

NATIONAL ROCK LOBSTER MANAGEMENT GROUP



PRIVATE BAG 24-901
WELLINGTON
NEW ZEALAND

04-385 4005 ph
04-385 2727 fax
lobster@seafood.co.nz

SUPPLEMENTARY ADVICE – CRA 7 AND CRA 8 REVIEW OF SUSTAINABILITY MEASURES

Purpose

- 1 This year on 20th February, the National Rock Lobster Management Group (NRLMG) sent you two separate advice papers for your attention and decision:
 - Review of the NSS (CRA 7 and CRA 8) Management Procedure – Final Advice
 - Rock Lobster (CRA 7 and CRA 8) – Final Advice
- 2 This paper provides you with supplementary advice on the current stock levels and their relationship to the biomass that can produce the maximum sustainable yield, B_{MSY} , for CRA 7 and CRA 8 to inform your decision making on these papers.

Background

- 3 The NRLMG is the primary source of advice to the Minister of Fisheries on New Zealand rock lobster fisheries.
- 4 On 20th February, the NRLMG provided you with final advice on CRA 7 and CRA 8 (attached as Appendix 1). The final advice recommended that you:
 - adopt separate new management procedures for CRA 7 and CRA 8; and
 - increase Total Allowable Catches (TACs) and Total Allowable Commercial Catches (TACCs) for CRA 7 and CRA 8.
- 5 On 22nd February, NRLMG chair, Kevin Stokes, together with Leigh Mitchell from the Ministry of Fisheries (the Ministry), met with you and your advisors to explain the advice. The NRLMG's understanding at that time was that the advice was in good order and legally secure.

- 6 Also on 22nd February, the High Court released its judgment on the ORH 1 orange roughy case. Central to that judgment was a ruling that s13(2) of the Fisheries Act (1996) requires an assessment of both the current stock level and its relationship to B_{MSY} . The Ministry considers that the judgment, although somewhat unclear as to the acceptability of “proxies” for B_{MSY} , appears to oblige advice which explicitly links the current stock status to B_{MSY} .
- 7 Since the judgment, the Ministry has reviewed all current s13 TAC-setting advice papers for consistency with the judgment. On 6th March, the Ministry sent a letter to the NRLMG noting that the final advice on CRA 7 and CRA 8 does not appear to meet the s13 requirements as set out in the judgment and that it had advised you to defer considering the proposed CRA 7 and CRA 8 sustainability measures.

Management of Rock Lobster Stock Levels - B_{REF}

- 8 As noted in the NRLMG Final Advice provided to you on 20th February, targets called “ B_{REF} ” are used to guide management actions in most rock lobster fisheries. The B_{REF} targets are empirical proxies for B_{MSY} , that is, B_{REF} s are based on long-term fishery data and represent “a good place to be”.
- 9 B_{REF} values are not chosen arbitrarily. For CRA 7 and CRA 8, B_{REF} is a measure of the average biomass legally available to the fishery for the period 1979/80 to 1981/82. Over this period, both CRA 7 and CRA 8 fisheries showed good productivity and the biomass was demonstrably safe. Commercial catch rates at that time, which are assumed to reflect biomass, were the highest observed until the 2006/07 fishing year.
- 10 The B_{REF} values for CRA 7 and CRA 8 have been accepted by the Rock Lobster Fisheries Assessment Working Group (RLFAWG) as suitable B_{MSY} alternatives since 2002.

Current Stock Levels and B_{MSY}

- 11 The central issue arising from the ORH 1 judgment is the relationship between current biomass and B_{MSY} .
- 12 The NRLMG’s final advice provided you with information comparing current biomasses for CRA 7 and CRA 8 and their respective B_{REF} s. The final advice did not provide you with information on either the relationship between B_{REF} and B_{MSY} or the relationship between current biomass and B_{MSY} , except to note that estimates of B_{MSY} were not directly available for rock lobster stocks at this time.
- 13 In providing this supplementary advice, the NRLMG seeks to provide you with all information at its disposal relating to current biomasses and estimates of biomasses that result in the maximum sustainable yields.

Current and Projected Biomass

- 14 Estimates of current biomass for rock lobster are expressed in terms of the fishable or “vulnerable” biomass because minimum size limits apply to commercial and recreational rock lobster fisheries. Stock assessments for CRA 7 and CRA 8 were conducted in 2006 and were accepted by the RLFAWG. The assessments concluded that stock levels in both CRA 7 and CRA 8 exceeded their respective B_{REFS} and were at the highest levels observed in over 30 years.
- 15 For CRA 7, the stock assessment estimated 2005/06 vulnerable biomass at 550 t, which is 170% B_{REF} . For CRA 8, the stock assessment estimated 2005/06 vulnerable biomass as 3300 t, which is 120% B_{REF} .
- 16 Projections over 20 years indicate the CRA 7 management procedure proposed in the NRLMG’s final advice would result in a mean biomass of about 150% B_{REF} . Projections over 20 years indicate the CRA 8 management procedure proposed in the NRLMG’s final advice would result in a mean biomass of about 200% B_{REF} .

B_{MSY}

- 17 B_{MSY} - the stock level or biomass that results in the maximum sustainable yield - is a theoretical concept.
- 18 The Fisheries Act 1996 defines maximum sustainable yield in the following way:

“Maximum sustainable yield, in relation to any stock, means the greatest yield that can be achieved over time while maintaining the stock’s reproductive capacity, having regard to the population dynamics of the stock and any environmental factors that influence the stock.”

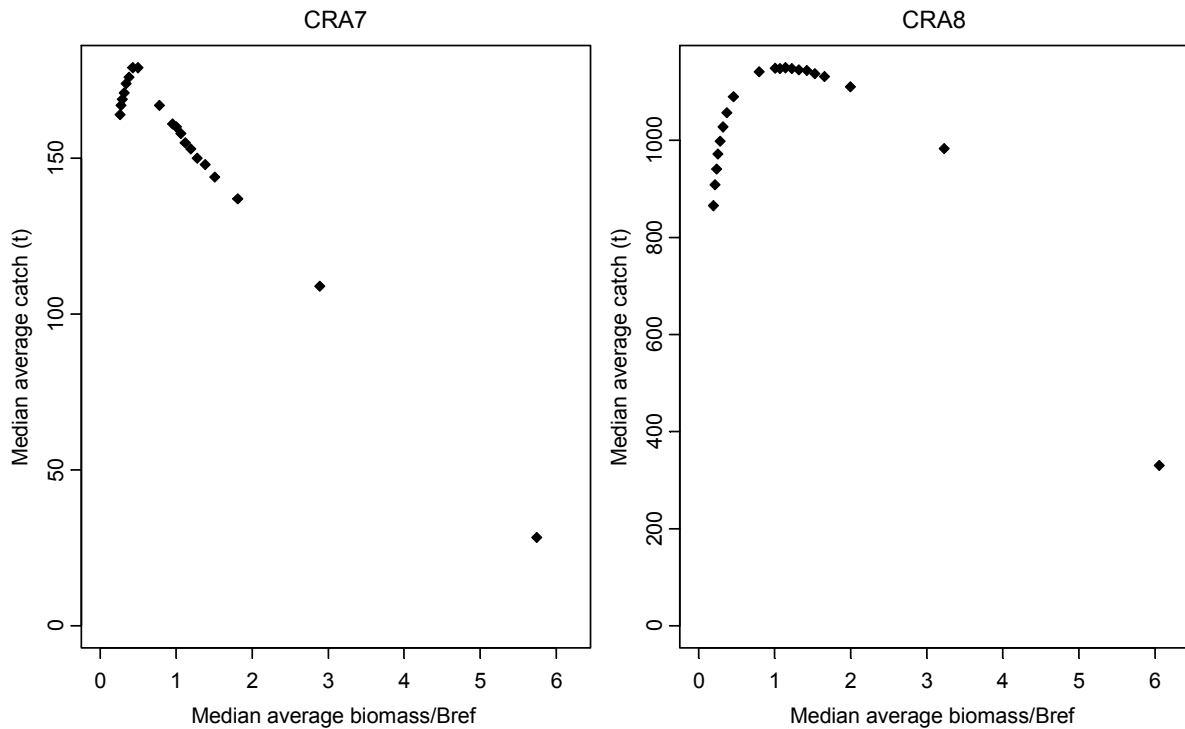
- 19 The NRLMG notes that many scientists (e.g. Francis, 1999) have observed that B_{MSY} will vary depending on the harvest strategy adopted and that the Fisheries Act does not provide specific guidance on an appropriate harvest strategy to adopt when estimating B_{MSY} to guide decision making.
- 20 During a recent review of New Zealand’s B_{MSY} -related reference points, an independent review panel recommended adoption of a specific reference definition to provide such guidance, and used the following reference definition for its own considerations:

“ B_{MSY} is the long-term average size of the stock, measured in terms of spawning biomass or other appropriate units that would be achieved under a constant fishing mortality rate (F_{MSY}) that produces maximum average yield over the long term (MSY).”

- 21 When developing the CRA 7 and CRA 8 management procedures, the stock assessment team calculated estimates of median average yield for a wide range of possible constant fishing mortality rate scenarios. Plots of

these yields are shown in Figure 1. The analysis provides a method of identifying an estimate of the average biomass at which yield was maximised (i.e., B_{MSY}) consistent with the B_{MSY} definition above.

- 22 Using the calculations described in the previous paragraph, for CRA 7, the estimated median average yield was maximised at a median biomass of 43% B_{REF} . For CRA 8, estimated median average yield was maximised at a median biomass of 114% B_{REF} .



- 23 The NRLMG notes the evaluations were completed using a version of the operating model that was subsequently modified for final analyses. The stock assessment team expects that detailed results would vary if the final version of the stock assessment operating model was used, but that the variations would be small and would not significantly affect the inferences drawn in this paper.

Current biomass relative to B_{MSY}

- 24 Thus, current biomasses for CRA 7 and CRA 8, are greater than the estimates of B_{MSY} , when a constant fishing mortality rate is applied (refer Table 1).
- 25 The NRLMG notes that the long-term average biomasses that would result from application of the management procedures the NRLMG recommends you adopt to guide TAC-setting in CRA 7 and CRA 8 (refer Table 1) are also greater than the estimates of B_{MSY} .

Stock	Current (2005/06) biomass	Estimated B_{MSY}^1	Long-term average biomass resulting from application of the recommended CRA 7 & CRA 8 management procedures
CRA 7	1.70 B_{REF}	0.43 B_{REF}	1.50 B_{REF}
CRA 8	1.20 B_{REF}	1.14 B_{REF}	2.00 B_{REF}

Conclusions

- 26 The results of the 2006 stock assessment show that current stock levels in CRA 7 and CRA 8 are greater than the estimated B_{MSY} , when a constant fishing mortality rate strategy is applied.
- 27 The assessments of the performance of the management procedures the NRLMG recommended that you adopt to guide TAC-setting in CRA 7 and CRA 8 show that both management procedures would also result in median average biomasses greater than the estimates of B_{MSY} .
- 28 Section 13(2)(c) of the Fisheries Act 1996 states that the Minister shall set a TAC that enables the level of any stock whose current level is above that which can produce the maximum sustainable yield to be altered in a way and at a rate that will result in the stock moving towards or above a level that can produce the maximum sustainable yield, having regard to the interdependence of stocks.
- 29 Based on the above analyses, the NRLMG considers that adopting the new management procedures, and using the output of the management procedures to set TACs for CRA 7 and CRA 8, is consistent with your obligation under s13(2)(c) of the Fisheries Act 1996.

Recommendations

- 30 The NRLMG recommends that you:
- a) **Note** the contents of this paper; and
 - b) **Note** the contents of the NRLMG's Final Advice attached as Appendix 1; and

In respect of management procedures for CRA 7 and CRA8:

- c) **agree** to adopt separate new management procedures to guide TAC setting in CRA 7 and CRA 8 (NRLMG recommended option).

¹ See paragraph 21

OR

- d) **agree** to continue to use the 2002 NSS Management Procedure to guide TAC setting in CRA 7 and CRA 8.

Note, if you choose option (c) above, a review of the management procedures will be conducted in 2012.

Note, if you choose option (d) above, the NRLMG will endeavour to schedule further investigation of management procedures for CRA 7 and CRA 8 and will update you in December 2008.

In respect of sustainability measures (TACs, TACCs and allowances):

For CRA 7:

- e) **AGREE** to be guided by the new CRA 7 Management Procedure and:

increase the CRA 7 TAC from 140.20 tonnes to 143.88 tonnes effective 1 April 2008;

AND

- (i) Increase the CRA 7 TACC from 120.20 tonnes to 123.88 tonnes (NRLMG recommended option);

OR

- (ii) Pro rate the increased TAC across the TACC and the allowances for customary, recreational and other sources of fishing related mortality.

OR

- f) **AGREE** to be guided by the 2002 NSS Management Procedure and:

Increase the CRA 7 TAC from 140.20 tonnes to 175.25 tonnes effective 1 April 2008;

AND

- (i) Increase the CRA 7 TACC from 120.20 tonnes to 155.25 tonnes;

OR

- (ii) Pro rate the increased TAC across the TACC and the allowances for customary, recreational and other sources of fishing related mortality

For CRA 8:

- g) **AGREE** to be guided by the CRA 8 Management Procedure and:

Increase the CRA 8 TAC from 842.20 tonnes to 1053.00 tonnes effective 1 April 2008;

AND

- (i) Increase the CRA 8 TACC from 755.20 tonnes to 966.00 tonnes (NRLMG recommended option);

OR

- (ii) Pro rate the increased TAC across the TACC and the allowances for customary, recreational and other sources of fishing related mortality

OR

- h) **AGREE** to be guided by the 2002 NSS Management Procedure and:

Increase the CRA 8 TAC from 842.20 tonnes to 1052.75 tonnes effective 1 April 2008;

AND

- (i) Increase the CRA 8 TACC from 755.20 tonnes to 965.75 tonnes;

OR

- (ii) Pro rate the increased TAC across the TACC and the allowances for customary, recreational and other sources of fishing related mortality

Kevin Stokes

Chair, National Rock Lobster Management Group

Hon Jim Anderton
Minister of Fisheries

/ /2006