

PUBLIC CONSULTATION DOCUMENT

CRA 7 (OTAGO) AND CRA 8 (SOUTHLAND) ROCK LOBSTER FISHERIES

CONSULTATION 1: REVIEW OF MANAGEMENT PROCEDURES FOR CRA 7 AND CRA 8

CONSULTATION 2: SUSTAINABILITY DECISIONS FOR CRA 7 AND CRA 8

12 DECEMBER 2007

1. REVIEW OF THE NSS (CRA 7 AND CRA 8) MANAGEMENT PROCEDURES

PURPOSE

1. This paper presents the National Rock Lobster Management Group (NRLMG) initial advice on management procedures to guide Total Allowable Catch (TAC) and sustainability decisions for CRA 7 (the Otago rock lobster fishery) and CRA 8 (the Southern rock lobster fishery).

EXECUTIVE SUMMARY

2. The NRLMG proposes adopting new and separate management procedures for CRA 7 and CRA 8. The new management procedures are designed to ensure ongoing sustainability of the fisheries in CRA 7 and CRA 8.
3. The 2002 NSS Management Procedure, which has been used since 2002 to guide TAC setting for both CRA 7 and CRA 8, was designed to rebuild the stocks to a specific target level, using standardised commercial catch per unit effort (CPUE) as the agreed indicator within a specified number of years. The target CPUE has been achieved early, and a review of the 2002 NSS Management Procedure conducted in 2007 has concluded that the procedure is unsuitable as a tool for maintaining the stock above the target level.
4. Key factors considered relevant to your decision on whether to adopt the proposed management procedures for CRA 7 and CRA 8 are as follows:
 - a) the current NSS management procedure is demonstrably unsuitable as a tool for maintaining the stocks above the target level: in evaluations, lags caused by the structure of the management procedure and its subsequent application resulted in unstable oscillations in the TAC and consequently in the stock,
 - b) the proposed CRA 7 and CRA 8 management procedures meet statutory sustainability criteria,
 - c) the proposed CRA 7 and CRA 8 management procedures are expected to maintain stocks well above statutory target levels with high probability, and therefore to maintain good fishing opportunities for all sectors,
 - d) the proposed CRA 7 management procedure gives greater confidence to TAC setting in CRA 7: whereas the 2002 NSS Management Procedure uses CRA 8 data to guide TAC setting for both CRA 7 and CRA 8, the CRA 7 management procedure would use CRA 7 data to guide TAC setting in CRA 7, and
 - e) the proposed CRA 7 and CRA 8 management procedures are much simpler for stakeholders to understand.

TERMINOLOGY: MANAGEMENT PROCEDURES

5. An operational management procedure is a tool used to guide the TAC setting process. Management procedures are becoming more and more widely used, especially in South Africa and North America.
6. A management procedure:

- a) specifies what data will be used to make TAC decisions,
 - b) specifies how the data will be collected, groomed and analysed,
 - c) contains a harvest control rule, and
 - d) has been extensively simulation-tested using an operating model that is a model of the fishery system being managed.
7. A harvest control rule is a mathematical specification that determines, for any possible data input(s), what the specific output of the management procedure will be, such as the exact TAC.
8. Under the management procedure approach, agreement is obtained among managers and stakeholders when the management procedure is designed: they agree about the data inputs, the harvest control rule and the period for which the management procedure will be used. Extensive simulation testing of the management procedure is necessary to ensure that it will deliver the desired stock behaviour.
9. The advantages of a management procedure approach, over the conventional approach of periodic stock assessments followed by decision making, are:
- a) the process leads to explicit definition of management objectives,
 - b) all participants in the fishery can become involved in the choice of rule,
 - c) managers and participants are forced to take a longer-term view,
 - d) uncertainty in all facets of the assessment and management process can be addressed,
 - e) management procedures can be developed that are robust to uncertainty,
 - f) greater certainty is provided for outcomes,
 - g) management procedures reduce the need for regular stock assessments, freeing resources for other research, and
 - h) the process is more understandable to fishers than the conventional approach.
10. Once managers and stakeholders have agreed upon a management procedure, it should be used until either the agreed shelf life of the rule has expired or the rule's assumptions have obviously become violated.

SUMMARY OF OPTIONS

11. The following management procedure options are proposed for CRA 7 and CRA 8:

Option	Description
OPTION 1	Continue to use the 2002 NSS Management Procedure to guide TAC setting in CRA 7 and CRA 8 (<i>status quo</i>)
OPTION 2	Agree to use separate new management procedures (described below) to guide TAC setting in CRA 7 and CRA 8

OPTION 1 – Continue to use the 2002 NSS management procedure (status quo)

12. Under Option 1, the 2002 NSS Management Procedure would continue to guide TAC setting for CRA 7 and CRA 8.
13. A management procedure to guide TAC setting in the NSS (CRA 7 and CRA 8) fisheries was first proposed by the NRLMG and accepted by the Minister of Fisheries in 1996. The management procedure was reviewed, revised, and again accepted by the Minister in 2002. The specifications of the 2002 NSS Management Procedure are described in *Attachment 1*, and in the Mid-Year Stock Assessment Plenary report (Annex 2 of the NRLMG 2007 Annual Report)
14. Both the 1996 and 2002 NSS Management Procedures were “rebuilding” procedures designed to achieve a specific target CPUE within a specified number of years. Both management procedures recommended percentage TAC adjustments in response to changes in the agreed abundance indicator, standardised commercial CRA 8 CPUE. The 1996 NSS management procedure resulted in TAC and TACC decreases in 1999 and 2001, and the 2002 NSS Management Procedure resulted in TAC increases in 2004 and 2006.
15. The harvest control rule within the 2002 NSS Management Procedure uses only CRA 8 data to determine TACs for both CRA 7 and CRA 8. The harvest control rule evaluates how well the observed CRA 8 CPUE tracks the rebuilding trajectory (through a “status” indicator) and how well the CPUE trend compares with the increasing target trajectory (through a “gradient” indicator).

OPTION 2 – Agree to use new and separate management procedures

16. Under Option 2, separate new management procedures for CRA 7 and CRA 8 would be used to guide TAC setting decisions in CRA 7 and CRA 8. The specifications of the proposed management procedures are set out in *Attachment 1*. The different specifications for CRA 7 and CRA 8 reflect the different characteristics of the two stocks and the different objectives identified by stakeholders.
17. Whereas the 2002 NSS Management Procedure was designed to increase stock sizes in CRA 7 and CRA 8, the separate CRA7 and CRA 8 management procedures are designed to maintain stock sizes at levels that ensure statutory sustainability criteria are met.
18. The CRA 7 management procedure uses CRA 7 data and recommends TACs based on the standardised CPUE over a specified 12 month period. Likewise, the CRA 8 management procedure uses CRA 8 data and recommends TACs based on the standardised CPUE over a specified 12 month period.

RATIONALE FOR MANAGEMENT OPTIONS

19. The management objective of the 2002 NSS Management Procedure is to achieve a target CRA 8 standardised CPUE of 1.9 kg/potlift. The agreed application period for the management procedure ends in 2015.
20. Adoption of the 2002 NSS Management Procedure included an agreement that it would be reviewed after five years. The NRLMG agreed that Objective 4 of the CRA2006-01 research contract would be used in 2007 to conduct a review of the NSS management procedure. The review began in early 2007 and was carried out by the rock lobster stock assessment team.

21. A plot of the observed standardised CRA 8 CPUE indices compared with the agreed CRA 8 rebuilding trajectory is provided in *Figure 1*. The plot shows that the CRA 8 CPUE index for 2006 is considerably higher than the index calculated for 2005, and well above the target CRA 8 CPUE of 1.9kg/potlift, indicating the target CPUE has been met early.

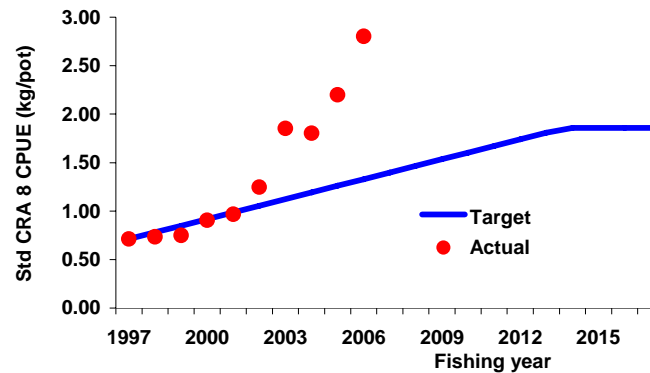


Figure 1: *CRA 8 CPUE indices and the 2002 NSS management procedure's target rebuild trajectory*

22. The review of the 2002 NSS Management Procedure found it to be unsuitable as a tool for maintaining the stocks above the target level. Consequently, it was necessary for the review team to identify alternative management procedures.

ASSESSMENT OF MANAGEMENT OPTIONS

Option 1 – Continue to use the 2002 NSS management procedure (status quo)

23. As noted above, the management objective of the 2002 NSS Management Procedure has been achieved and the procedure is considered unsuitable as a tool for maintaining the stocks above the target level. Extensive simulation modelling of the management procedure showed that time lags caused by the structure of the 2002 NSS Management Procedure and its application resulted in unstable oscillations in the TAC, and consequently in the stock.
24. Option 1 is therefore a suitable option only if you consider the management procedures described in Option 2 to be unsuitable. Under Option 1, the 2002 NSS Management Procedure would be used to guide TAC setting for CRA 7 and CRA 8 for the 2008-09 fishing year, consistent with the agreed duration of the rule. However, because the 2002 NSS Management Procedure is unsuitable for use in the long term, further advice on alternatives to the recommended CRA 7 and CRA 8 management procedures would be developed in 2008.

Option 2 – Agree to use new and separate management procedures

25. The primary management objective of the proposed CRA 7 and CRA 8 management procedures is to maintain stock size at a level that ensures statutory sustainability criteria are met.
26. Rock lobster stocks are managed under s 13 of the Act. Under s 13 there is a requirement to maintain the stock at a target stock level, which is at or above the level that can produce the maximum sustainable yield (MSY). MSY is defined as the greatest yield that can be achieved over time while maintaining the stock's productive capacity. The stock level that can produce MSY is referred to as *Bmsy*.

27. Estimates of *Bmsy* are not directly available for rock lobster stocks. Instead proxy targets called reference levels, or *Bref*, are used. *Bref* is the average biomass that was legally available to the fishery (vulnerable biomass) from a specified reference period. In stock assessments, the Rock Lobster Fisheries Assessment Working Group (RLFAWG) compares the status of the stock relative to *Bref* and relative to a minimum stock level indicator referred to as *Bmin*.
28. The accepted target *Bref* for each stock is the average vulnerable biomass from 1979-80 through 1981-82. Over this period both fisheries showed good productivity, and biomass was demonstrably safe. Further, the CPUE indices for these three years were higher than at any subsequent time until the 2006-07 fishing year. *Bmin* is defined as one-half *Bref* for both stocks.
29. Sustainability criteria previously accepted in stock assessments for rock lobster stocks are that biomass should exceed *Bref* at least 50% of the time, and that biomass should exceed *Bmin* 95% of the time. The proposed CRA 7 and CRA 8 management procedures meet these sustainability criteria.
30. Under the proposed CRA 7 management procedure, base case model projections over 20 years indicated the average biomass would be roughly 150% of *Bref*, and the stock would stay above *Bref* with 80% probability and above *Bmin* with 99% probability.
31. Under the proposed CRA 8 management procedure, base case model projections over 20 years indicated the average biomass would be more than twice *Bref*, and the stock would stay above *Bref* with 99% probability and above *Bmin* in all runs of the trial.
32. Sensitivity trials were undertaken to assess the robustness of the management procedures to possible problems in the operating model. In the worst management procedure sensitivity trial for CRA 7, the stock stayed above *Bref* with 67% probability and above *Bmin* with 96% probability. In the worst management procedure sensitivity trial for CRA 8, the stock remained above *Bref* with 87% probability and above *Bmin* 100% of the time.
33. The CRA 7 and CRA 8 management procedures are both conservative management procedures. These rules were chosen, from a large number that were evaluated, after examining performance against a number of criteria, as described by Bentley *et al* (2003). As well as maintaining safe stock levels, they allow reasonable average catches to be taken from stocks with good average CPUE.
34. To ensure responsiveness to changes in stock size, the CRA 7 and CRA 8 management procedures would be operated annually and would use standardised CPUE from the most recent fishing periods: the autumn–winter season of the current fishing year and the spring–summer season of the previous fishing year.
35. An additional objective specified by CRA 7 commercial stakeholders was greater confidence in the relevance of the management procedure to CRA 7. Whereas the 2002 NSS Management Procedure uses only CRA 8 data to guide TAC setting for both CRA 7 and CRA 8, the CRA 7 management procedure uses CRA 7 data to guide TAC setting in CRA 7.
36. An additional objective specified by the CRA 8 commercial stakeholders was high catch stability. The CRA 8 management procedure features a “plateau”, which delivers catch stability by holding the TAC constant over a range of CPUE values. The management procedure is conservative: TAC does not increase as CPUE rises in the range of the plateau, increases slowly when CPUE rises above a threshold and decreases quickly when CPUE falls below a threshold.

37. The NRLMG notes that the CRA 7 and CRA 8 management procedures are expected to maintain stocks well above *Bmsy*, and therefore maintain good fishing opportunities for all sectors. These management procedures are also much simpler for stakeholders to understand than the 2002 NSS Management Procedure.

STATUTORY CONSIDERATIONS

38. The following statutory considerations have been taken into account when forming the management options for CRA 7 and CRA 8:

Purpose of the Act (s 8)

39. The purpose of the Fisheries Act 1996 (the Act) is to provide for the utilisation of fisheries resources while ensuring sustainability.
40. Utilisation is defined in the Act as conserving, using, enhancing, and developing fisheries resources to enable people to provide for their social, economic and cultural well-being. The options presented recognise the development potential of the fisheries and create the potential for people to provide better for their cultural, social, and economic wellbeing.
41. Ensuring sustainability means to maintain the potential of fisheries resources to meet the reasonably foreseeable needs of future generations; and avoiding, remedying or mitigating any adverse effects on the aquatic environment. The effects of the options presented on stock sustainability have been extensively tested. Results from the testing have been reported and considered in this paper. Effects of the options on the aquatic environment are considered below under *Environmental considerations*.

Total Allowable Catch (s 13)

42. Rock lobster stocks are managed under s 13 of the Act. Under s 13 there is a requirement to move the stock towards a level or maintain it at a level that is at or above *Bmsy*.
43. The 2002 NSS Management Procedure (Option 1) has been effective as a tool to move the stock towards a level at or above *Bref* (the proxy for *Bmsy*) but a review of the procedure indicates it is unsuitable as a tool to maintain stocks above this target level. Should you choose to retain the 2002 NSS Management Procedure at this time, the NRLMG will undertake further analysis and provide further advice in 2008.
44. The proposed CRA 7 and CRA 8 management procedures are designed to maintain stock size at a level that ensures statutory sustainability criteria are met. Under the proposed CRA 7 management procedure, base case model projections over 20 years indicate the mean biomass would be roughly 150% of *Bref*, and the stock would stay above *Bref* with 80% probability and above *Bmin* with 99% probability. Under the proposed CRA 8 decision rules, the average biomass was more than twice *Bref*, and the stock remained above *Bref* with 99% probability and above *Bmin* in all runs of the trial.
45. The interdependence of stocks was explicitly considered when the proposed CRA 7 and CRA 8 management procedures were evaluated. Movements of lobsters from CRA 7 to CRA 8 were estimated by the stock assessment model and simulated in the operating model projections.
46. Additionally, a small range of species are caught in the target potting fishery for CRA 7 and CRA 8. Known incidental catch species in rock lobster fisheries are octopus, conger eel, and some finfish species such as sea perch. There is no information available at this time to suggest

that the interdependence of stocks would affect the operation of the management procedures for CRA 7 or CRA 8.

Environmental considerations (s 9)

47. **Section 9(a)** provides that decision-makers must take into account the principle that associated or dependent species (non-harvested species) should be maintained above a level that ensures their long-term viability. There are no known interactions between the existing CRA 7 and CRA 8 potting fisheries and non-harvested species that are of concern or specific to the CRA 7 and CRA 8 fisheries.
48. **Section 9(b)** provides that decision-makers must take into account the principle that the biological diversity of the aquatic environment should be maintained. Potting is the only commercial fishing method used to harvest rock lobsters in CRA 7 and CRA 8. There are no known impacts on biodiversity that are specific to these fisheries.
49. **Section 9(c)** provides that decision-makers must take into account the principle that habitats of particular significance to fisheries management should be protected. The NRLMG notes that identified habitats of significance have already been provided protection through mechanisms such as the Fiordland Marine Management Act 2005, which prohibits all commercial fishing within the internal waters of Fiordland and introduces protection in an area that is recognised as being internationally important. No other habitats of particular significance to fisheries management have been identified that might be affected by potting for rock lobster in CRA 7 and CRA 8.

International Obligations and Treaty of Waitangi Settlement Act 1992 (s 5)

50. There are a wide range of international obligations relating to fishing (including sustainability and utilisation of fishstocks and maintaining biodiversity). The NRLMG is not aware of any issues concerning New Zealand's international obligations and the provisions of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 that would be affected by the proposed management procedures.
51. The NRLMG recognises that rock lobster (koura) is an important taonga species, and notes that the proposed CRA 7 and CRA 8 management procedures are expected to maintain stocks well above *Bmsy*, and therefore to maintain good fishing opportunities for all sectors. The 2002 NSS Management Procedure poses a higher risk to stock and catch levels over the long term. Should you choose this option, the risk is mitigated by the NRLMG commitment to undertake further analysis and provide further advice in 2008.

Sustainability Measures (s 11)

52. **Section 11(1) (a)**: The Minister must take into account any affects of fishing on any stock and the aquatic environment in his decision. Potting is the only fishing method used to target rock lobsters in the CRA 7 and CRA 8 commercial fisheries. Little is known about impacts of potting on the aquatic environment in New Zealand, however Australian research suggests there is little impact of potting on seaweed and other benthic communities, including fragile coral reef ecology. Consequently, the NRLMG considers that the proposed management procedure options are unlikely to have any affects of fishing on any stock or the aquatic environment.
53. **Section 11(1) (b)**: The Minister must in his decision take into account any existing controls that apply to the stock. Apart from the existing TAC, TACC and allowances, other important existing fisheries management controls for CRA 7 and CRA 8 include the following:

- a) In CRA 7, the commercial minimum legal size (MLS) for rock lobster is 127 mm tail length (TL);
 - b) In CRA 8, the commercial MLS for rock lobster is 54 mm tail width (TW) for males, and 57 mm TW for females;
 - c) In both CRA 7 and CRA 8, the recreational MLS for rock lobster is 54 mm TW for males and 60 mm TW for females;
 - d) In recreational and commercial fisheries, egg-bearing females are protected and must be returned to the sea;
 - e) In both CRA 7 and CRA 8, a daily bag limit of 6 rock lobsters per person applies to recreational fishers;
 - f) Method restrictions exist for both commercial (potting only) and recreational (a range of methods are specified in the regulations) fishers;
 - g) Escape gaps are required in lobster pots to allow under-sized lobsters to escape easily;
 - h) In both CRA 7 and CRA 8, a recreational pot limit of 3 pots per person and 6 pots per vessel applies;
 - i) The CRA 7 fishery is currently closed to commercial fishers from November 20th to June 19th inclusive;
 - j) An area in CRA 7 (the “buffer zone”) is closed to commercial fishing;
 - k) Customary fishing in both CRA 7 and CRA 8 is managed under the Fisheries (South Island Customary Fishing) Regulations 1999.
54. The proposed options for management procedures are unlikely to affect the operation of these measures. However, industry reports that the closed season in CRA 7 may limit the ability of commercial fishers to harvest a CRA 7 TACC proposed by either option presented, if the CRA 7 TACC increases beyond its current level. A proposal to extend the CRA 7 commercial season is currently in the MFish internal prioritisation process.
55. **Section 11(1) (c):** The Minister must in his decision take into account the natural variability of the stock. Recruitment into rock lobster stocks is highly variable. This variability was taken into account by the RLFAWG and the NRLMG when developing and testing the 2002 NSS Management Procedure and the separate new management procedures for CRA 7 and CRA 8. These new management procedures have been extensively tested to ensure that they will minimise the risks to sustainability of the stock, including risks arising from natural variability in the stock, while providing for utilisation.
56. **Section 11(2) (a) & 11(2) (b):** There are no provisions applicable to the coastal marine area known to exist in any policy statement or plan under the Resource Management Act 1991, or any management strategy or plan under the Conservation Act 1987, that are relevant to the setting or varying of any sustainability measure for CRA 7 and CRA 8.
57. **Section 11(2) (c):** CRA 7 and CRA 8 fisheries do not intersect with the Hauraki Gulf Marine Park; therefore there are no relevant considerations under the Hauraki Marine Park Act 2000.

58. **Sections 11(2A)(a) & 11(2A)(c):** Before setting or varying any sustainability measure the Minister must take into account any conservation or fisheries services, or any decision not to require such services. The NRLMG does not consider that existing or proposed services materially affect the operation of the proposed management procedures and resulting TAC increases. No decision has been made not to require a service that would be relevant to the CRA 7 and CRA 8 fisheries.
59. **Section 11(2A) (b):** A fishery plan could provide another mechanism through which to explore the potential of the CRA 7 and CRA 8 fishery and implement sustainability measures. The NRLMG are aware of MFish's intent to incorporate all fishstocks into fisheries plans over the next five years. It is likely that CRA 7 and CRA 8 would be included in a fisheries plan, however at present no such plan has commenced.
60. **Section 21(1) (a & b) and 4) (i & ii) and 21(4) (ii) and (5):** the nature of the fishery and the interests of the respective fishing sectors have been considered in the development of the management procedure options. The proposed CRA 7 and CRA 8 management procedures are expected to maintain stocks well above *Bmsy* and therefore deliver good fishing opportunities to all fishery participants.

Information Principles (S 10)

61. **Section 10:** The information principles of the Act require that decisions be based on the best available information, taking into account any uncertainty in that information, and applying caution when information is uncertain, unreliable, or inadequate. The Act also requires that the absence of uncertainty of information should not be used as a reason to postpone, or fail to take, any measure to achieve the purpose of the Act.
62. The information used to evaluate and operate the proposed CRA 7 and CRA 8 management procedures is the best available information. The 2002 NSS Management Procedure uses lesser quantity and less current information (only CRA 8 data are used and the information inputs are less current by 6 months).

OTHER MANAGEMENT ISSUES

63. Operation of either the 2002 NSS Management Procedure (Option 1) or the recommended CRA 7 and CRA 8 management procedures (Option 2) for the 2008-09 fishing year would result in TAC increases for CRA 7 and CRA 8. A separate paper provides you with advice on the TAC adjustments for CRA 7 and CRA 8.

RECOMMENDATIONS

64. The NRLMG recommends that you:

Either

- a) **adopt** the new and separate management procedures to guide TAC setting in CRA 7 and CRA 8 specified in *Attachment 1 (NRLMG preferred option)*

Or

- b) **continue** using the 2002 NSS Management Procedure to guide TAC setting in CRA 7 and CRA 8.

65. Note that if you choose option (a) above, a review should be conducted in 2012; if you choose option (b) above, alternative management procedures for CRA 7 and CRA 8 will be identified and evaluated during 2008.

ATTACHMENT 1:

SPECIFICATIONS OF THE PROPOSED CRA 7 AND CRA 8 MANAGEMENT PROCEDURES

1. Both the CRA 7 and CRA 8 proposed management procedures specify that:
 - a) the output variable is TAC (tonnes) and that standardised CPUE (kg/pot) is to be used as the input variable,
 - b) standardised CPUE is to be based on the autumn–winter (AW: April–September) season of the current fishing year and the spring–summer (SS: October–March) season of the previous fishing year, and
 - c) CPUE is to be standardised according to the recent usage described in annual Fishery Assessment Reports (FARs), using a data extract obtained in November to ensure that sufficient data from the most recent AW season have been entered.

CRA7 Management Procedure Specifications

2. For CRA 7, the proposed management procedure is specified as follows:
 - a) The TAC is to be set at 100 times the standardised CPUE (Figure 1);
 - b) The management procedure is to be evaluated every year (no “latent year”);
 - c) If the procedure results in a TAC that changes by less than 5%, no change will be made; and
 - d) If the procedure results in a TAC that changes by more than 50%, the TAC will be changed by 50% only.

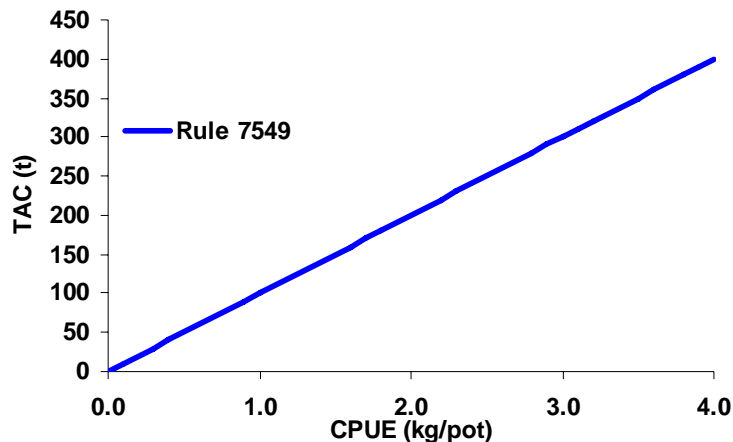


Figure 1: *CRA 7 management procedure*

CRA 8 Management Procedure Specifications

3. For CRA 8, the proposed management procedure is specified as follows:
4. The relation between CPUE, indicated by C_y , and TAC, indicated by T_{y+1} , is given in *Figure.2* and in the equations below:
 - a))

$$T_{y+1} = \begin{cases} h - s_1(p_1 - C_y)\frac{h}{p_1}, & C_y < p_1, \\ h, & p_1 \leq C_y \leq p_2, \\ h + s_2(C_y - p_2)\frac{h}{p_1}, & C_y > p_2. \end{cases}$$

- b) The parameters referred to in the equations above for this management procedure are:

h	p_1	p_2	s_1	s_2
1053	1.9	3.2	1.2	0.16

- c) The management procedure is to be evaluated every year (no “latent year”);
 - d) If the procedure results in a TAC which changes by less than 5%, no change will be made;
 - e) There is no limit to the amount by which a TAC may change.

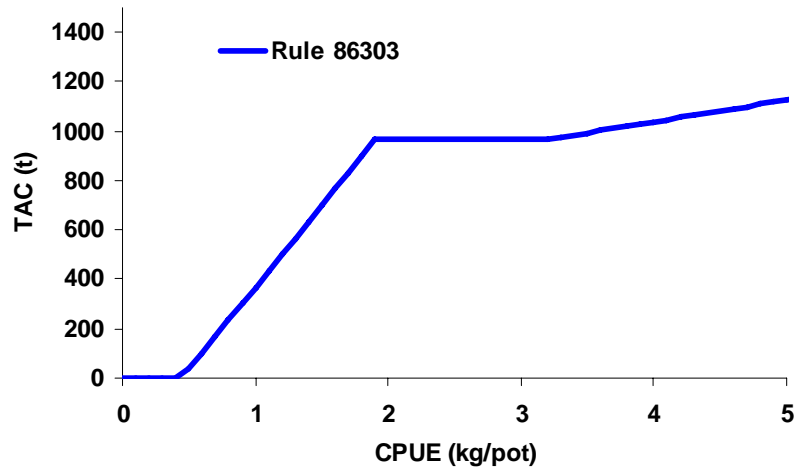


Figure 2: *CRA 8 management procedure*

5. Management procedures should not remain in place for longer than about five years without a review, because in five years the operating model used to evaluate management procedures will be obsolete, and fishery performance should be re-evaluated. Such a review

was written into the 2002 NSS Management Procedure (Bentley *et al.* 2003). The NRLMG recommends that a review of these management procedures take place in 2012.

DEVELOPMENT OF THE PROPOSED CRA 7 AND CRA 8 MANAGEMENT PROCEDURES

6. Adoption of the 2002 management procedure included an agreement that the management procedure would be reviewed in five years' time. The review began in early 2007 and was carried out by the rock lobster stock assessment team.
7. It was accepted at the outset that the review would recommend separate management procedures for CRA 7 and CRA 8, each based on CPUE data from the same fishery.
8. The stock assessment team based their review on the results of the CRA 7 and CRA 8 joint stock assessment that had been undertaken in 2006 using a revised length based model (Haist *et al.* submitted). The assessment model was modified for use as an operating model to make realistic simulations, called forward projections, of the fisheries in CRA 7 and CRA 8.
9. Modifications of the assessment model involved technical changes necessary to simulate the observed variability patterns in recruitment and CPUE, other technical changes resulting from a review of the assessment model conducted in March 2007 by Dr Andre Punt of the University of Washington, and specifications altered from the "base case" version of the model's fits to the data. For instance, movements from CRA 7 to CRA 8 were estimated in the base case operating model while movements were only a sensitivity run in the assessment model.
10. Productivity of the operating model's simulated stocks was cross-checked by the stock assessment team, who used a method proposed by Hilborn (2001) to estimate productivity independently of the length-based model.
11. The stock assessment team altered the way that CPUE is used in the operation of CRA 7 and CRA 8 management procedures, specifically using six months' more recent data than did the 2002 protocol. They proposed to use standardised CPUE from a one-year period that straddled the fishing year and included the most recent data available from the current fishing year. They analysed the quality of data available when using this proposed new protocol, and they used the operating model in a set of trials to explore the effects of the new protocol. These showed better performance from the new protocol. The new protocol was accepted by the NRLMG.
12. Very early during the review, it became evident that the 2002 NSS Management Procedure was unsuitable as a tool for maintaining the stock above the reference level. Lags caused by the structure and application of this management procedure cause unstable oscillations in the TAC and consequently in the stock.
13. It was necessary for the review team to design and test new families of management procedures. After intermediate testing, the team focussed on two management procedures families. The first family, three of whose members were chosen as final candidates for the CRA 7, specified TAC as a simple linear function of CPUE, as illustrated in *Figure 3* below.

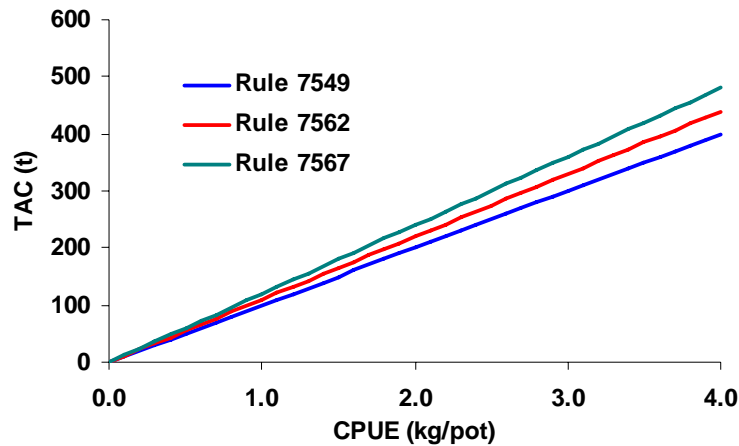


Figure 3: CRA 7 Management Procedure

14. The three management procedures illustrated each have a different slope. Rule 7549 specifies that TAC is 100 times the standardised CPUE, 110 times under Rule 7562 and 120 times under Rule 7567.
15. The second family of management procedures also specifies TAC as a function of the most recent standardised CPUE, but the function is more complex and features a “plateau” on which the specified TAC is constant for a range of CPUE values.

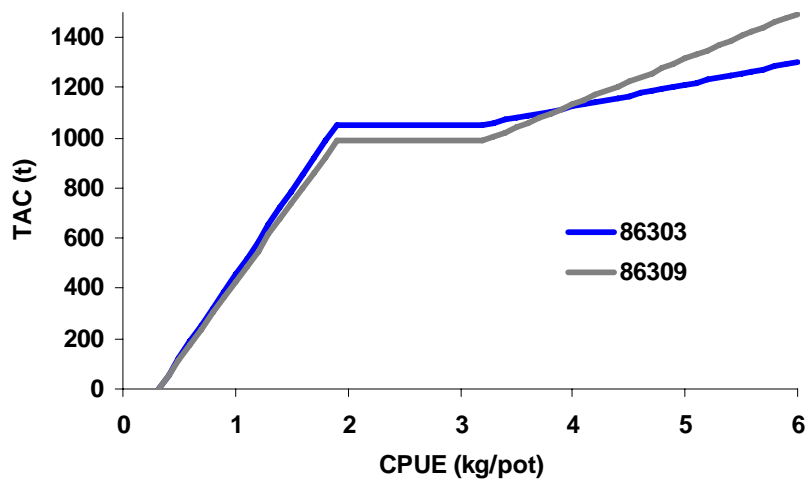


Figure 4: CRA 8 Management Procedure

16. In the examples illustrated above (Figure 4), TAC is zero if CPUE is less than 0.316 kg/pot. The TAC in Rule 86303 then rises with increasing CPUE to a plateau of 1053 t, and remains on that plateau for all values of CPUE between 1.9 and 3.2 kg/pot, and rises again with CPUE over 3.2 kg/pot. Rule 86309 is similar, but the plateau height is 987 t, and the TAC increases more steeply with increasing CPUE above 3.2 kg/pot.
17. These management procedures specify the TAC. In evaluating the management procedures, the stock assessment team simulated TACC by subtracting the current non-commercial catch allowances (20.t and 87 t for CRA 7 and CRA 8 respectively) from the TAC, but in forward

projections used the current levels of non-commercial catches (6.5 and 40.0 t respectively). As in the assessment model, the non-commercial catches were divided into those limited or not limited by the minimum legal size and berried female regulations, and into the spring-summer and autumn-winter seasons.

18. In the review, hundreds of management procedures were defined and evaluated. Evaluation of each management procedure involved 600 simulations, each of 20 years' length. An agreed set of indicators was output from each simulation and summarised over the set of 600. These indicators related to average and minimum biomass, catch limit, catch and CPUE, to average variability in catch limit, and to how frequently biomass had fallen below target and minimum biomass reference levels. Management procedures were evaluated and compared with reference to the suite of indicators for each.
19. The target reference point for biomass, *Bref*, was the agreed proxy for *Bmsy* that was accepted when the 2002 management procedure was accepted, and more recently accepted when the 2006 assessment of CRA 7 and CRA 8 was presented to MFish. For each stock, this is the average biomass from the three fishing years 1979-80 through 1981-82, which are the first years with reliable catch and effort data. In this period the fishery showed good productivity and the biomass level was demonstrably safe: it subsequently declined to lower levels and then recovered. The biomass used is defined as "vulnerable biomass": the pre-season biomass that is legally available and vulnerable to the fishery (i.e., at or above the MLS, excluding berried females, and taking selectivity-at-size and seasonal vulnerability into account).
20. The minimum reference point, *Bmin*, was defined for the review as half *Bref*.
21. Management procedures were initially screened against two criteria: that biomass should exceed *Bref* at least 50% of the time, and that it should exceed *Bmin* 95% of the time. Rules that failed to meet either of these criteria were discarded. In practice, the first criterion was always met if the second criterion was met. This screening removed fewer than half the rules tested.
22. The stock assessment team recognised that the base case operating model might have failings as the basis for 20-year projections. Possible problems include errors in the model (unlikely, given the checking that was carried out, but nevertheless possible), omission of a critical ecological process from the model, misleading data and systematic but unpredictable change in the environment. To ensure that chosen management procedures were robust to such problems, a set of eight sensitivity trials was defined, each being a modification of the base case operating model and involving altered population process, such as recruitment, or altered fishing process, such as increasing catchability of pots.
23. A selection of the satisfactory management procedures was agreed by the NRLMG, and this selection was evaluated in the eight sensitivity trials. The NRLMG then chose two rules for each of CRA 7 and CRA 8, and these were discussed with commercial stakeholders in CRA 7 and CRA 8.

2. SUSTAINABILITY DECISIONS - CRA 7 AND CRA 8

PURPOSE

1. This paper presents the NRLMG initial advice on sustainability measures for CRA 7 (the Otago rock lobster fishery) and CRA 8 (the Southland rock lobster fishery).

EXECUTIVE SUMMARY

2. This paper proposes that you increase the TACs and TACCs for CRA 7 and CRA 8. In setting new TACs for CRA 7 and CRA 8, the NRLMG recommends that you be guided by the proposed new CRA 7 and CRA 8 management procedures discussed in the previous section of this report.
3. The key factors relevant to your decision on whether and how to amend the TACs for CRA 7 and CRA 8 as proposed are as follows:
 - a) Since 1996, Ministers of Fisheries have agreed to use a management procedure to guide TAC setting decisions for CRA 7 and CRA 8. Operation of the 2002 NSS Management Procedure, which has been used since 2002 to guide TAC setting in both CRA 7 and CRA 8, results in TAC increases for CRA 7 and CRA 8 in the 2008/09 fishing year.
 - b) The 2002 NSS Management Procedure was designed to rebuild the stocks to a specified target level (using standardised commercial CPUE as the agreed indicator) within a specified number of years. The target CPUE has been achieved early, and a review of the 2002 NSS management procedure conducted in 2007 found it to be unsuitable as a tool to maintain the stocks above the target level.
 - c) Separate new management procedures have been developed for CRA 7 and CRA 8 and the NRLMG has recommended they be adopted to guide TAC setting in CRA 7 and CRA 8 (refer previous section). Operation of the CRA 7 and CRA 8 Management Procedures results in TAC increases for CRA 7 and CRA 8 in the 2008/09 fishing year.
 - d) A joint stock assessment was conducted for CRA 7 and CRA 8 in 2006. Both stocks were estimated to be above Bmsy and were projected to increase further at current catch levels.
 - e) The NRLMG is satisfied that increasing the TACs for CRA 7 and CRA 8 is consistent with the purpose of the Fisheries Act 1996 (the Act).
4. This paper proposes allocating the new proposed TACs for CRA 7 and CRA 8 by increasing only the TACCs for each stock and leaving the non-commercial allowances unchanged. The key factors relevant to your decision on how to allocate the increased TACs for CRA 7 and CRA 8 are as follows:
 - a) Increased allowances for customary and recreational catches and other sources of fishing-related mortality are probably not required; best available information suggests that existing allowances are not being caught.
 - b) Past decisions to reduce TACs in CRA 7 and CRA 8 to address stock decline did not result in reduced customary or recreational allowances. All the adjustments to the TACs resulted in changes only to the TACCs.

5. It is likely total customary and recreational catches have fluctuated with changing abundance in CRA 7 and CRA 8 since 1996, because abundance affects fishing success. Recreational representatives to the NRLMG have suggested that increased fishing activity may have increased recreational catches to levels beyond the current recreational allowances.
6. The NRLMG has concluded that the best available information on recreational catch in CRA 7 and CRA 8 is still that provided by the working groups and used in the joint stock assessment model for CRA 7 and CRA 8. However, the NRLMG considers that updating recreational catch estimates for CRA 7 and CRA 8 warrants further investigation.

SUMMARY OF OPTIONS

7. The following TAC options are proposed for CRA 7 and CRA 8, *Table 1*:

Stock	Existing TAC (tonnes)	OPTION 1 Proposed TAC operating the new CRA 7 & CRA 8 Management Procedures (tonnes)	OPTION 2 Proposed TAC operating the 2002 NSS Management Procedure (tonnes)
CRA 7	140.16	143.88	175.25
CRA 8	842.24	1053.00	1052.75

Table 1: *TAC Options for CRA 7 and CRA 8*

OPTION 1 – Set TACs based on the operation the CRA 7 and CRA 8 management procedures

8. Option 1 is consistent with the NRLMG advice on management procedures provided in the previous section. Under Option 1, the TACs resulting from operation of the new CRA 7 and CRA 8 management procedures would be adopted for CRA 7 and CRA8 respectively.
9. Under Option 1, the TAC would be allocated by either:
 - a) Increasing the TACCs only; or
 - b) Pro rating the increased catch across all sectors (i.e., increasing all catch allowances by approximately the same percentage amount).

OPTION 2 – Set TACs based on the operation the 2002 NSS Management Procedure

10. Under Option 2, TACs resulting from operation of the 2002 NSS management procedure would be adopted for CRA 7 and CRA 8.
11. Under Option 2, the TAC would be allocated by either:
 - a) Increasing the TACCs only; or
 - b) Pro rating the increased catch across all sectors (i.e., increasing all catch allowances by approximately the same percentage amount).

RATIONALE FOR MANAGEMENT OPTIONS

12. Since 1996, management procedures agreed to by Ministers of Fisheries have been used to guide TAC setting in the CRA 7 and CRA 8 fisheries. Operation of the 2002 NSS Management Procedure results in TAC increases for CRA 7 and CRA 8 in 2008.
13. A review of the 2002 NSS Management Procedure in 2007 found it to be unsuitable as a tool for maintaining the stocks above target reference levels and separate new management procedures have been recommended for guiding TAC setting for CRA 7 and CRA 8 (refer previous section). The operation of these procedures also results in TAC increases for CRA 7 and CRA 8 in 2008.

ASSESSMENT OF MANAGEMENT OPTIONS – TAC SETTING

Current Stock Status

14. Available data on stock status in CRA 7 and CRA 8 indicate stock sizes are above *Bmsy* and trending upwards. The NRLMG therefore considers TAC increases, guided by either the CRA 7 and CRA 8 management procedures or the 2002 NSS Management Procedure, are consistent with the purpose of the Fisheries Act 1996.
15. Rock lobster stocks are managed under s 13 of the Act. Under s 13 there is a requirement to maintain the stock at a target stock level, which is at or above the level that can produce the MSY. MSY is defined as the greatest yield that can be achieved over time while maintaining the stock's productive capacity. The stock level that can produce MSY is referred to as *Bmsy*.
16. Estimates of the *Bmsy* are not directly available for rock lobster stocks. Instead proxy targets called reference levels, or *Bref*, are used. The accepted target *Bref* for each stock is the average vulnerable biomass from 1979/80 through 1981/82. Over this period both fisheries showed good productivity, and biomass was demonstrably safe. Further, the CPUE indices for these three years were higher than at any subsequent time until the 2006/07 fishing year.
17. A joint stock assessment was conducted for CRA 7 and CRA 8 in 2006, using the new multi-stock length-based model. Both stocks were estimated to be above *Bref* and were projected to increase further at the current catch levels.
18. A management procedure was first agreed by the Minister of Fisheries to guide TAC setting in the NSS (CRA 7 and CRA 8) fisheries. The management procedure was reviewed, revised and again agreed by the Minister in 2002 and is referred to as the 2002 NSS Management Procedure.
19. The 2002 NSS Management Procedure was designed to rebuild the stocks to the target stock level (using standardised commercial CRA 8 catch per unit effort (CPUE) as the agreed indicator) within a specified number of years. It recommends percentage TAC adjustments in response to changes in the agreed abundance indicator.
20. *Figure 1* shows a plot of the observed standardised CRA 8 CPUE indices compared with the agreed CRA 8 rebuild trajectory. The plot shows that the CRA 8 CPUE index for 2006 is considerably higher than the indices calculated for 2005, and well above the target CRA 8 CPUE of 1.9kg/potlift, indicating the target stock level has been met early.

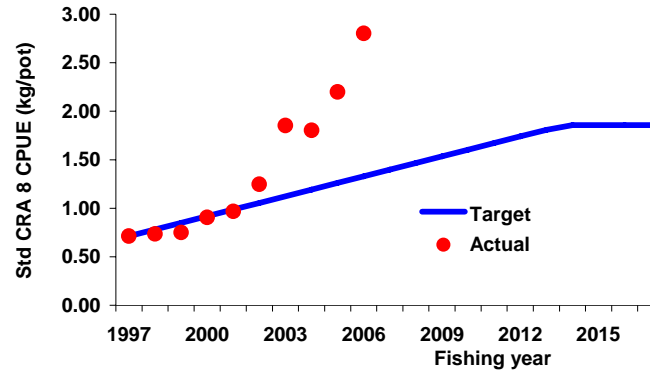


Figure 1: CRA 8 CPUE indices and 2002 NSS management procedure rebuild trajectory (“target”)

Operation of the Management Procedures

21. The NRLMG has recommended separate new management procedures for CRA 7 and CRA 8. The new management procedures are designed to maintain stock sizes at levels that ensure statutory sustainability criteria are met. Both procedures are responsive to stock variability and are expected to maintain stocks well above *Bmsy*, and therefore maintain good fishing opportunities for all sectors (refer previous section).
22. Operation of the CRA 7 Management Procedure results in a smaller TAC increase than operation of the 2002 NSS Management Procedure (Option 2). The NRLMG considers the CRA 7 Management Procedure gives greater confidence to TAC setting in CRA 7 because it uses CRA 7 data and is therefore responsive to stock variability in CRA 7. When informing TAC setting in both CRA 7 and CRA 8, the 2002 NSS Management Procedure uses only CRA 8 data therefore is responsive to stock variability in CRA 8 only.
23. Operation of the CRA 8 Management Procedure results in a similar size TAC increase as the 2002 NSS Management Procedure (Option 2). Both management procedure options are responsive to stock variability in CRA 8.
24. If you decide not to adopt the CRA 7 and CRA 8 Management Procedures, then the NRLMG considers the 2002 NSS Management Procedure should be operated to inform TAC setting for CRA 7 and CRA 8 for the 2008/09 fishing year. Operation of the 2002 NSS Management Procedure for 2008/09 is consistent with the agreed operation and duration of the procedure.
25. Because the 2002 NSS Management Procedure has been found to be unsuitable as a tool for maintaining the stocks above the target level (in evaluations, lags caused by the structure of the management procedure and its subsequent application resulted in unstable oscillations in the TAC and consequently in the stock) alternatives to the recommended CRA 7 and CRA 8 Management Procedures could then be developed in 2008 to guide future TAC decisions.

Alternative Management Options

26. You can choose to be guided by neither the recommended CRA 7 and CRA 8 management procedures nor the 2002 NSS Management Procedure.
27. The NRLMG and RLFAGW have identified no reason why you should not use the results of the management procedures to guide your TAC setting decisions for CRA 7 and CRA 8 for the 2008/09 fishing year. If you choose not to accept the results of the management procedures

(Option 1 or Option 2) for setting TACs, there would be no clear basis for recommending alternative TAC options for CRA 7 and CRA 8.

28. The NRLMG notes that choosing not to accept the results of an agreed management procedure without an explicit reason would reduce stakeholder confidence in the application of management procedures. Such a decision may also affect development and implementation of management procedures for other fisheries in New Zealand.

ASSESSMENT OF MANAGEMENT OPTIONS - ALLOCATION OF THE PROPOSED INCREASES

29. The Act does not expressly state the factors that must take be taken into account when apportioning a TAC increase between stakeholders. Allocation within a TAC is a matter for the Minister’s discretion, taking into account relevant considerations.
30. *Table 2* below shows the current TACs and non-commercial allowances for each stock. The TACs would increase under application of the recommended CRA 7 and CRA 8 management procedures. The two obvious allocation options are: a) to pro-rate all allocations (i.e., increase each allocation by the same percentage amount), or b) to retain the existing non-commercial allowances and increase only the TACCs.

	2007/08 CRA 7	2007/08 CRA 8
TAC	140.16	842.24
Customary	10	30
Recreational	5	29
Illegal	5	28
Total non-commercial	20	87

Table 2: *Current Non-Commercial Allowances – CRA 7 and CRA 8*

31. MFish considered and discussed the range of matters relevant to allocation in the October 2005 Sustainability Round Final Advice Paper. The NRLMG has also considered all these matters and believes the following are most relevant to the Minister’s decision on how to allocate the proposed CRA 7 and CRA 8 TAC increases:
- a) Current catch levels;
 - b) Previous decisions;
 - c) Equity of allocation: i.e., the notion of shared pain when stocks decline and shared gain when stocks rebuild.

Current catch levels

32. The NRLMG considers a pro-rating approach may be appropriate if best available information suggests increased abundance has resulted in improved fishing success for all sectors and has increased catch levels beyond the current allowances. Although it is likely fishing success has improved for customary and recreational, there is no new accepted information to indicate catches for these sectors is exceeding catch allowances. Further, industry members of the NRLMG consider it inappropriate to pro-rate the increases across illegal catches as illegal catch is

also a function of compliance effort, and compliance effort should be applied to manage, and preferably reduce, illegal catch levels.

33. Information on current customary, recreational and illegal catch levels in CRA 7 and CRA 8 is scarce and unreliable. Table 3 shows best available estimates of non-commercial catches for CRA 7 and CRA 8. The information suggests that existing customary and recreational allowances are not being caught and that reported customary catches are significantly below the allowances. Estimates of recreational catches from CRA 7 and CRA 8 are derived from a range of MFish surveys, the most recent conducted in 2001.

Stock	Estimated Non-Commercial Catches	
	CRA7	CRA8
Recreational	4.51 t	20.10 t
Customary	1.00 t	2.00 t
Illegal	1.00 t	18.00 t
Total Non Commercial	6.51 t	40.10 t

Table 3: *Estimated catches by fishery, discussed and agreed by the RLFAWG, used in the 2006 assessment and assumed in stock projections for CRA 7 and CRA 8.*

34. Anecdotal information from recreational representatives suggests increased recreational lobster fishing activity and that amateur catches may have increased and exceeded allowances as the CRA 7 and CRA 8 fisheries have rebuilt. The sector perceives that this is especially the case in CRA 7. The NRLMG has concluded that the amateur catch issues warrant further investigation and underscore the need to have accurate and reliable catch data.
35. The NRLMG has concluded that the best available information on recreational catch in CRA 7 and CRA 8 is still that provided by the RLFAWG and used in the joint stock assessment model for CRA 7 and CRA 8.
36. It is likely total non-commercial catches have fluctuated with changing abundance in CRA 7 and CRA 8 since 1996, because abundance affects fishing success. It is also likely that legitimate non-commercial users have already benefited from increased CRA 7 and CRA 8 stock abundance. However, it is unknown whether actual recreational catch is below, the same as, or above the allowance provided.
37. In compiling advice to you, the NRLMG has relied on the catch data provided to and accepted by the RLFAWG. In the absence of new information about non-commercial catches accepted by the RLFAWG, the existing information has been used.
38. However, the NRLMG considers that updating recreational catch estimates for CRA 7 and CRA 8 warrants further investigation. Whilst not an entirely satisfactory response, the NRLMG notes that the estimated aggregate non-commercial catches in both CRA 7 and CRA 8 are less than half the current aggregate non-commercial allowances.

Previous decisions

39. Since adoption of an NSS management procedure in 1996, the TACs for CRA 7 and CRA 8 have been amended four times; initially with two reductions and then with two increases. In all cases the changes to the TACs were achieved by amending the TACCs.

Equity of allocation – “shared pain, shared gain”

40. Past decisions to amend the TAC have not explicitly shared either the “pain” or the “gain” of stock variability in CRA 7 and CRA 8. All TAC adjustments have been achieved by adjusting the TACCs.
41. This is not to say that customary and recreational have not shared the pain and gain of stock variability. As noted above, it is likely non-commercial catches have fluctuated with changing abundance because abundance affects fishing success. It is only that non-commercial catch allowances and catch limits have remained unchanged over the period.
42. In a separate compliance-related decision, pot limits were introduced for recreational fishers in all New Zealand rock lobster fisheries in 2004. The NRLMG has no information on whether the pot limits are constraining recreational catches to levels below individual bag limits in CRA 7 and CRA 8.
43. Having considered the relevant matters, the NRLMG concluded that allocating the recommended TAC increases to the commercial sectors is appropriate. This is because:
 - a) Increased allowances for non-commercial catches are probably not required; best available information suggests that existing allowances are not being caught;
 - b) TAC decisions in CRA 7 and CRA 8 since 1996 have not adjusted non-commercial catch allowances or catch limits. All the adjustments to the TACs have been achieved by amending the TACCs;
 - c) Non-commercial allocations will be reviewed in subsequent TAC decisions. Best available information would be used, including any updated harvest estimates for recreational.

STATUTORY CONSIDERATIONS

44. In considering this proposal, the following statutory considerations have been taken into account.

Purpose of the Act (s 8)

45. The purpose of the Act is to provide for the utilisation of fisheries resources while ensuring sustainability. Ensuring sustainability means to maintain the potential of fisheries resources to meet the reasonably foreseeable needs of future generations; and avoiding, remedying or mitigating any adverse effects on the aquatic environment. Utilisation of fisheries resources is defined as conserving, using, enhancing, and developing fisheries resources to enable people to provide for their social, economic and cultural well-being.
46. The proposed changes to the TACs and TACCs are the result of extensively tested management procedures. These will ensure sustainability of the stocks by making appropriate changes to TACs as abundance changes. These will provide for enhanced utilisation of the stock by maintaining stocks well above *Bmsy*.

TAC Setting Considerations (s 13)

47. Rock lobster stocks are managed under s 13 of the Act. Under s 13 there is a requirement to maintain the stock at a target stock level, being at or above a level that can produce the maximum sustainable yield (MSY).
48. Available data on stock status in CRA 7 and CRA 8 indicate stock sizes are above *Bmsy* and trending upwards. The NRLMG therefore considers TAC increases, guided by either the CRA 7 and CRA 8 Management Procedures (Option 1) or the 2002 NSS Management Procedure (Option 2), are consistent with the purpose of the Fisheries Act 1996 and the requirements of s 13.

Environmental considerations (s 9)

49. The Act prescribes three environmental principles that the Minister must take into account when exercising powers in relation to utilising fisheries resources and ensuring sustainability.
 - a) **Section 9(a)** requires that associated or dependent species should be maintained above a level that ensures their long-term viability. The NRLMG has little information to determine the impact on associated and dependent species. Known incidental catch species in rock lobster fisheries are octopus, conger eel and some finfish species such as sea perch. Incidental catch quantities are likely to increase slightly with the proposed changes in TACs and TACCs.
 - b) **Section 9(b)** requires the maintenance of biological diversity of the aquatic environment be taken into account. Potting is the only commercial fishing method used to harvest rock lobsters in CRA 7 and CRA 8. Some information is available on the impact of this method on the aquatic environment, and Australian research suggests there is little impact on seaweed and other benthic communities, including fragile coral reef ecology, from rock lobster potting. Consequently, the NRLMG considers it unlikely the proposed changes to the TACs and TACCs will have a demonstrable adverse effect on biological diversity in CRA 7 or CRA 8.
 - c) **Section 9(c)** requires the protection of habitats of particular significance to fisheries management. The proposed changes to TACs and TACCs are unlikely to affect habitats of particular significance to fisheries management; identified habitats of significance have already been provided protection through mechanisms such as the Fiordland Marine Management Act 2005, which prohibits all commercial fishing within the internal waters of Fiordland and introduces protection in an area that is recognised as being internationally important.

International Obligations and Treaty of Waitangi Settlement Act 1992 (s 5)

50. **Section 5** requires that the Act shall be interpreted and all persons exercising or performing functions, duties or powers under the Act shall act in a manner consistent with New Zealand's international obligations relating to fishing, and the provisions of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992.
51. A wide range of international obligations relate to fishing, including use and sustainability of fishstocks and maintaining biodiversity. The NRLMG is not aware of any international obligations affected by the proposed changes to TACs and TACCs.

52. The NRLMG recognises that rock lobster (koura) is an important taonga species. The NRLMG does not believe the proposed changes will affect customary harvest of koura in CRA 7 and CRA 8; existing customary allowances provide for current catches.

Sustainability Measures (s 11)

53. When setting or varying a sustainability measure, s 11(1) of the Act requires the taking into account of: (i) any effects of fishing on any stock and the aquatic environment; (ii) the existing management controls that apply to the stock or area concerned; and (iii) the natural variability of the stock.
54. The adverse effects of fishing on the aquatic environment are discussed under the Environmental Considerations section.
55. Apart from the existing TAC, TACC and allowances, other important existing management controls include the following:
- a) In CRA 7, the commercial minimum legal size (MLS) for rock lobster is 127 mm tail length (TL);
 - b) In CRA 8, the commercial MLS for rock lobster is 54 mm tail width (TW) for males, and 57 mm TW for females;
 - c) In both CRA 7 and CRA 8, the recreational MLS for rock lobster is 54 mm TW for males and 60 mm TW for females;
 - d) In recreational and commercial fisheries, egg-bearing females are protected and must be returned to the sea;
 - e) In both CRA 7 and CRA 8, a daily bag limit of 6 rock lobsters per person applies to recreational fishers;
 - f) Method restrictions exist for both commercial (potting only) and recreational (a range of methods are specified in the regulations) fishers;
 - g) Escape gaps are required in lobster pots to allow under-sized lobsters to escape easily;
 - h) In both CRA 7 and CRA 8, a pot limit of 3 pots per person and 6 pots per vessel applies;
 - i) The CRA 7 fishery is currently closed to commercial fishers from November 20th to June 19th inclusive;
 - j) An area in CRA 7 (the “buffer zone”) is closed to commercial fishing;
 - k) Customary fishing in both CRA 7 and CRA 8 is managed under the Fisheries (South Island Customary Fishing) Regulations 1999.
56. The proposed changes to TACs and TACCs are unlikely to affect these measures. Industry reports, however, that the closed season in CRA 7 may limit the ability of commercial operators to harvest the proposed new TACC. A proposal to extend the CRA 7 commercial season is currently in the MFish internal prioritisation process.
57. Recruitment to rock lobster stocks is highly variable. This variability was taken into account by the RLFAWG and the NRLMG when developing and testing the 2002 NSS Management

- Procedure and the recommended new management procedures. These new management procedures have been extensively tested to ensure that they will minimise risks to sustainability of the stocks, including risks arising from natural variability in the stock, while providing for utilisation.
58. **Sections 11(2)** requires regard to: (i) any regional policy statement, regional plan or proposed regional plan under the Resource Management Act 1991; (ii) any management strategy or management plan under the Conservation Act 1987 that apply to the area and are considered relevant; and (iii) sections 7 and 8 of the Hauraki Gulf Marine Park Act 2000.
 59. There are three regional councils with jurisdictional boundaries covering CRA 7 and CRA 8 (Otago, Southland, and West Coast). The NRLMG is not aware of anything in the proposed coastal plans for these councils that would be affected by this proposal.
 60. There are three Department of Conservation Conservancies with jurisdictional boundaries covering CRA 7 and CRA 8 (Otago, Southland, and West Coast). The NRLMG is not aware of anything in the proposed strategies for these conservancies that would be affected by this proposal.
 61. CRA 7 and CRA 8 fisheries do not intersect with the Hauraki Gulf Marine Park; therefore there are no relevant considerations under the Hauraki Marine Park Act 2000.
 62. **Section 11(2A)** requires the Minister to have regard to: (i) any conservation services or fisheries services and any decision not to require conservation services or fisheries services; and (ii) any relevant fisheries plan approved under s 11 of the Act.
 63. The NRLMG does not consider that existing or proposed services materially affect this proposal. No decision has been made not to require a service in these fisheries. The NRLMG is not aware of any relevant fisheries plans approved under s 11 of the Act.
 64. The NRLMG notes the Fiordland Marine Management Act 2005 requires the Minister must have regard to any advice or recommendations provided by the Fiordland Marine Guardians on any matters covered by the Act. The NRLMG notes the Fiordland Marine Guardians will be consulted on this proposal.

Information Principles (S 10)

65. **Section 10** requires all persons exercising or performing functions, duties or powers under the Act to take into account the following information principles: (i) decisions should be based on the best available information; (ii) decision makers should consider any uncertainty in the information available in any case; (iii) decision makers should be cautious when information is uncertain, unreliable or inadequate; and (iv) the absence of, or uncertainty in, any information is not a reason for postponing or failing to take measures to achieve the purpose of the Act.
66. The information provided in this advice paper is considered the best available information relevant to consideration of reviewing the TACs and TACCs for CRA 7 and CRA 8. Uncertainties in the information have been considered and taken into account.
67. Additional information from those with an interest in the issues is also being sought by way of consultation on this proposal.

Administrative Issues

68. To implement this proposal would require the publishing of Gazette Notices under s 13 (TACs) and s 20 (TACCs) of the Act, together with some publicity to ensure fishers are aware of the changes.

Recommendations

69. The NRLMG recommends that you:

For CRA 7, EITHER

- a) **agree** to be guided by the CRA 7 Management Procedure and increase the CRA 7 TAC from 140.16 tonnes to 143.88 tonnes effective 01 April 2008 (**NRLMG preferred option**);

And either

- b) **agree** that the allowances made for customary, amateur, and other sources of fishing related mortality should remain unchanged, and that the CRA 7 TACC should increase to 123.88 tonnes effective 01 April 2008 (**NRLMG preferred option**);

or

- c) **agree** to pro-rate the increase across customary, amateur, other sources of fishing related mortality and commercial fishing;

OR

- d) **agree** to be guided by the 2002 NSS Management Procedure and increase the CRA 7 TAC from 140.16 tonnes to 175.25 tonnes effective 01 April 2008;

And either

- e) **agree** that the allowances made for customary, amateur, and other sources of fishing related mortality should remain unchanged, and that the CRA 7 TACC should increase to 155.25 tonnes effective 01 April 2008,

or

- f) **agree** to pro-rate the increase across customary, amateur, other sources of fishing related mortality and commercial fishing;

For CRA 8, EITHER

- g) **agree** to be guided by the CRA 8 Management Procedure and increase the CRA 8 TAC from 842.24 tonnes to 1053 tonnes effective 01 April 2008 (**NRLMG preferred option**);

And either

- h) **agree** that the allowances made for customary, amateur, and other sources of fishing related mortality should remain unchanged, and that the CRA 8 TACC should increase to 966.00 tonnes effective 01 April 2008 under both options (e) and (f) above (**NRLMG preferred option**),

or

- i) **agree** to pro-rate the increase across customary, amateur, other sources of fishing related mortality and commercial fishing;

OR

- j) **agree** to be guided by the 2002 NSS Management Procedure and increase the CRA 8 TAC from 842.24 tonnes to 1052.75 tonnes effective 01 April 2008;

And either

- k) **agree** that the allowances made for customary, amateur, and other sources of fishing related mortality should remain unchanged, and that the CRA 8 TACC should increase to 966.00 tonnes effective 01 April 2008 under both options (e) and (f) above;

or

- l) **agree** to pro-rate the increase across customary, amateur, other sources of fishing related mortality and commercial fishing;
- m) **note** that the amateur catch issues warrant the NRLMG to make further investigation and seek better information on non-commercial removals to guide future advice;
- n) **note** the intention to review the CRA 7 and CRA 8 Management Procedures in 2012.