad level, the capacity of the fishery (total number of usable pots) is limited thereby placing an overall cap on effort – a Total Allowable Effort (TAE). Unitisation of the effort in the fishery and relatively liberal transferability provisions allow market forces to determine what is the most efficient use of licences and available entitlement (pots). This system of management is known as an Individually Transferable Effort (ITE) system.

The fishery is also divided into zones of access. This distributes effort across the entire fishery, rather than permitting the fleet to concentrate effort on areas of seasonally high productivity which result in a higher than acceptable exploitation rate. Zonal management also enables management controls aimed at addressing zone specific issues to be implemented. For example, there are currently different maximum size restrictions in the northern and southern regions of the fishery. A form of zonal management known as “closed areas” has also been used in a number of instances - Rottnest and Quobba Point closures to commercial fishing, and Fish Habitat Fish Protection Areas at Cottesloe, Yallingyup and Lancelin Island have all been implemented. There are further examples of closed areas under the Marine Park management system administered by the Department for Conservation and Land Management (CALM).

Other management tools of note are those of a biological nature, specifically: protection of females in breeding condition, minimum carapace length and maximum carapace length.

These management tools and those not covered are listed and described in Tables 1a and 1b. These tables represent an inventory of management tools currently in place and what current or future purpose each tool has or might have.

**Table 1a Elements of the management package that are core to the management of the fishery or would significantly alter the industry if changed.**

<b>Management Measure</b>	<b>Role of Control</b>	<b>Flexibility</b>
Maximum number of units in the fishery	Limits the capacity of the fishery and investor's share of this.	Not flexible
Management of the fishery in zones of access including transfer of pots between zones	Enables distribution of effort across the fishery – reduced risk of overexploitation, social/equity benefits.	Not flexible
63 pot minimum total pot entitlement	Maintain economic viability of fishing units – reduced risk of overexploitation by allowing many small, unviable operations.	If a decision to remove or increase the minimum pot entitlement were made, this could not easily be reversed.
Minimum size rule	Assists in allowing lobsters to reach maturity – increase breeding stock levels.	Concept of a minimum size not flexible
Setose/tarspot rule	Protects females in breeding condition.	Could be manipulated from season to season from a legislative perspective, but is unlikely to occur as the protection of breeding females is central to the current management package.
Restrictions on the total volume of pots through stated dimensions	Assists in regulating the quantity of lobsters taken.	Changes to gear configuration would represent longer-term changes rather than season to season alterations.
Regulation of escape gap size	Limits the capture of undersized lobsters.	Designed to complement minimum size rule and must remain consistent with it
20 fathom line	Restricts the number of boats able to fish inshore and offshore peak catch periods - prevents overexploitation. Addresses resource sharing issues between those who have traditionally fished inshore and offshore.	Could be manipulated easily from a legislative perspective, but care would need to be taken to prevent overexploitation and to address industry concerns about resource sharing and social issues.

Closures to commercial rock lobster fishing off Rottnest Island and Quobba Point, Fish Habitat Protection Areas and Marine Parks	Address resource sharing issues and protection of sensitive environments.	Unlikely to change but if it were to, it would be through a resource sharing process.
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**Table 1b Elements of the management package where it may be appropriate to consider alterations where proposals are consistent with the fisheries management objectives and a strategic direction**

<b>Management Measure</b>	<b>Role of Control</b>	<b>Other Possible Uses</b>	<b>Flexibility</b>
Legal Minimum Size (currently 76mm 77mm)	Assist in allowing lobsters to reach maturity – increase breeding stock.	Could be manipulated to allow for capture of lobsters of the most marketable size noting that as described above, the retention of a legal minimum size conducive to resource sustainability is a central part of the management package.	Could be readily manipulated from season to season.
Gauge change from 77 mm to 76mm	Shifts catch from whites to reds and enhances number of animals that reach maturity.	Timing of gauge change could be manipulated to increase the take of the most marketable sized/coloured lobsters, or assist compliance	Could be manipulated from season to season.
Maximum size for female lobsters of 105 mm in zones A and B and 115 mm in zone C	Protects the most productive females in the stock – larger lobsters produce more eggs.	Can be removed/altered to adjust the size of the catch as occurred in 2001-02.	Could be manipulated from season to season subject to research advice that resource sustainability would not be adversely affected.
Restrictions on available Fishing Time  (a) Closure of fishery from 1	Regulates time available for fishing – reduced risk of	Could be altered, in order to increase or decrease the	Could be readily manipulated for

July until 14 November	overexploitation	size of the catch or allow lobsters to be caught at a time and when of a size/colour most suited to the market.	the fishery or individual zones, Needs to be consideration of any potential increases in effort.
(b) Abrolhos Islands closure from 1 July until 15 March	Prevents overexploitation of the Abrolhos Islands stock which is insufficient to sustain year round fishing.	As above.	As above.
(c) Big Bank closure	Limits fishing effort at Big Bank - reduced risk of overexploitation. Addresses compliance issues associated with enforcing the Abrolhos Islands closure.	As above	As above.
(d) Prohibition on hauling pots at night	Assists in capping fishing effort. Addresses concerns about operators attempting to pull other people's gear. Safety issues.	Could be simplified so the times were constant throughout the year.	Need to take into account any potential increase in effort.
% Pot usage	A mechanism for directly adjusting effort to meet sustainability objectives	Limited to controlling effort by either increasing or decreasing the total number of usable pots.	Unitisation of effort will assist to make this tool easier to use

In the context of a fisheries management decision rule process, describing the management tools in two separate tables serves the purpose of identifying rules that if changed, would represent management reform (table 1a) as opposed to those that can be manipulated and are therefore more flexible (table 1b). This understanding is further developed within the detailed description of the proposed decision rules.

## 5.0 The Decision Rules Framework Proposal

The decision rules concept presented in this paper is derived from the rock lobster specific objectives discussed in section 2.0. Acknowledging that all of the objectives are important and that no single objective should not be pursued in isolation of the others, this concept works on the premise that sustainability must be ensured if in fact other more socially or economically focused objectives can be pursued.

For this reason, and also the fact that detailed studies into social, economic and ecological indicators are yet to occur the framework is orientated towards sustainability. RLIAC has recognised that social, economic and ecological studies based on the rock lobster fishery do need to occur. The timeframe and details of such studies are being developed so that in time further decision rules addressing these aspects of management can be included.

In this paper the respective decision rules are described in flow diagrams. To progress through the rules, a series of questions to which there are yes / no answers must be addressed. In some instances the diagrams do become complex, but if the format is followed they are relatively simple to navigate through.

The initial box poses a question or questions to which the answer is either yes or no and you then choose the appropriate box which will contain a required response and in some cases further questions to answer.

The vehicle for this process is intended to be a Ministerial Policy Guideline (MPG). MPGs are created under the authority of Part 19 sections 246, 247 and 248 of the FRMA. The purpose of these guidelines is to set out matters of importance to identified functions (in this case management of the western rock lobster fishery) in such a way that is useful and informative to the Executive Director, fishing industry and community.

## **5.1 Resource Sustainability Decision Rules**

Assessments of the status of the western rock lobster resource are based on analysis of the breeding stock, recruitment, trends in fishing effort, catch and the exploitation rate. Of these, it is the index for the breeding stock status that currently provides the best indicator of biological sustainability within the proposed decision rules framework. In saying this, it is important to note that these other forms of analysis are not discarded but rather used to add to the understanding of stock status and improve the confidence with which decisions can be made.

In the case of western rock lobster, for the stock be judged as “healthy” the biomass of mature animals must be greater than or equal to 25% of the unfished population. With a healthy stock status it is asserted that the population is sufficient to maintain a viable commercial fishery, provide a quality recreational fishing experience and not have an appreciable negative effect on the related marine ecosystem.<sup>8</sup>

Figure 1 contains an illustration of the variation in breeding stock abundance over time, which is shown by the solid curve. The figure is split into three coloured zones – green, orange and red with each colour representing a different stock status category.

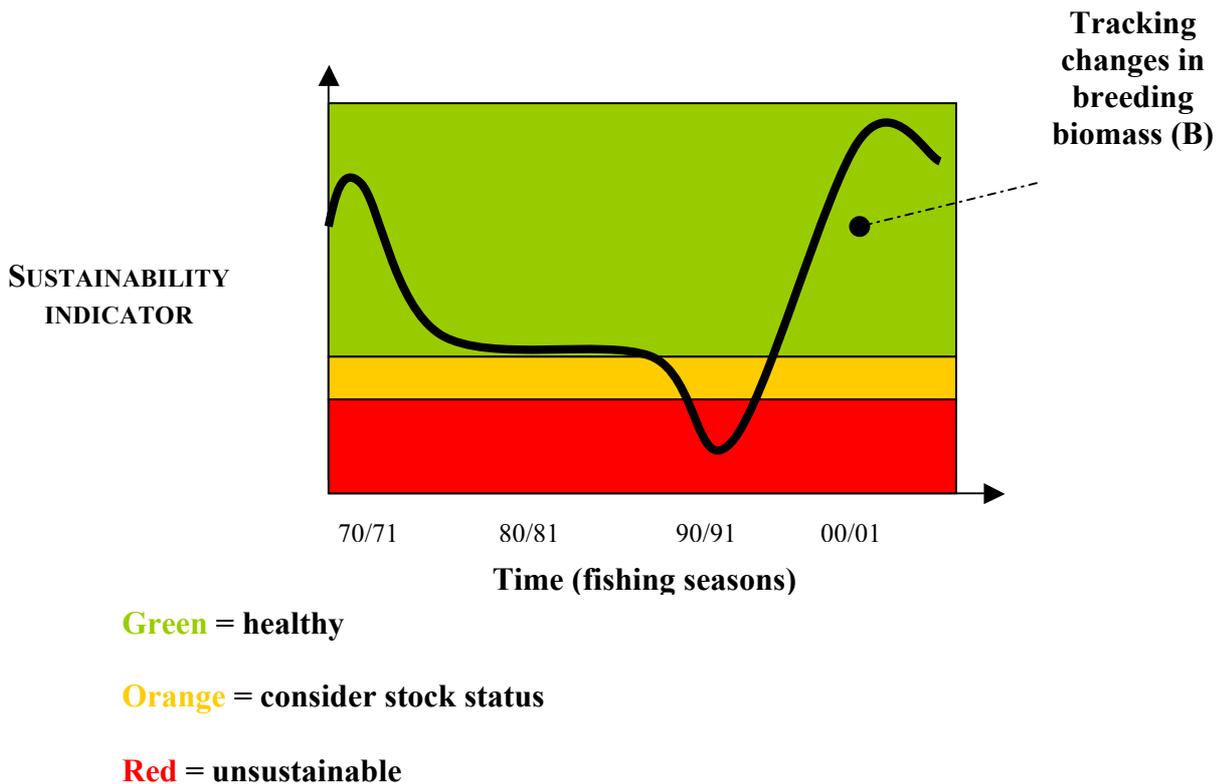
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<sup>8</sup> There is a significant body of work over an extended period of time into WRL to support these claims, in particular a series of sustainability reports, the ERA and EMS plus work on recreational catch and effort.

The **green** zone represents a healthy stock status i.e. the index of breeding biomass as a percentage of the unfished biomass is greater than 25%.

The **orange** zone represents a satisfactory stock status i.e. the index of breeding biomass as a percentage of the unfished biomass is greater than 20% but less than 25%.

The **red** zone represents an unsustainable stock status i.e. the index of breeding biomass as a percentage of the unfished biomass is less than 20%.



**Figure 1** Variation in rock lobster breeding stock abundance as a percentage of unfished biomass over time with reference to biological sustainability reference zones.

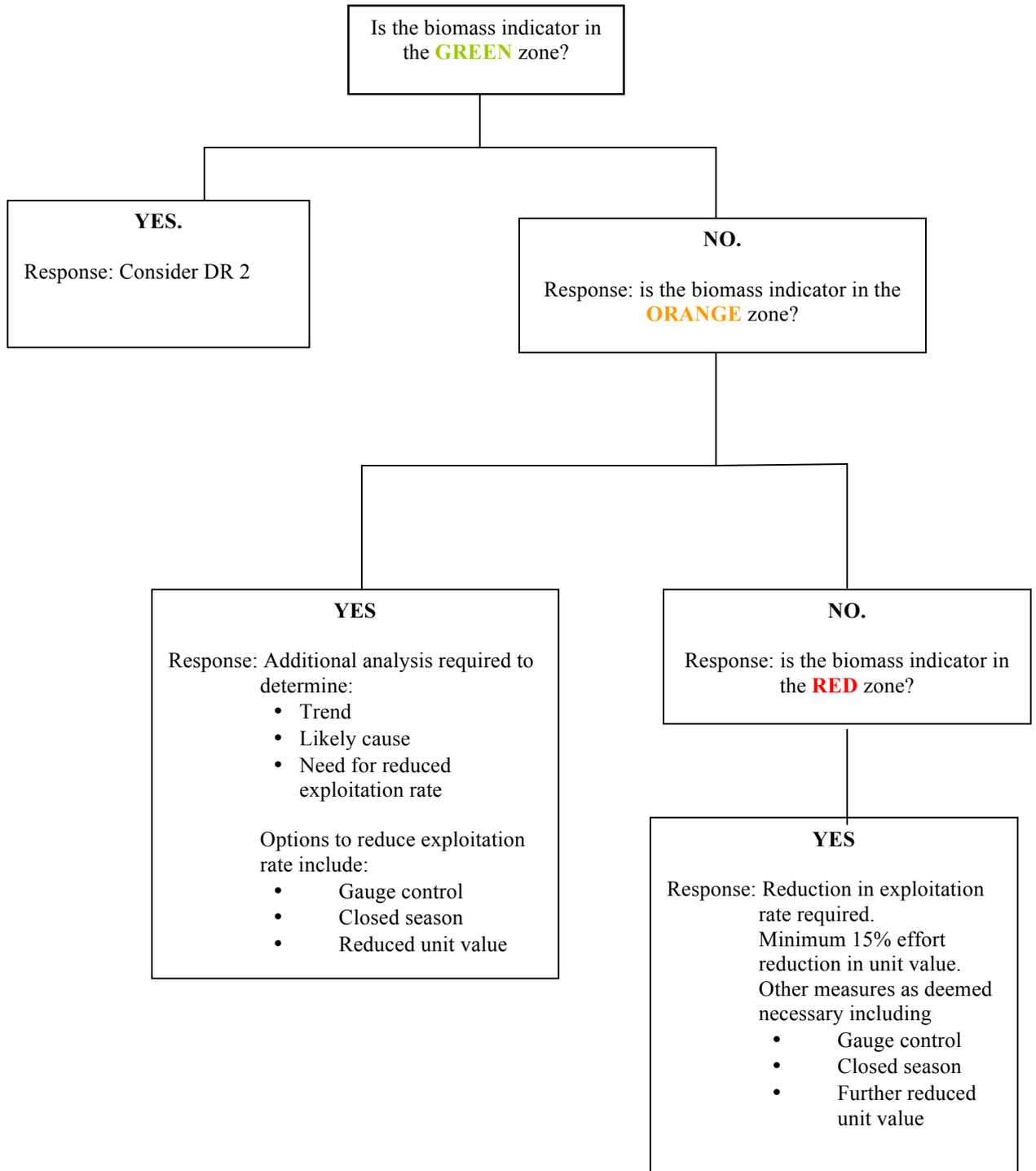
The boundaries of these Biological Reference Zones (BRZs) have been established on the advice of the Department of Fisheries' Research Division. Furthermore, it is accepted within the international scientific community that a breeding biomass of 20% of the unfished biomass for spiny lobsters is an appropriate reference point.

With the establishment of these three reference zones it is possible to establish management decision rules. However, it is important to note that longer term shifts in environmental conditions, be they part of natural evolution or as a result of other influences such as global warming and climate change, could affect the level at which the reference points are set. This being the case the positioning of the biological reference zones may need revision from time to time.

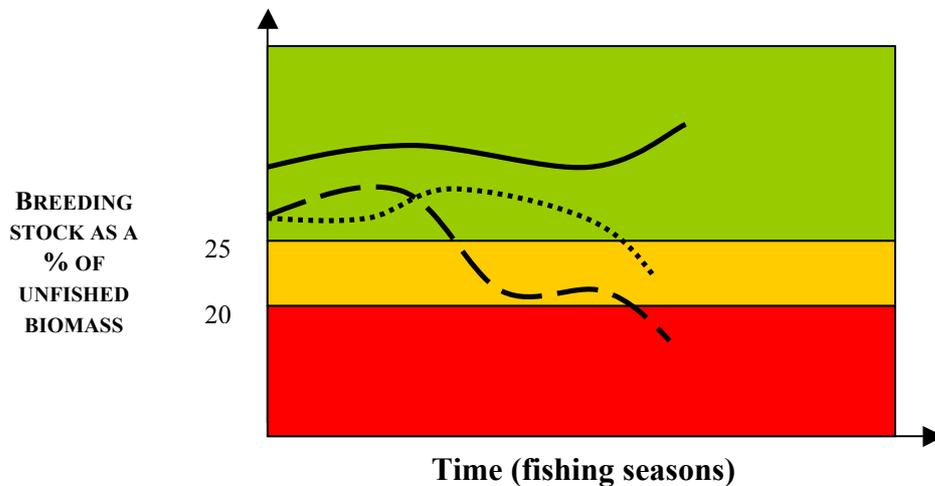
## Decision Rule No.1

The formal application of the first decision rule, designed to ensure biological sustainability, needs to occur annually and be based on a formal stock status report provided by the Department of Fisheries Research Division. In the case of western rock lobster this is likely to be in February or March.

### DR 1 – biological sustainability



## Examples of how DR1 would be applied



**Green** = healthy

**Orange** = consider stock status

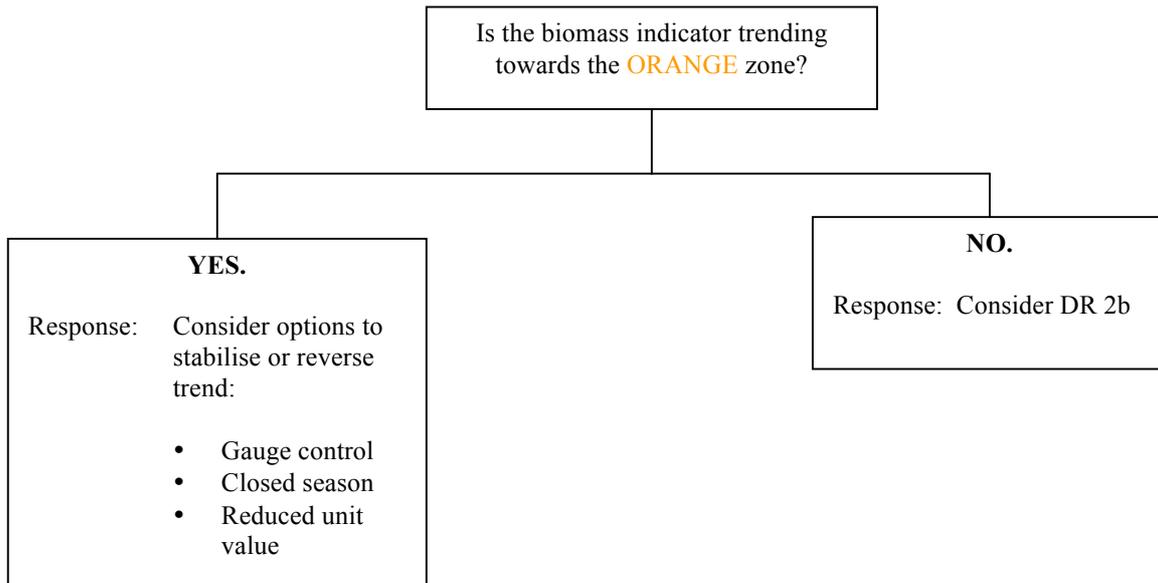
**Red** = unsustainable

- Example 1** Solid line. Indicator of breeding biomass clearly in the **green** zone, with no indication of a downward trend – no remedial action required, increased freedom for industry to pursue a harvest strategy or management change to optimise economic or social objectives. If the indicator trended downwards, preventative measures to ensure indicator remains in the **green** zone are also relevant.
- Example 2** Dotted line. Indicator of breeding biomass has fallen from the **green** zone and is within the **orange** zone. RLIAC will initiate expanded studies to determine cause of downward trend and develop advice on reducing exploitation rate.
- Example 3** Dashed line. Indicator of breeding biomass clearly in the **red** zone having fallen from healthy levels. Expanded work will be conducted from previous biological reference zones. A reduction in exploitation rate is required and will be achieved by a minimum 15% reduction in unit value plus the possible inclusion of other remedial measures. Consultation will be brief and focussed on informing industry of required change and circulation of evidence that the **red** zone has been entered rather than seeking comment on what should be done.

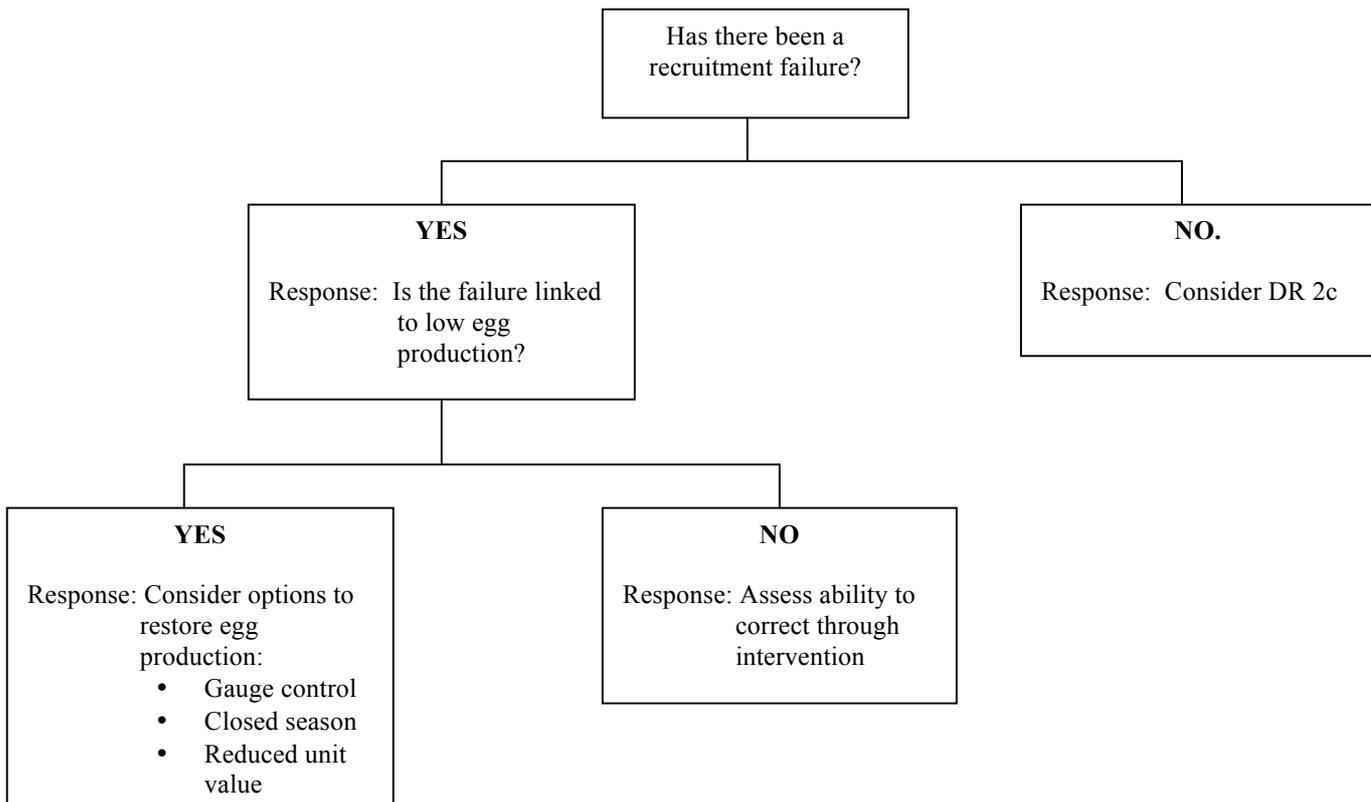
## Decision Rule No.2

The formal application of the second decision rule, designed to ensure other indicators of sustainability are not ignored, follows confirmation through DR 1 that the indicator is in the **green** zone. Application of this rule needs to occur annually and be based on a formal stock status report provided by the Department of Fisheries Research Division. In the case of western rock lobster this is likely to be in February or March. For simplicity this rule is broken into five parts. Each part must be addressed.

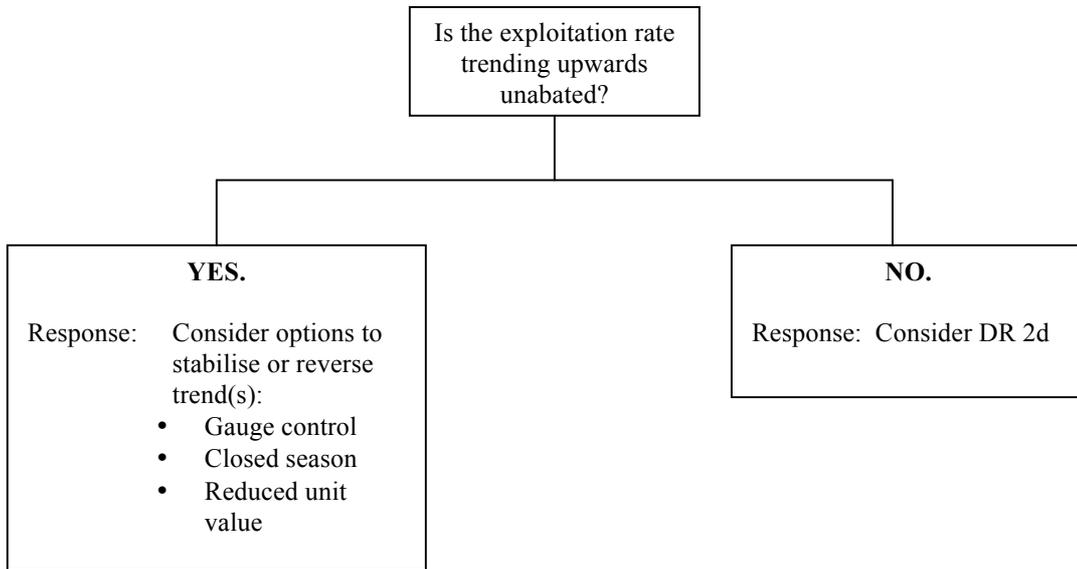
### DR 2a – trends in breeding biomass



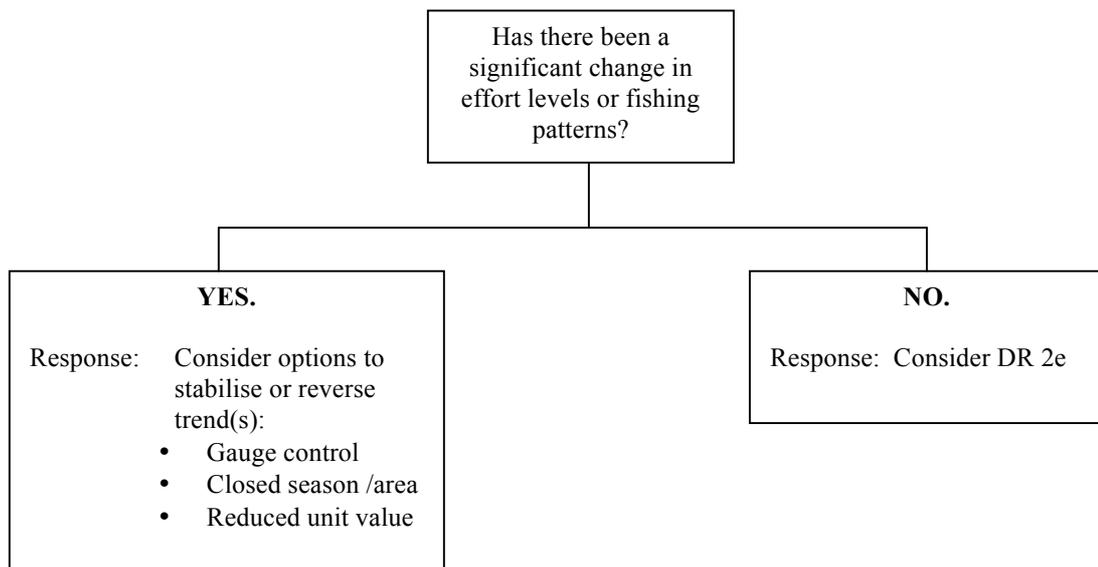
### DR 2b - recruitment



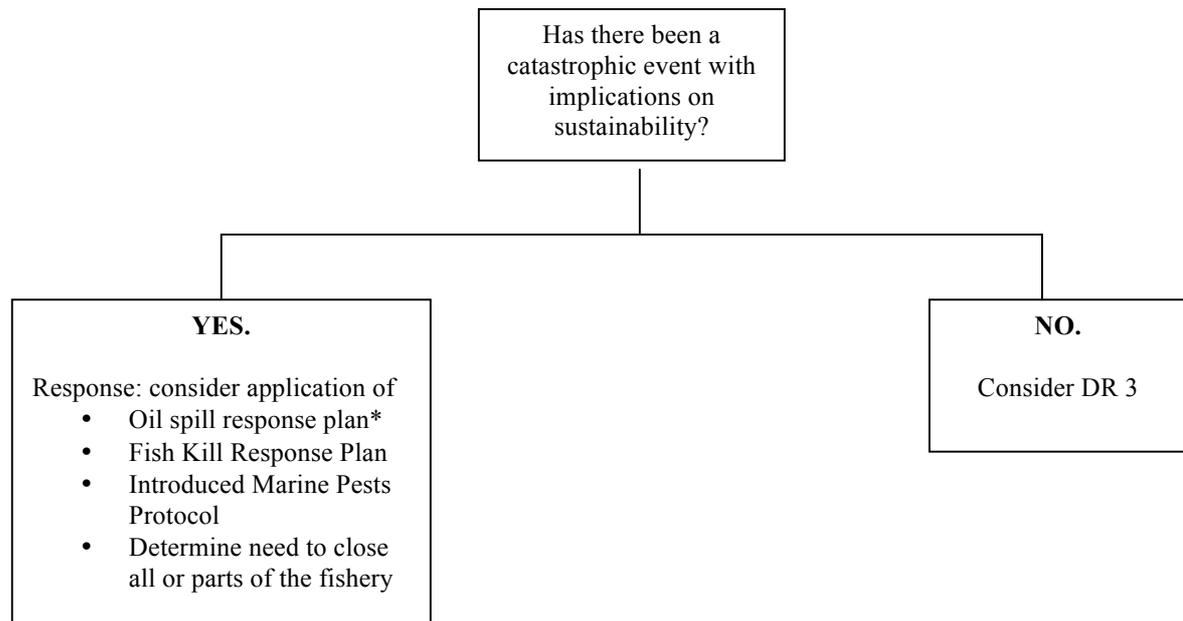
## DR 2c – exploitation rate



## DR 2d - effort



**DR 2 e – catastrophic events**



\* Western Australian Marine Oil Pollution Emergency Management Plan

## 5.2 Socio-economic Decision Rule

There has been considerable debate within the rock lobster industry over the role of the Department of Fisheries and RLIAC with respect to considering social and economic factors in association with fisheries management. In this regard the FRMA is quite clear, listing as one of its objects the need to:

*“achieve the optimum economic, social and other benefits from the use of fish resources”*

Importantly this object refers to community benefits and therefore the interest of fisheries managers is not in the day to day running of fishing businesses but rather ensuring that the community is in fact benefiting from use of the resource.

Acknowledging that the FRMA does provide the necessary mandate for management arrangements designed to pursue economic or social goals it is important to qualify how RLIAC can best fulfil its obligations to advise the Minister on these aspects of managing the rock lobster fishery. Under this framework the industry can take the initiative with regard to economic management as opposed to being directed by the Department – an approach that has failed on numerous occasions.

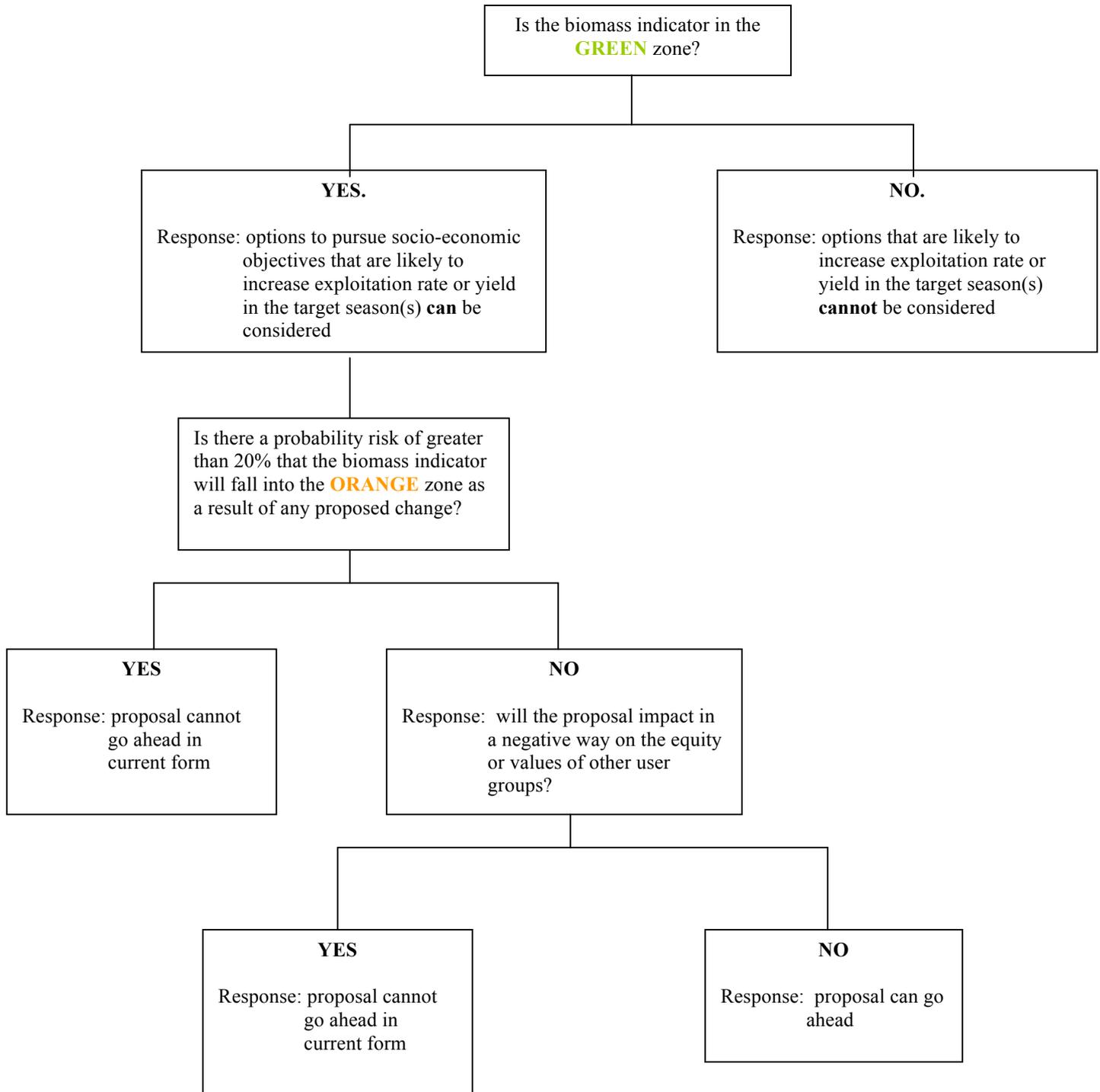
When making the case for establishing a decision rules framework it was stated that one of the key advantages is the ability for industry to exercise a greater level of self-determination when the biological status of the fishery is sustainable – in the **green** zone. The socio-economic decision rule proposed here is designed to reward industry for managing the resource in such a way that ensures it is healthy i.e. when the stock is healthy, industry is able to exercise its initiative in determining what is the best combination of management tools to provide socio-economic benefits.

The principles in this rule are not dissimilar from the approach taken in the New Zealand Rock Lobster Fishery. In the New Zealand case, decision rules are based around what are known as “choice frontiers”. Noting that in New Zealand the rock lobster fishery is regulated under a quota management system, decisions are made by equating a risk ranking to a given total allowable catch. What results is an explicit recognition that there is a trade off between keeping the risk of over-exploitation low and the desire to maximise catches - or put another way, a high TAC has a higher risk of over-exploitation.

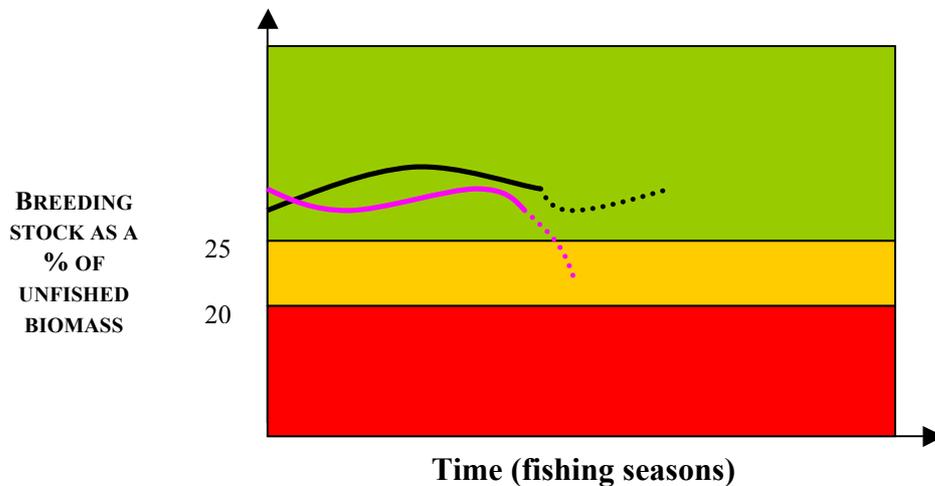
This paper also uses risk as a critical part of the analysis. Specifically, it proposes that for economic management initiatives to be successful there must be a risk of less than 20% that the initiative will cause the biomass indicator to fall into the **orange** zone. In this case the “choice frontier” is set at a probability of a bad outcome being no greater than 20%.

The choice of 20% is not without precedent in Western Australia. When determining the optimum set of management tools to rebuild key species of shark exploited off the south west coast in the late 1990’s, the Department and industry agreed that the set of tools ultimately chosen must have a greater than 80% chance of success (i.e. less than 20% chance of failing).

### Decision Rule No. 3



## Examples of how DR3 could be applied



**Green** = healthy

**Orange** = consider stock status

**Red** = unsustainable

**Example 1** Solid black line shows known levels, dotted black line shows predicted levels under management proposal. This scenario suggests that likelihood or risk of the biomass indicator entering the **orange** zone is less than 20% under the management proposal. Industry free to push ahead with management initiative with due regard to other user groups.

**Example 2** Solid **pink** line shows known levels, dotted **pink** line shows predicted levels under management proposal. This scenario suggests that likelihood or risk of the biomass indicator entering the **orange** zone is greater than 20% under the management proposal. Such a proposal could not proceed in its current form.

## **6.0 Decision making, provision of advice and the role of RLIAC in the Fisheries Management Decision Rules Framework**

The Act establishes the Minister as the entity responsible for managing those fish resources and habitat that are under the State's jurisdiction.<sup>9</sup> For the Rock Lobster Fishery the legislation that facilitates this management process are the West Coast Rock Lobster Managed Fishery Management Plan, the *Fish Resources Management Regulations 1995*, a series of section 43 notices and a number of recognised policies. The power to develop or amend these instruments rests firmly with the Minister. A more complete description and copies of legislation relating to rock lobster management in Western Australia is provided on the Department of Fisheries website [www.fish.wa.gov.au](http://www.fish.wa.gov.au).

It is acknowledged that the task of managing a fishery is not a simple one, and to assist the Minister in exercising his power, RLIAC has been established under the FRMA as the primary source of expert advice on all matters relevant to managing use of the rock lobster resource.

In fulfilling its role, the advisory committee is supported primarily by the Department of Fisheries with respect to expertise based advice from relevant scientific fields and natural resource management. The committee is resourced entirely through the cost recovery process which is a part of the arrangements under which commercial fishers maintain their access right.

The fisheries management decision rules framework presented in this paper is intended to enhance the RLIAC management and advisory process. It is also intended to provide greater opportunities for stakeholder groups such as: the Western Rock Lobster Council, Western Rock Lobster Development Association, Recfishwest and the Conservation Council of WA to actively engage in the process and in fact develop new management initiatives.

The operation of the three-year planning cycle was explained in the 2000 discussion paper, *Fisheries Management Paper 143 Western Rock Lobster Management for Seasons 2001/2002 and 2002/2003*. Indications are that the implementation of this forward planning strategy has been a positive move.

The three-year rolling management planning cycle will be retained under this proposal. In fact the plan is an important component of the framework because it ensures that the rules are applied in a strategic manner while also upholding the Government's commitment to provide 12 months advance notice of management change where possible.

It is important to recognise that this planning process is underpinned by the ability of the Department of Fisheries Research Division to predict the likely commercial catches for coming seasons. This ability to predict catches and to estimate the size of

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<sup>9</sup> The Offshore Constitutional Settlement agreement of 1995 between Western Australia and the Commonwealth sets out the State and Commonwealth responsibilities with respect to the management of the fish resources off the coast of WA. This agreement and explanation of it is contained within *Fisheries Management Paper No. 77 – Offshore Constitutional Settlement 1995*.

the breeding stock is critical from a stock management perspective, but these fundamental indicators of the fishery’s performance are equally useful when pursuing the social and economic objectives that are an inherent part of fisheries management.

Over a number of years the catches predicted by the Department of Fisheries have proven to be remarkably accurate. This valuable piece of management information is possible because of the understanding and expertise that has been developed over the life of the commercial fishery. Table 3 contains the catch predictions for the 2002/03, 2003/04 and 2004/05 seasons by zone.

**Table 3:** Catch predictions in tonnes for the coming three seasons by zone and in total.

	<i>Zone A</i>	<i>Zone B</i>	<i>Big Bank</i>	<i>Zone C</i>	<i>Total</i>
<b>2003/04</b>	1650	3800	150	7850*	13450*
				8150 <sup>o</sup>	13750 <sup>o</sup>
<b>2004/05</b>	1650	3900	200	6900*	12650*
				7100 <sup>o</sup>	12850 <sup>o</sup>
<b>2005/06</b>	1600	3650	100	4800*	10150*
				5100 <sup>o</sup>	10450 <sup>o</sup>

\* based on Alkimos site

<sup>o</sup> based on all sites

It is well known that there are both upward and downward trends in catch within the rock lobster fishery, which are driven by a number of ecological and environmental factors – some of which are better understood than others. The ability to predict likely catches a number of years in advance provides RLIAC with a very valuable piece of information when it comes to formulating fishing strategies to pursue ecological, social and economic objectives.

## **7.0 Process for implementing a decision making framework**

The case for implementing a fisheries management decision rules framework is a strong one. However, given that one of the envisaged benefits of establishing this framework is increased stakeholder participation in and awareness of the management process, it is vitally important that the stakeholders have input into the development of this framework.

This discussion paper has set out in detail the proposal and seeks comment from rock lobster stakeholders as to whether the objectives are appropriate and if the proposed framework is adequate to meet those objectives.

## **8.0 Summary and How to Lodge a Submission**

This discussion paper proposes the preparation of a new Ministerial Policy Guideline that contains fishery specific management objectives for the West Coast Rock Lobster Fishery and a decision rules framework consistent with those objectives.

The benefits of this framework are:

1. It provides flexibility to the management system so that smaller incremental management changes can occur to safeguard the resource and pursue other objectives and thus avoid radical change;
2. It documents (and advertises) the management process for stakeholders, government and the wider community and in doing so provides a degree of transparency and accountability not yet experienced; and
3. Because the management process is truly transparent it provides greater opportunities for stakeholder input and initiative into the management process – i.e. it advances the concept of co-management.

With this in mind the Rock Lobster Industry Advisory Committee is eager to received comments on the decision rules framework proposed.

Submissions must be made in written form and forwarded to the RLIAC Executive Officer by close of business 12 March 2004.

Submissions can be mailed, faxed or emailed to the following address.

Attention:

Tim Bray  
Executive Officer  
Rock Lobster Industry Advisory Committee  
168 St Georges Terrace  
Perth WA 6000

Phone 9482 xxxx  
Fax 9482 7224  
Email [tbray@fish.wa.gov.au](mailto:tbray@fish.wa.gov.au)