



# **A QUOTA MANAGEMENT SYSTEM FOR THE WESTERN ROCK LOBSTER FISHERY**

An independent report commissioned by the  
Rock Lobster Industry Advisory Committee (RLIAC)

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Department of Fisheries  
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Perth WA 6000

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Department of  
**Fisheries**

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## FORWARD

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There has been much debate over the past two decades on the most appropriate long-term management framework for Western Australia's Western Rock Lobster Fishery. More recently a debate over whether the fishery would be best managed under a Quota Management System (QMS) or the continuation of the current Input Control Management System (ICMS) culminated in an industry vote coordinated by the Western Rock Lobster Council (WRLC) in 2006<sup>1</sup>.

The outcome of this vote resulted in industry support to retain the existing management system based on input controls<sup>2</sup>, however, shortly after the vote there was a renewed level of interest in revisiting the QMS debate from sections of the industry. This renewed interest was partly attributed to industry facing significant economic pressure from a cost-price squeeze as well as declining catch predictions.

Proponents for quota argued that a QMS would provide the best management framework to optimise the fisheries economic performance. However, supporters of the existing management framework were of the view that an improved ICMS could achieve similar economic and biological objectives without the transitional costs of introducing a QMS.

While a comparative assessment of the bio-economic and sociological characteristics of an ICMS and a QMS has been comprehensively discussed with industry during the previous review process (Fisheries Management Paper 209, 210, 211 and 212), this review largely focused on the existing ICMS and a theoretical QMS.

To progress the debate the Minister for Fisheries requested advice from the RLIAC on an actual QMS specifically designed for the Western Rock Lobster Fishery, rather than basing discussions around a theoretical QMS.

To assist in preparing its final advice to the Minister, the RLIAC commissioned a panel of independent fisheries management experts, with national and international experience, to develop an optimal QMS for the Western Rock Lobster Fishery.

The RLIAC also commissioned the Expert Panel to develop an optimal ICMS for the fishery to enable a rational comparison between the two types of management frameworks.

The panel was comprised of: Dr Gary Morgan

Dr Caleb Gardner

Mr Roger Edwards, and

Mr Ian Cartwright

In the interests of keeping industry and the community informed on all developments relating to future management options for the Western Rock Lobster Fishery, the RLIAC has taken the view that the Expert Panel's documents should be released for industry discussion.

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<sup>1</sup> *Review of the Management System of the Western Rock Lobster Fishery – Industry Consultation Process.* Western Rock Lobster Council June 2006.

<sup>2</sup> *Review of the Management of the Western Rock Lobster Managed Fishery – Results of the Industry Poll: Input vs Output Controls.* Western Rock Lobster Council 2007.

This publication contains the Expert Panel's report on an optimised **Quota Management System** for the Western Rock Lobster Fishery. The Expert Panel's report on an optimised ICMS for the Western Rock Lobster Fishery is published separately (Fisheries Occasional Publication No. 64).

It should be noted that the Expert Panel's optimum QMS represents just one possible option based on the principles and objectives developed by the RLIAC to guide the long-term management of the fishery.

In developing its final advice to the Minister on long term management options for the Western Rock Lobster Fishery, the RLIAC will be taking into account the recommendations of the Expert Panel, advice from the Department of Fisheries as well as the committee's own collective understanding of particular characteristics within the fishery.

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

**Dr Ron Edwards**  
**CHAIRPERSON**  
**ROCK LOBSTER INDUSTRY ADVISORY COMMITTEE**

## **DISCLAIMER**

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The views and opinions expressed in this paper are not necessarily those of the Department of Fisheries, neither should they be seen as coinciding with any official policy of the Department unless clearly indicated as such.

## **EXPERT PANEL'S COVERING LETTER TO THE RLIAC**

The Chairman  
RLIAC  
C/- Department of Fisheries  
3<sup>rd</sup> Floor, The Atruim  
168 St Georges Tce  
PERTH WA 6000

09 March 2009

Dear Mr. Edwards

### **REPORT OF THE EXPERT PANEL EXAMINING A QUOTA MANAGEMENT SYSTEM FOR THE WESTERN ROCK LOBSTER FISHERY**

We have pleasure in attaching our report on the above issue, which was prepared following a one-day workshop in Perth, prior discussions with RLIAC members and extensive consultation between us and with Mr Ian Cartwright, who reviewed the report.

We have prepared this report based on our collective practical experience of introducing and operating Quota Management Systems (QMS) in rock lobster and other fisheries, both in Australia and internationally, and not solely on the theoretical bases of quota management. It is therefore this collective experience of the Expert Panel that is reflected in the suggested QMS design and not ideology although, of course, the outcomes of a QMS are often in accordance with those expected from the theory of quota management.

We were also asked to briefly examine the advantages and disadvantages of the proposed QMS with management by input controls. However, we were conscious, and RLIAC members emphasised that, to enable a fair assessment, any comparisons with input-control systems should take into account the relative advantages and disadvantages of the QMS with both the current management system as well as with an 'ideal' input-control management system (ICMS).

While guidance has been provided on this, we would like to emphasise that such an 'ideal' ICMS has not been defined for the Western Rock Lobster Fishery (although its clear that it is not the current management system) and therefore recommend that RLIAC might usefully examine this issue in the future.

In particular, we believe that the important issue of how to achieve the necessary continuous effort adjustment under an input-control management arrangement should be further examined and we have provided some brief comment and suggestions on this in the report.

While some of the elements of the proposed QMS might seem revolutionary, we believe that the QMS proposed is not only appropriate, practical and implementable for the Western Rock Lobster Fishery but, importantly, will achieve the agreed management objectives of biological sustainability, improved economic performance and ecosystem protection efficiently. However, like any major change in management arrangements, there will be

transition issues that need to be carefully managed and, again, suggestions and comment have been provided on these.

Thank you for the opportunity of examining this issue and we wish you the very best in your further deliberations on the management of this important fishery.

Yours sincerely

A handwritten signature in blue ink, consisting of a stylized 'G' followed by a horizontal line and a small flourish.

For:

Dr Gary Morgan

Dr Caleb Gardner

Mr Roger Edwards

## **A QMS FOR THE WESTERN ROCK LOBSTER FISHERY**

### **SECTION 1 INTRODUCTION**

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The Rock Lobster Industry Advisory Committee (RLIAC), the Hon. Minister for Fisheries and the Department of Fisheries, Western Australia have commenced a process of evaluating a management system based on output controls for the Western Rock Lobster Fishery in place of the current input control system. The RLIAC commissioned a first report on the development of a Quota Management System (QMS) but following an independent review of that report, decided to engage a small group of experts to assist them in further developing the key elements of a QMS aimed at achieving specific management objectives.

The Expert Panel was convened in Perth on 26<sup>th</sup> February 2009 and comprised Dr Gary Morgan, Mr Roger Edwards and Dr Caleb Gardner. The panel was assisted in its deliberations by having prior discussions with RLIAC members and by having access to WA Fisheries Department technical and scientific expertise. In addition, the Panel's draft report was reviewed by Mr Ian Cartwright, to whom the Panel is grateful for a number of observations and comments based on his experience with quota-managed fisheries, including issues of transitions to a QMS. Members of the Expert Panel worked to address the following Terms of Reference:

- To participate, as part of a small expert team, in a 1 day workshop, to be held in Perth, aimed at defining the characteristics of an appropriate Quota Management System to meet specified management objectives for the Western Australian rock lobster industry, while bearing in mind that there is likely to be a transitional period to an output based system, should one be adopted.
- To consider and comment on the Principles and Objectives that have been set for the Western Rock Lobster Fishery.
- As part of this work, to also generally address the issue of whether a QMS is the most appropriate and effective way of achieving the defined management objectives or whether the defined objectives can be best achieved under the current input control management system.
- To consider what five and 10 year targets would be appropriate to ensure the management principles and management objectives are achieved.
- To undertake, as part of the work of the team, analyses that contribute to the development of the QMS in accordance with your specific expertise.
- To collectively prepare:
  - (1) A brief report to the Rock Lobster Industry Advisory Committee (RLIAC) of the activities and analyses undertaken as part of the workshop, including an assessment of the efficacy of a QMS in meeting the specified management objectives; and
  - (2) A draft QMS paper. It is envisaged that this draft QMS would form the basis of a discussion paper to assist further consultation between RLIAC, the Department and the rock lobster industry.

## **SECTION 2      PRINCIPLES AND OBJECTIVES**

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In developing the QMS, the Expert Panel were guided by the following Principles and specific Management Objectives for the Western Rock Lobster Fishery that were previously endorsed by RLIAC, the Department of Fisheries and the Hon. Minister. These Principles and Objectives are:

### **2.1      Management Principles**

- To maintain rock lobster stocks at or above biologically sustainable levels.
- To create a management environment that encourages and supports a profitable commercial sector within the constraints of its allocated share of the resource.
- To encourage fishing practices that minimize damage to marine habitats and to non-targeted species.
- To achieve the management objectives through regulations that are targeted, non-discriminatory and cost-effective.

### **2.2      Management Objectives**

To address the above management principles, the following management objectives will guide the management arrangements for the fishery:

1.      (a) To maintain the breeding stock abundance at a minimum of those levels present in the early 1980s AND (b) to ensure that exploitation (harvest) rates do not exceed those determined from time to time as part of the Decision Rules for the fishery.
2.      To regulate the commercial production sector where necessary to achieve maximum economic yield from the fishery, with MEY averaged over three-year periods. In instances where meeting this objective conflicts with objective 1, then objective 1 takes precedence.
3.      To ensure that fishing practices are regulated to minimise damage to marine habitats, non-targeted species and lobsters that are returned to the sea.

### **SECTION 3            COMMENTS ON THE MANAGEMENT PRINCIPLES AND OBJECTIVES**

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The Expert Panel considered these Principles and Objectives and, while agreeing that they generally provided a strategically sound and operationally measurable basis for future management of the fishery, made the following comments:

- Objective 1(a) should also include consideration of maintaining the geographic distribution of the breeding stock, not just its overall abundance, since there is some suggestion that the distribution of the breeding stock may be important in maintaining subsequent recruitment. It was noted that research activities addressing this issue are planned.
- Objective 1(b) is unnecessary given objective 2 since having a management objective of achieving MEY automatically defines the necessary harvest rate. This is an important issue since targeting MEY implies a much more biologically conservative management regime than present since fishing effort (number of pot lifts) required to take MEY is always less, and usually substantially less, than that required if MSY is targeted. Having an MEY management objective therefore also addresses most of the biological sustainability objectives with the added advantage that industry profitability is also maximised.
- In Objective 2, the words “...with MEY averaged over three-year periods” should be deleted since it is an operational issue and not an objective.
- The order of the Objectives could be changed so that Objective 2 becomes Objective 1 since it relates to TACC setting. The TACC that produces MEY should first be identified, and then tested against reproductive and environmental objectives.

The Expert Panel also noted that current scientific expertise related to the western rock lobster resource and its fishery is both appropriate and of world-class quality. As a result, current modelling capabilities are sufficient to calculate the TAC needed to achieve the defined management objectives.

## **SECTION 4 THE DESIGN ELEMENTS OF A QMS TO ACHIEVE THE MANAGEMENT OBJECTIVES**

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The Expert Panel re-iterated that they were approaching the task of designing an appropriate QMS for the Western Rock Lobster Fishery based on their practical experience of introducing and operating Quota Management Systems in other fisheries and not solely on the theoretical bases of quota management. It is therefore the collective experience of the Expert Panel that is reflected in the suggested QMS design and not ideology although, of course, the outcomes of a QMS are often in accordance with those expected from the theory of quota management.

The Expert Panel was also conscious, and RLIAC members emphasised, that there were clear failures in the current input-control management system. Therefore, any comparisons with input-control systems of the 'ideal' QMS that was to be developed by the Panel should take into account the relative advantages and disadvantages of the QMS with both the current management system as well as with an 'ideal' input-control management system.

In comparing the proposed QMS with either the 'ideal' or the current input-control system, the Panel emphasised that, in practice, a QMS is often no easier to administer and manage compared with an input-control system. Rather, it is the types of issues that often change rather than the quantum of issues. Experience has also shown that some spatial management, as part of an overall QMS, would almost certainly be needed and/or retained to account for spatial differences in the biological characteristics of the western rock lobster. The instances where spatial management might need to be considered are highlighted in the proposed QMS arrangements below.

Finally, given the current concerns of low puerulus numbers in the fishery, the Expert Panel emphasised that a QMS cannot directly address these current low puerulus numbers. However, a QMS can ensure pre-defined levels (and, if necessary, distribution through spatial closures) of the breeding stock are maintained and exploitation levels are managed so that there is the maximum likelihood of achieving the conditions that could result in adequate future puerulus settlement. A suitable input-control system could also achieve this although because of the inertia within an input-control system to constantly increase fishing effort, the risks of not achieving the breeding stock targets are higher.

### **4.1 Design principles of the QMS**

The Expert Panel, in considering a QMS for the Western Rock Lobster Fishery, focussed on a system that specifically targets the defined management objectives. The core principles of the proposed QMS system are therefore:

- That the QMS specifically targets the management objectives (and management principles upon which the objectives are based) of the Western Rock Lobster Fishery and is therefore designed to achieve long-term biological sustainability of the resource while facilitating economic efficiency and profit maximisation. As noted above, these objectives are not contradictory but are, in fact, complementary since a target of MEY both maximises profitability and also results in a more biologically conservative management approach. If these objectives are achieved, the underlying asset value (i.e. of the unit entitlement to the fishery) should be positively impacted.

- The QMS is, and needs to be simple, since in general, the simpler the QMS, the more efficient it is in achieving the management objectives and the more cost-effective it is. Over-complication or adding layers of input controls to the QMS adds to costs and reduces the efficiency with which the QMS can achieve the management objectives.
- The QMS targets economic objectives by providing the environment and the individual business flexibility to reduce the costs of fishing. While not directly targeting revenues, the QMS also provides the operational flexibility to target markets efficiently.
- The QMS is based on a free and competitive market in quota and access rights that will drive economic efficiency and hence profitability. Impediments to the free and competitive market in quota and/or access rights will reduce the ability of the QMS to achieve this economic efficiency.

## SECTION 5 THE PROPOSED QMS FOR THE WESTERN ROCK LOBSTER FISHERY

Recommended Management Element	Comments and rationale
<i>(a) Addressing Objective 1</i>	<i>Objective: (a) To maintain the breeding stock abundance at a minimum of those levels present in the early 1980s AND (b) to ensure that exploitation (harvest) rates do not exceed those determined from time to time as part of the Decision Rules for the fishery.</i>
Boundaries of the fishery should be maintained from North West Cape to Augusta.	The TAC needs to be set for a specific geographic area.
That the fishery be managed as a single entity, rather than in zones.	This is a major change from current arrangements. However, there is no evidence that the stock is anything other than a single stock and therefore it should be managed as such. A QMS that targets an MEY objective will generate benefits through increasing residual stock so that catch rates rise through time (and thus costs decrease). If fishers are to gain benefit through this process they need to access stocks that are rebuilt. If zones were retained, the unequal patterns of movement of lobsters between zones would undermine benefits from stock rebuilding for fishers restricted to fishing certain zones. However, in recognition that biological processes such as spawning, growth or mortality rates may vary geographically (e.g. the Abrolhos), there may be a requirement for other forms of spatial management, such as temporary closed areas, to account for these. Despite often-expressed fears of a rush to fish high catch areas when zones are abolished, experience has shown that such a rush rarely occurs.
The TAC and TACC should be determined using the current modelling techniques and be calculated to achieve the specific management objectives for the fishery. It is essential that the TAC/TACC setting process be rigorously defined, the process be made mandatory and be administered independently to avoid external influences that may compromise the outcome.	TAC setting should be science-based and be independent of any non-scientific influences. Current biological models, with input of economic data to determine the point of MEY, are readily able to calculate the TAC to achieve the defined management objectives. Administrative procedures already exist in other WA fisheries (e.g. Kimberley trap fishery) to ensure the required level of independence and scientific rigour in quota setting and these can provide a template for the TAC/TACC setting process. It is also essential, of course that the TAC and TACC are binding, are monitored effectively and are enforced.

<p>A recreational TAC (TARC) should be specifically defined.</p>	<p>To ensure biologically-related management objectives are achieved, total removals from the stock need to be controlled. In addition, the mechanism for changes to allocation between sectors (e.g. commercial and recreational) needs to be, and is being, addressed through the IFM process.</p>
<p>That the TACC should be constant and fixed in 3 yr blocks and should be reviewed after each 3 yr period. Annual catch rates will be forecast for each 3 yr period.</p>	<p>A three-year TACC provides better business certainty than an annually adjusted TACC and provides the same protection for the stock in accordance with the management objectives. The use of the current biological models to forecast catch rates (instead of forecasting catches as at present) would enable individual business decisions to be made well in advance.</p> <p>In terms of Objective 2, to achieve maximum economic yield, a constant TACC strategy can achieve the same theoretical Nett Present Value outcomes as an annual variable TACC strategy. The constant TACC strategy also has the potential to reduce the industry and Government costs in the TACC setting process.</p>
<p>Appropriate trigger points should be put into place to trigger a downward adjustment within any three-year period in the case of an extreme event.</p>	<p>If unusual or unexpected events occur (e.g. the unexpected low puerulus numbers in 2008), there needs to be an emergency response mechanism to reduce the TAC and TACC appropriately within the three-year period for which the TAC/TACC had been set. These trigger points need to be developed. It is not anticipated that the TAC/TACC could be adjusted upwards during the three-year period. Even with these trigger points, the science of predicting stock and catch will always be imperfect, and there will be a risk that the triggers may not be “right” in the first instance. Hence capacity to act if something goes wrong is essential. Industry is closest to the early warning signs and hence, there should always be scope for industry to alert management to observed anomalies and/or extreme or rare environmental or stock events that may need to be taken into consideration and acted upon. Recent experience in South Australia has seen industry initiate voluntary TACC reductions due to overriding concerns about stock abundance, even though management plan trigger points for TACC reduction had not been reached.</p>
<p>Remove maximum size because maintenance of the spawning stock should be taken into account through the setting of the TAC.</p>	<p>The TAC setting mechanisms, which specifically addresses the management objective of maintaining adequate spawning stock, makes a maximum size for protecting spawners redundant.</p>

<p>Over time (during the 1<sup>st</sup> 3 yr period) remove other constraints regarding setose, berried and tarspot females, subject to further research analysis.</p>	<p>Again, the TAC setting mechanism specifically addresses spawning stock protection. However, more research work is needed to assess the impacts of the removal of tarspot, setose and particularly berried protection measures on spawning stock abundance and the TAC setting process itself. While there is a need for further analysis, the principle of rapid removal of these rules is emphasised.</p>
<p>The issue of a minimum legal size should be further explored through the TAC setting process, escape gap requirements, yield and market investigations. Current arrangements should be left in place in the interim.</p>	<p>The minimum legal size is intimately related to the TAC setting process as well as markets. There may be scope for increasing sustainable returns from the resource with alternative limits. The current limit is assumed to be left in place in the interim while options are explored.</p>
<p>No temporal closures (i.e. closed seasons) are needed apart from the possibility of retaining the current closed season at the Abrolhos Islands. This needs further investigation to assess the impact of such a closure on discard mortality and egg loss of ovigerous females, e.g. a trial under permit.</p>	<p>The QMS will operate most efficiently when operators are not constrained in the seasonality of their operations but can take their quota at the best time for their individual businesses. However, some further consideration needs to be given to the Abrolhos Islands. While removing the season restriction at the Abrolhos Islands will eventually lead to a reduction of the large March catch peak, the existing season may need to be initially retained to avoid high localised exploitation rates and possible impacts on undersized and spawning animals. First, studies therefore need to be undertaken to identify the economic implications of alternative (or no) closed seasons at the Abrolhos Islands. Secondly, because there are significant numbers of spawning stock at the Abrolhos Islands in the early part of the year (many of which are undersize), some more work may be required on the possible negative impact of repeated handling of these spawners if year-round fishing at the Abrolhos is permitted. The Panel considered the ecological implications on the Abrolhos Islands of relaxing temporal closures and zonation restrictions and concluded that, on balance, there may be ecological benefits since there would be less incentive for fishermen to remain on the islands for long periods. Catch rates will also rise under stock rebuilding which implies total pot lifts would be reduced, and hence ecological impacts will decline.</p>

<p>To address high grading:</p> <ul style="list-style-type: none"> <li>• An appropriate downward adjustment to the TACC should be made which would be subject to review as further knowledge is gained.</li> <li>• Trading quota in real time, within season should be permitted and the Department should develop appropriate systems to facilitate this</li> </ul>	<p>The extent of high grading under QMS in the Western Rock Lobster Fishery is difficult to predict, and hence will require further consideration amongst industry and processors. Experience has shown the practice is likely to vary from season to season as prices, catch rates and lobster condition vary, and hence most importantly, measurement and refinement of offsets will be required. Initially, an offsetting downward adjustment to the TACC should be considered (together with the ability to trade quota within the season) with the size of the initial and any subsequent adjustments being determined after the potential risk is better defined. Fisher's profits are reduced by high-grading where the quota lease price is less than the beach price. This means the risk of high-grading is low, provided fishers are able to operate within a market for quota where it can be traded rapidly and easily within the season.</p>
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<p><i>(b) Addressing Objective 2</i></p>	<p><i>Objective: To regulate the commercial production sector where necessary to achieve maximum economic yield from the fishery, with MEY averaged over three-year periods. In instances where meeting this objective conflicts with objective 1, then objective 1 takes precedence.</i></p>
<p>Many of the proposals outlined under Objective 1 also address objective 2 of managing to Maximum Economic Yield. However, the following additional measures are considered necessary.</p>	
<p>That the quota entitlement in the fishery be held as units which have a value in kgs, with the unit value being set every 3 yrs.</p>	<p>Maintaining units in the fishery to which quota is attached preserves the entitlement and makes for administrative simplicity. However, there does not appear to be any reason why the quota entitlement could not be held as a proportion of the declared TACC and the administrative issues, and benefits, of such a system should be investigated.</p>
<p>Quota should not be attached to pots but</p>	<p>Attaching quota to pots inhibits the ability to take the quota in the most efficient way. Quota</p>

<p>should be a separate entity, which is fully tradeable.</p>	<p>management in lobster fisheries elsewhere often have tradable units for pots in addition to quota units, which is an inefficient and often unpopular system and should be avoided.</p>
<p>The quota year should start in January, the exact date being subject to further discussions with processors.</p>	<p>A January start would help in reducing the whites catch peak. The exact start date would depend on practicalities for administration and markets at this time of year and needs further discussion, particularly with processors.</p>
<ul style="list-style-type: none"> <li>• Quota should be freely tradeable within and between seasons and can be purchased or leased.</li> <li>• There should be no carryover of quota from one year to the next.</li> <li>• Quota should be traded in whole units</li> <li>• Quota over-runs should be dealt with in a pragmatic way (i.e. 24 hrs to trade quota units)</li> </ul>	<p>Quota administration should be simple and not compromise the TAC.</p>
<p>A system for initial allocation of quota should be the responsibility of industry for design and agreement in accordance with defined principles of equity and historical performance and adjustment considerations. In the case where industry cannot agree, Government will appoint an independent panel to design an appropriate initial allocation process, which meets the same principles. Matters regarding adjustment periods and appeals mechanisms should be part of the process for initial quota allocation.</p>	<p>Initial quota allocation is often the most contentious issue in introducing a QMS. However, experience has shown that excellent and equitable outcomes are often achieved when industry themselves decide on the initial allocation method, rather than having the method determined by Government. However, in a geographically large and diverse fishery such as the western rock lobster, there also needs to be a mechanism in place for instances where industry cannot agree. Importantly should a QMS system be adopted, timing of the introduction of the system and adjustment periods should be key considerations to ensure all businesses have sufficient lead times to adjust to the new arrangements.</p>

<p>Trading of quota and quota holding:</p> <ul style="list-style-type: none"> <li>• There should be no minimum or maximum quota holdings for trading.</li> <li>• There should be a minimum quota holding for operation of 5 tonnes, subject to review, and there should be no maximum quota holdings.</li> </ul>	<p>In general, quota should be freely tradable since the resulting freely competitive market optimises the quota price at any given time. This would inevitably result over time in at least some quota being held by non-operators such as processors and investors. However, experience has shown that the ability to hold large amounts of quota has enabled non-operators, such as processors, to influence fishing practices and provides the potential to engage in anti-competitive practices. Therefore, the issue of whether a maximum quota holding should be imposed should be kept under review.</p>
<p>A 200 pot limit per vessel should be imposed for the first 3-year period and either increased or removed entirely after that, subject to monitoring of pot numbers during the first 3-year period.</p>	<p>The TAC setting process that aims at MEY should allow the opportunity for individual decisions on profit without additional constraints on fishing effort. In principle there should be no limit on pot numbers and experience in other rock lobster fisheries has shown that removing gear restrictions does not lead to an explosion of pot numbers because of the capital investment costs involved. Such a setting also assists minimising on-water compliance costs.</p> <p>However, there is a need to proceed cautiously and initially constrain pot numbers, as there may be ecological and spatial issues that need addressing. Having either no pot limits or some maximum pot limit per boat also removes the need for an audit process to track transfers of pots, thereby making administration simpler and, presumably, cheaper.</p>

<p><i>(c) Addressing Objective 3</i></p>	<p><i>Objective: To ensure that fishing practices are regulated to minimise damage to marine habitats, non-targeted species and lobsters that are returned to the sea.</i></p>
<p>Many of the proposals outlined under Objectives 1 &amp; 2 also address objective 3 of managing the impacts on marine habitats, lobsters returned to the sea and non-targeted species. However, the following additional measures are considered necessary.</p>	
<p>Current regulations on escape gaps, handling protocols and reducing the impacts on non-targeted species should remain</p>	<p>These are important and appropriate measures to address the impacts on the marine environment and to minimise the mortality of non-targeted species and lobsters that are returned to the sea. If minimum size regulations are changed in the future (see above), escape gap regulations may also need to be adjusted accordingly.</p>
<p>Current restrictions on pot size and design should remain. However, to encourage innovation, new pot designs may be approved through a process of assessment and possible field testing in collaboration with the Department and if approved, would be calibrated by the Department to ensure the integrity of fishing effort statistics for the fishery.</p>	<p>While encouraging innovation and efficiency, new pot designs need to go through a process of assessment and possible field testing, initiated by the proponent, to ensure that they do not result in deleterious impacts on marine habitats or the environment or and that they do not result in increased mortality of non-targeted species or lobsters that are returned to the sea.</p>

## **SECTION 6            THE ADVANTAGES AND DISADVANTAGES OF THE QMS, VIS-À-VIS INPUT CONTROLS**

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The Panel were asked by RLIAC to specifically comment on the relative advantages and disadvantages of a QMS for the western rock lobster, as outlined above, in achieving the defined management principles and objectives when compared with an input-control system. The fishery currently operates under an elaborate system of input controls and has done so for more than 40 years and this input-control system has been recognised internationally as being world class, including being certified by the Marine Stewardship Council.

However, like any fisheries input-control system, the system has inevitably become more complicated as it seeks to (a) limit and maintain exploitation rate (fishing effort) at levels that achieve the biological sustainability objectives of the fishery. Since the inertia in any input-controlled fishery is for fishing effort to increase, the management system has had to respond by a process of ‘continuous adjustment’ which, over time, has resulted in a system that is complicated, highly regulatory and probably sub-optimal in terms of effectiveness (b) manage efficiency increases that over time lead to increasing fishing effort in real terms and (c) address a range of equity issues within the fishery. To achieve these objectives, regulations that constrain the activities of operators have increased significantly.

As was pointed out by RLIAC members, to compare an ‘ideal’ QMS as developed by the Panel with the current system of input controls is therefore not a fair or relevant comparison.

A question that the Panel therefore briefly addressed was, therefore, how the QMS that was developed by the Panel compares with an ‘ideal’ input-control system, should one be developed.

In addressing this issue, the general characteristics of an ‘ideal’ input-control system, but not the details, were readily apparent and can be summarised as follows:

An ‘ideal’ input-control system for the Western Rock Lobster Fishery would:

- Specifically address the management principles and objectives that have been developed (this is currently not the case).
- Achieve those objectives through regulating fishing effort, size limits, seasons, pot numbers, vessel numbers and other inputs to the fishery. The Panel noted that, like any input-controlled fishery, the management system would need to continually adjust fishing effort etc as ‘effort creep’ occurred and efficiency increased. However, they also noted that there were other, more tax-effective ways of achieving this ‘continuous adjustment’, such as buy-back schemes.
- Need to continue to address equity issues in the fishery since managers take greater responsibility for these under an input-controlled system than under a competitive free-market system such as QMS.

The Panel also agreed that, theoretically, an 'ideal' input-control system was, able to address the defined Management Principles and Objectives as well as any QMS but would achieve those Principles and Objectives by different means and therefore with different consequences and implications.

Therefore, in examining what these different consequences and implications were (expressed as disadvantages and advantages) between an 'ideal' input-control system and the 'ideal' QMS developed by the Panel, the Panel noted the following:

### **6.1 Advantages of a QMS system**

- The proposed QMS provides better business certainty and asset security since TACCs are fixed over a number of years. Annual catches therefore vary less than under an input-control system. This said, it should be noted that in reality perfect information about pricing within a season does not exist, and hence "targeting" price, as is often promoted as a QMS advantage, at an individual business level can sometimes be difficult.
- Quota is able to better define the unit being managed rather than managing stock abundance indirectly through input controls.
- There is no need for continuous fishing effort adjustments under a QMS, as has occurred throughout the history (including recent history) of the Western Rock Lobster Fishery, although TACCs may change over the longer term.
- A QMS provides a simpler and more direct mechanism for 'carrying over' biomass from one year to another.
- A QMS replaces 'corporate' decision making with individual business decision making and, from experience, this often leads to greater fleet diversity and heterogeneity and less dissipation of economic rent through over-capitalisation (i.e. 'capital stuffing'). Importantly, fishing costs are often driven down by innovation and flexible operating practices that can be better captured and utilised under a QMS than under an input-control system.
- A QMS often facilitates vertical integration of the industry, resulting in efficiencies beyond those that can be achieved otherwise. However, this may be a disadvantage if the vertical integration results (e.g. by controlling large quota holdings) in anti-competitive practices.

The Panel noted that ecological impacts of the two management systems are ultimately highly dependent on the number of pot lifts used to take the catch. It is therefore the targeting of a management objective of MEY, which will increase catch rates, rather than the type of management system in use, that will lead to a reduction in pot lifts to take the catch and hence a reduction in ecological impacts.

### **6.2 Disadvantages of a QMS system**

- Under a QMS, the continuity of fisheries monitoring data may be lost since the fishery operates in a different way to an input-controlled fishery.

- Transition issues to a QMS can be significant and will result in a redistribution of income.
- Experience has shown that if the number of owner-operators decreases under a QMS, as it often does, this can lead to a decreased sense of stewardship of the resource.
- A QMS can result in increased black market activities. However, this can usually be managed through deterrent penalties and/or adjustments to the TACC to take this into account. The Panel also noted that black market sales are often a minor issue if the risk of detection and chance of prosecution is high.
- QMS is often no easier to administer than an input-control system – it's the type of administration that is needed that changes.
- There is no certainty that the costs of administering a QMS will be less than a well-designed input-control system. However, based on the Panel's experience, ongoing costs of an effective quota monitoring system should not be significantly higher than *current* input control systems after start up, and savings could be made by using technology based, rather than people based systems. Experience has shown that involving industry in the design of an effective system and provision of cost information about the options while designing a QMS can lead to high levels "ownership" by industry of the eventual system.

While the Panel has provided the above guidance on the advantages and disadvantages of a QMS system vis-à-vis an 'ideal' input control system, it should be noted that the 'ideal' input-control system for the western rock lobster has not yet been defined.

## **SECTION 7            TRANSITION ARRANGEMENTS**

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The Panel stressed that the issues involved in moving from an input-control system to a QMS are often considerable, particularly those issues that revolve around initial quota allocation. The Panel members all have had experience with this difficult transition in other fisheries and have provided recommendations (see above), based on that experience, on ways in which the initial quota allocation might be handled.

The Panel also considered the time needed for moving from the current input-control system to a QMS and suggested that a period of 2-3 years from the time of the announcement of the move should be sufficient. This timeline will allow restructuring of fishing and processing businesses. However, to avoid issues of operators trying to establish a claim to quota allocation during the transitional period, the announcement of the move to quota should also include the details of how the initial quota allocation process would operate.

## **SECTION 8      MONITORING PROGRESS OF THE QMS**

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Monitoring of the progress of a QMS implementation is essential and should be guided by the management Principles and Objectives. The objectives are measurable and should be used, preferably as part of the management plan for the fishery, as the basis for regular reporting, particularly on the stock sustainability measures. In addition to monitoring against the management objectives, the following should also be monitored on a regular basis:

- Structure and level of quota ownership (e.g. owner-operators, processors, investors etc) since this may impact on issues of competitive markets, potential for anti-competitive activities, foreign ownership etc.
- Asset value of the entitlements in the fishery. These provide a good ‘snapshot’ of the effectiveness of the overall system in profit maximisation.
- Average and range of operating profits in the industry. A QMS should have objectives of continued reductions in fishing costs, better targeting of markets and therefore increasing profits. Profits can sometimes be hard to measure across the fleet but a useful proxy is “scarcity rent”, which is simply the average lease price multiplied by the TAC.
- Impacts on marine habitat, non-targeted species and lobsters returned to the sea.

It should be noted that although a number of *ad hoc* studies have been undertaken, there is no commitment at present to formal ongoing monitoring of the economic parameters of the industry and such a data collection system would need to be initiated, based on a period that coincides with reporting requirements, as part of monitoring the QMS.

**SECTION 9      SPECIFIC ACTION REQUIRED FOR CURRENT MANAGEMENT ARRANGEMENTS UNDER A QMS**

<b>Current management arrangements</b>	<b>Action needed under a QMS</b>
<p>The current defined boundary of the fishery is from Cape Leeuwin to North West Cape.</p>	<p>Retain.</p>
<p>The fishery is currently divided into, and managed in 3 Zones, Zones A, B and C.</p>	<p>Abolish zones although spatial controls for some areas might remain.</p> <p>In considering the move to a single zone for the fishery it is recognized that the catching sector has historically targeted periods of low price/high catch rate and experience from other fisheries has shown that this fishing pattern might persist for some time after a move to QMS. Considering this, it is recommended that the zones, which restrict movement of the fleet, should be removed but other spatial management tools may be required initially, especially for the Abrolhos Islands region. Temporal closures are ideally suited for this but should be based on analysis of economic impacts of alternatives. Evaluating the ideal timing of closed seasons within fishing years is therefore a new research need.</p>
<p>The season which provides restricted early access to the Big Bank area (for the migratory run) commences on 10 February and ceases on the last day of February. Big Bank then opens to all A and B Zone fishers on 1 March (noting that Zone A fishers can only fish in Zone A from 15 March).</p>	<p>Move to a temporary spatial closure, subject to a review of whether Big Bank is a significant area in maintaining spawning stock and subsequent puerulus settlement, AND whether it is possible to achieve the same level of spawning stock protection through the TAC setting process.</p>
<p>A 20 fathom line (36.6m) or 9 nautical miles from the HWM of the mainland rule restricts the area of operation of holders of Zone A</p>	<p>Remove.</p>







