



Review of Rock Lobster Sustainability Measures for 2020/21

Final Advice Paper

Prepared by the National Rock Lobster Management Group

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Requests for further copies should be directed to:

Publications Logistics Officer
Fisheries New Zealand
PO Box 2526
WELLINGTON 6140

Email: brand@mpi.govt.nz
Telephone: 0800 00 83 33
Facsimile: 04-894 0300

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Red or spiny rock lobster¹ (CRA 1, CRA 3, CRA 4, CRA 7, and CRA 8)
Jasus edwardsii, kōura, crayfish

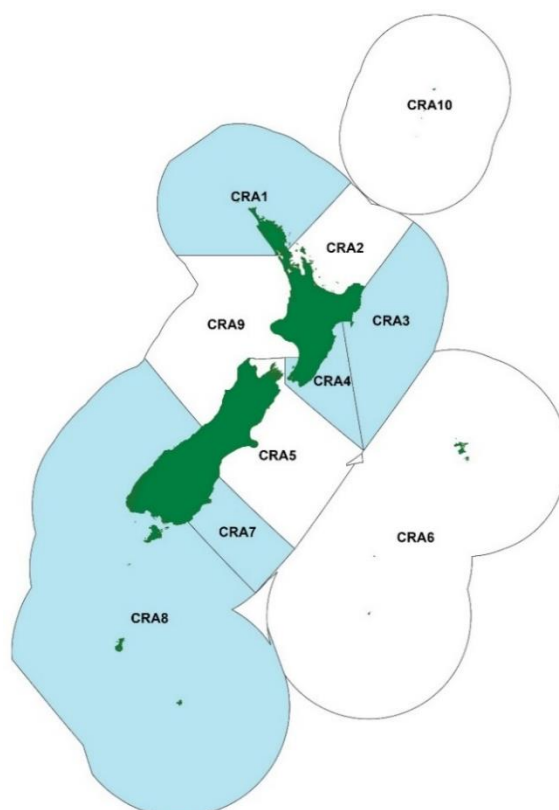


Figure 1: Map of rock lobster Quota Management Areas, showing stocks under review in blue.

1 Summary

1. The National Rock Lobster Management Group (NRLMG) asks you to make decisions on sustainability measures for five rock lobster stocks from 1 April 2020: CRA 1 (Northland), CRA 3 (Gisborne), CRA 4 (Wellington/Hawke's Bay), CRA 7 (Otago), and CRA 8 (Southern) (Figure 1).
2. The proposals presented in this paper are based on new stock assessment information, or the results from the operation of management procedures. Management procedures are designed to set a Total Allowable Catch (TAC) that maintains the stock at or above a level that can produce the maximum sustainable yield (MSY).
3. Rock lobster (kōura) is a taonga species for tangata whenua. It is a popular species for recreational fishers to catch, and supports a valuable export market and regionally important industries. Given this importance, the NRLMG's management goal is for all rock lobster fisheries "to be managed and maintained at or above agreed reference levels, using a comprehensive approach that recognises a range of customary Māori, recreational, commercial, and environmental concerns and values".
4. Table 1 provides an overview of the final proposals for each rock lobster stock under review. In summary:
 - Reduce the CRA 1 catch settings or formally acknowledge voluntary shelving of Annual Catch Entitlement (ACE), based on the results of a new stock assessment;
 - Reduce the CRA 3 catch settings based on the results of a new stock assessment;

¹ Hereafter referred to as rock lobster.

- Make no change to the CRA 4 catch settings as a cautious approach, despite the CRA 4 management procedure recommending an increase;
- Increase the CRA 7 and CRA 8 catch settings based on the operation of management procedures; and
- Make no change to the Māori customary non-commercial allowances for any stock.

Table 1: Total Allowable Catch (TAC), allowance and Total Allowable Commercial Catch (TACC) final proposals (in tonnes) for CRA 1, CRA 3, CRA 4, CRA 7, and CRA 8.

Options: *New* - added post consultation; *SA* – based on a new stock assessment, and *MP*: based on the operation of a management procedure.

Stock	Option	TAC	TACC	Allowances			NRLMG support
				Māori customary	Recreational	Other mortality	
CRA 1 Northland	Option 1.1 Status quo	273.062	131.062	20	50	72	x
	Option 1.2 – SA	203 ↓ (26%)	110 ↓ (16%)	20	32 ↓ (36%)	41 ↓ (43%)	✓ Recreational (primary position) Fisheries NZ
	Option 1.3 – New, SA	224.062 ↓ (18%)	131.062 (↓ 16% via ACE shelving)	20	32 ↓ (36%)	41 ↓ (43%)	✓ Tangata whenua & Commercial
	Option 1.4 – New, SA	242.062 ↓ (11%)	131.062 (↓ 16% via ACE shelving)	20	50	41 ↓ (43%)	✓ Recreational (secondary position)
CRA 3 Gisborne	Option 3.1 Status quo	351.9	222.9	20	20	89	x
	Option 3.2 – SA	303 ↓ (14%)	195 ↓ (13%)	20	13 ↓ (35%)	75 ↓ (16%)	✓ Tangata whenua, Commercial & Fisheries NZ
	Option 3.3 – New, SA	310 ↓ (12%)	195 ↓ (13%)	20	20	75 ↓ (16%)	✓ Recreational
CRA 4 Wellington /Hawke's Bay	Option 4.1 Status quo	513.8	318.8	35	85	75	✓ All
	Option 4.2 – MP	569.4 ↑ (11%)	374.4 ↑ (17%)	35	85	75	x
CRA 7 Otago	Option 7.1 Status quo	117	97	10	5	5	✓ Recreational
	Option 7.2 – MP	146.9 ↑ (26%)	126.9 ↑ (31%)	10	5	5	✓ Tangata whenua & Commercial
	Option 7.3 – New, MP	126.2 ↑ (8%)	106.2 ↑ (9.5%)	10	5	5	✓ Fisheries NZ
CRA 8 Southern	Option 8.1 Status quo	1220.6	1129.6	30	33	28	x
	Option 8.2 – MP	1282.7 ↑ (5%)	1191.7 ↑ (5%)	30	33	28	✓ All

2 NRLMG recommendations

5. The NRLMG has acted as the primary advisor to Ministers on catch limit, regulatory and other management actions that apply specifically to rock lobster fisheries since 1992. The NRLMG is a national-level, multi-stakeholder group comprising representatives of tangata whenua², recreational and commercial fishing sectors, and Fisheries New Zealand.
6. The NRLMG has an independent Chair and Fisheries New Zealand supports the group by providing the secretariat as well as scientific and fisheries management advice. The current membership of the NRLMG includes: Te Waka a Māui Fisheries Forum (South Island iwi), Te Ohu Kaimoana (as an agent for North Island iwi), NZ Recreational Fishing Council, and the NZ Rock Lobster Industry Council (NZ RLIC). A review of this membership is currently underway, which is expected to be completed in April this year.
7. The final proposals for each stock under review are based on discussions by the NRLMG, consideration of the best available information, and an analysis of submissions received from tangata whenua and fishing interests on each consultation option.
8. The NRLMG reached agreement on single recommendations for CRA 4 and CRA 8, but were unable to reach consensus recommendations for CRA 1, CRA 3 and CRA 7.
9. You will shortly be making separate decisions on the carry forward of ACE. The commercial members note that these decisions on TAC/TACCs are linked and the ACE carry forward decisions should take into account the TAC/TACC decisions. In response to the impacts the coronavirus is having on the rock lobster industry, Fisheries New Zealand recently consulted on options to enable carry forward of up to 10% of the total ACE held by individual fishers, if uncaught, or to enable the one-off carry forward of all uncaught rock lobster ACE.
10. The NZ RLIC notes that TACC or shelving decisions are made to reduce removals to levels suggested by the stock assessments. NZ RLIC supports this course of action. Those assessments assume that TACCs will be fully taken in this fishing year and therefore carry forward of uncaught ACE has no adverse implications for sustainability. Preventing carry forward will, however, compound the serious financial hardship incurred by ACE holders.
11. Fisheries New Zealand notes that if you decide to enable carry forward of 10% of the uncaught ACE by removing rock lobster from Schedule 5A of the Fisheries Act 1996 (the Act), the Act prevents carry forward in fishing years when the TACC has been decreased.
12. Following indications of your TAC/TACC decisions, NZ RLIC will wish to provide you with supplementary advice. You are required to set TACs, allowances and TACCs prior to the start of the fishing year beginning 1 April; therefore, there are time constraints associated with your TAC decisions.

CRA 1 (Northland)

13. The results of the 2019 CRA 1 stock assessment suggested that spawning stock biomass was well above the soft limit of 20%, where it is Fisheries New Zealand policy to implement a formal, time-constrained rebuilding plan. There is currently no agreed reference level for CRA 1, but it is projected that vulnerable stock biomass³ will decline with 2019 catch levels.
14. The majority of submitters agreed that a decrease in removals was required to support the sustainability of the CRA 1 stock. Customary and commercial submitters supported ACE shelving as a mechanism to reduce the commercial catch, while recreational submitters supported a formal TAC/TACC reduction.

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).

³ Beginning of season autumn-winter vulnerable biomass (legal males and females not bearing eggs).

15. **Tangata whenua and commercial NRLMG members** recommend that you agree to Option 1.3, which is to reduce the CRA 1 TAC by 49 tonnes, reduce the commercial catch by formally acknowledging voluntary shelving of 16% of ACE (rather than a TACC reduction), and to reduce the recreational allowance by 18 tonnes, and the other mortality allowance by 31 tonnes. The reductions to the recreational and other mortality allowances are proposed to reflect the estimates that were used in the 2019 CRA 1 stock assessment. Tangata whenua and commercial members consider that shelving of ACE is an effective way of reducing the commercial catch and allows the industry to take responsibility for the management of the fishery.
16. **Recreational NRLMG members** primarily support Option 1.2, which is to reduce the TAC, recreational and other mortality allowances, and to reduce the TACC by 16%. However, if you decide to allow ACE shelving instead of a TACC reduction, the recreational members prefer Option 1.4. This would retain the recreational allowance because no formal TACC reduction would be made under this option. Recreational members contend that recreational fishers should have the opportunity to voluntarily reduce their catch (although other members note the effectiveness of this measure will be uncertain).
17. **Fisheries New Zealand** considers that the most effective mechanism to address sustainability concerns for a stock is through a formal TAC/TACC reduction (Option 1.2), particularly if ACE shelving is not fully achieved. It is unknown what the level of the CRA 1 stock is that can produce the MSY; but it is projected that vulnerable stock biomass will decline with current catch levels. You must set a TAC that is not inconsistent with the objective of maintaining the stock at or above, or moving the stock towards or above, a level that can produce the MSY. Option 1.2 (formal reduction) is expected to maintain current vulnerable biomass levels. Fisheries New Zealand notes that Option 1.3 (16% ACE shelving) is expected to achieve this too (as at 2 March 100% of the 16% has been formally shelved).
18. The TAC will also be reviewed again from April 2021, following further work on developing an agreed reference level for CRA 1 during 2020. This would provide an opportunity to adjust catch settings to address any sustainability concerns.
19. You have discretion in setting the TAC and then making allowances for various sectors based on the best available information. If you choose either Options 1.3 or 1.4 it would be on the basis that you acknowledge ACE shelving is being used as a measure to address the stock sustainability concerns, and will therefore meet the legal requirements of the Act. This includes your obligations under sections 11 and 13 of the Act.

CRA 3 (Gisborne)

20. The results of the 2019 CRA 3 stock assessment suggested that spawning stock biomass was well above the soft limit of 20%. There is currently no agreed reference level for CRA 3, but it is projected that vulnerable stock biomass will decline with 2019 catch levels.
21. **Tangata whenua and commercial NRLMG members, and Fisheries New Zealand** recommend that you agree to Option 3.2, which is to decrease the TAC by 48.9 tonnes, decrease the TACC by 27.9 tonnes, decrease the recreational allowance by 7 tonnes, and decrease the other mortality allowance by 14 tonnes. The reductions to the recreational and other mortality allowances are proposed to reflect the estimates that were used in the 2019 CRA 3 stock assessment.
22. The majority of submitters agreed that a decrease of the TAC was required to maintain the sustainability of the CRA 3 stock. Some recreational submitters; however, supported no change to the recreational allowance.
23. **Recreational NRLMG members** recommend that you agree to Option 3.3, which involves the same decreases to the TACC and other mortality allowance as Option 3.2, but does not reduce the recreational allowance. Recreational members recommend that you retain the recreational allowance because it will allow for variations in recreational catch from year to year.

24. In the coming months the NRLMG will present you with separate advice on CRA 3 management controls. This will include advice on the differential minimum legal size regime that allows commercial fishers to land male rock lobsters at or above 52 mm tail width, rather than 54 mm tail width, during June, July and August. This advice will inform the next steps and whether public consultation on regulatory amendments should be progressed.

CRA 4 (Wellington/Hawke's Bay)

25. The results of the 2016 CRA 4 stock assessment suggested that stock biomass was below the agreed reference level by 25%. The TAC was significantly reduced from April 2017 in response to these assessment results. Monitoring information suggests stock biomass may have increased in recent years, but there are still tangata whenua and stakeholder concerns with the overall productivity of the stock.
26. **All of the members of the NRLMG** recommend that you agree to Option 4.1, which is to make no change to the CRA 4 TAC and TACC.
27. The majority of submitters support a cautious approach and the status quo in CRA 4. There are widespread concerns that CRA 4 is a variable fishery, and that the proposed increase may not be able to be supported by the fishery.
28. Maintaining the status quo means the TAC proposed by the current CRA 4 management procedure would not be followed (Option 4.2). The NRLMG supports the use of management procedures, unless there are compelling reasons in a particular case not to follow the procedure. In this case, there is unanimous support from tangata whenua, recreational fishers and the rock lobster industry for no change to the TAC from 1 April 2020.
29. Note that you decided not to increase the TAC by 8.6% for 1 April 2019, because you considered it was "in the best interest for the long-term sustainable utilisation of the stock".
30. It is proposed that the CRA 4 TAC is reviewed from April 2021, following a new stock assessment later in 2020.

CRA 7 (Otago)

31. The results of the 2015 CRA 7 stock assessment suggested there were no sustainability concerns for the CRA 7 fishery - stock biomass was twice the agreed reference level.
32. The options proposed for CRA 7 were informed by the operation of the current CRA 7 management procedure, but using different catch-per-unit-effort (CPUE) data. Options 7.1 (status quo) and 7.3 were developed by operating the management procedure using solely paper-based data from commercial catch returns. Option 7.2 was developed by operating the management procedure using both paper-based and electronic reporting data. Electronic reporting data began to be collected from commercial fishers in the second half of 2019, as the roll out of Digital Monitoring progressed.
33. Submitters Te Ohu Kaimoana and the Otago Rock Lobster Industry Association (ORLIA) supported the full increase to the TACC (Option 7.2), whereas non-commercial/recreational submitters supported the status quo while the CRA 7 differential minimum legal size applies.
34. **Recreational NRLMG members** recommend that you agree to Option 7.1, which is to retain the current TAC because of uncertainty in commercial catch rate information and because they do not support a TAC increase with the CRA 7 differential minimum legal size in place for commercial fishers.
35. **Tangata whenua NRLMG members** recommend that you agree to Option 7.2, which is to increase the TAC and TACC by 29.9 tonnes. **Commercial NRLMG members** also support an increase to the TACC, but along with the tangata whenua members, note reservations about the use of the new electronic data in the current management procedure. However, the CRA 7 industry (ORLIA) suggests the fishery has been performing well over the last five years and

there is unlikely to be a risk to the sustainability of the stock with an increase to the TAC/TACC. The results of the 2015 stock assessment suggested there were no sustainability concerns for the fishery.

36. **Fisheries New Zealand** recommends that you agree to Option 7.3 which is to increase the TAC and TACC by 9.2 tonnes. This option is based on the operation of the CRA 7 management procedure using solely paper-based data, but choosing not to apply an element of the management procedure - the minimum change threshold of 10% of the TACC (which is 5% for many other lobster stocks). Under this option it is proposed that the TACC is increased by 9.5%. Fisheries New Zealand considers that this provides a balance between allowing increased utilisation opportunities for commercial fishers based on limited sustainability concerns for the stock, while acknowledging the uncertainty in using electronic data to inform management decisions at this time.
37. It is proposed that the CRA 7 TAC is reviewed from April 2022, following a new stock assessment currently scheduled for later in 2021.

CRA 8 (Southern)

38. 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.
39. **All of the members of the NRLMG** recommend that you agree to Option 8.2, which applies the current CRA 8 management procedure and increases the TAC and TACC by 62.1 tonnes. The majority of submitters supported this increase.
40. The NRLMG considers that the high productivity of CRA 8 supports the proposed increase, and notes that an updated CRA 8 stock assessment is currently scheduled for 2021. This is expected to provide an updated estimate of stock status and inform catch settings from April 2022.

3 Decisions

Note that the commercial members consider that your separate decisions on carry forward of ACE are clearly linked, and those decisions need to take into account the TAC/TACC decisions.

Noted

Note that if you decide to allow carry forward of 10% of uncaught ACE, reducing the CRA 1 TACC (Option 1.2) and CRA 3 TACC (Options 3.2 and 3.3) will result in these stocks no longer being eligible for ACE carry forward under the Act (as currently specified).

Noted

CRA 1 (Northland)

Option 1.1 (Status quo)

Agree to retain the CRA 1 TAC at 273.062 tonnes and within the TAC:

- i. Retain the allowance of 20 tonnes for Māori customary non-commercial fishing interests;
- ii. Retain the allowance of 50 tonnes for recreational fishing interests;
- iii. Retain the allowance of 72 tonnes for all other sources of mortality to the stock caused by fishing;
- iv. Retain the CRA 1 TACC at 131.062 tonnes.

Agreed / Not Agreed

OR

Option 1.2 (*NRLMG recreational members' recommended primary position and Fisheries New Zealand recommended*)

Agree to reduce the CRA 1 TAC from 273.062 to 203 tonnes and within the TAC:

- i. Retain the allowance of 20 tonnes for Māori customary non-commercial fishing interests;
- ii. Reduce the allowance for recreational fishing interests from 50 to 32 tonnes;
- iii. Reduce the allowance for all other sources of mortality to the stock caused by fishing from 72 to 41 tonnes;
- iv. Reduce the CRA 1 TACC from 131.062 to 110 tonnes.

Agreed / Not Agreed

OR

Option 1.3 (*NRLMG tangata whenua and commercial members recommended*)

Agree to reduce the CRA 1 TAC from 273.062 to 224.062 tonnes and within the TAC:

- i. Retain the allowance of 20 tonnes for Māori customary non-commercial fishing interests;
- ii. Reduce the allowance for recreational fishing interests from 50 to 32 tonnes;
- iii. Reduce the allowance for all other sources of mortality to the stock caused by fishing from 72 to 41 tonnes;
- iv. Retain the CRA 1 TACC at 131.062 tonnes.

Agreed / Not Agreed

AND

Note that under this Option, the commercial industry have agreed to voluntarily shelve 16% of their Annual Catch Entitlement (ACE), effectively reducing the CRA 1 total commercial catch to 110 tonnes.

Noted

OR

Option 1.4 (*NRLMG recreational members' recommended secondary position*)

Agree to reduce the CRA 1 TAC from 273.062 to 242.062 tonnes and within the TAC:

- i. Retain the allowance of 20 tonnes for Māori customary non-commercial fishing interests;
- ii. Retain the allowance of 50 tonnes for recreational fishing interests;
- iii. Reduce the allowance for all other sources of mortality to the stock caused by fishing from 72 to 41 tonnes;
- iv. Retain the CRA 1 TACC at 131.062 tonnes.

Agreed / Not Agreed

AND

Note that under this Option, the commercial industry have agreed to voluntarily shelve 16% of their ACE, effectively reducing the CRA 1 total commercial catch to 110 tonnes.

Noted

CRA 3 (Gisborne)

Option 3.1 (Status quo)

Agree to retain the CRA 3 TAC at 351.9 tonnes and within the TAC:

- i. Retain the allowance of 20 tonnes for Māori customary non-commercial fishing interests;
- ii. Retain the allowance of 20 tonnes for recreational fishing interests;
- iii. Retain the allowance of 89 tonnes for all other sources of mortality to the stock caused by fishing;
- iv. Retain the CRA 3 TACC at 222.9 tonnes.

v. review in 2021

Agreed / Not Agreed

OR

Option 3.2 (*NRLMG tangata whenua and commercial members recommended, and Fisheries New Zealand recommended*)

Agree to reduce the CRA 3 TAC from 351.9 to 303 tonnes and within the TAC:

- i. Retain the allowance of 20 tonnes for Māori customary non-commercial fishing interests;
- ii. Reduce the allowance for recreational fishing interests from 20 to 13 tonnes;
- iii. Reduce the allowance for all other sources of mortality to the stock caused by fishing from 89 to 75 tonnes;
- iv. Reduce the CRA 3 TACC from 222.9 to 195 tonnes.

Agreed / Not Agreed

OR

Option 3.3 (*NRLMG recreational members recommended*)

Agree to reduce the CRA 3 TAC from 351.9 to 310 tonnes and within the TAC:

- i. Retain the allowance of 20 tonnes for Māori customary non-commercial fishing interests;
- ii. Retain the allowance of 20 tonnes for recreational fishing interests;
- iii. Reduce the allowance for all other sources of mortality to the stock caused by fishing from 89 to 75 tonnes;
- iv. Reduce the CRA 3 TACC from 222.9 to 195 tonnes.

Agreed / Not Agreed

CRA 4 (Wellington/Hawke's Bay)

Option 4.1 (Status quo) *(NRLMG recommended, including Fisheries New Zealand)*

Agree to retain the CRA 4 TAC at 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 all other sources of mortality to the stock caused by fishing;
- iv. Retain the CRA 4 TACC at 318.8 tonnes.

Agreed / Not Agreed

OR

Option 4.2

Agree to increase the CRA 4 TAC from 513.8 to 569.4 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 all other sources of mortality to the stock caused by fishing;
- iv. Increase the CRA 4 TACC from 318.8 to 374.4 tonnes.

Agreed / Not Agreed

CRA 7 (Otago)

Option 7.1 (Status quo) *(NRLMG recreational members recommended)*

Agree to retain the CRA 7 TAC at 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 all other sources of mortality to the stock caused by fishing;
- iv. Retain the CRA 7 TACC at 97 tonnes.

Agreed / Not Agreed

OR

Option 7.2 *(NRLMG tangata whenua and commercial members recommended)*

Agree to increase the CRA 7 TAC from 117 to 146.9 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 all other sources of mortality to the stock caused by fishing;
- iv. Increase the CRA 7 TACC from 97 to 126.9 tonnes.

Agreed / Not Agreed

OR

Option 7.3 (*Fisheries New Zealand recommended*)

Agree to increase the CRA 7 TAC from 117 to 126.2 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 all other sources of mortality to the stock caused by fishing;
- iv. Increase the CRA 7 TACC from 97 to 106.2 tonnes.

Agreed / Not Agreed

CRA 8 (Southern)

Option 8.1 (Status quo)

Agree to retain the CRA 8 TAC at 1220.6 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 all other sources of mortality to the stock caused by fishing;
- iv. Retain the CRA 8 TACC at 1129.6 tonnes.

Agreed / Not Agreed

OR

Option 8.2 (*NRLMG recommended, including Fisheries New Zealand*)

Agree to increase the CRA 8 TAC from 1220.6 to 1282.7 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 all other sources of mortality to the stock caused by fishing;
- iv. Increase the CRA 8 TACC from 1129.6 to 1191.7 tonnes.

Agreed / Not Agreed



Hon Stuart Nash
Minister of Fisheries

17 / 03 / 2020

4 Why are we proposing that you review the TACs, allowances and TACCs?

41. The overall management approach for rock lobster fisheries is to monitor and manage them closely to provide for use while ensuring sustainability.
42. Every year the NRLMG considers the results from stock assessments or the operation of management procedures. The outputs of this process inform advice to you and your decisions on whether catch settings should change for the upcoming fishing year. Being able to respond to changes in rock lobster abundance on an annual basis is important because some rock lobster populations can fluctuate in response to changes in the environment.
43. 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.
44. In between assessment years, management procedures have been used. Management procedures set out pre-agreed management actions that will be taken in response to changes in commercial catch rates (CPUE), an indicator of relative rock lobster abundance. Management procedures are designed to set a TAC that maintains the stock at or above a level that can produce the maximum sustainable yield. They are generally in place for five years before they are reviewed.
45. Management procedures have been used in most rock lobster stocks for varying periods. The oldest example of management procedures is in CRA 7 and CRA 8, where they have been used to guide TAC adjustments since 1996, first to rebuild the stocks and then to maintain them above reference levels with high probability.
46. New stock assessments were carried out for CRA 1 and CRA 3 in late 2019. The results from these assessments have informed the proposed reductions to the TACs for these stocks.
47. The review of CRA 4, CRA 7 and CRA 8 is based on the operation of management procedures. Operation of the CRA 5 (Canterbury/Marlborough) management procedure suggested that no change was needed to the TAC and is hence not considered in this advice.⁴
48. The catch settings for the CRA 2 (Hauraki Gulf/Bay of Plenty), CRA 6 (Chatham Islands), and CRA 9 (Taranaki/Westland) rock lobster fisheries were not reviewed as part of the April 2020 sustainability round.

5 Background information

5.1 Definition of stock reference levels

49. For rock lobster, the biomass level that can produce the MSY has not been reliably calculated for any stock. Agreed stock reference levels are instead used. Table 2 provides a summary of the stock reference levels that are relevant to the evaluation of the proposals for each stock.

⁴ For further technical information on management procedures for New Zealand rock lobster refer to the Fisheries Assessment Report available for download from the Fisheries New Zealand website here: <https://www.mpi.govt.nz/dmsdocument/29627/send> [12MB].

Table 2: Summary of stock reference levels that are discussed for each stock in this paper.

Reference level	Description	Stock				
		CRA 1	CRA 3	CRA 4	CRA 7	CRA 8
Vulnerable biomass	Beginning of season autumn-winter vulnerable biomass (legal males and females not bearing eggs)	✓	✓	✓	✓	✓
Spawning biomass	Beginning of season autumn-winter spawning biomass (mature females)	✓	✓	✓	✓	✓
Total biomass	Beginning of season autumn-winter total biomass (all males and females)	✓	✓	x	x	x
Agreed target biomass reference level	Beginning of season autumn-winter vulnerable biomass associated with a period in the fishery that showed good productivity and was demonstrably safe.	x	x	✓	✓	✓

5.2 Digital monitoring of commercial fishing and alternative assessment approaches

50. Electronic reporting of catch and effort information was implemented for New Zealand's commercial fisheries during 2019. It is currently unknown how this change in the data collection procedure will affect the commercial CPUE that is used to inform stock assessments and drive management procedures. Because of the phased implementation of the new electronic reporting system during 2019, the current agreed management procedures for CRA 4, CRA 5, CRA 7 and CRA 8 could be operated this year. No new management procedures were developed for CRA 1 and CRA 3 following the new stock assessments because of the commercial reporting change and that a time series of data from electronic reporting is needed.
51. The Rock Lobster Fisheries Assessment Working Group is currently considering alternative assessment approaches to use as the basis for advice to you on TAC changes beyond April 2020. Further work will also be carried out on exploring alternative biomass reference levels for rock lobster in 2020.
52. Recreational submitters (NZ Sport Fishing Council and NZ Underwater Association) made general comments that they support the development of a new approach to timely management reviews. They also recommended that you direct Fisheries New Zealand to establish an agreed method of setting management targets for rock lobster that meet environmental and stakeholder standards in line with kaitiakitanga and international best practice.

5.3 Impact of the coronavirus on rock lobster exports to China

53. The outbreak of coronavirus in China and associated restrictions on the movement of people and gatherings has resulted in significant disruptions to the New Zealand rock lobster industry. This came at an important time for exporters supplying into Chinese New Year celebrations and saw the vast majority of orders cancelled from late January. As over 98% of New Zealand rock lobster is sold to China, this represents a significant negative socioeconomic impact for industry and has resulted in little commercial catch being taken since late January.
54. In response to this situation, you have allowed for the limited release of rock lobsters back to the wild that are being held in holding pots in the water and some facilities on land. Fisheries New Zealand also recently consulted on a proposal to allow uncaught rock lobster commercial ACE to be carried forward into the next fishing year, beginning 1 April 2020.
55. Commercial stakeholders have signalled the need to recognise the links between the preferred TAC/TACC decisions and your decision on ACE carry forward, particularly the effect on rock lobster removals from each stock and the economic impacts on ACE holders.

6 Central statutory considerations

56. Table 3 provides an overview of your central statutory considerations for varying TACs and TACCs under the Act. Details of your other statutory considerations are provided in Appendix 1.

Table 3: Information on your key requirements when making decisions under the Act. NRLMG comments are highlighted in blue.

Decisions you may make	Requirements – things you must do when making decisions
Section 11 Sustainability measures You may set or vary sustainability measures for any stock Section 11(3) sustainability measures may relate to (but are not limited to): • Catch limits • Size, sex or biological state • Areas • Fishing methods • Fishing seasons	(1) after taking into account: (a) effects of fishing on any stock and aquatic environment; and (b) any existing controls under this Act that apply to the stock/area concerned; and (c) the natural variability of the stock concerned. 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; however, it is likely that not all bycatch is reported (only the top five species were required to be reported up to 2019). 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. 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. 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. (2) before setting or varying any sustainability measure, have regard to: (a) any regional policy statement, regional plan or proposed regional plan under the Resource Management Act 1991; and (b) any management strategy or plan under the Conservation Act 1987; and (c) sections 7 and 8 of the Hauraki Gulf Marine Park Act 2000; and (ca) regulations made under the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012; and (d) a planning document lodged with you by a customary marine title group under section 91 of Marine and Coastal Area (Takutai Moana) Act 2011. that apply to the coastal marine area and are considered by you to be relevant.

	The NRLMG is not aware of any such policy statements, plans or strategies that should be taken into account for the stocks being reviewed. The CRA 1, 3, 4, 7 and 8 fisheries do not intersect with the Hauraki Gulf Marine Park; therefore, there are no relevant considerations under the Act. The NRLMG is not aware of any specific matters in the regulations made under the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012 that are relevant to the TAC proposals set out in this paper. 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. (2A) before setting or varying any sustainability measure, take into account: (a) any conservation or fisheries services; and (b) any relevant fisheries plan approved under section 11A; and (c) any decisions not to require conservation or fisheries services. Services of particular relevance to the decisions in this paper relate to programmed research used to monitor rock lobster stock abundance and settlement, and to develop new assessment tools and management procedures. There is no approved fisheries plan relating to rock lobster.
Section 13 Variation of the TAC You shall set (unless you do not intend to set initial TACC – section 20), and may vary, TAC for quota management stocks	(2) You shall set (and may vary – section (4)) a TAC that: (a) maintains the stock at or above a level that can produce the <i>MSY</i>, having regard to the interdependence of stocks; or (b) enables the level of any stock below a level that can produce <i>MSY</i> to be altered: (i) in a way and at a rate that will restore the stock to a level that can produce <i>MSY</i> having regard to interdependence ; and (ii) within a period appropriate to the stock, having regard to the biological characteristics of the stock and environmental conditions affecting it, or (c) enables the level of any stock above <i>MSY</i> to be altered in a way and at a rate to move the stock toward or above <i>MSY</i> having regard to interdependence. (2A) If you consider that the stock level to produce <i>MSY</i> is not able to be estimated reliably using best available information, you must: (a) not use the absence of, or any uncertainty in, that information as a reason to postpone or fail to set a TAC; and (b) have regard to the interdependence of stocks, biological characteristics of the stock and any environmental conditions affecting the stock; and (c) set a TAC (i) using the best available information; and (ii) that is not inconsistent with the objective of maintaining the stock at or above, or moving the stock towards or above <i>MSY</i>. (3) In considering the way and rate at which stock is moved toward or above <i>MSY</i> you shall have regard to such social, cultural and economic factors as you consider relevant. (4) You may, by notice in the <i>Gazette</i>, vary any total allowable catch set for any quota management stock under this section. When considering any variation, you are to have regard to the matters specified in subsections (2), (2A) (if applicable), and (3).

Interdependence of stocks

The interdependence of stocks involves the consideration of the effects of fishing on associated stocks harvested affected by fishing for the target stock. Examples include other non-target species (bycatch) or benthic species that are incidentally taken or affected by fishing gear. The role of the target stock in the food chain should also be considered.

Potting is the method commercial fishers use to target rock lobster. This method is considered to have very 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 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.

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, southern dogfish, rig and seals.

Sea urchin barrens

Some scientists have suggested that decreased predation from large reef predators such as rock lobsters, snapper and other fish is responsible for population increases in sea urchins and destruction of kelp forests. This hypothesis is controversial and the literature equivocal. There is research suggesting that on some rocky reefs in the north of New Zealand, recovery of predators such as rock lobster and snapper inside marine reserves has led to the recovery of macro-algal habitat through predation on sea urchins. However, there is also contradictory evidence. Sea urchin populations are affected by factors other than predation, such as diseases and temperature effects on recruitment.

Biological characteristics and environmental conditions

A variety of environmental factors are thought to influence the productivity of rock lobster populations, including water temperature, ocean currents, latitude, shelter availability, and food availability. Lobsters grow at different rates around New Zealand and female lobsters mature at different sizes.

Variability in growth, maturity, available abundance, mortality and recruitment were taken into account during the development of the proposals for the rock lobster stocks discussed in this paper.

Sections 20 & 21 Variation of the TACC

You shall set and may vary TACC for quota management stocks, unless a TAC has not been set for the stock

Section 21

- (1) in setting or varying any TACC you shall have regard to the TAC and shall allow for
 - (a)(i) Māori customary non-commercial interests; and
 - (a)(ii) Recreational interests; and
 - (b) all other mortality to the stock caused by fishing.
- (2-3) Before setting or varying a TACC you shall consult representatives of classes of people that have an interest and give reasons for your decision
- (4) when allowing for Māori customary interests you must take into account
 - (a) any mātaihai reserve in the Quota Management Area declared under section 186; and
 - (b) any area closure or method restrictions/prohibitions imposed under section 186A.
- (5) when allowing for recreational interests you must take into account any regulations that prohibit or restrict fishing under section 311.

Guidance – Case law

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, you have the discretion to make allowances for various sectors based on best available information. Having set or varied the TAC you in effect apportion it between the relevant interests.⁵

⁵ New Zealand Fishing Industry Association (Inc) v Minister of Fisheries CA 82/97, 22 July 1997 (“Snapper 1”).

The Courts have in a number of cases considered what is involved in allowing for non-commercial interests. In *Snapper* ¹⁶ 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.

The Supreme Court in *Kahawai*⁷ 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.⁸ 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.⁹

The Supreme Court went on to say that sections 20 and 21 prescribe a framework within which you must operate when setting or varying the TACC. The framework 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 section 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.¹⁰

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 judgement.¹¹

Mātaítai reserves

There are a number of mātaítai reserves and temporary closures that fall within each of the rock lobster stocks under review, including:

- a) CRA 1 – Te Puna Mātaítai, and Maunganui Bay, Marsden Bank and Mair Bank temporary closures;
- b) CRA 3 - Te Hoe Mātaítai, Horokaka Mātaítai, Toka Tamure Mātaítai, and Hakihea Mātaítai;
- c) CRA 4 - Moremore Mātaítai (a & b);
- d) CRA 7 – Moeraki Mātaítai, Puna-wai-Toriki Mātaítai, Otakou Mātaítai, and Waikouaiti Mātaítai;
- e) CRA 8 - Waikawa Harbour/Tumu Toka Mātaítai, Motupōhue (Bluff Hill) Mātaítai, Oreti Mātaítai, Pikomamaku Mātaítai, Te Whaka a Te Wera Mātaítai, Kaihuka Mātaítai, Horomamae Mātaítai, Waitutu Mātaítai, Okuru/Mussel Point Mātaítai, Tauparikaka Mātaítai, Mahitahi/Bruce Bay Mātaítai, Manakiaua/Hunts Beach Mātaítai, and Okarito Lagoon Mātaítai.

The NRLMG notes that the proposals in this paper are unlikely to limit the ability to take rock lobsters for customary purposes or have an effect on the mātaítai reserves in each area.

7 Input and participation, and consultation

57. 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 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.

⁶ *Snapper* 1, p 17.

⁷ *New Zealand Recreational Fishing Council Inc v Sanford Limited* [2009] NZSC 54 (“*Kahawai*”)

⁸ *Kahawai* [55]

⁹ *Kahawai* [56]

¹⁰ *Kahawai* [61]

¹¹ *Kahawai* [65]

58. 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.

7.1 Input and participation of tangata whenua

59. Tangata Tiaki/Kaitiaki exercise kaitiakitanga on behalf of their tāngata whenua. Collectively, Iwi Fisheries Forums and Forum Fisheries Plans provide a view of the objectives and outcomes iwi seek from the management of their fishery interests and can provide an indication of how iwi exercise kaitiakitanga over fisheries resources. Iwi views from Forum meetings and submissions received from iwi can also provide information on kaitiakitanga.
60. Te Waka a Māui me Ōna Toka Iwi Forum (South Island), Te Hiku o te Ika Fisheries Forum (Far North), Mid-North Iwi Fisheries Forum, Te Taihauauru Iwi Fisheries Forum (Taranaki/Wanganui) and the Mai Paritu tae atu ki Turakirae Iwi Fisheries Forum (Hawke’s Bay/Wairarapa) were provided with an overview by Fisheries New Zealand of rock lobster stocks that were likely to be reviewed as part of the April 2020 sustainability round. Specific consultation options were not available for their consideration at most of the Forum meetings in November 2019; however, no significant concerns were expressed with the proposed reviews. The Te Hiku o te Ika and the Mid-North Iwi Fisheries Forums expressed support for the proposed decrease to the CRA 1 TAC, to ensure that the fishery can continue to support local communities.
61. Additional input and participation of tangata whenua is provided through the NRLMG. 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. A representative of Te Ohu Kaimoana is also a member of the NRLMG, who supports relevant iwi to provide feedback on rock lobster proposals each year.
62. The NRLMG considers that the options presented in this paper will contribute towards maintaining kaitiakitanga for the Iwi Fisheries Forums and support the objectives of their Fisheries Plans.

7.2 Consultation process

63. Fisheries New Zealand consulted on the rock lobster sustainability proposals from 13 December 2019 to 5 February 2020. A standard consultation process was followed, consisting of posting the consultation document on the Fisheries New Zealand website and alerting stakeholders to the consultation through a media release, social media posts, and email notifications.
64. A total of 20 submissions were received from various organisations, groups and individuals, with some submitters submitting on multiple stocks.
65. Submissions received are set out in Table 4 below. General matters raised in submissions that relate to the TAC proposals are discussed here. Each submission is discussed further in the chapters below, as relevant to each stock. Matters raised that did not directly relate to the sustainability proposals are listed in *Appendix 2 – Other matters raised in submissions*. Full copies of the submissions are available in Appendix 3.

Table 4: Written submissions received on the rock lobster consultation options for the 1 April 2020 fishing year.

cus: customary sector/tangata whenua/māori organisations; *env*: environmental sector; *rec*: recreational sector; *com*: commercial sector; *pub*: member of the public.

Sector	Submitter	Option Supported														
		CRA 1 (Northland)			CRA 3 (Gisborne)			CRA 4 (Wellington/ Hawke's Bay)			CRA 7 (Otago)			CRA 8 (Southern)		
		1.1 status quo	1.2	Other	3.1 status quo	3.2	Other	4.1 status quo	4.2	Other	7.1 status quo	7.2	Other	8.1 status quo	8.2	Other
cus	Iwi Collective Partnership (ICP)			✓		✓		✓								
cus	Ngāti Kahungunu Iwi Inc					✓		✓								
cus	Patuharakeke Te Iwi Trust Board		✓													
cus	Te Ohu Kaimoana			✓		✓		✓				✓			✓	
env	Professor Andrew Jeffs, University of Auckland			✓			✓									
rec	Alain Jorion						✓									
rec	New Zealand Recreational Fishing Council (NZRFC)		✓				✓	✓			✓				✓	
rec	New Zealand Sport Fishing Council, LegaSea, and the New Zealand Angling and Casting Association Inc (NZSFC)		✓				✓	✓					✓			✓
rec	New Zealand Underwater Association and Spearfishing New Zealand (NZUA)		✓				✓	✓					✓			✓
com	CRA 1 Rock Lobster Industry Association Inc (CRAMAC 1)			✓												
com	Tairāwhiti Rock Lobster Industry Association Inc (CRAMAC 3)					✓										
com	CRA 4 Rock Lobster Industry Association Inc (CRAMAC 4)							✓								
com	Otago Rock Lobster Industry Association Inc (ORLIA)											✓				
com	CRA 8 Rock Lobster Industry Association Inc (CRAMAC 8)														✓	
com	Elbury Holdings Ltd														✓	
com	NZ Red Ltd and NZ Red Holdings Ltd (NZ Red)			✓												
com	New Zealand Rock Lobster Industry Council (NZ RLIC)			✓		✓		✓					✓		✓	
com	Oceans Family Trust			✓												
com	Geoff and Paula Price								✓							
pub	Mike Currie		✓			✓		✓			✓			✓		

8 Review of the CRA 1 (Northland) rock lobster fishery

8.1 CRA 1 stock status

66. A new stock assessment was conducted for CRA 1 in 2019. The assessment results suggested that 2019 vulnerable biomass was 16% of the unfished level, and total biomass was 26% of the unfished level. Spawning biomass in 2019 was 37% of the unfished level, well above the soft limit of 20% where it is Fisheries New Zealand policy to implement a formal, time-constrained rebuilding plan (Figure 2).
67. Over the next five years, with 2019 catch levels and recent recruitment, vulnerable biomass is projected to decline from 16% to 14% of the unfished level by 2023 and total biomass is projected to decline to 24% of the unfished level by 2023. Spawning biomass is projected to remain constant.

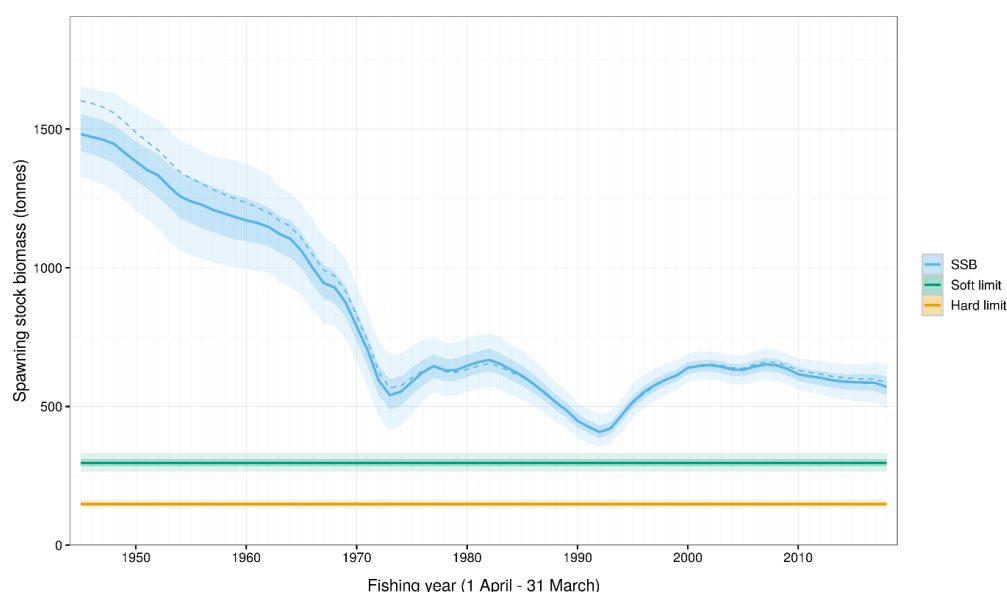


Figure 2: CRA 1 spawning biomass (SSB), including the soft limit (20% SSB_0)¹², and the hard limit (10% SSB_0)¹³.

8.2 CRA 1 fishery overview

Māori customary non-commercial fishing

68. Information on CRA 1 Māori customary catch is available under the Fisheries (Kaimoana) Regulations 1998, and regulation 50 of the Fisheries (Amateur Fishing) Regulations 2013. In the 2017 calendar year, approximately 580 rock lobsters were reported as customary harvest from CRA 1. This information is considered incomplete, because customary take of rock lobster that occurs under the Amateur Regulations for the purposes of hui and tangi is not required to be reported.
69. An estimate of 10 tonnes was used in the 2019 CRA 1 stock assessment model to represent customary catches.

¹² The soft limit is 20% of the unfished spawning biomass; the level at which it is Fisheries New Zealand policy to implement a formal, time-constrained rebuilding plan.

¹³ The hard limit is 10% of the unfished spawning biomass level; the level at which it is Fisheries New Zealand policy to consider closing the fishery.

Recreational fishing

70. Recreational fishers are not required to report the quantities of rock lobsters they catch, other than reporting by recreational charter vessels.
71. For the 2019 CRA 1 stock assessment, recreational catch estimates from the 1994 and 1996 Otago University surveys, the 2011/12 and 2017/18 National Panel Surveys, and the 2013/14 Blue Water Marine Research (Holdsworth) survey were used to construct a recreational catch trajectory (Figure 3)¹⁴.
72. The stock assessment model input of CRA 1 recreational catch was 31.5 tonnes for 2018. The 2017/18 National Panel Survey estimate of CRA 1 recreational catch was 15.91 tonnes (± 14.7 tonnes).

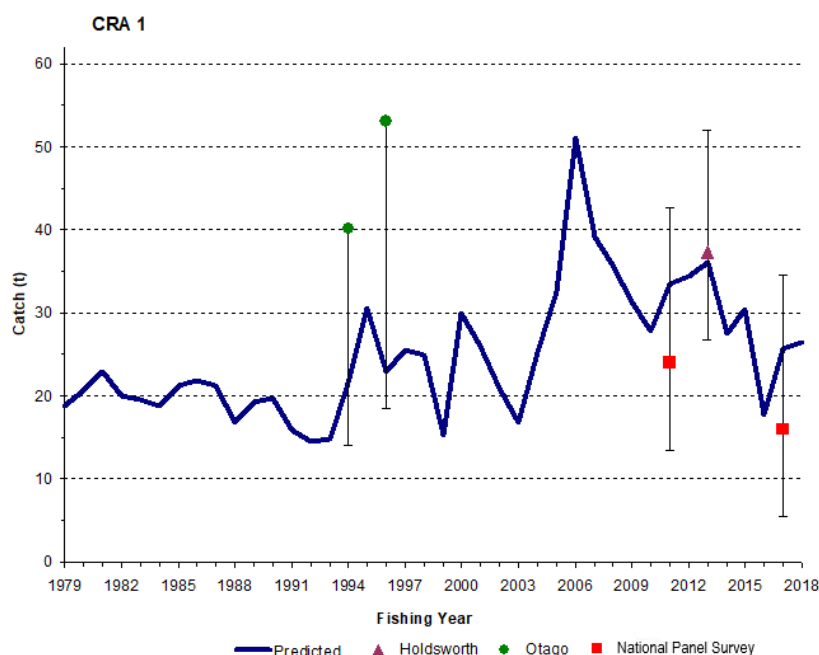


Figure 3: CRA 1 recreational catch trajectory for the 2019 CRA 1 stock assessment (error bars are ± 2 standard errors, with Otago estimates suppressed).

Other mortality

73. There are other sources of mortality caused by fishing, such as illegal catch and handling mortality. It is difficult for Fisheries New Zealand to get an accurate estimate of illegal catch, given that illegal activity is not easily detected. Accurately identifying and effectively constraining illegal take of rock lobster continues to be high priority for the NRLMG.
74. In the 2019 CRA 1 stock assessment, the Rock Lobster Fisheries Assessment Working Group agreed to use a fixed percentage of 20% of the total commercial catch each year from 1981 to 2018 to represent illegal take (Figure 4, black line). The Working Group also agreed to scale the resulting 38 year catch total proportionately to commercial CPUE over the same period, to suggest illegal take could vary with available abundance. Export discrepancies (the difference between reported catch totals and total exported weight) were used to estimate illegal catch before 1980 (Figure 4, red line). For the 2018/19 fishing year, while uncertain, the illegal catch estimate assumed for the model was approximately 38 tonnes.
75. The CRA 1 stock assessment also assumed that handling mortality was 10% of returned lobsters until 1990, and then 5% thereafter. The model estimate of handling mortality was 2.4 tonnes for 2018.

¹⁴ The trajectory assumes that recreational catch is proportional to the CRA 1 spring-summer commercial CPUE from statistical areas 903 and 904 (the upper east coast of the North Island where the majority of recreational fishing take place in CRA 1).

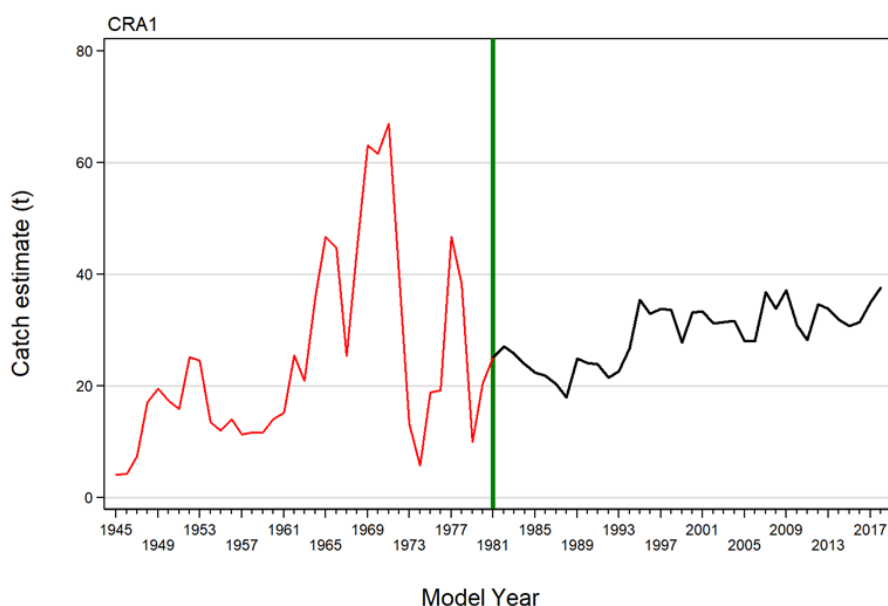


Figure 4: CRA 1 illegal catch trajectory assumed for the 2019 CRA 1 stock assessment¹⁵.

Commercial fishing

76. Annual landings and the TACC for CRA 1 since 1990 are shown in Figure 5.
77. CRA 1 commercial landings have remained at or near the 131 tonne TACC since the early 1990s (Figure 5). Between 2015 and 2019 a formally adopted CRA 1 management procedure was used to annually review the TACC to ensure that catches reflect available abundance. In the 2017/18 fishing year, there were 12 vessels operating in CRA 1, a total that has reduced by around three vessels since the mid-2000s.
78. The current asset value of the CRA 1 fishery is estimated to be over \$134 million based on the current TACC and the 2017/18 fishing year average quota share price (no price information was available for 2018/19). The average CRA 1 ACE value (the earnings quota owners receive when selling their ACE) for the 2018/19 fishing year was \$42,323 per tonne.

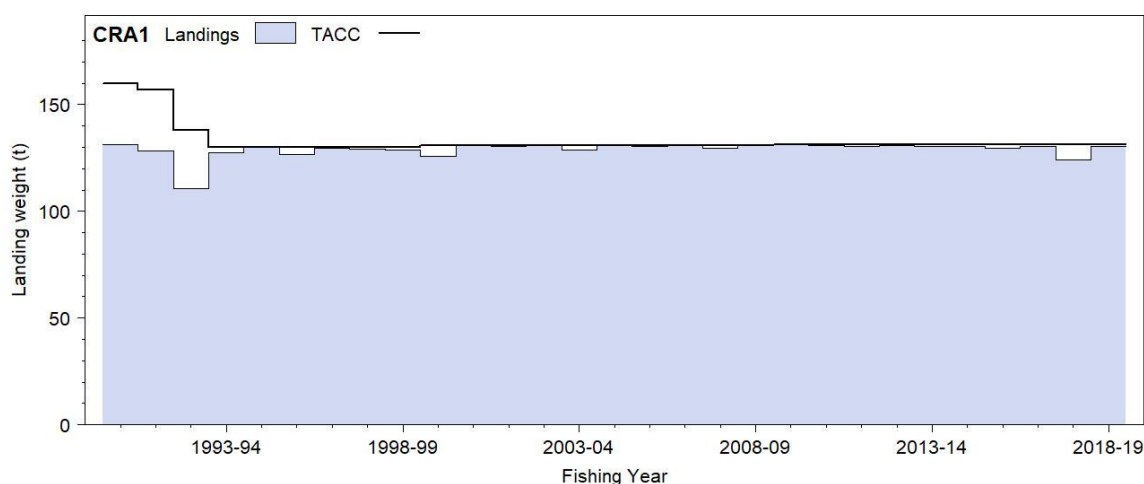


Figure 5: CRA 1 commercial landings and the TACCs from 1990 to 2019.

¹⁵ The vertical green line refers to when a new approach to estimating illegal catch was applied in 1981.

8.3 Final CRA 1 options

79. Table 5 shows the final options proposed for CRA 1. Options 1.1 and 1.2 were consulted on, and two additional options, Option 1.3 and Option 1.4, have been developed following feedback received during consultation. The results from the new CRA 1 stock assessment have been used to guide the options for varying the TAC.

Table 5: TAC, allowance and TACC final proposals (in tonnes) for CRA 1 from 1 April 2020. Blue shading shows the change proposals.

Stock	Option	TAC	TACC	Allowances			NRLMG support
				Māori customary	Recreational	Other mortality	
CRA 1	Option 1.1 Status quo	273.062	131.062	20	50	72	x
	Option 1.2	203 ↓ (26%)	110 ↓ (16%)	20	32 ↓ (36%)	41 ↓ (43%)	✓ Recreational (primary position) Fisheries NZ
	Option 1.3	224.062 ↓ (18%)	131.062 (16% ↓ ACE shelving)	20	32 ↓ (36%)	41 ↓ (43%)	✓ Tangata whenua & Commercial
	Option 1.4	242.062 ↓ (11%)	131.062 (16% ↓ ACE shelving)	20	50	41 ↓ (43%)	✓ Recreational (secondary position)

80. The NRLMG did not reach consensus on the preferred option for CRA 1, but agree that the catch needs to be reduced to support a rebuild of the stock. The NRLMG notes that the commercial members draw your attention to the links between your decisions on reducing removals in CRA 1 and your separate decision on ACE carry forward.
81. NRLMG tangata whenua and commercial members recommend that you agree to Option 1.3 because they consider that shelving ACE is an effective way of reducing the commercial catch and allows the industry to take responsibility for the management of the fishery. NRLMG recreational members support Option 1.2 (formal TAC/TACC reduction). However, if you have a preference to allow ACE shelving, the recreational members support Option 1.4 where no change is made to the recreational allowance (but support the allowance reduction if the TAC/TACC is formally reduced).
82. Fisheries New Zealand considers that the most effective mechanism to address sustainability concerns for a stock is through a formal TAC/TACC reduction (Option 1.2), particularly if ACE shelving is not fully achieved. However, you have discretion in setting the TAC and making allowances for various sectors based on the best available information. If you were to choose Option 1.3 it would be on the basis that you acknowledge ACE shelving is being used as a measure to address the stock sustainability concerns, and therefore meet the legal requirements of the Act, including your section 11 and 13 requirements.

8.4 Summary of CRA 1 submissions

83. Twelve submissions were received for CRA 1.

Support for Option 1.1 (status quo)

84. No submissions were received in support of Option 1.1.

Support for Option 1.2

85. NZRFC supported Option 1.2 (a formal TAC reduction) and considered that a precautionary approach should be followed and no TACC increases should be approved until a trusted

electronic reporting data series is established. They have concerns with the comparability of electronic reporting data with the existing paper-based series.

86. Recreational submitters NZUA and NZSFC support Option 1.2 and submit that the CRA 1 stock needs to be rebuilt. However, they consider that the interim management target used for CRA 1 will not rebuild the stock, and only has a 50% chance of halting a decline in abundance.
87. NZ RLIC supported the decreases to the commercial removals and recreational and other mortality allowances proposed by Option 1.2, and noted that the TACC decrease can also occur via ACE shelving. NZ RLIC considers that the current recreational allowance substantially exceeds the best estimates of recreational catch. It noted that a reduction in the recreational allowance, although not constraining recreational catch in the short term, is appropriate to reflect the need for the recreational sector to also contribute to steps to rebuild the CRA 1 stock.
88. An individual (Mr Currie) supported decreasing catch settings for CRA 1, particularly recreational allowances, for the purposes of conserving wildlife and biodiversity but did not indicate support for a specific option.

Support for Annual Catch Entitlement Shelving

89. A number of customary and commercial submitters (Te Ohu Kaimoana, ICP, Patuharakeke Te Iwi Trust Board, CRAMAC 1, NZ Red, Oceans Family Trust and NZ RLIC) supported the use of ACE shelving in CRA 1. This would have the same effect as the reduction in the TACC proposed in Option 1.2 by reducing available ACE by 16% to 110 tonnes, but would maintain the TACC at 131.062 tonnes. This ACE shelving arrangement would apply for one year, from 1 April 2020 to 31 March 2021.
90. Te Ohu Kaimoana and NZ RLIC support ACE shelving as a mechanism to reduce the TACC, and consider that it gives tangata whenua, communities, and fishers greater control to manage their fisheries. Te Ohu Kaimoana notes that some iwi do not think that 16% ACE shelving provides enough of a reduction to ensure future sustainability, and would like to see a larger volume of ACE shelved in future years.
91. CRAMAC 1 and NZ Red support ACE shelving based on uncertainty around the stock assessment results, the use of management procedures in the future, and uncertainty on developing alternative approaches for monitoring stock abundance over the next 5 years. CRAMAC 1 notes its iwi membership has supported this ACE shelving process due to a strong preference for self-determination over Treaty settlement assets.
92. CRAMAC 1 notes that 100% of CRA 1 quota share owners have agreed to shelve 16% of their ACE for the coming 2020/21 season. Fisheries Commercial Services (FishServe), on the request from CRAMAC 1, have already begun the ACE transfer process. Details of the transfer are set out below in the analysis sub-section.
93. Options 1.3 and 1.4 have been developed by the NRLMG following consultation. Both of these options propose shelving of 16% of ACE, equivalent to the TACC decrease proposed in Option 1.2, and a decrease to the other mortality allowance. The options differ with respect to the recreational allowance; Option 1.3 proposes a reduction and Option 1.4 proposes no change.

Other comments

94. NZRFC requested that the CRA 1 Quota Management Area be split into separate areas, citing the differences between the east coast, the west coast, and the Three Kings area. While NZSFC and NZUA requested greater levels of commercial tagging and logbook data for CRA 1, particularly on the east coast.
95. Prof A. Jeffs raised concerns with how the impacts of rock lobster fishing on the environment are being managed and mitigated. Prof Jeffs is concerned that the proposed options do not adequately deal with adverse effects of lobster fishing on the marine environment, specifically

trophic cascades leading to sea urchin barrens (refer to Table 3 in *Section 5 – Central statutory considerations* above and in *Appendix 2 – Other matters raised in submissions* below).

8.5 Analysis

96. The CRA 1 biomass level that can produce MSY is not known. Further work is needed in 2020 to evaluate how MSY can be determined for rock lobsters. However, the best available information on CRA 1 suggests that vulnerable biomass will decline at current catch levels, but spawning biomass will remain fairly constant and above the soft limit of 20% over the next five years.
97. In circumstances where there is uncertainty around the biomass that will produce MSY, you must be satisfied the TAC is not inconsistent with the objective of maintaining the stock at or above, or moving the stock towards or above, a level that can produce MSY.

ACE shelving

98. A number of customary and commercial submitters support ACE shelving as a management option. ACE shelving is a formal agreement among quota owners in a stock to forgo harvesting a specified proportion of the TACC by each transferring an agreed proportion of their ACE to a non-fishing entity, usually FishServe.
99. In reaching agreement on the settlement of legal proceedings relating to the paua fisheries PAU 4 (Chatham Island) and PAU 7 (northwest South Island), Fisheries New Zealand, Te Ohu Kaimoana and PauaMAC 4 agreed on a statement that describes the role of shelving in relation to the setting of sustainability measures under section 11 of the Act. The parties agreed that:
 - a. you may take into account as a permissive relevant consideration the effect that any ACE shelving is expected to have on, for example, the level of biomass, including whether the resulting reduction in the level of removals will contribute to the biomass being restored to a level that will produce the MSY (pursuant to section 11(1)(a));
 - b. you must take into account any ACE shelving arrangements provided for in a fisheries plan (pursuant to section 11(2A));
 - c. for any particular decision, the weight, if any, that you place on considerations relevant to ACE shelving, and the effect ACE shelving is expected to have on the biomass, is a matter for you in the exercise of your discretion, taking into account all of the circumstances of the decision and the fishery concerned; and
 - d. in deciding whether (and how) to vary a TAC, you must have regard to the full range of matters set out in sections 11 and 13 of the Act, including the requirement for the TAC to achieve the objectives set out in section 13(2) (or 2A if applicable).
100. When you made your TAC decision for PAU 4 from October 2019, you placed significant weight on the effect the approved PAU 4 Fisheries Plan would have on the objective of restoring biomass to or above a level that can produce MSY. The plan included a commitment by PAU 4 quota owners to shelve 40% of ACE.
101. Overall, Fisheries New Zealand considers that the most effective mechanism to address the sustainability concerns is through a formal TAC/TACC reduction. If you were to endorse the shelving of ACE in CRA 1, it would on the basis that you acknowledge ACE shelving is being used as a measure to address the stock sustainability concerns (biomass is projected to decline at current catch levels), and therefore meet the legal requirements of the Act.
102. In this case the ACE shelving proposal is to reduce commercial removals by 16%, and have the same effect as the TACC reduction. ACE shelving has been used in rock lobster fisheries in the past, and the industry has generally obtained high levels of quota share owner support for the initiative. CRAMAC 1 notes they have obtained 100% quota share owner support and hope to have completed the transfer process with FishServe by 11 February. As at 2 March 2020, 100% of the 16% of ACE has been transferred to FishServe.

Varying the TAC

103. Under Option 1.1 the CRA 1 TAC would stay at its current level of 273.062 tonnes. This option is not supported by the NRLMG, because maintaining the TAC is predicted to result in a decline in CRA 1 vulnerable biomass over the next five years.
104. Under Option 1.2, the CRA 1 TAC would be decreased by 70 tonnes from 273.062 to 203 tonnes. This decrease is proposed to ensure that CRA 1 vulnerable biomass is maintained at current levels over the next five years with 50% probability (an interim reference level). Spawning biomass is predicted to increase by 3% under this option and remain well above the soft limit of 20%.
105. Under Option 1.3, the CRA 1 TAC would be decreased by 49 tonnes from 273.062 to 224.062 tonnes, while under Option 1.4, the CRA 1 TAC would be decreased by 31 tonnes from 273.062 to 242.062 tonnes. Both of these options involve voluntary shelving of 21 tonnes of ACE and the same reduction to the other mortality allowance, but differ in the level at which the recreational allowance should be set (a decrease under Option 1.3 and the status quo under Option 1.4). These options are expected to maintain current vulnerable biomass levels over the next five years, with 50% probability, as per Option 1.2 above.

Biomass reference level

106. Since the CRA 1 biomass level that can produce MSY is not known, at the November 2019 Fisheries Plenary an interim target was agreed to, which was based on the “plateau” of the old CRA 1 management procedure. At the time of this meeting, projections on future sustainable catch levels had not been explored and when they were, issues were identified with how the interim target was calculated.
107. This led to discussions between Fisheries New Zealand and the rock lobster assessment scientists. It was agreed that while further work is carried out on exploring alternative biomass reference levels for CRA 1 in 2020, an interim reference level of maintaining vulnerable biomass at current levels over five years with 50% probability should be applied. This approach is unlikely to pose any short-term sustainability risks to the stock because the TAC will be revisited again from 1 April 2021.
108. Recreational submitters NZUA, NZSFC, and NZRFC, request that the rationale behind the changes to the CRA 1 management target work, following the November 2019 Fisheries Plenary meeting be documented and published. Fisheries New Zealand notes this request.

Varying allowances and the TACC

109. Table 6 provides a summary of information on current non-commercial allowances for CRA 1 and stock assessment assumptions of non-commercial catch.

Table 6: Current CRA 1 allowances and model assumptions of non-commercial catches (in tonnes).

CRA 1 (Northland)	Māori customary	Recreational	Other mortality	Total
Current allowances	20	50	72	142
Non-commercial catch assumptions for the 2019 stock assessment	10	Assumed to vary with biomass. Estimated at 31.5 for 2018.	38 illegal. 2.4 handling mortality.	81.9

Māori customary non-commercial fishing

110. No change is proposed to the 20 tonne Māori customary allowance for CRA 1. While noting the incompleteness and uncertainty in the CRA 1 customary harvest information, it is assumed that current harvest is within the 20 tonne allowance allocated for Māori customary interests.

Recreational fishing

111. Under Options 1.2 and 1.3, it is proposed that the CRA 1 recreational allowance is reduced from 50 to 32 tonnes. The allowances for recreational fishing do not constrain harvest and it is not proposed that the recreational daily bag limit is decreased at this time.
112. Under Options 1.1 and 1.4, it is proposed that the CRA 1 recreational allowance is maintained at 50 tonnes. This allowance was set in 2015 based on best available information at the time, with some of the survey estimates now considered to be unreliable and overestimates.
113. Recreational catch estimates from the 2013/14 Blue Water Marine Research survey and the 2017/18 National Panel Survey, and stock assessment assumptions of recreational catch suggest that the current CRA 1 recreational catch is likely to be lower than the current allowance of 50 tonnes. The most recent estimate of recreational catch from the 2017/18 National Panel Survey is 15.9 tonnes. The extent to which CRA 1 recreational harvest may have decreased in recent years is uncertain. Recreational submitters NZUA and NZSFC suggest that it is likely that the recreational catch has been declining over recent years on the east coast of Northland where the main fishing effort is.
114. The CRA 1 TAC will be reviewed again from 1 April 2021. A review of the recreational allowance and management controls needed to manage catch will be considered at that time.

Other mortality

115. It is proposed that the CRA 1 allowance for other sources of fishing-related mortality (i.e. illegal catch and handling mortality) is maintained at 72 tonnes or reduced to 45 tonnes. The NRLMG supports reducing the allowance to 45 tonnes to reflect the model estimates used in the stock assessment.

Total Allowable Commercial Catch

116. Under Option 1.1, the CRA 1 TACC would stay at its current level of 131.062 tonnes. This option would maintain the current commercial utilisation opportunities, but increase risks to the future sustainability of the stock.
117. Under Option 1.2, the CRA 1 TACC would be decreased to 110 tonnes. The proposed 21 tonne TACC decrease has the potential to result in a loss of annual revenue to the catching sector alone of approximately \$1.8 million (based on 2018/19 average port price information of \$85.839 per kg). CRAMAC 1 supports this estimate, noting that associated businesses will also be affected, particularly in smaller coastal town communities.
118. Under Options 1.3 and 1.4, the TACC would remain at its current level, but available ACE would be reduced to 110 tonnes through voluntary shelving. This is likely to have a similar economic impact to Option 1.2, as the same catch will be forgone for the year.

9 Review of the CRA 3 (Gisborne) rock lobster fishery

9.1 CRA 3 stock status

119. A new stock assessment was conducted for CRA 3 in 2019 with two different stock assessment base cases. The assessment results suggested that 2019 vulnerable biomass was 18-19% of the unfished level, and 2019 total biomass was between 52% and 61% of the unfished level. Spawning biomass in 2019 was 80% of the unfished level, well above the soft limit of 20% (Figure 6).
120. Over the next five years, with 2019 catch levels and recent recruitment, CRA 3 vulnerable biomass is projected to decline to 15% of the unfished level by 2023, and total biomass is projected to remain the same at 52-60% of the unfished level by 2023. Spawning biomass is projected to remain constant.

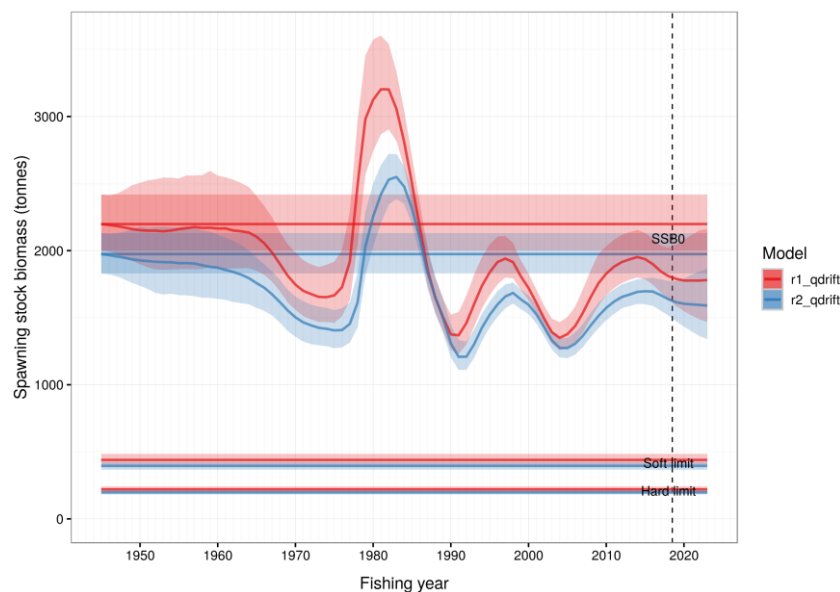


Figure 6: CRA 3 spawning stock biomass (SSB) trajectory for two different stock assessment base cases¹⁶.

9.2 CRA 3 fishery overview

Māori customary non-commercial fishing

121. Information on CRA 3 Māori customary catch is available under the Fisheries (Kaimoana) Regulations 1998, and regulation 50 of the Fisheries (Amateur Fishing) Regulations 2013. In the 2017 calendar year, approximately 10,400 rock lobsters were reported as customary harvest from CRA 3. This information is considered incomplete, because customary take of rock lobster that occurs under the Amateur Regulations for the purposes of hui and tangi is not required to be reported.
122. An estimate of 20 tonnes was used in the 2019 CRA 3 stock assessment model to represent customary catches.

¹⁶ Red line: r1_qdrift using tagging information for lobsters at liberty for longer than 365 days (i.e. higher growth rates); and, blue line: r2_qdrift using all tagging information (i.e. lower growth rates)). Also plotted is the unfished SSB (SSB_0), the soft limit (20% SSB_0), and the hard limit (10% SSB_0).

Recreational fishing

123. For the 2019 CRA 3 stock assessment, recreational catch estimates from the 1994 and 1996 Otago University surveys and the 2011/12 and 2017/18 National Panel Surveys were used to construct a recreational catch trajectory (Figure 7)¹⁷.
124. The stock assessment model estimate of CRA 3 recreational catch was approximately 11 tonnes for 2018. The 2017/18 National Panel Survey estimate of CRA 3 recreational catch was 12.21 tonnes (± 6.2 tonnes).

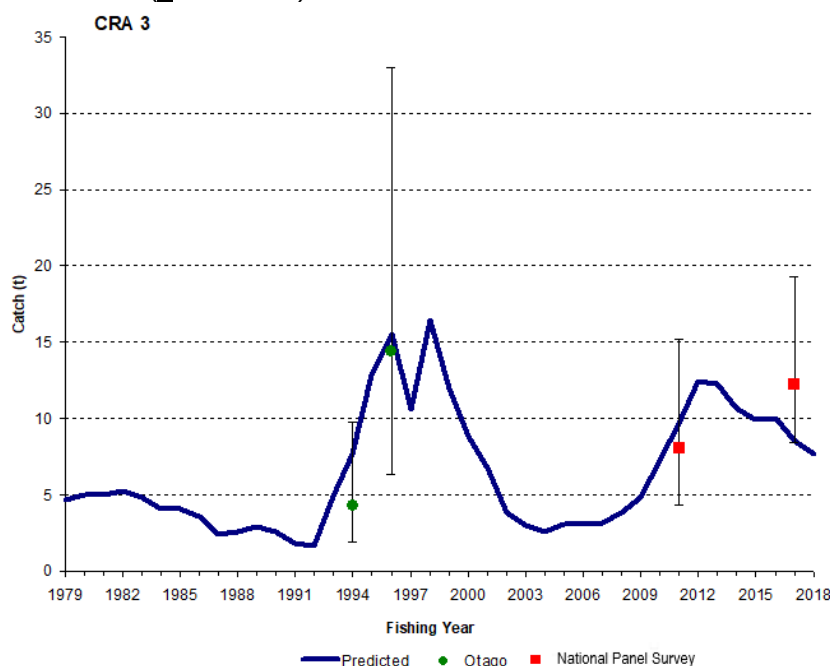


Figure 7: CRA 3 recreational catch trajectory for the 2019 CRA 3 stock assessment (error bars are ± 2 standard errors).

Other mortality

125. In the 2019 stock assessment, the Rock Lobster Fisheries Assessment Working Group agreed to use a fixed percentage of 20% of the total commercial catch each year from 1981 to 2018 to represent illegal take (Figure 8). The Working Group did not scale the catch proportionately to commercial CPUE over the same period, because this approach led to large and unrealistic illegal catch estimates, especially for the mid-1990s and 2012-14. A constant average of illegal catch, although uncertain, was assumed from 1981 (Figure 8, horizontal black line). Export discrepancies (the difference between reported catch totals and total exported weight) were used to estimate illegal catch before 1980 (Figure 8, red line). For the 2018/19 fishing year, the illegal catch estimate assumed for the model was approximately 61 tonnes.
126. The CRA 3 stock assessment also assumed that handling mortality was 10% of returned lobsters until 1990, and then 5% thereafter. The model estimate of handling mortality was approximately 10 tonnes for 2018.

¹⁷ The trajectory assumes that recreational catch is proportional to the CRA 3 spring-summer commercial CPUE.

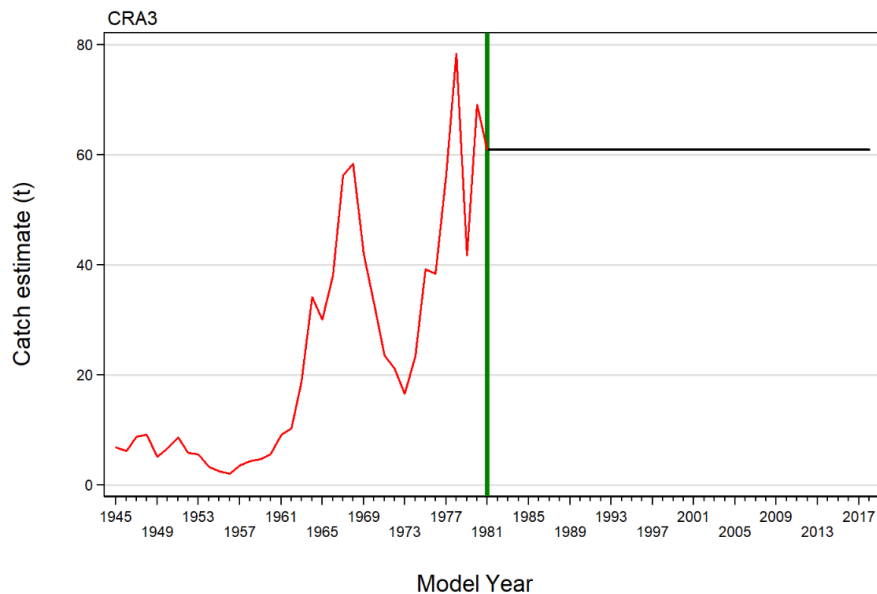


Figure 8: CRA 3 illegal catch trajectory for the 2019 CRA 3 stock assessment¹⁸.

Commercial fishing

127. Annual landings and the TACC for CRA 3 since 1990 are shown in Figure 9.
128. In 2003 and 2004, the CRA 3 TACC was substantially under-caught because of voluntary ACE shelving by the CRA 3 industry, which was informed by a management procedure. Between 2009 and 2019 formally adopted CRA 3 management procedures have been used to annually review the TACC to ensure that catches reflect available abundance. Twenty-five vessels caught at least one tonne of rock lobster in the 2017/18 fishing year, and the number of commercial vessels operating in CRA 3 has been below 30 since 2005/06.
129. The current asset value of the CRA 3 fishery is estimated to be over \$208 million based on the current TACC and the 2017/18 fishing year average quota share price (no price information was available for 2018/19). The average CRA 3 ACE value (the earnings quota owners receive when selling their ACE) for the 2018/19 fishing year was \$52,375 per tonne.

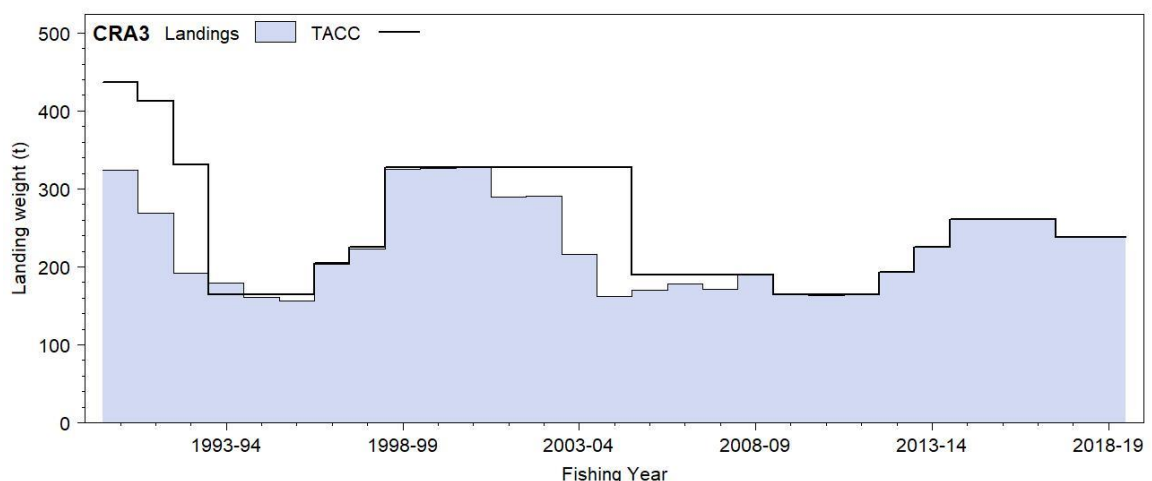


Figure 9: CRA 3 commercial landings and the TACCs from 1990 to 2019.

¹⁸ The vertical green line refers to when a new approach to estimating illegal catch was applied in 1981.

9.3 Final CRA 3 options

130. Table 7 shows the final options proposed for CRA 3. Options 3.1 and 3.2 were consulted on, and an additional option, Option 3.3, has been developed following consultation. The results from the new CRA 3 stock assessment have been used to guide the options for varying the TAC.

Table 7: TAC, allowance and TACC final proposals (in tonnes) for CRA 3 from 1 April 2020. Blue shading shows the change proposals.

Stock	Option	TAC	TACC	Allowances			NRLMG support
				Māori customary	Recreational	Other mortality	
CRA 3	Option 3.1 Status quo	351.9	222.9	20	20	89	x
	Option 3.2	303 ↓ (14%)	195 ↓ (13%)	20	13 ↓ (35%)	75 ↓ (16%)	✓ Tangata whenua, Commercial & Fisheries NZ
	Option 3.3	310 ↓ (12%)	195 ↓ (13%)	20	20	75 ↓ (16%)	✓ Recreational

131. The NRLMG did not reach consensus on the preferred option for CRA 3, but agree that the catch needs to be reduced to support a rebuild of the stock. The NRLMG notes that the commercial members draw your attention to the links between your decisions on reducing removals in CRA 3 and your separate decision on ACE carry forward.
132. NRLMG tangata whenua, recreational and commercial members, and Fisheries New Zealand recommend that you reduce the TAC, TACC and the allowance for other sources of mortality. The difference in options relates to whether the recreational allowance should be reduced or maintained (Option 3.2 versus Option 3.3). Tangata whenua and commercial members, and Fisheries New Zealand support a reduction to the recreational allowance, while recreational members do not.

9.4 Summary of CRA 3 submissions

133. Eleven submissions were received for CRA 3.

Support for Option 3.1 (status quo)

134. No submissions were received in support of Option 3.1.

Support for Option 3.2

135. Te Ohu Kaimoana, ICP, Ngāti Kahungunu Iwi Inc, CRAMAC 3, and NZ RLIC support Option 3.2. ICP considers that the projected decline in CRA 3 biomass warrants action and supports the proposed changes. CRAMAC 3 supports the stock assessment process and the advice of the Rock Lobster Fisheries Assessment Working Group, and notes that it remains committed to maintaining a healthy, sustainable fishery.
136. An individual (M. Currie) supported decreasing catch settings for CRA 3, particularly recreational allowances, for the purposes of conserving wildlife and biodiversity but did not indicate support for a specific option.

Other comments

137. Recreational submitters NZUA and NZSFC support a decrease of the TAC to 310 tonnes, and within this retaining the current recreational allowance of 20 tonnes. NZ RFC support the TAC decrease, but question the proposed reduction of the recreational allowance. The NRLMG has included Option 3.3 in the final proposals as a result of this feedback.
138. NZUA and NZSFC also considered that the interim management target used for CRA 3 will not rebuild the stock, and only has a 50% chance of halting a decline in abundance. They, and NZRFC, requested that the rationale behind the changes to the CRA 3 management target work be documented and published.
139. An individual (A. Jorion) supports reducing the CRA 3 TACC but does not support reducing the recreational allowance or the other mortality allowance. Mr Jorion supports maintaining the recreational allowance at 20 tonnes and maintaining, or increasing, the other mortality allowance. He considers that levels of illegal take in CRA 3 are high.
140. Ngāti Kahungunu Iwi Inc note that anecdotal information suggests the Māori customary and other mortality allowances could be underestimated. They noted that the allowances could be adjusted, but did not provide a suggested level for either allowance.
141. NZSFC, NZUA, NZRFC and Mr Jorion support the differential minimum legal size for male lobsters in CRA 3 being revoked.
142. Prof A. Jeffs expressed concerns that the options do not adequately deal with adverse effects of lobster fishing on the marine environment, specifically, trophic cascades leading to sea urchin barrens, and the spread of tail fan necrosis through handling and returning lobsters during fishing (refer to Table 3 in *Section 5 – Central statutory considerations* above and in *Appendix 2 – Other matters raised in submissions*).

9.5 Analysis

143. The CRA 3 biomass level that can produce MSY is not known. Further work is needed in 2020 to evaluate how MSY can be determined for rock lobsters. However, the best available information on CRA 3 suggests vulnerable biomass will decline at current catch levels, but spawning biomass will remain well above the soft limit of 20% over the next five years.

Varying the TAC

144. Under Option 3.1 the CRA 3 TAC would stay at its current level of 222.9 tonnes. This option is not supported by the NRLMG, because maintaining the TAC is predicted to result in a decline in CRA 3 vulnerable biomass over the next five years.
145. Under Option 3.2, the CRA 3 TAC would be decreased by 48.9 tonnes from 351.9 to 303 tonnes. This decrease is proposed to ensure that CRA 3 vulnerable biomass is maintained at current levels over the next five years with 50% probability (an interim reference level). Spawning biomass is predicted to increase slightly under this option (by 1%) and remain well above the soft limit of 20%.
146. Under Option 3.3, the CRA 3 TAC would be decreased by 41.9 tonnes from 351.9 to 310 tonnes. In comparison to Option 3.2, this option proposes no change to the recreational allowance, but is still expected to maintain current vulnerable biomass levels over five years.

Biomass reference level

147. Since the CRA 3 biomass level that can produce MSY is not known, the November 2019 Fisheries Plenary meeting agreed to an interim target for CRA 3. As with CRA 1, recreational submitters NZUA, NZSFC, and NZRFC request that the rationale behind the changes to the CRA 3 management target-work, following the November Plenary meeting be documented and published. This is noted by Fisheries New Zealand.

148. NZSFC and NZUA also expressed reservations that the proposed change option (Option 3.2) will do nothing to rebuild the stocks. While further work is carried out on exploring alternative biomass reference levels for CRA 3 in 2020, an interim reference level of maintaining current vulnerable biomass at current levels over five years with 50% probability is being used. This approach is unlikely to pose any short-term sustainability risks to the stock because the TAC will be reviewed again from 1 April 2021.

Varying allowances and the TACC

149. Table 8 provides a summary of information on current non-commercial allowances for CRA 3 and stock assessment assumptions of non-commercial catch.

Table 8: Current CRA 3 allowances and model assumptions of non-commercial catches (in tonnes).

CRA 3 (Gisborne)	Māori customary	Recreational	Other mortality	Total
Current allowances	20	20	89	129
Non-commercial catch assumptions for the 2019 stock assessment	20	Assumed to vary with biomass. Estimated at 11 for 2018.	61 illegal. 10 handling mortality.	102

Māori customary non-commercial fishing

150. No change is proposed to the 20 tonne Māori customary allowance for CRA 3. While noting the incompleteness and uncertainty in the CRA 3 customary harvest information, it is assumed that current harvest is within the 20 tonne allowance allocated for Māori customary interests.

Recreational fishing

151. Under Option 3.2, it is proposed that the CRA 3 recreational allowance is reduced from 20 to 13 tonnes. The allowances for recreational fishing do not constrain harvest and it is not proposed that the recreational daily bag limit is decreased at this time.
152. Option 3.3 proposes to maintain the current recreational allowance. The current allowance of 20 tonnes was set in 2005 based on best available information at the time. Recreational catch estimates from surveys and stock assessment assumptions of recreational catch suggest that the current CRA 3 recreational catch could be lower than the allowance.
153. NZSFC and NZUA submitted that the recreational allowance should be retained at 20 tonnes, as the proposed reduced allowance of 13 tonnes does not cover the combined recreational take estimate (12.2 tonnes) and section 111 removals (3 tonnes). The NZRFC also questioned the proposed decrease. NZ RLIC noted that the current allowance exceeds the best estimates of recreational catch. It noted that a reduction in the recreational allowance, although not constraining recreational catch in the short term, is appropriate to reflect the need for the recreational sector to also contribute to steps to rebuild the CRA 3 stock.
154. The NRLMG notes that the proposed 13 tonne recreational allowance reflects the estimate of recreational take used in the stock assessment, which includes both recreational take and section 111 take.
155. The CRA 3 TAC will be reviewed again from 1 April 2021. A review of the recreational allowance and management controls needed to manage catch will be considered at that time.

Other mortality

156. It is proposed that the 89 tonne CRA 3 allowance for other sources of fishing-related mortality (i.e. illegal catch and handling mortality) be reduced to 75 tonnes, to reflect the model estimates used in the stock assessment.

Total Allowable Commercial Catch

157. Under Option 3.1 the CRA 3 TACC would stay at its current level of 222.9 tonnes. This option would maintain the current commercial utilisation opportunities, but increase risks to the future sustainability of the stock.
158. Under Options 3.2 and 3.3, the CRA 3 TACC would be decreased to 195 tonnes. The proposed 27.9 tonne TACC decrease has the potential to result in a loss of annual revenue to the catching sector alone of approximately \$2.4 million (based on 2018/19 average port price information of \$85.839 per kg). CRAMAC 3 supports this estimate, noting that associated businesses will also be affected, particularly in smaller coastal communities.

9.6 Review of CRA 3 management measures

159. The NRLMG is currently considering whether a change is required to management measures for CRA 3, including the CRA 3 differential minimum legal size regime. CRA 3 commercial fishers can land male rock lobsters at or above 52 mm tail width, rather than 54 mm tail width, during June, July and August. Commercial fishers also voluntarily refrain from fishing in statistical areas 909 (East Cape) and 910 (Gisborne) from 1 September to 15 January. Recreational fishers are concerned that the commercial differential size is affecting the availability of rock lobsters to them over summer in the near shore waters close to Gisborne.
160. You requested that the NRLMG look at different CRA 3 minimum legal size options as part of the 2019 CRA 3 stock assessment. Following this assessment, the NRLMG has recently requested further modelling work to inform what impacts a change to the commercial or recreational minimum legal size for male rock lobsters could have on the status of the stock and other performance indicators (i.e. commercial or recreational catch rates).
161. In the coming months the NRLMG will be presenting you with separate advice regarding the review of CRA 3 management measures. This will determine the next steps and whether public consultation on regulatory amendments should be progressed.

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

10.1 CRA 4 stock status

162. The results of the CRA 4 stock assessment conducted in 2016 suggested that vulnerable biomass was below the agreed reference level¹⁹ by 25%. Autumn-winter spawning stock biomass in 2016 was 51% of the unfished level, well above the soft limit of 20%.
163. Following the 2016 stock assessment results, a new CRA 4 management procedure was agreed for use in guiding TAC setting from April 2017. This was to ensure stock biomass was rebuilt towards the agreed reference level in the next five years. The operation of the management procedure in its first year resulted in a substantial TAC reduction for 1 April 2017 from 592 to 484 tonnes.
164. Standardised CPUE is the abundance indicator used in the CRA 4 management procedure. The history of CRA 4 commercial CPUE is shown in Figure 10. CPUE has increased since 2016 from 0.7 to 0.9 kg/potlift in 2019, suggesting rock lobster abundance in CRA 4 has increased. The CRA 4 CPUE value for 2018/19 offset year (October to September) did not differ with or without the inclusion of electronic reporting data.

¹⁹ The vulnerable biomass associated with the period 1979/88.

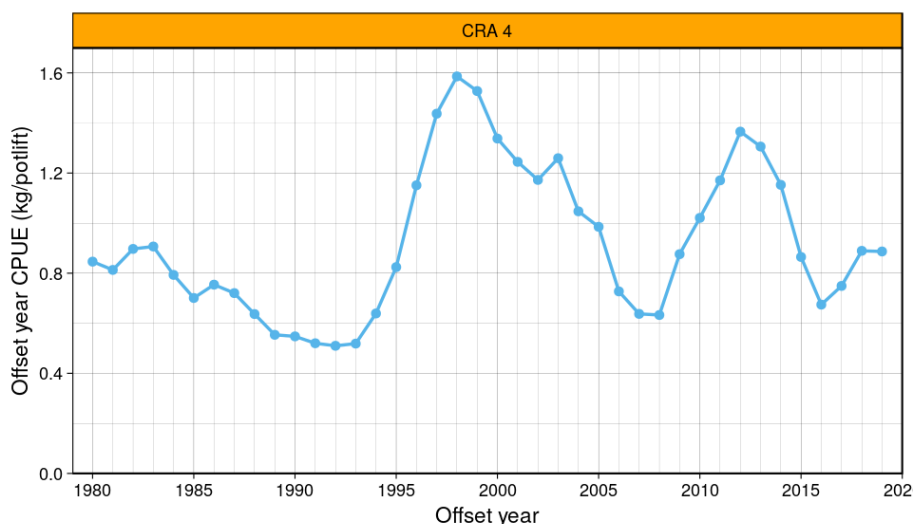


Figure 10: CRA 4 offset year (October to September) CPUE from 1980 to 2019.

10.2 CRA 4 fishery overview

Māori customary non-commercial fishing

165. Information on CRA 4 Māori customary catch is available under the Fisheries (Kaimoana) Regulations 1998, and regulation 50 of the Fisheries (Amateur Fishing) Regulations 2013. In the 2017 calendar year, approximately 430 rock lobsters were reported as customary harvest from CRA 4. This information is considered incomplete, because customary take of rock lobster that occurs under the Amateur Regulations for the purposes of hui and tangi is not required to be reported.
166. An estimate of 20 tonnes was used in the 2016 CRA 4 stock assessment model to represent customary catches.

Recreational fishing

167. For the 2016 CRA 4 stock assessment, recreational catch estimates from the 1994 and 1996 Otago University surveys and the 2011/12 National Panel Survey were used to construct a recreational catch trajectory (Figure 11)²⁰. In 2015, the model estimate of CRA 4 recreational catch was 37.5 tonnes. The 2017/18 National Panel Survey estimate of CRA 4 recreational catch was 41.38 tonnes (± 18.7 tonnes).

²⁰ The trajectory assumed that recreational catch was proportional to the CRA 4 spring-summer commercial CPUE.

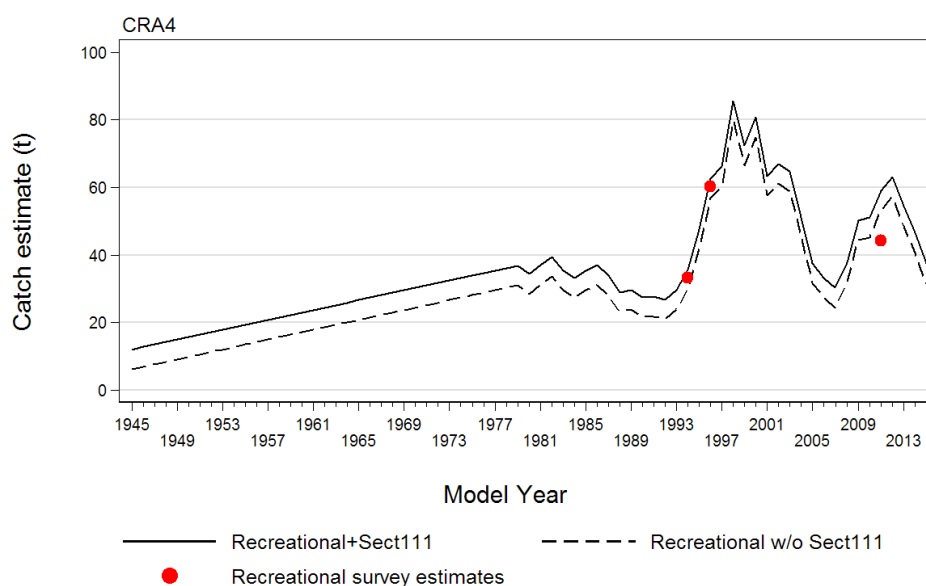


Figure 11: CRA 4 recreational catch trajectories for the 2016 CRA 4 stock assessment model.²¹

Other mortality

168. The 2016 stock assessment for CRA 4 used Ministry of Fisheries estimates of illegal catches from 1990 to 2004. Export discrepancies (the difference between reported catch totals and total exported weight) were used to estimate illegal catch before 1980. For the 2015/16 fishing year, while uncertain, the illegal catch estimate assumed for the model was 40 tonnes.
169. The CRA 4 assessment also assumed that handling mortality was 10% of returned lobsters until 1990, and then 5% thereafter. The model estimate of handling mortality was 18.14 tonnes for 2015.

Commercial fishing

170. Annual landings and the TACC for CRA 4 since 1990 are shown in Figure 12.
171. In 2007 and 2008, the CRA 4 TACC was substantially under-caught because industry used a voluntary management procedure to guide ACE shelving (Figure 12). Between 2012 and 2019 formally adopted CRA 4 management procedures have been used to review the TACC annually to ensure catches reflect available abundance. In the 2017/18 fishing year, 39 vessels caught at least one tonne of rock lobster.
172. The current asset value of the CRA 4 fishery is estimated to be over \$370 million based on the current TACC and the 2018/19 fishing year average quota share price. The average CRA 4 ACE value (the earnings quota owners receive when selling their ACE) for the 2018/19 fishing year was \$52,375 per tonne.

²¹ Section 111 catch is catch taken by commercial fishers for non-commercial purposes.

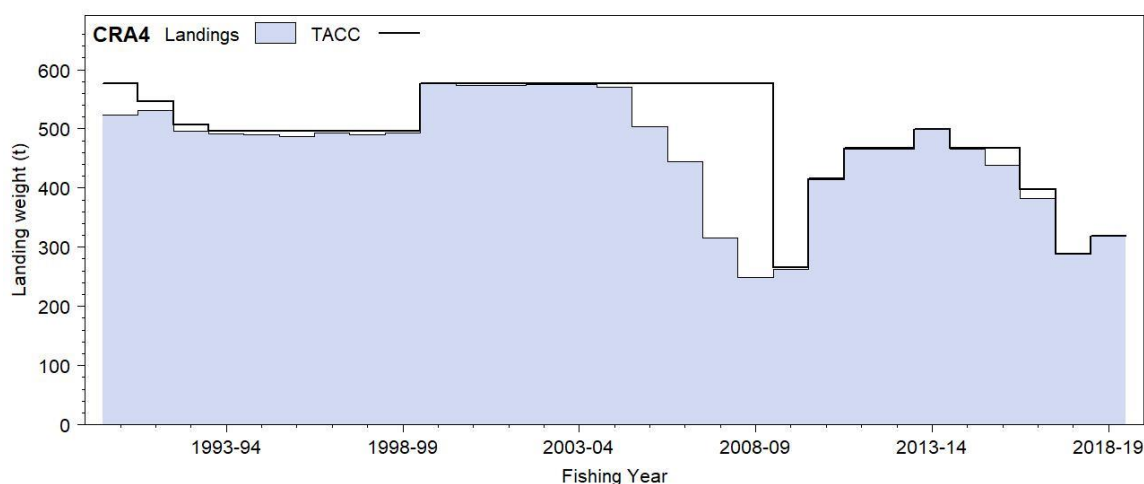


Figure 12: CRA 4 commercial landings and TACCs from 1990 to 2019.

10.3 Final CRA 4 options

173. Table 9 shows the final options proposed for CRA 4, which are the same as the consultation options. The results from the operation of the CRA 4 management procedure have been used to guide the options for varying the TAC.
174. The NRLMG, including Fisheries New Zealand, recommends that you agree to Option 4.1 (status quo). The NRLMG notes that the commercial members draw your attention to the links between your decisions on the TAC/TACC for CRA 4 and your separate decision on ACE carry forward.

Table 9: TAC, allowance and TACC final proposals (in tonnes) for CRA 4 from 1 April 2020. Blue shading shows the change proposals.

Stock	Option	TAC	TACC	Allowances			NRLMG support
				Māori customary	Recreational	Other mortality	
CRA 4	Option 4.1 Status quo	513.8	318.8	35	85	75	✓ All
	Option 4.2	569.4 ↑ (11%)	374.4 ↑ (17%)	35	85	75	✗

10.4 Summary of CRA 4 submissions

175. Ten submissions were received for CRA 4.

Support for Option 4.1 (status quo)

176. Te Ohu Kaimoana, ICP, Ngāti Kahungunu Iwi Inc, NZRFC, NZSFC, NZUA, NZ RLIC, CRAMAC 4, and an individual (M. Currie) all supported Option 4.1 (status quo). These submitters generally supported a conservative approach for CRA 4.
177. Ngāti Kahungunu Iwi Inc noted concerns with below average recruitment, decreasing long-term recruitment trends, climate change (warming waters) and the potential effects of seismic survey activity.
178. NZRFC noted that biomass has fluctuated in previous years, and that there has been an effort shift recently within CRA 4. NZSFC and NZUA supported retaining the status quo until an updated CRA 4 stock assessment, scheduled for 2021, has been completed to inform catch settings.

179. ICP and NZ RLIC note concerns that statistical areas 913 and 914 (lower Wairarapa), which are where the majority of catch is taken, have recently exhibited static CPUE trends, and question whether these areas can support the increased commercial catch proposed under Option 4.2. They also noted that a revised stock assessment using recent developments and improvements will be available to inform decisions for 1 April 2021.
180. CRAMAC 4 and NZ RLIC note that CRA 4 quota share owners are divided but the majority support the status quo. Some support the use of the CRA 4 management procedure, noting it was considered robust when a TACC decrease was proposed, so should be used when a TACC increase is proposed as it is still robust. These constituents note that since the last TACC cut in 2017, the stock has increased in abundance, which has been enhanced by your decision to defer the TACC increase suggested by the management procedure last year. Others are concerned that while some areas are doing well, they have reservations about placing more pressure on other areas, particularly statistical areas 913 and 914, which are historically the most productive areas. They are also mindful of avoiding the historical variability of abundance in the CRA 4 fishery.

Support for Option 4.2

181. Geoff and Paula Price supported Option 4.2, noting that abundance of legal and sub-legal rock lobsters in CRA 4 is increasing. These submitters support the use of the CRA 4 management procedure, but note concern for how any further increases in rock lobster abundance in CRA 4 could be utilised in coming years while the electronic data time series is established.

Other comments

182. An individual (M. Currie) also supported decreasing the CRA 4 recreational allowance for the purposes of conserving wildlife and biodiversity. Mr Currie did not specify what he wished the recreational allowance to be reduced to.

10.5 Analysis

183. The CRA 4 biomass level that can produce MSY is not known. Further work is needed in 2020 to evaluate how MSY can be determined for rock lobsters. The best available information from the 2016 stock assessment suggested that CRA 4 stock biomass was below the agreed reference level by 25%; however, fishery monitoring information suggests abundance has since increased.

Varying the TAC

184. Under Option 4.1 the CRA 4 TAC would stay at its current level of 513.8 tonnes. Compared with Option 4.2, this option could result in increased abundance in the CRA 4 fishery in the short-term, increased non-commercial catches and catch rates, and higher CPUE for commercial fishers, which may result in reduced harvesting costs.
185. Under Option 4.2 the CRA 4 TAC would be increased by 55.6 tonnes from 513.8 to 569.4 tonnes. The proposed TAC increase is guided by the use of the current CRA 4 management procedure that was agreed for use in 2017. This is the last year the CRA 4 management procedure will be operated.
186. The CRA 4 management procedure was designed to maintain the stock above the agreed reference level with greater than 50% probability. Simulation testing indicates it would maintain the stock above this level with 92% probability. Maintaining the stock above the reference level is likely to provide increased utilisation benefits for all sectors.
187. When the CRA 4 management procedure was operated for April 2019, an 8.6% TAC increase was proposed (similar to what is proposed for April 2020). You decided to take a cautious

approach and retain the CRA 4 TAC, because you considered it was “in the best interest for the long-term sustainable utilisation of the stock”²².

Use of management procedures

188. The NRLMG supports the use of management procedures, unless there are compelling reasons not to follow the procedure. Management procedures have been used in rock lobster fisheries since 1996 and they have performed well in rebuilding stocks from low levels of biomass.
189. Views of submitters can provide reasons not to follow a procedure. In this case, there is unanimous support from tangata whenua, recreational fishers and the rock lobster industry for no change to the TAC from 1 April 2020. These interests prefer to take a cautious approach this year, while a new CRA 4 stock assessment is carried out later in 2020 to inform TAC setting for April 2021. The NRLMG agrees in this case that there are compelling reasons not to follow the CRA 4 management procedure.

Varying allowances and the TACC

190. Table 10 provides a summary of information on current non-commercial allowances for CRA 4 and stock assessment assumptions of non-commercial catch.

Table 10: Current CRA 4 allowances and model assumptions of non-commercial catches (in tonnes).

CRA 4 (Wellington/Hawke's Bay)	Māori customary	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 for 2015.	40 illegal. 18 handling mortality.	115.5

Māori customary non-commercial fishing

191. No change is proposed to the 35 tonne CRA 4 Māori customary allowance. While noting the incompleteness and uncertainty in the CRA 4 customary harvest information, it is assumed that current harvest is well within allowance for Māori customary interests at this time.

Recreational fishing

192. No change is proposed to the 85 tonne recreational allowance for CRA 4. While there is uncertainty in the assumption made in the CRA 4 stock assessment to represent recreational catch, it is considered to be well within the current 85 tonne allowance. The CRA 4 2017/18 National Panel Survey recreational harvest estimate of 41.4 tonnes is also within the current allowance.
193. The 2020 CRA 4 stock assessment will provide updated estimates of recreational harvest. This information will inform whether a change is required to the recreational allowance, or whether a review of other recreational management controls is needed to manage catch (on average) to the allowance.

Other mortality

194. No change is proposed to the allowance for other sources of fishing-related mortality. While information suggests estimates of illegal take and handling-related mortality could be below the allowance, these estimates will be updated as part of the 2020 stock assessment and will inform future settings.

²² Minister's stakeholder decision letter on April 2019 sustainability measures:
www.fisheries.govt.nz/dmsdocument/33511-ministers-decision-letter-april-2019

Total Allowable Commercial Catch

195. Under Option 4.1 the CRA 4 TACC would stay at its current level of 318.8 tonnes. This option would maintain the current commercial utilisation benefits.
196. Under Option 4.2, the CRA 4 TACC would be increased to 374.4 tonnes, as guided by the use of the current CRA 4 management procedure.
197. A graphical representation of the CRA 4 management procedure is provided in Figure 13. The graph shows the proposed TACC for 2020 (pink cross symbol), as a function of CPUE in 2019 (0.9 kg/potlift).

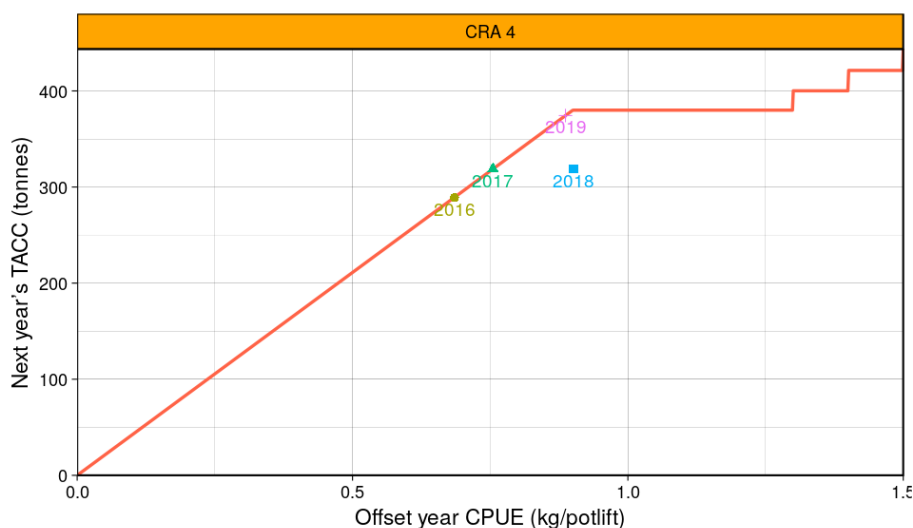


Figure 13: History of the CRA 4 management procedure. The coloured symbols show the 2016 to 2019 offset year (October to September) CPUE and the resulting TACCs.

198. The proposed 55.6 tonne TACC increase has the potential to result in an increase of annual revenue to the catching sector alone of approximately \$4.77 million (based on 2018/19 average port price information of \$85.839 per kg).
199. While the NRLMG continues to support the use of management procedures in rock lobster fisheries, there is broad stakeholder support for a conservative approach for CRA 4 in this case.

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

11.1 CRA 7 stock status

200. The results of the CRA 7 stock assessment conducted in 2015 suggested there were no sustainability concerns for the CRA 7 fishery. The 2015 vulnerable biomass was twice the agreed reference level²³. However, the CRA 7 spawning biomass estimate available from the last stock assessment was low, which results from the small minimum legal size and also from the estimated movements of pre-spawning fish out of CRA 7 into CRA 8.
201. 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. There has been a greater uptake of electronic data reporting in CRA 7 than in other areas; therefore, electronic data makes up a high proportion of the CPUE series. CRA 7 CPUE values for the 2018/19 offset year (October to September) differed by 25% without and with the inclusion of electronic

²³ The average pre-season autumn-winter vulnerable biomass associated with the period 1979/81, when the stock showed good productivity.

reporting data (Figure 14). CRA 7 CPUE has increased substantially from 2012, suggesting CRA 7 abundance has increased.

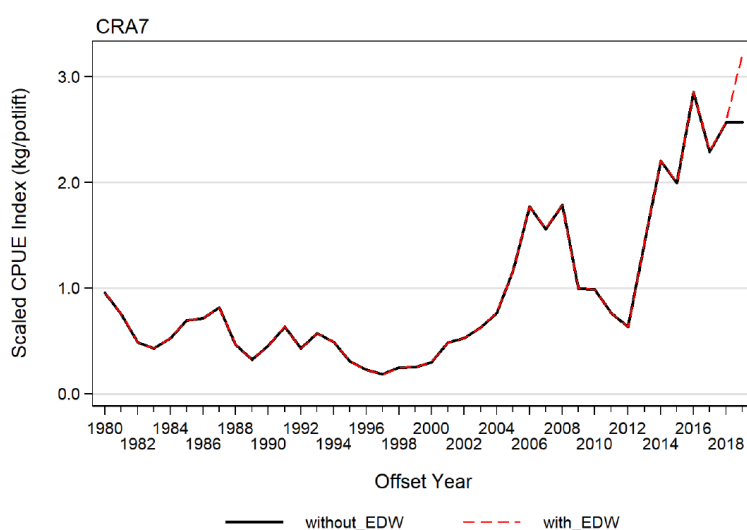


Figure 14: CRA 7 offset year (October to September) CPUE from 1980 to 2019, without and with electronic reporting data (EDW) included in the 2018/19 CPUE value.

11.2 CRA 7 fishery overview

Māori customary non-commercial fishing

202. Reporting of Māori customary catch of rock lobster is fully operational in CRA 7. In the 2017 calendar year, less than 1 tonne of rock lobster was reported as harvested from CRA 7.
203. An estimate of 1 tonne was used in the 2015 CRA 7 stock assessment model to represent customary catches.

Recreational fishing

204. The CRA 7 rock lobster fishery supports a relatively small recreational fishery off the Otago coastline.
205. There are no reliable recreational catch survey estimates for CRA 7. In the absence of any reliable information, the 2015 CRA 7 stock assessment assumed a constant estimate of 5 tonnes for recreational catch from 1979 to 2014. In addition, 1.7 tonnes of section 111 catches taken by commercial fishers for non-commercial purposes were included. There is no reliable National Panel Survey estimate for CRA 7 given the low number of fishers and events covered in the survey and the high variance (0.09 tonnes in 2017/18 (± 0.2 tonnes)).

Other mortality

206. The 2014 CRA 7 stock assessment used Ministry of Fisheries estimates of illegal catches from 1990 to 2002. The illegal catch estimate, while uncertain, was assumed to be 1 tonne per year from 2002-14. An estimate of handling-related mortality is not currently available for CRA 7, but will be generated by the CRA 7 stock assessment proposed for 2021.

Commercial fishing

207. Annual landings and the TACC for CRA 7 since 1990 are shown in Figure 15.
208. Since 1996, a CRA 7 management procedure has been used to guide the review of the TACC annually to ensure catch reflects available abundance (Figure 15). Despite this, there have

been some years where the TACC has not been fully caught. Since the 2011/12 fishing year, vessel numbers have remained low, ranging from 9 to 12 vessels.

209. Fisheries New Zealand estimates the current asset value of the CRA 7 fishery to be over \$73 million based on the current TACC and the 2017/18 fishing year average quota share price (no price information was available for 2018/19). The average CRA 7 ACE value (the earnings quota owners receive when selling their ACE) for the 2018/19 fishing year was \$36,883 per tonne.

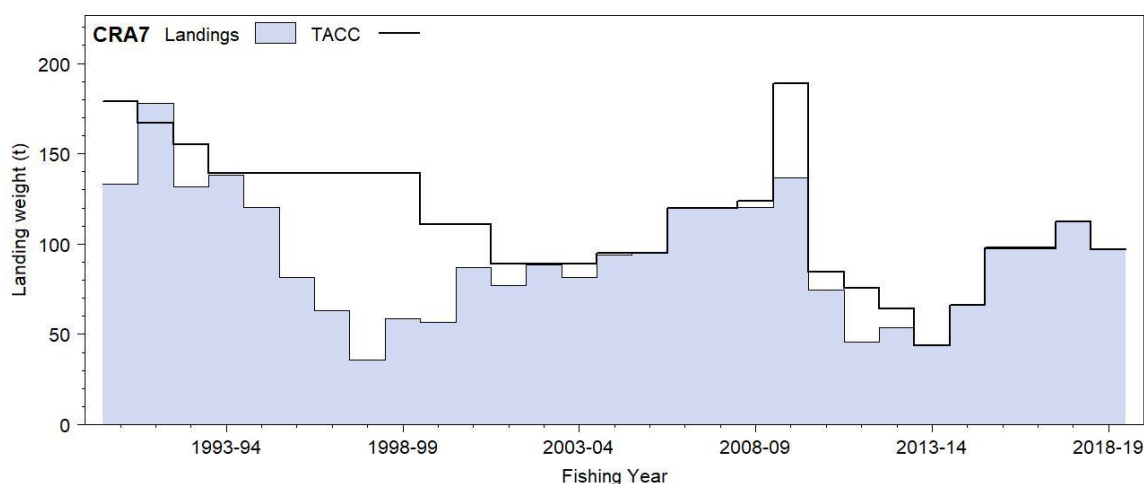


Figure 15: CRA 7 commercial landings and TACCs from 1990 to 2019.

11.3 Final CRA 7 options

210. Table 11 shows the final options proposed for CRA 7. Options 7.1 and 7.2 were consulted on, and Option 7.3 was developed by Fisheries New Zealand following consultation. The results from the operation of the CRA 7 management procedure have been used to guide the options for varying the TAC.

Table 11: TAC, allowance and TACC final proposals (in tonnes) for CRA 7 from 1 April 2020. Blue shading shows the change proposals.

Stock	Option	TAC	TACC	Allowances			NRLMG support
				Māori customary	Recreational	Other mortality	
CRA 7	Option 7.1 Status quo	117	97	10	5	5	✓ Recreational
	Option 7.2	146.9 ↑ (26%)	126.9 ↑ (31%)	10	5	5	✓ Tangata whenua & Commercial
	Option 7.3	126.2 ↑ (8%)	106.2 ↑ (9.5%)	10	5	5	✓ Fisheries NZ

211. The NRLMG did not reach consensus on the preferred option for CRA 7.
212. NRLMG recreational members recommend that you agree to Option 7.1 (status quo), because of the uncertainty in the information, and that they do not support a TAC increase with the CRA 7 differential minimum legal size in place. In CRA 7, commercial fishers can land male and female rock lobsters at or above 127 mm tail length at any time of year.
213. NRLMG tangata whenua members recommend that you increase the CRA 7 TAC and TACC by 29.9 tonnes (Option 7.2) based on the use of the CRA 7 management procedure with 2017/18 electronic data included. NRLMG commercial members also support an increase to

the TACC, but along with tangata whenua members, note reservations about the use of the new electronic data in the current management procedure. However, the CRA 7 industry (ORLIA) suggests the fishery has been performing well over the last five years and there is unlikely to be a risk to the sustainability of the stock with an increase to the TAC/TACC. This increase will be revisited at the time of the next stock assessment, currently proposed for 2021.

214. Fisheries New Zealand recommends that you agree to Option 7.3, which is to increase the CRA 7 TAC and TACC by 9.2 tonnes. This is based on the use of the CRA 7 management procedure with solely paper-based data and choosing not to follow the minimum change threshold of 10% of the TACC. Fisheries New Zealand considers that this option provides a balance between allowing greater levels of commercial utilisation, while acknowledging the uncertainty in using electronic data to inform management decisions at this time.

11.4 Summary of CRA 7 submissions

215. Seven submissions were received for CRA 7.

Support for Option 7.1 (status quo)

216. NZRFC, NZSFC, and NZUA supported Option 7.1 on the basis that CRA 7 is a small fishery that fluctuates in abundance with lobsters walking into CRA 8. An individual (M. Currie) also supported the status quo.
217. NZRFC note concerns about CPUE transitioning to electronic reporting data, and suggest a precautionary approach and freezing any TAC increases until a new trusted CPUE time series is established.

Support for Option 7.2

218. Te Ohu Kaimoana supports Option 7.2. They note that Ngai Tahu supports the use of the CRA 7 management procedure in their rohe, and that the latest CRA 7 stock assessment indicates the stock is highly likely to be at or above its reference level, and overall, CRA 7 CPUE has performed well for the last five years.
219. ORLIA notes that anecdotal evidence indicates that CRA 7 abundance has been increasing in recent years. It considers that it would be inequitable to fishers to not allow them to utilise this increase in abundance, particularly given the potential for lobsters to migrate into CRA 8. They note that CPUE based increases have been constrained by the 50% maximum change threshold in the current management procedure and believe there is a considerable accumulation of lobsters on the grounds. ORLIA is confident in the increase proposed under Option 7.2 based on electronic reporting data and abundance its members have seen for past few seasons. ORLIA notes risk that proceeding with Option 7.2 could result in the TACC being set too high for the CRA 7 fishery to sustain, but considers this risk will be ameliorated by the development of alternative assessment approaches beyond April 2020.
220. NZ RLIC supports an increase in the CRA 7 TACC, but retains reservations about the comparability of electronic reporting and paper-based data, and therefore the use of electronic data in the current management procedure.

Other comments

221. An individual (M. Currie) also supported decreasing the CRA 7 recreational allowance for the purposes of conserving wildlife and biodiversity. Mr Currie did not specify what he wished the recreational allowance to be reduced to.
222. NZSFC, NZUA and NZRFC consider that the commercial differential minimum legal size for CRA 7 rock lobsters must be revoked.
223. The CRA 7 stock assessment is based on the current minimum legal size regime, including the differential. The CRA 7 differential minimum legal size has been reviewed in the last 10 years and Fisheries New Zealand is not proposing to review it again at this time.

11.5 Analysis

224. The CRA 7 biomass level that can produce MSY is not known. Further work is needed in 2020 to evaluate how MSY can be determined for rock lobsters. However, the best available information on CRA 7 suggests stock biomass is very likely to be at or above the agreed reference level.

Varying the TAC

225. The CRA 7 TAC options are guided by the use of the CRA 7 management procedure; however, two different 2018/19 offset year CPUE values have been used to operate the procedure.
226. Under Option 7.1 the CRA 7 TAC would stay at its current level of 117 tonnes. This option is based on the operation of the CRA 7 management procedure with a 2018/19 CPUE value without the inclusion of the new electronic reporting data. Compared with Options 7.2 and 7.3 (proposed change), this option could result in increased abundance in the CRA 7 fishery in the short-term, increased non-commercial catches and catch rates, and higher CPUE for commercial fishers, which may result in reduced harvesting costs.
227. Under Option 7.2 the CRA 7 TAC would be increased by 29.9 tonnes to 146.9 tonnes. This option is based on the operation of the CRA 7 management procedure with a 2018/19 CPUE value that has the new electronic reporting data included.
228. Under Option 7.3, the CRA 7 TAC would be increased by 9.2 tonnes to 126.2 tonnes. This option is based on the operation of the CRA 7 management procedure with solely paper-based data and choosing to not apply the minimum change threshold of 10% of the TACC.
229. The NRLMG has some reservations in using electronic data to operate the CRA 7 management procedure, because it is not yet known how comparable the paper-based and electronic CPUE series will be. The CRA 7 management procedure was designed to maintain the stock above the agreed reference level with high probability using the paper-based CPUE series. It is uncertain how the use of electronic CPUE in the CRA 7 management procedure will alter its performance.
230. Overall, it is unknown whether the increased CPUE with the inclusion of electronic reporting data represents an increase in abundance. If it doesn't represent an abundance increase, then Option 7.1 has little or no sustainability risk, and Options 7.2 and 7.3 could pose some sustainability risks to the stock.
231. This is the last year the current CRA 7 management procedure will be operated and a new CRA 7 stock assessment is proposed for 2021. It is likely that the TAC increase proposed could be fixed until April 2022, when new information becomes available from the stock assessment to inform TAC setting.

Varying allowances and the TACC

232. Table 12 provides a summary of information on current non-commercial allowances for CRA 7 and stock assessment assumptions of non-commercial catch.

Table 12: Current CRA 7 allowances and model assumptions of non-commercial catches (in tonnes).

CRA 7 (Otago)	Māori customary	Recreational	Other mortality	Total
Current allowances	10	5	5	20
Non-commercial catch assumptions for the 2015 stock assessment	1	5	1 (constant from 2002)	7

Māori customary non-commercial fishing

233. No change is proposed to the 10 tonne Māori customary allowance. Current harvest is considered to be conservative and is well within the allocation for this interest at this time.

Recreational fishing

234. No change is proposed to the 5 tonne recreational allowance for CRA 7. While there is considerable uncertainty in the current estimate of recreational catch, it is considered to be within the current 5 tonne allowance. A new CRA 7 stock assessment is proposed for 2021 and will provide updated estimates of recreational harvest. This information will inform whether a change is required to the recreational allowance, or whether a review of other recreational management controls is needed to manage catch (on average) to the allowance.

Other mortality

235. No change is proposed to the 5 tonne CRA 7 allowance for other sources of fishing-related mortality. There are no new illegal take estimates and an estimate of handling-related mortality is not currently available for CRA 7. These estimates will be considered at the time of the next proposed CRA 7 stock assessment in 2021.

Total Allowable Commercial Catch

236. Under Option 7.1 the CRA 7 TACC would stay at its current level of 97 tonnes. A graphical representation of the CRA 7 management procedure is provided in Figure 16. The graph shows the proposed TACC for 2020 as a function of CPUE in 2019 (2.57 kg/potlift, without electronic reporting data). This option maintains the current level of commercial utilisation, without realising the potential for increased commercial utilisation.

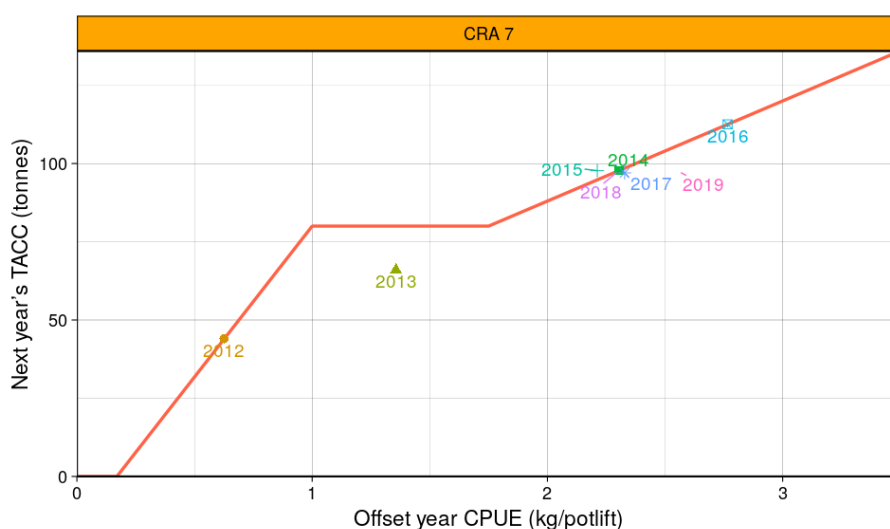


Figure 16: History of the CRA 7 management procedure. The coloured symbols show the 2012 to 2019 CPUE and the resulting TACCs [without] electronic reporting data in 2019].

237. Under Option 7.2 the CRA 7 TACC would be increased by 29.9 tonnes to 126.9 tonnes, as guided by the use of the CRA 7 management procedure (Figure 17). The graph shows the proposed TACC for 2020 as a function of 2019 CPUE (3.22 kg/potlift, with the inclusion of electronic reporting data).

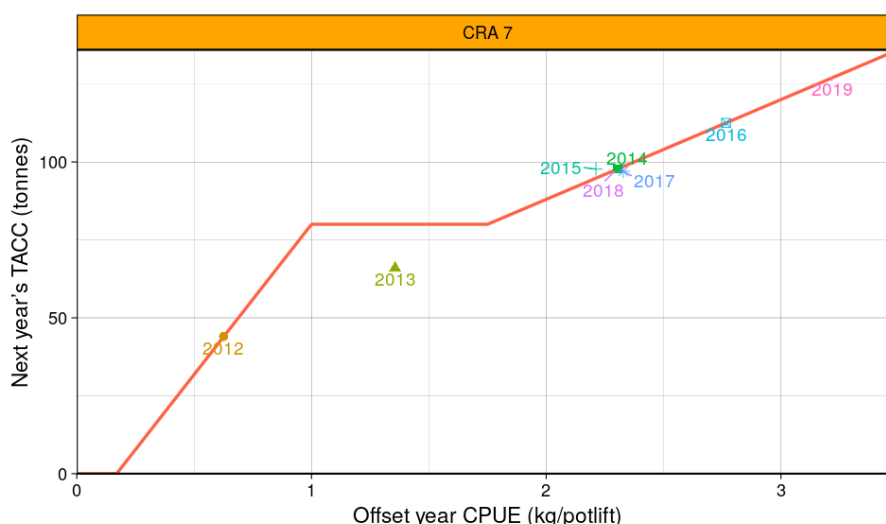


Figure 17: History of the CRA 7 management procedure. The coloured symbols show the 2012 to 2019 CPUE and the resulting TACCs [with electronic reporting data in 2019].

238. The proposed 29.9 tonne TACC increase has the potential to result in an increase of annual revenue to the catching sector alone of approximately \$5.33 million (based on 2018/19 average port price information of \$85.839 per kg). CRAMAC 7 supports this estimate and notes that export earnings could be higher again, with a large portion of these increased earnings likely to be spent within the southern regional economies, and existing vessels expected to become more financially efficient and profitable.
239. Under Option 7.3 the CRA 7 TACC would be increased by 9.2 tonnes to 106.2 tonnes. This is based on the use of the CRA 7 management procedure with solely paper-based data (Figure 17) and choosing not to follow the 10% minimum change threshold. The proposed 9.2 tonne TACC increase has the potential to result in an increase of annual revenue to the catching sector alone of approximately \$790K.

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

12.1 CRA 8 stock status

240. The results of the CRA 8 stock assessment conducted in 2015 suggested that there were no sustainability concerns for the CRA 8 fishery. Vulnerable biomass in 2015 was 1.4 times the agreed target biomass reference level²⁴. Autumn-winter spawning stock biomass in 2015 was 44% of the unfished level, well above the soft limit of 20%.
241. 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 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. Unlike other rock lobster fisheries, a lot of fish are returned to the water in CRA 8 to select the premium size: an estimated 40% by weight (from the 2015 stock assessment).
242. The history of CRA 8 commercial CPUE is shown in Figure 18. CPUE has increased steadily since 2015, to the highest CPUE in the observed history in 2019 (a CPUE of 4.83 kg/potlift). The CRA 8 CPUE value for the 2018/19 offset year did not differ with or without the inclusion of electronic reporting data.

²⁴ The average pre-season autumn-winter vulnerable biomass associated with the period 1979/81, when the stock showed good productivity.

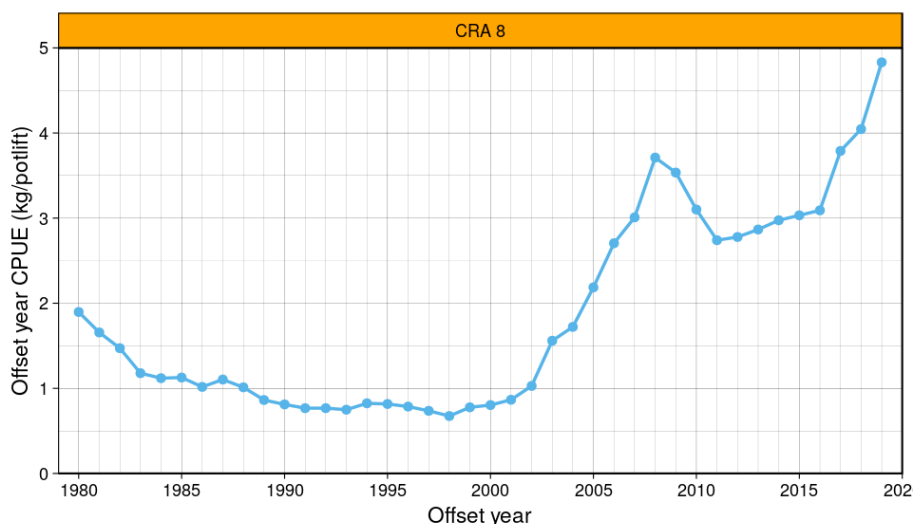


Figure 18: CRA 8 offset year (October to September) CPUE 1980 to 2019.

12.2 CRA 8 fishery overview

Māori customary non-commercial fishing

243. Reporting of Māori customary catch of rock lobster is fully operational in CRA 8 (Southern). In the 2017 calendar year, approximately 16,500 rock lobsters, plus 2.3 tonnes, were reported as harvested from CRA 8.
244. An estimate of 6 tonnes was used in the 2015 CRA 8 stock assessment model to represent customary catches from 1963 to 2012, which was then increased proportionately to 15 tonnes in 2014 (the last year of the stock assessment model).

Recreational fishing

245. 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 in 2005 by the Fiordland Marine Guardians.
246. Overall, little is known about recreational catch in CRA 8. In the 2015 CRA 8 stock assessment, a recreational catch trajectory was constructed as follows: beginning at 1 tonne in 1945 recreational catch was increased to 5 tonnes in 1979, and then from 1979 to 2014 recreational catch was assumed to be a constant 20 tonnes. In addition, 18.8 tonnes of section 111 catches taken by commercial fishers for non-commercial purposes were included. The 2017/18 National Panel Survey estimate of CRA 8 recreational catch was 16.17 tonnes (± 11.4 tonnes).

Other mortality

247. The 2015 CRA 8 stock assessment used Ministry of Fisheries estimates of illegal catches from 1990 to 2002. An estimate of 3 tonnes was used from 2011-14, with the missing years from 2003-10 interpolated from the 18 tonnes estimated for 2002. An estimate of handling-related mortality is not currently available for CRA 8, but will be generated by the CRA 8 stock assessment proposed for 2021.

Commercial fishing

248. CRA 8 is the largest commercial rock lobster fishery in New Zealand. Annual landings and the TACC for CRA 8 since 1990 are shown in Figure 19.

249. Since 1996, a CRA 8 management procedure has been used to review the TACC annually to ensure catches reflect available abundance. The TACC has been fully caught from 1998 onwards (Figure 19). In 2017/18 fishing year, 65 vessels reported catching at least 1 tonne of rock lobsters.
250. The current asset value of the CRA 8 fishery is estimated to be over \$1.72 billion based on the current TACC and the 2018/19 fishing year average quota share price. The average CRA 8 ACE value (the earnings quota owners receive when selling their ACE) for the 2018/19 fishing year was \$51,038 per tonne.

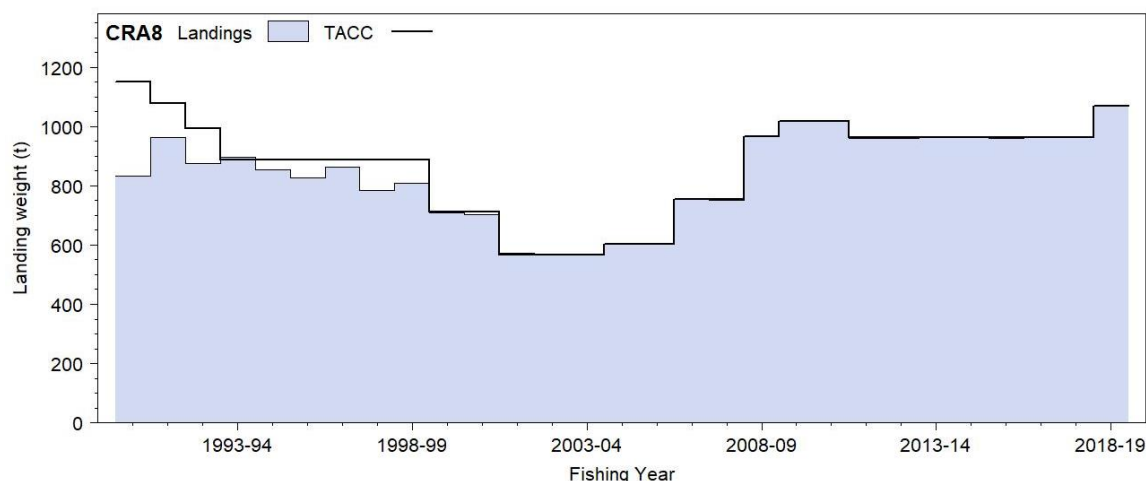


Figure 19: CRA 8 commercial landings and TACCs from 1990 to 2019.

12.3 Final CRA 8 options

251. Table 13 shows the final options proposed for CRA 8, which are the same as the consultation options. The results from the operation of the CRA 8 management procedure have been used to guide the options for varying the TAC.
252. The NRLMG, including Fisheries New Zealand, recommends that you agree to Option 8.2.

Table 13: TAC, allowance and TACC final proposals (in tonnes) for CRA 8 from 1 April 2020. Blue shading shows the change proposals.

Stock	Option	TAC	TACC	Allowances			NRLMG support
				Māori customary	Recreational	Other mortality	
CRA 8	Option 8.1 Status quo	1220.6	1129.6	30	33	28	x
	Option 8.2	1282.7 ↑ (5%)	1191.7 ↑ (5%)	30	33	28	✓ All

12.4 Summary of CRA 8 submissions

253. Eight submissions were received for CRA 8.

Support for Option 8.1 (status quo)

254. An individual (M. Currie) supported the status quo.

Support for Option 8.2

255. Te Ohu Kaimoana, NZRFC, CRAMAC 8, Elbury Holdings Ltd, and NZ RLIC supported Option 8.2. Te Ohu Kaimoana notes that Ngai Tahu supports the use of the CRA 8 management procedure, and that the latest CRA 8 stock assessment indicates the stock is

highly likely to be at or above its reference point, and overall, CRA 8 CPUE has performed well for the last five years.

256. CRAMAC 8 commented that the amount of high-grading in the CRA 8 fishery is high as a result of the continued high abundance. It notes that lobsters that are returned to the sea may have a reduced economic value but have a very high biological value in that they have resulted in a very large breeding biomass. CRAMAC 8 considers it reasonable to assume that the ongoing high abundance in the fishery is a result of this practice coupled with a conservative TACC.

Other comments

257. An individual (M. Currie) also supported decreasing the CRA 8 recreational allowance for the purposes of conserving wildlife and biodiversity. Mr Currie did not specify what he wished the recreational allowance to be reduced to.
258. NZSFC and NZUA considered that the differential minimum legal size in CRA 8 must be revoked before any TAC increase is applied, and that the other mortality allowance should be increased to 35 tonnes if the TACC is increased this year. The NZRFC also questioned the need for the ongoing use of the CRA 8 differential minimum legal size.
259. In CRA 8, commercial fishers can land female rock lobsters at or above 57 mm tail width at any time of year. The CRA 8 stock assessment is based on the current minimum legal size regime, including the differential. The CRA 8 differential minimum legal size has been reviewed in the last 10 years and Fisheries New Zealand is not proposing to review it again at this time.

12.5 Analysis

260. The CRA 8 biomass level that can produce MSY is not known. Further work is needed in 2020 to evaluate how MSY can be determined for rock lobsters. However, the best available information on CRA 8 suggests stock biomass is well above the agreed reference level.

Varying the TAC

261. Under Option 8.1 the CRA 8 TAC would stay at its current level of 1220.6 tonnes. This option could result in increased abundance in the CRA 8 fishery in the short-term, increased non-commercial catches and catch rates compared with Option 8.2 (proposed change), and higher CPUE for commercial fishers, which may result in reduced harvesting costs. However, this option forgoes the opportunity to take advantage of the proposed TACC increase under Option 8.2.
262. Under Option 8.2 the CRA 8 TAC would be increased to 1282.7 tonnes. The proposed TAC increase is guided by the use of the CRA 8 management procedure that was agreed to be used in 2016.
263. The CRA 8 management procedure was designed to maintain the stock above the agreed target biomass reference level with greater than 50% probability. Simulation testing indicates it would maintain the stock above this level with 99% probability. This is likely to provide increased utilisation benefits for all sectors.
264. This is the last year the current CRA 8 management procedure will be used and a new CRA 8 stock assessment is proposed for 2021. It is likely that the TAC increase proposed could be fixed until April 2022, when new information becomes available from the stock assessment to inform TAC setting.

Varying allowances and the TACC

265. Table 14 provides a summary of information on current non-commercial allowances for CRA 8 and stock assessment assumptions of non-commercial catch.

Table 14: Current CRA 8 allowances and model assumptions of non-commercial catches (in tonnes).

CRA 8 (Southern)	Māori customary	Recreational	Other mortality	Total
Current allowances	30	33	28	91
Non-commercial catch assumptions for the 2015 stock assessment	15 in 2014	20	3 from 2011 to 2014	38

Māori customary non-commercial fishing

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

Recreational fishing

267. No change is proposed to the 33 tonne recreational allowance for CRA 8. While there is uncertainty in the current estimate of recreational catch, it is considered to be within the current 33 tonne allowance. The CRA 8 2017/18 National Panel Survey recreational harvest estimate of 16.17 tonnes is also within the current allowance.
268. A new CRA 8 stock assessment is proposed for 2021 and will provide updated estimates of recreational harvest. This information will inform whether a change is required to the recreational allowance, or whether a review of other recreational management controls is needed to manage catch.

Other mortality

269. No change is proposed to the 28 tonne CRA 8 allowance for other sources of fishing-related mortality. There are no new illegal take estimates. An estimate of handling-related mortality is also not currently available for CRA 8, and will be generated at the time of the next proposed CRA 8 stock assessment in 2021. This information will be considered in future allowance setting.
270. NZSFC and NZUA consider that the other mortality allowance should be increased to 35 tonnes if the TACC is increased this year, but do not provide rationale for this figure. The NRLMG considers that while information on illegal take is uncertain, the other mortality allowance should be maintained until the CRA 8 stock assessment can provide updated information on handling mortality and illegal take.

Total Allowable Commercial Catch

271. Under Option 8.1 the CRA 8 TACC would stay at its current level of 1129.6 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.
272. Under Option 8.2 the CRA 8 TACC would be increased to 1191.7 tonnes, as guided by the use of the CRA 8 management procedure.
273. A graphical representation of the CRA 8 management procedure is provided in Figure 20. 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 a higher biomass and maximise economic return. The graph shows the proposed TACC for 2020 (pink square symbol), as a function of CPUE in 2019 (4.83kg/potlift).

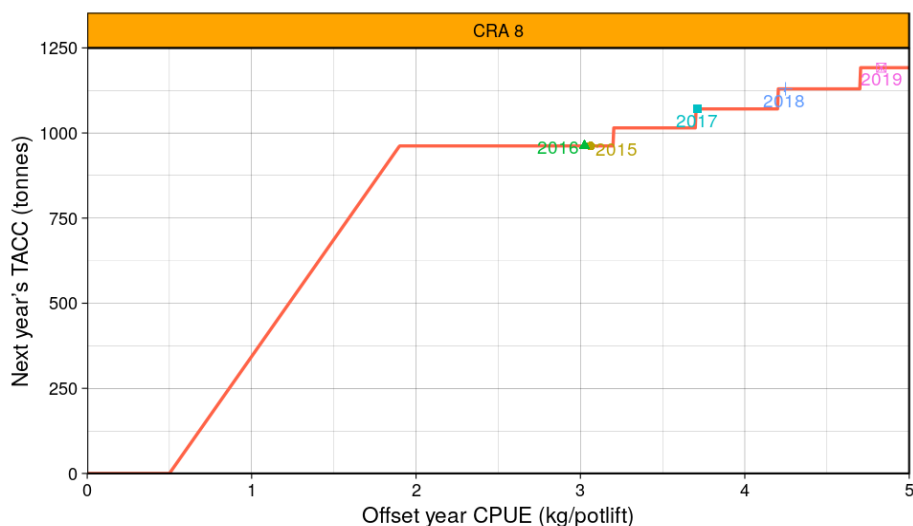


Figure 20: History of the CRA 8 management procedure. The coloured symbols show the 2016 to 2019 offset year (October to September) CPUE and the resulting TACCs.

274. The proposed 62.1 tonne TACC increase has the potential to result in an increase of annual revenue to the catching sector alone of approximately \$5.33 million (based on 2018/19 average port price information of \$85.839 per kg). CRAMAC 8 supports this estimate and notes that export earnings will be higher again, with a large portion of these increased earnings likely to be spent within the southern regional economies. CRAMAC 8 considers that it is unlikely that this increase will result in the addition of further vessels to the catching fleet; instead, the existing vessels are expected to become more financially efficient and profitable.

Appendix 1 – Other statutory considerations

In addition to your central statutory considerations for setting or varying TACs and TACCs under the Act, the following statutory considerations are also relevant.

Decisions you may make	Requirements – things you must do when making decisions
Part 1: Preliminary Provisions	
Section 5a – International obligations 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.	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).
Section 5b – Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 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).	The Crown recognises that traditional fisheries are of importance to Māori. 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. The development of customary regulations and Iwi Fisheries Forums to provide for the input and participation of tangata whenua 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.
Part 2: Purpose and principles	
Section 8 - Purpose Provide for the utilisation of fisheries resources while ensuring sustainability	"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." 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".²⁵
Section 9 – Environmental principles You must take into account three environmental principles when exercising powers in relation to the utilisation of fisheries resources or ensuring sustainability.	(a) associated or dependent species should be maintained above a level that ensures their long-term viability (b) biological diversity of the aquatic environment should be maintained (c) habitat of particular significance for fisheries management should be protected.
The NRLMG considers that the options presented in this paper will provide for the section 9 principles to be maintained. Rock lobster is taken by potting and hand-gathering fishing methods which have relatively low levels of bycatch. These methods are also considered to have very little direct effect on the aquatic environment.	

²⁵ *Recreational Fishing Council Inc v Sanford Limited and Ors* [2009] NZSC 54 at [39].

Decisions you may make	Requirements – things you must do when making decisions
Section 10 – Information principles You must take into account four information principles when exercising powers in relation to the utilisation 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. 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. Less than full information suggests caution in decision-making, not deferral of a decision completely. As a general principle, information outlined in the Fisheries New Zealand 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.²⁶ Corroborated anecdotal information also has a useful role to play in the stock assessment process and in the management process.
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 Fisheries New Zealand's Fisheries Assessment Working Groups and meets the Fisheries New Zealand Research and Science Information Standard for New Zealand Fisheries.	
Section 11A You may approve or revoke fisheries plans And Before setting or varying any sustainability measure you must take into account any relevant fisheries plan that has been approved. (Section 11(2A)(b)).	Fisheries plans may include: (a-c) fisheries management objectives, strategies to achieve them, and performance criteria to measure achievement (d) Conservation or fisheries services (e) Contingency strategies to deal with foreseeable variations in circumstances.
To date national fisheries plans have been approved only for deepwater and highly migratory species, the Foveaux Strait oyster fishery and PAU 4 (Chatham Islands).	

²⁶ A non-binding Fisheries New Zealand Policy Document.

Appendix 2 – Other matters raised in submissions

The following matters were raised in submissions that did not relate to the proposed sustainability measures discussed in this paper:

Topic	Submitter	NRLMG Response
Non-commercial removals		
Estimating and effectively managing recreational harvest	Te Ohu Kaimoana, CRAMAC 3, CRAMAC 4, ICP, NZ RLIC	NRLMG tangata whenua, recreational and commercial sector members are concerned about the availability and reliability of recreational harvest estimates from rock lobster fisheries as a basis for fisheries management decisions. They consider 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. Commercial sector members further note it has been demonstrated that poor information poses risks to stocks. They consider that there is an urgent need to consider other assessment approaches, and delays in adjustment to recreational management controls need to be addressed. Fisheries New Zealand considers that information on the level of recreational harvest of rock lobsters has improved in recent years through specific onsite and National Panel surveys. An update to the National Panel Survey was carried out for the 2017/18 year. Fisheries New Zealand invests a considerable amount of its fisheries research budget into obtaining recreational harvest estimates for key fishstocks. This matter has been identified as a priority matter to be addressed by the NRLMG in 2020.
Estimating and effectively constraining illegal harvest	Te Ohu Kaimoana, CRAMAC 3, CRAMAC 4, ICP, NZ RLIC	Accurately identifying and effectively constraining and reducing illegal take of rock lobster is a matter of high priority for the NRLMG. It is considered that the estimates of illegal take are inaccurate, and may be compromising the accuracy of stock assessments, the appropriate setting of catch limits, and the sustainable utilisation of rock lobster fisheries. Fisheries New Zealand notes that estimating illegal removals is inherently difficult, as by its' nature it is hard to detect. This matter has been identified as a priority matter to be explored by the NRLMG in 2020.
Regulatory measures		
CRA 3 management measures	Alain Jorion, CRAMAC 3, NZRFC, NZSFC, NZUA	The NRLMG will shortly be presenting you with separate advice regarding the review of CRA 3 management measures, including the CRA 3 differential minimum legal size. This will determine the next steps and whether public consultation on regulatory amendments should be progressed.
Reducing the daily recreational bag limit for rock lobster from six to one from North Cape to East Cape (CRA 1 & 2)	Oceans Family Trust	The NRLMG notes that you have decided to reduce the CRA 2 recreational daily bag limit from six to three rock lobsters, which will come into effect from April/May 2020. A reduction to the CRA 1 recreational bag limit will be considered in the future if required to manage catch (on average) to the allowance.
Recreational accumulation limit and telson clipping	NZ RLIC	The NZ RLIC recommends that the work program for the NRLMG should include the application of an accumulation limit and associated 'bag and tag' conditions on all management areas. It also recommends that the NRLMG should advise you to adopt telson clipping for recreationally caught lobsters across New Zealand. These measures would complement the other measures in place to address illegal take nationally. These matters will be explored by the NRLMG in 2020.
Amateur charter vessels	NZ RLIC	The NZ RLIC considers that steps need to be taken to better manage amateur charter vessel fishing overall and its expansion and the consequent increase in take.

Topic	Submitter	NRLMG Response
		They suggest that the NRLMG must have a focus on providing advice to you in 2020 to better manage the amateur charter vessel sector. This matter will continue to be explored by the NRLMG in 2020.
Removal of aggregation limits for all fish stocks	Oceans Family Trust	Separate advice is being developed by Fisheries New Zealand for your consideration in the near future.
Revoke the CRA 7 and 8 differential minimum legal sizes	NZRFC, NZSFC, NZUA	Fisheries New Zealand is not proposing to review the differential minimum legal sizes in CRA 7 and CRA 8 at this time. It supports the NRLMG review of the CRA 3 management controls, including the differential minimum legal size (as discussed above).
Consultation		
Consultation options – more than one change proposal should be consulted on	NZRFC, NZSFC, NZUA	Tangata whenua and stakeholders were explicitly encouraged in the consultation document to provide alternative options along with supporting rationale. The modified additional options proposed for CRA 1, CRA 3 and CRA 7 are an example of this. They were developed based on tangata whenua and stakeholder feedback and are within the range of options consulted on.
Tail fan necrosis		
Spread of tail fan necrosis through handling and returning lobsters during fishing	Prof A. Jeffs	There is no scientific evidence that tail fan necrosis is transmitted through handling lobsters, or that commercial fishing activity is initiating tail fan necrosis in rock lobster populations. While the work cited by Prof Jeffs provides information on the pathology of tail fan necrosis and the bacterial communities associated with it, it has not shown that any of these bacteria are a causative agent. Tail fan necrosis is a complex syndrome and its cause is currently unknown. Work is currently underway with the Ministry for Primary Industries and NZ RLIC to conduct an epidemiological study to understand the prevalence, distribution, and possible risk factors of tail fan necrosis.

Appendix 3 – Submissions received on the Discussion Document

See attached document.