



Commercial Landing Exception: Predated fish in Surface Longline

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Predated QMS fish caught by surface longline - all Fisheries Management Areas

1 Purpose

1. Fisheries New Zealand (**FNZ**) is assessing a request for a commercial landing exception for the return of leftover parts of highly migratory fish species that are subject to the Quota Management System (**QMS**), caught by surface longline, when predation leaves them unfit for human consumption¹.
2. In advance of this public consultation, FNZ sent out a summary of the proposed exception for predated highly migratory species caught by surface longline to Iwi Fisheries Forums and sought input. Engagement to date is discussed in section 8 of this paper.
3. FNZ welcomes feedback on the proposal in this paper, including your understanding of predation events in surface longline fisheries, whether such events are avoidable or not, and the operational costs and challenges posed by catching and/or retaining predated fish.
4. Consultation closes at 5pm on 1 March 2024. Please see the FNZ consultation webpage (<https://www.mpi.govt.nz/consultations/>) for related information 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.

2 Summary

5. Section 72 of the Fisheries Act 1996 (**the Act**) requires commercial fishers to not return or abandon QMS species to sea or waters from which they are taken unless there is an exception.
6. Currently, commercial fishers are required to retain and land any predated QMS fish (or the leftover parts of that fish) and report the weight of the remains under the landing code 'PF' (predated fish), which is then required to be balanced with Annual Catch Entitlement (**ACE**) or incur deemed values.
7. Predation by toothed cetaceans (whales and dolphins), sharks and large cephalopods (e.g., squid) (hereafter referred to as 'predation') on Highly Migratory Species (**HMS**) caught in surface longline fisheries is a well-known problem globally. Predation results in economic costs to the fishing industry through partial or total loss of catches and bait, as well the cost of fuel required to search for new areas away from the site of predation events. Although several methods have been developed and trialled to mitigate these type of predation events, none have yet proven cost-effective.
8. Based on the current unavoidability of these predation events, FNZ proposes that an exception is provided for under the second provision under section 72A(2) of the Act, allowing commercial fishers to return predated HMS managed under the QMS caught by surface longline to the sea. In this paper, HMS refers to the five HMS managed under the New Zealand QMS: bigeye tuna, southern bluefin tuna, pacific bluefin tuna, yellowfin tuna and swordfish.
9. FNZ proposes that commercial fishers be required to report on the estimated greenweight of the entire fish prior to predation, instead of the weight of the remains as is currently required. This will allow for better accounting of mortality within the Total Allowable Catch (**TAC**) for each of the stocks and improve our ability to manage them.
10. Given the unavoidability of predation of HMS caught in surface longline, and to incentivise accurate reporting, FNZ proposes that predated HMS returned under the exception are

¹ Definition of predated fish in E-logbook User Instruction Circular is: "QMS fish that is taken by a permit holder and has been damaged by other organisms to such an extent that it is unfit for human consumption".

accounted for within the other sources of mortality from fishing allowance of the TAC for each stock, instead of requiring it to be balanced with ACE.

11. FNZ does not consider that a sustainability review is required because of the proposed exception, because catches of the five HMS are unlikely to significantly change as a result. Although there are high uncertainties around the total volume of HMS predation due to a lack of information on predated fish caught in New Zealand's surface longline fisheries, best available information (e.g., reported returns, including observer authorised returns of predated fish) suggests that the current allowance for other sources of mortality caused by fishing adequately accounts for fish damaged by predation for each of the stock. FNZ will monitor the level of predated fish returns from surface longline, using a new disposal code, to ensure mortality continues to be appropriately accounted for within the TAC of each stock.
12. Ministerial decisions on whether to provide an exception for predated HMS caught by surface longline will inform any review of sustainability measures. If needed, sustainability reviews and associated consultation processes would be undertaken separately to this Commercial Landing Exception Review.

3 Problem definition

13. Anecdotal information from observers and commercial fishers indicates that predation of HMS caught by surface longline in New Zealand can have big impacts on fishing operations, due to loss of revenue.
14. Fishers are currently required to report and land the remains of any predated HMS and balance the weight of those remains with ACE or pay deemed values.
15. Consistent with findings from overseas, New Zealand fishers have noted that these predation events are hard to predict and avoid, and the damage to these species can be costly to fishers as they may not be able to be sold for human consumption and the cost of ACE is high. Fishers have raised that retaining damaged HMS can taint the remainder of the catch if not stored separately to other catch, due to the fish degrading quickly.
16. Due to the economic losses associated with retaining HMS damaged by predation, fishers are likely to try avoiding landing these fish and instead either use the fish while on board the vessel (usually by the crew eating it if any edible portions remain) or return the fish to the sea under an observer authorisation (when an observer is present). Therefore, information on the frequency of predation events, and the volume of predated fish caught, is limited.
17. Even with high quality reporting of predated fish, the requirement to record only the weight of the remains, without knowing how much of the fish was taken, makes it hard to properly estimate the scale of predation and the total removal from the stocks. Fishers are currently not required to estimate the greenweight of the entire fish prior to predation.
18. Therefore, there is very low information available to effectively assess the rate and frequency of predation in the surface longline fisheries in New Zealand, which impacts our ability to accurately estimate total removals from stocks because of predation.

4 Legal Framework

19. Section 72 of the Act requires commercial fishers to not return or abandon QMS species to sea or waters from which they are taken unless there is an exception.
20. Currently, commercial fishers are required to retain and land any predated QMS fish (or the leftover parts of that fish) and report the weight of the remains under the landing code 'PF' (predated fish), which is then required to be balanced with ACE or incur deemed values.

21. Under section 72A, the Minister may require or permit a QMS species or stock to be returned or abandoned and may make instruments for the purposes of section 72(2) or 72(3) of the Act.
22. As the purpose of the proposed exception is to allow commercial fishers to return surface longline caught HMS damaged by predation, it has been assessed against the section 72A(2)(b)(ii) - permitting a stock or species to be returned to or abandoned in the sea or other waters from which it was taken if the Minister is satisfied that the stock or species is damaged as a result of unavoidable circumstances (for example, diseased or predated fish) (**second provision**).
23. A more detailed overview of the legal framework is provided in "[Fisheries New Zealand review of commercial landing exceptions: overview of policy context, legislative requirements and other considerations relevant to exception reviews](#)".

5 Highly Migratory Species managed under the QMS

5.1 Commercial fishery Information

24. HMS are species of fish that swim large distances and go beyond New Zealand waters. In New Zealand, there are five HMS managed under the QMS: bigeye tuna, yellowfin tuna, southern bluefin tuna, Pacific bluefin tuna and swordfish.
25. The five HMS are generally present in New Zealand waters on a seasonal basis. While there are some known fishing grounds for HMS, the timing and detail of their distribution can vary from year to year.
26. In New Zealand, the species are primarily taken by surface longline vessels. Table 1 shows the Total Allowable Commercial Catch (TACC) for each species (all stocks combined) and total landings in the last three complete October fishing years.

Table 1: Total Allowable Commercial Catch (TACC) and total commercial landings for each HMS species in the last three complete October fishing years (greenweight rounded up to the nearest tonne).

October fishing year	Species				
	Bigeye tuna	Pacific bluefin tuna	Southern bluefin tuna	Swordfish	Yellowfin tuna
TACC	714	116	1046	885	263
2020/21	94	41	787	309	25
2021/22	33	31	875	141	3
2022/23	164	103	1098 ²	258	39

5.2 Predation of HMS in the surface longline fleet

27. Observers and commercial fishers have noted predation of HMS caught by surface longline in New Zealand is unable to be predicted or avoided.
28. Fishers are currently required to land the remainder of predated fish and report the weight of the remains and balance it with ACE or pay deemed values. In the last ten years, there has only been one fisher reporting of predated tuna under the 'PF' code, with 50 kg of southern bluefin tuna reported in 2022/23.
29. When observers are present on fishing vessels, they can authorise returns of fish, which are then required to be reported under disposal code 'J' (observer authorised returns). Since the

² Although commercial landings of STN 1 exceeded the TACC in the 2022/23 October fishing year, the landings did not exceed the available ACE due to carry-forward from the previous fishing year.

2016/17 October fishing year, there have been a number of observer authorised returns of HMS from surface longline vessels, with observer notes indicating that the fish returned was damaged by predation (Table 2).

Table 2: Observer authorised returns of the five HMS species from surface longline vessels, where observer notes indicated return was due to predation damage. (Estimated greenweight in tonnes).

Species	October fishing year							Total
	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	
Bigeye tuna	-	-	> 0.1	0.1	> 0.1	-	-	0.1
Pacific bluefin tuna	-	> 0.1	-	-	-	-	> 0.1	0
Southern bluefin tuna	0.3	0.2	-	0.4	0.4	1.2	0.2	2.7
Swordfish	-	0.3	-	0.1	0.1	> 0.1	-	0.6
Yellowfin tuna	-	-	-	> 0.1	> 0.1	-	-	0
Total	0.3	0.5	> 0.1	0.6	0.5	1.2	0.2	3.4

6 Exception under the second provision: Is predation of HMS in the surface longline fishery a result of unavoidable circumstances?

30. Predation in surface longline fisheries is a well-known problem globally that results in economic costs to fishing industry through partial or total loss of catches and bait, as well the cost of fuel required to search for new areas away from the site of predation events (Charles et al. 2020).
31. A 2007 workshop on marine mammal and shark predation in the tuna longline fisheries in the Indian Ocean noted that the magnitude of losses in fishing events where predation occurs can be large, particularly where whales and dolphins are the major cause of predation. The workshop found that, based on the data presented, the proportion of total catch that suffers from predation is less than 5% on average. However, in those events where predation occurs, a large part of the catch can be lost (up to 100%), with corresponding economic loss to the fishers (IOTC and NRIFSF, 2007).
32. An assessment of marine mammal predation of fish caught in the Brazilian longline tuna and swordfish fishery industry reported interactions with marine mammals in 29.7% of the total number of fishing trips observed, with frequency of predation recorded as 7.4%. The assessment noted that predation occurred more often on the target species - tuna and swordfish - than bycatch species, indicating that marine mammal predators may prefer the target species as they have higher nutritional value (Charles et al. 2020).
33. Several methods to mitigate predation have been tested in fisheries globally, including methods that involve shifting fishing patterns to disrupt learned behaviour of predator species, passive acoustic detection to avoid fishing near whale pods, active acoustic deterrents to keep predators away from fishing gear, and physical barriers to minimise attacks on hooked fish. However, the effectiveness of any of these methods has yet to be demonstrated (IOTC and NRIFSF, 2007; Fader et al. 2021).
34. In recent years, there has been increasing development and testing of chemical, magnetic and electrical repellents/deterrents to reduce shark interactions with fishing gear. Although some of these deterrents have been successful in reducing the proportion of fish predated on by sharks, further work is required to develop such technology for application in longline gear in an economically viable manner (Gilman et al. 2007).
35. While technological methods to prevent or eliminate predation are being researched, there are certain operational changes that may lower the likelihood of predators associating fishing boats

with an easily accessible source of food, and thereby reduce predation rates (Mitchel et al., 2023). These include, for example:

- a) systematically rotating fishing areas so the same fishing locations are not visited too frequently,
- b) using a 'move-on rule', where fishers leave an area when predators are sighted/after predation occurs,
- c) altering soak times and/or hook depth depending on predators present and target species,
- d) modifying fishing gear for quicker retrieval, and
- e) reducing/eliminating fish waste discards and/or not disposing of fish waste on fishing grounds.

6.1 Preliminary conclusion: FNZ considers predation of HMS species caught by surface longline to be the result of unavoidable circumstances

- 36. Although several methods have been developed and trialled to mitigate predation, none have proven cost-effective or successful at preventing predation. Predation of HMS species caught in surface longline fisheries in New Zealand is currently considered unavoidable.
- 37. Based on the above, FNZ proposes that an exception is provided under the second provision (section 72A(2)(b)(ii)) of the Act, allowing commercial fishers to return bigeye tuna, southern bluefin tuna, Pacific bluefin tuna, yellowfin tuna and swordfish caught by surface longline if they have been damaged by predation, subject to conditions that help reduce the likelihood/rate of predation and support accurate accounting.
- 38. The Minister's decision whether to provide an exception or not must be made considering the purpose and principles of the Act. We assess this in Appendix One.

Proposed conditions to the exception

- 39. To incentivise accurate reporting, minimise the likelihood/rate of predation and reduce the risk of seabird interactions, FNZ proposes that the exception is contingent on the conditions listed in Table 3.

Table 3: Proposed conditions for the permitted return of predated bigeye tuna, yellowfin tuna, southern bluefin tuna, Pacific bluefin tuna and swordfish, caught by surface longline.

Condition	Details	
1	Each predated fish being returned must be brought on to the deck and displayed to the on-board camera prior to being binned.	To ensure predated fish are accurately reported and accounted for within the TAC of the stocks, fishers are required to display predated fish to the camera prior to being returned to the sea. Detailed guidance on how to display predated fish to on-board cameras would be described in the Fisheries (Electronic Monitoring of Vessels) Circular 2022.
2	Predated fish must be binned and returned so as not to attract seabirds or predators.	Predated fish must be held (e.g., in bins), alongside offal, for as long as practicable, and must be batch discharged when fishers are permitted to discharge offal. Fishers cannot dispose of predated fish immediately before or during setting.

- 40. Although there are certain operational changes that fishers can use that may reduce the likelihood and/or rate of predation, the effectiveness of these changes can vary. Details around how best to apply these procedures may need to be tailored (e.g., to a vessel, area, or predator) to maximise effectiveness. For example, after a predation event, fishers could use a move-on rule to mitigate the risk of further predation occurring. However, there is very little information available to inform how to best structure a move-on rule for it to work effectively (e.g., how far and how long to move away from the location of the predation event). FNZ

considers that, given uncertainties around specific design of such measures and their effectiveness, such changes are more appropriate as voluntary measures at present.

41. However, FNZ notes that as we get better information on predation of HMS in surface longline, there may be a desire to regulate some of these operational changes, if they are shown to reduce the occurrence and rate of predation. Furthermore, if new technologies/operational changes are developed that significantly reduce the risk and rate of predation in the future, and predation becomes avoidable in surface longline fisheries, FNZ may reconsider the proposed exception (if provided for following this consultation).

7 Fisheries Management implications

7.1 Reporting

42. Currently, fishers are required to retain and land predated fish (or the remnant parts of that fish) and report the weight of the remains under the landing code 'PF', which is then required to be balanced with ACE or incur deemed values.
43. Information on the frequency of predation events and the volume of predated fish caught is limited (see section 5 of this paper). Even with high quality reporting of predated fish, the requirement to record the weight of the remains, without knowing how much of each fish was predated, makes it hard to meaningfully estimate the scale of predation and the total removal from the stocks.
44. Requiring fishers to report on the estimated greenweight of the entire fish prior to predation would allow for better accounting of mortality within the TAC for each of the stocks and improve our ability to manage the stocks. FNZ notes that some uncertainty would remain as the weight would only be an estimate. Camera and observer monitoring would provide an ability to verify the reported weights.
45. Based on the above, FNZ proposes that fishers would be required to report the estimated greenweight of the entire HMS fish prior to predation that is returned under the exception under a new reporting code. Given the unavoidability of predation of HMS caught in surface longline fisheries, and to incentivise accurate reporting of predated fish, FNZ proposes that fishers would not be required to report these returns on their Monthly Harvest Returns, and therefore returned predated HMS would not need to be balanced with ACE. Mortality associated with these events would be accounted for within the other sources of fishing related mortality allowance of the TAC for each stock.

7.2 Sustainability measures

46. Under the current sustainability measures, reported landings of remains of predated fish are balanced with ACE (or deemed values paid) and are accounted for within the TACCs that have been set for the five HMS. The predated part of the fish is then accounted for under the allowance for other sources of mortality caused by fishing, which covers unrecorded mortality of fish associated with fishing activity, including misreporting, predation, and incidental mortality of returned fish. This allowance is currently set at an amount equivalent to around 0.5% to 3% of the TACC for each stock (Table 4).

Table 4:TAC, TACC and allowance for other sources of mortality caused by fishing for the five HMS (tonnes).

Species	TAC	TACC	Other mortality allowance (% of TACC)
Bigeye tuna	740	714	14 (2%)
Pacific bluefin tuna	145	116	3.5 (3%)
Southern bluefin tuna	1102	1046	20 (1.9%)
Swordfish	919	885	4 (0.5%)
Yellowfin tuna	358	263	5 (1.9%)

47. Given the unavoidability of these predation events and the need for better information on total mortality to the stocks, FNZ considers that the estimated greenweight of the entire HMS fish, prior to predation, that is returned to the sea should be accounted for within the allowance for other sources of mortality caused by fishing.
48. Best available information (e.g., reported returns, including observer authorised returns of predated fish) suggests that the current allowance for other sources of mortality caused by fishing adequately accounts for fish damaged by predation for each of the stock (e.g., reported returns are significantly lower than the current allowances). Therefore, FNZ does not consider that a sustainability review for each species is required because of the proposed exception.
49. However, FNZ notes there is high uncertainty around total volume of HMS predation due to the lack of information on predated fish caught in New Zealand surface longline fisheries (see section 7.1 of this paper). Under the proposed exception, FNZ would monitor the level of predated fish returns from surface longline to ensure mortality continues to be appropriately accounted for within the TAC and help inform whether future adjustments and/or additional conditions are required.
50. Ministerial decisions on whether to provide an exception for predated HMS caught by surface longline would inform any review of sustainability measures. If needed, sustainability reviews and associated consultation processes would be undertaken separately to this Commercial Landing Exception Review.

8 Engagement to date

51. In advance of this public consultation, FNZ sent out a summary of the proposed exception for predated HMS caught by surface longline to Iwi Fisheries Forums and offered an opportunity to discuss the proposal. FNZ sought input on the ability for commercial fishers to return predated HMS to the sea and welcomed any information on mitigation of predation events and the potential impacts of retaining predated HMS on other catch, and the operational costs and challenges posed by catching and/or retaining it. FNZ received no feedback prior to the publication of this paper.

9 Questions for submitters

52. FNZ welcomes feedback on the assessment of bigeye, Pacific bluefin, southern bluefin and yellowfin tuna, and swordfish, damaged by predation against the new landings and discard provisions. Please provide detailed information and sources to support your views, where possible.

Avoiding predation

- Are there fishing practices/innovation that can prevent the predation of HMS caught by surface longline?

Conditions

- Do you have any information on conditions to the exception that would further improve the information on predated fish to enable more accurate accounting of mortality within the TAC of the stocks?
- Are there any other conditions you think should apply to the exception to reduce the rate and frequency of predation events in surface longline?

Balancing

- Do you agree with the proposal to account for predated fish returned under the allowance for other sources of fishing related mortality for each stock? Why or why not?

Impact

- If applicable, how does the current requirement to land and balance these predated HMS against ACE or incur deemed values affect your fishing practices and operation?
- What impact does the proposal have on Māori to provide for their rights and interests?
- What further information do you have that might inform the Minister's decision?

10 References

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Appendix One: Statutory considerations

53. The Minister's decision on whether to provide an exception or not must be made considering the purpose and principles of the Act. Our initial assessment of the proposals in relation to statutory considerations are discussed below. A more detailed description of these considerations is provided in: "[Fisheries New Zealand review of commercial landing exceptions: overview of policy context and legislative requirements in relation to exception reviews](#)".

Purpose of the Act

54. Given the unavoidability of predation of HMS caught in surface longline, and the financial impacts the damage has on fishers, both through loss of target catch value as well as potential damage to retained catch if not stored appropriately, FNZ considers that providing for the return of predated HMS caught by surface longline will enable fishers to maximise use of target species.
55. FNZ considers that providing for the return of predated HMS caught by surface longline is unlikely to have a negative impact as returns will be accounted for within the TAC and allowance for other sources of mortality from fishing for each stock. Furthermore, FNZ considers that the proposal to require fishers to report on the estimated greenweight of the entire fish prior to predation instead of estimated weight of the remains is likely to have a positive impact on the overall sustainability of the stocks through improved information and therefore more accurate accounting of mortality within the TAC.
56. As discussed in sections 5 and 7.1 of this paper FNZ is unable to estimate the rate and frequency of predation of HMS caught by surface longline to inform whether adjustments are required to the management settings of the stocks because of the proposed exception. To ensure mortality is appropriately accounted for within the TAC, the level of predated fish returns from surface longline under the proposed exception would be monitored to help inform whether adjustments are required in future.
57. FNZ consider the exception proposal is unlikely to impact Māori customary and recreational access to the five HMS stocks as mortality will be accounted for within the allowances of the TAC for each stock. However, if the volume of returns of predated fish is higher than what is currently estimated there may be future adjustments to TAC, TACC and allowances required.

International obligations

58. There are general international obligations that relate to the management of HMS and specific obligations arising from the regional fisheries management organisations that apply to each species.
59. Cooperative management of southern bluefin tuna is achieved through the Commission for the Conservation of Southern Bluefin Tuna and for bigeye, yellowfin, and Pacific bluefin tuna and swordfish through the Western and Central Pacific Fisheries Commission. A conservation and management measure of the Western and Central Pacific Fisheries Commission requires that purse seine vessel operators retain on board bigeye and yellowfin tuna except when fish are unfit for human consumption for reasons other than size. No such rules apply to longline fishing or to Pacific bluefin tuna. The Commission for the Conservation of Southern Bluefin Tuna has yet to agree that predated fish should count against national allocations, and these are routinely discarded from longline vessels. It is, however, New Zealand's current policy that predated fish count against our national allocation.
60. FNZ considers that the proposal is consistent with New Zealand's general obligations to manage shared stocks sustainably and the need to maintain compatible measures between high seas and waters under national jurisdiction.

Treaty of Waitangi (Fisheries Claims) Settlement 1992

61. The proposals in this paper do not impose restrictions on non-commercial customary fishing rights, which are authorised by kaitiaki.
62. FNZ's initial assessment is that the proposed exception and reporting requirements would support the long-term value of the 1992 Settlement Act and Māori interests through improved reporting against TACs of the stocks, to which Māori are significant quota holders.

Environmental principles

Associated or dependent species

63. The attraction of seabirds to vessels when fish are returned to the sea can result in their injury or death following interactions with fishing gear. Providing for the return of predated HMS caught by surface longline vessels may increase the risk of seabird interactions. However, surface longline vessels are subject to mitigation standards to reduce the incidental captures of seabirds. If there are changes in fishing behaviour that might affect interactions with certain associated or dependent species, FNZ would monitor and assess whether the long-term viability of dependent species might be at risk in a particular area.
64. Throughout their distribution, large tuna species and swordfish are likely predated on by a range of active predators. However, there is no evidence indicating a dependence on these species as a key prey species. Furthermore, FNZ considers that providing prey to associated and dependent species is better addressed by maintaining the overall abundance of these five HMS stocks in the sea, which is primarily managed through the setting of sustainable catch limits in rather than through the provision, or otherwise, of returns.

Biological diversity

65. FNZ considers that the proposed exception is unlikely to negatively impact the biological diversity within the species as the exception is unlikely to result in increased targeting of the species or changes to the total mortality of the stocks caused by commercial fishing.

Habitat of particular significance

66. There is limited information on habitat of particular significance to HMS within New Zealand waters. Despite limited information, the proposal is not expected to increase the risk of damage to habitat of significance as it is not expected to result in changes in fishing activity or increased fishing effort.
67. FNZ is in the process of identifying habitat of particular significance as part of a separate process and impacts on these habitats will be more generally considered as part of that initial process.

Information principles

68. The proposal to allow the return of predated HMS caught by surface longline, and the requirement for fishers to report on the estimated greenweight of the entire fish prior to predation, supports a precautionary approach to the management of the stocks, enabling improved reporting of the rate and frequency of predation and therefore more accurate accounting of mortality within the TAC of the stocks.