NATIONAL ROCK LOBSTER MANAGEMENT GROUP

Review of Rock Lobster Sustainability Measures for 1 April 2018

Final Advice Paper

Prepared by the National Rock Lobster Management Group

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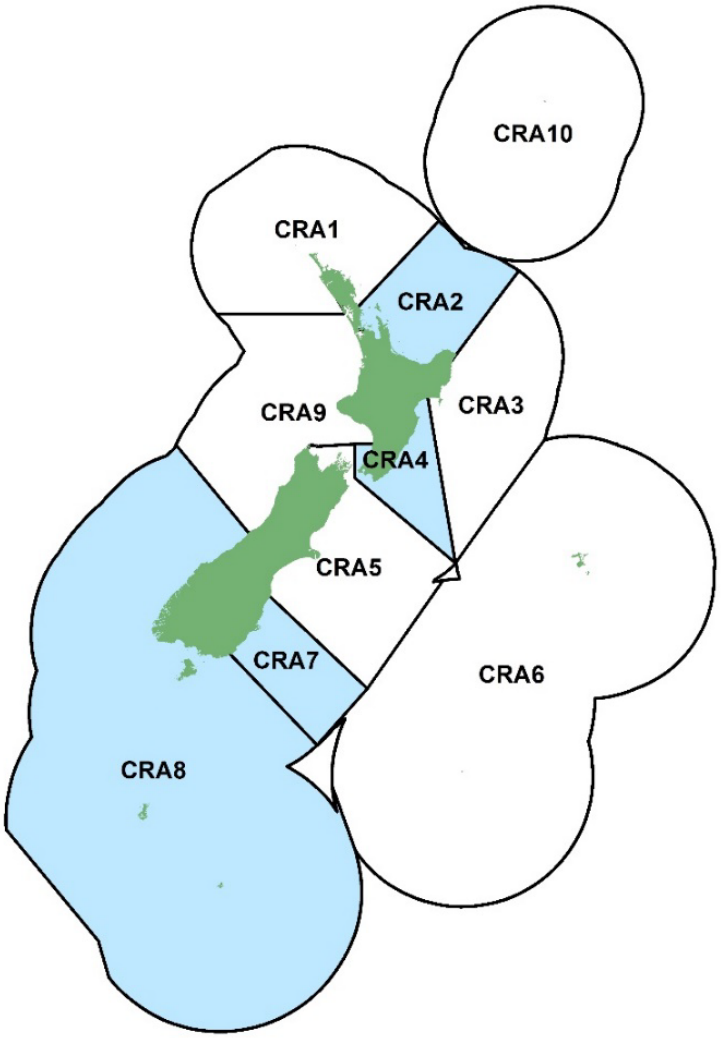

Figure 1.1: Map of rock lobster Quota Management Areas showing stocks under review in blue.

1. You are being asked to make decisions on sustainability measures for four rock lobster stocks for the fishing year beginning 1 April 2018 (Figure 1.1). The Total Allowable Catch (TAC), allowances and Total Allowable Commercial Catch (TACC) proposals presented in this paper for your decision are based on new stock assessment information, or the results from the operation of management procedures or decision rules.

2. Under the Fisheries Act 1996 (the Act), you are required to set a TAC that maintains a stock at or above, restores a stock to or above, or moves the stock towards or above a level than can produce the maximum sustainable yield (MSY). For rock lobster, MSY-compatible reference biomass levels are used because reliable MSY estimates have not yet been able to be calculated for rock lobster.

3. After setting the TAC, a separate decision arises in respect of allocating the TAC. You have discretion when making allowances for various sectors and in setting the TACC. The Act does not recognise an inherent priority that directs your TAC allocation decisions.

4. Management procedures are in place for most rock lobster stocks in New Zealand. Each management procedure is operated every year to guide the setting of catch limits in a way that is consistent with your statutory obligations for managing stocks under the Act. Previous governments have been supportive of the use of management procedures in rock lobster fisheries, with the first procedure used in 1997 to rebuild the CRA 7 (Otago) and CRA 8 (Southern) stocks.

5. Management procedures are designed to move or maintain stock abundance at or above agreed reference levels, while recognising a range of customary Māori, recreational, and commercial values. They enable TACs to be regularly reviewed so that overall removals from a stock reflect available abundance. This is particularly important for rock lobster because abundance can fluctuate from year to year with changes in environmental conditions (e.g. water currents and temperatures can affect the number of lobsters entering a fishery).

6. The final proposals (Table 1.1) for each stock under review are based on discussions by the multi-stakeholder National Rock Lobster Management Group (NRLMG), including the Ministry for Primary Industries (MPI), consideration of best available information, and an analysis of submissions received from tangata whenua and stakeholders on each consultation option. The NRLMG has acted as a primary advisor to previous Ministers on rock lobster management matters since 1992.

7. Your decisions for each stock under review relate to:
   - **CRA 2 (Hauraki Gulf/Bay of Plenty) fishery** - Decreases to the TAC, the recreational and other mortality allowances, and the TACC, with no change to the customary allowance, based on the results of the 2017 scientific stock assessment;
   - **CRA 4 (Wellington/Hawke's Bay) fishery** - Increases to the TAC and TACC with no change to the non-commercial allowances, based on the use of the CRA 4 management procedure that the previous Government agreed to use until 2021;
   - **CRA 7 (Otago) fishery** - Decreases to the TAC and TACC with no change to the non-commercial allowances, based on the use of the CRA 7 management procedure that the previous Government agreed to use until 2020; and
   - **CRA 8 (Southern) fishery** - Increases to the TAC and TACC with no change to the non-commercial allowances, based on the use of the CRA 8 management procedure that the previous Government agreed to use until 2020.

Table 1.1: TAC, allowance and TACC final proposals for CRA 2, 4, 7 and 8 from 1 April 2018 (in tonnes). NRLMG recommendations are shown in blue italics.

Stock	Option	TAC	TACC	Allowances		
				Customary **Māori**	Recreational	Other mortality
CRA 2	*Status quo*	416.5	200	16.5	140	60
	CRA2_01 *(NRLMG commercial and customary member recommended)*	193 ↓	100 ↓	16.5	34 ↓	42.5 ↓
	CRA2_02 *(NRLMG recreational member recommended)*	189 ↓	80 ↓		50 ↓	
CRA 4	CRA4_01: *Status quo*	484	289	35	85	75
	CRA4_02: Based on the operation of the CRA 4 management procedure *(NRLMG recommended)*	513.8 ↑	318.8 ↑			
CRA 7	CRA7_01: *Status quo*	132.52	112.52	10	5	5
	CRA7_02: Based on the operation of the CRA 7 management procedure *(NRLMG recommended)*	117 ↓	97 ↓			
CRA 8	CRA8_01: *Status quo*	1,053	962	30	33	28
	CRA8_02: Based on the operation of the CRA 8 management procedure *(NRLMG recommended)*	1,161.7 ↑	1,070.7 ↑			

2 NRLMG recommendations

2.1 CRA 2 (HAURAKI GULF/BAY OF PLENTY)

8. The NRLMG, MPI, tangata whenua, recreational and commercial fishers, environmental interests, as well as many in the wider community are concerned about the health of the CRA 2 fishery. The new 2017 stock assessment results reflect these concerns. Female spawning stock biomass during autumn-winter in 2016 was estimated to be at 18.5% of the unfished level. This places the CRA 2 fishery below the "soft" limit of 20% of the unfished spawning stock biomass, the level where it is MPI policy to implement a formal, time-constrained rebuilding plan.

9. All sectors generally agree that they need to contribute to the rebuild of this important shared fishery. The Rock Lobster Fisheries Assessment Working Group has determined that the basis for the previous target biomass was no longer appropriate and that more work is needed to develop an appropriate target reference level. In the meantime, the NRLMG suggest an "intermediate" rebuilding target to double current rock lobster abundance within about five years, which will increase the stock size to approximately 40% of the unfished spawning stock biomass level. A longer-term target will be considered and developed by the

Rock Lobster Fisheries Assessment Working Group, the NRLMG, and other stakeholders during 2018.

10. MPI, with support from the NRLMG, consulted on a range of options to reduce the CRA 2 TAC from 416.5 tonnes to between 191.5 and 251.5 tonnes. These TAC options included TACC proposals of 140, 120, 100 or 80 tonnes, and a recreational allowance proposal of 50 tonnes. The NRLMG also sought submitter feedback on a recreational allowance option of 34 tonnes.

11. After further NRLMG discussions, re-consideration of available scientific information, and an analysis of submissions, two final options are presented for your consideration (Table 2.1). Under both options, it is proposed that the TAC is set at approximately 190 tonnes (193 and 189 tonnes respectively). Within the TAC, it proposed that the recreational allowance is reduced to 34 or 50 tonnes, and the TACC is reduced to 80 or 100 tonnes. These proposals have different socio-economic implications for commercial fishers in particular.

12. The duration of rebuild to the intermediate target under both options changes based on different assumptions of future recreational catch levels and recruitment (the addition of new rock lobsters to the fished component of the stock). The time required to double current stock size is 5 years for Option CRA2_01 (100 tonne TACC and 34 tonne recreational allowance) and 4-5 years for Option CRA2_02 (80 tonne TACC and 50 tonne recreational allowance). A rebuilding time of faster than four years is unlikely to be achieved because it takes time for new lobsters to become available to the fishery (based on recruitment).

Table 2.1: Summary of final CRA 2 options, percentage changes, and rebuild timeframes under different assumptions of future levels of recreational catch.

	Option CRA2_01	*Option CRA2_02*
TAC	193 t (54% ↓)	189 t (55% ↓)
Customary allowance	16.5 t (NC)	16.5 t (NC)
Recreational allowance	34 t (76% ↓)	50 t (64% ↓)
Other mortality	42.5 t (29% ↓)	42.5 t (29% ↓)
TACC	100 t (50% ↓)	80 t (60% ↓)
Rebuild to the intermediate target (with 50% probability)	5 years	4-5 years

13. Customary (Te Ohu Kaimoana) and commercial (NZ Rock Lobster Industry Council (NZ RLIC)) members of the NRLMG originally supported higher TAC options. Within the TAC, customary members supported a TACC of 120 tonnes, and commercial members supported a TACC of 140 tonnes. Both of these interests supported a recreational allowance of 34 tonnes. After re-consideration of the stock assessment information and discussions with CRA 2 quota share owners, Iwi asset holding companies, Aotearoa Fisheries (Moana NZ), other iwi fishing companies, and commercial fishers, customary and commercial members of the NRLMG have expressed support for Option CRA2_01. This includes a 100 tonne TACC and recreational allowance of 34 tonnes. Their particular concern was to ensure a rebuild even if recent estimates of low recruitment were to persist.

14. A TACC of 100 tonnes will have significant socio-economic consequences for the CRA 2 operators and associated businesses. The NZ RLIC submits that this includes unemployment, vessels off the water, and loss of income in the catching sector. For quota owners and processors and distributors, this could mean inability to service debt, reduced economic viability and forced exit and bankruptcy, stranded assets, social impacts on iwi beneficiaries, and impacts on regional communities. A 100 tonne TACC is likely to reduce the opportunity for the catching sector alone to generate annual revenue of over $8.5 million (based on 2017 average port price information). Customary and commercial NRLMG members consider that a TAC and TACC reduction to 100 tonnes is necessary to ensure the stock is put on a clear rebuild trajectory with a high degree of certainty.

15. Recreational (NZ Recreational Fishing Council) members of the NRLMG support Option CRA2_02. Under this option it is proposed that the TAC would be allocated as follows: a TACC of 80 tonnes and a recreational allowance of 50 tonnes. Recreational members support this option because they consider that it is in the best interest of the CRA 2 fishery. They note that a full closure was their first position, which could be a real outcome if the current decline in abundance cannot be halted.

16. There are differences in opinion between NRLMG sector members about the level of the recreational allowance, and what information should be used to guide the setting of it. There is uncertainty in current levels of recreational removals from the CRA 2 fishery.

17. Customary and commercial members support the lower recreational allowance of 34 tonnes because it is based on the Rock Lobster Fisheries Assessment Group's model estimate of current removals and it takes into account declines in the fishery since 2011/12. Where substantial reductions to the TACC are proposed they do not think it is appropriate to provide for an increase in the recreational catch. Recreational members support the 50 tonne recreational allowance, which is the upper bound of an estimate from the MPI National Panel Survey for the 2011/12 October fishing year (1 October 2011 to 30 September 2012). Recreational members note that even under Option CRA2_02 with a 50 tonne allowance, this still equates to a reduction in allowance of 64% versus commercial at 60%, whereas under Option CRA2_01 the reduction in recreational is 76% versus Commercial at 50%. They advise that some members of the public are questioning the equity and fairness of the reductions.

18. It is proposed that the allowance for all other mortality that results from fishing (i.e. illegal catch and handling related mortality) is decreased to 42.5 tonnes under both options (from 60 tonnes). While noting uncertainty in estimates of other mortality, it is assumed that the level of illegal take is lower when stock abundance is low. No change is proposed to the Māori customary allowance for CRA 2. Customary harvest of rock lobster is conservative and within the current customary Māori allowance of 16.5 tonnes. Some customary submitters and participants at pre-consultation meetings in 2017, have said many iwi have put in place restraints in providing authorisations for customary take of rock lobster because of concerns about the sustainability of the fishery.

19. MPI does not have a preferred option. Both options are likely to double the current biomass of the CRA 2 fishery in a reasonable timeframe, but with different socio-economic implications for commercial fishers in particular. You have discretion to choose the way and rate the fishery is rebuilt, and you have discretion for making allowances for various sectors.

Other considerations

20. A number of non-commercial submitters suggested that you should consider a full closure of the CRA 2 fishery to provide the best opportunity for rebuild. Under the Act, there is no set rate, or timeframe, within which a rebuild of a stock must be achieved. While the CRA 2 stock is depleted, the NRLMG considers that the proposed TAC reduction is likely to double the current biomass of the stock in a reasonable timeframe while providing for a level of use.

21. MPI's Harvest Strategy Standard, which is a policy statement of best practice for setting targets and limits for stocks managed within New Zealand's Quota Management System, provides guidance on rebuilding a stock that is below target. The CRA 2 stock assessment suggests that the CRA 2 spawning stock is currently below its soft limit, indicating that a formal, time-constrained rebuilding plan is needed, but it is above its hard limit, indicating that a closure is not currently justified. However, this does not fetter your discretion to choose a different way and rate to rebuild the CRA 2 fishery.

22. The proposed changes to the TAC, allowances and TACC for CRA 2 are part of a wider plan to double the biomass of the CRA 2 fishery. MPI (with the support of the NRLMG) will be consulting from April 2018 on a broader range of measures for implementation by October 2018 to complement the proposed changes to the catch settings. It is proposed that this will include regulatory measures to manage recreational fishing to a new allowance (such as reducing the bag limit), and to reduce illegal take. In addition, compliance and enforcement initiatives will be implemented by MPI, and consideration will be given to the future management of the CRA 2 fishery through the setting of a new target.

23. Customary and commercial members have noted that some of the adverse economic impacts of a TACC reduction can be mitigated by a clear signal from government that the TACC will be restored when sufficient improvements in the fishery are observed. Otherwise this may affect the willingness of financial institutions to extend debt arrangements and allow operators to remain solvent. Recreational members state that the acceptance of any reduction in the recreational allowance does not in any way reflect acceptance of a proportional share of the TAC.

24. MPI notes that this relates to future decisions, which need to be based on application of your legislative obligations, after considering best available information, and tangata whenua and stakeholder views. MPI propose that a new CRA 2 management procedure will be developed in late 2018 to guide future TAC setting to help provide certainty of future decision-making for stakeholders.

2.2 CRA 4 (WELLINGTON/HAWKE'S BAY)

25. The NRLMG recommends that you agree to Option CRA4_02, which is to apply the current CRA 4 management procedure and increase the TAC and TACC by 29.8 tonnes. The previous Government agreed to use the current CRA 4 management procedure to guide TAC setting in 2017.

26. The results of the most recent CRA 4 stock assessment carried out in 2016 suggest that stock biomass was below the agreed reference level by 25%. In response to this science information, a new CRA 4 management procedure was put in place in 2017 to ensure the stock was rebuilt to towards the agreed reference level in 2021 with 92% probability. Its operation resulted in a substantial TAC and TACC reduction of 108 tonnes from April 2017. Monitoring information suggests that rock lobster abundance in CRA 4 has increased in the last year. A modest increase to the TAC is expected to allow the stock to rebuild to higher abundance levels.

27. While there is uncertainty in the current estimates of Māori customary and recreational harvest and illegal take, no change is proposed to the non-commercial allowances for CRA 4. This is because it is considered that the current estimates of non-commercial removals are within the current allowances.

2.3 CRA 7 (OTAGO)

28. The NRLMG recommends that you agree to Option CRA7_02, which is to apply the current CRA 7 management procedure and decrease the TAC and TACC by 15.5 tonnes. The previous Government agreed to use the current CRA 7 management procedure to guide TAC setting in 2013.

29. The results of the most recent CRA 7 stock assessment conducted in 2015 suggested there were no sustainability concerns for the CRA 7 fishery. 2015 stock biomass was twice the agreed reference level. Ongoing application of the CRA 7 management procedure is expected to maintain the stock above the agreed reference level with 98% probability. The proposed TAC decrease reflects the fluctuating abundance of rock lobsters in CRA 7.

30. No change is proposed to the non-commercial allowances for CRA 7, because it is considered that the current levels of Māori customary, recreational and illegal removals are within the current allowances.

31. While recreational NRLMG members support the use of the CRA 7 management procedure, they note that there are other matters outside the scope of this sustainability review that need to be addressed by MPI. This includes resolving the difference in the type of size measure used in CRA 7 and the minimum legal size limit between recreational and commercial fishers[1] (discussed in Section 12 - Other matters).

[1] The CRA 7 commercial minimum legal size is 127 mm tail length for male and female rock lobsters at any time of year, whilst the recreational minimum legal size is 54 mm tail width for male rock lobsters and 60 mm tail width for female rock lobsters at any time of year.

2.4 CRA 8 (SOUTHERN)

32. The NRLMG recommends that you agree to Option CRA8_02, which is to apply the current CRA 8 management procedure and increase the TAC and TACC by 108.7 tonnes. The previous Government agreed to use the current CRA 8 management procedure to guide TAC setting in 2016.

33. Based on the 2015 stock assessment results there are no sustainability concerns for the CRA 8 fishery. Stock biomass in 2015 was 1.4 times the agreed reference level. Ongoing application of the current CRA 8 management procedure is expected to maintain the CRA 8 stock above the agreed reference level with 99% probability.

34. No change is proposed to the non-commercial allowances for CRA 8, because it is considered that the current levels of Māori customary, recreational and illegal removals are within the current allowances.

2.5 ADDITIONAL COMMENTS

35. The NRLMG sector members have regularly requested better estimates of non-commercial removals, but consider that they have experienced little progress in addressing this information gap. Accurate information about non-commercial removals is necessary for fisheries management decisions and to ensure the sustainable utilisation of rock lobster fisheries. There is uncertainty associated with some levels of customary harvest (mostly in the North Island), but there is considerable uncertainty associated with recreational removals from most areas, and illegal take across New Zealand. NRLMG sector members consider that this is inadequate.

36. As a matter of priority, the NRLMG sector members strongly urge action to constrain illegal removals from rock lobster fisheries and re-evaluate the dated estimates of illegal take for use in stock assessments. They request that MPI makes this a priority during 2018. The NRLMG is available to assist and provide input into the development of any new methodology for estimating illegal take. The NRLMG also requests that more resources are applied when recreational harvest surveys are being planned and designed by MPI for rock lobster.

37. MPI is committed to improving estimates of non-commercial removals, and acknowledge that further work is needed to improve estimates of illegal removals from most rock lobster fisheries.

3 Summary of the NRLMG's recommendations

38. To ensure the long-term sustainable utilisation of rock lobster fisheries, the NRLMG recommends that you make decisions for each stock under review as follows:

CRA 2

~~Option CRA2_01~~ revised option.

Option CRA2_01 *(NRLMG customary and commercial member recommended)*

Agree to decrease the CRA 2 TAC from 416.5 to ~~193~~ 173 tonnes and within the TAC: Agreed as amended SL.

i. retain the allowance of 16.5 tonnes for Māori customary non-commercial fishing interests; Agreed SL.

ii. decrease the allowance for recreational fishing interests from 140 to 34 tonnes; Agreed SL.

iii. decrease the allowance for other sources of fishing-related mortality from 60 to 42.5 tonnes; Agreed SL.

iv. decrease the TACC from 200 to ~~100~~ 80 tonnes. Agreed as amended SL.

Agreed / Not Agreed

Agreed As Amended SL MG

OR

Option CRA2_02 *(NRLMG recreational member recommended)*

Agree to decrease the CRA 2 TAC from 416.5 to 189 tonnes and within the TAC:

i. retain the allowance of 16.5 tonnes for Māori customary non-commercial fishing interests;

ii. decrease the allowance for recreational fishing interests from 140 to 50 tonnes;

iii. decrease the allowance for other sources of fishing-related mortality from 60 to 42.5 tonnes;

iv. decrease the TACC from 200 to 80 tonnes.

Agreed / Not Agreed

Note that the rebuild of CRA 2 fishery to double current biomass is dependent on a broader range of management measures that are proposed for implementation later in 2018, this includes managing recreational catch within a new allowance.

Noted

Note that the NRLMG sector members are urging MPI to develop estimates of illegal removals and take action to address illegal take in the CRA 2 fishery to support the rebuild of the fishery.

Noted

CRA 4

Option CRA4_01 *(Status quo)*

Agree to retain the CRA 4 TAC at 484 tonnes and within the TAC:

i. retain the allowance of 35 tonnes for Māori customary non-commercial fishing interests;

ii. retain the allowance of 85 tonnes for recreational fishing interests;

iii. retain the allowance of 75 tonnes for other sources of fishing-related mortality;

iv. retain the CRA 4 TACC at 289 tonnes.

Agreed / Not Agreed

OR

Option CRA4_02 *(NRLMG recommended)*

Agree to apply the current CRA 4 management procedure, and based on its use increase the CRA 4 TAC from 484 to 513.8 tonnes and within the TAC:

i. retain the allowance of 35 tonnes for Māori customary non-commercial fishing interests;

ii. retain the allowance of 85 tonnes for recreational fishing interests;

iii. retain the allowance of 75 tonnes for other sources of fishing-related mortality;

iv. increase the TACC from 289 to 318.8 tonnes.

Agreed / Not Agreed

CRA 7

Option CRA7_01 *(Status quo)*

Agree to retain the CRA 7 TAC at 132.52 tonnes and within the TAC:

i. retain the allowance of 10 tonnes for Māori customary non-commercial fishing interests;

ii. retain the allowance of 5 tonnes for recreational fishing interests;

iii. retain the allowance of 5 tonnes for other sources of fishing-related mortality;

iv. retain the CRA 7 TACC at 112.52 tonnes.

Agreed / Not Agreed

OR

Option CRA7_02 *(NRLMG recommended)*

Agree to use the current CRA 7 management procedure, and based on its use decrease the CRA 7 TAC from 132.5 to 117 tonnes and within the TAC:

i. retain the allowance of 10 tonnes for Māori customary non-commercial fishing interests;

ii. retain the allowance of 5 tonnes for recreational fishing interests;

iii. retain the allowance of 5 tonnes for other sources of fishing-related mortality;

iv. decrease the CRA 7 TACC from 112.52 to 97 tonnes.

Agreed / Not Agreed

CRA 8

Option CRA8_01 *(Status quo)*

Agree to retain the CRA 8 TAC at 1,053 tonnes and within the TAC:

i. retain the allowance of 30 tonnes for Māori customary non-commercial fishing interests;

ii. retain the allowance of 33 tonnes for recreational fishing interests;

iii. retain the allowance of 28 tonnes for other sources of fishing-related mortality;

iv. retain the CRA 8 TACC at 962 tonnes.

Agreed / Not Agreed

OR

Option CRA8_02 *(NRLMG recommended)*

Agree to use the current CRA 8 management procedure, and based on its operation increase the CRA 8 TAC from 1,053 to 1,161.7 tonnes and within the TAC:

i. retain the allowance of 30 tonnes for Māori customary non-commercial fishing interests;

ii. retain the allowance of 33 tonnes for recreational fishing interests;

iii. retain the allowance of 28 tonnes for other sources of fishing-related mortality;

iv. increase the CRA 8 TACC from 962 to 1,070.7 tonnes.

Agreed / Not Agreed

Note that deemed values are charges commercial fishers must pay for every kilogram of stocks landed in excess of their Annual Catch Entitlement, and that no change is proposed to the deemed value rates for any rock lobster stock.

Noted

Hon Stuart Nash
Minister of Fisheries

21 / 3 / 2018

4 Context

4.1 ROCK LOBSTER BIOLOGY

Distribution

39. In New Zealand, spiny red rock lobster *Jasus edwardsii* occurs from the Three Kings Islands in the north to the Auckland Islands in the south, and east to the Chatham Islands. Rock lobsters are generally found within the depth range of 5-100 metres, but can also be found on shallower seamounts out to 300 metres. They are most commonly found on or near rocky reef platforms.

Life Cycle

40. The life cycle of the red rock lobster is shown in Figure 4.1. Rock lobsters pass through a series of developmental stages from fertilised egg to adult.

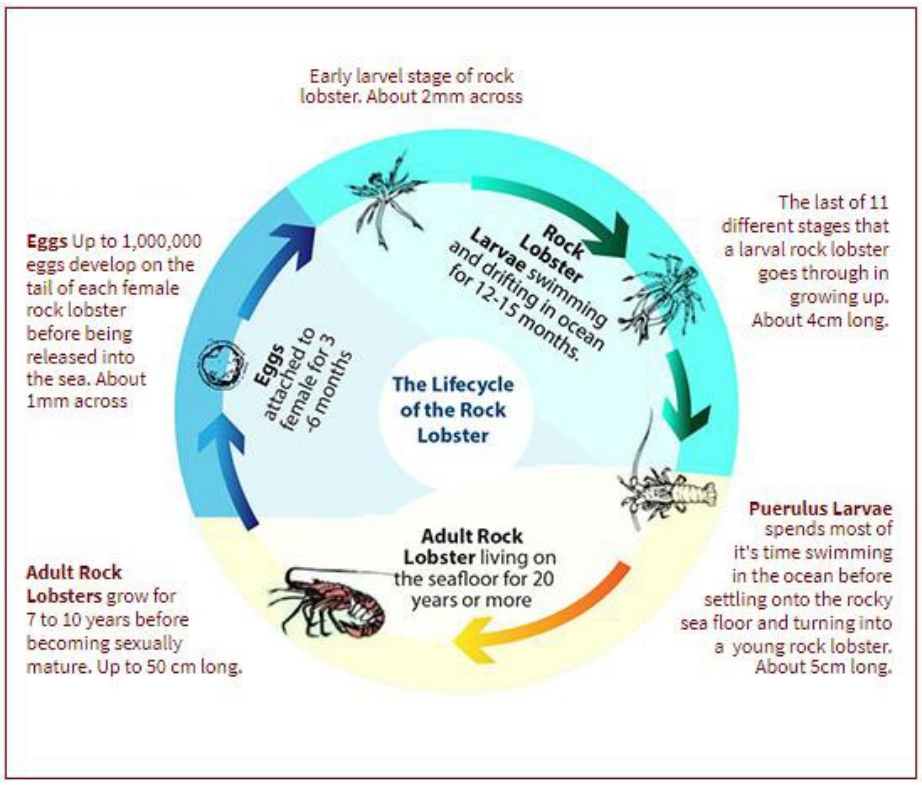

Figure 4.1: Lifecycle of spiny red rock lobster.

Larval distribution and recruitment

41. Because of the long larval life of rock lobsters, the origins of larvae are difficult to determine. Larvae hatched in one area may be retained in that area by local eddy systems, carried to other areas by currents, or lost to New Zealand entirely. For most areas, larvae may originate a considerable distance from the settlement site.

42. Puerulus larvae settle mainly on rocky habitats at depths less than 20 metres with the settlement season varying with locality. The number of pueruli that settle varies among areas and from year to year. Annual levels of settlement have been collected from sites in CRA 3, 4, 5, 7 and 8 since 1979. Settlement collector trials were carried out in CRA1 and 2 in the 2000's, but were discontinued because they were not providing good indices of settlement. The CRA 2 industry has recently deployed a new type of collector to monitor settlement.

43. Puerulus settlement may be affected by environmental factors such as the amount of suitable habitat available, the persistence of storms, prevailing ocean currents, sea temperature, food availability, and predation. Large numbers of puerulus larvae die before ever reaching suitable habitat. This is due in part to predation but, as noted above, may also be a result of unfavourable environmental conditions.

Age and Growth

44. Rock lobsters are known to be relatively slow-growing and long-lived. They may live for over 40 years and can reach sizes of 200 mm carapace length. Studies have also shown that lobsters grow at different rates around New Zealand.

45. Rock lobsters have a hard shell (or 'exoskeleton') and in order to grow they must shed this shell and replace it with a bigger one. In most areas of New Zealand, moulting is highly seasonal, with immature and mature lobsters having their distinct moulting periods. The moulting process occurs frequently in small lobsters (every 4-6 weeks) when they are growing rapidly, but usually occurs once a year in adult lobsters. The amount of growth is dependent on the size of the lobster, the temperature of the water in which it has been living, and the amount and type of food it has eaten. Moult frequency decreases with increasing age and size.

Interdependence of stocks

46. The interdependence of stocks involves the consideration of the effects of fishing on associated or dependent species affected by fishing for the target stock. Examples include non-target fish species (bycatch) or benthic species that are incidentally taken or impacted by fishing gear. The role of the target stock in the food chain should also be considered. In particular, interdependence involves direct trophic relationships between stocks (i.e. one stock is likely to be directly affected through a predator-prey relationship by the abundance of another stock).

47. Potting is the method commercial fishers use to target rock lobster. This method is considered to have little direct effect on non-target species and benthic species. The most frequently reported incidental species caught via commercial rock lobster potting, in decreasing order of catch across all rock lobster stocks are: octopus, conger eel, blue cod, trumpeter, sea perch, red cod, butterfish and leatherjackets. This is based on an analysis of estimated incidental catches for the period 1989 to 2003. The non-rock lobster catch ranged from 2 to 11% of the estimated rock lobster catch weight per stock over this period. Escape gaps provided for sublegal lobsters to escape also allow many fish and invertebrates to escape.

48. Rock lobsters feed on a wide range of small shellfish, crabs, starfish and kina, depending on local availability. Predation on rock lobsters is known from octopus, blue cod, groper, school shark, rig and seals.

49. If large rocky reef predators such as rock lobster, snapper and blue cod are reduced to certain levels, high aggregations of urchins can form. These urchins graze macro algal habitat and can cause a shift from kelp forest to urchin barren. There is research suggesting that on some rocky reefs in the north of New Zealand (e.g. within the CRA 2 area), recovery of predators like rock lobster and snapper inside marine reserves has led to the recovery of macro algal habitat through predation exerted on herbivorous urchins. There is also research that suggests that the loss of kelp beds can be driven by other factors, such as climate change (warming waters), increased sediment runoff, storms and poor nutrients.

50. There are indications that rock lobster has become less ecologically important since the arrival of humans in the Hauraki Gulf. While rock lobster was a reasonably important benthic invertebrate group in the Greater Hauraki Gulf before human arrival (ranked 6th out of 12 benthic groups), its biomass declined by 76% between 1000 and 1950 due to fishing pressure. Rock lobster are now ranked as the least important benthic invertebrate group and almost the lowest in the whole system (ranked 42nd out of 45 groups). Fishing for rock lobsters over the course of human habitation in the Hauraki Gulf appears to have altered their status in the ecosystem.

4.2 ROCK LOBSTER GOVERNANCE

51. In 1992, the then Minister of Fisheries (Hon D L Kidd) endorsed the establishment of a national group to revise and develop the Rock Lobster Management Plan, and asked sector groups to nominate representatives. The NRLMG was subsequently established to:
    a) Provide a co-ordinated participatory management forum; and
    b) Provide the Minister of Fisheries with good quality, ongoing advice relating to management of rock lobster from a group that is representative of all interests in the fishery.

52. The NRLMG is a national-level, multi-stakeholder group comprising representatives of the customary[2], recreational and commercial fishing sectors, and MPI. Terms of Reference for the NRLMG can be found in Appendix 3. Since its formation, the NRLMG has acted as a primary advisor to previous Ministers on catch limit, regulatory and other management actions that apply specifically to rock lobster fisheries. The NRLMG is the longest standing collaborative multi-stakeholder group in New Zealand.

53. The NRLMG has an independent chair (Jo Akroyd), and MPI supports the group by providing the secretariat as well as scientific and fisheries management advice. Current members of the NRLMG are: Nigel Scott (Te Waka a Māui Fisheries Forum); Alan Riwaka (Te Ohu Kaimoana); Geoff Rowling and Keith Ingram (NZ Recreational Fishing Council); Daryl Sykes and Malcolm Lawson (NZ Rock Lobster Industry Council); and Julie Hills and Alicia McKinnon

[2] The aim for Tangata Whenua membership is to be cognisant of, and integrate, the full range of sector harvesting rights held by Māori (customary, recreational and commercial).

(MPI). There are also agreed alternate members: Graeme Hastilow (Te Ohu Kaimoana); George Zander (NZ Recreational Fishing Council); and Mark Edwards (NZ Rock Lobster Industry Council).

54. Representatives of the NRLMG are looking forward to meeting with you later in March 2018 to discuss, amongst other matters, the role, responsibilities and membership of the NRLMG. This will help determine whether you would like to see some changes to the NRLMG to ensure it remains an effective advisor to you on rock lobster matters.

4.3 CURRENT MANAGEMENT APPROACH

55. The NRLMG's management goal for all rock lobster fisheries is that they will be managed and be maintained at or above the assessed and agreed biological reference points consistent with the Minister's legal obligations, using a comprehensive approach that recognises a range of Māori customary non-commercial, recreational, commercial, and environmental concerns and values.

56. The NRLMG considers and proposes changes to the Total Allowable Catch, allowances and Total Allowable Commercial Catch in two situations, where:
    a) A change is triggered by a fully tested and accepted management procedure by the Minister following advice from the NRLMG;
    b) Stock modelling demonstrates that a change is required to move the stock to, or maintain the stock at, a size at or above an agreed reference level.

57. Full scientific assessments of most rock lobster stocks are carried out every four to five years. These assessments estimate the current status of the stock relative to the desired levels of abundance, and also show how the stock has responded to previous management controls. In between years, management procedures are used in most rock lobster stocks (except for CRA 6 – Chatham Islands and CRA 9 – Westland/Taranaki) to guide annual catch setting reviews.

58. Management procedures set out pre-agreed management actions that will be taken in response to annual changes in commercial catch rates ('catch-per-unit-of-effort' or 'CPUE').

Management procedures

59. The management procedure approach establishes a regime that can respond to changes in stock abundance in the fishery on an annual basis in a way that is consistent with your statutory obligations. Rock lobster abundance can fluctuate from year to year with changes in environmental conditions, and management procedures provide a responsive approach to this natural variability.

History of management procedure use in New Zealand

60. Each stock's management procedure has been used by previous Ministers to guide statutory TAC setting in rock lobster fisheries for varying periods. The oldest example of management procedures is in CRA 7 and CRA 8, where they have been used to guide TAC setting since 1997, first to rebuild the stocks and then to maintain them above reference levels with high probability.

61. Management procedures are generally reviewed every five years, unless a review is requested and approved by the NRLMG and MPI. The review is to ensure the TAC setting remains compliant with the statutory structure set out in the Act. It involves a new stock assessment model and management procedure evaluations to determine whether there are opportunities for increased utilisation, or sustainability risks that require management response.

62. Table 4.1 provides an outline of the use of current management procedures, and when they are scheduled for review.

Table 4.1: Management procedures: history and review schedule.

	CRA 1	CRA 2	CRA 3	CRA 4	CRA 5	CRA 7	CRA 8
Year current management procedure commenced	2015	2014	2015	2017	2016	2013	2016
Year of scheduled review	2019	2017 (completed)	2019	2021	2020	2020[3]	2020

Management procedure benefits

63. The traditional approach used to set catch limits in most of New Zealand's fisheries is to undertake a stock assessment and then to provide recommendations on the TAC, allowances, and the TACC. This approach has some disadvantages: stock assessment capacity is limited, and under this approach for rock lobster only one or two assessments can be generally carried out each year. Delays in updating a stock assessment can cause management action to be delayed and catch limits to be set inappropriately for a fishery.

64. A management procedure has a number of advantages over the traditional stock assessment approach. These advantages include:
    a) The establishment of a management regime that can respond to changes in stock abundance in the fishery on an annual basis;
    b) Greater certainty and transparency about how best available information will be used to make decisions, helping to reduce the level of disagreement between fishery interests on these matters;
    c) An explicit definition of management goals (e.g. maximising yield, maximising stability, minimising risk);

[3] The CRA 7 management procedure was evaluated with a new model in 2015, extending its use until the 2020/21 fishing year.

d) Greater certainty of achieving management goals;

e) The involvement of fishery stakeholders in the choice of a management procedure;

f) The ability to address uncertainty in all facets of the assessment and management process; and

g) The opportunity to free up resources for other research: management procedures reduce the frequency that stock assessments are required.

Evaluation of management procedures

65. Management procedures are evaluated with a modified stock assessment model, known as an 'operating model'. Data used in the model include: customary, recreational, commercial and illegal catch; length frequencies from catch sampling and industry logbook data; tag-recapture data (i.e. growth information); and larval settlement levels.

66. Peer review of stock assessment models and management procedures occurs at the Rock Lobster Fisheries Assessment Working Group and at the November Mid-year Fisheries Assessment Plenary. These processes are coordinated and overseen by MPI and different interests can openly participate. Each management procedure is also simulation-tested, which includes using a range of performance metrics to test for robustness to thousands of combinations of uncertainties in model assumptions (e.g. rock lobster population dynamics, variable levels of recruitment and non-commercial catches) and other factors.

Main data input to management procedures

67. Standardised commercial CPUE from each year is used as an input to a management procedure to determine the TAC or TACC for the fishing year that begins in the following April. Rock lobster has an April fishing year that begins on 1 April and ends on 31 March. The CPUE series used in management procedures is called an 'offset year CPUE' because it is calculated based on data from the most recent October fishing year (1 October to 30 September). Use of offset year CPUE ensures that the most up-to-date CPUE information is used in management procedure operations and decision-making.

68. CPUE is used as the main input because it is considered to be a reliable indicator of relative stock size in rock lobster fisheries. CPUE has been successfully used in several management procedures to rebuild stocks from low to high abundance levels, or to maintain stocks near target levels.

69. Considerable effort goes into estimating CPUE from the catch, effort, and landing data commercial fishers are required to report. This data is processed to remove errors, then "standardised" to remove the effects of season and area. Research projects have (and continue to) examine potential problems caused, for example, by changes in fishing patterns and the use of holding pots, to ensure that the best procedures are being used to produce valid indices of abundance for rock lobster. For example, the CPUE series for CRA 2 was updated in 2017 to exclude vessels with less than five years in the fishery, which resulted in a better model fit and a more accurate representation of CRA 2 abundance. The Rock Lobster Fisheries Assessment Working Group will be looking at how CPUE is analysed for all rock lobster fisheries later in 2018.

4.4 STOCK INDICATORS

70. Two stock indicators are relevant to evaluation of the proposals presented in this paper[4]:
    a) The conceptual proxy, ***B_{REF},*** a reference biomass level.[5] The use of B_{REF} is a way of assessing a stock 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 (MSY). This "not inconsistent" approach is set out in section 13(2A) of the Act where you consider that current biomass or B_{MSY} cannot be estimated reliably using best available information. B_{REF} 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.
    b) Spawning stock biomass, ***SSB***, which is the weight of all mature females in the autumn-winter.

4.5 THE MPI HARVEST STRATEGY STANDARD

71. The Harvest Strategy Standard is a policy statement of best practice in relation to the setting of fishery and stock targets and limits for fishstocks in the Quota Management System. It outlines MPI's approach to relevant sections of the Act, and as such, forms a core input to our advice to you on the management of rock lobster fisheries, particularly the setting of TACs under section 13. The Harvest Strategy Standard is not, however, legally binding and you are not obliged to choose options based on it.

72. The Harvest Strategy Standard specifies that management procedures should be designed to ensure that the probability of:
    - Achieving or exceeding the MSY-compatible target is at least 50%;
    - Breaching the soft limit does not exceed 10%;
    - Breaching the hard limit does not exceed 2%.

73. For rock lobster:
    - 'MSY-compatible target' reference points include conceptual proxies (B_{REF});
    - The soft limit is defined as 20% of the unfished spawning stock biomass level or 50% B_{REF};
    - The hard limit is defined as 10% of the unfished spawning stock biomass level or 25% B_{REF}.

[4] Stock size is measured in terms of autumn-winter vulnerable biomass for the B_{REF} indicator. "Vulnerable biomass" is the biomass that is available to be caught legally: above the minimum legal size and not egg bearing if female.

[5] The Operational Guidelines for the Harvest Strategy Standard describe the B_{REF} concept as follows: "Conceptual proxies for B_{MSY}, F_{MSY} 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 B_{MSY}, F_{MSY} 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 B_{MSY}: 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].

74. For the stocks discussed in this paper, soft and hard limits are based on percentages of the unfished spawning stock biomass levels for CRA 2, 4 and 8. For CRA 7, B_{REF}-based soft and hard limits are used because there are high levels of emigration from the stock into CRA 8. Worldwide, spawning stock biomass metrics are most commonly used and are considered the most relevant for specifying biological reference points.

75. Simulation-testing suggests that all of the management procedures discussed in this document are consistent with the Harvest Strategy Standard.

5 Need for review

76. Every year the NRLMG, including MPI, considers the results from stock assessments or the operation of management procedures. This process informs advice to you and decisions on whether catch settings should change for the upcoming April fishing year, to provide for utilisation while ensuring sustainability.

77. In 2014, the previous Government agreed to use a management procedure to guide TAC setting in the CRA 2 fishery until the 2019/20 fishing year. Following tangata whenua and stakeholder concerns that CRA 2 abundance was declining, the stock assessment was brought forward by a year from 2018 to 2017. The NRLMG selected a range of TAC options for consultation, which were informed by scientific modelling and designed to rebuild the stock towards an "intermediate" target in an appropriate timeframe. Rebuild timeframes were considered based on the biological characteristics of the stock, the extent of stock depletion, and the prevailing environmental conditions that can limit the rate of rebuild.

78. Based on operation of the current management procedures, changes to the status quo are proposed for the CRA 4, 7 and 8 rock lobster fisheries. Further details of these management procedures are provided in sections where the relevant stocks are discussed.

79. Operation of the CRA 1 (Northland), CRA 3 (Gisborne), and CRA 5 (Canterbury/Marlborough) management procedures suggested that no change was needed to the management settings for these fisheries from April 2018.

6 Central statutory considerations

80. This section provides an overview of your central statutory considerations for setting or varying TACs and TACCs under the Fisheries Act 1996 (the Act). Details of your other statutory considerations are provided in Appendix 1.

81. Where relevant, stock-specific details relating to these considerations are set out in sections of this paper where individual stocks are discussed.

6.1 SECTION 13 - SETTING AND VARIATION OF THE TOTAL ALLOWABLE CATCH (TAC)

82. Under section 13 the general premise is to set a TAC that maintains the biomass of a stock at or above a level that can produce the maximum sustainable yield (MSY). That biomass level is abbreviated as B_{MSY}.

83. MSY is defined, in relation to any fish stock, as being the greatest yield that can be achieved over time while maintaining the stock's productive capacity, having regard to the population dynamics of the stock and any environmental factors that influence the stock.

84. Section 13(2) of the Act requires a TAC to be set that maintains a stock at or above MSY or that moves or restores it to or above that level, having regard to the interdependence of stocks.

85. Section 13(2A) says that if you consider that the current level of a stock or the level of a stock that can produce the MSY is not able to be estimated reliably using the best available information (as is the case for rock lobster), you must:
    - not use this lack of information as a reason for postponing, or failing to set a TAC for the stock;
    - have regard to the interdependence of stocks, the biological characteristics of the stock and any environmental conditions affecting the stock; and
    - 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, a level which can produce the MSY.

86. You may set the TAC to achieve the objective in a way and rate which has regard to the interdependence of stocks and within a period appropriate to the stock.

87. 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 (section 13(3)) you may have regard to such social, cultural, and economic factors as you consider relevant. This provision applies to TACs set under section 13(2) or section 13(2A). Section 13(2A) is applicable to rock lobster.

6.2 SECTIONS 20 & 21 - SETTING AND VARIATION OF THE TOTAL ALLOWABLE COMMERCIAL CATCH (TACC)

88. After setting or varying the TAC, a separate decision arises in respect of allocating the TAC.

89. When setting a TACC for a stock under section 20 of the Act, section 21 requires you to have regard to the TAC for that stock and allow for Māori customary non-commercial fishing interests, recreational interests, and all other sources of fishing-related mortality to that stock (including illegal catch and handling related mortality).

90. The Act does not provide an explicit statutory mechanism to apportion available catch between sector groups either in terms of a quantitative measure or prioritisation of

allocation. Accordingly, the Minister has the discretion to make allowances for various sectors based on best available information. Having set the TAC you in effect apportion it between the relevant interests.[6]

91. The Courts have in a number of cases considered what is involved in allowing for non-commercial interests. In Snapper 1[7] the Court of Appeal said that the recreational allowance is simply the best estimate of what recreational fishers will catch while being subject to the controls which you decide to impose upon them e.g. bag limits and minimum lawful sizes.

92. The Supreme Court in Kahawai[8] endorsed this approach and said that the words "allow for" require you both to take into account the interests and make provision for them in the calculation of the TACC.[9] It also said that although what the Minister allows for is an estimate of what recreational interests will catch, it is an estimate of a catch the Minister is able to control by for example daily bag and fish length limits; that the allowance represents what the Minister considers recreational interests should be able to catch, but also all that they will be able to catch. The Act envisages that the relevant powers will be exercised as necessary to achieve that goal.[10]

93. The Supreme Court went on to say that sections 20 and 21 prescribe a framework within which you must operate when setting the TACC. The frame work requires apportionment of the TAC by you among the various interests and other mortality. The sequential nature of the method of allocation provided for in s 21 does not indicate that non-commercial fishing interests are to be given any substantive priority over commercial interests. In particular the allowance for recreational interests is to be made keeping commercial interests in mind.[11]

94. The Supreme Court said that in the end, within the limits provided for by the Act, you make a policy decision as to what allocations are appropriate for non-commercial interests and other mortality and what is to be the TACC. These decisions are interdependent. The Act does not confer priority for any interests over the other. It leaves that to your judgment.[12]

95. Under the customary fishing regulations [Fisheries (South Island Customary Fishing) Regulations 1999 and the Fisheries (Kaimoana Customary Fishing) Regulations 1998], customary take is regulated through the authorisation system which requires that all customary fishing is to be undertaken in accordance with tikanga and the overall sustainability of the fishery. This framework was put in place to give effect to legal obligations in the Settlement Act. [13]

[6] Snapper 1, p 17.
[7] New Zealand Fishing Industry Association (Inc) v Minister of Fisheries CA 82/97, 22 July 1997 ("Snapper 1").
[8] New Zealand Recreational Fishing Council Inc v Sanford Limited [2009] NZSC 54 ("Kahawai")
[9] Kahawai [55]
[10] Kahawai [56]
[11] Kahawai [61]
[12] Kahawai [65]
[13] Where the customary regulations don't apply, customary fishing is regulated under regulations 50-52 of the Fisheries (Amateur Fishing) Regulations 2013 and a similar authorisation system applies.

96. When allowing for Māori customary non-commercial interests, you must take into account:
    a) Any mātaitai reserve in the relevant Quota Management Area; and
    b) Any temporary area closure or temporary fishing method restriction or prohibition imposed in the area for the purposes of, improving the availability or size of a species for customary fishing purposes, or recognising a customary fishing practice in the area.

97. There are a number of mātaitai reserves and temporary closures that fall within each of the rock lobster stocks under review, including:
    a) CRA 2 - Te Maunga o Mauao Mātaitai, Raukokere Mātaitai, and Umupuia Beach Temporary Closure (an intertidal area aimed at managing shellfish);
    b) CRA 4 - Moremore Mātaitai (a & b);
    c) CRA 7 - Moeraki Mātaitai, and Puna-wai-Toriki Mātaitai;
    d) CRA 8 - Waikawa Harbour/Tumu Toka Mātaitai, Motupōhue (Bluff Hill) Mātaitai, Oreti Mātaitai, Pikomamaku Mātaitai, Te Whaka a Te Wera Mātaita, Kaihuka Mātaitai, Horomamae Mātaitai, Waitutu Mātaitai, Okuru/Mussel Point Mātaitai, Tauperikaka Mātaitai, Mahitahi/Bruce Bay Mātaitai, Manakaiaua/Hunts Beach Mātaitai, and Okarito Lagoon Mātaitai.

98. The intent is that the purpose of measures enacted to provide for customary fishing are not adversely affected, or reasons for limited customary take are ignored, when setting the customary allowance.

99. When allowing for recreational interests, you must take into account any regulations made under section 311 of the Act that prohibit or restrict fishing in any area. There are currently no section 311 regulations applying in the areas of the rock lobster stocks discussed in this paper.

100. An allowance is to be made for all other mortality to a stock that results from fishing. This includes illegal catch, discards, and incidental mortality from fishing gear.

7 Consultation and submissions

101. Decisions to vary TACs are made under section 13(4) of the Act; therefore, the consultation requirements of section 12(1) apply. Decisions to vary TACCs are made under section 20(2), to which the consultation requirements of section 21(2) apply. These provisions require consultation 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 Māori, environmental, commercial and recreational interests.

102. MPI consulted on proposals to review sustainability measures for four rock lobster stocks from 12 January to 9 February 2018. A standard consultation process was followed, consisting of posting the consultation document on the MPI website and alerting stakeholders to the consultation through a media release, social media posts, and email notifications.

7.1 SUBMISSIONS RECEIVED

103. 58 submissions on the consultation document were received from various organisations, groups and individuals. 55 of these submissions related to the CRA 2 fishery, many of which were from individual submitters (40 submissions).

Organisation and group submitters
Awanui Haparapara No. 1 Lands Trust (Awanui)
CRA 4 Rock Lobster Industry Association Inc (CRAMAC 4)
CRA 8 Rock Lobster Industry Association Inc (CRAMAC 8)
Environment and Conservation Organisations of New Zealand (ECO)
Environmental Defence Society (EDS)
Forest and Bird
Guardians of Kāpiti Marine Reserve Trust (Kāpiti Guardians)
Iwi Collective Partnership
Joint recreational submission from the New Zealand Sport Fishing Council, LegaSea, and the New Zealand Angling and Casting Association (hereafter referred to as "NZSFC")
New Zealand Recreational Fishing Council (NZRFC)
New Zealand Rock Lobster Industry Council (NZ RLIC)
New Zealand Underwater Association (NZUA)
Pāua Industry Council (PIC)
Spearfishing New Zealand Inc (Spearfishing NZ)
Specialty & Emerging Fisheries Group
Tauranga Moana Iwi Customary Fisheries Trust (Tauranga Moana)
Te Ohu Kaimoana Trustee Ltd (TOKM)

104. Each submission is discussed further below as relevant to each stock and in the other matters in Section 12. Full copies of the submissions are available in Appendix 2.

8 Review of the CRA 2 (Hauraki Gulf/Bay of Plenty) rock lobster fishery

8.1 INTRODUCTION

105. This section provides you with an overview of the CRA 2 customary Maori, recreational and commercial fisheries, the status of the CRA 2 fishery and previous management actions, a summary of submissions received on the consultation options, the NRLMG's final proposals and analysis of these proposals against your statutory obligations.

106. The CRA 2 fishery has never been a big fishery in comparison to most other management areas in New Zealand. Commercial catch rates are on average half or less that of other areas. Stock abundance has been in a period of slow decline since the unusual peak of abundance experienced in the mid-1990s. The decline in abundance is complex and unlikely to be solely related to fishing. In the last two decades it has been suggested that there has only been one

significant pulse of recruitment into the fishery. Management action was taken in 2014 through a TACC reduction, and since (2016 and 2017) by industry initiated shelving to halt stock decline and to rebuild rock lobster numbers. However these steps have not prevented further stock decline.

8.2 CRA 2 FISHERY OVERVIEW

Māori customary fishing

107. Rock lobster (koura) is a taonga species for tangata whenua. Information on Māori customary catch of CRA 2 rock lobsters indicates that tangata whenua use of customary Māori harvesting rights for taking rock lobster is conservative, and well within the current customary Māori allowance of 16.5 tonnes. An estimate of 5 tonnes was used in the 2017 CRA 2 stock assessment model to represent customary catches.

Recreational fishing

108. The CRA 2 fishery supports one of the biggest recreational rock lobster fisheries in New Zealand. It covers a significant stretch of coastline and is nearby a substantial proportion of New Zealand's population, including Auckland, Tauranga, and holiday hotspots such as the Coromandel. Potting and hand gathering (diving) are the preferred methods for recreational fishers in this area.

109. Recreational fishers are not required to report the quantities of rock lobster they catch, other than reporting by recreational charter vessels. Recreational harvest of rock lobsters in CRA 2 in recent years has been determined through specific onsite surveys and the 2011/12 National Panel Survey. An updated recreational catch estimate will be available for CRA 2 in 2019 from a 2017/18 National Panel Survey that is current underway.

110. In the 2017 CRA 2 stock assessment, recreational catch estimates from 1994, 1996, 2010 and two 2011 recreational surveys were used to construct a recreational catch trajectory (Figure 8.1). The trajectory was also developed by assuming that recreational catch was proportional to the CRA 2 spring-summer abundance, as reflected by spring-summer commercial CPUE for CRA 2. The resulting recreational catch trajectory showed a strong increasing trend from the early 1990s, exceeding 100 tonnes in the mid to late 1990s. Since then a strong decreasing trend has been shown. In 2016, the model estimate of recreational catch was 34 tonnes.

111. The most recent survey estimate for CRA 2 is from the 2011/12 National Panel Survey (previously called the Large-Scale Multi-Species (LSMS) Survey, red square in Figure 8.1). This survey estimated the recreational catch of rock lobsters in CRA 2 at 40.86 tonnes[14] for the period 1 October 2011 to 30 September 2012. Since this time rock lobster abundance has declined. The Rock Lobster Fisheries Assessment Working Group considers the 2011/12 National Panel Estimate to be the least biased of the survey estimates considered and the most precise.

[14] With a coefficient of variation of 24% (a measure of the ratio of the standard deviation to the mean).

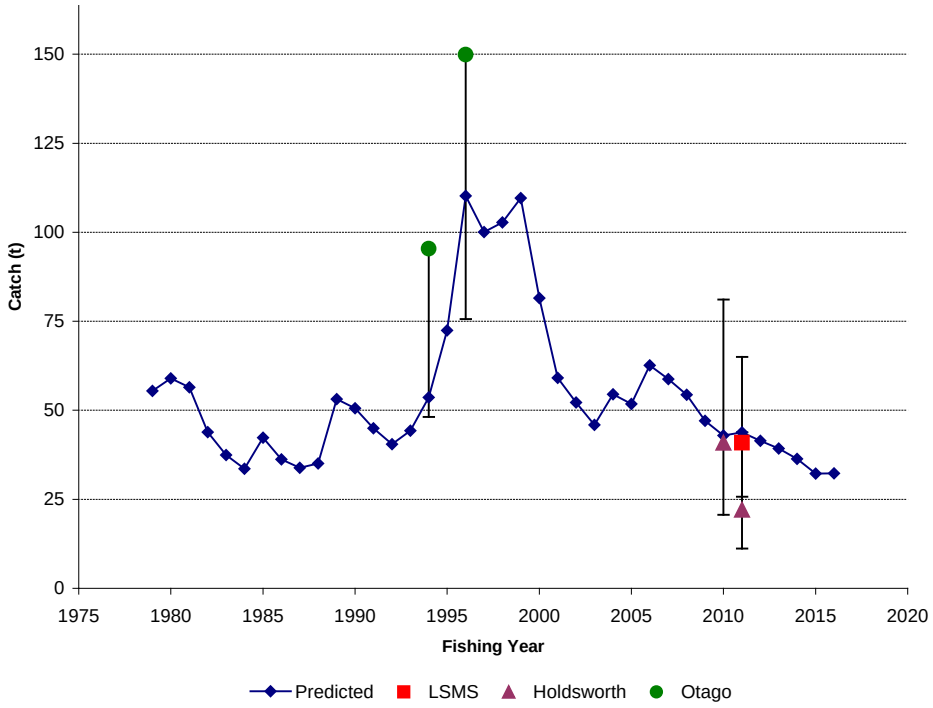

Figure 8.1: The predicted recreational catch trajectory (tonnes) for the 2017 CRA 2 stock assessment. The coloured shapes refer to the recreational survey estimates from 1994 (Otago), 1996 (Otago), 2010 (Holdsworth) and two in 2011 (Holdsworth and LSMS). The blue line shows the predicted recreational catch trajectory that was developed by assuming recreational catch is proportional to spring-summer commercial CPUE (i.e. the availability of rock lobsters to the fishery). The error bars are plus or minus two standard errors. Section 111 catches which were taken by commercial fishers for non-commercial purposes were added to the trajectory (i.e. a maximum of 2.036 tonnes).

112. The current recreational allowance of 140 tonnes was set in 1999 when stock abundance was greater, and on the basis of estimates available from surveys at the time. The MPI Marine Amateur Fisheries Working Group considers that the estimates from these surveys are bias and consider to have overestimated catch at the time. Recreational catch estimates from MPI-commissioned surveys of and stock assessment information now suggest that current CRA 2 recreational catch is lower than the current allowance. Recreational catches are considered likely to have decreased as a result of declining abundance.

Other mortality

113. Other mortality includes illegal catch and incidental mortality from fishing.

114. Rock lobsters are highly valued and this creates incentives for illegal activity. It is difficult for MPI to get an accurate estimate of illegal catch, given that illegal activity is not easily detected and there is considerable uncertainty in historical assumptions of illegal take. However, the Rock Lobster Fisheries Assessment Working Group used historical MPI estimates of illegal take in the 2017 stock assessment model. An 88 tonne estimate from 1996 was decreased to an assumed value of 40 tonnes in 2016. The illegal catch estimate was lowered based on assumptions that the level of illegal take tends to lower when overall abundance of a stock is low.

115. The primary methods used to harvest rock lobster in CRA2 are commercial potting, recreational hand gathering (diving) and some recreational potting. Sources of fishing-related mortality include predation from octopus or other fish while the lobster are being held inside pots or returned to the water, and handling related mortality. The 2017 CRA 2 assessment assumed that handling mortality was 10% of returned lobsters until 1990 and then 5% thereafter. The 2016 model estimate of handling mortality was 2.4 tonnes.

Commercial

116. Rock lobster has been managed within the Quota Management System since April 1990. Quota shares for CRA 2 are currently distributed between 51 entities.

117. Rock lobsters are a high value commercial fishery. MPI estimates the current asset value of CRA 2 quota to be $130 million, based on a 200 tonne TACC and the 2017 quota price.

118. The average Annual Catch Entitlement (ACE) value (the earnings quota owners receive when selling their ACE) for the 2016-17 fishing year was $50,000 per tonne for CRA 2. The average port price (the gross price that fishers receive) for the 2016-17 fishing year is $84,000 per tonne based on survey data. The average unit export value for 2017 was around $100,000 per tonne for lobsters.

119. Annual landings and the TACCs for CRA 2 since 1990 are shown in Figure 8.2. The current CRA 2 TACC of 200 tonnes was set in 2014 based on the operation of a CRA 2 management procedure (previously a TACC of 236 tonnes applied from 1997 to 2013). Because of their concern about stock status, the CRA 2 industry voluntarily retired 50 tonnes of ACE for each of the 2016 and 2017 fishing years. Figure 8.2 reflects this in that the TACC has not been fully caught in these years.

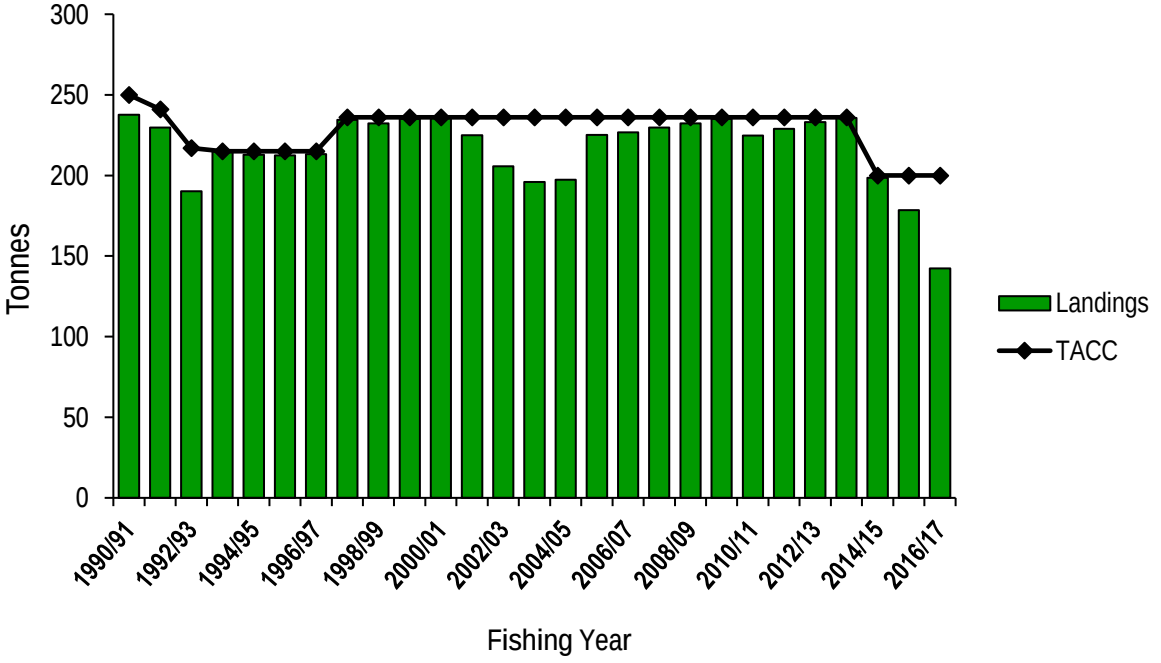

Figure 8.2: CRA 2 commercial landings and TACCs from 1990 to 2016.

120. Over the last two decades, the CRA 2 industry has made voluntary investments in the fishery through logbook and catch sampling programmes, and an extensive tag release and recapture programme. These initiatives provide critical inputs to the stock assessment modelling.

8.3 PREVIOUS CRA 2 STOCK ASSESSMENT AND ACTIONS

121. A full scientific assessment of CRA 2 in 2013 suggested the abundance of rock lobsters was around 79% of the agreed reference level (B_{REF}). In response the TAC was decreased from 452.6 to 416.5 tonnes and the TACC was reduced from 236 to 200 tonnes from April 2014, with no change to non-commercial allowances or management measures. To further support a rebuild, the CRA 2 rock lobster industry voluntarily reduced the commercial catch limit in 2016 and 2017 from 200 to 150 tonnes, bringing the total reduction in commercial catch to 36%.

122. Despite these reductions, MPI, tangata whenua, recreational fishers, commercial fishers and scientists, as well as many in the wider community remained concerned about the availability of rock lobsters in CRA 2. As a result of these concerns, MPI brought forward a full scientific stock assessment of CRA 2 by one year from 2018 to 2017.

8.4 2017 STOCK ASSESSMENT

Stock status

123. The 2017 CRA 2 stock assessment results suggest female spawning stock biomass during the 2016 autumn-winter season (1 April to 30 September) was 18.5% of the unfished level. It is very likely (82% probability) that CRA 2 is below the soft limit. The soft limit is 20% of the unfished spawning stock biomass level; the level at which the Harvest Strategy Standard suggests a formal, time-constrained rebuilding plan should be considered. However, it is very unlikely (0% probability) that it is below the hard limit. The hard limit is 10% of the unfished spawning stock biomass level; the level at which it is MPI policy to consider closing the fishery.

124. The stock assessment results are shown in Figure 8.3, comparing the estimated autumn-winter female spawning stock biomass of CRA 2 with the soft and hard limits for the stock.

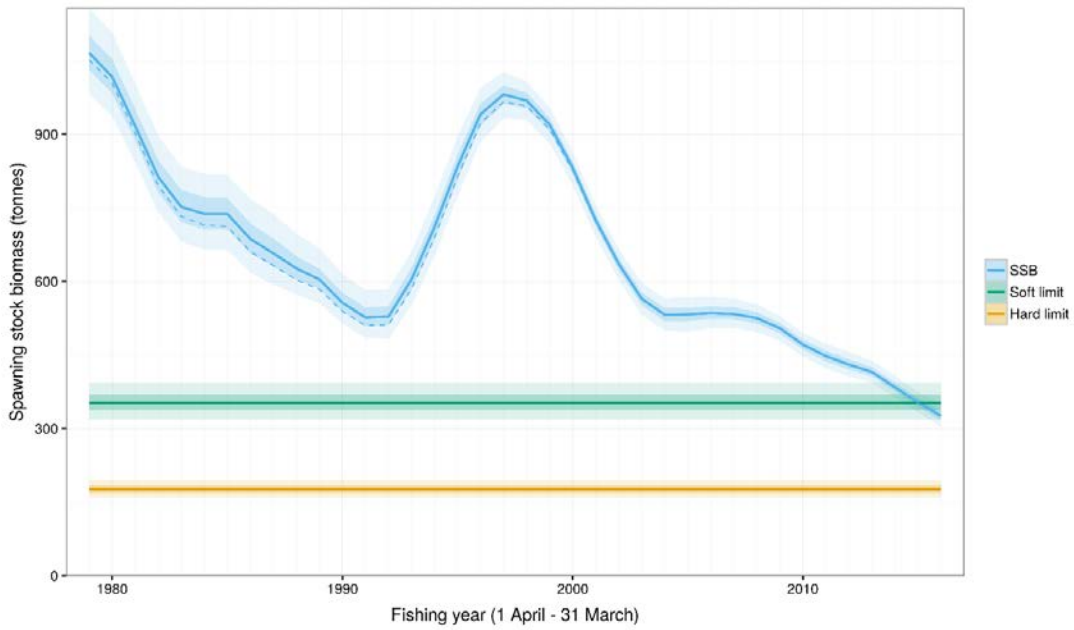

Figure 8.3: 2017 CRA 2 stock assessment results showing the estimated abundance of mature female rock lobsters (spawning stock biomass) in autumn-winter over time (blue line) in relation to the soft limit (green line) and hard limit (yellow line).

CRA 2 abundance indicator

125. Standardised CPUE is considered to be a reliable indicator of relative stock size in CRA 2. The history of CRA 2 commercial CPUE is shown in Figure 8.4. Since 1998, CRA 2 CPUE has shown an overall declining trend. CPUE in 2017 was 0.25 kg/potlift.

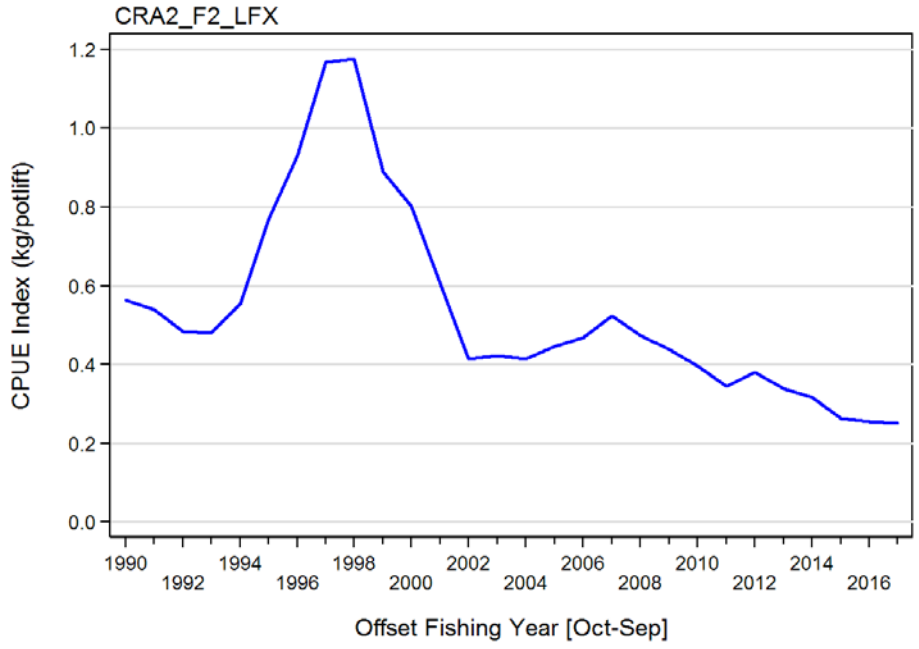

Figure 8.4: CRA 2 CPUE (kg/potlift). This CPUE series includes a criteria using vessels with at least five years' in the fishery.

126. The CPUE series from 1989 for CRA 2 was updated in 2017 to exclude vessels with less than five years in the fishery (previously more vessels with greater years in the fishery were included in the CPUE series). The Rock Lobster Fisheries Assessment Working Group considers that this new CPUE series is a more accurate representation of CRA 2 abundance.

8.5 SUMMARY OF CRA 2 SUBMISSIONS

127. 55 submissions were received on the consultation options for the CRA 2 fishery (Table 8.1).

Table 8.1: Consultation options for CRA 2 from 1 April 2018 (in tonnes).

Option	TAC	TACC	Allowances		
			Customary **Māori**	Recreational	Other mortality
Status quo	416.5	200	16.5	140	60
CRA2_01	251.5 ↓	140 ↓	16.5	50 ↓ *	45 ↓
CRA2_02	231.5 ↓	120 ↓			
CRA2_03	211.5 ↓	100 ↓			
CRA2_04	191.5 ↓	80 ↓			

* Along with a recreational allowance proposal of 50 tonnes, the NRLMG asked submitters to consider an alternative recreational allowance of 34 tonnes.

128. The majority of submitters recognised the importance of the shared fishery and that measures must be taken to rebuild the stock as soon as possible. There were differences in opinion between submitters on how the rebuild would be achieved, with a range of catch reductions and other measures proposed.

Support for consultation Option CRA2_01

129. An individual submitter (Theo Wilkie) initially supported Option CRA2_01 from the discussion paper - a TAC of 251.5 tonnes, including a TACC of 140 tonnes, and recreational allowance of 50 tonnes. Although his livelihood would be impacted, he considered joint efforts are needed to rebuild this shared fishery.

130. The NZ RLIC, along with CRAMAC 4, CRAMAC 8, Deep End Fish, Waterhouse, and Wilkie/Meredith, initially supported a modified Option CRA2_01 from the discussion paper. This was based on a TACC of 140 tonnes and a recreational allowance of 34 tonnes. NZ RLIC and CRAMAC 4 also supported a lower other mortality allowance of 42.5 tonnes. This TACC and allowances would achieve a rebuild to an "intermediate" target in nine years based on the average level of recruitment over the last 10 years and managing recreational catch to current estimate of catch (34 tonnes). This submission suggested a nine year rebuild was reasonable and would avoid the severe socio-economic impacts on the CRA 2 industry of larger TACC reductions. The NZ RLIC also proposed a breakout rule that was designed to effect greater TACC reductions if the stock declined further, as detected through CPUE changes. The TACC and allowance proposals were accompanied by supporting measures, which included a reduction in illegal take and managing recreational catch to the allocation.

131. The NZ RLIC note that over the last two decades, the CRA 2 industry has made a substantial commitment to the fishery through funding investments and a range of voluntary measures in research, stock monitoring and management initiatives. To support these initiatives to rebuild the CRA 2 fishery, industry reduced the available commercial catch down to 150 tonnes for the 2016/17 and 2017/18 fishing years. This came at a considerable cost to industry and meant that vessels were off the water, crew were not employed, and a loss of revenue in landed value to the catching sector alone of around $8.4 million.

Support for consultation Option CRA2_02

132. Submitters Iwi Collective Partnership, TOKM, Tauranga Moana and Tindale all supported a modified consultation Option CRA2_02. This was based on a TAC of 215.5 tonnes (not 231.5 tonnes), and included a TACC of 120 tonnes, but with a lower recreational allowance of 34 tonnes. Iwi Collective Partnership and TOKM consider that this option provides a balance between the options after considering the rebuild time (7 years) to an intermediate target, and the economic implications on the CRA 2 industry.

Support for consultation Option CRA2_03

133. Submitters Awanui and Maclardy supported a TAC of 211.5 tonnes (Option CRA2_03 in the discussion paper), including a 100 tonne TACC and 50 tonne recreational allowance. Awanui noted that there has been a decline in mature rock lobsters available for whanau and marae and it was a struggle to find legal sized fish at Omaio, Otuwhare, Motunui, and Waiorore. Maclardy considered that a 100 tonne TACC under this option would remove the large number of “lifestyle” rock lobster fishermen from the industry, and in turn would remove the large number of pots in the water, making navigation easier and the ability to spread the harvest load wider.

134. Another submitter (Leith) supported a modified Option CRA2_03 with a TAC of 195.5 tonnes based on a 100 tonne TACC and a lower recreational allowance of 34 tonnes. He considers that hard calls need to be made now to stop the decline in CRA 2.

Support for consultation Option CRA2_04

135. ECO and eight individual submitters (Clow, Cook, Drucker, Hamer, Maddock, Quilter, Horne, and Stubbing) supported a TAC of 191.5 tonnes (Option CRA2_04 in the discussion paper), including an 80 tonne TACC and a 50 tonne recreational allowance.

136. ECO, however, are concerned about the current state of the CRA 2 fishery and that the TAC reduction proposed under this option may not be sufficient to rebuild the fishery, particularly if low recruitment into the fishery persists.

137. Amongst the individual submitters, some noted the decline in rock lobsters where they fished, the impacts this option will have on commercial fishers, and agreed that action is needed to rebuild the stock. Some of these individuals also considered that a proportional reduction in commercial and recreational catch is reasonable and that consultation option CRA2_04 seems to be the most fair.

Support for consultation Option CRA2_04 (or alternatively a full closure)

138. Submitters NZSFC, Spearfishing NZ, NZUA and four individual submitters (Bulmer, Dunn, Hutton, and O'Neale) supported a TAC of 191.5 tonnes, including an 80 tonne TACC and 50 tonne recreational allowance. These submitters also considered that closure of the fishery should be considered to ensure the best opportunity to rebuild the fishery. Varying closure periods were provided, including from one to three years.

139. NZSFC (with support from Spearfishing NZ and NZUA) consider that an opportunity was lost in 2014 to take decisive action to rebuild the stock, and that aggressive action is now needed to restore abundance and diversity to the CRA 2 marine environment. NZSFC have doubts about the effectiveness of Option CRA2_04, but recognise that you must weigh up the economic, social and cultural costs of management action.

140. Legasea recently conducted online surveys to measure people's perceptions of the state of the CRA 2 fishery. In a late 2017 survey, about 850 survey responses were received, with about 78% of the respondents rating the fishery as very poor or worse. Most respondents were prepared to contribute to the rebuild of the fishery in some way, for example through seasonal or temporary closures for all fishers. In February 2018, a follow-up survey was conducted. Out of the 3,541 responses received at the time of the NZSFC submission, 38% of all responses supported the lowest TAC option with a corresponding TACC of 80 tonnes, while 42% supported a closure of CRA 2 to all fishing. For those respondents who had caught rock lobster in CRA 2 (2070 responses), 42% supported the lowest TAC option and 37% supported a closure.

141. The NZSFC submitted that closure of the CRA 2 fishery should be considered because they consider that the stock has breached the "hard" limit. The NZSFC notes that MPI's HSS specifies that the default limits for MSY-compatible reference points, such as B_{REF}, are set at a soft limit of 50% B_{REF} and a hard limit of 25% B_{REF}.

Support for full closure

142. Submitters NZRFC, EDS and Forest and Bird, and eight individual submitters (Blair, MacLeod, Bettany, Morgan, Lee, Hendetson, Plowman, and Graeme) consider that a full closure of the fishery (e.g. for a period of two years) should be considered to rebuild the fishery. MacLeod considers that all options presented in the discussion paper are too slow to rebuild and that drastic action is required to reverse the decline.

143. EDS (endorsed by Bettany) and Forest and Bird would like to see the CRA 2 fishery closed until better information is available to make a lawful decision, and a multi-stakeholder process (including with the environmental sector and marine ecologists) is convened to formulate an appropriate target size, rebuild timeframe, and other appropriate measures to address the full range of matters under the Act for the CRA 2 fishery.

144. EDS and Forest and Bird consider that a decision by you based on the discussion paper's advice would be unlawful for a number of reasons, including: it fails to include all relevant information; it relies on dated and irrelevant information; relies on an approach to analysing stock status that is largely dependent on commercial CPUE; and does not ensure the stock is

restored to or above the level that can produce the maximum sustainable yield. EDS also consider that the discussion paper incorrectly interpreted terms underpinning the Act's environmental principles and failed to consider relevant provisions in the Hauraki Gulf Marine Park Act 2000.

Support for other options

145. Other individual submitters (Jeffs, Flett, Guccione, C. Taylor, B. Taylor, Berghan, McFarlane, R. Bayley, S. Greene, A. Greene, Rowe, and Macky) suggest other options to rebuild the fishery, from non-specified reduction amounts, to maximum reductions, to proportional reductions.

146. Submitter Jeffs specifically considers that given the lack of credible ecological scientific information being utilised and the apparent unwillingness of MPI to undertake an informed scientific assessment of potential ecological effects, management actions should be cautious and minimise future harvest from all coastal rock lobster populations.

147. PIC did not submit on a specific option for CRA 2, but noted that unconstrained recreational catch expansion as stock abundance increases will slow the rate of rebuild.

8.6 REVISED INDUSTRY AND CUSTOMARY POSITION

148. After further consideration of the stock assessment information, and discussion with CRA 2 quota share owners and fishers, NZ RLIC has revised the position that was outlined in their submission of 9 February. The CRA 2 Annual General Meeting on 15 February 2018 fully supported a resolution that NZ RLIC should amend their submission to propose a reduced TAC of 193 tonnes consisting of a TACC of 100 tonnes, a recreational allowance of 34 tonnes, a customary allocation of 16.5 tonnes, provision for illegal take of 40 tonnes and handing mortality of 2.5 tonnes. This is supported by CRAMAC 4, CRAMAC 8, Deep End Fish, Theo Wilkie, Wilkie/Meredith, and Waterhouse.

149. Te Ohu Kaimoana also revisited their original position and has decided to support the revised NZ RLIC position. This was based on discussions with Mandated Iwi Organisations and their respective Asset Holding Companies, Iwi Collective Partnership, members of the Bay of Plenty Iwi Fisheries Forum, Aotearoa Fisheries (Moana NZ), and other Iwi fishing companies. These parties agreed with the broader industry that the fishery required the TACC to be cut in half (down to 100 tonnes).

150. The NZ RLIC outlines that a TACC reduction of this magnitude will have very serious socio-economic consequences for quota share owners, fishers, associated businesses and iwi, but in considering the stock status, and the need to put the stock on a clear rebuild trajectory with a high degree of certainty, they accept that a 50% TACC reduction is necessary. Environmentally-driven recruitment variation is not a factor that can be influenced, and NZ RLIC considers that the only management response is to constrain overall removals so that the fishery can rebuild, even if the recent lower recruitment were to persist. The 100 tonne TACC option (CRA 2_01) will deliver a rebuild in a reasonable timeframe even in the most pessimistic recruitment scenario.

151. The measures outlined in the revised submission are a package outlined by the CRA 2 industry and NZ RLIC to rebuild this important fishery for all stakeholders. The elements of the package are:
    a) Reduction of the TACC by 50% to 100 tonnes;
    b) Reset the allowance for recreational fishing to 34 tonnes;
    c) Meaningful adjustments to the regulatory controls on recreational take must be promulgated by 1 October 2018;
    d) Annual surveys to estimate recreational rock lobster catch in CRA 2 must be put in place to inform decisions makers;
    e) Industry will continue, and enhance, its voluntary contributions and investment in the CRA 2 stock including the log book programme and observer catch sampling, the tag release and recapture programme, the deployment of puerulus settlement collectors and voluntary effort spreading arrangements in statistical area 906 (Western Coromandel);
    f) The NZ RLIC will take the lead in developing a proposal for a new approach to pre-recruit monitoring for review by the Rock Lobster Fisheries Assessment Working Group;
    g) New initiatives must be implemented urgently by MPI to reduce illegal fishing. Industry will, for its part provide a $5000 reward for information leading to a successful prosecution of illegal take for sale and is actively considering further measures;
    h) MPI needs to take steps to collect the necessary metrics and develop useful illegal take estimates to inform the stock assessment;
    i) Industry will seek a commitment from the Minister to re-instatement of the TACC when the stock assessment indicates this is sustainable while not preventing the rebuild or maintaining the stock at the target.

8.7 FINAL CRA 2 PROPOSALS

152. The proposed options for CRA 2 are part of a staged review of measures in 2018:
    1. A review of sustainability measures for 1 April 2018 to set a new TAC, allowances and TACC (the focus of this paper); and
    2. The adjustment of management measures later in 2018 to support proposed changes to the TAC, allowances and TACC. This will include further public consultation on changes to current fisheries regulations.

153. The NRLMG do not consider that the *status quo* is a valid option because it will not meet the rebuilding target within appropriate timeframes. It could also result in a further decline in CRA 2 stock abundance, which would affect stock sustainability and the future utilisation opportunities for all fishing sectors.

154. Table 8.2 below shows the final proposals for CRA 2 proposed by the NRLMG. The final proposals differ from the options presented in consultation document (Table 8.1), and have been modified based on NRLMG discussions, re-consideration of available scientific

information, and an analysis of submissions. You are not fettered from choosing an alternative option within the full range consulted on.

155. It is proposed that the TAC is reduced from 416.5 tonnes to approximately 190 tonnes under both options (193 and 189 tonnes respectively). The TAC proposals are expected to double the current stock size within a timeframe considered appropriate by the NRLMG having regard to your legislative obligations. The options differ primarily in how the TAC is allocated and the consequent socio-economic impacts of that allocation (discussed under the following sub-sections).

Table 8.2: Final TAC, allowance, and TACC proposals (in tonnes) for CRA 2 from 1 April 2018.

Option	TAC	TACC	Allowances		
			Customary **Māori**	Recreational	Other mortality
Status quo	416.5	200	16.5	140	60
CRA2_01 *(NRLMG commercial and customary member recommended)*	193 ↓	100 ↓	16.5	34 ↓	42.5 ↓
CRA2_02 *(NRLMG recreational member recommended)*	189 ↓	80 ↓	16.5	50 ↓	42.5 ↓

156. The NRLMG did not reach consensus on the preferred option for CRA 2, although all options support a rebuild of the CRA 2 stock and propose significant reductions to the recreational allowance and TACC.

157. Customary members prefer Option CRA2_01: a TAC of 193 tonnes, including a TACC of 100 tonnes and a recreational allowance of 34 tonnes. This was based on discussions with Mandated Iwi Organisations, members of the Bay of Plenty Iwi Fisheries Forum, Iwi Asset Holding Companies, Aotearoa Fisheries (Moana NZ), and other iwi fishing companies that agreed with the broader industry that the current stock status required the TACC to be cut in half.

158. Commercial members also prefer final Option CRA2_01, because they consider that it will put the stock on a clear rebuild trajectory with a high degree of certainty. This will have significant socio-economic implications for the wider industry (discussed further below).

159. Recreational members prefer final Option CRA_02: a TAC of 189 tonnes, including a TACC of 80 tonnes and a recreational allowance of 50 tonnes. They consider that this option is in the best interest of the CRA 2 fishery. They note that a full closure was their first position, which could be a real outcome if the current decline in abundance cannot be halted.

160. MPI does not have a preferred option. Both options are likely to double the current biomass of the CRA 2 fishery in a reasonable timeframe, but with different socio-economic implications for recreational and commercial fishers. You have discretion to choose the way and rate the fishery is rebuilt, and you have discretion for making allowances for various sectors.

8.8 ANALYSIS OF CRA 2 FINAL PROPOSALS

Previous reference level and an intermediate target

161. The previous reference level for CRA 2 related to the abundance of legally harvestable rock lobsters at the beginning of the autumn-winter season for the period 1979 to 1981. This period for the reference level was used by the Rock Lobster Fisheries Assessment Group in 2013 as a proxy for B_{MSY}, because it was considered at the time to be a period in the fishery that showed good productivity and was demonstrably safe.

162. The 2017 stock assessment results suggest that rock lobster abundance has declined to around 21% of this previously agreed reference level. The Rock Lobster Fisheries Assessment Working Group, however, have said that this historical reference level should no longer be used to guide future management. The Working Group noted that the original rationale for choosing the reference period no longer seemed to apply and determined that there was a need to develop a consistent basis for deriving target reference points for all rock lobster stocks. This work will be carried out during the next year.

163. The NRLMG, including MPI, propose an "intermediate" target of doubling current rock lobster abundance (two times the abundance of legally harvestable lobsters at the beginning of the 2018 autumn-winter season) in an appropriate timeframe, while work is carried out on exploring alternative reference levels for CRA 2 in 2018. This target takes into account the biological characteristics of the stock, the extent of depletion, and the prevailing environmental conditions that can also limit the rate of rebuild (i.e. the recruitment of new lobsters to the fishery varies with changes in environmental conditions). Doubling the current biomass equates to approximately 40% of the unfished spawning stock biomass level, which in many fisheries worldwide is considered to approximate B_{MSY}.

164. Submitters EDS and Forest and Bird expressed concerns that the rebuilding target for CRA 2 does not appear to be based on any robust assessment of sustainable stock size in terms of maximum sustainable yield, and no vessel-independent data is considered when determining stock status.

165. The NRLMG notes that the target is still to rebuild the CRA 2 stock to a *MSY*-compatible target or better, but more work is needed to determine what that level is. This work will be presented through the Rock Lobster Fisheries Assessment Working Group in 2018 and EDS and Forest and Bird can attend these meetings if desired. The goal to double current abundance will move the CRA 2 stock towards a future agreed target.

166. Fisheries-independent surveys have not been carried out for New Zealand rock lobster. However, South Africa has found that the variance in their fishery-independent monitoring surveys for rock lobster is much larger than the variance seen in CPUE from the commercial fleet. They have concluded that it is essential to include commercial CPUE in order to obtain a robust assessment. CPUE is considered a reliable indicator of relative abundance in CRA 2 and is an indicator that is commonly used in stock assessments in other jurisdictions.

TAC setting

167. For CRA 2, the biomass level that can produce the maximum sustainable yield (B_{MSY}) is not known because further work is needed in 2018 to evaluate how B_{MSY} can be determined for rock lobsters. If B_{MSY} is not able to be estimated reliably using best available information, section 13(2A) of the Act states that you must not use the lack of information as a reason for postponing, or failing to set a TAC, and it allows you to use the best available information to set a TAC that is not inconsistent with the objective of maintaining the stock at or above, or moving the stock towards or above, the B_{MSY} level.

168. Section 13(2A) of the Act also requires you to have regard to the interdependence of stocks, the biological characteristics of the stock, and any environment conditions affecting the stock, when setting a TAC (discussed earlier in the paper in Section 6).

169. The Act does not specify the rate, or timeframe, within which a rebuild of the stock must be achieved. You can choose a different way and rate to rebuild a fishery taking into account relevant considerations to meet the purpose of the Act.

170. The Harvest Strategy Standard provides some guidance on the way and rate at which a stock is rebuilt to a target level. It suggests that when a stock, like CRA 2, has fallen below the soft limit it should be rebuilt back to at least an agreed reference level in a time frame between T_{MIN} and two times T_{MIN} with an acceptable probability. T_{MIN} is the number of years required to rebuild the stock in the absence of any fishing, be it customary, recreational, commercial or illegal take. The 2017 stock assessment calculated that the time frame to get to the intermediate target was between two (T_{MIN}) and four years (two times T_{MIN}). However, the Harvest Strategy Standard is MPI's policy statement of best practice that is not legally binding and you have discretion to determine the way and rate at which a stock that is below B_{MSY} is rebuilt to or above that level.

171. In determining the way and rate a stock is moved towards or above B_{MSY} (or a level that is not inconsistent with B_{MSY}), section 13 (3) requires you to have regard to relevant social, cultural and economic factors.

172. The NRLMG considers that the options presented to rebuild the CRA 2 stock towards an intermediate target of double the current biomass are consistent with section 13 requirements. The TAC proposed under both options is approximately 190 tonnes and is likely to rebuild the stock to the intermediate target in 4-5 years depending on the option chosen, and assuming that recruitment does not continue at the recent relatively low levels.

173. The recruitment of rock lobsters to the CRA2 fishery is of particular concern, with a declining trend from the mid-2000s, with the four most recent years (2011-2014) having the lowest estimates since 1979. While there is uncertainty in whether recruitment into the fishery will continue to be low in the future, if it does the rebuild timeframes suggested above would be extended. Possible causes of this low recruitment may include direct or indirect effects of climate change, or ecological changes in the near shore habitat, from, for example, increased siltation from land-based activities and increased frequency of storms.

TAC of zero (full closure of the fishery)

174. Many non-commercial submitters suggested that full closure of the fishery (i.e. a TAC of zero) should be looked at to ensure a rebuild of the fishery. EDS (endorsed by Bettany) and Forest and Bird suggested a closure until better information is available to make a lawful decision and feedback is gathered from all interests (including environmental) to address the full range of matters under the Act. Other non-commercial submitters suggested a closure on the basis that that the stock had fallen below the Harvest Strategy Standard "hard" limit, because the 2017 stock assessment suggests CRA 2 stock biomass is 21% of the previous reference level (B_{REF}).

175. You have considerable discretion in determining the way and rate a fishery rebuilds to its target level. In considering the way and rate of rebuild you must have regard to social, cultural and economic factors you consider relevant.

176. The most rapid rebuild possible is one with no fishing mortality, with the rebuild constrained by the biology of rock lobster and environmental conditions affecting stock size. With no fishing, the stock assessment estimated that the target of doubling current biomass could be reached in two (T_{MIN}) to four years (two times T_{MIN}).

177. There would be considerable socio-economic impacts from setting a zero TAC. The current TACC of 200 tonne has the opportunity to generate annual revenue to the catching sector alone of over $16.8 million, and this would be lost if the TAC was zero. The impact on CRA 2 quota value would depend on market assessments of the length of closure and the status of the fishery when and if it reopened. In addition, there would a loss of jobs related to processing of lobster and employment on vessels used for harvesting, and impacts on associated businesses. The extent to which vessels operating in the fishery could shift to other types of fishing or move to other areas is uncertain. However, for specialist rock lobster vessels it is unlikely that they could shift to other fishing types or other areas, because they would require significant capital investment to re-configure their vessels and purchase ACE in any new fishery.

178. The MPI Harvest Strategy Standard defines soft and hard limits that are designed to trigger management action to ensure sustainability of the fishery. Both limits are based on international best practice. When stocks reach the 20% limit, the Standard indicates that you should put in place a formal, time-constrained rebuilding plan. This action is designed to ensure that the biomass is given opportunity to increase in size at a way and a rate considered acceptable. If a stock continues to decline and falls below 10% due to management failure or environmental factors, the Standard indicates you should consider closure of the fishery. The 10% threshold is considered a level below which there is a significant risk that the stock may struggle to recover and where the ability of the stock to fulfil its role within the wider ecosystem may be significantly impacted.

179. For CRA 2, the default soft and hard limits for CRA 2 relate to the unfished spawning stock biomass (not B_{MSY} *or* B_{REF} indicators). The assessment results indicate that there is a 0% probability that the stock is at or below 10% of the unfished spawning stock level (the hard limit). Worldwide, spawning stock biomass metrics are most commonly used, and are considered the most relevant for specifying biological reference points.

180. The stock assessment results suggest that lower levels of catch can be sustainably taken from the fishery, while allowing the current biomass to double in a reasonable timeframe. The NRLMG considers that this provides the best balance between utilisation and sustainability of the fishery, while taking into account the socio-economic implications of the proposals on recreational and commercial interests.

Other considerations

181. EDS (endorsed by Bettany) and Forest and Bird consider that a decision by you based on the discussion paper's advice would be unlawful for a number of reasons.

182. Your decisions are informed by this final advice paper, not the discussion (consultation) paper. Full details of your statutory obligations for TAC, allowance and TACC setting are provided in relevant sections of this paper. This includes consideration of the Act's environmental principles and the relevant provisions in the Hauraki Gulf Marine Park Act 2000.

183. In response to some of the specific matters EDS and Forest and Bird raise, the NRLMG considers that:

- The best available information has been used as a basis for the proposals in this paper. All science information on which the proposals are based has been peer-reviewed by the Rock Lobster Fisheries Assessment Working Group and at the November Mid-Year Fisheries Assessment Plenary. The science also meets the MPI Research and Science Information Standard for New Zealand Fisheries. In line with this Standard, the 2017 CRA 2 stock assessment has a high quality science information quality ranking.
- In response to the suggestion by these submitters that dated and irrelevant information has been used, historical as well as recent fishery information is needed for stock assessment modelling to determine current stock status.
- The approach to analysing stock status is dependent on commercial CPUE. This has been determined to be appropriate for most rock lobster stocks, including in New Zealand, Australia and South Africa. Coefficients of variation for the South African fisheries-independent survey estimates were in some cases so high that those indices had little or no information value, and it was determined that commercial CPUE indices were essential to be able to conduct an assessment.
- Having an intermediate target of doubling the current biomass is consistent with the objective of restoring the stock to or above the level that can produce the maximum sustainable yield.

184. Some submitters (mainly EDS and Jeffs) consider that the impacts of harvesting rock lobsters from the CRA 2 fishery on the aquatic environment (including potential ecological effects) are inadequately addressed. Their concerns relate to the formation of urchin-grazed kelp 'barrens', which they believe is through a reduction of predators such as rock lobster, and the decrease of the importance of rock lobsters in the ecosystem.

185. The NRLMG notes that trophic interactions are a very complex matter. There are studies that suggest that the removal of predators such as rock lobster have contributed to the loss of kelp beds, but there is also other research that suggests the loss of kelp beds can be driven by other factors, including climate change, increased sediment runoff, storms and inadequate nutrients. There are also studies that suggest that rock lobster has become less trophically important since the arrival of humans in the Hauraki Gulf. Given that the CRA 2 stock is depleted, and there is a possibility of trophic cascades occurring in parts of the Hauraki Gulf, this provides further reason for rebuilding the stock. The NRLMG adds that information on the size distribution of rock lobsters in CRA 2 shows that there is a wide range of sizes, including larger and older fish.

Setting allowances and the TACC

186. Having set the TAC, you must set the TACC and, in setting or varying the TACC, must make allowances for Māori customary non-commercial fishing interests, recreational fishing interests, and all other mortality to the stock caused by fishing (sections 20 and 21).

187. You have discretion when making allowances for various sectors and the Act does not recognise an inherent priority that directs your TAC allocation decisions. Relevant judicial findings provide useful guidance in terms of your allocation decisions under section 21 of the Act. These findings are outlined in Section 6 – central statutory considerations.

188. Table 8.3 provides you with information on current non-commercial allowances for CRA 2 and stock assessment assumptions of non-commercial catch.

Table 8.3: Current CRA 2 allowances and model assumptions of non-commercial catches (in tonnes).

CRA 2	Customary **Māori**	Recreational	Other mortality	Total
Current allowances	16.5	140	60	216.5
Non-commercial catch assumptions for the 2017 stock assessment	5	Assumed to vary with biomass. Estimated at 34 t for 2016.	40 t illegal. 2.4 t handling mortality.	81.4

Māori customary fishing

189. No change is proposed to the 16.5 tonne customary Māori allowance, because current harvest is considered to be conservative and is within the allocation for this interest at this time.

190. Submitter Tauranga Moana agreed that the customary allowance should remain, particularly given that it makes up a small proportion of the overall TAC. TOKM note that Iwi can only exercise customary rights within their respective rohe moana, and strategies need to be developed to ensure Iwi have access to rock lobster for customary purposes.

191. Doubling the biomass of the CRA 2 stock should provide greater utilisation benefits for Māori customary fishing; however, additional measures will be discussed with Iwi and considered as part of the development of a broader suite of management measures in 2018.

Recreational fishing

192. It is proposed that the recreational allowance is reduced from 140 tonnes to 34 or 50 tonnes.

193. You have discretion when making the recreational allowance. You are required to decide on the level of recreational allowance that you consider reasonable, having regard to factors you consider relevant. You are then required to impose measures to ensure that the allowance is credible.

194. Setting the recreational allowance at 50 tonnes, above levels of current recreational catch (although uncertain) would allow recreational catch to increase as the fishery rebuilds, which would be seen by industry as inequitable in a rebuilding fishery. Industry considers that this would be a re-allocation to the recreational sector. An alternative approach would be to set the recreational allowance at the level of the best estimate of the current level of recreational catch. This would ensure that recreational catch is constrained to current levels until such time as the fishery has rebuilt or you reconsider the TAC and allowances in this fishery.

195. There are differences in opinion amongst submitters and the NRLMG about what level the recreational allowance should be set at, and what information should be used to guide how it is set.

196. Submitter NZSFC supports a recreational allowance of 50 tonnes. This is based on the upper bound of the 2011/12 National Panel Survey estimate (40.86 tonnes plus 24%). Corroboration between two western Bay of Plenty surveys from 2010 and 2011 (purple triangles in Figure 8.1) suggests that the National Panel Survey was the best available information on recreational harvest for CRA 2 in 2011/12. NZSFC does not support a recreational allowance of 34 tonnes, because it is not a survey estimate and they consider that it is based on a model assumption that provides an approximation of what catch might be.

197. NZSFC notes that recreational harvest surveys show that most rock lobsters in CRA 2 are taken by divers (about 85%) and the decline in rock lobster catch rates has meant divers are no longer fishing. NZSFC suggests that this has had an impact on expenditure at dive shops and dive charters.

198. TOKM supports a recreational allowance of 34 tonnes and considers that if the decline in the fishery is taken into account since 2011/12, they expect that the 40.86 tonne National Panel Survey estimate from that survey, to have reduced to the 2016 34 tonne model estimate. In addition, a recreational allowance of 50 tonnes will mean the timeframes for stock recovery will be longer than assumed by modelling.

199. NZ RLIC (supported by Iwi Collective Partnership) suggests that the recreational allowance should be set at 34 tonnes to reflect the best estimate of current removals by the Rock Lobster Fisheries Assessment Working Group. NZ RLIC note that arguments could be made that it would be appropriate in the stock circumstances to seek a reduction in the level of recreational catch. In the context of severe reductions proposed to the commercial catch it would not be responsible in NZ RLIC's view to consider providing for increased recreational catch by setting an allowance of 50 tonnes. This submitter also notes that there is no precedent for selecting the upper bound of a survey estimate, or for using a six year old estimate when a recent one is available. CRAMAC 4 adds that they consider it is both unethical and inequitable in the circumstances to be promoting further reductions to current commercial landings, while proposing increases to recreational landings.

200. Many industry submitters also suggest that the TAC must have integrity and recreational catch must be managed within the allowance.

201. Recreational catches are considered likely to have decreased as a result of declining abundance, but as the stock rebuilds recreational catches are likely to increase under current recreational fishing controls. Modelling suggests that recreational catches are of sufficient magnitude in CRA 2 to influence the rate of the stock rebuild if recreational catches increase substantially above the current estimated level.

202. Overall, recreational members of the NRLMG support a 50 tonne recreational allowance, and customary and commercial members of the NRLMG support a 34 tonne recreational allowance for the reasons noted above in respective submissions.

203. MPI considers that reducing the allowance to the level of current removals is the minimum necessary and that an allowance of 34 or 50 tonnes is based on different interpretations of available information. MPI believes the options proposed for the recreational allowance will not have any immediate impact on the value of recreational fishing trips. Based on information provided in submissions, it is suggested that some recreational fishers are struggling to find legal-sized rock lobsters in localised areas of the CRA 2 fishery. However, there is likely to be an increase in the recreational fishing success as the abundance of rock lobsters increases. To satisfy the objective of doubling biomass in the next 4-5 years, it will be essential to manage recreational catch, as well as the commercial catch, as abundance starts to increase.

Other mortality

204. It is proposed that the allowance for other sources of fishing-related mortality is reduced from 60 to 42.5 tonnes. This new allowance reflects model assumptions of illegal take and handling mortality, while noting the considerable uncertainty in current levels of illegal take.

205. The NRLMG sector members, along with many submitters, state that urgent steps must be taken to address illegal take in the CRA 2 fishery. It is considered that any reduction in illegal take will assist with a rebuild of the fishery. The NZ RLIC is prepared to offer a reward of $5000 for provision of information to MPI that materially supports a successful prosecution of illegal take and sale of rock lobster from CRA2.

206. The NRLMG sector members and some submitters also urge MPI to assign priority and resources to develop better estimates of illegal take. They are concerned that no serious attempt has been made to develop revised estimates since the early 2000s. It is considered that this information is necessary for decision making, and these members are concerned that the lack of information in this area could be compromising their goal of ensuring all rock lobster stocks are managed at or above agreed reference levels.

MPI response

207. MPI notes that Fisheries Compliance is supported by three key frameworks, an Intelligence Framework, distinct Planning Cycle and the Voluntary, Assisted, Directed and Enforced (VADE) operating model:

- *Intelligence Framework* - This supports operational and tactical level planning through the provision of accurate and timely intelligence. It ensures that data and information analysis is pivotal to prioritising, planning and in the decision-making process.
- *Planning cycle* - Three monthly outlined planning cycle and a monthly detailed planning cycle which, when incorporated with the intelligence cycle, prioritises Compliance effort proportional to risks and the level of identified or suspected offending.
- *VADE operating model* - This framework assists stakeholders in understanding the Fisheries Compliance discretionary powers. This operating model covers the full spectrum of Compliance interventions, for example; assisted compliance is that range of activities that re-enforce obligations and give MPI the confidence that the desired purpose of legislation is being achieved. This is heavily reliant on monitoring, inspection, information gathering and analysis. It requires feedback loops and compliments the voluntary component to determine if stakeholders are attempting to comply, are aware of their obligations or indeed choosing not to comply. Assisted compliance remains heavily focussed on reminding individuals their compliance is being monitored and if there is no discernible behaviour change, formal direction or sanction will occur. Enforced compliance is where the full extent of the law is applied.

208. **Future intentions for MPI Fisheries Compliance** include:

- Continuing to utilise the intelligence framework to support planning and deployment of compliance resources, for example; Fisheries Compliance staff targeted educational and enforcement activities in CRA2 in December 2017 and January 2018. As a consequence of this planning and risk profile Compliance deployed extra staff and resources to specific areas where the population grows dramatically over peak holiday periods to mitigate risk.
- Compliance workforce planning is conducted regularly to ensure the appropriate resources are available to meet risk, for example Fisheries Compliance has bolstered two offices in CRA 2 with extra full time staff within the last 6 months.
- Assessment for extra Honorary Fishery Officers is undertaken into specific areas of CRA 2.
- Implementing a communications strategy to ensure the relevant stakeholders in CRA 2 are informed of any relevant changes to legislation/regulation.

- Continuing to utilise the VADE operating model with an emphasis on Voluntary and Assisted aspects of that model during any change and implementation of new legislation/regulation.
- Ensuring regular communication across Fisheries Management and relevant stakeholder groups at the regional level to support ongoing focus on CRA 2.

209. As noted above, estimating illegal removals is inherently difficult given that by its nature it is hard to detect. MPI has investigated a range of different approaches to estimation with little success. However, the suggestion by the NZ RLIC to look at how other jurisdictions (e.g. Australian states) develop estimates of illegal take has merit, and is something MPI intends to follow up on.

Setting the TACC

210. TACC reductions are proposed from the current TACC of 200 tonnes to either 100 or 80 tonnes.

211. The proposal to reduce the TACC is expected to have a number of economic impacts on the industry. The NZ RLIC (along with other commercial submitters) advises that a 50% TACC reduction down to 100 tonnes will have very serious socio-economic consequences for quota share owners, fishers, associated businesses and Iwi through unemployment, vessels off the water, loss of income of the catching sector, for quota owners, processors and contributors, inability to service debt, stranded assets, effects on Iwi beneficiaries, and flow on impacts to support businesses and regional communities. The CRA 2 rock lobster industry is characterised by many small family businesses and these families are dependent on fishing, and usually don't have other trades or qualifications. More detail on the socio-economic implications of TACC reductions is outlined in section 2.3 (pages 10-14) of the NZ RLIC submission.

212. The NZ RLIC submits that some operations were marginally economic as a result of the voluntarily retiring 50 tonnes of commercial catch in the last two fishing years. A TACC reduction will mean that less ACE is available with a loss of revenue to the catching sector or about $84,000 per tonne. This will lead to a restructuring of the fleet with some loss of vessels as they will no longer be economically viable or will not be able to obtain the required minimum three tonne ACE holdings. The NZ RLIC suggests that there will also be loss of revenue to quota owners from selling ACE and the removal of approximately $65 million in quota value equity. There may not be any compensatory increases in ACE or quota price as they are essentially driven by market price in China.

213. The NZ RLIC advises that there were 28 vessels operating across CRA 2 in the current season. An analysis of ACE held as at January 2018, suggests there will be at least 12-14 vessels which are currently entitled to fish which will fall under the three tonne minimum ACE holding with a TACC reduction to 100 tonnes, or will no longer be economically viable. An 80 tonne TACC will have a significant impact with potentially 14-20 vessels forced off the water. Some of these entities may be able to purchase additional ACE from a significantly reduced pool, but they will be competing against larger players who often have long established commercial relationships with ACE owning entities.

214. The NZ RLIC submit that the reduction in revenue and economic activity will impact on associated businesses receivers, processors and distributors, and servicing and support businesses such as transport, provedoring, engineering, boatyards, marine electronics and bait suppliers. The fishing and support businesses are often in smaller regional towns and communities along the coastline. The job losses will be in locations where there will be limited prospects of alternative employment. Reduced revenue and throughput may make some business unviable and impact on other infrastructure and use of local services and require changes in transport arrangements.

215. TOKM notes that the effects of TACC reductions on Iwi and their Fisheries Settlement, and normal quota shareholdings, are that fewer resources will be available to support their members' social and cultural activities, marae, and broader general charitable purposes. It will also mean less work for Iwi members that are employed in the industry.

216. NZ RLIC and Iwi Collective Partnership raised the importance of certainty in allocation decisions and the expectation that the TACC will be restored when sufficient improvements in the fishery are observed. Certainty is one of the elements that provide the basis on which investment decisions and affect the willingness of financial institutions to extend debt arrangements. Industry participants have substantial commitments, both in assets, large financial and time investments over an extended period, and a dependence on fishing businesses, and lifestyle for families. Providing industry with an assurance that they can expect to see re-instatement of the TACC, when the stock situation allows, would provide confidence and incentive to try and remain in the fishery, even if not profitable for a period. It also provides incentives to continue their voluntary investments in stock monitoring and tag and release research, for example.

217. The NRLMG acknowledges the significant impacts the proposed TACC reductions will have on the wider industry and local communities. The NRLMG agree that incentives for future management and investment in the industry are generated around understanding when and how existing rights will be impacted on by Government.

218. MPI notes that future allocation decisions need to be based on application of your legislative obligations, and after considering best available information and tangata whenua and stakeholder views. MPI proposes to discuss the development of a new CRA 2 management procedure with the NRLMG during 2018 to help provide certainty of future decision- making for all stakeholders.

MPI analysis of economic impacts

219. MPI has estimated the potential revenue losses of the proposed TACC options based on landing and export prices (Table 8.4). The losses are not additive; the loss of export revenue represents the highest estimated loss. A TACC reduction from 200 to 100 tonnes reduces the opportunity to generate annual revenue to the catching sector alone of over $8.5 million. A TACC reduction from 200 to 80 tonnes reduces the revenue by over $10.2 million (based on 2017 average port price information). While significant, the extent of revenue losses are not as great if the current levels of commercial catch are considered (140 tonnes in 2016/17).

Table 8.4: Economic implications of CRA 2 TACC proposals.

TACC option (t)	Reduction from current TACC (t)	% reduction	Loss of revenue: landing prices	Loss of revenue: export prices
100	100	-50%	-$8,500,000	-$10,400,000
80	120	-60%	-$10,200,000	-$12,480,000
	Reduction from current catch of 140 (t)	% reduction	Loss of revenue: landing prices	Loss of revenue: export prices
100	40	-29%	-$3,400,000	-$4,160,000
80	60	-43%	-$5,100,000	-$6,240,000

220. Export revenue (as per Table 8.4) includes the catch and also services that occur after harvesting, such as unloading fees, auction commissions, expenses for processing and freezing, and transportation. The export revenue for all rock lobster exported from New Zealand waters in 2017 was $281.2 million. The average unit export revenue for 2017 was around $100,000 per tonne for rock lobsters. Recent CRA 2 catch makes up 5% of the combined rock lobster TACCs and the proportion of export revenue that it contributes to the economy is likely to be a similar proportion, since almost all rock lobsters from New Zealand waters are exported.

221. The species has high export value, and the estimates of forgone revenue are substantial. MPI notes that export prices vary within a year based on periods of market demand. Industry times its harvest and exports to take advantage of these periods of higher price.

222. These estimates reflect only limited aspects of the value of the commercial fishery for CRA 2, and are not a full socio-economic assessment. The interests of the commercial sector are not just the economic interests of the proprietors of the fishing businesses, but also include those of employees, consumers who are able to purchase the fish as a result of the commercial catch being sold at retail, fish merchants, suppliers to the commercial fishers and others affected by any relevant downstream effects of the location of fishing businesses, such as processing businesses in particular geographical locations.

Impacts on ACE fishers and quota holders

223. Under section 74 of the Act, for a quota owner to have the authority to undertake rock lobster fishing, at least three tonnes of ACE is required. The intent of the three tonne minimum holding was to prevent a proliferation of small holdings which could be used to cover for entities who might fish without ACE, a concern given the high value of rock lobster. Quota owners are entitled to remain fishing if a TACC reduction reduced their quota holding below the three tonne minimum, because they are “grandfathered” to remain operating in the fishery.

224. ACE dependent fishers who do not own 3 tonnes ACE are not entitled to fish for rock lobster; therefore, they are likely to be impacted by TACC reductions. The number of ACE parcels comprising 3 tonnes or more will decrease in proportion to quota reductions. Some ACE fishers will be unable to continue fishing economically and those unable to bear the additional costs of fishing and acquire ACE are likely to leave the industry.

225. About 28 vessels operated across the CRA 2 fishery in the current season. It is likely that there will be a substantial reduction in the number of vessels fishing for CRA 2 as a result of reduced ACE availability under the TACCs proposed. As mentioned above, some ACE fishers will be unable to acquire ACE with reduced TACCs. There is uncertainty in the extent of the impacts on ACE fishers.

226. Quota value represents the net present value that quota owners can make in the future from either selling ACE or utilising the ACE themselves. The fishery currently has 51 quota owners and the concentration ratio of levels of ownership is relatively flat. No quota owner owns more than 10% of the quota[15] and the concentration ratio of the top 20 quota owners (CR20) of CRA2 is 78%. The concentration ratio measures the cumulative quota ownership of a chosen number of the largest quota owners (20 used in this case). This information shows that past reductions in catch has not concentrated quota ownership in the fishery. The reasons for this are likely complex, but potentially reflect the practicalities of the fishery in that there are still small quota owner operators in local communities. This suggests that the TACC proposals are likely to have an economic impact on these small operators, although they can legally remain operating in the fishery if they drop below the 3 tonne minimum holding (grandfather clause). They may not be economically viable with these lower levels of ACE, with insufficient margin between fixed and variable costs and landed price.

227. In general, a reduction in the TACC will adversely impact on the economic return from the sale of annual catch holdings. The extent to which quota owners will change the price of ACE is unclear.

8.9 ADDITIONAL MANAGEMENT MEASURES

228. MPI (with the support of the NRLMG) will be consulting from April 2018 on a broader range of management measures for implementation by 1 October 2018 to complement proposed changes to the TAC, allowances and the TACC. The process to amend regulations has a greater number of statutory steps than that for reviewing catch settings, including Cabinet and Treasury requirements. Because of this, the earliest that any changes to regulations will be able to implemented is later this year.

229. The proposed recreational allowance will set a new figure to manage recreational catch within the context of a rebuild plan. To ensure that recreational catch remains within the proposed allowance and does not compromise the rebuild, additional management controls will be developed and implemented (i.e. a reduction to the recreational daily bag limit of six lobsters). The majority of the recreational catch in CRA 2 is taken during the summer months; therefore, the risk to the sustainability of the stock and the rebuild timeframes are unlikely to be significantly impacted through no changes to recreational regulations for six months.

[15] Under the Act, no person can own more than 10% of the quota shares for any one rock lobster quota management area.

230. In addition to measures to manage recreational fishing, regulatory measures to reduce illegal take will be explored, along with MPI compliance and enforcement initiatives to reduce illegal take, the setting of a new management target, and the proposed development of a new CRA 2 management procedure to guide future TAC setting.

231. Many submitters expressed support for additional management measures during consultation on the current proposals to double the stock biomass for all interests. This included: reduced recreational daily bag limit from six rock lobsters; seasonal closures, telson clipping of recreationally caught rock lobster to assist in the reduction of illegal take[16]; pot limits; and, finer-scale management initiatives. In addition other research and service needs were suggested including: better and timelier information on recreational and illegal take; improved information on recruitment; and, improved surveillance and enforcement of fishery rules.

232. Wide engagement with tangata whenua, stakeholders, and environmental interest will be undertaken in the development of these broader options. MPI will carry out full public consultation prior to any decisions being made.

9 Review of the CRA 4 (Wellington/Hawke's Bay) rock lobster fishery

9.1 CRA 4 FISHERY OVERVIEW

Māori customary fishing

233. Rock lobster (koura) is a taonga species for tangata whenua. Information on Māori customary catch of rock lobster indicates that tangata whenua use of customary Māori harvesting rights for taking rock lobster in CRA 4 is conservative, and was well within the current customary Māori allowance for CRA 4 of 35 tonnes. An estimate of 20 tonnes was used in the 2016 CRA 4 stock assessment model to represent customary catches.

Recreational fishing

234. The CRA 4 fishery supports a valuable recreational fishery in Hawke's Bay, the Wairarapa Coast, through Cook Strait to the lower West Coast of the North Island.

235. For the 2016 CRA 4 stock assessment, recreational catch estimates from 1994, 1996 and 2011 recreational surveys were used to construct a recreational catch trajectory (Figure 9.1). The trajectory was also developed by assuming that recreational catch was proportional to the CRA 4 spring-summer abundance, as reflected by spring-summer commercial CPUE for CRA 4.

[16] Telson clipping is the requirement for a recreational fisher to cut one-third of the central telson off the tail fan of a rock lobster on taking. This is a way to mark a rock lobster to make it clear that it has been recreationally caught and therefore cannot be sold. The particular illegal activity that telson clipping intends to address is: the illegal sale or barter of rock lobsters by opportunistic individuals; and, covert poachers who conceal their activity under legitimate non-commercial fishing. Telson clipping currently applies in the Kaikoura Marine Management Area and has been effective in reducing the flow of recreationally caught rock lobsters illegally entering the commercial supply chain (such as restaurants and fish dealers).

236. The resulting recreational catch trajectory showed a strong increasing trend up to the end of 1990s, followed by a steep drop to 2007, which recovered by 2013 before dropping again from 2014. The 2015, model estimate of recreational catch was 37.5 tonnes.

237. The 2011 recreational catch estimate comes from the 2011/12 National Panel survey, which estimated that the recreational catch of rock lobsters in CRA 4 was 44.17 tonnes[17].

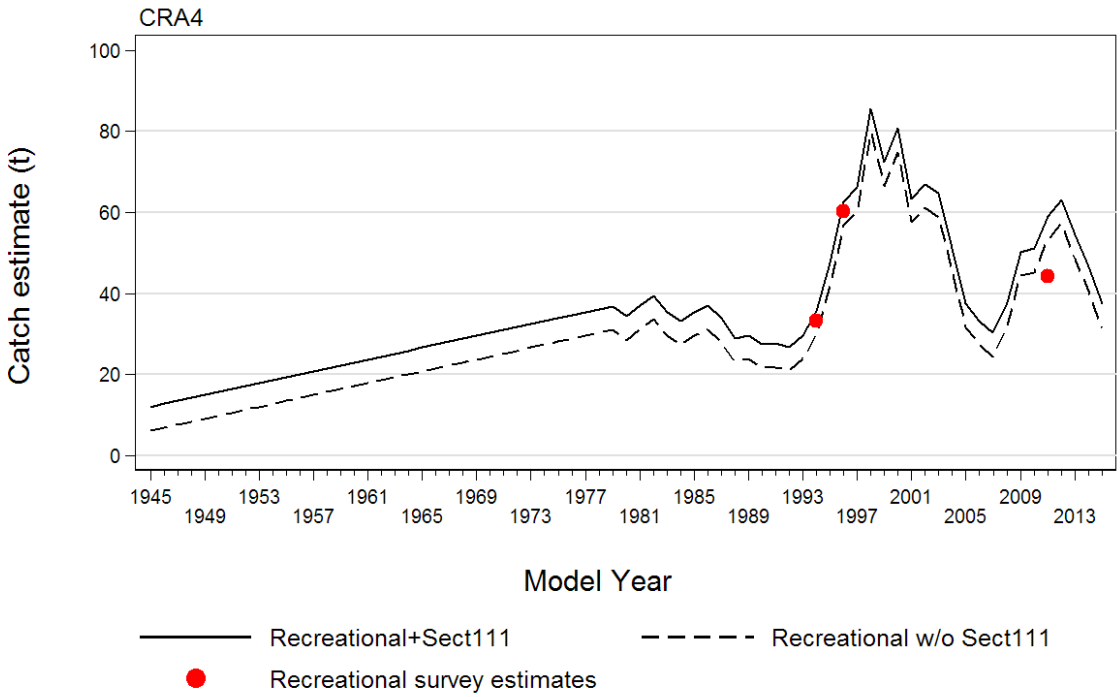

Figure 9.1: The predicted recreational catch trajectories (tonnes) for the 2016 CRA 4 stock assessment. The red dots refer to the recreational survey estimates from 1994, 1996 and 2011. The solid black line shows the recreational catch trajectory with the additional section 111 catches which were taken by commercial fishers for non-commercial purposes (i.e. a maximum of 5.8 tonnes of section 111 catches). The dashed black line is the recreational catch trajectory without the section 111 catches.

Other mortality

238. There are various potential other sources of mortality caused by fishing, such as illegal catch and handling mortality. It is difficult for MPI to get an accurate estimate of illegal catch given that illegal activity is not easily detected. However, the Rock Lobster Fisheries Assessment Working Group used available MPI estimates from 1990 to 2004 in the 2016 stock assessment model to estimate illegal catches. For the 2015/16 fishing year the illegal catch estimate assumed for the model was 40 tonnes.

239. The 2016 CRA 4 assessment also assumed that handling mortality was 10% of returned lobsters until 1990 and then 5% thereafter. The 2016 model estimate of handling mortality was 18.14 tonnes.

[17] With a coefficient of variation of 17% (a measure of the ratio of the standard deviation to the mean).

Commercial

240. MPI estimates the current asset value of CRA 4 to be $225 million based on the current TACC and the 2017 quota share price. The average Annual Catch Entitlement (ACE) value (the earnings quota owners receive when selling their ACE) for the 2016-17 fishing year was $52,530 per tonne for CRA 4.

241. Annual landings and the TACCs for CRA 4 since 1990 are shown in Figure 9.2. In 2007 and 2008, the industry used a voluntary management procedure to guide Annual Catch Entitlement shelving (down to 340 and 250 tonnes respectively and is why the TACC wasn't caught in these years). Since 2012 a management procedure has been used in CRA 4 to regularly review the TACC. The TACC was reduced by 108 tonnes from April 2017.

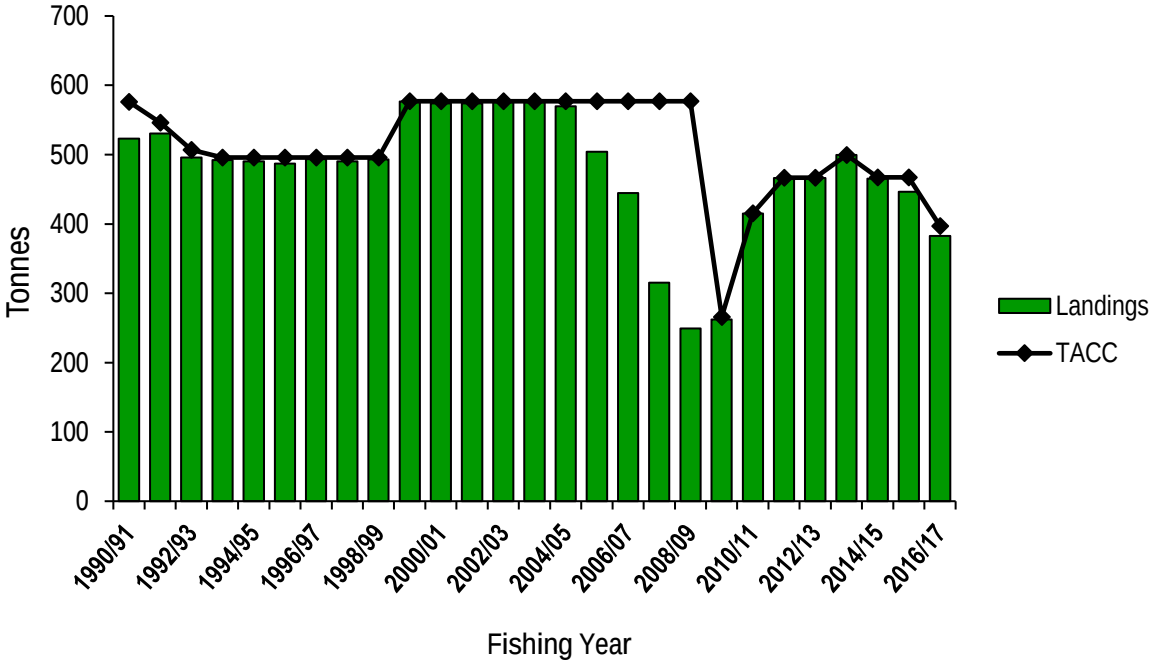

Figure 9.2: CRA 4 commercial landings and TACCs from 1990 to 2016.

9.2 CRA 4 STOCK STATUS AND PREVIOUS ACTIONS

242. The results of the most recent CRA 4 stock assessment carried out in 2016 suggest that stock biomass was below the agreed reference level, B_{REF}, by 25%.[18] Spawning stock biomass in 2016 was 51% of the unfished level, well above the soft limit of 20% where it is MPI policy to implement a formal, time-constrained rebuilding plan.

243. In response to the new science information, the government agreed to use a new CRA 4 management procedure to guide TAC setting from April 2017 to ensure that stock biomass was rebuilt towards the agreed reference level in the next five years. Its operation resulted in a substantial TAC reduction from 592 to 484 tonnes from 1 April 2017.

[18] B_{REF} for CRA 4 is the average pre-season autumn-winter vulnerable biomass associated with the period 1979-88.

244. 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. The history of CRA 4 commercial CPUE is shown in Figure 9.3. CPUE increased from 2008 to 2012, and then declined. However, between 2016 and 2017 CPUE increased from 0.69 to 0.76 kg/potlift, suggesting rock lobster abundance in CRA 4 has increased in the last year.

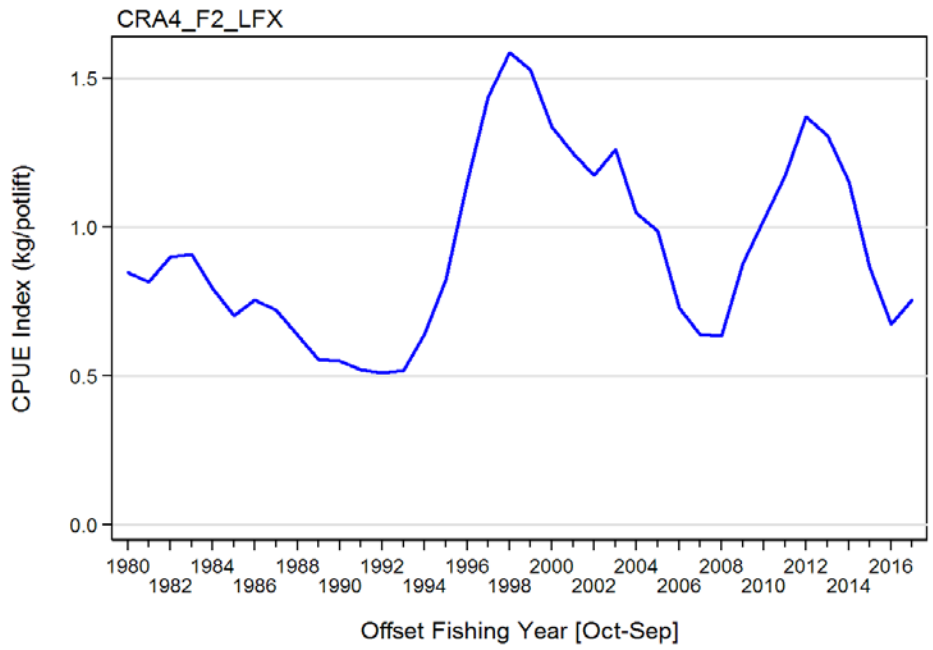

Figure 9.3: CRA 4 CPUE (kg/potlift).

9.3 THE CURRENT CRA 4 MANAGEMENT PROCEDURE

245. The previous Government agreed to use the current CRA 4 management procedure in 2017 to form the basis of any management action needed for the fishing years 2017/18 to 2021/22. A graphical representation of the current procedure is provided in Figure 9.4. The graph shows the proposed TACC for the next year as a function of CPUE in the current year. When the rule was operated with the 2017 CPUE of 0.76 kg/potlift, it resulted in an increased TACC of 318.8 tonnes for the 2018/19 fishing year (shown by the blue triangle on the graph).

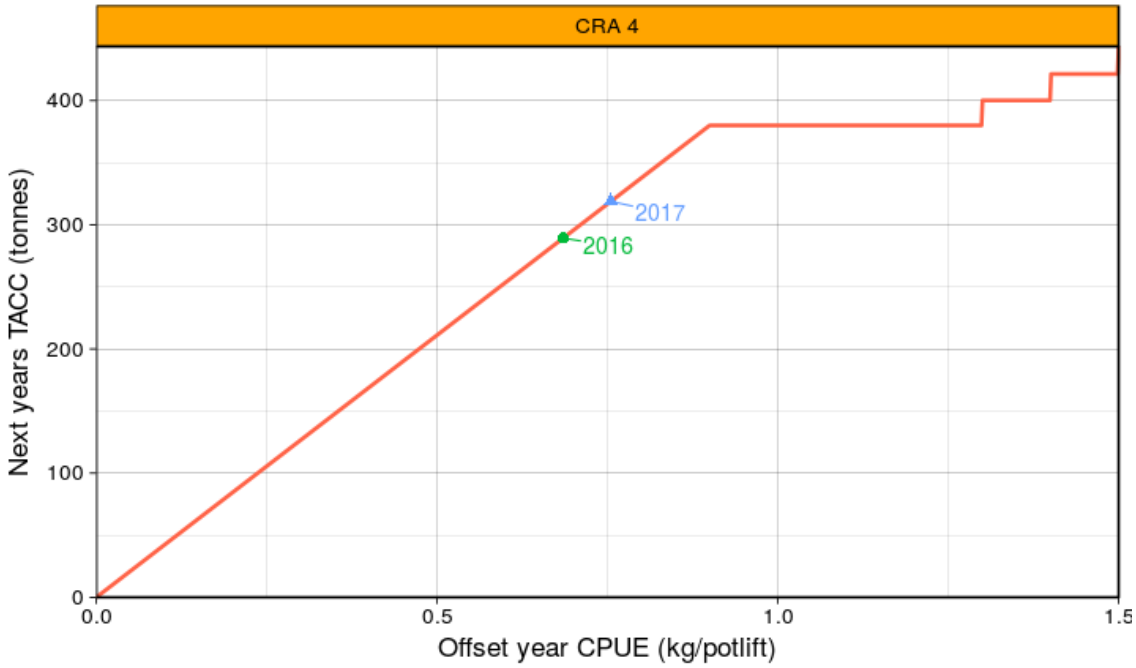

Figure 9.4: The current CRA 4 management procedure, showing the TACCs resulting from evaluations performed in 2016 and 2017 (shown as coloured shapes) for the 2017/18 and 2018/19 fishing years.

9.4 FINAL CRA 4 PROPOSALS

246. Table 9.1 below shows the final proposals for CRA 4, which are the same as the consultation options. The current CRA 4 management procedure and advice from the NRLMG have been used to guide the final TAC setting options. The proposals to increase the TAC and TACC will provide for increased utilisation opportunities and are expected to ensure that the stock moves towards its reference level. The NRLMG recommends that you agree to Option CRA4_02.

Table 9.1: Final TAC, allowance and TACC proposals (in tonnes) for CRA 4 from 1 April 2018.

Option	TAC	TACC	Allowances		
			Customary **Māori**	Recreational	Other mortality
CRA4_01: *Status quo*	484	289			
CRA4_02: Based on the operation of the CRA 4 management procedure *(NRLMG recommended)*	513.8 ↑	318.8 ↑	35	85	75

9.5 SUMMARY OF CRA 4 SUBMISSIONS

247. A total of nine submissions were received on the CRA 4 proposals.

Support for Option CRA4_01 (Status quo)

248. Four submissions were received in support of Option CRA4_01. NZSFC, Spearfishing NZ, ECO, and an individual (Blair) all supported retaining the current settings.

249. NZSFC (with support from Spearfishing NZ) express doubts about the validity of the current CRA 4 management procedure, and urge you to take a cautious approach now to allow the fishery to retain some resilience and eventually rebuild to a more abundant level. NZSFC has concerns about the validity and accuracy of the CRA 4 CPUE, and its use in the CRA 4 management procedure. NZSFC considers that the CRA 4 CPUE should be re-analysed to include the vessel effect, as in CRA 2. NZSFC notes that rock lobster are important to recreational fishers and divers throughout CRA 4, with anecdotal reports from fishers suggesting that here has been no noticeable increase in abundance.

250. ECO has concerns regarding the management of the CRA 4 rock lobster fishery and supports the retention of current catch settings. They express concerns that the fishery is being managed to B_{REF}, rather than B_{MSY} or a percentage of virgin unfished biomass (e.g. 40%B_0). ECO submits that catch rates in CRA 4 have fluctuated over the last 20 years, are currently at their lowest point in the last 10 years, and that no areas of significance for fisheries management have been identified for CRA 4.

Support for Option CRA4_02

251. Four submissions were received in support of Option CRA4_02 - use the current CRA 4 management procedure and increase the CRA 4 TAC and TACC by 29.8 tonnes. TOKM, Iwi Collective Partnership, CRAMAC 4 and the NZ RLIC support this option.

252. TOKM submit that it would prefer that the additional CRA 4 TACC is taken from the northern areas of CRA 4 (statistical areas 912, 913, and 914) as these are the areas that have experienced increases of CPUE (abundance). They also suggest that further analysis is done on CRA 4 CPUE to only include vessels that have been in the fishery for more than 5 years, to see if this changes the results of the management procedure in any meaningful way.

253. NZ RLIC and CRAMAC 4 note that the most conservative management procedure candidate was chosen in April 2017 and its use resulted in a 108 tonne reduction for the 2017/18 fishing year. The CRA 4 fishery has since experienced an improvement in abundance and proposed TACC increase is considered appropriate. NZ RLIC note that the proposed TACC increase would ease the pressure for businesses that had their ACE and revenue reduced as a result of the TACC cut in 2017.

Other comments

254. Kāpiti Guardians opposed increasing the CRA 4 TAC on the grounds that the stock assessment relied too heavily on predictions of puerulus settlement increasing and supporting the future rebuild of the fishery. They consider that the fishery is in a period of decline and that climatic uncertainty may have an unexpected impact on future puerulus settlement, a precautionary approach should be used.

255. NZ RLIC (supported by CRAMAC 4) note the need for more regular and precise estimates of recreational take and illegal removals in CRA 4, noting that more accurate estimates would better inform management decisions for CRA 4. This matter is discussed in Section 12.

9.6 ANALYSIS OF CRA 4 FINAL PROPOSALS

TAC setting

256. For CRA 4, the biomass level that can produce the maximum sustainable yield (B_{MSY}) is not known because further work is needed in 2018 to evaluate how B_{MSY} can be determined for rock lobsters. A MSY-compatible reference level, B_{REF}, is instead used for CRA 4. Because of this, any variation of the CRA 4 TAC must be done under section 13(2A).

257. Under Option CRA4_01, the CRA 4 TAC would stay at its current level of 484 tonnes from 1 April 2018. Compared to Option CRA4_02, this option could result in increased abundance in the CRA 4 fishery in the short-term, increased non-commercial catches and catch rates.

258. Under Option CRA4_02, the CRA 4 TAC would be increased to 513.8 tonnes (a 6.2% increase). The proposed TAC increase is guided by the use of the current CRA 4 management procedure. The NRLMG supports the use of management procedures unless there are compelling reasons in a particular case not to follow the procedure.

259. Ongoing application of the CRA 4 management procedure is expected to maintain the stock above the agreed reference level ($B_{REF,}$) with greater than 50% probability. Simulation testing indicates it would maintain the stock above $B_{REF,}$ with 92% probability. Maintaining the stock above the reference level is likely to provide increased utilisation benefits for all sectors.

260. The 2016 CRA 4 stock assessment suggested the stock was below the agreed reference level by 25%. However, monitoring information (CPUE) suggests that abundance has increased in the last year. The NRLMG considers that a modest TAC increase, following a 108 tonne decrease last year, is still expected to allow the stock to rebuild to higher abundance levels. However, you can choose a different way and rate to rebuild a fishery taking into account relevant considerations, including having regard to relevant social, cultural and economic factors.

Setting allowances and the TACC

261. Having set the TAC, you must set the TACC and, in setting or varying the TACC, must make allowances for Māori customary non-commercial fishing interests, recreational fishing interests, and all other mortality to the stock caused by fishing (sections 20 and 21).

262. Table 9.2 provides you with information on current non-commercial allowances for CRA 4 and stock assessment assumptions of non-commercial catch.

Table 9.2: Current CRA 4 allowances and model assumptions of non-commercial catches (in tonnes).

CRA 4	Customary **Māori**	Recreational	Other mortality	Total
Current allowances	35	85	75	195
Non-commercial catch assumptions for the 2016 stock assessment	20	Assumed to vary with biomass. Estimated at 37.5 t for 2015.	40 t illegal. 18 t handling mortality.	115.5

Māori customary fishing

263. No change is proposed to the 35 tonne customary Māori allowance, because current harvest is considered to be conservative and is within the allocation for this interest at this time.

Recreational fishing

264. No change is proposed to the 85 tonne recreational allowance for CRA 4. While there is uncertainty in the current estimate of recreational catch it is considered to be well within the current 85 tonne allowance.

Other mortality

265. NZ RLIC and CRAMAC 4 suggest that the other mortality allowance should be set to reflect the 2016 stock assessment estimates of illegal catch and handling mortality (58 tonnes). They also submit that steps must be taken to address illegal take in the CRA 4 fishery and the illegal take estimate must be re-evaluated.

266. The option to reduce the other mortality allowance from 75 to 58 tonnes was not consulted on. Therefore, MPI is not proposing to reduce the 75 tonne allowance at this time, particularly given the uncertainty in current estimates of illegal take. MPI is intending to look at how illegal take estimates can be better calculated.

TACC

267. Under Option CRA4_01 the CRA 4 TACC would stay at its current level of 289 tonnes. This option would maintain the current level of utilisation of the commercial fishery without realising the potential for increased sustainable utilisation opportunities for commercial fishers.

268. Under Option CRA4_02, the CRA 4 TACC would be increased to 318.8 tonnes from 1 April 2018, as guided by the use of the current CRA 4 management procedure. The proposed 29.8 tonne TACC increase has the potential to result in an increase of annual revenue to the catching sector alone of approximately $2.15 million (based on 2017 average port price information).

269. The NZ RLIC note that they held a workshop with CRA 4 operators in December 2017, with many confirming positive recent experiences in the fishery and none identified concerns or negative signs from their fishing. This is reflected in an increase in CPUE (abundance) in the last year.

9.7 OTHER CONSIDERATIONS

270. In response to some submitter comments about CRA 4 CPUE, the NRLMG notes that work is planned for 2018 to look at how CPUE is analysed for all rock lobster fisheries, and whether the vessel effect that was applied in CRA 2 is appropriate for all areas. The new CRA 2 CPUE series only includes vessels with at least five years in the fishery and this was found by the Rock Lobster Fisheries Assessment Working Group through updating the CRA 2 stock assessment to more accurately represent CRA 2 abundance. At this time it is unknown if a different treatment of CRA 4 CPUE is required and whether it will result in significantly different outcomes. Determining the outcome will require both a revised CPUE analysis and a new stock assessment. The NRLMG considers that the TAC increase proposed by the current CRA 4 management procedure should not pose a risk to the sustainability of the stock while improvement work is carried out later in 2018 on CPUE for rock lobster.

271. In response to the Kāpiti Guardians concerns that the CRA 4 stock assessment relied too heavily on predictions of puerulus settlement increasing, the NRLMG notes that this assumption is not accurate. The CRA 4 stock assessment includes a range of different information, including: customary, recreational, commercial and illegal catch; length frequencies from catch sampling and industry logbook data; tag recapture data; and larval (puerulus) settlement levels. The CRA 4 management procedure was also tested for variable levels of recruitment and was found to be robust.

10 Review of the CRA 7 (Otago) rock lobster fishery

10.1 CRA 7 FISHERY OVERVIEW

Māori customary fishing

272. Rock lobster (koura) is a taonga species for tangata whenua. Reporting of customary Māori catch of rock lobster is fully operational in the Ngai Tahu rohe moana (including CRA 7). In the 2016/17 fishing year, approximately 1.5 tonnes of rock lobster were reported as harvested from CRA 7.

273. An estimate of 1 tonne was used in the 2015 CRA 7 stock assessment model to represent customary catches.

Recreational fishing

274. There are no reliable recreational catch survey estimates available for CRA 7. The participation rates are relatively low in the CRA 7 fishery compared to other rock lobster

fisheries. It is uncertain if this low participation is a result of weather conditions affecting access to fishing grounds or because of a low fisher population.

275. In the absence of any reliable information, in the 2015 CRA 7 stock assessment recreational catch estimates were assumed to be at 1 tonne in 1945 and were increased to 5 tonnes in 1979. A constant estimate of 5 tonnes was assumed from 1979 to 2014.

Other mortality

276. There are various potential other sources of mortality caused by fishing, such as illegal catch and handling mortality. It is difficult for MPI to get an accurate estimate of illegal catch given that illegal activity is not easily detected. However, the Rock Lobster Fisheries Assessment Working Group used available MPI estimates from 1990 to 2002 and assumed 1 tonne per year from 2002 to 2014 in the stock assessment model.

Commercial

277. MPI estimates the current asset value of CRA 7 to be $60 million based on the current TACC and the 2017 quota price. The average Annual Catch Entitlement (ACE) value (the earnings quota owners receive when selling their ACE) for the 2016-17 fishing year was $41,900 per tonne for CRA 7.

278. Annual landings and the TACCs for CRA 7 since 1990 are shown in Figure 10.1. Since 1996 a management procedure has been used in CRA 7 to regularly review the TACC to ensure catches reflect available abundance. This is important in CRA 7 because there are migrations of lobsters out of CRA 7 into CRA 8 at certain intervals.

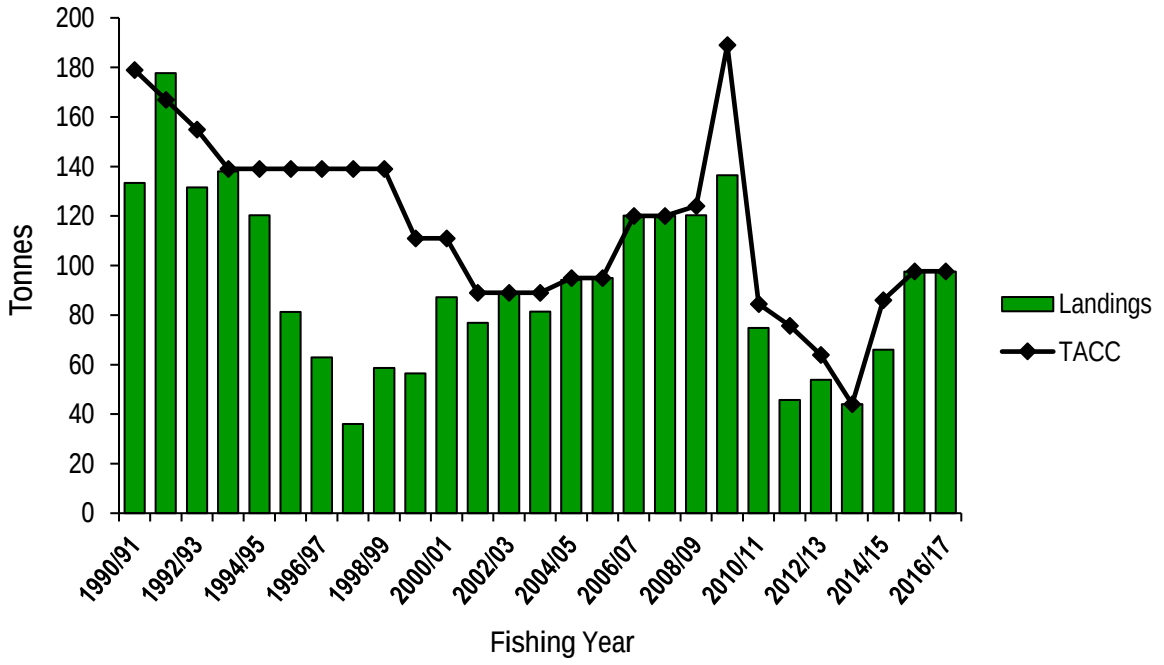

Figure 10.1: CRA 7 commercial landings and TACCs from 1990 to 2016.

10.2 CRA 7 STOCK STATUS

279. The results of the most recent CRA 7 stock assessment conducted in 2015 suggested there were no sustainability concerns for the CRA 7 fishery. 2015 biomass was twice the agreed reference level, $B_{REF.}$.[19]

280. Standardised CPUE is considered to be a reliable indicator of relative stock size in CRA 7, and is the abundance indicator used in the CRA 7 management procedure. The history of CRA 7 commercial CPUE is shown in Figure 10.2. At the time of the stock assessment in 2015, CPUE was at a relatively high level. CPUE increased substantially from 2012 to 2016, but declined slightly in 2017.

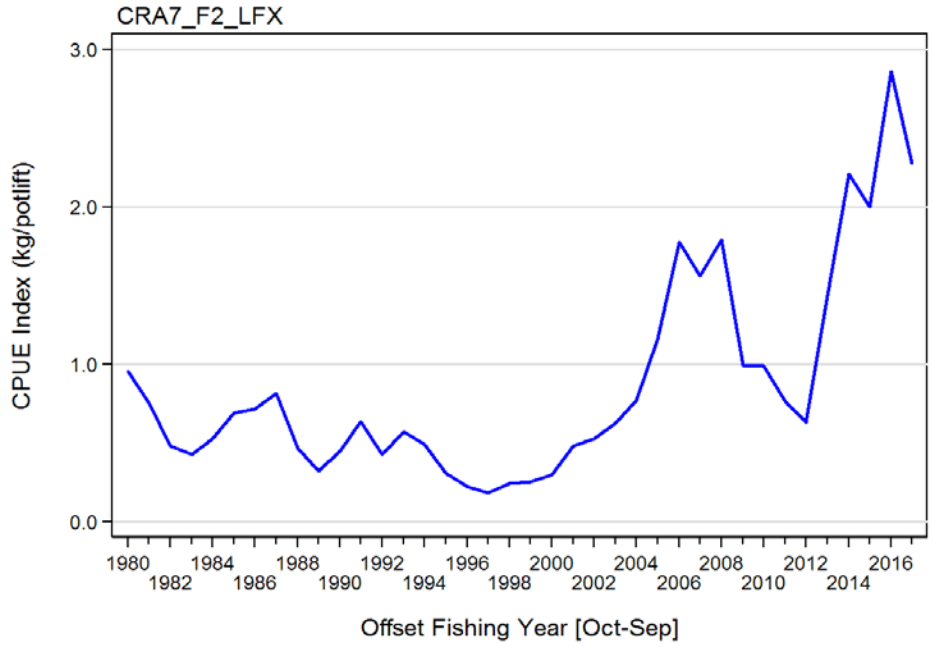

Figure 10.2: CRA 7 CPUE (kg/potlift).

10.3 THE CURRENT CRA 7 MANAGEMENT PROCEDURE

281. The previous Government agreed to use the current CRA 7 management procedure to the 2020/21 fishing year. A graphical representation of the current CRA 7 management procedure is provided in Figure 10.3. The graph shows the proposed TACC for the next year as a function of CPUE in the current year. When the rule was operated with the 2017 CPUE of 2.28 kg/potlift it resulted in a decreased TACC of 97 tonnes for the 2018/19 fishing year (shown by the pink cross on the graph).

[19] B_{REF} for CRA 7 is the average pre-season autumn-winter vulnerable biomass associated with the period 1979-81. 1979-81 was a period when the stock showed good productivity and was demonstrably safe. There are no reliable B_{MSY} and *SSB* estimates available for CRA 7 because of the high level of emigration estimated for the stock.

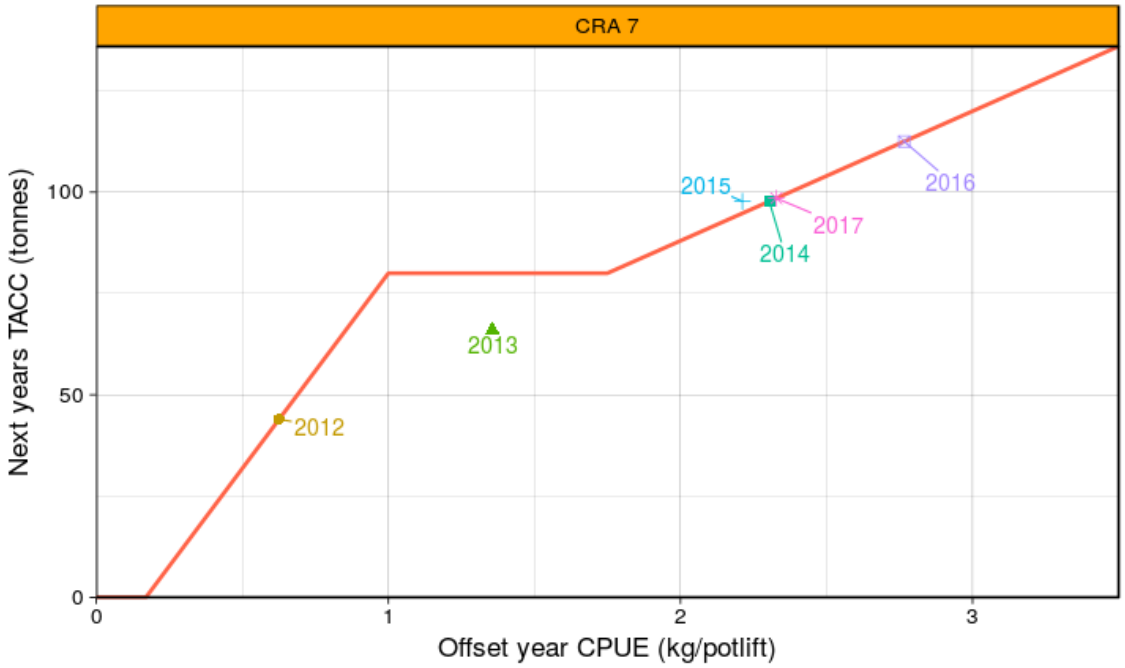

Figure 10.3: The current CRA 7 management procedure, showing the TACCs resulting from evaluations performed in 2012 to 2017 (shown as coloured shapes) for the 2013/14 to 2018/19 fishing years.

10.4 FINAL CRA 7 PROPOSALS

282. Table 10.1 below shows the final proposals for CRA 7, which are the same as the consultation options. The current CRA 7 management procedure and advice from the NRLMG has been used to guide the final TAC setting options. The proposals to decrease the TAC and TACC are expected to ensure the CRA 7 stock continues to be maintained above the agreed reference level (B_{REF}).

Table 10.1: Final TAC, allowance and TACC proposals (in tonnes) for CRA 7 from 1 April 2018.

Options	TAC	TACC	Allowances		
			Customary **Māori**	Recreational	Other mortality
CRA7_01: *Status quo*	132.52	112.52			
CRA7_02: Based on the operation of the CRA 7 management procedure *(NRLMG recommended)*	117 ↓	97 ↓	10	5	5

283. The NRLMG recommends that you agree to Option CRA7_02. Recreational members of the NRLMG support the use of management procedures in rock lobster fisheries, but would like MPI to address differences in the type of size measure used and the minimum legal size limit between recreational and commercial fishers in CRA 7. These matters are outside the scope of this sustainability review, but are discussed further in Appendix 1.

10.5 SUMMARY OF CRA 7 SUBMISSIONS

Support for Option CRA7_01 (Status quo)

284. No submissions were received in support of Option CRA7_01 (retain the current settings).

Support for Option CRA7_02

285. Eight submissions were received in support of Option CRA7_02 – use the CRA 7 management procedure and reduce the CRA 7 TAC and TACC by 15.52 tonnes. CRAMAC 4, ECO, NZ RLIC, NZSFC, Spearfishing NZ, TOKM, and two individuals (Blair and Ellison) support this option.

286. ECO has concerns regarding the management of the CRA 7 rock lobster fishery. They express concerns that the fishery is being managed to B_{REF}, rather than B_{MSY} or a percentage of virgin unfished biomass (e.g. 40%B_0). ECO submits that catch rates in CRA 7 have fluctuated over the last 20 years and that no areas of significance for fisheries management have been identified for CRA 7. They also consider that the linkage between the CRA 7 and CRA 8 stocks is an important consideration.

287. NZSFC (with support from Spearfishing NZ) is pleased to see a management procedure that is recommending precautionary action. However, they consider that a precautionary approach should be taken until the CRA 7 CPUE has been re-analysed to include the vessel effect, as in CRA 2. While the vessel effect parameter is not expected to be as great as the effect in CRA 2 (or possibly CRA 4), NZSFC considers that it is a relevant consideration. At this time it is unknown if a different treatment of CRA 7 CPUE is required and whether it will significantly result in different outcomes.

288. The NZ RLIC (with support from CRAMAC 4) notes that the proposed TACC cut will result in a substantial reduction in revenue, with associated impacts on relevant businesses. However, they support the continued use of the CRA 7 management procedure, which is expected to maintain the CRA 7 stock above the agreed reference level (B_{REF}). NZ RLIC notes that the CRA 7 management procedure is particularly responsive to increases and decreases in CPUE, and considers this responsiveness is particularly necessary in CRA 7 given its migratory nature (CRA 7 fish move into CRA 8 at certain times).

289. TOKM notes that management procedures are designed to move or maintain stock abundance at or above agreed reference levels, while recognising a range of customary Māori, recreational and commercial values. Te Ohu support the decision of the Te Waka a Maui Fisheries Forum to endorse Option CRA7_02.

290. Individual submitter Ellison supports the decrease, suggesting that rock lobsters in CRA 7 appear to be under fairly intense fishing pressure.

10.6 ANALYSIS OF CRA 7 FINAL PROPOSALS

TAC setting

291. For CRA 7, the biomass level that can produce the maximum sustainable yield (B_{MSY}) is not known because further work is needed in 2018 to evaluate how B_{MSY} can be determined for rock lobsters. A MSY-compatible reference level, B_{REF}, is instead used for CRA 7. Because of this, any variation of the CRA 7 TAC must be done under section 13(2A).

292. Under Option CRA7_01, the CRA 7 TAC would stay at its current level of 132.52 tonnes for the 2018/19 fishing year. This option is not supported by the NRLMG.

293. Under Option CRA7_02, the CRA 7 TAC would be decreased to 117 tonnes. The proposed TAC decrease is guided by the use of CRA 7 management procedure that was agreed to by the previous Government in 2013. The CRA 7 management procedure was evaluated with a new operating model in 2015, effectively extending its use from 2017/18 to the 2020/21 fishing year. The NRLMG supports the use of management procedures unless there are compelling reasons in a particular case not to follow the procedure.

294. Ongoing application of the CRA 7 management procedure is expected to maintain the stock above agreed reference level ($B_{REF,}$) with greater than 50% probability. Simulation testing indicates it would maintain the stock above B_{REF} with 98% probability. This is likely to provide increased utilisation benefits for all sectors.

295. This option will decrease the current utilisation opportunities. Historically, only the TACC has been increased or decreased to give effect to the variations in the TAC.

296. The NRLMG notes that work is planned for 2018 to look at how CPUE is analysed for all rock lobster fisheries, and whether the vessel effect that was applied in CRA 2 is appropriate for all areas. At this time it is unknown if a different treatment of CRA 7 CPUE is required and whether it will significantly result in different outcomes. The NRLMG considers that the TAC decrease proposed by the current CRA 7management procedure should not pose a risk to the sustainability of the stock while improvement work is carried out later in 2018 on rock lobster CPUE.

Setting allowances and the TACC

297. Having set the TAC, you must set the TACC and, in setting or varying the TACC, must make allowances for Māori customary non-commercial fishing interests, recreational fishing interests, and all other mortality to the stock caused by fishing (sections 20 and 21).

298. Table 10.2 provides you with information on current non-commercial allowances for CRA 7 and stock assessment assumptions of non-commercial catch.

Table 10.2: Current CRA 7 allowances and model assumptions of non-commercial catches (in tonnes).

CRA 7	Customary **Māori**	Recreational	Other mortality	Total
Current allowances	10	5	5	20
Non-commercial catch assumptions for the 2015 stock assessment	1	5	1	7

Māori customary fishing

299. No change is proposed to the 10 tonne customary Māori allowance, because current harvest is considered to be conservative and is within the allocation for this interest at this time.

Recreational fishing

300. There is no new information to suggest the current CRA 7 recreational allowance of 5 tonnes should be changed. The allowance reflects the low participations rates in the CRA 7 fishery by recreational fishers.

Other mortality

301. No change is proposed to the 5 tonne CRA 7 allowance for other sources of fishing-related mortality. While there is uncertainty in current estimates, illegal take from the CRA 7 fishery is assumed to be low.

TACC

302. Under Option CRA7_01, the CRA 7 TACC would stay at its current level of 112.52 tonnes. This option would maintain the current level of utilisation of the commercial fishery.

303. Under Option CRA7_02, the CRA 7 TACC would be decreased to 97 tonnes from 1 April 2018, as guided by the use of the current CRA 7 management procedure. The proposed 15.52 tonne TACC decrease has the potential to result in a loss of annual revenue to the catching sector alone of approximately $1.12 million (based on 2017 average port price information).

304. The rock lobster industry acknowledges that the proposed TACC cut will have economic impacts, but they support the outcomes of the management procedure and the goal to maintain the stock above the reference level.

11 Review of the CRA 8 (Southern) rock lobster fishery

11.1 CRA 8 FISHERY OVERVIEW

Māori customary fishing

305. Rock lobster (koura) is a taonga species for tangata whenua. Reporting of customary Māori catch of rock lobster is fully operational in the Ngai Tahu rohe moana (including CRA 8). In the 2016/17 fishing year, approximately 11.6 tonnes of rock lobsters were reported as harvested from CRA 8.

306. An estimate of 10 tonnes was used in the 2015 CRA 8 stock assessment model to represent customary catches.

Recreational fishing

307. The CRA 8 fishery has a number of areas closed to commercial fishing, which provide non-commercial fishers with exclusive access to rock lobsters. In Fiordland, the inner fiords are closed to commercial rock lobster fishing and were established by the Fiordland Marine Guardians under a 'gifts' and 'gains' approach.

308. However, little is known about recreational catch in CRA 8. Information from the 2011-12 National Panel Survey estimated that 6.9 tonnes of rock lobster were caught by recreational fishers. Given the low number of fishers and events covered in the survey and the high variance[20], it is assumed that 6.9 tonnes is an underestimate of recreational catch.

309. In the absence of any reliable information, in the 2015 CRA 8 stock assessment recreational catch estimates were assumed to be at 1 tonne in 1945 and were increased to 5 tonnes in 1979. A constant estimate of 20 tonnes was assumed from 1979 to 2014.

Other mortality

310. There are various potential other sources of mortality caused by fishing, such as illegal catch and handling related mortality. It is difficult for MPI to get an accurate estimate of illegal catch given that illegal activity is not easily detected. However, the Rock Lobster Fisheries Assessment Working Group used available MPI estimates from 1990 to 2002 in the 2015 stock assessment model to estimate illegal catches. An estimate of 3 tonnes was used from 2011 to 2014, with the missing years from 2003 to 2010 filled in by scaling the illegal catch down from the 18 tonnes estimated for 2002.

Commercial

311. MPI estimates the current asset value of CRA 8 to be $1,228 million based on the current TACC and the 2017 quota price. The average Annual Catch Entitlement (ACE) value (the earnings quota owners receive when selling their ACE) for the 2016-17 fishing year was $58,550 per tonne for CRA 8.

[20] With a coefficient of variation of 60% (a measure of the ratio of the standard deviation to the mean).

312. Annual landings and the TACCs for CRA 8 since 1990 are shown in Figure 11.1. Since 1996 a management procedure has been used in CRA 8 to regularly review the TACC to ensure catches reflect available abundance.

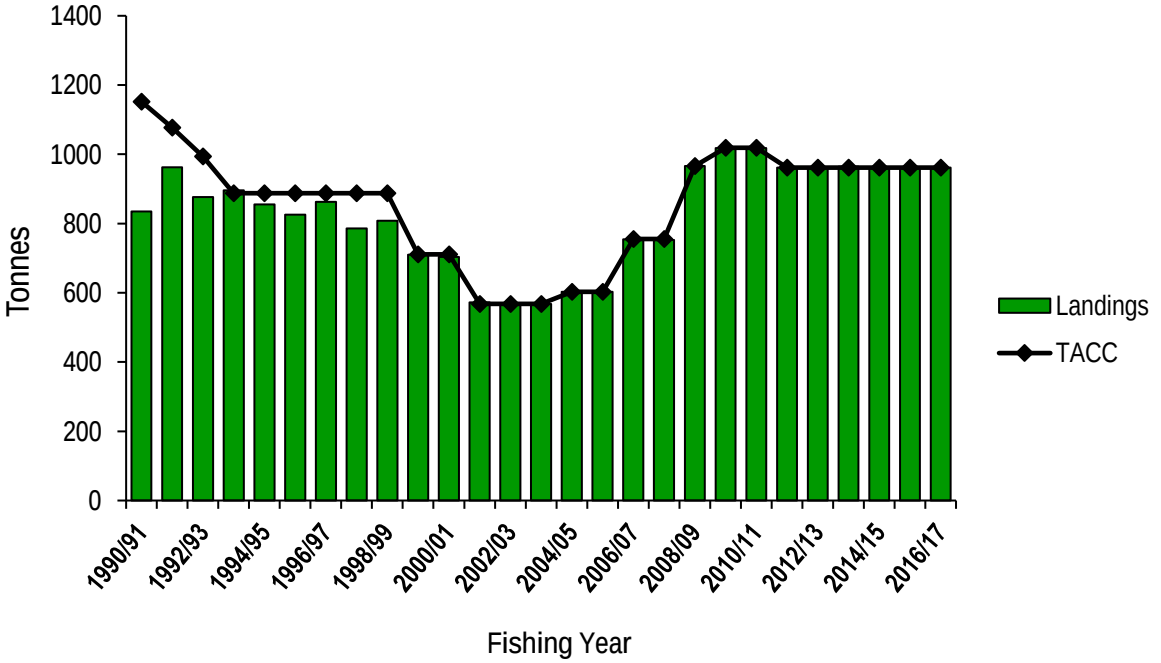

Figure 11.1: CRA 8 commercial landings and TACCs from 1990 to 2016.

11.2 CRA 8 STOCK STATUS

313. The results of the most recent CRA 8 stock assessment carried out in 2015 suggest that there are no sustainability concerns for the CRA 8 fishery. Stock biomass in 2015 was 1.4 times the agreed reference level, B_{REF}.[21] Spawning stock biomass in 2015 was 44% of the unfished level, well above the soft limit (20% of the unfished level) where it is MPI policy to implement a rebuilding plan.

314. Standardised CPUE is considered to be a reliable indicator of relative stock size in CRA 8 and is the abundance indicator used in the CRA 8 management procedure. The CPUE type used for CRA 8 is unique in that it relates only to the fish that were landed and does not consider fish that were of legal size but were legally returned to the water. This is because unlike other rock lobster fisheries, a lot of big fish are returned to the water in CRA 8: an estimated 40% by weight.

[21] B_{REF} for CRA 8 is the average pre-season autumn-winter vulnerable biomass associated with the period 1979-81.

315. The history of CRA 8 commercial CPUE is shown in Figure 11.2. CPUE increased steadily from 1998 to 2008 to 2012, declined slightly before increasing again from 2011.

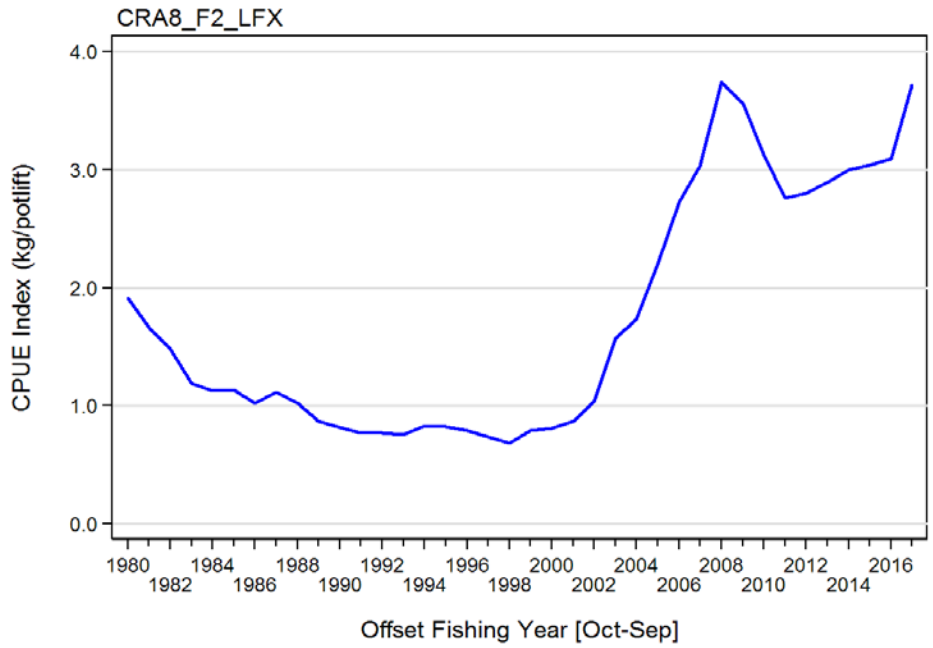

Figure 11.2: CRA 8 CPUE (kg/potlift).

11.3 THE CURRENT CRA 8 MANAGEMENT PROCEDURE

316. The previous Government agreed to use the current CRA 8 management procedure to the 2020/21 fishing year. A graphical representation of the CRA 8 management procedure is provided in Figure 11.3. The CRA 8 management procedure is unique in that it uses information only from retained legal state catch. This reflects the focus to both manage at higher biomasses and maximise economic return. The graph shows the proposed TACC for the next year as a function of CPUE in the current year. When the rule was operated with the 2017 CPUE of 3.71 kg/potlift it resulted in a TACC of 1,070.7 tonnes for the 2018/19 fishing year (shown by the purple square on the graph).

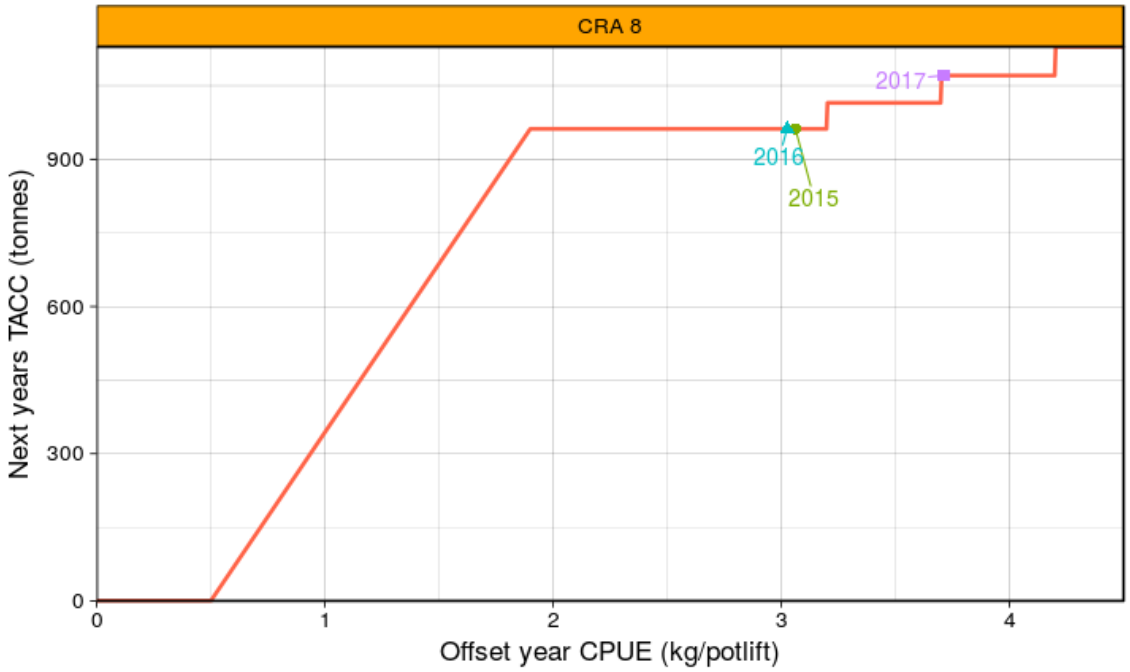

Figure 11.3: The current CRA 8 management procedure, showing the TACCs resulting from evaluations performed in 2015 to 2017 (shown as coloured shapes) for the 2015/16 to 2018/19 fishing years.

11.4 FINAL CRA 8 PROPOSALS

317. Table 11.1 provides a summary of the options proposed for CRA 8, which are the same as the consultation options. The current CRA 8 management procedure has been used to guide TAC setting options. The proposals to increase the TAC and TACC will provide for increased utilisation opportunities whilst ensuring sustainability. The NRLMG recommends that you agree to Option CRA8_02.

Table 11.1: Final TAC, allowance and TACC proposals (in tonnes) for CRA 8 from 1 April 2018.

Option	TAC	TACC	Allowances		
			Customary **Māori**	Recreational	Other mortality
CRA8_01: *Status quo*	1,053	962			
CRA8_02: Based on the operation of the CRA 8 management procedure *(NRLMG recommended)*	1,161.7 ↑	1,070.7 ↑	30	33	28

11.5 SUMMARY OF CRA 8 SUBMISSIONS

318. A total of nine submissions were received on the CRA 8 proposals.

Support for Option CRA8_01 (Status quo)

319. Four submissions were received in support of Option CRA8_01 (retain the current settings). NZSFC, ECO, Spearfishing NZ, and an individual (Blair) all supported retaining the status quo.

320. NZSFC considers that while the CRA 8 stock is at a current high point of productivity, they consider that the 108.7 tonne proposed increase is excessive and poses an unnecessary risk. NZSFC support retaining the status quo and consider that a more modest approach, with more incremental adjustments, is needed to protect the productive CRA 8 fishery. Spearfishing NZ supports this submission.

321. ECO notes that it has concerns regarding the management of the CRA 8 rock lobster fishery. ECO submits that catch rates in CRA 8 are currently at relatively high levels; in addition, the fishery is being managed to B_{REF}, rather than B_{MSY} or a percentage of virgin unfished biomass (e.g. 40%B_0), and no areas of significance for fisheries management have been identified for CRA 8.

322. As noted previously, the NRLMG advises that work will be carried out in 2018 to evaluate how B_{MSY} can be determined for rock lobster.

Support for Option CRA8_02

323. Five submissions were received in support of Option CRA8_02 – use the current CRA 8 management procedure and increase the CRA 8 TAC and TACC by 108.7 tonnes. CRAMAC 4, CRAMAC 8, NZ RLIC, Specialty & Emerging Fisheries Group, and TOKM support this option.

324. NZ RLIC (with support from CRAMAC 4) credit the current abundance of rock lobster in CRA 8 is due to industry initiatives during the 1990s, including the implementation of the first management procedure for rock lobster.

325. CRAMAC 8 and NZ RLIC note that the best economic outcome in CRA 8 is to target fishing effort to the times of year and size grades that are fetching the highest market price. In order to realise this, a comparatively large amount of high-grading occurs (preferentially discarding larger legal-sized lobsters in favour of smaller legal-sized lobsters, as the latter fetch a better price). As larger rock lobsters can produce comparatively more eggs and larvae, they can have a comparatively greater impact on a population's spawning biomass and reproductive potential. The large lobsters that are returned alive to the water due to high-grading can then continue to provide a comparatively significant biological contribution to the stock, which CRAMAC 8 consider may contribute to the high productivity of the CRA 8 fishery.

326. CRAMAC 8 note that the current CRA 8 management procedure provides greater stability of catch rates and certainty for the fishery and the industry. CRAMAC 8 notes that the steps at

higher CPUE values ensure that the TACC can increase to take advantage of this increased abundance without compromising the sustainability of the stock.

327. Specialty & Emerging Fisheries Group fully supports CRAMAC 8's submission. They support sustainable fisheries management based on transparent and robust science. As the CRA 8 management procedure recommends increases justified by scientific information that are likely to be sustainable.

328. Te Ohu notes that management procedures are designed to move or maintain stock abundance at or above agreed reference levels, while recognising a range of customary Māori, recreational and commercial values. Te Ohu supports the decision of the Te Waka a Māui Fisheries Forum to endorse Option CRA8_02.

11.6 ANALYSIS OF CRA 8 FINAL PROPOSALS

TAC setting

329. For CRA 8, the biomass level that can produce the maximum sustainable yield (B_{MSY}) is not known, because further work is needed to evaluate how B_{MSY} can be determined for rock lobsters. An MSY-compatible reference level, B_{REF}, is instead used for CRA 8. Because of this, any variation of the CRA 8 TAC must be done under section 13(2A).

330. Under Option CRA8_01, the CRA 8 TAC would stay at its current level of 1,053 tonnes for the 2018/19 fishing year. This option could result in increased abundance in the CRA 8 fishery in the short-term, increased non-commercial catches and catch rates compared to Option CRA8_02, but at a cost of not being able to take advantage of the proposed TACC increase under Option CRA8_02.

331. Under Option CRA8_02, the CRA 8 TAC would be increased to 1,161.7 tonnes. The proposed TAC increase is guided by the use of the CRA 8 management procedure that was agreed to in 2016 from the 2016/17 to 2020-21 fishing years. The NRLMG supports the use of management procedures unless there are compelling reasons in a particular case not to follow the procedure.

332. The 2015 CRA 8 stock assessment suggested that there are no sustainability concerns and stock biomass was 1.4 times the agreed reference level. Ongoing application of the CRA 8 management procedure is expected to maintain the stock above B_{REF} with greater than 50% probability. Simulation testing indicates it would maintain the stock above B_{REF} with 99% probability. This is likely to provide increased utilisation benefits for all sectors.

333. Given this, the NRLMG considers that the proposed TAC increase will provide increased utilisation opportunities while posing no risk to the sustainability of the stock. Historically, only the TACC has been increased or decreased to give effect to the variations in the TAC.

Setting non-commercial allowances

334. Having set the TAC, you must set the TACC and, in setting or varying the TACC, must make allowances for Māori customary non-commercial fishing interests, recreational fishing interests, and all other mortality to the stock caused by fishing (sections 20 and 21).

335. Table 11.2 provides you with information on current non-commercial allowances for CRA 8 and stock assessment assumptions of non-commercial catch.

Table 11.2: Current CRA 8 allowances and model assumptions of non-commercial catches (in tonnes).

CRA 8	Customary **Māori**	Recreational	Other mortality	Total
Current allowances	30	33	28	91
Non-commercial catch assumptions for the 2015 stock assessment	10	20	18	48

Māori customary fishing

336. No change is proposed to the 30 tonne customary Māori allowance, because current harvest is considered to be conservative and is well within the allocation for this interest at this time.

Recreational fishing

337. There is no new information to suggest the current CRA 8 recreational allowance of 33 tonnes should be changed. While it is considered an underestimate, the 2011/12 National Panel Survey estimated 6.9 tonnes of rock lobster were caught from CRA 8.

Other mortality

338. No change is proposed to the 28 tonne CRA 8 allowance for other sources of fishing-related mortality (i.e. for illegal catch). While uncertain, current assumptions of illegal take fall within the current allowance.

TACC

339. Under Option CRA8_01, the CRA 8 TACC would stay at its current level of 962 tonnes. This option would maintain the current level of utilisation of the commercial fishery without realising the potential for increased sustainable utilisation for commercial fishers.

340. Under Option CRA8_02, the CRA 8 TACC would be increased to 1,070.7 tonnes from 1 April 2018, as guided by the use of the CRA 8 management procedure. The proposed 108.7 tonne TACC increase has the potential to result in an increase in annual revenue to the catching sector alone of over $7.8 million (based on 2017 average port price information).

341. CRAMAC 8 note that the proposed TACC increase will result in a substantial increase in revenue, and more in export prices, with associated benefits for regional businesses in the area.

12 Other matters

342. In addition to commenting on the proposed sustainability measures for the four stocks discussed in this paper, some submitters commented on the following matters.

12.1 NON-COMMERCIAL REMOVALS

343. The NRLMG sector members have requested better estimates of non-commercial removals since it was established in 1992, but considers that they have experienced little progress in addressing this information gap. Accurate information about non-commercial removals is necessary for fisheries management decisions. NRLMG sector members are concerned that the lack of information in this area could be compromising their agreed goal of ensuring all rock lobster stocks are managed at or above agreed reference levels.

12.2 ESTIMATING AND EFFECTIVELY CONSTRAINING RECREATIONAL HARVEST

344. Multiple submitters, including NZ RLIC, CRAMAC 4, and CRAMAC 8, state the need for more regular and precise estimates of recreational take for rock lobster, and that action must be taken to constrain recreational take to the recreational allowances to ensure the integrity of TACs. The Paua Industry Council (PIC) supports this view in general terms.

345. Accurate information about recreational removals is necessary for fisheries management decisions. The NRLMG considers that the need for reliable and credible recreational harvest data is particularly important in areas where the level of recreational fishing and diving activity are higher (e.g. CRA 1, CRA 2, CRA 3, CRA 4 and CRA 5). There is a risk that recreational removals increasing without control could undermine rebuild and maintenance harvest strategies.

346. Information on the level of recreational harvest of rock lobsters has started to improve in recent years through specific onsite surveys and the 2011/12 National Panel Survey. The NRLMG sector members, however, are concerned about the limited funding that is available for recreational harvest research and strongly encourages the government to adequately resource surveys so that annual estimates are obtained, as 5-6 year old estimates do not provide timely information to inform the annual operation of management procedures.

347. MPI considers that information on the level of recreational harvest of rock lobsters has started to improve in recent years through specific onsite surveys and National Panel Surveys. Within resources that are currently available, MPI invests a considerable amount of its fisheries research budget into obtaining recreational harvest estimates for key fish stocks. A repeat National Panel Survey is currently underway for 2017/18, with results expected in 2019 (the last was done in 2011/12). This survey is expected to provide robust recreational harvest estimates for CRA 1, 2, 4, 5 and 9 rock lobster fisheries. MPI continues to explore ways to collect better information on recreational catch, such as carrying out specific onsite surveys in areas where the National Panel Survey approach does not provide good estimates (i.e. CRA 3 given the vast coastline with multiple access points). MPI is also looking at new technologies to collect harvest estimates from fishers involved in the National Panel Survey between survey years.

348. Overall, MPI considers that its investment in recreational fisheries research is commensurate with the associated risks and opportunities, and determined after careful balancing of all priorities across all fisheries and information needs within the current research budget.

12.3 ESTIMATING AND EFFECTIVELY CONSTRAINING ILLEGAL HARVEST

349. Accurately identifying and effectively constraining and reducing illegal take of rock lobster is a matter of high priority for the NRLMG sector members and for multiple submitters, including NZ RLIC, CRAMAC 4 and CRAMAC 8. PIC also support this view.

350. Estimates of illegal take are of most concern to the NRLMG sector members because they make up a substantial portion of the TAC (currently 371 tonnes in allowances nationally). Many of the estimates of illegal take for rock lobsters have not been updated since the early 2000s – and even at that time they were not robust. Consequently, the current levels of illegal take and associated historical pattern are highly uncertain.

351. The NRLMG sector members strongly urge MPI to make it a priority during 2018 to constrain illegal removals from lobster fisheries and re-evaluate estimates of illegal take for use in stock assessments. The NRLMG is available to assist and provide input into the development of any new methodology to estimate illegal take.

352. MPI notes that estimating illegal removals is inherently difficult given that by its nature it is hard to detect. MPI has investigated a range of different approaches to estimation with little success. However, the suggestion by the NZ RLIC to look at how other jurisdictions (e.g. Australian states) develop estimates of illegal take has merit, and is something MPI intends to follow-up on.

12.4 DIFFERENTIAL MINIMUM LEGAL SIZES

353. One submitter (Mr Ellison) would like the commercial CRA 7 size to increase to match the recreational minimum legal size. Recreational representatives of the NRLMG are in favour of this measure, and also support applying tail width (rather than tail length) minimum legal size measurements to commercially landed rock lobster for the sake of consistency and equity for all fishers.

354. In CRA 7, commercial fishers can land male and female rock lobsters at or above 127 mm tail length at any time of year, whilst recreational fishers must land male rock lobsters at or above 54 mm tail width and female rock lobsters at or above 60 mm tail width year-round. This differential minimum legal size regime was introduced for CRA 7 in the mid-1900s in response to new information on the biology and behaviour of rock lobsters in the area. Information suggested that few rock lobsters grew beyond 54/60 mm tail width and large numbers of small rock lobsters moved out of the fishery at certain times, emigrating south towards Foveaux Strait (within CRA 8).

355. Commercial fishers in CRA 7 are at present the only fishers to use tail length measures when determining legal sized rock lobsters; recreational fishers in CRA 7 and all fishers in all other rock lobster areas use tail width measures, which are considered to be more reliable.

356. In May 2012 a previous Government agreed to retain the current CRA 7 commercial minimum legal size of 127 mm tail length because of the significant impact any increase would have on the CRA 7 industry. In 2014 the Government decided against allowing recreational fishers to take rock lobsters at the lower commercial minimum legal size in CRA 7 because of compliance and enforcement challenges associated with a differential size regime for recreational fishers. However, the commercial sector supported recreational and customary fishers having access to the same MLS as commercial fishers.

357. MPI is not proposing a review the CRA 7 minimum legal size at this time, but is open to discussing the costs and benefits of amending the type of size measure used in CRA 7 with the NRLMG.

Appendix 1 – Other statutory considerations

358. In addition to your central statutory considerations for setting or varying TACs and TACCs under the Act (as discussed in section 6), the following statutory considerations are also relevant.

SECTION 5(A) – INTERNATIONAL OBLIGATIONS

359. Section 5(a) says the Act is to be interpreted, and all persons exercising or performing functions, duties, or powers under it are required to act, in a manner consistent with New Zealand's international obligations relating to fishing. As a general principle, where there is a choice in the interpretation of the Act or the exercise of discretion, the decision maker must choose the option that is consistent with New Zealand's international obligations relating to fishing.

360. The two key pieces of international law relating to fishing, and to which New Zealand is a party, are the United Nations Convention on the Law of the Sea, 1982 (UNCLOS) and the United Nations Convention on Biological Diversity 1992 (the CBD). International obligations also derive from New Zealand being a signatory to a number of international conventions of particular relevance are regional fisheries management organisations, Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the Convention on Migratory Species (CMS).

SECTION 5(B) – TREATY OF WAITANGI (FISHERIES CLAIMS) SETTLEMENT ACT 1992

361. The Crown recognises that traditional fisheries are of importance to Maori. It is the Crown's Treaty duty to develop policies to help recognise use and management practices and provide protection for and scope for the exercise of rangatiratanga in respect of traditional fisheries.

362. Section 5(b) says the Act is to be interpreted, and all persons exercising or performing functions, duties, or powers under it are required to act, in a manner consistent with the provisions of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 (the Settlement Act). This obligation furthers the agreements expressed in the Deed of Settlement referred to in the Preamble to the Settlement Act.

363. The development of customary regulations, Iwi Fisheries Forums, and providing for the input and participation of Iwi in fisheries decisions, discussed elsewhere in this paper, are some of the ways in which the obligations in the Settlement Act are given effect to.

SECTION 8 – PURPOSE OF THE FISHERIES ACT 1996

364. Section 8 says the purpose of the Act is to provide for the utilisation of fisheries resources while ensuring sustainability.

365. "Ensuring sustainability" is defined as: "maintaining the potential of fisheries resources to meet the reasonably foreseeable needs of future generations; and avoiding, remedying, or

mitigating any adverse effects of fishing on the aquatic environment". "Utilisation" of fisheries resources is defined as "conserving, using, enhancing, and developing fisheries resources to enable people to provide for their social, economic, and cultural wellbeing."

366. The Supreme Court has stated that the purpose statement incorporates "the two competing social policies reflected in the Act" and that "both policies are to be accommodated as far as is practicable in the administration of fisheries under the quota management system....[I]n the attribution of due weight to each policy that given to utilisation must not be such as to jeopardise sustainability".[22]

SECTION 9 – ENVIRONMENTAL PRINCIPLES

367. Section 9 prescribes three environmental principles that you must take into account when exercising powers in relation to the utilising of fisheries resources or ensuring sustainability.

Principle 1: Associated or dependent species should be maintained above a level that ensures their long-term viability.

368. The Act defines "associated and dependent species" as any non-harvested species taken or otherwise affected by the taking of a harvested species. "Harvested species" is defined to mean any fish, aquatic life or seaweed that may for the time being be taken with lawful authority. So this principle is focussed on species (such as protected species) for which a permission to target commercially cannot be given.

369. The term "long-term viability" (in relation to a biomass level of a stock or species) is defined in the Act as a low risk of collapse of the stock or species, and the stock or species has the potential to recover to a higher biomass level. This principle therefore requires the continuing existence of species by maintaining populations in a condition that ensures a particular level of reproductive success.

370. Where fishing is affecting the viability of associated and dependent species, appropriate measures such as method restrictions, area closures, and potentially adjustments to the TAC of the target stock should be considered.

Principle 2: Biological diversity of the aquatic environment should be maintained.

371. "Biological diversity" is defined in the Act as 'the variability among living organisms, including diversity within species, between species, and of ecosystems'. Determining the level of fishing or the impacts of fishing that can occur requires an assessment of the risk that fishing might cause catastrophic decline in species abundance or cause biodiversity to be reduced to an unacceptable level.

[22] Recreational Fishing Council Inc v Sanford Limited and Ors [2009] NZSC 54 at [39].

Principle 3: Habitat of particular significance for fisheries management should be protected.

372. Habitat is defined in the Oxford Dictionary of English to mean the natural home or environment of an animal, plant or species. In MPI's view, in the fisheries context, this means those waters and substrates necessary for fish to spawn, breed, feed or grow to maturity. These should be protected and adverse effects on them avoided, remedied, or mitigated.

373. The NRLMG notes that rock lobster is taken by potting and hand-gathering fishing methods which have relatively low level of bycatch. The main method that commercial fishers use to target rock lobster is potting, which is considered to have very little direct effect on the aquatic environment.

SECTION 10 – INFORMATION PRINCIPLES

374. Section 10 prescribes four information principles that you must take into account when exercising powers in relation to the utilising of fisheries resources or ensuring sustainability:
    a) Decisions should be based on the best available information;
    b) Decision makers should take into account any uncertainty in the available information;
    c) Decision makers should be cautious when information is uncertain, unreliable, or inadequate; and
    d) The absence of, or any uncertainty in, any information should not be used as a reason for postponing or failing to take any measure to achieve the purpose of the Act.

375. Less than full information suggests caution in decision-making, not deferral of a decision completely. "The fact that a dispute exists as to the basic material upon which the decision must rest, does not mean that necessarily the most conservative approach must be adopted. The obligation is to consider the material and decide upon the weight which can be given it with such care as the situation requires."[23]

376. Both scientific and anecdotal information need to be considered and weighed accordingly when making management decisions. The weighting assigned to particular information is subject to the certainty, reliability, and adequacy of that information.

377. As a general principle, information outlined in the MPI Fishery Assessment Plenary Report is considered the best available information on stock status and should be given significant weighting. The information presented in the Plenary Report is subject to a robust process of scientific peer review and is assessed against the Research and Science Information Standard for New Zealand Fisheries.[24] Corroborated anecdotal information also has a useful role to play in the stock assessment process and in the management process.

[23] *Greenpeace NZ Inc v Minister of Fisheries* (HC, Wellington CP 492/93, 27/11/95, Gallen J) p 32.
[24] A non-binding MPI Policy Document.

378. The NRLMG considers that the best available information has been used as the basis for the proposals in this paper. All science information on which the management proposals are based, has been peer-reviewed by one of MPI's Fisheries Assessment Working Groups and meets the MPI Research and Science Information Standard for New Zealand Fisheries.

SECTION 11 – SUSTAINABILITY MEASURES

379. Section 11(1) allows sustainability measures (such as a TAC) to be set or varied after the following factors are taken into account:

    a) *Any effects of fishing on any stock and the aquatic environment.*
    Rock lobster fishing methods (potting and hand gathering) are thought to have little direct effect on non-target species and the aquatic environment. The levels of incidental catch landed from rock lobster potting were analysed for the period from 1989 to 2003. Non-rock lobster catch landed ranged from 2 to 11% of the estimated catches only, noting it is likely that not all bycatch is reported (only the top five species are required to be reported). The most frequently reported incidental species caught were, in decreasing order of catch across all stocks: octopus, conger eel, blue cod, trumpeter, sea perch, red cod, butterfish and leatherjackets.

    b) *Any existing controls under the Act that apply to the stock or area concerned*.
    A range of management controls apply to the stocks discussed in this paper including minimum legal sizes, daily bag limits for recreational fishers, method restrictions, and protection of egg-bearing females. Amendments to controls for CRA 2 will be considered during 2018 to complement the proposed TAC, allowance, and TACC reductions.

    c) *The natural variability of the stock.*
    Recruitment to rock lobster stocks is highly variable and this was taken into account during the development of options discussed in this paper. Rock lobsters have a long larval life, swimming and drifting in the ocean for 12-15 months. This means that larvae hatched in one area may be retained in that area by local eddy systems, carried to other areas by currents, or lost to New Zealand entirely. For most areas, larvae may originate a considerable distance from the settlement site.

    The number of 'puerulus' larvae that settle to the sea floor varies among areas and from year to year. Puerulus settlement may be affected by environmental factors such as the amount of suitable habitat available, the persistence of storms, prevailing ocean currents, sea temperature, food availability, and predation. Large numbers of puerulus larvae also die before reaching suitable habitat, which is due in part to predation, but may also be a result of unfavourable environmental conditions.

380. Section 11 (2) says that before any sustainability measure is set or varied you must have regard to any provision of any of the following that apply to the coastal marine area and are considered to be relevant:

    a) *Any regional policy statement, regional plan, or proposed regional plan under the Resource Management Act 1991 (RMA).*
    Auckland, Bay of Plenty, Waikato, Gisborne, Hawke's Bay, Manawatu-Wanganui, Greater Wellington, Otago, Southland, and West Coast Councils have regional plans that cover the CRA 2, 4, 7 and 8 rock lobster fisheries. The provisions of these various

documents are of a general nature and contain nothing specific to the fishstocks being reviewed. Provisions from these documents that might be considered relevant are set out in Appendix 4.

b) *Any management strategy or management plan under the Conservation Act 1987.* Conservation Management Strategies are currently in place for Auckland, Waikato, Canterbury, Otago, the West Coast, Southland, and Stewart Island. There are other strategies that cover the relevant rock lobster fisheries but they are being reviewed (e.g. Bay of Plenty and East Coast/Hawke's Bay)[25].

Conservation Management Strategies are required under the Conservation Act 1987 and are developed in accordance with the legislation under which the Department of Conservation (DoC) operates. Conservation management strategies are also recognised under the Resource Management Act 1991. They guide what DOC intends to do, how it will set priorities about what has to be done and how it can respond to requests to use the natural and historic resources it manages. The strategies include objectives, outcome statements and policies. While of general relevance, there is nothing in them specific to the fishstocks being reviewed.

c) *Sections 7 and 8 of the Hauraki Gulf Marine Park Act 2000*.
The CRA 4, 7 and 8 fisheries do not intersect with the Hauraki Gulf Marine Park. However, the boundaries of the CRA 2 Quota Management Area do. The options presented in this paper to decrease the TAC, allowances, and TACC for CRA 2, and therefore rebuild the fishery from its current state of low abundance, are consistent with the relevant sections of the Hauraki Gulf Marine Park Act.

Section 7(1) says the interrelationship between the Hauraki Gulf, its islands and catchments, and the ability of that interrelationship to sustain the life-supporting capacity of the environment of the Hauraki Gulf and its islands are matters of national significance.

Section 7(2) says the life-supporting capacity of the environment of the Gulf and its islands includes the capacity—

a) to provide for—
   (a) the historic, traditional, cultural, and spiritual relationship of the tangata whenua of the Gulf with the Gulf and its islands; and
   (b) the social, economic, recreational, and cultural well-being of people and communities:

b) to use the resources of the Gulf by the people and communities of the Gulf and New Zealand for economic activities and recreation:

c) to maintain the soil, air, water, and ecosystems of the Gulf.

Section 8 says that to recognise the national significance of the Hauraki Gulf, its islands, and catchments, the objectives of management are:

a) the protection and, where appropriate, the enhancement of the life-supporting capacity of the environment of the Hauraki Gulf, its islands, and catchments:

b) the protection and, where appropriate, the enhancement of the natural, historic, and physical resources of the Hauraki Gulf, its islands, and catchments:

[25] Published conservation management strategies can be found here: www.doc.govt.nz/about-us/our-policies-and-plans/statutory-plans/statutory-plan-publications/conservation-management-strategies/

c) the protection and, where appropriate, the enhancement of those natural, historic, and physical resources (including kaimoana) of the Hauraki Gulf, its islands, and catchments with which tangata whenua have an historic, traditional, cultural, and spiritual relationship:

d) the protection of the cultural and historic associations of people and communities in and around the Hauraki Gulf with its natural, historic, and physical resources:

e) the maintenance and, where appropriate, the enhancement of the contribution of the natural, historic, and physical resources of the Hauraki Gulf, its islands, and catchments to the social and economic well-being of the people and communities of the Hauraki Gulf and New Zealand:

f) the maintenance and, where appropriate, the enhancement of the natural, historic, and physical resources of the Hauraki Gulf, its islands, and catchments, which contribute to the recreation and enjoyment of the Hauraki Gulf for the people and communities of the Hauraki Gulf and New Zealand.

ca) *Regulations made under the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012.*
The NRLMG is not aware of any specific matters in the regulations made under this 2012 Act that are relevant to the TAC proposals set out in this paper.

d) *Any planning document lodged with you by a customary marine title group under section 91 of the Marine and Coastal Area (Takutai Moana) Act 2011.*
There are numerous applications that have been made under section 91 of the Marine and Coastal Area (Takutai Moana) Act 2011 and the majority of these are still being processed.

381. Section 11 (2A) says that before any sustainability measure is set or varied you must take into account:
    a) Any conservation services or fisheries services;
    b) Any relevant fisheries plan approved under this Part; and
    c) Any decisions not to require conservation services or fisheries services.

382. Services of particular relevance to the decisions in this paper relate to programmed research used to monitor rock lobster stock abundance and develop management procedures. To date national fisheries plans have been approved only for deepwater and highly migratory species, and not rock lobster.

SECTION 12 – CONSULTATION AND INPUT AND PARTICIPATION OF TANGATA WHENUA

383. Section 12(1) says that before setting or varying any sustainability measure under the Act you are required to:
    - Consult with those classes of persons having an interest in the stock or the effects of fishing on the aquatic environment in the area concerned, including, but not limited to, Māori, environmental, commercial and recreational interests; and

- Provide for the input and participation of tangata whenua having a non-commercial interest in the stock concerned or an interest in the effects of fishing on the aquatic environment in the area concerned; and have particular regard to kaitiakitanga.

384. The Act defines Kaitiakitanga to mean "the exercise of guardianship; and, in relation to any fisheries resources, includes the ethic of stewardship based on the nature of the resources, as exercised by the appropriate tangata whenua in accordance with tikanga Māori", where tikanga Māori refers to Māori customary values and practices.

385. Iwi Fisheries Forums and Forum Fisheries Plans are ways in which input and participation of tangata whenua can be provided for. Information provided by Forums and tangata whenua views on the management of fisheries resources and fishstocks set out in Iwi Fisheries Plans express how tangata whenua exercise kaitiakitanga in respect of the stocks and areas in this sustainability round.

386. Rock lobster (koura) is a taonga species for tangata whenua. Koura are listed as a taonga species in the Te Waipounamu Iwi Forum Fisheries Plan. That plan contains three objectives which are relevant to the management options proposed for CRA 7 and 8:
    a) Management objective 1: to create thriving customary non-commercial fisheries that support the cultural wellbeing of South Island Iwi and our whānau;
    b) Management objective 3: to develop environmentally responsible, productive, sustainable and culturally appropriate commercial fisheries that create long-term commercial benefits and economic development opportunities for South Island Iwi; and
    c) Management objective 5: to restore, maintain and enhance the mauri and wairua of fisheries throughout the South Island.

387. The NRLMG considers that the management options presented in this advice paper will contribute towards the achievement of these three management objectives in ensuring that appropriate allowances are made for customary non-commercial fishing, the fishery remains sustainable and that environmental impacts are minimised.

388. The Mai i nga Kuri a Wharei ki Tihirau Forum (the Bay of Plenty Iwi Fisheries Forum) have been involved in discussions about the future management of the CRA 2 fishery. Iwi that are represented at the Forum include: Ngai Te Rangi; Ngāti Ranginui; Ngāti Pukenga; Te Arawa; Ngāti Tuwharetoa ki Kawerau; Ngāti Manawa; Ngāti Whare; Whakatohea; Te Upokorehe; Ngāti Awa; Ngāitai; and Ngāti Rangitihi.

389. Te Ohu Kaimoana also supports relevant Iwi commercial and non-commercial interests to provide feedback on rock lobster proposals each year. In particular, Te Ohu Kaimoana have recently provided the Mai i nga Kuri a Wharei ki Tihirau Forum with support on the review of the CRA 2 fishery and have also encouraged other Iwi that are not part of the Forum to participate in CRA 2 engagement opportunities.

390. The proposals to consult on CRA 7 and 8 were presented to Te Waka a Māui me Ōna Toka Iwi Forum in November 2017 and they were supportive of the proposals for these fisheries. The Te Waka a Māui me Ōna Toka Iwi Forum represents all nine Iwi of the South Island, each holding mana moana and significant interests (both commercial and non-commercial) in South Island fisheries. In addition, a Te Waka a Māui me Ōna Toka Iwi Forum representative is a member of the NRLMG who directly inputs into decision-making on behalf of South Island tangata whenua.

391. Section 12 (2) says that as soon as practicable after setting or varying any sustainability measure, you shall give the persons consulted under 12(1), the reasons in writing for your decisions.

SECTION 75 – DEEMED VALUE RATES

392. Deemed values are charges commercial fishers must pay for every kilogram of stocks landed in excess of their Annual Catch Entitlement (ACE) holdings. The purpose of the deemed value framework is to encourage commercial fishers to balance their catch with ACE.

393. Under section 75 of the Act, you must set annual and interim deemed value rates for all stocks managed in the Quota Management System and may vary such rates, after considering specific matters. Any deemed value set takes effect from the first day of the next fishing year for the stock concerned. The annual deemed value rate must be greater than the interim deemed value rate.

394. The interim deemed value rate for all rock lobster stocks (including CRA 2, 4, 7 and 8) is currently set at 90% of the annual deemed value rate. As the current interim and annual deemed value rates are consistent with the Deemed Value Guidelines[26], no changes are proposed to the deemed value rates for any rock lobster stocks, as outlined in Table A.1.

Table A.1: Standard Deemed Value Rates ($/kg) for all rock lobster stocks.

Interim Rate ($/kg)	Annual Differential Rates ($/kg) for excess catch (% of ACE)					
	100-120%	120-140%	140-160%	160-180%	180-200%	200%+
99.00	110.00	132.00	154.00	176.00	198.00	220.00

[26] Available at www.mpi.govt.nz/document-vault/3663

Appendix 2 – Submissions received on MPI Discussion Document

See attached document.

Appendix 3

National Rock Lobster Management Group
Terms of Reference

1. Background

The National Rock Lobster Management Group (NRLMG) is a national-level, multi-stakeholder group comprising representatives of the customary, recreational and commercial fishing sectors and the Ministry for Primary Industries (MPI).

Since its formation in 1992, the NRLMG has been the primary source of advice to MPI (formerly the Ministry for Fisheries) and the relevant Minister on New Zealand's rock lobster fisheries. The NRLMG has a good track record in providing robust advice on rock lobster sustainability measures (including total allowable catch reviews and management procedure development).

2. Purpose

The purpose of the NRLMG is to:

a) Provide formal engagement opportunities between representatives of the customary, recreational and commercial fishing sectors and MPI on management of New Zealand's rock lobster fisheries; and

b) Provide the Minister for Primary Industries and/or MPI with good quality, ongoing, advice relating to fisheries management decision making processes, including operational fisheries planning processes, for rock lobster.

3. Scope

The NRLMG will act as a primary advisor to the Minister for Primary Industries and/or MPI on catch limit, regulatory and other management actions that apply specifically to rock lobster fisheries.

When management actions have impacts on fisheries beyond rock lobster, the NRLMG will have an opportunity to provide expert rock lobster input into existing processes (e.g. relating to spatial matters, including aquaculture, mataitai reserves, marine protected areas and marine reserve proposals).

The NRLMG will not be used as a substitute for statutory consultation.

4. Deliverables

The NRLMG is responsible for:

a) Providing advice on

   i. Catch limit, regulatory and other management actions that apply specifically to rock lobster and will,

      - Ensure the use of best available information
      - Develop initial advice

- Prepare final advice
- Advise the Minister directly,

ii. Management actions that have impacts on fisheries beyond rock lobster and will,
- Provide expert rock lobster input into existing process

b) Providing well informed, credible and consistent rock lobster management information and advice to sector groups, government agencies and Ministers

c) Identifying rock lobster management issues

d) Disseminating information to constituencies and representing the views of their constituencies on rock lobster management matters

e) Contributing to key MPI fisheries management processes, in particular to operational fisheries and research planning processes.

5. Governance

The Independent Chairperson will:

a) Chair NRLMG meetings

b) Ensure good governance of the NRLMG

c) Work with the secretariat and the NRLMG to ensure meetings, setting of agendas and information distribution to the NRLMG occurs effectively.

MPI will:

a) Provide a secretariat to support the chair and operation of the NRLMG

b) Provide information and other resources where necessary to ensure NRLMG members are able to effectively participate and contribute to the functions of the NRLMG

c) Ensure the NRLMG is kept up to date, in a timely manner, on relevant MPI activities and issues.

6. Decision Making

a) When the NRLMG is:

i. developing advice for catch limit, regulatory and other management actions that apply specifically to rock lobster

ii. providing expert advice on management actions that have impacts on fisheries beyond rock lobster

iii. providing input into research planning, and/or

iv. providing input into MPI's shellfish fisheries planning processes,

the aim of the NRLMG is to reach an agreed position. Where agreement cannot be reached, alternative options can be put forward. Alternatively, the NRLMG can choose not to make a recommendation in that instance.

b) The NRLMG is not a substitute for statutory consultation. Therefore, sectors represented on the NRLMG can make independent submissions to statutory consultation processes.

c) It is recognised that MPI is a member of the NRLMG and also has statutory obligations to advise the Minister in accordance with the Fisheries Act 1996. The aim is to include MPI's

position in NRLMG advice, but there may be occasions when MPI may need to provide independent advice to the Minister.

7. Membership

Membership of the NRLMG will include:

a) Independent Chairperson

   i. The independent chairperson may be external or internal to the rock lobster fishery and may or may not have past affiliations to a sector.

   ii. The independent chairperson will be appointed for a term of three years.

b) Sector Membership

   This will include two members each from tangata whenua, the recreational fishing sector and the commercial fishing sector. In respect to this membership,

   i. Tangata whenua membership will ideally be filled by persons nominated by Iwi. However, it is recognised that Iwi may not yet be in a position to nominate and provide such membership to the NRLMG. Until Iwi decide otherwise, Te Ohu Kaimoana will continue to provide sector representation.

   ii. The aim is for tangata whenua membership to be cognisant of, and integrate, the full suite of harvesting rights held by Maori.

   iii. Recreational membership will be nominated and provided for by the New Zealand Recreational Fishing Council (NZ RFC) until broad amateur representation at a national level is resolved.

   iv. Commercial membership will be nominated and provided for by the New Zealand Rock Lobster Industry Council (NZ RLIC).

   v. Sector members will be appointed for a term of three years.

c) MPI Membership

   This will include one member each from the Inshore Fisheries Management and Science business groups, and expert advisors from the Compliance and Response business group. In respect to this membership:

   i. Inshore Fisheries Management and Science members will be full members of the NRLMG and be required to attend all meetings

   ii. Compliance and Response expert advisor attendance at meetings will be as required by agenda items under discussion.

From time to time the NRLMG may request input from Expert Advisors. This includes expert advisors on stock assessment, biology and behaviour, economic, social and cultural topics. These participants will not be considered members of the NRLMG.

The NRLMG will confirm the need for, and role of such expert input in advance and invitations will be issued to expert advisors at the discretion of the Chair.

8. Operating Arrangements

The general arrangements for operating the NRLMG will include the following.

Within available sector resources, members are responsible for:

a) Seeking the views of their constituents and for explaining to their constituents how their advice/input was used and how/why decisions were taken in the Group
b) Attending all meetings or providing an agreed-to alternate
c) Following up on all agreements and tasks (e.g. meeting information deadlines and providing support on Group outcomes)
d) Ensuring 'work in-progress' is 'shared in confidence' until there is agreement by the Group to distribute it outside
e) Respecting and supporting consensus decisions, including when engaging with the public/constituents outside of the NRLMG.

Participants will:

a) Share accountability for the success of the process
a) Commit to participation
b) Engage in the process in good faith
c) Commit to engage constructively
d) Show a willingness to work to build consensus
e) Show respect for the views of others
f) Ensure that issues that are outside of the Group's mandate and capability will not hinder discussion of fisheries management issues.

9. Communication

a) Any public communication of the NRLMG will be through prior agreement (majority consensus) of the NRLMG (i.e. articles and statements will be circulated for sign-off by NRLMG members prior to publication).
b) Individual NRLMG members cannot speak for the NRLMG without the prior approval of the NRLMG.

10. Administration

The secretariat role is to:

a) Organise meetings
b) Work with the chair to prepare meeting agendas
c) Draft meeting minutes
d) Organise travel and accommodation (if required) for recreational sector members (the costs of participation of commercial and Te Ohu Kaimoana members in meetings is covered by each sector organisation. However, if tangata whenua membership is nominated by Iwi in the future, MPI will consider funding travel and accommodation for these members)
e) Manage NRLMG documents
f) Coordinate advice and write analytical papers for the NRLMG
g) Prepare drafts arising out of NRLMG discussions

h) Provide and/or coordinate a range of papers that can be used by the NRLMG as an input into their discussions
i) Liaise with the Chair, the Minister's office and MPI staff
j) Maintain communication with NRLMG members
k) Provide updates and briefings to fishing sector groups (as required)
l) Provide appropriate administrative support to members.

Appendix 4 – Extracts from Resource Management Act 1991 (RMA) Documents

AUCKLAND UNITARY PLAN

Section B6 – Mana Whenua

Section B6.3.2 of the Auckland Unitary Plan states its policy to:

"Provide opportunities for Mana Whenua to be involved in the integrated management of natural and physical resources in ways that do all of the following:

(a) Recognise the holistic nature of the Mana Whenua world view;

(b) Recognise any protected customary right in accordance with the Marine and Coastal Area (Takutai Moana) Act 2011; and

(c) Restore or enhance the mauri of freshwater and coastal ecosystems."

Section B7 – Natural Resources

Section B7.1 of the Auckland Unitary Plan notes that the combination of urban growth and past land, coastal and freshwater management practices have placed increasing pressure on land and water resources including habitats and biodiversity.

Section B7.7 of the Auckland Unitary Plan states that:

> Coastal and marine ecosystems are also subject to change, damage or destruction from inappropriate subdivision, use and development, as well as natural processes. Areas containing threatened ecosystems and species require effective management to protect them, and enhance their resilience which is important for the long-term viability of indigenous biodiversity and to help respond to the potential effects of climate change. Effectively addressing these issues requires a combination of regulatory and voluntary efforts.
>
> Areas of high ecological value have been identified as significant ecological areas using significance factors set out in the schedules of the Unitary Plan. (See Schedule 3 Significant Ecological Areas – Terrestrial Schedule and Schedule 4 Significant Ecological Aras – Marine Schedule.) The coastal marine area has not yet been comprehensively surveyed for the purpose of identifying marine significant ecological areas. Those that have been identified may under-represent the extent of significant marine communities and habitats present in the sub-tidal areas of the region. It is important that both areas be considered together because of the dynamic and interconnected nature of coastal environments and because the classes may change over time as more knowledge is gained and as pressures on receiving environments change. There is evidence that even moderate levels of degradation can result in ecosystem level changes, and it is not yet known how reversible these changes might be.

Section B8 – Coastal Environment

Section B8.3.2 of the Auckland Unitary Plan lists policies for use and development, including:

Provide for use and development in the coastal marine area that:

(a) Have a functional need which requires the use of the natural and physical resources of the coastal marine area;

(b) Are for the public benefit or public recreation that cannot practicably be located outside the coastal marine area;

(c) Have an operational need making a location in the coastal marine area appropriate and that cannot practicably be located outside the coastal marine area; or

(d) Enable the use of the coastal marine area by Mana Whenua for Māori cultural activities and customary uses.

Section B8.6 summarises the reasons of adopting the proposed policies, including:

(a) The coastal environment and the resources of the coastal marine area comprise some of the most important taonga to Mana Whenua, who have a traditional and on-going cultural relationship with the coast;

(b) Auckland's richly varied coastal environment is a finite resource with high environmental, social, economic and cultural values. Its coasts and harbours are among its most highly valued natural features. It is the location of New Zealand's largest commercial port and international airport. The marine industry, transport and aquaculture activities all contribute to social and economic well-being;

(c) The coastal marine area also provides a range of ecosystem services, including providing food, assimilating discharges from land into coastal waters and enabling a range of coastal uses that support the economic well-being of people and communities; and

(d) Promoting use and development that provides for social and economic opportunities while avoiding further degradation of the marine environment of the Gulf (see Section B8.5 below).

Section B8.5. Managing the Hauraki Gulf/Te Moana Nui o Toi/Tīkapa Moana

Section B8.5 lists objectives and policies provide guidance on giving effect to the Hauraki Gulf Marine Park Act (HGMPA).

Objectives include:

1. The management of the Hauraki Gulf gives effect to sections 7 and 8 of the Hauraki Gulf Marine Park Act 2000;
2. Use and development supports the social and economic well-being of the resident communities of Waiheke and Great Barrier islands, while maintaining or, where appropriate, enhancing the natural and physical resources of the islands;
3. Economic well-being is enabled from the use of the Hauraki Gulf's natural and physical resources without resulting in further degradation of environmental quality or adversely affecting the life-supporting capacity of marine ecosystems.

Policies include:

Integrated management

1. Encourage and support the restoration and enhancement of the Hauraki Gulf's ecosystems, its islands and catchments;
2. Require the integrated management of use and development in the catchments, islands, and waters of the Hauraki Gulf to ensure that the ecological values and life-supporting capacity of the Hauraki Gulf are protected, and where appropriate enhanced;
3. Require applications for use and development to be assessed in terms of the cumulative effect on the ecological and amenity values of the Hauraki Gulf, rather than on an area-specific or case-by-case basis;
4. Maintain and enhance the values of the islands in the Hauraki Gulf;
5. Avoid use and development that will compromise the natural character, landscape, conservation and biodiversity values of the islands, particularly in areas with natural and physical resources that have been scheduled in the Unitary Plan in relation to natural heritage, Mana Whenua, natural resources, coastal, historic heritage and special character;
6. Promote the restoration and rehabilitation of natural character values of the islands of the Hauraki Gulf;
7. Ensure that use and development of the area adjoining conservation islands, regional parks or Department of Conservation land, does not adversely affect their scientific, natural or recreational values;
8. Enhance opportunities for educational and recreational activities on the islands of the Hauraki Gulf if they are consistent with protecting natural and physical resources, particularly in areas where natural and physical resources have been scheduled in the Unitary Plan in relation to natural heritage, Mana Whenua, natural resources, coastal, historic heritage and special character;
9. Identify and protect areas or habitats, particularly those unique to the Hauraki Gulf, that are:
    a. significant to the ecological and biodiversity values of the Hauraki Gulf; and
    b. vulnerable to modification;
10. Work with agencies and stakeholders to establish an ecological bottom line, or agreed target, for managing the Hauraki Gulf's natural and physical resources which will do all of the following:
    a. provide greater certainty in sustaining the Hauraki Gulf's ongoing life-supporting capacity and ecosystem services;
    b. assist in avoiding incremental and ongoing degradation;
    c. co-ordinate cross-jurisdictional integrated management and effort to achieve agreed outcomes;
    d. better measure the success of protection and enhancement initiatives;
    e. assist in establishing a baseline for monitoring changes;
    f. enable better evaluation of the social and economic cost-benefits of management; and
    g. provide an expanded green-blue network linking restored island and mainland sanctuaries with protected, regenerating marine areas where the ecological health and productivity of the marine area will be enhanced.

Providing for the relationship of Mana Whenua with the Hauraki Gulf

11. Work in partnership with Mana Whenua to protect and enhance culturally important environmental resources and values of the Hauraki Gulf that are important to their traditional, cultural and spiritual relationship with the Hauraki Gulf.
12. Incorporate mātauranga Māori with western knowledge in establishing management objectives for the Hauraki Gulf.
13. Require management and decision-making to take into account the historical, cultural and spiritual relationship of Mana Whenua with the Hauraki Gulf, and the ongoing capacity to sustain these relationships.

Maintaining and enhancing social, cultural and recreation values

14. Identify and protect the natural and physical resources that have important cultural and historic associations for people and communities in and around the Hauraki Gulf.
15. Identify, maintain, and where appropriate enhance, areas of high recreational use within the Hauraki Gulf by managing water quality, development and potentially conflicting uses so as not to compromise the particular values or qualities of these areas that add to their recreational value.
16. Encourage the strategic provision of infrastructure and facilities to enhance public access and recreational use and enjoyment of the Hauraki Gulf.

Providing for the use of natural and physical resources, and for economic activities

17. Provide for commercial activities in the Hauraki Gulf and its catchments while ensuring that the impacts of use, and any future expansion of use and development, do not result in further degradation or net loss of sensitive marine ecosystems.
18. Encourage the strategic provision of infrastructure and facilities that support economic opportunities for the resident communities of Waiheke and Great Barrier islands.
19. Promote economic development opportunities that complement the unique values of the islands and the Hauraki Gulf.

Section D9 – Significant Ecological Areas

Significant Ecological Areas – Marine are identified areas of significant indigenous vegetation or significant habitats of indigenous fauna located in the coastal marine area. Policies for managing these areas include:

Manage the adverse effects of use and development on the values of Significant Ecological Areas – Marine, taking into account all of the following:

(a) The extent to which existing use and development already, and in combination with any proposal, impacts on the habitat, or impedes the operation of ecological and physical processes;

(b) The extent to which there are similar habitat types within other Significant Ecological Areas – Marine in the same harbour or estuary or, where the significant ecological area - marine is located on open coast, within the same vicinity; and

(c) Whether the viability of habitats of regionally or nationally threatened plants or animals is adversely affected, including the impact on the species population and location.

GISBORNE DISTRICT COUNCIL – **THE TAIRĀWHITI RESOURCE MANAGEMENT PLAN**

Section B4.4 – Activities in the coastal marine environment can inhibit natural processes and degrade the ability of natural features and resources to sustain life

The Tairāwhiti Resource Management Plan includes a policy to "avoid, remedy or mitigate the effects of activities which have an adverse effect on biological diversity and ecosystem integrity." The plan also mentions the importance of sedimentation and its negative impact on the coastal environment

Section C3.6 – Tangata Whenua

Under Policy 7, the Plan notes that:

> The RMA does not address Fisheries issues which are dealt with under the Fisheries Act or the Marine Reserves Act. Council may, however, advocate for the protection of special areas in the Coastal Marine Area that support traditional fishing or food gathering areas to the responsible agencies on behalf of or in conjunction with Iwi or hapu authorities,
>
> This policy is designed to recognise this advocacy role and supports Objective C3.6.2(3), which is to "maintain the integrity of the relationship of Māori with their culture, traditions, ancestral lands, and other resources."

HAWKE'S BAY REGIONAL COUNCIL COASTAL ENVIRONMENTAL PLAN

Section 4 – Indigenous species and habitats

The Hawke's Bay Regional Council Coastal Environmental Plan includes a policy to "ensure adverse effects on ecological systems (including natural movement of biota, natural biodiversity, productivity and biotic patterns) are avoided, including adverse effects on:

(a) fishing grounds;
(b) shell fish areas;
(c) fish spawning and nursery areas;
(d) bird breeding and nursery areas;
(e) fish and bird migration;
(f) feeding patterns;
(g) habitats' importance to the continued survival of any indigenous species;
(h) wildlife and indigenous marine biota;
(i) dune systems; and
(j) the intrinsic values of ecosystems."

HORIZONS REGIONAL COUNCIL ONE PLAN

The Horizons One Plan includes the Regional Coastal Plan for the Manawatu-Wanganui region. Section 18 details activities in the coastal marine area.

Section 18.9 – Disturbances, Removal and Deposition

Section 18.9 of the One Plan contains the following policy on consent decision-making for activities involving disturbance, removal or deposition:

When making decisions on resource consent applications and setting consent conditions for activities involving the disturbance of the foreshore or seabed, the deposition of substances in, on or under the foreshore or seabed, or the removal of any sand, shell, shingle or other natural materials from the CMA, the Regional Council must have regard to:

(a) The Regional Policy Statement, particularly all the objectives and policies of Chapters 2 and 8, Objective 3-1 and Policies 3-1, 3-2, 3-3, 3-6 and 3-7, Objectives 6-2 and 6-3, and Policies 6-6 and 6-11, Objective 9-1 and Policies 9-3 to 9-5 [of the Plan] and any relevant policies in the NZCPS;

(b) The applicable Water Management Zone or Sub-zone and the relevant water quality Values and targets in Schedule I;

(c) Avoiding any restrictions on public access, other than for commercial, safety, cultural or conservation purposes, or to ensure a level of security appropriate for activities authorised by a resource consent, and any adverse effects on natural character and any known and publicly used shellfish beds;

(d) Any effects on any feeding, breeding, spawning, nesting or roosting areas;

(e) Avoiding as far as reasonably practicable, any resultant adverse effects on coastal erosion, the risk of inundation, the stability of banks or foreshore, or flood control structures;

(f) Avoiding any adverse effects on tikanga Māori or on historic heritage, and avoiding, remedying or mitigating any adverse effects on any characteristic identified within any Protection Activity Management Area set out in Table I.1 [of the Plan];

(g) Mitigating any adverse effects on recreational and amenity values;

(h) Ensuring, where non-marine material is being deposited within the CMA, that it is does not contain any hazardous substances or commercial or household wastes; and

(i) Where the removal of sand, shingle, shell or other natural materials is for commercial purposes, the available alternatives to the applicant's proposal and the applicant's reason for making the proposed choice.

BAY OF PLENTY REGIONAL COASTAL ENVIRONMENTAL PLAN

Section 19 – Recreation

The Bay of Plenty Regional Coastal Environmental Plan notes that "Recreational use of the coastal environment is increasing and has the potential to cause conflict, competition and adverse environmental effects."

To fulfil the objective of "appropriate recreation within the Bay of Plenty coastal environment", the Plan includes the following policies:

(a) To recognise the recreational values of the Bay of Plenty coastal marine area as being of national significance. Effects on those values shall be avoided as far as practicable, and where avoidance is not practicable, remedied or mitigated;

(b) To minimise the effects of active water sports on other more passive recreational activities, on adjacent activities or uses on land and on indigenous wildlife;

(c) To discourage the proliferation of commercial, recreational or tourist activities where they would unduly interfere with public access to and recreational use of the coastal marine area. Care must be taken to ensure that existing recreational opportunities and public access are not progressively lost through the cumulative impact of new development;

(d) To promote provision of the appropriate land-based infrastructure to support recreational activities within the coastal environment while ensuring minimal adverse effects associated with such facilities;

(e) To avoid, remedy or mitigate any significant adverse environmental effects of recreation.

REGIONAL PLAN: COAST FOR OTAGO

Chairperson's foreword

This Plan has been formulated to protect and sustain the region's coastal resources. It covers the Otago coastal marine area, which comprises the part of the coast between the mean high water spring and 12 nautical miles (22.2 kilometres) out to sea.

How to use the Regional Plan: Coast for Otago

This Regional Plan: Coast for Otago considers the use, development and protection of the coastal marine area of Otago and issues associated with that use, development and protection.

Section 1.1: Purpose of the Plan

The purpose of this Plan is to provide a framework for the integrated and sustainable management of Otago's coastal marine area.

REGIONAL COASTAL PLAN FOR SOUTHLAND

Section 1.2 – Principal Reasons

The principal reasons for adopting the objectives, policies and methods of implementation in this Plan, are:

(a) To promote the sustainable management of the coastal marine area;

(b) To minimise conflicts between the users of the coastal marine area;

(c) To provide for the communities social, economic and cultural wellbeing; and

(d) To maintain, or enhance the opportunity for future generations to enjoy and utilise the coast.

REGIONAL COASTAL PLAN FOR WAIKATO

Section 3.4 – Protection of Coastal Processes

3.4.3 Policy - Biodiversity

Ensure the protection of biodiversity, the inter-relatedness of coastal ecology, and the natural movement of biota within the coastal marine area.

Section 13.1 – Integrated Management Across Boundaries

13.1.2 Policy – Coastal Environmental Inter-Relationships

When managing the use, development and protection of the coastal environment, provide for:

(a) The interconnected nature of the coastal environment; and

(b) The inter-relationships between natural and physical resources; and

(c) The potential for adverse effects to occur; and

(d) The range of social, cultural and economic values within the Region.

Section 17.2 – Natural Character, Habitat and Coastal Processes

17.2.3 – Consultation with the Ministry of Fisheries

Environment Waikato, in conjunction with the Ministry of Fisheries, will advocate management practices to resource users harvesting marine life that:

(a) Do not adversely affect significant or extensive areas of indigenous vegetation and habitat of indigenous fauna;

(b) Avoid sensitive inshore areas; and

(c) Ensure marine ecosystems and fish stock are managed sustainably.

REGIONAL COASTAL PLAN FOR THE WELLINGTON REGION

Section 4 – General Objectives and Policies

The Regional Coastal Plan for the Wellington Region contains the following Environmental Objectives:

(a) The intrinsic values of the coastal marine area and its components are preserved and protected from inappropriate use and development;

(b) People and communities are able to undertake appropriate uses and developments in the coastal marine area which satisfy the environmental protection policies in the plan, including activities which:

  (i) rely on natural and physical resources of the coastal marine area; or
  (ii) require a coastal marine area location; or
  (iii) provide essential public services; or
  (iv) avoid adverse effects on the environment; or
  (v) have minor adverse effects on the environment, either singly or in combination with other users; or
  (vi) remedy or mitigate adverse effects on the environment and provide a net benefit to the environment;

(c) The adverse effects that new activities may have on existing legitimate activities in the coastal marine area are avoided, remedied or mitigated as far as is practicable;

(d) Land, water and air in the coastal marine area retains its life supporting capacity;

(e) The natural character of the coastal marine area is preserved and protected from inappropriate use and development;

(f) Important ecosystems and other natural and physical resources in and adjacent to the coastal marine area are protected from inappropriate use and development;

(g) Public health is not endangered through the effects of previous, present or future activities in the coastal marine area;

(h) Public access along and within the coastal marine area is maintained and enhanced;

(i) Amenity values in the coastal marine area are maintained and enhanced.

Section 16 – Principal reasons for Objectives, Policies and Methods

Section 16 of the Plan states that:

> The objectives and policies acknowledge the need to protect important characteristics and values of the coastal marine area. They also recognise that the coastal marine area is an important location for many activities, some of which are dependent on this particular location. These activities are important for the economic well-being of the Wellington Region, and to enable people to fulfil their social desires to use the coastal marine area.

Appendix 2 – Areas of Significant Conservation Value

Castlepoint is identified in the Plan as an Area of Significant Conservation Value in the Plan, due to:

a) Scientific, wildlife, geological, scenic, natural and conservation values;

b) Naturally vegetated and fragile coastal vegetation containing rare plant species (including *Brachyglottis compacta*);

c) A habitat for sea mammals and breeding ground for bird species. An internationally significant crayfish (*Jasus edwardsi*) larvae *(puerulus*) population; and

d) Outstanding scenic values and an important physical and geological landscape.

REGIONAL PLAN FOR THE WEST COAST

Chairman's foreword

The Regional Coastal Plan will enable Council to sustainably manage activities in the coastal marine area of the region. The coastal area covered by this Plan has important ecological, economic, social and cultural values for local communities and visitors, while also being a dynamic environment subject to natural hazards. This Plan is intended to both enable low impact activities to be carried out as well as managing other uses with greater impacts, by way of regulatory and non-regulatory methods, in order to sustain the values associated with the coastal marine area.

Section 6.1 – Cross Boundary Issues

Objectives include:

To avoid, remedy or mitigate, cross boundary adverse effects arising from activities in the coastal marine area.