Fisheries New Zealand
Tini a Tangaroa

Review of Sustainability Measures for Frostfish (FRO 3, FRO 4, FRO 7, FRO 8 and FRO 9) for 2020/21

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Frostfish (FRO 3 & 4 and FRO 7, 8 & 9)
Lepidopus caudatus, para, taharangi, hikau

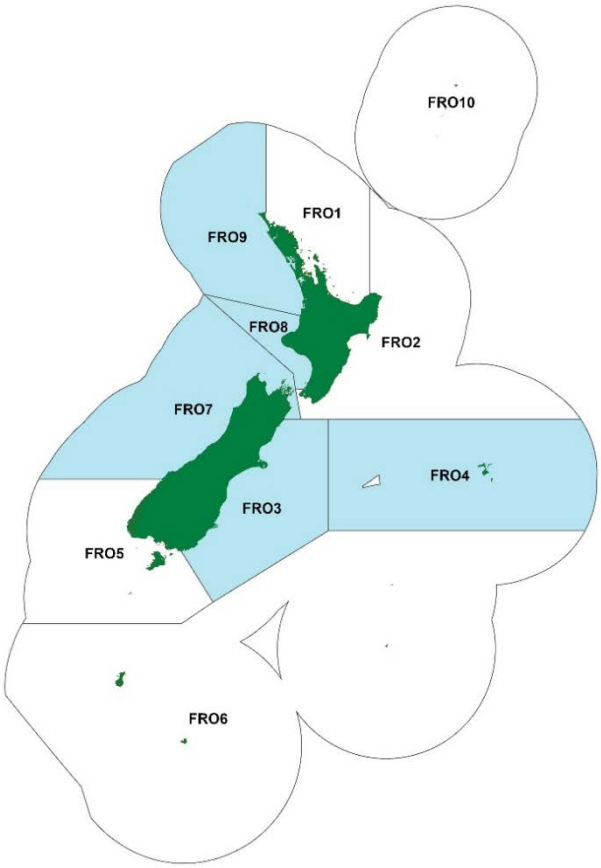

Figure 1: The Quota Management Areas (QMA) for the five frostfish stocks

2 Summary

1. Fisheries New Zealand is reviewing the sustainability measures for frostfish in five Quota Management Areas (FRO 3, FRO 4, FRO 7, FRO 8 and FRO 9) for the 1 October 2020 fishing year.

2. Frostfish is predominantly a commercial species. In the five fishstocks that are the subject of this discussion paper, most catch is taken by the deepwater trawl fleet as bycatch to other fisheries including jack mackerel, hoki and barracouta.

3. It is proposed to redistribute the combined Total Allowable Catch (TAC) and Total Allowable Commercial Catch (TACC) of two groups of stocks: the current combined TACC would remain the same, however the TACC for the individual stocks within each group would be altered. The two groups of stocks are:

    - The Chatham Rise stocks (FRO 3 and FRO 4)
    - The west coast North Island / South Island stocks (FRO 7, FRO 8 and FRO 9)

4. Aside from the *status quo*, a single option is proposed for each group of stocks:

   Option 1 is to redistribute the TAC and TACC between the individual stocks within each group as well as set an allowance for other mortality caused by fishing for the first time. The combined TACC would remain unchanged. However, the inclusion of the allowance for other mortality caused by fishing would result in a minor change to the combined TAC for each group.

Table 1: Proposed changes to TACs for the two groups of frostfish stocks

Chatham Rise stocks			West Coast South Island / North Island stocks		
	Current TAC	Proposed TAC		Current TAC	Proposed TAC
FRO 3	176	82	FRO 7	2,625	2,154
FRO 4	28	126	FRO 8	649	918
Combined	204	208	FRO 9	140	410
			Combined	3,414	3,482

5. The rationale for Option 1 is that the original QMAs were created on the basis of administrative units of management: one QMA for each fishery management area. Recent catch suggests that the current TACs are not aligned with the distribution of the stock. The intention of the proposal is to align TACs with the likely level of abundance in each management unit.

6. The two groups of stocks are thought to be separate biological stocks. While combined catches have, to date, been less than the sum of the TACCs, catch of individual stocks is often higher than that stock's TACC. This results in fishers being unable to balance catch with Annual Catch Entitlement (ACE) in some stocks, while ACE remains uncaught in others. Aligning TACs with the likely level of abundance in each QMA will enhance fishers' ability to balance catch with ACE.

7. Fisheries New Zealand is seeking feedback and submissions on the proposal to redistribute the TAC and TACCs within two groups of frostfish stocks.

3 Quota Management System

8. Frostfish was introduced into the QMS on 1 October 1998, with TAC/TACCs based on average landings in the years prior to QMS introduction. The time period used to determine average landings differed depending on the stock but was between 10 and 13 years.

9. Ten QMAs were created for frostfish; one for each of the 10 fishery management areas. This meant that administrative stock boundaries were not based on likely biological stocks.

10. Catch limits for the Chatham Rise stocks (FRO 3 and FRO 4) were reviewed in 2006 on the basis of catches exceeding catch limits. The TAC and TACC for FRO 3 were both increased from 128 to 176 tonnes, and the TAC and TACC for FRO 4 were both increased from 5 to 38 tonnes.

11. Catch limits for the west coast North Island / South Island stocks (FRO 7-9) have remained unchanged since 1998.

12. For more information about the QMS go to https://www.mpi.govt.nz/law-and-policy/legal-overviews/fisheries/quota-management-system/.

4 Legal basis for managing fisheries in New Zealand

13. The Fisheries Act 1996 provides the legal basis for managing fisheries in New Zealand, including the Minister's responsibilities for setting and varying sustainability measures. See the separate document *Overview of legislative requirements and other considerations* at https://www.fisheries.govt.nz/dmsdocument/40502 for more information.

5 Treaty of Waitangi obligations

5.1 Input and participation of tangata whenua

14. Input and participation into the sustainability decision-making process is provided through Iwi Fisheries Forums, which have been established for that purpose. Each Iwi Fisheries Forum has developed an Iwi Fisheries Forum Plan that describes how the iwi in the Forum exercise kaitiakitanga over the fisheries of importance to them, and their objectives for the management of these fisheries. Particular regard will be given to kaitiakitanga when making sustainability decisions.

15. Iwi Fisheries Forums may also be used as entities to consult iwi with an interest in fisheries.

16. Due to COVID-19 travel restrictions, input and participation from Iwi Fisheries Forums was sought through remote mechanisms. Prior to consultation, information on the proposal to review the catch limits for the two groups of frostfish stocks was provided to the following Iwi Fisheries Forums, and input sought: Te Hiku o te Ika, Mid-North, Nga Hapu o te Uru, Ngati Porou, Te Tai Hauāuru, Te Tau Ihu, and Te Waka a Māui me Ōna Toka.

17. Input was received from Te Tai Hauāuru regarding FRO 8. While the proposal to redistribute the TACCs was supported, a request was made to defer the timing of the change. Fisheries New Zealand is proceeding with the review for 1 October 2020, but careful consideration of the impact on iwi social, cultural, and economic rights and interests will be included in final advice.

18. Input was also received that a customary allowance should be set for FRO 8 (the existing customary allowance is zero tonnes). Fisheries New Zealand is supportive of this proposal, and welcomes information from iwi and stakeholders on what the customary allowance for this stock should be.

19. Given the disruption to services, the opportunity for input from the Iwi Fisheries Forums has been impacted and any further input will be included in the final advice and recommendations provided to the Minister.

5.2 Kaitiakitanga

20. The geographical spread of the five frostfish stocks means that there are a number of relevant Iwi Forum Fisheries Plans; Te Hiku o Te Ika (far North), Nga Hapu o te Uru o Tainui (Waikato and west coast North Island), Te Tai Hauāuru (Taranaki and Manawatu), Te Waipounamu (South Island), and Chatham Islands.

21. The relevant Iwi Forum Fisheries Plans regard all species as taonga. Fisheries New Zealand considers the proposals presented in this discussion paper to be generally consistent with the management objectives of the relevant Iwi Forum Fisheries Plans as they relate to balancing use objectives with sustainability.

22. There are no customary fisheries management tools such as mātaitai, taiāpure or Section 186B temporary closures relevant to this review.

6 Relevant plans, strategies, statements and context

6.1 National Deepwater Plan

23. All frostfish stocks are managed as Tier 2 stocks within the National Fisheries Plan for Deepwater and Middle-depth fisheries 2019 – Part 1A (National Deepwater Plan). Frostfish is not currently included within any species-specific chapter of the National Deepwater Plan.

24. The National Deepwater Plan sets out a series of Management Objectives for deepwater fisheries, the most relevant to the frostfish stocks being:

- **Management Objective 1**: Ensure the deepwater and middle-depth fisheries resources are managed so as to provide for the needs of future generations.

- **Management Objective 3**: Effective management of the deepwater and middle-depth fisheries is achieved through the availability of appropriate, accurate and robust information.

25. The National Deepwater Plan is a formally approved s11A plan, which the Minster must take into account when making sustainability decisions.

26. There are no other plans, strategies or statements particularly relevant to this review.

7 Current state of the stocks

27. Separate fishstocks were created for each fishery management area (FMA) when frostfish was introduced into the QMS in 1998. Prior to QMS introduction however, it was recommended that four fishstocks were created for management purposes: FRO 1 (FMAs 1 and 2), FRO 3 (FMAs 3 and 4), FRO 5 (FMAs 5 and 6) and FRO 7 (FMAs 7-9). The proposed stock structure was based on observation of spawning occurring in three areas at similar times of the year as well as known distribution of juveniles and adults.

28. More recent research using data up to the 2009/10 fishing year confirmed the likelihood of a separate west coast stock (FMAs 7-9) based on discontinuity of catches between the west coast and other areas where frostfish is taken. Catch per unit effort (CPUE) analysis undertaken using estimated catch of frostfish taken in the west coast jack mackerel fishery showed a generally increasing trend between 2001/02 and 2009/10.

29. There is no stock assessment information for any frostfish stock.

8 Recent catch levels and trends

30. The best available information on frostfish stocks is from commercial reporting. Figures 2 and 3 show catch vs TACC for the two groups of frostfish stocks since 2001/02.

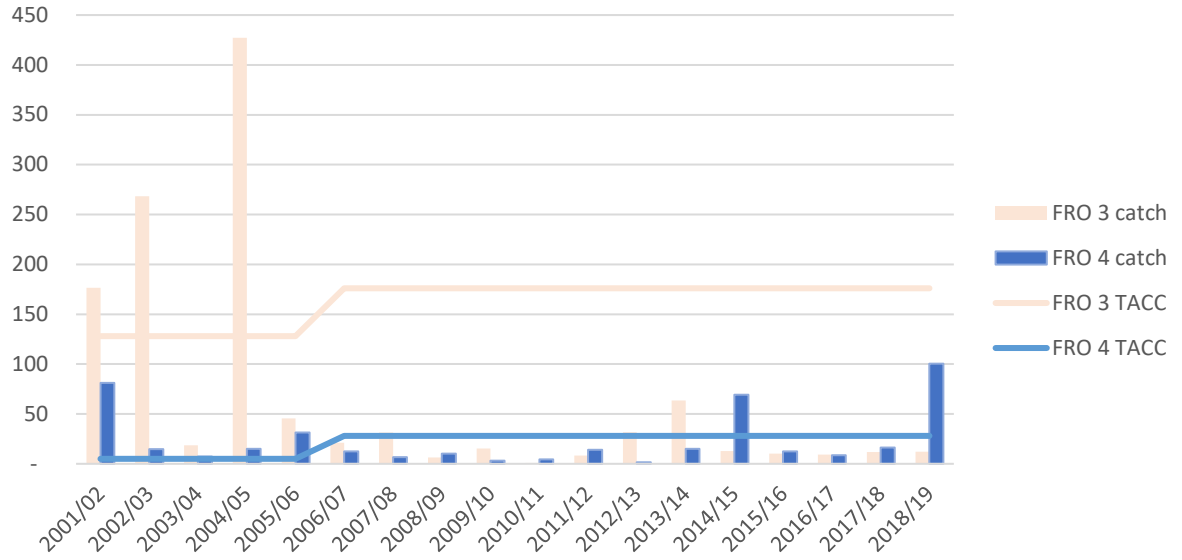

Figure 2: Catch vs TACC (tonnes) for the Chatham Rise frostfish stocks (FRO 3 and FRO 4) since 2001/02

31. Figure 2 shows that:
    - catch in FRO 3 has remained considerably below the TACC since the TACC was increased in 2006/07
    - catch in FRO 4 has exceeded the TACC twice in the last five years, both times by more than double the TACC. This is likely due to increased effort in the barracouta and jack mackerel fishery around the Chatham Islands in this period. Frostfish is taken as bycatch in these fisheries.

32. Figure 2 also shows catch of FRO 3 was well above the TACC in three of the four years between 2001/02 and 2004/05, which, in part, triggered the 2006/07 TAC review. The majority of the catch during this period was taken by a group of vessels targeting squid, most of which no longer operate in New Zealand waters.

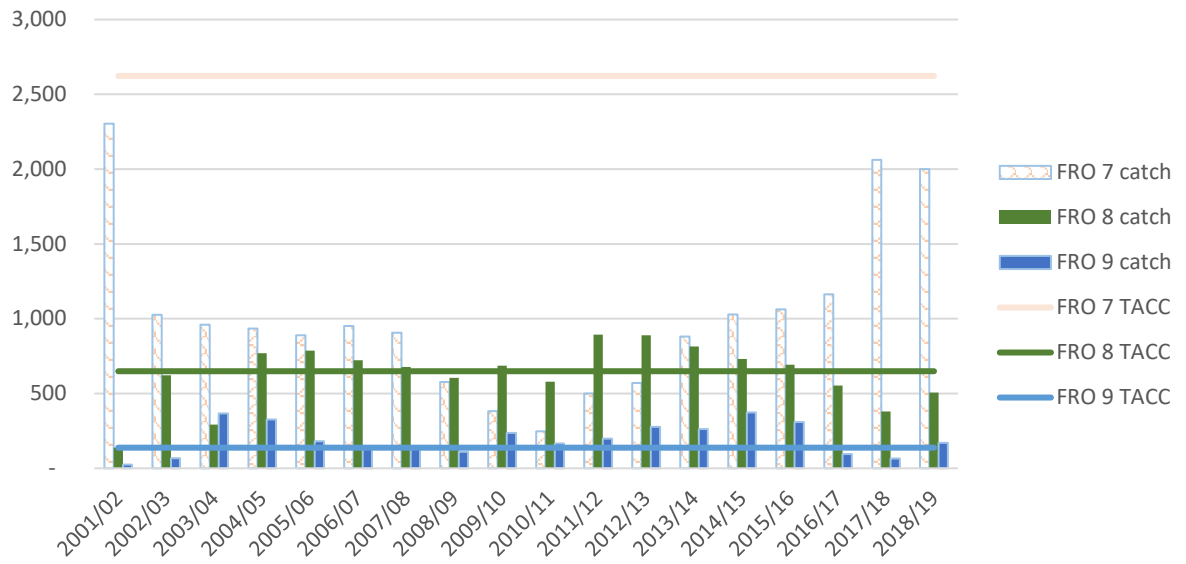

Figure 3: Catch vs TACC (tonnes) for the west coast North Island / South Island frostfish stocks (FRO 7-9) since 2001/02

33. Figure 3 shows that:
    - Catch in FRO 7 has been below the TACC every year since 2001/02
    - Catch in FRO 8 and FRO 9 regularly exceeds the respective TACC

34. There is almost no information about customary and recreational catches. Frostfish has not been recorded in the customary database, although it is possible some customary catch may have been recorded under the generic '*wetfish*' code. The species was not recorded in National Panel Surveys of Marine Recreational Fishers undertaken in 2011/2 and 2017/18.

35. The current allowances for customary and recreational fishing have remained unchanged since frostfish stocks were introduced into the QMS in 1998.

9 Current TAC, TACC and allowances

Table 2: Current TAC, TACC and allowances (tonnes) for the five frostfish stocks

			Allowances		
	Total Allowable Catch	Total Allowable Commercial Catch	Customary Maori	Recreational	All other mortality to the stock caused by fishing
Chatham Rise frostfish stocks					
FRO 3	176	176	0	0	N/A
FRO 4	28	28	0	0	N/A
West Coast South Island / North Island frostfish stocks					
FRO 7	2,625	2,623	1	1	N/A
FRO 8	649	649	0	0	N/A
FRO 9	140	138	1	1	N/A

10 Options – varying the TAC and TACCs and allowances

36. Aside from the *status quo*, a single option is proposed to redistribute the TAC, TACC within each group of stocks. Feedback is sought on this option, or alternatives to this option.

Table 3: Options for varying TAC, TACC and allowances for the two groups of frostfish stocks (tonnes)

Option	Stock	Total Allowable Catch	Total Allowable Commercial Catch	Allowances		
				Customary **Māori**	Recreational	All other mortality to the stock caused by fishing
Chatham Rise frostfish stocks						
Status quo	FRO 3	176	176	0	0	N/A
	FRO 4	28	28	0	0	N/A
Option 1	FRO 3	82 ↓ (53%)	80 ↓ (55%)	0	0	2
	FRO 4	126 ↑ (450%)	124 ↑ (443%)	0	0	2
West Coast South Island / North Island frostfish stocks						
Status quo	FRO 7	2,625	2,623	1	1	N/A
	FRO 8	649	649	0	0	N/A
	FRO 9	140	138	1	1	N/A
Option 1	FRO 7	2,154 ↓ (18%)	2,110 ↓ (20%)	1	1	42
	FRO 8	918 ↑ (141%)	900 ↑ (139%)	0	0	18
	FRO 9	410 ↑ (293%)	400 ↑ (290%)	1	1	8

10.1 Total Allowable Catch

37. Under the *status quo*, the TACs for the five frostfish stocks would remain unchanged.

38. For the Chatham Rise frostfish stocks, Option 1 involves redistribution of TAC/TACC from FRO 3 to FRO 4. For the west coast stocks, Option 1 involves redistribution of TAC/TACC from FRO 7 to FRO 8 and FRO 9. Monitoring would be undertaken to ensure there were no unforeseen consequences associated with this option.

10.2 Allowances

39. In the absence of information indicating ongoing customary Māori and recreational catches of frostfish, Fisheries New Zealand proposes to retain all existing customary Māori and recreational allowances.

40. However, Fisheries New Zealand notes the input received from the Te Tai Hauāuru Iwi Fisheries Forum suggesting that the current customary allowance for FRO 8 should be increased from zero tonnes. Fisheries New Zealand is supportive of this proposal, and welcomes information from iwi and stakeholders on what the customary allowance for this stock should be.

41. Fisheries New Zealand also welcomes alternatives to the proposal for the other stocks, and notes that an allowance of zero tonnes does not preclude customary Māori and recreational catch.

42. To date, an allowance for other mortality caused by fishing has not been explicitly set. The allowance for other mortality caused by fishing is an allowance intended to provide for unrecorded mortality of fish associated with fishing activity. This includes fish that escape through trawl net mesh and subsequently die from injuries, accidental loss from lost or ripped trawl net cod-ends, predation, and illegal take.

43. A known issue with frostfish relates to how they are processed. Being a long fish, up to 1.5m in length, they do not fit well in the pans in which fish are packed and frozen. Cutting them to fit in pans has been known to result in some fish not being processed in accordance with the relevant processed state, which effectively results in underreporting of catch.

44. Under Option 1, this allowance would be set at 2% of the TACC for all stocks. This is consistent with the approach taken for other deepwater species that have a longer body shape such as barracouta and ling.

10.3 Total Allowable Commercial Catch

Chatham Rise frostfish stocks (FRO 3 & 4)

45. Under Option 1, the combined TACC would remain at 204 tonnes but the TACC for FRO 3 would decrease from 176 to 80 tonnes and the TACC for FRO 4 would increase from 28 to 124 tonnes.

46. Under this approach, the TACC for FRO 3 would remain higher than the highest catch reported since the TACC was last reviewed in 2006. The TACC for FRO 4 would be higher than the highest reported catch since 2006 (refer Table 4).

Table 4: Current TACC, highest catch since 2006, and proposed TACC for Chatham Rise frostfish stocks (tonnes)

	Current TACC	Highest catch since 2006	Proposed TACC under Option 1
FRO 3	176	63	80
FRO 4	28	100	124
Combined	204		204

47. The redistribution of TACC from FRO 3 to FRO 4 better reflects distribution of fishing effort where frostfish is taken as bycatch on the Chatham Rise. The proposal continues the approach taken to date of basing catch limits for these stocks on recent catch.

West Coast frostfish stocks (FRO 7, 8 & 9)

48. Under Option 1, the combined TACC would remain at 3,410 tonnes but the TACCs of the three stocks would be redistributed: the TACC for FRO 7 would decrease from 2,623 to 2,110 tonnes; the TACC for FRO 8 would increase from 649 to 900 tonnes; and the TACC for FRO 9 would increase from 138 to 400 tonnes.

49. Under this approach, the TACC for FRO 7 would remain higher than the highest catch reported since 2002/03 (refer Table 5).

50. The TACCs for FRO 8 and FRO 9 would be slightly higher than the highest catch reported in each stock since introduction into the QMS (refer Table 5).

Table 5: Current TACC, highest catch, and proposed TACC for West Coast frostfish stocks (tonnes)

	Current TACC	Highest catch	Proposed TACC under Option 1
FRO 7	2,623	2,063 (since 2002/03)	2,110
FRO 8	649	893 (since 1998)	900
FRO 9	138	373 (since 1998)	400
Combined	3,410		3,410

51. As noted earlier, the existing TAC/TACCs for the west coast frostfish stocks was set in 1998 based on catch reported in the preceding 10-13 years. Effort in the target fisheries where frostfish is taken as bycatch has changed in the years following QMS introduction. The main target fishery is jack mackerel, where more fishing has occurred off the west coast of the North Island since approximately 2000. Some frostfish is also taken in the hoki fishery, where there is now less effort than there was during the 1990s.

52. Redistribution of the TAC/TACC from FRO 7 to FRO 8 and FRO 9 better reflects current distribution of effort in the fisheries where frostfish is taken as bycatch. It is also consistent with the approach taken when setting the original TAC/TACCs at the time of QMS introduction in 1998.

Economic considerations

53. Within both groups of stocks, the total catch is not expected to increase. The redistribution of TAC/TACCs represents an opportunity to better utilise the fisheries by enhancing fishers' ability to balance catch with ACE. In the last 10 completed fishing years, catch of both groups of stocks has been less than the combined TACCs each year. Despite this, fishers have paid approximately $250,000 in deemed values for the west coast stocks over this period while the figure is around $25,000 for the Chatham Rise stocks.

54. Better providing for fishers to balance catch with ACE by redistributing TAC and TACCs is consistent with the outcomes of the Catch Balancing Review Process, which Fisheries New Zealand uses to review the management settings of stocks for which catch balancing issues have been identified.

11 Uncertainties and risks

55. Fisheries New Zealand considers that the proposal to redistribute TACCs within probable stock boundaries is unlikely to result in localised depletion. For the west coast stock in particular, gonad staging information indicates the stock is mobile; fish appear to migrate from the West Coast South Island to the North and South Taranaki Bights, and presumably back again.

Mobility means the stock would be available in different areas at different times, which reduces the risk of localised depletion.

12 Environmental interactions

56. The redistribution of TACCs is not expected to result in any increase in total catch. Effort in the fisheries where frostfish is taken as non-target catch is not expected to increase and consequently, environmental interactions i.e. marine mammal and seabird bycatch, fish bycatch and benthic impacts, are not expected to change. A range of programmes are in place to monitor environmental interactions in the main fisheries where frostfish is taken as non-target catch.

13 Questions for submitters on options for varying TACs, TACCs and allowances

- Which option(s) do you support for revising the TACs and allowances? Why?
- If you do not support either of the options listed, what alternative(s) should be considered? Why?
- Are the allowances for customary fishing appropriate? Why?
    - We ask tangata whenua to provide any additional information you may have on customary catch.
- Are the allowances for recreational fishing appropriate? Why?
- Are the allowances for other sources of mortality appropriate? Why?

57. Please provide detailed, verifiable information and rationale to support your views.

14 Deemed values

58. Deemed values are an economic tool that incentivises commercial fishers not to catch in excess of their individual annual catch entitlement holdings. No changes to the deemed value rates of any frostfish stock are proposed.

15 Referenced reports

Fisheries Assessment Plenary May 2020: https://www.fisheries.govt.nz/news-and-resources/science-and-research/fisheries-research/

Fishery characterisation and catch-per-unit-effort analyses for frostfish (*Lepidopus caudatus*), 1989-90 to 2009-10. FAR 2014/25: https://www.mpi.govt.nz/dmsdocument/4387-far-201425-fishery-characterisation-and-catch-per-unit-effort-analyses-for-frostfish-lepidopus-caudatus-198990-to-200910

Aquatic Environment and Biodiversity Annual Review (AEBAR) 2018: A summary of environmental interactions between the seafood sector and the aquatic environment. https://www.mpi.govt.nz/dmsdocument/34854-aquatic-environment-and-biodiversity-annual-review-aebar-2018-a-summary-of-environmental-interactions-between-the-seafood-sector-and-the-aquatic-environment

16 How to get more information and have your say

59. Fisheries New Zealand invites you to make a submission on the proposals set out in this discussion document. Consultation closes at 5pm on 1 July 2020.

60. Please see the Fisheries New Zealand sustainability consultation webpage (https://www.fisheries.govt.nz/news-and-resources/consultations/review-of-sustainability-measures-for-1-october-2020/) for related information, a helpful submissions template, and information on how to submit your feedback. If you cannot access to the webpage or require hard copies of documents or any other information, please email FMSubmissions@mpi.govt.nz.