

# NEW ZEALAND RED ROCK LOBSTER FISHERIES

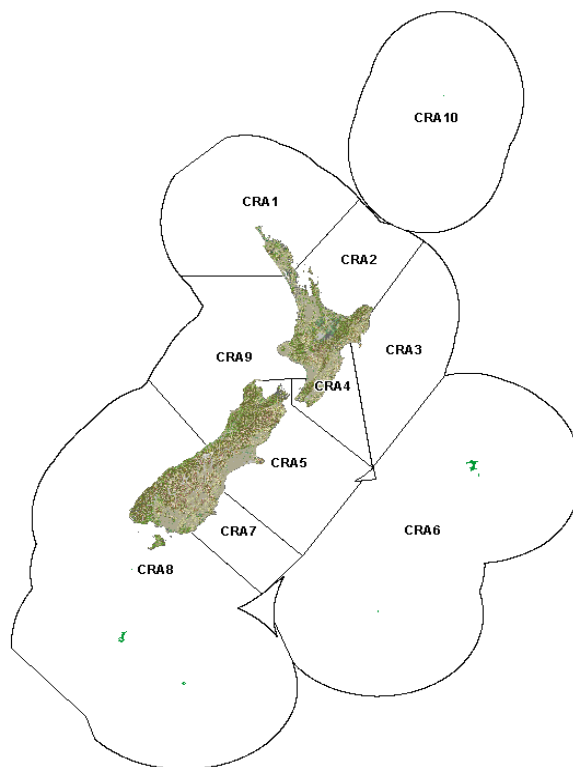
## FINAL ADVICE

### PAPER 1

ADOPT A MANAGEMENT PROCEDURE FOR CRA 3

### PAPER 2

CATCH LIMIT REVIEWS FOR CRA 3, CRA 4 AND CRA 7



23 FEBRUARY 2010

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# 1. ADOPT A MANAGEMENT PROCEDURE FOR CRA 3

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## EXECUTIVE SUMMARY

1. You are being asked to make a decision on the use of a management procedure to guide Total Allowable Catch (TAC) setting in the Gisborne rock lobster fishery (CRA 3). A management procedure is a tool that is designed to provide guidance as to how the Fisheries Act 1996 (the Act) can be applied to the setting of the TAC, pursuant to section 13 of the Act, for CRA 3.
2. When you reduced the CRA 3 TAC and Total Allowable Commercial Catch (TACC) in April 2009 you considered that the TAC cut, when combined with a management procedure to guide future TAC setting, should secure the necessary rebuild in the CRA 3 stock.
3. The CRA 3 Multi-stakeholder Fishing Forum (the CRA 3 Forum), a group comprising customary Maori, amateur and commercial fishing stakeholders in CRA 3, initiated development of a CRA 3 Management Procedure. During 2009, the CRA 3 Working Group (a smaller group of Forum representatives) worked with the rock lobster stock assessment scientists and the Rock Lobster Fisheries Assessment Working Group (RLFAWG) to develop a management procedure to guide TAC setting for CRA 3 from 1 April 2010.
4. Based on the considerations of the CRA 3 Working Group, the National Rock Lobster Management Group's (NRLMG's) initial advice proposed two alternative CRA 3 Management Procedure options for CRA 3:
  - Option 1** – Adopt the “Rule 2a” CRA 3 Management Procedure to Guide TAC setting in CRA 3
  - Option 2** – Adopt the “Rule 5” CRA 3 Management Procedure to Guide TAC setting in CRA 3
5. The NRLMG received 19 submissions on its initial advice. The NRLMG has analysed these submissions and notes there is no agreement among submitters or the NRLMG on a recommended CRA 3 Management Procedure option.
6. When choosing whether or not to adopt a CRA 3 Management Procedure to guide TAC setting in CRA 3, the central consideration is whether the procedures meet the TAC setting requirements of section 13 of the Act. Section 13 requires you to set a TAC that moves the stock to, or maintains the stock at, a size at or above a level that can produce the maximum sustainable yield or at a level that is not inconsistent with this objective and in a way and rate considered appropriate for the stock. The stock size that can produce the maximum sustainable yield is commonly called *Bmsy*.
7. The NRLMG is confident the “Rule 2a” and “Rule 5” CRA 3 Management Procedures are consistent with section 13 of the Act. This is because both procedures increase stock size and therefore move the stock towards a level at or above *Bmsy* or the agreed proxy target (ie, *Bref*).
8. The distinguishing factors between the two CRA 3 Management Procedures (Rule 2a and Rule 5) are the way in which and the rate at which stock targets will be met, and the social, cultural and economic impacts associated with TAC changes that may be invoked by either rule over its five year term of operation.

9. Rock lobsters are important taonga to tangata whenua in CRA 3, are prized by amateur fishers, and have high commercial value. In this regard, the NRLMG believes that customary Maori, amateur and commercial utilisation values would increase with application of either of the CRA 3 Management Procedures. This is because the procedures would improve fishing opportunities for all sectors by increasing the stock from its current size.
10. In respect of the two alternative CRA 3 Management Procedure options presented, the NRLMG notes that:
  - a) Both options are consistent with the requirement of section 13 of the Act to set a TAC that moves the stock towards the target, *Bmsy* or the agreed proxy target (ie, *Bref*);
  - b) Option 1, adopt the “Rule 2a” CRA 3 Management Procedure to guide TAC setting, is the appropriate choice if you consider minimising the short-term impact on utilisation to be the primary concern when rebuilding the stock and consider less year-to-year variation in catch to be beneficial to fishery stakeholders (Option 2 provides for greater variation in catch year-to-year);
  - c) Option 2, adopt the “Rule 5” CRA 3 Management Procedure to guide TAC setting, is the appropriate choice if you consider increasing stock size towards the target at a slightly faster rate (ie, one year earlier on average in simulations) than Option 1 to be the primary concern. The effect this rule has on the benefits derived from the fishery by any one sector will depend on allocation decisions (refer *Final Advice Paper 2*).

## **RATIONALE FOR MANAGEMENT OPTIONS**

11. The CRA 3 Forum developed a draft CRA 3 Fisheries Management Plan (the Plan) in 2008. Although the Plan has not been finalised and approved by you, the CRA 3 Working Group is progressing priority elements of the Plan because these elements are likely to have a positive impact on the health of the fishery and would therefore benefit all fishing sectors. One priority element of the Plan is to develop a management procedure to guide TAC setting in the CRA 3 fishery.
12. During 2009, the CRA 3 Working Group worked with the rock lobster stock assessment scientists and the RLFAWG to develop a management procedure to guide TAC setting decisions for CRA 3 from 1 April 2010.
13. Management procedures are in place for several New Zealand rock lobster fisheries. Management procedures have been successfully used to guide TAC setting in CRA 7 (Otago) and CRA 8 (Southern) since 1997. Management procedures were used first to rebuild the CRA 7 and CRA 8 fisheries from a state of low abundance and then to maintain the stocks at target levels with high probability. A voluntary management procedure was used by CRA 4 (Wellington/Hawkes Bay) to shelve Annual Catch Entitlement (ACE) for two years (2007-08 and 2008-09) to initiate a rebuild of the fishery and this management procedure was adopted by you in 2009 to guide TAC and TACC setting in CRA 4. A recent increase in CRA 4 CPUE indicates the success of this approach. A voluntary management procedure to shelve ACE if CPUE becomes low has also been adopted by CRA 5 (Canterbury/Marlborough), and the development of management procedure for CRA 6 (Chatham Islands) is well advanced.

## **INITIAL VIEW OF THE CRA 3 WORKING GROUP & NRLMG**

14. CRA 3 Working Group members and the NRLMG would like to adopt an approach to TAC setting that is more responsive to changes in observed abundance in the CRA 3 fishery than the current

approach which relies on periodic stock assessments. Either of the proposed CRA 3 Management Procedures will serve in that regard.

15. Sector members of both groups were divided on which of the two management procedures should be adopted however. The initial views of CRA 3 Working Group commercial representatives and one customary Maori representative were to adopt the “Rule 2a” CRA 3 Management Procedure (Option 1). This view was based partly on CPUE information that shows a recent upwards trend; therefore they considered it premature to reduce the TAC (and TACC) without further information on how CPUE will perform during the next few years.
16. The initial views of CRA 3 Working Group recreational representatives and one customary representative were to adopt the “Rule 5” CRA 3 Management Procedure (Option 2). This view was based partly on these representatives considering that a 20 tonne TAC reduction in April 2010 would leave some fish in the water to ensure a faster rebuild of the fishery with greater safety, which may result in increased fishing opportunities for non-commercial fishers. This initial view for Option 2 was shared by some NRLMG members (namely recreational and customary).
17. Other NRLMG members (namely commercial and customary) preferred (Option 1) because they:
  - a) considered the TAC reduction in 2010 (ie, Rule 5) to be inconsistent with the observed recent increase in CRA 3 CPUE;
  - b) were concerned that “Rule 5” was unresponsive to observed changes in CRA 3 stock abundance until April 2012;
  - c) believed that achieving the rebuild to the target stock size one year earlier under “Rule 5” warrants the opportunity cost to the commercial industry of the initial TAC reduction; and,
  - d) preferred smaller adjustments to the TAC (ie, Rule 2a) than larger adjustments (ie, Rule 5) because they would provide less year-to-year variation in catch.

## **BACKGROUND INFORMATION**

### ***Management Approach***

18. The NRLMG’s management goal is for all rock lobster fisheries to be managed and maintained at or above the assessed and agreed biological reference points (targets), using a comprehensive approach that recognises a range of customary Maori, amateur, commercial and environmental concerns and values.
19. The use of a tool, called a management procedure, to guide the setting of catch limits is consistent with the NRLMG’s comprehensive management approach. Under a management procedure approach, agreement is obtained among managers and stakeholders before the procedure is implemented: they agree about the data inputs, the way the inputs will be treated to make inferences, the harvest control rule and the period for which the management procedure will be used. Extensive simulation testing of the procedure is undertaken to ensure it will deliver the desired outcomes.

## ***Sustainability Indicators (Bmsy, Bref, Bmin)***

20. The NRLMG uses sustainability indicators to report on stock health and to evaluate the effectiveness of management options. For most rock lobster stocks, performance is reported against a “target” stock size and a “minimum” stock size.
21. Three sustainability indicators are relevant to evaluation of the two alternative CRA 3 Management Procedures (Rule 2a and Rule 5):
  - a) The statutory target stock size, ***Bmsy***. Section 13 of the Act requires you to set a TAC for a rock lobster stock that move the stock to, or maintains the stock at, a level at or above *Bmsy*, or that is not inconsistent with this objective. *Bmsy* is not straightforward to estimate and is uncertain when estimated.

A *Bmsy* reference point was calculated for CRA 3 in 2008. The *Bmsy* calculation was sensitive to the period chosen to represent mean recruitment, which varies substantially over the period for which estimates are available; this in turn caused uncertainty in *Bmsy*. The NRLMG considered this *Bmsy* estimate unreliable for use as a target biomass level for this stock.

- b) The proxy target stock size, ***Bref***. When a *Bmsy* estimate is absent or unreliable, alternative proxy targets are used. In 2009, the RLFAWG agreed to use biomass from an historical target period, previously used in the 2000 and 2001 CRA 3 stock assessments, as the management procedure target. This is because biomass from the historical target period (1974-79) could be estimated with greater reliability, and it represented a stock considered to be healthy. This target stock size, called *Bref*, is the autumn-winter (April through September) vulnerable stock size associated with the reference period 1974-79. CRA 3 stakeholders collectively agreed on this target level because 1974-79 was a period when the stock showed good productivity and was demonstrably safe, having gone below this level and then recovered.

*Bref* included an adjustment to address the change in growth rate of rock lobsters in CRA 3 that had occurred since 1974-79 (as demonstrated in the 2008 stock assessment) and changes to legal size and escape gap regulations (both which have changed since 1974-79). A technical procedure based on fishing mortality rates was used to adjust *Bref* to reflect these changes. This adjustment procedure has been reviewed and accepted by the RLFAWG.

The RLFAWG then agreed that the CRA 3 Management Procedure rules should be evaluated against 90% of the *adjusted Bref* (called *Bref90%* hereafter), to address a potential that a ‘regime shift’ may have resulted in lower productivity and that reference points based on historically higher productivity are inappropriate if recruitment were to continue at its recent low levels. The CPUE associated with the *Bref90%* is a standardised autumn-winter CPUE of 1.14 kg/potlift.

*Bref90%* is the target stock size that was used in the CRA 3 Management Procedure evaluations only and will be reviewed at the time of future stock assessment and management procedure reviews (ie, five years unless reviewed sooner). The NRLMG considers that the target, *Bref90%*, is consistent with your statutory obligations under section 13 of the Act to set a TAC that moves the stock towards, *Bmsy*, or the agreed proxy target.

- c) The minimum stock size, *Bmin*. *Bmin* is the stock size associated with lowest abundance in the observed history of the fishery. The CRA 3 stock has previously recovered from this low point.
22. For all these indicators, the CRA 3 stock size is measured in terms of the autumn-winter vulnerable biomass. "Vulnerable biomass" is the total quantity of lobsters available to the fishery (ie, it does not include lobsters that cannot be harvested such as undersize lobsters and berried female lobsters).
23. The desired performance in relation to these sustainability indicators is:
- a) a stock size above the target (*Bref*) at least 50% of the time (note in CRA 3 Management Procedure evaluations *Bref*<sub>90%</sub> was used);
  - b) a stock size that remains above the minimum (*Bmin*) with 90% probability; and
  - c) a spawning stock size that remains above 20% of its unfished level with high probability.
24. In October 2008, the Ministry of Fisheries (MFish) released the Harvest Strategy standard for New Zealand fisheries (the HSS) that specifies performance standards for Quota Management System (QMS) species. The NRLMG considers the management procedures proposed for CRA 3 to be consistent with the HSS. All management procedures tested maintained the spawning stock biomass well above the 20% unfished level.

### **CRA 3 Stock Status**

25. A stock assessment was last undertaken for CRA 3 in 2008. The 2008 stock assessment results indicated that stock size was just above *Bmin* and well below its target level. Under 2007 catches and recent recruitments, the 2008 assessment predicted a 75% probability that stock size would decline over the four years up to 2012.
26. On the basis of this assessment, you reduced the CRA 3 TAC from 319 tonnes to 293 tonnes from April 2009.
27. CPUE is considered to be a reliable indicator of relative stock size in CRA 3. The NRLMG advises that, based on recent CPUE information, stock size may have increased in the last few fishing years. Standardised autumn-winter CPUE (calculated in November 2009) increased from 0.59 kg/potlift in 2007 to 0.68 in 2008, and then to 0.89 kg/potlift in 2009. Offset year (1 October to 30 September) CPUE also increased from 0.59 kg/potlift in 2007 to 0.63 in 2008, and then to 0.79 kg/potlift in 2009. Current CPUE is still below the CPUE associated with *Bref*<sub>90%</sub> - a standardised autumn-winter CPUE of 1.14 kg/potlift.
28. There is considerable uncertainty with respect to the level of current recruitment and some uncertainty with respect to current growth rates in CRA 3. As noted above, two adjustments to the *Bref* target were made to address the potential that slow growth and low recruitments will persist into the future. These adjustments will be reviewed at the time of future stock assessments and management procedure reviews. The model's estimated recruitment in CRA 3 shows a declining trend since 1979, with a lot of short-term volatility. The cause is not known, but larval (puerulus) settlement also shows a declining trend since 1991 with much short-term volatility. The cause of slow growth (determined from tag-recapture collected between 1996-2008) compared to earlier data is also unknown: it does not appear to relate to density of the stock or handling of lobsters. The base case model used to evaluate rules has low stock productivity, caused by assuming that low recruitments observed in the last 10 years will persist

into the future as will the slow growth observed from 1996-2008. These assumptions result in a level of productivity that may not be able to sustain future catches as high as the historical catches over the long-term.

29. The CRA 3 stock assessment was not updated in 2009 except that the model was updated from recent data for use as the operating model to test management procedures.

### ***Initial Advice Options***

30. In *Initial Advice Paper 1*, the NRLMG proposed two management options to guide TAC setting in CRA 3. These options were:

#### **Option 1 – Adopt the “Rule 2a” CRA 3 Management Procedure to Guide TAC Setting in CRA 3**

31. Under Option 1, the “Rule 2a” CRA 3 Management Procedure would be used to guide statutory TAC setting decisions for CRA 3. The “Rule 2a” CRA 3 Management Procedure is described in detail in *Attachment 1* to these *Final Advice Papers*.
32. Under this option the “Rule 2a” Management Procedure would guide TAC setting for CRA 3 until the 2015-16 fishing year. During 2014, the management procedure would be reviewed.

#### **Option 2 – Adopt the “Rule 5” CRA 3 Management Procedure to Guide TAC Setting in CRA 3**

33. Under Option 2, the “Rule 5” CRA 3 Management Procedure would be used to guide statutory TAC setting decisions for CRA 3. The “Rule 5” CRA 3 Management Procedure is described in detail in *Attachment 1* to these *Final Advice Papers*.
34. Under this option the “Rule 5” Management Procedure would guide TAC setting for CRA 3 until the 2015-16 fishing year. During 2014, the management procedure would be reviewed.

## **CONSULTATION AND SUBMISSIONS**

35. Your decision whether to adopt either of the CRA 3 Management Procedures (“Rule 2a” or “Rule 5”) to guide TAC setting in CRA 3 is a decision that relates to TAC setting decisions under section 13 of the Act; therefore, the consultation requirements of section 12 have been followed.
36. MFish consulted on the NRLMG’s Initial Advice on your behalf between 17 December 2009 and 5 February 2010.
37. Consultation on the proposals was undertaken with persons or organisations representative of those having an interest in the stock or the effects of fishing on the aquatic environment in the area concerned, including national and regional Maori, environmental, commercial, and recreational interests. Further, provision was made for the input and participation of tangata whenua having a non-commercial interest in the stock or an interest in the effects of fishing on the aquatic environment in the area concerned, having particular regard to Kaitiakitanga. The NRLMG notes that national-level representatives of customary fishing interests are members of the NRLMG and have contributed to the development of the proposals. During 2009, opportunities for input and participation into the development of the CRA 3 Management Procedures were provided for many regional level customary Maori through the CRA 3 Working Group process. Regional level CRA 3 customary Maori interests helped identify the final two alternative CRA 3 Management Procedures presented.

38. The following organisations, groups, companies and individuals submitted on the NRLMG’s *Initial Advice Paper 1*:

***National Representative Organisations***

- ◆ Council of Outdoor Recreation Associations (CORANZ)
- ◆ Environment and Conservation Organisations of NZ (ECO)
- ◆ New Zealand Recreational Fishing Council (NZRFC)
- ◆ New Zealand Rock Lobster Industry Council (NZ RLIC)
- ◆ New Zealand Sport Fishing Council (NZ SFC)
- ◆ option4 / NZ SFC Zone 5 combined clubs (non-commercial interests)
- ◆ Te Ohu Kaimoana Trustee Limited (Te Ohu).

***Regional Representative Organisations, Groups or Companies***

- ◆ Bill Ruru on behalf of Te Aitanga a Mahaki Trust (Mahaki)
- ◆ Fiordland Lobster Co. Limited (FLC)
- ◆ Gisborne Fisheries Limited (GFL)
- ◆ Kahungunu Asset Holding Company Limited (KAHC)
- ◆ Kahungunu Ki Uta, Kahungunu Ki Tai (KKUKKT)
- ◆ Porou Ariki Trust (PAT) / Ngati Porou Seafoods Limited (NPSL)
- ◆ Tairāwhiti Rock Lobster Industry Association (CRAMAC 3)
- ◆ Te Kupenga Whīturauroa a Maui Customary Fisheries Forum (TKWM)
- ◆ Turanganui a Kiwa Regional Customary Fisheries Forum (TKCFF).

***Individuals***

- ◆ Alain Jorion (Mr Jorion) – *an amateur fisher in CRA 3, CRA 3 Working Group recreational representative and board member of the NZRFC*
- ◆ James Farr (Mr Farr) – *an appointed customary Kaitiaki for Ngati Konohi*
- ◆ Kelvin Ellison, K&N Ellison Family Trust, and K&N Ellison Partnership (Ellison) – *commercial fishers in CRA 3.*

39. Full copies of their submissions are attached as *Attachment 3* to these *Final Advice Papers*. Each submission is described, and the matters raised in the submission discussed, in the following sections as relevant.

***Summary of Submissions***

40. NZ RLIC, FLC, GFL, KAHC, KKUKKT, CRAMAC 3, TKWM, TKCFF and Ellison all support adopting the “Rule 2a” CRA 3 Management Procedure to guide TAC setting in CRA 3 (Option 1).
41. NZ RLIC and CRAMAC 3 both endorse an approach to TAC setting that is more responsive to changes in observed abundance in the CRA 3 fishery than the current approach which relies on periodic stock assessments. KAHC and KKUKKT express support for “Rule 2a” because of its longer fixed-term period for the initial TAC and greater flexibility for change should CPUE exceed specified upper and lower limits. TKWM and TKCFF express support for the “Rule 2a” CRA 3

Management Procedure on the basis that the approach proposed is to ensure the sustainability of rock lobster in this area.

42. NZRFC, NZSFC, Mr Jorion and Mr Farr support adopting the “Rule 5” CRA 3 Management Procedure to guide TAC setting in CRA 3 (Option 2).
43. In general, the NZRFC supports the use of management procedures to provide more proactive management of rock lobster fisheries; however, they suggest that the introduction of a management procedure alone will not significantly improve amateur access in CRA 3. The NZSFC and its members on the CRA 3 Forum express reservations about the management procedures proposed for CRA 3, but as an interim measure they support Option 2. Mr Farr supports “Rule 5” because customary and recreational are having a hard time catching legal size lobsters around Whangara (next to the Marine Reserve). Mr Jorion expresses a preference for the “Rule 5” CRA 3 Management Procedure because it provides the quicker rebuild (one year earlier, on average, than “Rule 2a”).
44. Te Ohu (with support from Mahaki) and PAT/NPSL express support for a modified Option 1. They support the adoption of the “Rule 2a” CRA 3 Management Procedure subject to sectors agreeing to no TAC increases during the next three years. If sectors do not agree to have no TAC increases during the next three years, Te Ohu expresses support for a modified “Rule 5” that has corrective measures if CPUE falls below 0.75 kg/potlift. PAT/NPSL would also reconsider their support for “Rule 2a” in favour of “Rule 5” if their recommendations were not acknowledged. Their recommended amendments to “Rule 2a” is that no TAC increase occur over the initial fixed TAC period of three years, and that the first annual evaluation of the management procedure be used to carefully assess the performance of “Rule 2a”. If the management procedure performance is not up to expectations or new information is identifying less positive signs ahead, immediate corrective action should be adopted, which could include adoption of “Rule 5”, or other proactive measures.
45. Non-commercial interests (with support and endorsement from CORANZ) and ECO do not support the proposed management procedures for CRA 3. Non-commercial interests and CORANZ cannot give support to any of the proposed options, until you have carried out the statutory functions required of you to assess whether the proposed management options for CRA 3 will comply with s 8, 9, 10, 12, 13, 20 and 21 of the Act. ECO does not support the proposed procedures for several reasons, which are discussed in the following section.
46. The NRLMG notes many submitters commented on or proposed additional management measures that are outside the scope of this advice process. These management measures are discussed briefly in the ‘Other Matters’ section towards the end of *Final Advice Paper 2*.

### ***NRLMG Discussion on Matters Raised in Submissions***

47. The majority of submitters (except non-commercial interests, CORANZ and ECO) support the adoption of a CRA 3 Management Procedure to guide TAC setting in CRA 3 because they believe such procedures provide an approach to TAC setting that is more responsive to changes in observed abundance in the CRA 3 fishery.
48. However, stakeholder groups and individuals are divided on which of the two alternative CRA 3 Management Procedure options should be adopted.
49. Commercial stakeholders (NZ RLIC, FLC, GFL and Ellison) support Option 1 because the CRA 3 fishery is showing signs of rebuild at the current TAC. They consider a TAC reduction in 2010 (ie, Option 2 – “Rule 5”) would be inconsistent with the observed increase in CPUE in recent years.

The NRLMG suggests, based on recent CPUE information, stock size may have increased in the last few fishing years.

50. TKWM and TKCF express support for the “Rule 2a” CRA 3 Management Procedure. However, their support is contingent on: MFish starting formal work on the development of a robust recreational and customary information system to complement the use of commercial information in a CRA 3 stock assessment, and a continuing schedule of independent stock assessments occurs at set intervals with TKWM and TKCF involved in these assessments. The NRLMG notes:
- a) The lack of accurate information on non-commercial and illegal catch contributes to the uncertainty of the stock assessment, detracts from the effectiveness of agreed harvest strategies and undermines the incentives created by the QMS. The NRLMG suggests that MFish deploys sufficient resources to monitor non-commercial removals from rock lobster fisheries to maintain the integrity of the TACs and allowances set for stocks. The need for reliable and credible non-commercial catch data is urgent.
  - b) Stock assessments will continue to occur for the CRA 3 fishery at intervals. The NRLMG acknowledges that a high level of involvement by all sectors in rock lobster management is desirable. It encourages submitters to talk with their NRLMG sector contacts about how to improve their participation and notes that stakeholder groups have opportunities to engage with MFish, who also participate in NRLMG processes, about rock lobster issues via customary iwi and recreational forums and other stakeholder meetings.
51. Recreational sector submitters (NZRFC, NZ SFC and Mr Jorion) and customary submitter Mr Farr support the adoption of the “Rule 5” (Option 2). This support appears largely driven by the immediate 20-tonne reduction in TAC/TACC that results from its operation. The NRLMG considers that this option will have the greatest short-term impact on utilisation, in particular by commercial stakeholders because the NRLMG proposes that only the TACC is adjusted. However, the NRLMG notes that autumn-winter CPUE has increased between 2007 and 2009, which may indicate that the stock is rebuilding under the current TAC.
52. Te Ohu (with support from Mahaki) and PAT/NPSL express support for a modified “Rule 2a” (Option 1) which would not allow the TAC to be increased for three years. The NZRFC also note they would support a modified “Rule 2a” that specified no increase in TAC for a minimum of three years. The NRLMG suggests that it is not possible to amend the “Rule 2a” or “Rule 5” CRA 3 Management Procedures at this point in the process. This is because:
- a) CRA 3 Working Group representatives selected two preferred rule options (“Rule 2a” and “Rule 5”) from nine final rules presented to them by the rock lobster stock assessment scientists and the RLFAG. It would be inappropriate to propose modified rule options without consulting further with the CRA 3 Working Group, CRA 3 tangata whenua and CRA 3 fishery stakeholders;
  - b) the “Rule 2a” and “Rule 5” CRA 3 Management Procedures have been extensively simulation-tested using an operating model of the CRA 3 stock based on the 2008 CRA 3 stock assessment; they are robust to uncertainties in recruitment, growth, the level of non-commercial catches and stock assessment results; and simulation testing shows the rules to be safe with respect to sustainability indicators. “Modified rules” could have been simulation-tested during the evaluation project in 2009, but they cannot be tested at this stage. It is proposed that either “Rule 2a” or “Rule 5” CRA 3 Management Procedures will be adopted to guide CRA 3 TAC setting for 1 April 2010.

53. The NRLMG suggests that CRA 3 tangata whenua and CRA 3 fishery stakeholders discuss the proposed modified rules further during 2010 and if support is forthcoming from all sectors a research proposal to amend the rule option could be considered for prioritisation in 2010-11. The NRLMG advises that the rock lobster research budget is limited and that the research needs of all rock lobster stocks need to be considered when allocating the budget.
54. The NRLMG note the concerns of non-commercial interests (with support and endorsement from CORANZ) and ECO in relation to the proposed management procedures meeting your statutory obligations. The NRLMG is confident the management procedure options are consistent with the Act. An assessment of the management options against statutory criteria is set out and discussed at the end of this *Final Advice Paper*.
55. The NRLMG also note ECO's concern about the use of sustainability indicators and information that is used in the proposed management procedures. The NRLMG suggests:
- a) A *Bmsy* reference point was calculated for CRA 3 in 2008, but was sensitive to the period chosen to represent mean recruitment, which varies substantially over the period for which estimates are available; this in turn caused uncertainty in *Bmsy*. The NRLMG considered this *Bmsy* estimate to be unreliable as a target biomass level for the CRA 3;
 

When a *Bmsy* estimate is absent or unreliable, alternative and proxy targets are used. The proxy target stock size is known as *Bref*. In 2009, the RLFAGW agreed that the CRA 3 Management Procedure rules should be evaluated against *Bref*90% (refer to the 'Sustainability Indicators' sub-section above for further details);
  - b) The 2008 CRA 3 stock assessment model provided a basis for the operating model which was used to conduct management procedure evaluations for CRA 3. Puerulus data may provide information about future changes in the stock, but this is not certain, and current explorations of puerulus data are underway;
  - c) The effect of climate change and ocean acidification on rock lobster was not considered in the management procedure development or the 2008 CRA 3 stock assessment. However, the NRLMG considers that potential effects of climate change and ocean acidification on rock lobster stock abundance and health can be identified through annual monitoring of commercial CPUE (which is considered to be a reliable indicator of relative stock size in CRA 3), and puerulus settlement, growth and recruitment information. The NRLMG notes that a management procedure approach provides the mechanism to respond to changes in rock lobster abundance in a timely manner.

## ASSESSMENT OF MANAGEMENT OPTIONS

56. Assessment of the management options against statutory criteria is set out at the end of this *Final Advice Paper*. Key considerations and impacts are discussed below.

### ***Sustainability***

57. The NRLMG is confident the "Rule 2a" and "Rule 5" CRA 3 Management Procedures are both consistent with section 13 of the Act. This is because the procedures are expected to increase stock size, which is consistent with your obligation under section 13 to move the stock to a level at or above *Bmsy*.

### *Option 1 - Adopt the "Rule 2a" CRA 3 Management Procedure to Guide TAC Setting in CRA 3*

58. The "Rule 2a" CRA 3 Management Procedure specifies an initial "fixed" TAC for the first three years (the fishing years 2010-11, 2011-12 and 2012-13). This "fixed" TAC is the current CRA 3 TAC of 293 tonnes (refer *Final Advice Paper 2*). However, the current CRA 3 TAC is retained only whilst CPUE stays within specified upper (1.08 kg/potlift) and lower (0.75 kg/potlift) limits. Variations can be made to the TAC if CRA 3 stock size changes considerably from its current size during the 3-year period.
59. The median rebuild year for "Rule 2a" is 2016 (ie, rebuild to a *Bref*<sub>90%</sub> CPUE-equivalent of 1.14 kg/potlift in the autumn-winter season). This is one year later, on average, than "Rule 5" (*Option 2*).

### *Option 2 - Adopt the "Rule 5" CRA 3 Management Procedure to Guide TAC Setting in CRA 3*

60. The "Rule 5" CRA 3 Management Procedure specifies an initial "fixed" TAC for the first two years (the fishing years 2010-11, and 2011-12). This "fixed" TAC is a reduced CRA 3 TAC of 273 tonnes (refer *Final Advice Paper 2*).
61. Under Option 2, the reduced TAC of 273 tonnes is retained for two years and no response is proposed to the TAC if CPUE declines or increases in 2010 or 2011 – even if CPUE declines below the lower limit (0.75 kg/potlift) specified for "Rule 2a".
62. The median rebuild year of "Rule 5" is 2015 (ie, rebuild to a *Bref*<sub>90%</sub> of 1.14 kg/potlift in the autumn-winter season). This is one year earlier than "Rule 2a" (2016).

### **Utilisation & Value**

63. Simulation-testing of the "Rule 2a" and "Rule 5" CRA 3 Management Procedures suggests that, as well as rebuilding the stock to the target level, the CRA 3 Management Procedures would provide for good utilisation.
64. The testing indicates that the management procedures would improve fishing opportunities for all sectors over the long-term, by increasing the stock size, and would improve certainty of outcomes by being more responsive to changes in abundance of the stock, which improves the "safety" of the CRA 3 stock.
65. The NRLMG suggests that the ongoing application of both management procedures would increase customary Maori, amateur and commercial utilisation values by increasing the stock from its current size.
66. The harvest control rules in the CRA 3 Management Procedures, with allowances made for non-commercial catches, generate recommended TACs; the recommended TACCs are the TAC minus these allowances.
67. The distinguishing factors between the two CRA 3 Management Procedure options proposed ("Rule 2a" and "Rule 5") are the way in which and the rate at which stock targets will be met, and the social, cultural and economic impacts associated with TAC changes that may be invoked by either rule over its five year term of operation. These are discussed under each option below.

### *Option 1 - Adopt the "Rule 2a" CRA 3 Management Procedure to Guide TAC Setting in CRA 3*

68. Under Option 1, the current CRA 3 TAC is "fixed" for the first three years, unless CPUE goes outside the specified upper and lower limits of 1.08 and 0.75kg/potlift respectively. This option would have the least short-term impact on commercial stakeholders.
69. The current utilisation value of the fishery will be maintained for three years unless offset year CPUE falls below 0.75 kg/potlift or increases above 1.08 kg/potlift.
70. "Rule 2a" also provides responses to observed variations in stock abundance after the initial fixed TAC expires – the rule allows for minimum 5% or maximum 10% adjustments to the TAC in any one year. These responses will mean less variation in year-to-year catch than responses made under Option 2.

### *Option 2 - Adopt the "Rule 5" CRA 3 Management Procedure to Guide TAC Setting in CRA 3*

71. Under Option 2, the CRA 3 TAC would be reduced from 293 tonnes to 273 tonnes from April 2010. The TAC would then be fixed for two years with no response proposed to the TAC if CPUE declined or increased in 2010 or 2011.
72. The current utilisation value of the fishery will be reduced under this option from 1 April 2010 because of the proposed reduction to the TAC. The extent of the effect of this rule on the costs and benefits conferred on any one sector would depend on allocation decisions (refer to *Final Advice Paper 2*).
73. "Rule 5" also provides responses to observed variations in stock abundance after the initial fixed TAC expires – the rule allows for minimum 10% or maximum 25% adjustments to the TAC in any one year. These responses mean greater variation in year-to-year catch than Option 1.

### ***Credibility and Acceptance***

74. Management procedures are simpler for people to understand than stock assessments. They therefore tend to attract more interest and support.
75. The CRA 3 Forum initiated the development of a CRA 3 Management Procedure. Therefore, the use of a management procedure to guide TAC setting in the CRA 3 fishery from April 2010 has a very high degree of acceptance and support among CRA 3 tangata whenua and fishing stakeholders. This acceptance and support for a management procedure approach is shared by the NRLMG.
76. Adopting either of the CRA 3 Management Procedures may reduce the frequency of stock assessments and free resources for other research.

### **OTHER MANAGEMENT ISSUES**

77. *Final Advice Paper 2* provides advice on TAC-setting options for CRA 3 for the 2010-11 fishing year. The "Rule 2a" CRA 3 Management Procedure (Option 1) would result in no change to the current CRA 3 TAC, whereas, the "Rule 5" CRA 3 Management Procedure (Option 2) would result in a TAC decrease of 20 tonnes for CRA 3 from 1 April 2010.

## NRLMG RECOMMENDATION

78. The NRLMG recommends that you:

*EITHER*

- (i) **agree** to adopt the “Rule 2a” CRA 3 Management Procedure to guide TAC setting in CRA 3 (Option 1).

*OR*

- (ii) **agree** to adopt the “Rule 5” CRA 3 Management Procedure to guide TAC setting in CRA 3 (Option 2).

79. If for any reason you consider either of the CRA 3 Management Procedures unsuitable, the NRLMG recommends that you:

- (iii) **agree** to continue to use periodic stock assessments to guide TAC setting in CRA 3 (status quo).

80. **Note**, if you choose option (i) or (ii) above, a review of the management procedures will be conducted in 2014.

81. **Note**, if you choose option (iii) above, a CRA 3 stock assessment would be scheduled for 2011 to inform TAC setting for the 2012-13 fishing year (however this is dependant on sustainability measure priorities for other rock lobster stocks).

## STATUTORY CONSIDERATIONS

82. The following statutory considerations have been taken into account when forming the management options for CRA 3:

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

83. **Section 5** of the Act requires you to act in a manner consistent with New Zealand’s international obligations and Treaty of Waitangi (Fisheries Claims) Settlement Act 1992. To this end, the provisions of general international instruments such as UNCLOS and the Fish Stocks Agreement have been implemented through the provisions of the Act. The NRLMG is not aware of any specific international obligations relating to rock lobster fisheries that would be affected by the proposals.

84. The proposed options are consistent with the obligations relating to the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992. The NRLMG recognises that rock lobster (koura) is an important taonga species. Ongoing application of both the “Rule 2a” and “Rule 5” CRA 3 Management Procedures would increase customary Maori, amateur and commercial utilisation values. This is because the procedures would improve fishing opportunities for all sectors by increasing the stock from its current size.

85. National-level representatives of customary fishing interests are members of the NRLMG and have contributed to the development of the management procedure proposals. During 2009, opportunities were provided for many regional level customary Maori interests to input into the development of CRA 3 Management Procedures through the CRA 3 Working Group process. Regional-level CRA 3 customary Maori interests helped identify the final two alternative CRA 3 Management Procedures presented.

### ***Purpose of the Act (s 8)***

86. **Section 8** of the Act describes the purpose of the Act as being to provide for the utilisation of fisheries resources while ensuring sustainability, and defines the meanings of utilisation and sustainability. The management procedure options presented for CRA 3 seek to achieve the purpose of the Act. The proposals seek to achieve sustainable TACs and take into account the respective costs of management versus utilisation benefits.

### ***Environmental considerations (s 9)***

87. **Section 9** of the Act prescribes three environmental principles that you must take into account when exercising powers in relation to utilisation of fisheries resources and ensuring sustainability:
- a) **Section 9(a)** requires that associated or dependent species (ie, those that are not harvested) should be maintained above a level that ensures their long-term viability. Potting and hand gathering fisheries have a relatively low level of by-catch and the NRLMG is not aware of any interactions between the fisheries and non-harvested species of concern;
  - b) **Section 9(b)** requires the maintenance of biological diversity of the aquatic environment be taken into account. The decision on whether to adopt a management procedure to guide TAC setting in CRA 3 does not directly impact on the long term viability and biological diversity of the aquatic environment in CRA 3. Analysis of the impact of a TAC reduction from application of the proposed “Rule 5” management procedure (Option 1) is undertaken in *Final Advice Paper 2*; and
  - c) **Section 9(c)** requires the protection of habitats of particular significance to fisheries management. The NRLMG is not aware of any such habitats that are affected by the CRA 3 fishery.

### ***Information Principles (S 10)***

88. **Section 10** of the Act sets out the information principles, which 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. In accordance with s 10, the absence of information should not be used as a reason to postpone, or fail to take, any measure to achieve the purpose of the Act, including providing for utilisation at levels considered to be sustainable.
89. A thorough review of available information has been undertaken by the NRLMG and the best available information has been used to evaluate the management options presented. The NRLMG has endeavoured to set out the relevant uncertainty in, and inadequacy of, that information so that the appropriate caution can be applied in assessing the proposed management options.

### ***Sustainability Measures (s 11)***

90. **Sections 11(1)(a), (b) and (c)** set out matters you must take into account when varying the TAC for CRA 3, including any effects of fishing on any stock and the aquatic environment, any existing controls under the Act that apply to the stock or area concerned, and the natural variability of the stock. Such matters will be addressed directly in *Final Advice Paper 2* that seeks quantum variations to the TAC as a result of application of the proposed “Rule 5” CRA 3 Management Procedure (Option 2). The NRLMG notes, however, that recruitment into rock lobster stocks is highly variable and that this variability is taken into account by stock assessment scientists when developing and testing management procedures for CRA 3. Existing controls under the Act are also considered during these processes.
91. **Sections 11(2)(a) and (b)** require you to have regard to any provisions of any regional policy or plan under the Resource Management Act 1991 and any management strategy or plan under the Conservation Act 1997 that apply to the coastal marine area and are considered relevant when varying the TAC for CRA 3.
92. There are two regional councils with jurisdictional boundaries covering CRA 3 (Gisborne and Hawkes Bay). The NRLMG is not aware of anything in the proposed coastal plans for these councils that would be affected by this proposal. There is also one Department of Conservation Conservancy (East Coast/Hawke’s Bay) with jurisdictional boundaries covering CRA 3. The NRLMG is not aware of anything in the proposed strategies for this conservancy that would be affected by this proposal.
93. **Section 11(2A)(b)** requires you to take account of any relevant and approved fisheries plans when varying the TAC in CRA 3. There is no approved fisheries plan in place for CRA 3. However, the CRA 3 Forum has developed a draft CRA 3 Fisheries Management Plan.
94. **Sections 11(2A)(a) and (c)** require you to take into account any conservation or fisheries service, or any decision not to require such services, when varying a TAC. The NRLMG is not aware of any proposed services that affect the CRA 3 stock. No decision has been made to not require such a service in CRA 3 at this time.

### ***TAC Setting Considerations (section 13)***

95. Rock lobster stocks are managed under section 13 of the Act. Under section 13(2) you must set a total allowable catch that:
  - a) maintains the stock at or above a level that can produce the maximum sustainable yield, having regard to the interdependence of stocks; or
  - b) enables the level of any stock whose current level is below that which can produce the maximum sustainable yield to be altered—
    - (i) in a way and at a rate that will result in the stock being restored to or above a level that can produce the maximum sustainable yield, having regard to the interdependence of stocks; and
    - (ii) within a period appropriate to the stock, having regard to the biological characteristics of the stock and any environmental conditions affecting the stock; or
  - c) 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.

Before a TAC could be set under the above provisions you must be provided with an estimate of both current biomass and the biomass that can produce the maximum sustainable yield (*Bmsy*). Current biomass estimates are available for CRA 3. A *Bmsy* estimate is also available but is considered unreliable and is not used. Instead, a reference biomass is used as a proxy for *Bmsy*. Where proxies are applied, section 13 (2A) of the Act is used for TAC setting.

96. Section 13(2A) states that:

(2A) For the purposes of setting a total allowable catch under this section, if you consider that the current level of the stock or the level of the stock that can produce the maximum sustainable yield is not able to be estimated reliably using the best available information, you must—

- a) not use the absence of, or any uncertainty in, that information as a reason for postponing or failing to set a total allowable catch for the stock; and
- b) have regard to the interdependence of stocks, the biological characteristics of the stock, and any environmental conditions affecting the stock; and
- c) set a total allowable catch—
  - (i) using the best available information; and
  - (ii) that is not inconsistent with the objective of maintaining the stock at or above, or moving the stock towards or above, a level that can produce the maximum sustainable yield.

97. There is no information to compare the *Bref* used in the management procedure modelling directly with the (uncertain) *Bmsy* estimate calculated as part of the 2008 stock assessment. However, it is the NRLMG's view that the measures advanced in this paper meet the requirement of being "not inconsistent with the objective of maintaining the stock at or above, or moving the stock towards or above, a level that can produce the maximum sustainable yield." This is because CRA 3 stock size is low and both procedures act to increase stock size and therefore move the stock towards a level at or above *Bmsy*.

98. In considering the way in which and rate at which a stock is moved towards or above a level that can produce maximum sustainable yield under subsection (2)(b) or (c), or (2A) (if applicable), you shall have regard to such social, cultural, and economic factors as he or she considers relevant. The CRA 3 Management Procedures are rebuilding procedures and would act to move the stock towards the target. The NRLMG notes that the procedures are expected to rebuild the stock size to the target level, *Bref*<sub>90%</sub>, with high probability.

### **TACC Setting Considerations (s 20 and 21)**

99. **Sections 20 and 21** specify a number of matters that must be taken into account when setting or varying a TACC. Section 21 requires you to allow for non-commercial Māori and amateur fishing interests, and other sources of fishing-related mortality when setting or varying the TACC. These allowances will be considered and provided for when quantum changes to the TAC are proposed (refer *Final Advice Paper 2*).

100. **Section 21(4)** also requires that any mātaimai reserve or closures/restrictions under s 186A to facilitate customary Maori fishing be taken into account. No mātaimai reserves or s 186A closures are located within CRA 3.
101. **Section 21(5)** also requires that any regulations to prohibit fishing made under s 311 be taken into account when setting allowances for amateur fishing interests. The NRLMG is not aware of any restrictions under s 311 that have been placed on fishing in any area within CRA 3.

### **Fisheries (Kaimoana Customary Fishing) Regulations 1998**

102. **Regulation 14** specifies that any Tangata Kaitiaki/Tiaki may provide input to and participate in the process of setting or varying sustainability measures, or developing management measures concerning the whole or any part of the area/rohe moana for which that Tangata Kaitiaki/Tiaki has been appointed.
103. The NRLMG notes that a CRA 3 Tangata Kaitiaki is a member of the NRLMG and has contributed to the development of the management procedure proposals. During 2009, several other CRA 3 Tangata Kaitiaki were provided with opportunities to input into the development of the CRA 3 Management Procedures through the CRA 3 Working Group process.
104. **Regulation 33** specifies that you must provide to any Tangata Kaitiaki/Tiaki such information and assistance as may be necessary for the proper administration of the Fisheries (Kaimoana Customary Fishing) Regulations 1998 and do so in accordance with section 10 of the *Treaty of Waitangi (Fisheries Claims) Settlement Act 1992*.
105. The NRLMG notes information on the health of the CRA 3 stock has been provided to some CRA 3 Tangata Kaitiaki, along with information on the development of a CRA 3 Management Procedure through NRLMG, CRA 3 Working Group and MFish Iwi Forum processes. The NRLMG encourages submitters to engage with their NRLMG sector contacts or MFish for further information and assistance on rock lobster fisheries, should it be required.

## 2. CATCH LIMIT REVIEWS FOR CRA 3, CRA 4 AND CRA 7

### EXECUTIVE SUMMARY

75. You are being asked to make decisions on Total Allowable Catches (TACs) and Total Allowable Commercial Catches (TACCs) for three rock lobster fisheries for the 2010-11 fishing year beginning 1 April 2010. The fisheries are CRA 3 (Gisborne), CRA 4 (Wellington/Hawkes Bay) and CRA 7 (Otago).
76. The NRLMG considers the TAC and allowances options proposed for CRA 3, CRA 4 and CRA 7 are consistent with your statutory obligations under sections 13, 20 and 21 of the Fisheries Act 1996 (the Act). The TAC and allowance options proposed are based on the operation of two agreed (CRA 4 and CRA 7) and two alternative proposed (CRA 3) management procedures. A management procedure is a tool that is designed to provide guidance as to how the Act can be applied to the setting of the TAC, pursuant to section 13 of the Act, for CRA 3, CRA 4 and CRA 7.

### CRA 3 (Gisborne)

77. For CRA 3, there is no agreement among submitters or the NRLMG on a recommended TAC and allowances option. The NRLMG therefore proposes two management options for you to consider in accordance with your obligations under sections 13, 20 and 21 of the Act:

<b>Option 1</b>	Guided by the "Rule 2a" CRA 3 Management Procedure, you: (i) <b>retain</b> the current CRA 3 TAC and allowances for the 2010-11 fishing year.
<b>Option 2</b>	Guided by the "Rule 5" CRA 3 Management Procedure, you: (i) <b>decrease</b> the CRA 3 TAC from 293 tonnes to 273 tonnes; <i>And, to achieve the decrease,</i> (ii) <b>decrease</b> only the CRA 3 TACC from 164 tonnes to 144 tonnes.

78. The 2009 model fitting indicated that CRA 3 stock size was just above the minimum reference stock size (*Bmin*) and well below its target level (*Bref*). The NRLMG advises that, based on recent catch-per-unit-effort (CPUE) information, stock size may have increased in the last few fishing years.
79. In respect of the two options presented, the NRLMG advises that:
- a) Because no reliable estimate of the CRA 3 statutory target, *Bmsy*, is available at this time, you are required to consider the matters specified in section 13(2A) of the Act outlined later in this paper. Both options are consistent with the requirement of section 13(2A) of the Act to set a TAC, using the best available information, that is not inconsistent with the objective of maintaining the stock at or above, or moving the stock towards or above, *Bmsy*, using an agreed proxy target (ie, *Bref*);
  - b) Option 1 - maintain the current TAC and allowances for CRA 3. This proposal results from the operation of the proposed "Rule 2a" CRA 3 Management Procedure. Option 1 is the appropriate choice if you consider minimising the short-term impact on utilisation to be the primary concern when rebuilding the stock and consider less year-to-year

variation in catch to be beneficial to fishery stakeholders (Option 2 provides for greater variation in catch year-to-year);

- c) Option 2 – set the CRA 3 TAC using the “Rule 5” CRA 3 Management Procedure. This option is the appropriate choice if you consider increasing stock size towards the target at a potentially slightly faster rate (ie, one year earlier on average in simulations) than Option 1 to be the primary concern and consider that there is greater benefit to the stock than costs associated with a 20 tonne TAC reduction.

- 80. When setting or varying a TACC, you are required to allow for non-commercial Maori and amateur fishing interests, and other mortality. The NRLMG notes that it is not proposed to alter non-commercial allowances under either TAC reduction option.
- 81. The NRLMG advises that ongoing application of both the “Rule 2a” and “Rule 5” CRA 3 Management Procedures would increase customary Maori, amateur and commercial utilisation values by improving fishing opportunities for all sectors through increasing the stock size.

### **CRA 4 (Wellington/Hawkes Bay)**

- 82. For CRA 4, there is no agreement among submitters or the NRLMG on a recommended TAC and allowances option. The NRLMG therefore proposes three management options for you to consider in accordance with your obligations under sections 13, 20 and 21 of the Act:

<b>Option 1</b>	Guided by the CRA 4 Management Procedure, you: (i) <b>increase</b> the CRA 4 TAC from 461 tonnes to 660.5 tonnes; <i>And, to achieve the increase,</i> (ii) <b>increase</b> only the CRA 4 TACC from 266 tonnes to 465.5 tonnes.
<b>Option 2</b>	(i) <b>increase</b> the CRA 4 TAC from 461 tonnes to 610.625 tonnes; <i>And, to achieve the increase,</i> (ii) <b>increase</b> only the CRA 4 TACC from 266 tonnes to 415.625 tonnes.
<b>Option 3</b>	(i) <b>retain</b> the existing CRA 4 TAC and allowances for the 2010-11 fishing year.

- 83. Option 1 results from the operation of the CRA 4 Management Procedure that was adopted by you in March 2009 to guide TAC setting for this stock. Option 2 is based on information provided by some submitters, who suggest a more cautious approach to CRA 4 TAC setting than the TAC resulting from the operation of the CRA 4 Management Procedure.
- 84. Best available information on CRA 4 stock status suggests stock size has increased over the last three fishing years. Standardised autumn-winter CPUE increased from 0.53 kg/potlift in 2007 to 0.57 in 2008, and then to 0.87 kg/potlift in 2009.
- 85. Because no reliable estimate of the CRA 4 statutory target, *Bmsy*, is available at this time, you are required to consider the matters specified in section 13(2A) of the Act outlined later in this paper. In respect of the three options presented, all options are consistent with the requirement of section 13(2A) of the Act to set a TAC, using the best available information, that is not inconsistent with the objective of maintaining the stock at or above, or moving the stock towards or above, *Bmsy*, using an agreed proxy target (ie, *Bref*).

86. When setting or varying a TACC, you are required to allow for non-commercial Maori and amateur fishing interests, and other mortality. The NRLMG notes that it is not proposed to alter non-commercial allowances under either TAC increase option.
87. The NRLMG advises that ongoing application of the CRA 4 Management Procedure is designed to maintain stock size well above the target level and consequently meet customary Maori, recreational and commercial utilisation expectations over time, because the management procedure will improve fishing opportunities for all sectors by increasing the stock from its current size.

### ***CRA 7 (Otago)***

88. The NRLMG recommends that you decrease the TAC for CRA 7 from 209 tonnes to 104.5 tonnes, in accordance with your obligation under section 13 of the Act.
89. The recommended decrease to the TAC of CRA 7 is the result of the operation of a management procedure adopted by the previous Minister in March 2008 to guide TAC setting for this stock.
90. Because a reliable estimate of the CRA 7 statutory target, *Bmsy*, is available, you are required to consider the matters specified in section 13(2)(c) of the Act outlined later in this paper. The recommended CRA 7 decrease is consistent with the requirement of section 13(2)(c) of the Act to set a TAC that enables the stock whose current level is above *Bmsy*, to be altered in a way and rate that will result in the stock moving towards or above a level that can produce *Bmsy*.
91. Best available information on CRA 7 stock status suggests stock size has declined in recent years but is still above the target level. Standardised offset year CPUE decreased from 2.09 kg/potlift in 2008 to 0.866 kg/potlift in 2009. The NRLMG suggests that CRA 7 abundance may have declined recently, but not as much as the CRA 7 CPUE suggests.
92. To achieve the decrease in TAC, the NRLMG recommends that you only decrease the TACC from 189 tonnes to 84.5 tonnes, in accordance with your obligations under sections 20 and 21 of the Act. Submissions from national and regional representative organisations support a reduction in the CRA 7 TACC.

### ***Other Matters***

93. In addition to commenting on the proposed sustainability measures for CRA 3, CRA 4, and CRA 7 many submitters commented on or proposed other management measures that are outside the scope of this advice process. These included: finer scale fisheries management, a section 186A area closure, removal or review of commercial concession areas, introduction of CRA 3 closed seasons, review of CPUE target levels for CRA 3, CRA 4 and CRA 5, further research, CRA 4 recreational sector voluntary daily bag limit reduction, Annual Catch Entitlement (ACE) shelving agreements, improved information on non-commercial harvest, improved efforts to reduce illegal removals, NRLMG representation, and increased tangata whenua and stakeholder involvement in rock lobster management. These management measures are discussed briefly in the 'Other Matters' section towards the end of this *Final Advice Paper*.

## **BACKGROUND INFORMATION**

### ***Management Goal***

94. The NRLMG's management goal is for all rock lobster fisheries to be managed and maintained at or above the assessed and agreed biological reference points (targets), using a comprehensive

approach that recognises a range of customary non-commercial, amateur, commercial and environmental concerns and values.

95. The use of a tool, called a management procedure, to guide the setting of catch limits is consistent with the NRLMG's comprehensive management approach. Under a management procedure approach, agreement is obtained among managers and stakeholders before the procedure is implemented: they agree about the data inputs, the way the inputs will be treated to make inferences, the harvest control rule and the period for which the management procedure will be used. Extensive simulation testing of the procedure is undertaken to ensure it will deliver the desired outcomes.

### ***Sustainability Indicators (Bmsy, Bref, Bmin)***

96. The NRLMG uses sustainability indicators to report on stock health and to evaluate the effectiveness of management options. For most rock lobster stocks, performance is reported against a "target" stock size and a "minimum" stock size.
97. Three sustainability indicators are relevant to evaluation of the management options presented in this *Final Advice Paper*:
- a) The statutory target stock size, **Bmsy**. TACs for rock lobster stocks are set under section 13 of the Act. Section 13 requires you to set TACs for rock lobster stocks that move the stocks to, or maintain the stocks at, a level at or above *Bmsy*, or that is not inconsistent with this objective. *Bmsy* is not straightforward to estimate and is often uncertain when estimated.
  - b) The proxy target stock size, **Bref**. When a *Bmsy* estimate is absent or unreliable, alternative proxy targets are used. Proxy targets are a way of setting a TAC that is not inconsistent with the objective of maintaining a stock at or above, or moving the stock towards a level that can maintain the maximum sustainable yield. This "not inconsistent" approach is set out in section 13(2A) of the Act where you consider that current biomass or *Bmsy* cannot be estimated reliably using best information. *Bref* is generally a stock size at or above the stock size associated with a period in the fishery that showed good productivity and was demonstrably safe.
  - c) The minimum stock size, **Bmin**. *Bmin* is either the stock size associated with lowest abundance in the observed history of the fishery or  $\frac{1}{2}$  *Bref*.
98. For all these indicators, the stock size is measured in terms of vulnerable biomass. "Vulnerable biomass" is the total quantity of lobsters available to the fishery (ie, it does not include lobsters that cannot be harvested such as undersize lobsters and berried female lobsters).
99. In order to meet the management goal the NRLMG has specified a desired performance in relation to sustainability indicators, which is:
- a) a stock size above the target (*Bref*) with at least 50% of the time (note in CRA 3 Management Procedure evaluations *Bref*90% was used);
  - b) a stock size that remains above the minimum (*Bmin*) with 90% probability; and
  - c) a spawning stock size that remains above 20% of its unfished level with high probability.

100. Extensive simulation-testing based on operating models of the stocks and associated fisheries suggest that all the management procedures achieve the desired performance in relation to the sustainability indicators.

### ***Harvest Strategies***

101. In October 2008, MFish released the Harvest Strategy standard for New Zealand fisheries (the HSS) that specifies performance standards for Quota Management System (QMS) species. The NRLMG considers the management procedures previously agreed for CRA 4 and CRA 7, and proposed for CRA 3 to be consistent with the HSS.
102. The Guidelines for Harvest Strategy Standards (MFish 2008) describe the *Bref* concept as follows: “Conceptual proxies for BMSY, FMSY and MSY are qualitative surrogates that can be used in the absence of adequate information to directly estimate these reference points themselves. The conceptual interpretation embraces the spirit and intent of section 13 of the Act. It can be used in cases where there is insufficient information to estimate BMSY, FMSY or MSY explicitly, or where such estimates may be unreliable because, for example, there is little or nothing known about the stock recruitment relationship. Conceptual BMSY: In cases where the relationship between CPUE and abundance can be assumed to be more or less proportional, or where some other form of relationship has been derived from data, it may be reasonable to select an appropriate historical period when both CPUE and catches were relatively high and to use this CPUE level as a target. *The best example in current use in New Zealand is that for rock lobster.*” [emphasis added]

### ***Operation of Management Procedures for CRA 3, CRA 4 and CRA 7***

103. The NRLMG believes that implementing the catch limits generated by the proposed CRA 3 management procedures and the agreed CRA 4 and CRA 7 management procedures is consistent with the Act. For CRA 3 and CRA 4, operation of the relevant management procedures is “not inconsistent” with the objective of maintaining a stock at or above, or moving the stock to a level at or above *Bmsy* (or the accepted proxy) in a way and rate considered appropriate for the stock (section 13(2A)). For CRA 7, the operation of the CRA 7 Management Procedure results in a TAC that enables the stock whose current level is above *Bmsy*, to be altered in a way and at a rate considered appropriate for the stock (section 13(2)(c)).
104. You may, of course, choose any alternative TAC within the range consulted on. However, the NRLMG considers that there is considerable benefit in consistent implementation of TACs generated by agreed management procedures. Such an approach provides certainty to stakeholders over management actions reduces conflict over management decision-making and meets legislative obligations.

## **CONSULTATION AND SUBMISSIONS**

105. MFish consulted on the NRLMG’s Initial Advice on your behalf between 17 December 2009 and 5 February 2010.
106. Consultation on the proposals were undertaken with such persons or organisations representative of those classes of persons having an interest in the stock or the effects of fishing on the aquatic environment in the area concerned, including national and regional Maori, environmental, commercial, and recreational interests. Further, provision was made for the input and participation of tangata whenua having a non-commercial interest in the stock or an interest in the effects of fishing on the aquatic environment in the area concerned, having particular regard to Kaitiakitanga.

107. The following organisations, groups, companies and individuals submitted on the NRLMG's *Initial Advice Paper 2*:

***National Representative Organisations***

- ◆ Council of Outdoor Recreation Associations (CORANZ)
- ◆ Environment and Conservation Organisations of NZ (ECO)
- ◆ New Zealand Recreational Fishing Council (NZRFC)
- ◆ New Zealand Rock Lobster Industry Council (NZ RLIC)
- ◆ New Zealand Sport Fishing Council (NZ SFC)
- ◆ option4 / NZ SFC Zone 5 combined clubs (non-commercial interests)
- ◆ Te Ohu Kaimoana Trustee Limited (Te Ohu)

***Regional Representative Organisations, Groups or Companies***

- ◆ Bill Ruru on behalf of Te Aitanga a Mahaki Trust (Mahaki)
- ◆ CRA 4 Rock Lobster Industry Association Incorporated (CRAMAC 4)
- ◆ Fiordland Lobster Co. Limited (FLC)
- ◆ Gisborne Fisheries Limited (GFL)
- ◆ Kahungunu Asset Holding Company Limited (KAHC)
- ◆ Kahungunu Ki Uta, Kahungunu Ki Tai (KKUKKT)
- ◆ Ngai Tahu Fisheries Settlement Ltd. / Ngai Tahu Seafood (Ngai Tahu)
- ◆ NZ SFC Zone 5 Fishing Clubs and members of the North Island South East Regional Recreational Forum (CRA 4 recreational interests)
- ◆ Otago Rock Lobster Industry Association Inc. (ORLIA)
- ◆ Porou Ariki Trust (PAT) / Ngati Porou Seafoods Limited (NPSL)
- ◆ Pukemanu Boating & Fishing Club (PB & FC)
- ◆ Tairāwhiti Rock Lobster Industry Association (CRAMAC 3)
- ◆ Te Kupenga Whiturauroa a Maui Customary Fisheries Forum (TKWM)
- ◆ Turanganui a Kiwa Regional Customary Fisheries Forum (TKCFF)

***Individuals***

- ◆ Alain Jorion (Mr Jorion) – *an amateur fisher in CRA 3, CRA 3 Working Group recreational representative and board member of the NZRFC*
- ◆ James Farr (Mr Farr) – *an appointed customary Kaitiaki for Ngati Konohi*
- ◆ Kelvin Ellison, K&N Ellison Family Trust, and K&N Ellison Partnership (Ellison) – *commercial fishers in CRA 3*
- ◆ N.D Robinson (Mr Robinson) – *CRA 4 quota holder.*

108. Full copies of their submissions are attached as *Attachment 4* to these *Final Advice Papers*. Each submission is described, and the matters raised in the submission discussed, in the following sections as relevant.

## CRA 3 (GISBORNE ROCK LOBSTER FISHERY)

### Summary of NRLMG Final Proposal

109. **For CRA 3**, there is no agreement among submitters or the NRLMG on a recommended option. The NRLMG therefore proposes two alternative management options for you to consider in accordance with your obligations under sections 13, 20 and 21 of the Act:

<b>Option 1</b>	Guided by the “Rule 2a” CRA 3 Management Procedure, you: (i) <b>retain</b> the current CRA 3 TAC and allowances for the 2010-11 fishing year.
<b>Option 2</b>	Guided by the “Rule 5” CRA 3 Management Procedure, you: (i) <b>decrease</b> the CRA 3 TAC from 293 tonnes to 273 tonnes; <i>And, to achieve the decrease,</i> (ii) <b>decrease</b> only the CRA 3 TACC from 164 tonnes to 144 tonnes.

110. If for any reason you choose not to use either CRA 3 Management Procedure to guide TAC setting for CRA 3 in 2010-11, the NRLMG recommends that you:
- a) adopt a 20 tonne TAC reduction; or
  - b) retain the existing CRA 3 TAC and allowances for the 2010-11 fishing year.
111. **Note**, if you choose option (a) or (b) above, further work will be commissioned during 2010 to support consideration of alternative management measures for CRA 3 for the 2011-12 fishing year (however, this work is dependant on sustainability measure priorities for other rock lobster stocks).

### Rationale for Management Options

112. The NRLMG considers the TAC and allowances options proposed for CRA 3 are consistent with your statutory obligations under sections 13, 20 and 21 of the Act. The proposals are based on the operation of two alternative CRA 3 Management Procedures. A management procedure is a tool that is designed to provide guidance as to how the Act can be applied to the setting of the TAC, pursuant to section 13 of the Act, for CRA 3.
113. The NRLMG recommends that you be guided on the TAC option by your decision to use either the “Rule 2a” or “Rule 5” CRA 3 Management Procedure (refer *Final Advice Paper 1*). If you adopt the “Rule 2a” CRA 3 Management Procedure (Option 1) no change to the CRA 3 TAC is proposed for 2010-11, whereas if you adopt the “Rule 5” CRA 3 Management Procedure, it is proposed that the CRA 3 TAC will be reduced by 6.8% for 2010-11. The CRA 3 Management Procedures are described in detail in *Attachment 1* to this *Final Advice Paper*. It is proposed that the procedures would guide TAC setting for CRA 3 until the 2015-16 fishing year and would be reviewed during 2014.
114. Adopting either the “Rule 2a” or the “Rule 5” CRA 3 Management Procedures would provide a mechanism to rebuild the CRA 3 fishery from a state of low abundance and provide greater certainty of achieving this outcome. The CRA 3 Management Procedures are designed to move the stock towards the target, *Bref90%*, and maintain stock size above *Bmin*, with high probability.

## **Initial View of the CRA 3 Working Group & NRLMG**

115. The CRA 3 Working Group (a smaller group of CRA 3 Multi-stakeholder Fishing Forum representatives) and the NRLMG attempted to reach consensus on a single preferred CRA 3 Management Procedure option to guide TAC setting from April 2010. However, sector members from both groups were divided on which option to support:
- a) CRA 3 Working Group commercial representatives and one customary representative were in favour of Option 1: maintain the current TAC and allowances for CRA 3. The proposed retention in TAC is specified by the “Rule 2a” CRA 3 Management Procedure.
  - b) CRA 3 Working Group recreational representatives and one customary representative were in favour of Option 2: set the CRA 3 TAC and allowances using the “Rule 5” CRA 3 Management Procedure. They did not however have a preferred allocation of the reduced TAC.
  - c) Some NRLMG members (namely commercial and customary) preferred Option 1 (“Rule 2a”), whereas other NRLMG members (namely recreational and customary) preferred Option 2 (“Rule 5”).

## **Background**

### **CRA 3 Sustainability Indicators & Stock Status**

116. A *Bmsy* reference point was calculated for CRA 3 in 2008. The *Bmsy* calculation was sensitive to the period chosen to represent mean recruitment, which varies substantially over the period for which estimates are available; this in turn caused uncertainty in *Bmsy*. The NRLMG therefore considered this *Bmsy* estimate unreliable for use as a target stock size for this stock.
117. A *Bmsy* proxy target, *Bref*, was agreed by the Rock Lobster Fisheries Assessment Working Group (RLFAWG) in 2009 as the management procedure target because it could be estimated with greater reliability, and it represented a stock considered to be healthy. This target stock size, called *Bref*, is the autumn-winter (April through September) vulnerable stock size associated with the reference period 1974-79 and is “not inconsistent” with the approach set out in section 13(2A) of the Act. CRA 3 stakeholders collectively agreed on this target level because 1974-79 was a period when the stock showed good productivity and was demonstrably safe, having gone below this level and then recovered.
118. *Bref* included an adjustment to address the change in growth rate of rock lobsters in CRA 3 that had occurred since 1974-79 (as demonstrated in the 2008 stock assessment), and changes to legal size and escape gap regulations (both which have changed since 1974-79). A technical procedure based on fishing mortality rates was used to adjust *Bref* to reflect these changes. This adjustment procedure has been reviewed and accepted by the RLFAWG.
119. The RLFAWG then agreed that the CRA 3 Management Procedure rules should be evaluated against 90% of the *adjusted Bref* (called *Bref<sub>90%</sub>* hereafter), to address a potential that a ‘regime shift’ may have resulted in lower productivity and that reference points based on historically higher productivity are inappropriate if recruitment continues at its recent low levels. The CPUE associated with the *Bref<sub>90%</sub>* is a standardised autumn-winter CPUE of 1.14 kg/potlift.
120. *Bref<sub>90%</sub>* is the target stock size that was used in the CRA 3 Management Procedure evaluations only and will be reviewed at the time of future stock assessment and management procedure

reviews (ie, five years unless reviewed sooner). The NRLMG considers that the target, *Bref90%*, is consistent with your statutory obligations under section 13 of the Act to set a TAC that moves the stock towards, *Bmsy*, or the agreed proxy target.

121. *Bmin* for CRA 3 is the stock size associated with lowest abundance in the observed history of the fishery. The CRA 3 stock has previously recovered from this low point.
122. A stock assessment was last undertaken for CRA 3 in 2008<sup>1</sup>. The 2008 stock assessment results indicated that stock size was just above *Bmin* and well below its target level. Under 2007 catches and recent recruitments, the 2008 assessment predicted a 75% probability that stock size would decline over the four years up to 2012.
123. On the basis of this assessment, you reduced the CRA 3 TAC from 319 tonnes to 293 tonnes, from April 2009.
124. CPUE is considered to be a reliable indicator of relative stock size in CRA 3. The NRLMG advises that, based on recent CPUE information, stock size may have increased. Standardised autumn-winter CPUE (calculated in November 2009) increased from 0.59 kg/potlift in 2007 to 0.68 in 2008, and then to 0.89 kg/potlift in 2009. Offset year (1 October to 30 September) CPUE also increased from 0.59 kg/potlift in 2007 to 0.63 in 2008, and then to 0.79 kg/potlift in 2009. Current CPUE is still below the CPUE associated with *Bref90%* - a standardised autumn-winter CPUE of 1.14 kg/potlift.
125. There is considerable uncertainty with respect to the level of current recruitment and some uncertainty with respect to current growth rates in CRA 3. As noted above, two adjustments to the *Bref* target were made to address the potential that slow growth and low recruitments will persist into the future. These adjustments will be reviewed at the time of future stock assessments and management procedure reviews. The model's estimated recruitment in CRA 3 shows a declining trend since 1979, with a lot of short-term volatility. The cause is not known, but larval (puerulus) settlement also shows a declining trend since 1991 with much short-term volatility. The cause of slow growth (determined from tag-recapture data collected between 1996-2008) compared to earlier data is also unknown: it does not appear to relate to density of the stock or handling of lobsters. The base case model used to evaluate rules has low stock productivity, caused by assuming that low recruitments observed in the last 10 years will persist into the future as will the slow growth observed from 1996-2008. These assumptions result in a level of productivity that may not be able to sustain future catches as high as the historical catches over the long-term.
126. The CRA 3 stock assessment was not updated in 2009 except that the model was updated from recent data for use as the operating model to test management procedures.

### ***Initial Advice Options***

127. In *Initial Advice Paper 2*, the NRLMG proposed two alternative TAC setting options for CRA 3. These options were:

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<sup>1</sup> The updated 2008 stock assessment model provided the basis for the operating model which was used to conduct management procedure evaluations for CRA 3.

### Option 1 – Maintain the current TAC and allowances for CRA 3 (Status Quo)

128. Under Option 1, the current CRA 3 TAC and allowances would be retained for the 2010-11 fishing year. This proposal resulted from the operation of the proposed “Rule 2a” CRA 3 Management Procedure.

### Option 2 – Set the CRA 3 TAC using the “Rule 5” CRA 3 Management Procedure

129. Under Option 2, the TAC for CRA 3 would be reduced from 293 tonnes to 273 tonnes from 1 April 2010 (refer *Table 1*). The NRLMG proposes the following allocations of the TAC:
- a) Reduce only the TACC from 164 tonnes to 144 tonnes only; and
  - b) Retain the current allowances for customary Maori, amateur and other fishing mortality.
130. This TAC proposal resulted from the operation of the proposed “Rule 5” CRA 3 Management Procedure.

### **Summary of Submissions Received on CRA 3**

131. MFish received submissions on the proposed TAC and TACC variations for CRA 3 from CORANZ, ECO, NZRFC, NZ RLIC, NZ SFC, non-commercial interests, Te Ohu, Mahaki, FLC, GFL, Ngati Konohi, KAHC, KKUKKT, PAT/NPSL, CRAMAC 3, TKWM, TKCFF, Mr Jorion and Ellison. Full copies of the submissions are provided in *Attachment 4* to these *Final Advice Papers*.

#### **Support for Option 1**

132. NZ RLIC, FLC, GFL, KAHC, KKUKKT, CRAMAC 3, TKWM, TKCFF and Ellison support Option 1 – maintain the current TAC and allowances for CRA 3.
133. NZ RLIC and CRAMAC 3 reaffirm the observation that CRA 3 stock abundance has increased markedly over two most recent seasons in all three statistical areas. Commercial submitters - GFL and Ellison - also confirm that over the last 1-2 fishing seasons the number of days required to fulfil their ACE has reduced due to increasing lobster abundance.

#### **Support for modified Option 1**

134. Te Ohu (with support from Mahaki) and PAT/NPSL express support for a modified Option 1. They support the adoption of the “Rule 2a” CRA 3 Management Procedure subject to sectors agreeing to no TAC increases during the next three years. If agreement is not reached, Te Ohu will support a modified Rule 5. PAT/NPSL would also reconsider its support for Rule 2a in favour of Rule 5 if their recommendations were not acknowledged.

#### **Support for Option 2**

135. NZRFC, NZ SFC, Mr Jorion, Mr Farr and ECO support Option 2 – set the CRA 3 TAC using the “Rule 5” CRA 3 Management Procedure. Submitters support the 20 tonne TAC reduction under this option due to concerns about the availability of rock lobsters to non-commercial fishers in CRA 3 for some time.

## **Other Matters**

136. Non-commercial interests (with support and endorsement from CORANZ) do not support the proposed management procedures for CRA 3. Non-commercial interests and CORANZ cannot give support to any of the proposed options, until you have carried out the statutory functions required of you to assess whether the proposed management options for CRA 3 will comply with s 8, 9, 10, 12, 13, 20 and 21 of the Act.
137. CRAMAC 3 and GFL consider that if the “Rule 5” CRA 3 Management Procedure is adopted the 20 tonne reduction should come from the recreational allowance as industry has had the TACC reduced by 163 tonne since 2004 to ensure sustainability.
138. CRAMAC 3 and GFL also consider that the opportunity cost to the commercial industry of implementing “Rule 5” is greater than outlined in the NRLMG’s Initial Advice. A 20 tonne reduction to the TACC under “Rule 5” is for 2 years, representing a loss of export income of at least \$1.04 million per year. The average ACE price for the 2009-10 year was approximately \$27,000 per tonne which makes a net economic loss of approximately \$1.08 million over 2 years.
139. The NRLMG notes many submitters commented on or proposed other management measures that are outside the scope of this advice process. These management measures are discussed briefly in the ‘Other Matters’ section towards the end of this *Final Advice Paper*.

## **NRLMG Discussion on Relevant Matters Raised in Submissions**

### **TAC Setting**

140. The NRLMG note the views of commercial submitters that CRA 3 stock abundance has increased and their consequent support for Option 1. The NRLMG advises that, based on recent CPUE information, stock size may have increased in the last few fishing years. Offset year (1 October to 30 September) CPUE increased from 0.59 kg/potlift in 2007 to 0.63 in 2008, and then to 0.79 kg/potlift in 2009. However, the stock still remains well below the target stock size (*Bref*<sub>90%</sub>).
141. Recreational submitters’ support for Option 2 appears to be largely driven by the immediate 20 tonne reduction in TAC and their concerns about the availability of rock lobsters to non-commercial fishers in CRA 3. Some NRLMG members consider a TAC reduction in April 2010 to be inconsistent with an observed increase in CRA 3 CPUE in recent years, whereas other members consider leaving 20 tonnes of fish in the water will help to secure a necessary rebuild of the CRA 3 fishery.
142. The NRLMG advises that both options are consistent with the requirement of section 13 of the Act to set a TAC that moves the stock towards the target, *Bmsy* or an agreed proxy target (ie, *Bref*). This is because ongoing application of either CRA 3 Management Procedure is expected to increase the stock from its current size and rebuild it to the target level. The NRLMG notes that based on recent CPUE information, stock size may have increased; therefore retaining the current TAC for 2010-11 (Option 1) does not pose a risk to stock sustainability. However, Option 2 may result in stock size increasing to the target level at a slightly faster rate than Option 1.
143. Te Ohu (with support from Mahaki) and PAT/NPSL express support for a modified Option 1. They support the adoption of the “Rule 2a” CRA 3 Management Procedure subject to sectors agreeing to no TAC increases during the next three years. The NRLMG advises that management procedures cannot be modified at this point in the process: they must be extensively simulation

–tested to ensure that the results are consistent with the sustainability criteria (outlined above) and your statutory obligations. There is no opportunity to do that at this point in the process. Further, it would be inappropriate to propose modified rule options without consulting further with the CRA 3 Working Group, CRA 3 tangata whenua and CRA 3 fishery stakeholders.

144. The NRLMG suggests that CRA 3 tangata whenua and CRA 3 fishery stakeholders discuss the proposed modified rules further during 2010 and if support is forthcoming from all sectors a research proposal to amend the rule option could be considered for prioritisation in 2010-11. The NRLMG advises that the rock lobster research budget is limited and that the research needs of all rock lobster stocks need to be considered when allocating the budget.

### ***Allocation of the TAC***

145. The NRLMG notes that submitters who indicated support for Option 2 also support a decrease only to the CRA 3 TACC.
146. However, commercial submitters (CRAMAC 3 and GFL) consider that if Option 2 is adopted, the 20 tonne TAC reduction should come from the recreational allowance as industry have endured a 163 tonne reduction to the TACC since 2004. The NRLMG does not consider this proposal appropriate. If Option 2 is chosen, the NRLMG considers there is greater certainty of benefit to the stock associated with a reduction to the TACC as long as the catch reduction is not taken by other sectors.

### ***Assessment of Management Options for CRA 3***

147. Assessment of the management options against the full set of statutory considerations is set out at the end of this *Final Advice Paper*. However, key considerations and impacts are discussed below.

### ***TAC Setting***

148. The TAC for CRA 3 is set under section 13 of the Act. Section 13(2) enables you to set a TAC that maintains, restores or moves the stock to a level that can produce the maximum sustainable yield. However, before a TAC can be set under section 13(2) you must be provided with an estimate of both current biomass and the biomass that can produce the maximum sustainable yield (*Bmsy*).
149. Section 13(2A) states that for the purpose of setting a TAC under section 13(2), you need to be satisfied that current biomass and *Bmsy* are not able to be estimated reliably. If you are satisfied current biomass and *Bmsy* are not able to be estimated reliably, under section 13(2A) you must, using best available information, set a TAC that is not inconsistent with the objective of maintaining the stock at or above, or moving the stock towards or above, a level that can produce *Bmsy*.
150. A current biomass and *Bmsy* estimate is available for CRA 3; however, the *Bmsy* estimate is considered unreliable and is not used. Instead, a reference biomass is used as a proxy for *Bmsy* (called *Bref*). Therefore the NRLMG considers section 13(2A) is the appropriate provision for you to consider when setting the TAC for CRA 3.
151. It is the NRLMG's view that both TAC options presented meet the requirement of being "not inconsistent with" the objective of moving the stock towards or above, *Bmsy*.

### Option 1

152. Under Option 1, it is proposed that the current CRA 3 TAC of 293 tonnes will be retained for the 2010-11 fishing year. The proposal results from the operation of the proposed "Rule 2a" CRA 3 Management Procedure.
153. Retaining the TAC may result in stock size increasing to *Bref90%* at a slightly slower rate than under Option 2. On average, "Rule 2a" rebuilds the stock to *Bref90%* by 2016 compared to Option 2, which rebuilds the stock to *Bref90%* by 2015.
154. The NRLMG notes that an observed increase in the autumn-winter CPUE between 2007 and 2009 suggests that the CRA 3 stock size may have increased and considers that retaining the current TAC for 2010-11 does not pose a risk to stock sustainability for CRA 3. The NRLMG advises that ongoing application of the "Rule 2a" CRA 3 Management Procedure is expected to meet sustainability criteria by moving the stock towards the target, *Bref90%*, and maintaining the stock size above *Bmin* with high probability.

### Option 2

155. Under Option 2, it is proposed that the CRA 3 TAC will be reduced from 293 tonnes to 273 tonnes for the 2010-11 fishing year. The proposal results from the operation of the proposed "Rule 5" CRA 3 Management Procedure.
156. The proposed TAC reduction, under this option, may result in stock size increasing to *Bref90%* at a slightly faster rate than under Option 1 (which maintains the *status quo* if CPUE remains above 0.75kg/potlift). On average, "Rule 5" rebuilds the stock to *Bref90%* in 2015 compared to Option 1, which rebuilds the stock to *Bref90%* in 2016. The NRLMG advises that ongoing application of the "Rule 5" CRA 3 Management Procedure is expected to meet sustainability criteria by moving the stock towards the target, *Bref90%*, and maintaining the stock size above *Bmin* with high probability.

### **Allocation of the TAC**

157. Sections 20 and 21 of the Act provide for you to set or vary a TACC after having regard to the TAC and after allowing for Maori customary interests, recreational interests and other fishing mortality.
158. When allowing for Maori customary interests you must take into account any relevant *mātaimai* reserve and any area closure or fishing method restriction or prohibition under s 186A. There are no *mātaimai* reserves or section 186A closures located within CRA 3.

### **Allowances for customary Maori, recreational interests and other fishing mortality**

159. Available reported catch information on the harvest levels of customary Maori and recreational fishers is limited and uncertain. Estimates of other fishing mortality are also highly uncertain.
160. Some anecdotal information from submitters suggests the current non-commercial allowances (CRA 3 customary and recreational allowances are 20 tonnes each) may not be caught; however, there is no information to quantify what the under-catch (if any) might be for either customary Maori or recreational sectors.

161. The NRLMG recognises rock lobster is taonga to Maori and is highly sought after by amateur fishers, and therefore holds significant non-commercial cultural and social value. Ongoing application of the “Rule 2a” or “Rule 5” CRA 3 Management Procedure is expected to rebuild the stock to the target level and consequently increase customary Maori and recreational utilisation values. This is because the management procedure will improve fishing opportunities by increasing the stock from its current size.

#### Option 1

162. Under Option 1, no change is proposed to the current CRA 3 TAC, therefore customary Maori and recreational fishing allowances are to remain unchanged. Retaining the CRA 3 non-commercial allowances maintains the current utilisation value of the fishery.

#### Option 2

163. Having regard to the available information and submissions from stakeholders the NRLMG recommends that you make no change to CRA 3 customary Maori and recreational fishing allowances under Option 2 at this time. The NRLMG considers there is greater certainty of benefit to the stock associated with a reduction only to the TACC (refer below).

### **TACC**

164. Information on commercial catch landings is available from commercial catch reporting information.

#### Option 1

165. Under Option 1, no change is proposed to the current CRA 3 TAC; therefore the TACC is to remain unchanged. Retaining the CRA 3 TACC maintains the current utilisation value of the fishery and results in the least short-term impact on commercial stakeholders.

#### Option 2

166. Having regard to the available information and submissions from stakeholders the NRLMG proposes that you decrease the TACC from 164 tonnes to 144 tonnes under Option 2. If this TACC option is chosen, the NRLMG considers there is greater certainty of benefit to the stock associated with a reduction to the TACC as long as the catch reduction is not taken by other sectors. This is because catch from the commercial sector can be more directly controlled.
167. Using 2009 landing price information (which is based on average port price paid to fishers), the 20 tonne decrease in commercial catch of rock lobster would result in approximately \$1.04 million loss in revenue for the commercial industry per year. From 1 April to 31 December 2009 the average CRA 3 ACE price was \$28,001.70 per tonne. The ACE price represents the price commercial fishers are willing to pay for the right to harvest rock lobster in CRA 3. Using the 2009-10 year-to-date ACE price information, the proposed 20 tonne decrease in TACC could potentially result in a net economic loss of approximately \$560,000 to CRA 3 quota share owners.

### **Credibility**

168. The CRA 3 Multi-stakeholder Fishing Forum initiated the development of a CRA 3 Management Procedure. Therefore, the use of a management procedure to guide TAC setting in the CRA 3 fishery from April 2010 has a high degree of acceptance and support among CRA 3 tangata

whenua and fishing stakeholders. This acceptance and support for a management procedure approach is shared by the NRLMG.

169. Adopting either of the CRA 3 Management Procedures may reduce the frequency of stock assessments and free resources for other research.

### ***NRLMG Recommendation***

170. The NRLMG recommends that you:

*EITHER*

- a) **Agree** to be guided by the “Rule 2a” CRA 3 Management Procedure; *and*
- i. **retain** the current CRA 3 TAC and allowances for the 2010-11 fishing year.

*OR*

- b) **Agree** to be guided by the “Rule 5” CRA 3 Management Procedure; *and*
- ii. **decrease** the CRA 3 TAC from 293 tonnes to 273 tonnes;  
*And, to achieve the decrease,*
- iii. **decrease** only the CRA 3 TACC from 164 tonnes to 144 tonnes.

171. If for any reason you choose not to use either CRA 3 Management Procedure to guide TAC setting for CRA 3 in 2010-11, the NRLMG recommends that you:

- iv. **adopt** a 20 tonne TAC reduction;

*Or*

- v. **retain** the existing CRA 3 TAC and allowances for the 2010-11 fishing year.

172. **Note**, if you choose option (iv) or (v) above, further work will be commissioned during 2010 to support consideration of alternative management measures for CRA 3 for the 2011-12 fishing year (however this work is dependant on sustainability measure priorities for other rock lobster stocks).

## CRA 4 (WELLINGTON/HAWKES BAY ROCK LOBSTER FISHERY)

### Summary of NRLMG Final Proposal

173. **For CRA 4**, there is no agreement among submitters or the NRLMG on a recommended option. Three alternative management options are therefore proposed for you to consider in accordance with your obligations under sections 13, 20 and 21 of the Act:

<b>Option 1</b>	Guided by the CRA 4 Management Procedure, you: (i) <b>increase</b> the CRA 4 TAC from 461 tonnes to 660.5 tonnes; <i>And, to achieve the increase,</i> (ii) <b>increase</b> only the CRA 4 TACC from 266 tonnes to 465.5 tonnes.
<b>Option 2</b>	(i) <b>increase</b> the CRA 4 TAC from 461 tonnes to 610.625 tonnes; <i>And, to achieve the increase,</i> (ii) <b>increase</b> only the CRA 4 TACC from 266 tonnes to 415.625 tonnes.
<b>Option 3</b>	(i) <b>retain</b> the existing CRA 4 TAC and allowances for the 2010-11 fishing year.

174. If you choose Option 2, the NRLMG advises that a “mini” review of the CRA 4 Management Procedure will be conducted in 2010 to look at its performance indicators and to ensure your statutory obligations are being met with high probability (however, this work is dependant on sustainability measure priorities for other rock lobster stocks).
175. If you choose Option 3, further work will be commissioned during 2010 to support consideration of alternative management measures for CRA 4 for the 2011-12 fishing year (however, this work is also dependant on sustainability measure priorities for other rock lobster stocks).

### Rationale for Management Options

176. The NRLMG considers the TAC and allowances options proposed for CRA 4 are consistent with your statutory obligations under sections 13, 20 and 21 of the Act.
177. Under Option 1, the proposed variations to the CRA 4 TAC and allowances are the result of the operation of a fully tested and accepted management procedure. The CRA 4 Management Procedure was adopted by you in March 2009 to guide TAC setting in CRA 4 for the 2009-10, 2010-11 and 2011-12 fishing years. A management procedure is a tool that is designed to provide guidance as to how the Act can be applied to the setting of the TAC, pursuant to section 13 of the Act, for CRA 4. The procedure is described in detail in *Attachment 2* to this *Final Advice Paper*.
178. Ongoing application of the CRA 4 Management Procedure is expected, in the medium and long terms, to maintain the stock above *Bref* with higher than 50% probability and above *Bmin* with very high probability (greater than 90%).
179. Option 2 was not presented in the NRLMG’s Initial Advice. Based on information provided in submissions the NRLMG agreed to include this additional option, which is within the range of options consulted on, for your consideration. Some submitters prefer a more cautious approach

CRA 4 TAC setting than the TAC resulting from the operation of the CRA 4 Management Procedure. This is why a smaller TAC increase is proposed.

### **Initial View of the NRLMG**

180. The NRLMG's initial view was to vary the CRA 4 TAC and TACC based on the operation of the CRA 4 Management Procedure (Final Advice Option 1). The view was based on best available information for the CRA 4 fishery.
181. The NRLMG identified no reason why you should not use the results of the previously agreed CRA 4 Management Procedure to guide statutory TAC setting decisions for CRA 4.

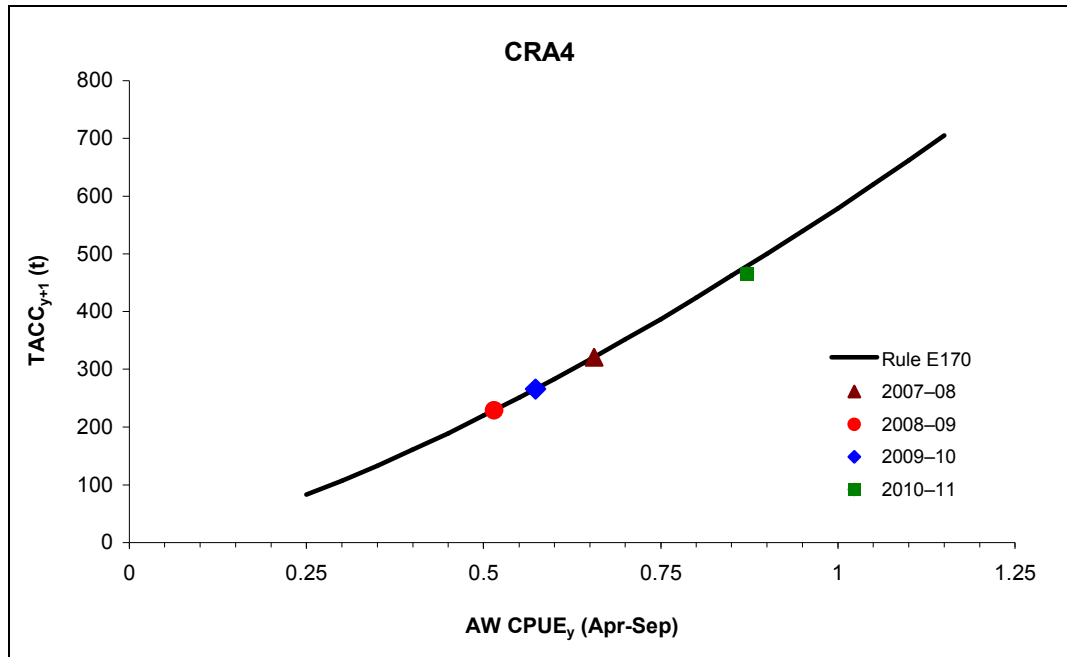
### **Background Information**

#### **CRA 4 Sustainability Indicators and Stock Status**

182. No reliable estimate of *Bmsy* is currently available for CRA 4. The MFish Plenary agreed a *Bmsy* proxy target, *Bref*, which is the autumn-winter vulnerable stock size associated with the period 1979-88. 1979-88 was a period when the CRA 4 stock showed good productivity and was demonstrably safe: it subsequently declined to lower levels then recovered.
183. *Bmin* for CRA 4 is defined as the lowest autumn-winter vulnerable stock size in the history of the CRA 4 fishery.
184. A stock assessment was last performed for CRA 4 in 2005<sup>2</sup>. The 2005 stock assessment results indicated that stock size in 2004-05 was well above *Bmin* and *Bref*. The median expectation was that stock size would decline slightly over the subsequent three years but would remain above *Bref*. Uncertainty around these median projections was very high. In the event, the stock declined substantially.
185. Standardised CPUE is considered to be a reliable indicator of relative stock size in CRA 4 and is the abundance indicator used in the CRA 4 Management Procedure. Standardised autumn-winter CPUE has increased in the last three fishing years from 0.53 kg/potlift in 2007 to 0.57 kg/potlift in 2008 and then to 0.87 kg/potlift in 2009 (refer *Figure 1*).

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<sup>2</sup> The 2005 stock assessment model provided a basis for the operating model which was used to conduct management procedure evaluations for CRA 4.



**Figure 1:** Graphic representation of the CRA 4 management procedure. Catch limits in the next fishing year are a function of CPUE in the current year. For example, the catch limit generated for the 2010-11 fishing year is based on autumn-winter CPUE from the 2009-10 fishing year (0.871 kg/potlift). The CPUE values that generated the catch limit proposals for the 2007-08, 2008-09, 2009-10 fishing years are also shown.

### **Initial Advice Options**

186. In *Initial Advice Paper 2*, the NRLMG proposed two alternative TAC setting options for CRA 4. These options were:

#### Option 1 – Vary the CRA 4 and TACC based on the operation of the CRA 4 Management Procedure

187. Under Option 1, the TAC for CRA 4 would increase from 461 tonnes to 660.5 tonnes from 1 April 2010. The NRLMG proposed the following allocation of the TAC:
- Increase the TACC from 266 tonnes to 465.5 tonnes (as specified by the CRA 4 Management Procedure); and
  - Retain the current allowances for customary Maori, amateur and other fishing mortality.

#### Option 2 – Maintain the current TAC and allowances for CRA 4

188. Under Option 2, the current CRA 4 TAC and allowances would be retained for the 2010-11 fishing year.

### **Summary of Submissions Received on CRA 4**

189. MFish received submissions on the proposed TAC and TACC variations for CRA 4 from CORANZ, ECO, NZRFC, NZ RLIC, NZ SFC, Non-commercial interests, Te Ohu, CRAMAC 4, FLC, KAHC, KKUKKT, CRA 4 recreational interests, PB & FC, TKWM, TKCF and Mr Robinson. Full copies of the submissions are provided in *Attachment 4* to this *Final Advice Paper*.

### **Support for Option 1 (Final Advice Option 1A)**

190. NZ RLIC, Mr Robinson and TKWM support Option 1 – vary the CRA 4 TAC and TACC based on the operation of the CRA 4 Management Procedure.
191. CRAMAC 4 endorses the CRA 4 Management Procedure being used to guide TAC/TACC setting but its members are not unanimous as to the extent of the TACC adjustment. A ballot confirmed that by a small majority of those responded (membership as determined by quota shares owned) supports “banking” some of the proposed increase in 2010-11. However, the threshold of member support for TAC/TACC decisions required by the rules of association was not met. CRAMAC 4 therefore supports the outcome of the CRA 4 Management Procedure as proposed (Option 1).

### **Support for modified Option 1**

192. Te Ohu, KAHC, KKUKKT and FLC express support for a lower TAC/TACC increase. These submitters believe such a large increase at this time would be premature and support a lower increase of approximately 150 tonnes to ensure a rebuild of the fishery. This view is shared by some CRAMAC 4 members (as discussed above).
193. TKWM, with support from TKCFF, express support for the proposed 199.5 tonne increase; however, they suggest a phased approach to increasing the TAC/TACC (ie, over 2-3 years) because they have concerns that such an increase at this time could have a significant effect on the sustainability of the fishery.

### **Support for Option 3**

194. Non-commercial submitters (NZRFC, NZ SFC, PB & FC, CRA 4 recreational submitters, non-commercial interests - with support and endorsement from CORANZ - and ECO) support Option 3 (maintain the current allowances for CRA 4).
195. These submitters have doubts, for a number of reasons, that the CRA 4 stock size has increased as much as suggested by the 2009 CPUE estimate, and they recommend a precautionary management approach. NZRFC and CRA 4 recreational submitters recommend that a stock assessment be performed for CRA 4 before any TAC/TACC changes are made.

### **Other Matters**

196. Te Ohu reminds the NRLMG that Ngati Kahungunu has not been consulted on over the use of the CRA 4 Management Procedure and that this should occur during 2010.
197. The NRLMG notes many submitters commented on or proposed other management measures that are outside the scope of this advice process. These management measures are discussed briefly in the ‘Other Matters’ section towards the end of this *Final Advice Paper*.

## **NRLMG Discussion on Relevant Matters Raised in Submissions**

### **TAC Setting**

198. Non-commercial submitters (NZRFC, NZ SFC, PB & FC, CRA 4 recreational submitters, non-commercial interests -with support and endorsement from CORANZ - and ECO) do not support a CRA 4 TAC increase at this time. The NRLMG advises that best available CPUE information

suggests the CRA 4 stock size has increased over the last three fishing years. Autumn-winter CPUE increased from 0.53 kg/potlift in 2007 to 0.57 in 2008, and then to 0.87 kg/potlift in 2009.

199. Several submitters express support for a modified TAC increase option because of concerns that a TAC increase of 199.5 tonnes in April 2010 could have a significant effect on the sustainability of the fishery. The NRLMG considers that the existing management approach is cautious because it is expected to maintain the stock above *Bref* with higher than 50% probability and above *Bmin* with very high probability (greater than 90%) in the medium and long-terms.
200. Because a number of submitters indicated support for a lower TAC increase, the NRLMG has added Option 2 for your consideration. The NRLMG suggests that “banking” approximately 50 tonnes of the proposed 199.5 tonnes TAC increase would likely result in a larger stock size in the short-term.
201. None of the TAC options presented for CRA 4 in this paper will pose a risk to sustainable utilisation. The NRLMG advises that the CRA 4 Management Procedure is an adaptive procedure using current data derived from the fishery and is responsive to variability in stock size: if the abundance indicator, CPUE, decreases or increases in any year, the TAC will be decreased or increased to maintain abundance at the desired level.

### ***Allocation of the TAC***

202. The submission from NZ RLIC specifically expresses a view that no change be made to the customary Maori and recreational allowances at this time. The NRLMG agrees with NZ RLIC’s view that the proposed TAC/TACC increases do not exceed the TACC that was in place before the two voluntary commercial catch reductions and the 2009-10 TAC/TACC reduction and agrees that it is reasonable for the commercial sector to receive the full benefit of the TACC increase. A full assessment of the allocation of the TAC is carried out in the following section.
203. The NRLMG notes that submitters who indicated support for a TAC increase also support an increase only to the CRA 4 TACC.

### ***Other Matters***

204. Te Ohu states that the NRLMG has not consulted with Ngati Kahungunu on the use of the CRA 4 Management Procedure. The NRLMG notes that the CRA 4 Management Procedure was developed in 2006 and in 2009 the NRLMG proposed that it be used to guide TAC setting in CRA 4 through to the 2011-12 fishing year. Maori commercial fishing interests, including Ngati Kahungunu, had opportunities to input into the development of the CRA 4 Management Procedure through membership of the CRA 4 commercial stakeholder organisation. The NRLMG advises that during 2011, the management procedure will be reviewed. NRLMG members are available to discuss the application of the CRA 4 Management Procedure with Ngati Kahungunu during 2010 and to have further discussions with tangata whenua during 2011 on future management approaches for the CRA 4 fishery.
205. Some non-commercial submitters express concerns about the use of commercial CPUE in the CRA 4 Management Procedure. Technical advisors to the NRLMG are confident that CPUE based on commercial catch and effort data can be used as a reliable index of abundance, and note that there is no evidence that fishers manipulate CPUE when management procedures are in place.
206. Non-commercial submitters also ask for a stock assessment to be performed on CRA 4 and a review of the management procedure to occur before varying the CRA 4 TAC and allowances. A stock assessment was last performed for CRA 4 in 2005. The NRLMG advises that the next

CRA 4 stock assessment is proposed for 2011 when the CRA 4 Management Procedure is proposed for review. The NRLMG suggests that, once a management procedure has been accepted to guide TAC setting, neither a stock assessment nor a review is necessary before using the results of the management procedure. If you agree to adopt Option 2, the NRLMG advises that they will undertake a “mini” review of the CRA 4 Management Procedure in 2010 to look at its performance indicators and to ensure your statutory obligations are being met with high probability.

207. Several non-commercial submitters also suggest, based on a decline in puerulus settlement, that there will be or has been a decline in recruitment to the fishery. The NRLMG advises that predicting recruitment to the fishery from puerulus settlement information is not straightforward, and a project currently in progress is examining this relationship.

### ***Assessment of Management Options for CRA 4***

208. Assessment of the management options against the full set of statutory considerations is set out at the end of this *Final Advice Paper*. However, key considerations and impacts are discussed below.

#### ***TAC Setting***

209. The TAC for CRA 4 is set under section 13 of the Act. Section 13(2) provides for you to set a TAC that maintains, restores or moves the stock to a level that can produce the maximum sustainable yield. However, before a TAC can be set under section 13(2) you must be provided with an estimate of both current biomass and the biomass that can produce the maximum sustainable yield (*Bmsy*).
210. Section 13(2A) states that for the purpose of setting a TAC under section 13(2), you need to be satisfied that current biomass and *Bmsy* are not able to be estimated reliably. If you are satisfied current biomass and *Bmsy* are not able to be estimated reliably, under section 13(2A) you must, using best available information, set a TAC that is not inconsistent with the objective of maintaining the stock at or above, or moving the stock towards or above, a level that can produce *Bmsy*.
211. A current biomass estimate is not available for CRA 4 because a stock assessment was last performed for CRA 4 in 2005. A *Bmsy* estimate is available for CRA 4 but is considered unreliable and is not used. Instead, a reference biomass is used as a proxy for *Bmsy* (called *Bref*). Therefore section 13(2A) is the appropriate provision for you to consider when setting the TAC for CRA 4.
212. The NRLMG notes all three options presented for CRA 4 are consistent with the requirement of section 13(2A) of the Act.

#### **Option 1**

213. Under Option 1, it is proposed that the CRA 4 TAC will increase from 461 tonnes to 660.5 tonnes from 1 April 2010. The proposed increase is specified by the CRA 4 Management Procedure.
214. It is the NRLMG’s view that the TAC variation guided by the operation of the CRA 4 Management Procedure meets the requirement of being “not inconsistent with” the objective of maintaining the stock at or above, or moving the stock towards or above, *Bmsy*. Ongoing application of the CRA 4 Management Procedure is expected, in the medium and long-terms, to maintain the stock above *Bref* with higher than 50% probability and above *Bmin* with greater than 90% probability.

### Option 2

215. Under Option 2, it is proposed that the CRA 4 TAC will increase from 461 tonnes to 610.625 tonnes from 1 April 2010. The proposed increase is based on some submitters' views of Option 1 and their desire that you take a cautious approach to management of the fishery given recent reductions to catch limits and "bank" approximately 50 tonnes of fish to ensure sustainability of the fishery. Because the proposed increase under Option 2 is less than the proposed increase under Option 1, it is the NRLMG's view that the proposed TAC variation is "not inconsistent with" your statutory requirement. Option 2 would likely result in a larger stock size, in the short-term, than Option 1.

### Option 3

216. Under Option 3, it is proposed that the CRA 4 TAC will be retained at 461 tonnes for the 2010-11 fishing year. The NRLMG considers it likely that if the current CRA 4 TAC was retained a larger stock size would result than under Option 1 and Option 2.

### **Allocation of the TAC**

217. Sections 20 and 21 of the Act provide for you to set or vary a TACC after having regard to the TAC and after allowing for Maori customary interests, recreational interests and other fishing mortality.
218. When allowing for Maori customary interests you must take into account any relevant mātaitai reserve and any area closure or fishing method restriction or prohibition under s 186A. There is one mātaitai reserve located in CRA 4, the Moremore mātaitai reserve (Napier); and one Section 186A closure at Pukerua Bay (Wellington). The NRLMG considers the management options presented for CRA 4 will contribute to sustainable utilisation of rock lobster fisheries.

### **Allowances for customary Maori, recreational interests and other fishing mortality**

219. Available reported catch information on the harvest levels of customary Maori and recreational fishers is limited and uncertain. Estimates of other fishing mortality are also highly uncertain.
220. Best available information suggests existing customary Maori and recreational allowances are not being caught at this time. In compiling this advice, the NRLMG has relied on the catch data provided to and accepted by the MFish Plenary (refer Table 1 below).

<b>CRA 4</b>	<b>Customary</b>	<b>Recreational</b>	<b>Other Fishing Mortality</b>
Allowances	35 tonnes	85 tonnes	75 tonnes
Estimated Catches	20 tonnes	47 tonnes	40 tonnes

**Table 1:** *Current allowances and estimated catches for customary, recreational and other sources of fishing related mortality.*

221. The NRLMG recognises that rock lobster are taonga to Maori and are highly sought after by amateur fishers, with significant non-commercial cultural and social value. Ongoing application of the CRA 4 Management Procedure is expected to maintain stock size well above the target stock size and consequently to meet customary Maori and recreational utilisation values by increasing the stock from its current size.

### Option 1 & 2

222. Having regard to the available information and submissions from stakeholders, the NRLMG recommends that you make no change to CRA 4 customary Maori and recreational fishing allowances under Option 1 or Option 2 at this time. This is because best available information suggests customary Maori and recreational fishers are not taking their current allowances and there is no new information available to recommend adjustments to the current allowances.
223. The NRLMG notes the Zone 5 Big Game Fishing Council Clubs may wish to review their voluntary bag limit reduction from 1 April 2010 if the CRA 4 TAC is increased.

### Option 3

224. The NRLMG advises that maintaining the current CRA 4 allowances under Option 3 could result in an increased stock size that could improve fishing success in non-commercial fisheries.

### TACC

225. Information on commercial catch landings is available from commercial catch reporting information.

### Option 1 & 2

226. Having regard to the available information and submissions from stakeholders it is proposed that you increase the TACC from 266 tonnes to 465.5 tonnes under Option 1 or to 415.625 tonnes under Option 2 because:
- a) in 2009-10 the commercial sector received a significant reduction in TACC (54% decrease) while allowances for other sectors remained constant. The NRLMG notes, however, that the Zone 5 Big Game Fishing Council Clubs (Zone 5 encompasses the CRA 4 area) have implemented a voluntary bag limit reduction over the last two years (from 6 lobsters per person per day to 4) to support efforts to increase abundance in the fishery.
  - b) the proposed TACC increases do not exceed the TACC in place before the 2009-10 reduction; therefore it is reasonable for the commercial sector to receive the full benefit of this TACC increase up to the point of the historical catch level (the previous TACC was 577 tonnes).
227. The NRLMG advises, based on average 2009 landing price information, that the 199.5 tonne (Option 1) increase in commercial catch of rock lobster would result in an approximately \$10.4 million increase in revenue for the commercial industry, whereas the 149.625 tonne (Option 2) increase would result in an approximately \$7.8 million increase in revenue. From 1 April to 31 December 2009 the average CRA 4 ACE price was \$32,992.40 per tonne; this represents the price commercial fishers are willing to pay for the right to harvest rock lobster in CRA 4. Using the 2009-10 year-to-date ACE price information, the proposed 199.5 tonne (Option 1) increase in TACC could potentially result in a net economic benefit of approximately \$6.6 million to CRA 4 quota share owners, whereas the 149.625 tonne (Option 2) increase could result in approximately \$5.0 million benefit.

### Option 3

228. The NRLMG advises that maintaining the current CRA 4 TACC under Option 3 could result in an increased stock size that could improve commercial catch rates, but at an opportunity cost to the commercial industry through a loss of economic benefits.

### **NRLMG Recommendation**

229. The NRLMG recommends that you:

- a) **Agree** to be guided by the CRA 4 Management Procedure; and
  - i. **increase** the CRA 4 TAC from 461 tonnes to 660.5 tonnes;  
And, to achieve the increase,
  - ii. **increase only** the CRA 4 TACC from 266 tonnes to 465.5 tonnes.

OR

- b)
  - iii. **increase** the CRA 4 TAC from 461 tonnes to 610.625 tonnes;  
And, to achieve the increase,
  - iv. **increase** only the CRA 4 TACC from 266 tonnes to 415.625 tonnes;  
And
  - v. **note** a “mini” review of the CRA 4 Management Procedure will be conducted in 2010 to look at its performance indicators and to ensure your statutory obligations are being met with high probability (however, this work is dependant on sustainability measure priorities for other rock lobster stocks).

OR

- c)
  - vi. **retain** the existing CRA 4 TAC and allowances for the 2010-11 fishing year;  
And,
  - vii. **request** further work to be commissioned during 2010 to support consideration of alternative management measures for CRA 4 for the 2011-12 fishing year (however, this work is also dependant on sustainability measure priorities for other rock lobster stocks).

230. **Note**, the NRLMG believes that choosing not to implement the results of an agreed management procedure without an explicit reason would reduce stakeholder confidence in the application of management procedures for this and other rock lobster fisheries. Such a decision may also affect development and implementation of management procedures for other fisheries in New Zealand.

## CRA 7 (OTAGO ROCK LOBSTER FISHERY)

### *Summary of NRLMG Final Proposal*

231. **For CRA 7**, the NRLMG recommends that, guided by the CRA 7 Management Procedure, you consider in accordance with your obligations under sections 13, 20 and 21 of the Act:

- (i) **decrease** the CRA 7 TAC from 209 tonnes to 104.5 tonnes;  
*And, to achieve the decrease,*
- (ii) **decrease** only the TACC from 189 tonnes to 84.5 tonnes.

232. This recommended option is the same as the preferred option identified in the NRLMG's Initial Advice.
233. If for any reason you choose not to use the CRA 7 Management Procedure to guide TAC setting for CRA 7 in 2010-11, the NRLMG recommends that you:
- a) adopt a 104.5 tonne TAC reduction; and
  - b) retain the existing CRA 7 TAC and allowances for the 2010-11 fishing year.
234. Note, if you choose option (a) and (b) above, further work will be commissioned during 2010 to support consideration of alternative management measures for CRA 7 for the 2011-12 fishing year (however, this work is dependant on sustainability measure priorities for other rock lobster stocks).

### *Rationale for Management Options*

235. The NRLMG considers the TAC and allowances options proposed for CRA 7 are consistent with your statutory obligations under sections 13, 20 and 21 of the Act.
236. The recommended variations to the CRA 7 TAC and allowances are the result of the operation of a fully tested and accepted management procedure. The CRA 7 Management Procedure was adopted by the previous Minister of Fisheries in March 2008 to guide TAC setting in CRA 7. A management procedure is a tool that is designed to provide guidance as to how the Act can be applied to the setting of the TAC, pursuant to section 13 of the Act, for CRA 7. The procedure is described in detail in *Attachment 3* to this *Final Advice Paper*.
237. Ongoing application of the CRA 7 Management Procedure is expected, in the medium and long terms, to maintain the stock above *Bref* with higher than 50% probability and above *Bmin* with greater than 90% probability.

### *Initial View of the NRLMG*

238. The NRLMG's initial view was to vary the CRA 7 TAC based on the operation of the CRA 7 Management Procedure (Option 1). The view was based on best available information for the CRA 7 fishery.

## Background Information

### CRA 7 Sustainability Indicators and Stock Status

239. No reliable estimate of *Bmsy* is currently available for CRA 7. The MFish Plenary accepted a *Bmsy* proxy target, *Bref*, which is the vulnerable stock size associated with the period 1979-81. 1979-81 was a period when the CRA 7 stock showed good productivity and was demonstrably safe.
240. The *Bmin* used for stock assessment and management procedure evaluation was considered to be one half of *Bref*.
241. A stock assessment was last performed for CRA 7 in 2006<sup>3</sup>. The 2006 stock assessment results indicated stock size in 2005-06 was well above *Bmin* and was approximately 1.7 times *Bref*.
242. Standardised CPUE is the abundance indicator used in the CRA 7 Management Procedure. Standardised offset year CPUE decreased in the last year from 2.09 kg/potlift in 2008 to 0.866 kg/potlift in 2009 (refer Figure 2).

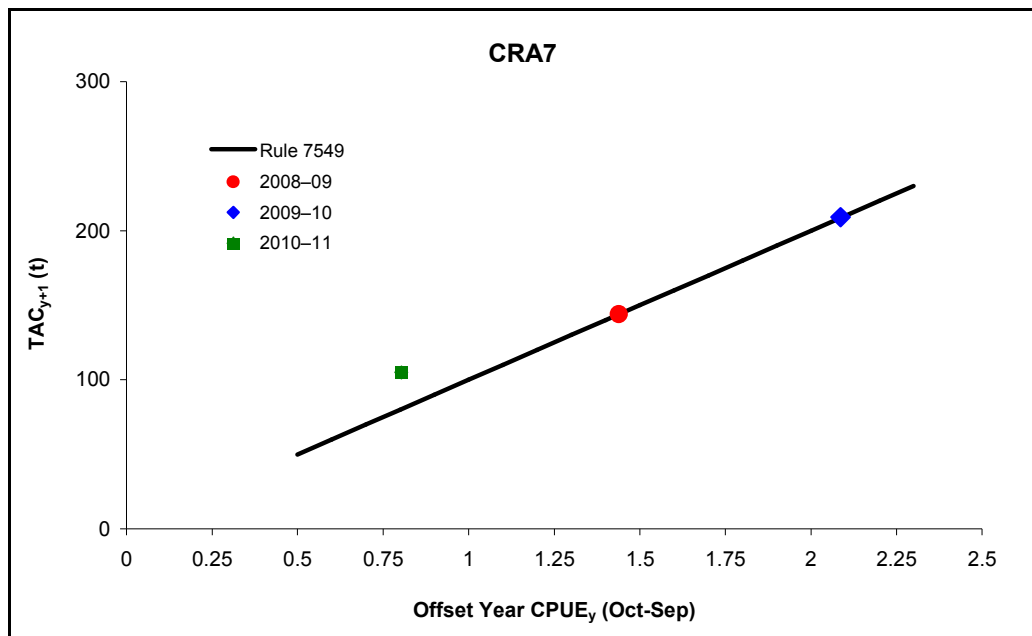


Figure 2: Graphic representation of the CRA 7 management procedure. Catch limits in the next fishing year are a function of CPUE in the current year subject to a maximum change of 50%. For example, the catch limit generated for the 2010-11 fishing year is based on offset year CPUE from the period 1 October 2008 to 30 September 2009 (0.866 kg/potlift). The CPUE values that generated the catch limit proposals for the 2008-09 and 2009-10 fishing years are also shown.

### Initial Advice Options

243. In *Initial Advice Paper 2*, the NRLMG proposed two alternative TAC setting options for CRA 7. These options were:

<sup>3</sup> The 2006 stock assessment model provided a basis for the operating model which was used to conduct management procedure evaluations for CRA 7.

### Option 1 – Vary the CRA 7 TAC based on the operation of the CRA 7 Management Procedure

244. Under Option 1, the TAC for CRA 7 would reduce from 209 tonnes to 104.5 tonnes from 1 April 2010, as specified by the CRA 7 Management Procedure. The NRLMG proposed the following allocation of the TAC:
- a) Decrease the TACC from 189 tonnes to 84.5 tonnes; and
  - b) Retain the current allowances for customary Maori, amateur and other fishing mortality.
245. The NRLMG noted that the operation of the CRA 7 Management Procedure in 2009 involved a maximum change of 50% to the TAC.

### Option 2 – Maintain the current TAC and allowances for CRA 7

246. Under Option 2, the current CRA 7 TAC and allowances would be retained for the 2010-11 fishing year.

## **Summary of Submissions Received on CRA 7**

247. MFish received submissions on the proposed TAC and TACC variations for CRA 7 from Te Ohu, FLC, NZ RLIC, NZRFC, Ngai Tahu, ORLIA and ECO. Full copies of the submissions are provided in *Attachment 4* to these *Final Advice Papers*.

### **Support for Option 1**

248. FLC, NZ RLIC, NZRFC, Ngai Tahu, and ORLIA support Option 1 – vary the CRA 7 TAC based on the operation of the CRA 7 Management Procedure. ECO does not specifically express support for Option 1 but they express support for a reduction in catch limit to less than 104.5 tonnes for the TAC and less than 84.5 tonnes for the TACC.
249. NZRFC and ECO express concerns that Option 1 does not consider all of your statutory obligations. NZRFC is specifically concerned that the CRA 7 Management Procedure does not enable people to provide for their social, economic and cultural well-being.
250. Te Ohu is not aware of any reason not to support the operation of the CRA 7 Management Procedure at this time.

### **Other Matters**

251. The NZRFC is concerned that the primary driver of the management procedure is commercial CPUE, and that in some instances the data being collected are not providing a true picture of the fishery. Both ORLIA and FLC note that CRA 7 abundance may have declined less than CRA 7 CPUE suggests. These submitters both signal intentions to take a new look at the CRA 7 Management Procedure and overall management processes and objectives during 2010 to ensure the long-term sustainability of the CRA 7 fishery.
252. Both Ngai Tahu and FLC expressed concerns that the 52% increase to the TAC in 2009 was potentially excessive and state that they actively shelved some of their quota to support the long-term sustainability of the fishery.
253. The NRLMG notes many submitters commented on or proposed other management measures that are outside the scope of this advice process. These management measures are discussed briefly in the 'Other Matters' section towards the end of this *Final Advice Paper*.

## ***NRLMG Discussion of Relevant Matters Raised in Submissions***

### ***TAC Setting***

254. Most submitters support the NRLMG preferred option of reducing the CRA 7 TAC based on the operation of the CRA 7 Management Procedure (Option 1).
255. The NRLMG advises that ongoing application of the CRA 7 Management Procedure is designed to maintain stock size well above the target stock size and consequently increase customary Maori, recreational and commercial utilisation values by increasing the stock from its current size.

### ***Allocation of the TAC***

256. Ngai Tahu specifically requests that no change be made to the current allowances for customary Maori for CRA 7. The NRLMG proposes only reducing the CRA 7 TACC because they consider there is greater certainty of benefit to the stock associated with a reduction to the TACC.
257. NZ RLIC notes that the CRA 7 industry has agreed in the past to receive both increases and decreases in commercial catch, while allowances to other sectors remained constant. The NRLMG consider it reasonable that the sector bearing the costs of reduced allowances receives the benefit from increased stock levels (at least up to the level of the original allowance before the reduction).
258. FLC, NZRFC, ORLIA and ECO express support for only reducing the CRA 7 TACC.

### ***Other Matters***

259. NZRFC is concerned about the use of commercial CPUE in the CRA 7 Management Procedure and that the data being collected may not be providing a true picture of the fishery. The NRLMG acknowledges the points made by ORLIA and FLC, who suggest that CRA 7 abundance may have declined less than the decline CRA 7 CPUE suggests.
260. It is possible that market conditions and requirements have an effect on the data used in the CPUE analyses. This includes the return to sea of legal-sized lobster that would have been landed in previous years. The NRLMG notes that data on lobsters returned to sea in accordance with the Sixth Schedule of the Act are not presently available for inclusion in the CPUE analyses because provision has only been recently made to provide this information on commercial catch effort landing returns. The lack of these data has the potential to bias the estimates of CPUE used to track rock lobster abundance. The stock assessment models estimate a mortality for sub-legal and egg-bearing lobsters which are returned to sea. The CRA 7 Management Procedure was evaluated from an operating model which included this provision.
261. In their submissions, ORLIA and FLC both signal intentions to take a new look at the CRA 7 Management Procedure and overall management processes and objectives during 2010 in time to feed into the April 2011 NRLMG sustainability process. The NRLMG are aware of industry's desire to review the CRA 7 Management Procedure to ensure it meets stakeholder expectations and to ensure the long-term sustainability of the CRA 7 fishery and supports this review.
262. Ngai Tahu and FLC support the proposed reduction in harvest from the CRA 7 fishery but expressed concerns that the 45% increase to the TAC in 2009 was potentially excessive. Ngai Tahu and FLC both shelved some of their quota in 2009 to ensure the long-term sustainability of the fishery. The NRLMG acknowledges the responsible actions of these submitters. The NRLMG

advises that the proposed review of the CRA 7 Management Procedure will consider stakeholder's future management objectives for the CRA 7 fishery, which could potentially include greater stability in catch limits from season to season.

## ***Assessment of Management Options for CRA 7***

263. Assessment of the management options against the full set of statutory considerations is set out at the end of this *Final Advice Paper*. However, key considerations and impacts are discussed below.

### ***TAC Setting***

264. The TAC for CRA 7 is set under section 13 of the Act. Section 13(2) provides for you to set a TAC that maintains, restores or moves the stock to a level that can produce the maximum sustainable yield. However, before a TAC can be set under s 13(2) you must be provided with an estimate of both current biomass and the biomass that can produce the maximum sustainable yield (*Bmsy*).
265. Current biomass and *Bmsy* can be estimated reliably for CRA 7<sup>4</sup>. Therefore section 13(2)(c) is the appropriate provision for you to consider when setting the TAC for CRA 7. This section enables the stock whose current level is above *Bmsy*, to be altered in a way and at a rate considered appropriate for the stock.

### **Option 1**

266. Under Option 1, it is recommended that the CRA 7 TAC will decrease from 209 tonnes to 104.5 tonnes from 1 April 2010. The recommended decrease is specified by the CRA 7 Management Procedure.
267. It is the NRLMG's view that the TAC variation guided by the operation of the CRA 7 Management Procedure meets the requirement of being "not inconsistent with" the objective of maintaining the stock at or above, or moving the stock towards or above, *Bmsy*. Ongoing application of the CRA 7 Management Procedure is expected, in the medium and long terms, to maintain the stock above *Bref* with higher than 50% probability and above *Bmin* with greater than 90% probability.

### **Option 2**

268. Under Option 2, the CRA 7 TAC will be retained at 209 tonnes for the 2010-11 fishing year. The NRLMG considers it likely that if the current CRA 7 TAC was retained stock size could decline further. CPUE is an indicator of stock size in CRA 7 and has declined considerably between 2007-08 and 2008-09 fishing years (from 2.09 to 0.866 kg/potlift). Retaining the current CRA 7 TAC would therefore pose a risk to the sustainability of the CRA 7 stock.

## ***Allocation of the TAC***

269. Sections 20 and 21 of the Act provide for you to set or vary a TACC after having regard to the TAC and after allowing for Maori customary interests, recreational interests and other fishing mortality.

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<sup>4</sup> Refer CRA 7 Supplementary Advice for April 2008 Sustainability Measures: <http://www.fish.govt.nz/en-nz/Consultations/Archive/2008/Rock+Lobster+7+and+8/default.htm>

270. When allowing for Maori customary interests you must take into account any relevant mātaītai reserve and any area closure or fishing method restriction or prohibition under s 186A. There is one mātaītai reserve located in CRA 7, the Puna wai-Toriki (Otago) mātaītai reserve. The NRLMG considers that the management options presented for CRA 7 will contribute to sustainable utilisation of rock lobster fisheries.

**Allowances for customary Maori, recreational interests and other fishing mortality**

271. Available reported catch information on the harvest levels of customary Maori and recreational fishers is limited and uncertain. Estimates of other fishing mortality are also highly uncertain.
272. Best available information suggests existing customary Maori and recreational allowances are not being caught at this time. In compiling this advice, the NRLMG has relied on the catch data provided to and accepted by the MFish plenary (refer Table 2).

<b>CRA 7</b>	<b>Customary</b>	<b>Recreational</b>	<b>Other Fishing Mortality</b>
Allowances	10 tonnes	5 tonnes	5 tonnes
Estimated Catches	1 tonne	4.51 tonnes	1 tonne

**Table 2:** Current allowances and estimated catches for customary, recreational and other sources of fishing related mortality.

273. The NRLMG recognises that rock lobster are taonga to Maori and are highly sought after by amateur fishers, therefore holds significant non-commercial cultural and social value. Ongoing application of the CRA 7 Management Procedure is expected to maintain stock size well above the target stock size and consequently increase customary Maori and recreational utilisation values. This is because the management procedure will improve fishing opportunities by increasing the stock from its current size.

**Option 1**

274. Having regard to the available information and submissions from stakeholders, the NRLMG recommends that you make no change to CRA 7 customary Maori and recreational fishing allowances under Option 1 at this time. The NRLMG considers there is greater certainty of benefit to the stock associated with a reduction only to the TACC (refer below).

**Option 2**

275. The NRLMG advises that maintaining the current CRA 7 allowances under Option 2 could result in a reduced stock size that would reduce fishing opportunities in non-commercial fisheries. Not responding to changes in abundance in a timely manner may also create uncertainty in future stock size, which would affect utilisation value obtained from the fishery by all fishing sectors.

**TACC**

276. Information on commercial catch landings is available from commercial catch reporting information.

### Option 1

277. Having regard to the available information and submissions from stakeholders the NRLMG recommends you decrease only the TACC from 189 tonnes to 84.5 tonnes (Option 1) because:
- a) there is greater certainty of benefit to the stock associated with a reduction to the TACC. This is because catch from the commercial sector can be more directly controlled and customary Maori and recreational allowances form a small component of the TAC.
  - b) the CRA 7 industry has agreed in the past to receive both increases and decreases in commercial catch, while allowances to other sectors have remained constant. If adopted, the recommended TACC of 84.5 tonnes will become the lowest TACC since the stock was introduced to the QMS in April 1990.
278. The NRLMG advises, based on average 2009 landing price information that the 104.5 tonne decrease in commercial catch of rock lobster would result in approximately \$4.4 million loss in revenue for the commercial industry. From 1 April to 31 December 2009, the average CRA 7 ACE price was \$15,794.50 per tonne; this represents the price commercial fishers are willing to pay for the right to harvest rock lobster in CRA 7. Using the 2009-10 year-to-date ACE price information, the recommended 104.5 tonne decrease in TACC could potentially result in a net economic loss of approximately \$1.65 million to CRA 7 quota share owners.

### Option 2

279. The NRLMG advises that maintaining the current CRA 7 TACC under Option 2 could result in a reduced stock size that would affect commercial utilisation over the long-term. Not responding to changes in abundance in a timely manner may also create uncertainty.

## **NRLMG Recommendation**

280. The NRLMG recommends that you be guided by the CRA 7 Management Procedure and agree to:
- i. **decrease** the CRA 7 TAC from 209 tonnes to 104.5 tonnes;  
*And, to achieve the decrease,*
  - ii. **decrease** only the CRA 7 TACC from 189 tonnes to 84.5 tonnes.

281. The NRLMG has identified no reason why you should not use the results of the CRA 7 Management Procedure to guide statutory TAC setting decisions. The NRLMG believes that choosing not to implement the results of an agreed management procedure without an explicit reason would reduce stakeholder confidence in the application of management procedures for this and other rock lobster fisheries. Such a decision may also affect development and implementation of management procedures for other fisheries in New Zealand.
282. If for any reason you choose not to use the CRA 7 Management Procedure to guide TAC setting for CRA 7 in 2010-11, the NRLMG recommends that you:
- i. adopt a 104.5 tonne TAC reduction;
  - ii. retain the existing CRA 7 TAC and allowances for the 2010-11 fishing year; and

- iii. request further work to be commissioned during 2010 to support consideration of alternative management measures for CRA 7 for the 2011-12 fishing year (however, this work is dependant on sustainability measure priorities for other rock lobster stocks).

## OTHER MATTERS

283. In addition to commenting on the proposed sustainability measures for CRA 3, CRA 4, and CRA 7 many submitters commented on or proposed other management measures that are outside the scope of this advice process. These include:

- ◆ Finer scale fisheries management
- ◆ Section 186A area closure
- ◆ Removal or review of commercial concession areas
- ◆ Introduction of CRA 3 closed seasons
- ◆ Review of CPUE target levels for CRA 3, CRA 4 and CRA 5
- ◆ Further research
- ◆ CRA 4 recreational sector voluntary daily bag limit reduction
- ◆ ACE shelving agreements
- ◆ Improved information on non-commercial harvest
- ◆ Improved efforts to reduce illegal removals
- ◆ NRLMG representation
- ◆ Increased tangata whenua and stakeholder involvement in rock lobster management.

284. These management measures are discussed briefly below.

### ***Finer scale fisheries management***

285. Several submitters (non-commercial interests, CORANZ, and Te Ohu) make reference to managing rock lobster utilisation at a finer scale than the existing Quota Management Areas (QMAs). These submitters commented on splitting QMA's (CRA 3 and CRA 4) and spreading the proposed increase in CRA 4 catch across the fishery and not concentrating effort in certain areas.

286. The Act requires you to set a TAC at the QMA level and that is the focus of the advice in this document. The NRLMG notes that sections 25, 25A and 25B of the Act set out the necessary processes and the matters that must be considered before you can recommend altering QMAs.

287. Stakeholders can also voluntarily implement catch-splitting arrangements, whereby a sector group or sector groups in a QMA agree how catch will be distributed within a QMA and set voluntary catch limits.

288. The NRLMG is not aware that there is widespread agreement about smaller management areas for rock lobster fisheries at this time. The NRLMG advises that such areas would need to be biologically sensible and cost effective to manage.

### ***Section 186A closure***

289. NZRFC makes reference to the possible need for a section 186A area closure within statistical area 910 of the CRA 3 fishery for two years.

290. Under section 186A of the Act, you may temporarily close any area of New Zealand fisheries waters. However, you must be satisfied that the closure will recognise and make provision for the use and management practices of tangata whenua in the exercise of non-commercial rights by improving the availability or size (or both) of a fish in the area; or that the closure will recognise a customary fishing practice in that area.
291. The NRLMG is not aware of any formal request to close temporarily an area of the CRA 3 fishery at this time.

### ***Removal or review of commercial concession areas***

292. Some submitters (NZRFC, NZ SFC, Mr Jorion, non-commercial interests, and CORANZ) refer to rock lobster commercial 'concession areas' (alternative minimum legal sizes) that apply in CRA 3 and CRA 7. These submitters consider that the CRA 3 concession needs to be removed. In addition, the NZRFC suggests that the CRA 3 concession could be reduced by 1mm in year one and then removed entirely after two years. The NZRFC also considers that the CRA 7 concession should be removed.
293. The NRLMG advises that sustainability measures presented in this document are based on management procedures and stock assessments that used the current MLS regime and they recommend appropriate management procedure accordingly. The NRLMG advises also that MFish is undertaking a review of the concession management framework and that MFish have scheduled the completion of this review in 2010.

### ***Introduction of CRA 3 Closed seasons***

294. Mr Jorion refers to commercial and recreational closed seasons for CRA 3. He considers that the current voluntary commercial closed season (1 September to 15 January) in statistical areas 909 (East Cape) and 910 (Gisborne) should be regulated; and advises that recreational fishers in CRA 3 also believe closed seasons for them is a way forward because they may reduce handling mortality and illegal take.
295. The NRLMG advises that whether the current commercial closed season should be voluntary or regulated is an issue that the CRA 3 Working Group should discuss further because this management measure is one of the proposed priority elements of the draft CRA 3 Plan. The NRLMG notes that the voluntary introduction of commercial closed season in areas 909 and 910 and the voluntary removal of the winter commercial concession in area 911 (Mahia) is a tandem strategy.
296. The NRLMG is not aware of a formal proposal to introduce a regulated closed season for recreational fishers in CRA 3 at this time. The introduction of a regulated closed season to recreational from 1 September to 31 October in statistical areas 909 and 910 is a proposed priority element of the draft CRA 3 Plan and should be discussed further by the CRA 3 Working Group. The NRLMG notes that even though the CRA 3 Plan is in draft form it is still used as a guide to progress priority items that will have a positive impact on the health of the fishery and will therefore benefit all fishing sectors.

### ***Review of CPUE target levels for CRA 3, CRA 4 and CRA 5***

297. NZRFC express concerns that target level CPUEs in CRA 3, CRA 4 and CRA 7 are not high enough to ensure a standing stock that will enable amateur fishers to experience an acceptable level of catch. Mr Jorion and NZRFC express support for all target level CPUEs being set at 1.50 kg/potlift for CRA 3, CRA 4 and CRA 5.

298. The NRLMG advises that ongoing application of the agreed CRA 4 and CRA 7 management procedures is expected to maintain stock size well above the target level, and the proposed CRA 3 management procedures are expected to move the stock towards the *Bmsy* proxy target level. Consequently, customary Maori, recreational and commercial utilisation values would be met by increasing the stocks from their current size.
299. The NRLMG advises that proxy target stock sizes, or *Brefs*, for CRA 3, CRA 4 and CRA 5 are based on historical target levels. *Bref* is generally a stock size at or above the stock size associated with a period in the fishery that showed good productivity and was demonstrably safe. The NRLMG are willing to consider higher target *Brefs* when the respective management procedures are reviewed. However, the NRLMG notes that each stock has different productivities and the costs and benefits associated with adopting higher target levels above the statutory target need to be considered for each sector.

### ***Further research***

300. For CRA 3, KAHC and KKUKKT express concerns about recent low recruitment and growth rates and about the lack of identifiable cause for these. KAHC recommends that further research be conducted on factors like predation, habitat and environmental influences to try and identify causal factors that may lead to alternative management considerations for these unique and volatile stocks.
301. The NRLMG notes that the rock lobster research budget is limited and that the research needs of all rock lobster stocks need to be considered when allocating the budget. The NRLMG will consider the research suggestions put forward by KAHC and KKUKKT when planning research priorities for all rock lobster stocks in 2010.
302. ECO states that it is essential that rock lobster assessments are carried out more frequently with all stocks being assessed at least once every five years. The limited research budget for rock lobster research was noted above. The NRLMG notes that the periodic stock assessment paradigm to guide TAC setting is less responsive to changes in abundance in the fishery than the management procedure approach. The use of management procedures can reduce the frequency of stock assessments and free resources for other research.

### ***CRA 4 recreational sector voluntary bag limit reduction***

303. NZ RLIC and CRAMAC 4 applaud the recreational sector initiative to voluntarily reduce the daily bag limit from six rock lobsters per person to four. This initiative reflects a shared responsibility in a shared fishery.
304. The NRLMG notes that the Zone 5 Big Game Fishing Council Clubs may wish to review their voluntary bag limit reduction from 1 April 2010 if the CRA 4 TAC is increased.

### ***Shelving agreements***

305. Some submitters (non-commercial interests, CORANZ and ECO) express concerns about informal commercial ACE shelving arrangements.
306. The NRLMG advises industry have voluntarily shelved ACE in several rock lobster fisheries over the years. Voluntary ACE shelving provides a mechanism for industry to respond to declining abundance in a fishery before it is identified by a formal stock assessment. As discussed above, periodic stock assessments are less responsive to changes in abundance in the fishery than the

management procedure approach. The adoption of management procedures for each rock lobster fishery would therefore reduce the need for industry to voluntarily shelve their ACE.

### ***Information on non-commercial harvest***

307. A number of submitters (Te Ohu, TKWM, NZRFC, Mr Jorion, NZ RLIC, CRAMAC 4) express concern about the lack of certainty in non-commercial harvest estimates.
308. The NRLMG agrees that accurate and reliable data from all sectors – customary, recreational and commercial – is essential to the fishery management decision-making process. Information on customary non-commercial harvest is currently incomplete but is improving with wider application of the Fisheries (Kaimoana Customary Fishing) Regulations 1998 and the Fisheries (South Island Customary Fishing) Regulations 1999, and as tangata whenua recognise the importance of customary fishing information to sustainable management of fisheries. The NRLMG notes that under the Kaimoana Customary Fishing Regulations the actual quantity of rock lobsters that are gathered are required to be recorded on the authorisation (permit) (this is not a reporting requirement for lobsters gathered for customary purposes under the Fisheries (Amateur Fishing) Regulations 1986).
309. The NRLMG advises that some research effort has been applied to improve recreational harvest estimates for rock lobster, but this has done little to improve harvest estimates to date. The NRLMG agree that much more work and commitment is needed from MFish to ensure good information on amateur fisheries becomes available. The NRLMG will continue to seek progress in this area.

### ***Illegal removals***

310. Some submitters (NZRFC, Mr Jorion, NZ RLIC and CRAMAC 4) make reference to the impact illegal removals are having on rock lobster fisheries. The NZRFC and Mr Jorion also express the desire to re-visit the telson clipping proposal because they believe it would give a window of opportunity to identify recreationally caught lobsters as not for sale.
311. The NRLMG agrees that significant efforts must be made to reduce and minimise incentives for illegal activity in rock lobster fisheries. The NRLMG will continue to seek progress and support robust initiatives in this area.

### ***Tangata whenua and stakeholder involvement in rock lobster management***

312. Some customary submitters (Te Ohu, TKWM and TKCFF) make reference to greater involvement by tangata whenua in rock lobster management. NZ RLIC also express concerns that the New Zealand public do not appear to be well informed and educated on matters dealing with rock lobster in particular.
313. The NRLMG acknowledges that a high level of involvement by all sectors in management decisions is desirable, and advises that it makes a significant effort to ensure that national and regional stakeholder organisations and groups have an opportunity to participate in its processes. The NRLMG encourages submitters to talk with their NRLMG sector contacts about how to improve their participation in the group's processes.
314. The NRLMG notes that stakeholder organisations and groups also have opportunities to engage with MFish, who also participate in NRLMG processes, about rock lobster issues via customary iwi and recreational forums and other stakeholder meetings.

## ***NRLMG Representation***

315. Some customary submitters (TKWM and TKCFF) express concerns about the lack of customary Maori representation on the NRLMG.
316. As noted above, tangata whenua have opportunities to engage with MFish, who also participate in NRLMG processes, about rock lobster issues via customary iwi forums and other stakeholder meetings.
317. The NRLMG advises that a review of their role, function and membership is currently being undertaken by MFish. The NRLMG is anticipating the completion of this review in 2010 and will provide you with advice on the review in due course.

## **STATUTORY CONSIDERATIONS**

318. In considering the proposals set out in this paper, the following statutory considerations have been taken into account for CRA 3, CRA 4 and CRA 7:

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

319. **Section 5** of the Act requires you to act in a manner consistent with New Zealand's international obligations and Treaty of Waitangi (Fisheries Claims) Settlement Act 1992. To this end, the provisions of general international instruments such as UNCLOS and the Fish Stocks Agreement have been implemented through the provisions of the Act. The NRLMG is not aware of any specific international obligations that would be affected by the proposed TACs and allowances.
320. The proposed options are consistent with the obligations relating to the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992. The NRLMG recognises that rock lobster (koura) is an important taonga species. All proposals seek to maintain good fishing opportunities, or improve stock health and therefore improve fishing opportunities, for all sectors including commercial and customary Maori. For CRA 3 and CRA 7 status quo options represent a risk to short-term and long-term customary value. These risks are set out in the main body of the paper.
321. National-level representatives of customary fishing interests are members of the NRLMG and have contributed to the development of the proposals. During 2009, opportunities were provided for many regional level customary Maori interests to input into the development of the CRA 3 Management Procedures through the CRA 3 Working Group process. Regional level CRA 3 customary Maori interests helped identify the final two alternative CRA 3 Management Procedures presented. The management procedure for CRA 4 was consulted on in 2008; and the management procedure for CRA 7 was consulted on in 2007. The NRLMG consulted with and, where provided, has discussed and considered the views of tangata whenua on the proposals presented in initial advice.

### ***Purpose of the Act (s 8)***

322. **Section 8** of the Act describes the purpose of the Act as being to provide for the utilisation of fisheries resources while ensuring sustainability, and defines the meanings of utilisation and sustainability. The management options presented seek to achieve the purpose of the Act. The options presented seek to achieve sustainable TACs and take into account the respective costs of management versus utilisation benefits.

### ***Environmental considerations (s 9)***

323. **Section 9** of the Act prescribes three environmental principles that you 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 (ie, those that are not harvested) should be maintained above a level that ensures their long-term viability. Potting and hand gathering fisheries have a relatively low level of by-catch and the NRLMG is not aware of any interactions between the fisheries and non-harvested species of concern.
  - 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 3, CRA 4 and CRA 7. 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 3, CRA 4 and CRA 7.
  - 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 significant to fisheries management. The NRLMG is not aware of any such habitats that are affected by the CRA 3, CRA 4 and CRA 7 fisheries.

### ***Information Principles (S 10)***

324. **Section 10** of the Act sets out the information principles, which 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. In accordance with s 10, the absence of information should not be used as a reason to postpone, or fail to take, any measure to achieve the purpose of the Act, including providing for utilisation at levels considered to be sustainable.
325. A thorough review of available information has been undertaken by the NRLMG and the best available information has been used to evaluate the management options presented. The NRLMG has endeavoured to set out the relevant uncertainty in, and inadequacy of, that information so that the appropriate caution can be applied in assessing the proposed management options.

### ***Sustainability Measures (s 11)***

326. When setting or varying a sustainability measure, **Section 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.
327. The adverse effects of fishing on the aquatic environment are discussed under the Environmental Considerations section.
328. Apart from the existing TAC, TACC and allowances, a range of management controls apply to rock lobster fisheries including minimum legal sizes, daily bag limits for amateur fishers, method

restrictions, protection of egg-bearing females, closed areas and closed seasons (only in CRA 3 and CRA 7). The proposed changes to TACs and TACCs are unlikely to affect these measures.

329. Recruitment to rock lobster stocks is highly variable. This variability was taken into account by the RLFAWG and the NRLMG when developing the management procedures for CRA 3, CRA 4 and CRA 7.
330. **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.
331. There are five Regional Councils with jurisdictional boundaries covering CRA 3, CRA 4 and CRA 7 (Gisborne, Hawkes Bay, Horizons, Greater Wellington and Otago). The NRLMG is not aware of anything in the proposed coastal plans for these councils that would be affected by this proposal.
332. There are three Department of Conservation Conservancies with jurisdictional boundaries covering CRA 3, CRA 4 and CRA 7 (East Coast/Hawke's Bay, Wellington and Otago). The NRLMG is not aware of anything in the proposed strategies for these conservancies that would be affected by this proposal.
333. CRA 3, CRA 4 and CRA 7 fisheries do not intersect with the Hauraki Gulf Marine Park; therefore there are no relevant considerations under the Hauraki Marine Park Act 2000.
334. **Section 11(2A)** requires you 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(2A) of the Act.
335. 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. The NRLMG is aware that Ngati Kahungunu is in the process of developing a fisheries plan relating to Ngati Kahungunu fisheries, which intersect with CRA 4, and that the CRA 3 Forum has developed a draft CRA 3 Fisheries Management Plan.

### ***TAC Setting Considerations (section 13)***

336. Rock lobster stocks are managed under **section 13** of the Act. Refer to the *Assessment of Management Options – "TAC Setting" sub-section* for each stock for a discussion of section 13 considerations.

### ***TACC Setting Considerations (s 20 and 21)***

337. **Section 20 and 21** specify a number of matters that must be taken into account when setting or varying a TACC. Section 21 requires you to allow for non-commercial Maori and amateur fishing interests and other fishing mortality when setting or varying the TACC.
338. Refer to the *Assessment of Management Options – "Allocation of the TAC" sub-section* for each stock for a discussion of section 20 and 21 considerations.

### ***Administrative Issues***

339. Implementing decisions to vary TACs and allowances 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.

### 3. SUMMARY OF RECOMMENDATIONS

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#### **FOR CRA 3:**

The NRLMG recommends that you:

- a) **Agree** to be guided by the “Rule 2a” CRA 3 Management Procedure; and
- i. **retain** the current CRA 3 TAC and allowances for the 2010-11 fishing year.

OR

- b) **Agree** to be guided by the “Rule 5” CRA 3 Management Procedure; and
- ii. **decrease** the CRA 3 TAC from 293 tonnes to 273 tonnes;  
And, to achieve the decrease,
  - iii. **decrease** only the CRA 3 TACC from 164 tonnes to 144 tonnes.

OR

- c) If for any reason you choose not to use either CRA 3 Management Procedure to guide TAC setting for CRA 3 in 2010-11:
- iv. **adopt** a 20 tonne TAC reduction;  
Or
  - v. **retain** the existing CRA 3 TAC and allowances for the 2010-11 fishing year.

**Note**, if you choose option (iv) or (v) above, further work will be commissioned during 2010 to support consideration of alternative management measures for CRA 3 for the 2011-12 fishing year (however, this work is dependant on sustainability measure priorities for other rock lobster stocks).

#### **FOR CRA 4:**

The NRLMG recommends that you:

- d) **Agree** to be guided by the CRA 4 Management Procedure; and
- vi. **increase** the CRA 4 TAC from 461 tonnes to 660.5 tonnes;  
And, to achieve the increase,
  - vii. **increase** only the CRA 4 TACC from 266 tonnes to 465.5 tonnes.

OR

e)

viii. **increase** the CRA 4 TAC from 461 tonnes to 610.625 tonnes;

And, to achieve the increase,

ix. **increase** only the CRA 4 TACC from 266 tonnes to 415.625 tonnes.

x. **note:** if you choose option e) a “mini” review of the CRA 4 Management Procedure will be conducted in 2010 to look at its performance indicators and to ensure your statutory obligations are being met with high probability (however, this work is dependant on sustainability measure priorities for other rock lobster stocks).

OR

f)

xi. **retain** the existing CRA 4 TAC and allowances for the 2010-11 fishing year;

And

xii. **request** further work to be commissioned during 2010 to support consideration of alternative management measures for CRA 4 for the 2011-12 fishing year (however, this work is dependant on sustainability measure priorities for other rock lobster stocks).

## **FOR CRA 7:**

The NRLMG recommends that you:

*EITHER*

g) **Agree** to be guided by the CRA 7 Management Procedure; and

xiii. **decrease** the CRA 7 TAC from 209 tonnes to 104.5 tonnes;

And, to achieve the decrease,

xiv. **decrease** only the CRA 7 TACC from 189 tonnes to 84.5 tonnes (NRLMG recommended option).

OR

h) If for any reason you choose not to use the CRA 7 Management Procedure to guide TAC setting for CRA 7 in 2010-11:

xv. **adopt** a 104.5 tonne TAC reduction;

And

xvi. **retain** the existing CRA 7 TAC and allowances for the 2010-11 fishing year;

And

**xvii. request** further work to be commissioned during 2010 to support consideration of alternative management measures for CRA 7 for the 2011-12 fishing year (however, this work is dependant on sustainability measure priorities for other rock lobster stocks).

## ATTACHMENT 1: SPECIFICATIONS OF THE PROPOSED CRA 3 MANAGEMENT PROCEDURES

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During 2009, the CRA 3 Working Group worked with the stock assessment scientists and the RLFAGW to develop a management procedure to guide TAC setting decisions for CRA 3 from 1 April 2010.

A large set of management procedure evaluations were made, using an operating model based on the CRA 3 assessment model (Breen *et al.* 2009). The CRA 3 assessment model was based on a generalised state-of-the-art lobster model (Haist *et al.* 2009). Of the thousands of rules developed, nine final rule candidates were presented to the CRA 3 Working Group for consideration.

The CRA 3 Working Group was unable to reach agreement on one rule option for use in the CRA 3 Management Procedure. The Group instead agreed on two final rule options, called Rule 2a and Rule 5, to be considered for use in the CRA 3 Management Procedure.

### **The “Rule 2a” CRA 3 Management Procedure**

The “Rule 2a” CRA 3 Management Procedure is specified as follows:

- a) A conditional initial fixed TAC applies for 3 years, set at the current CRA 3 TAC (293 tonnes), unless offset-year CPUE falls below 0.75 kg/potlift or increases above 1.08 kg/potlift;
- b) The conditional initial fixed TAC will expire after the 2012-13 fishing year, or when offset-year CPUE used as input to the rule falls below 0.75 kg/potlift or increases above 1.08 kg/potlift, whichever comes sooner;
- c) Offset-year CPUE is the standardised CPUE from the period 1 October through 30 September, calculated in November for input to the rule to determine the TAC for the next fishing year, beginning in the following April;
- d) The management procedure is to be evaluated every year (no “latent year”), based on offset-year CPUE;
- e) The provisional TAC (before minimum and maximum change rules operate, and exclusive of considering the initial fixed TAC) determined by the rule), is given by:

$$TAC'_{y+1} = 275 \left( \frac{I_y + 3}{4} \right)^3 \quad \text{for } 0 < I_y \leq 1 \text{ and}$$

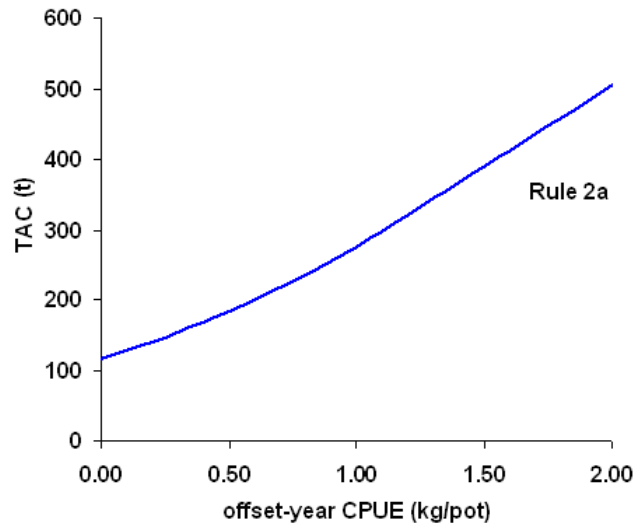
$$TAC'_{y+1} = 275 \left( 1 + \frac{0.5(I_y - 1)}{0.6} \right) \quad \text{for } I_y > 1$$

where  $TAC'_{y+1}$  is the provisional TAC result from the rule and  $I_y$  is the input offset-year CPUE.

- f) After the initial fixed TAC expires, , if the procedure results in a TAC that does not change by more than 5%, no change will be made; and

- g) After the initial fixed TAC expires, if the procedure results in a TAC that changes by more than 10%, the TAC will be changed by 10%.

The relation between CPUE and provisional TAC (before minimum and maximum change limits operate, and ignoring the initial fixed TAC) is illustrated in *Figure A* for “Rule 2a”.



**Figure A:** The “Rule 2a” CRA 3 Management Procedure

### **The “Rule 5” CRA 3 Management Procedure**

The “Rule 5” CRA 3 Management Procedure is specified as follows:

- a) An unconditional initial fixed TAC of 273 tonnes applies for 2 years (ie, no response is proposed to the TAC even if CPUE declines or increases in 2010 or 2011);
- b) The conditional initial fixed TAC will expire after the 2011-12 fishing year;
- c) Offset-year CPUE is the standardised CPUE from the period 1 October through 30 September, calculated in November for input to the rule to determine the TAC for the next fishing year, beginning in the following April;
- d) The management procedure is to be evaluated every year (no “latent year”) , based on offset-year CPUE;
- e) The provisional TAC (before minimum and maximum change rules operate, and exclusive of considering the initial fixed TAC) determined by the rule), is given by:

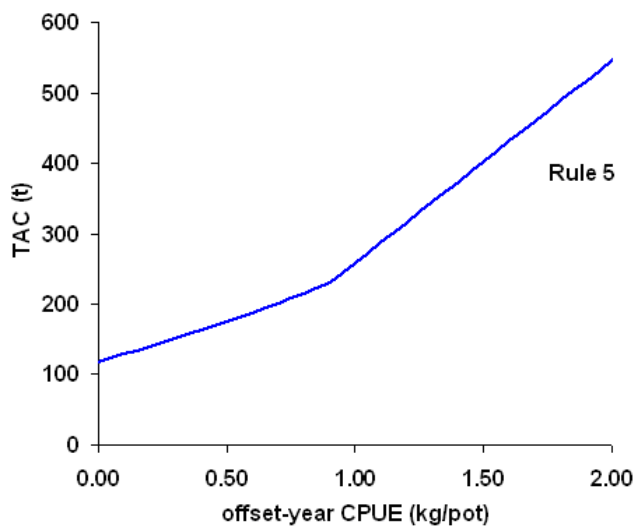
$$TAC'_{y+1} = 230 \left( \frac{I_y + 3}{3.9} \right)^{2.5} \quad \text{for } 0 < I_y \leq 0.9 \text{ and}$$

$$TAC'_{y+1} = 230 \left( 1 + \frac{0.5(I_y - 0.9)}{0.4} \right) \quad \text{for } I_y > 0.9$$

where  $TAC'_{y+1}$  is the provisional TAC result from the rule and  $I_y$  is the input offset-year CPUE.

- f) After the initial fixed TAC expires, if the procedure results in a TAC that does not change by more than 10%, no change will be made; and
- g) After the initial fixed TAC expires, if the procedure results in a TAC that changes by more than 25%, the TAC will be changed by 25%.

The relation between CPUE and suggested TAC (before minimum and maximum change limits operate, and ignoring any initial fixed TAC) is illustrated in *Figure B* for “Rule 5”.



**Figure B:** The “Rule 5” CRA 3 Management Procedure

### **Comparative plots of “Rule 2a” and “Rule 5”**

So that the CRA 3 Working Group, and other stakeholders, could compare rule options, calculations were made from each rule with the same sets of arbitrary hypothetical future CPUE values, from decreasing to static, to increasing very quickly. Three of these are shown in *Figure C* (CPUE decreasing by 0.05 per year), *Figure D* (increasing by 0.05 per year) and *Figure E* (increasing by 0.15 per year). Each figure shows the TACC (not TAC) that would result from the operation of the two rules under differing CPUE scenarios.

In reality, future CPUE will not be independent of the TAC. For example, setting a lower TAC would result in a higher CPUE the following year than would setting a higher TAC. Therefore the comparisons of the rule results shown here are somewhat artificial.

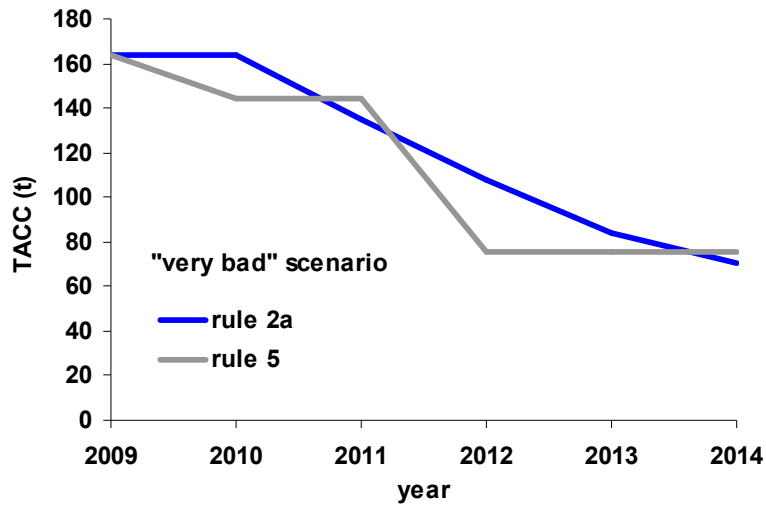


Figure C: TACCs set by the two rules from CPUE decreasing by 0.05 per year.

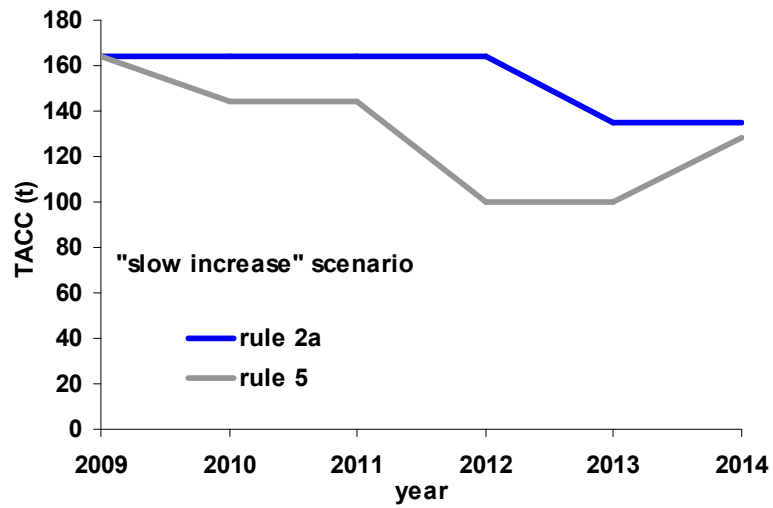


Figure D: TACCs set by the two rules from CPUE increasing by 0.05 per year.

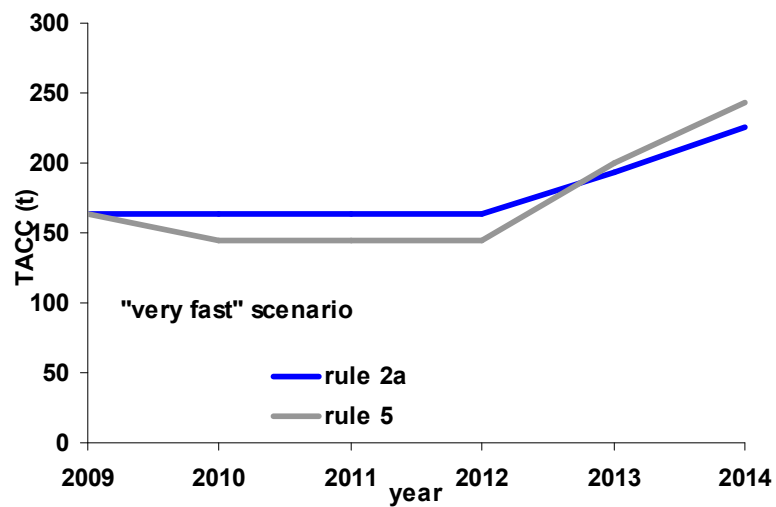


Figure E: TACCs set by the two rules from CPUE increasing by 0.15 per year.

## ***Further Information***

For further technical information on the Management Procedure Evaluations for CRA 3, please refer to:

Breen, P.A., V. Haist, P.J. Starr & T.H. Kendrick 2009. Development of a management procedure for the CRA 3 stock of rock lobsters (*Jasus edwardsii*). Final Research Report - CRA2006-01 Objective 4 – unpublished manuscript available from the Ministry of Fisheries, Wellington, New Zealand.

Haist, V., P.A. Breen & P.J. Starr 2009. A new multi-stock length-based assessment model for New Zealand rock lobsters (*Jasus edwardsii*). *New Zealand Journal of Marine and Freshwater Research* 43(1): 355-371.

## ATTACHMENT 2: SPECIFICATIONS OF THE CRA 4 MANAGEMENT PROCEDURE

After a stock assessment for CRA 4 (Breen *et al.* 2006), a large set of management procedure evaluations (MPEs) were done, using an operating model based on the CRA 4 assessment model (Breen & Kim 2006b).

The 2005-06 catch in CRA 4 was 504 tonnes; this was less than the TACC of 577 tonnes. In the latter part of 2006 it was obvious that the catch for 2006-07 would be even further below the TACC (in the event it turned out to be 445 tonnes). A series of industry meetings discussed options that included adoption of a management procedure or decision rule that would specify annually how much ACE should be voluntarily shelved.

The Breen & Kim (2006b) study was used as the basis for choosing a management procedure. One of the obvious requirements, not considered by Breen & Kim, was that the 2007-08 catch limit should be set low enough that it actually constrained the catch. A rule was chosen that specified a low catch limit (321 tonnes) when using the most recent CPUE estimate. This rule, E170 (Figure A), is specified as follows:

$$SCC_{y+1} = 500 \left( \frac{I_y}{0.9} \right)^{1.4}$$

where  $TACC_y$  is the specified catch limit in year  $y$  and  $I_y$  is standardised CPUE from the most recent autumn-winter season. There is no latent year<sup>5</sup>; the maximum allowable change is 75% and the minimum change is 5%.

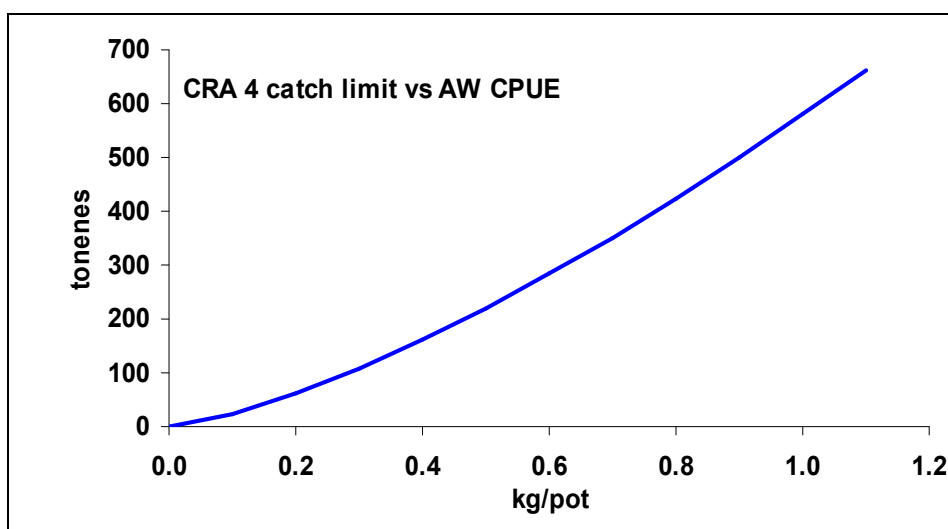


Figure F: The CRA 4 Management Procedure.

<sup>5</sup> The original MPEs described by Breen & Kim (2006b) used an asymmetric latent year, in which a decrease could be made, but not an increase, in a year following a change. The latent year was dropped before a rule was adopted, at the request of NZ RLIC Ltd., after examination of the performance of the rule without a latent year.

Table A below shows the history of the rule.

Year	Applied to fishing year	Autumn-winter CPUE	Rule result	Operational limit
2006	2007-08	0.656 kg/potlift	321.1 tonnes	339 tonnes
2007	2008-09	0.515 kg/potlift	228.9 tonnes	240 tonnes
2008	2009-10	0.573 kg/potlift	265.9 tonnes	266 tonnes
2009		0.871 kg/potlift	477.59 tonnes	

**Table A:** History of the CRA 4 Management Procedure, showing proposed limits to the commercial fishery.

In late 2006, the rule delivered a specified catch limit of 321 tonnes. Not all quota owners shelved the requisite ACE, resulting in an operational limit of 339 tonnes, a 41% reduction from the TACC.

In late 2007, the rule delivered a specified catch limit of 228.9 tonnes. Not all quota owners shelved the requisite ACE, resulting in an operational limit of 245 tonnes, a 57% reduction from the TACC.

In late 2008, the rule delivered a specified catch limit of 265.9 tonnes. The Minister formally adopted the rule to guide statutory TAC setting in CRA 4 from the 2009-10 fishing year. This resulted in an operational limit of 266 tonnes, a 55 % reduction from the TACC.

In late 2009, the rule delivered a specified catch limit of 477.59 tonnes. This would represent an increase of 79.5%. However, the maximum change allowed under the rule is +/- 75%, thus the proposed TACC for 2010-11 becomes 465.5 tonnes under the CRA 4 Management Procedure.

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. During 2011, it is proposed that the management procedure will be reviewed.

## ATTACHMENT 3: SPECIFICATIONS OF THE CRA 7 MANAGEMENT PROCEDURE

The CRA 7 management procedure specifies 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 offset year from 1 October;
- 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;
- d) The TAC is to be set at 100 times the standardised CPUE (*Figure G*);
- e) The management procedure is to be evaluated every year (no “latent year”);
- f) If the procedure results in a TAC that changes by less than 5%, no change will be made; and
- g) If the procedure results in a TAC that changes by more than 50%, the TAC will be changed by 50%.

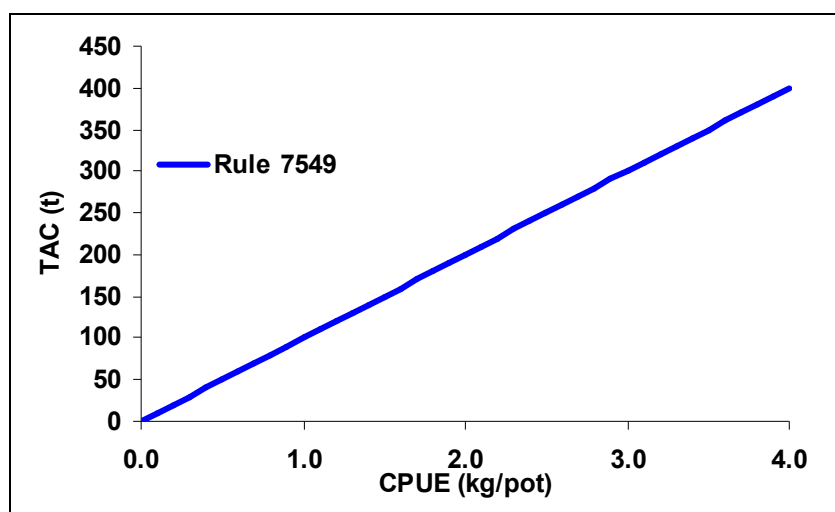


Figure G: CRA 7 Management Procedure.

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 the CRA 7 Management Procedure take place in 2012.

## **ATTACHMENT 4: SUBMISSIONS**

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