Fisheries New Zealand
Tini a Tangaroa

Review of sustainability measures for Pacific bluefin tuna (TOR 1) for 2024/25

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Contents

Guide to this discussion document and consultation

We are consulting on changes to the catch limits and allowances for Pacific bluefin tuna (TOR 1) under the Fisheries Act 1996 (**the Act**). We welcome your feedback on the proposed options for this stock and any alternatives. Your feedback will be incorporated into our final advice to the Minister for Oceans and Fisheries and will help to inform their decisions on any changes.

Further information

If you are interested in the evidence used to develop the proposals, you can refer to the Fisheries Assessment Plenary.

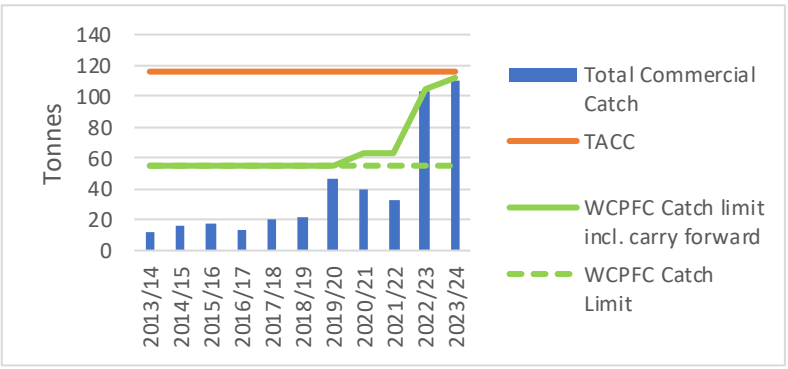
Sending us your views

Submissions on these proposals will be received by Fisheries New Zealand through to **5pm on Wednesday 29 January 2025**, by email to FMSubmissions@mpi.govt.nz. More information about how to send us feedback is on page 7 of this document.

Pacific bluefin tuna (TOR 1) – All of New Zealand

Part 1: Overview

Pacific bluefin tuna – *Thunnus orientalis*



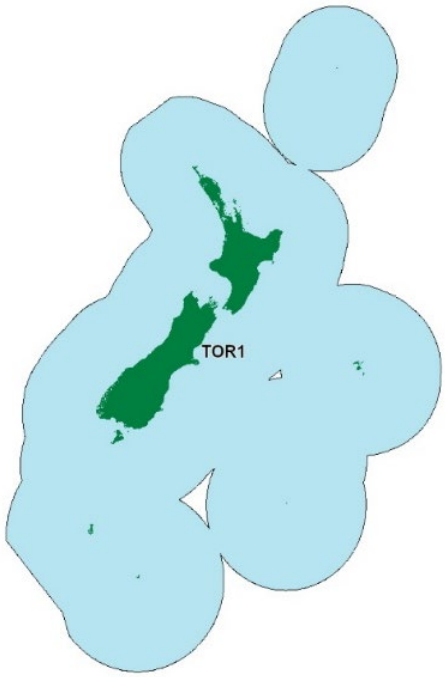


Figure 1: Quota Management Area for Pacific bluefin tuna (*Thunnus orientalis*), and commercial landings (in tonnes) since 2013.

Rationale for review

1. Fisheries New Zealand (**FNZ**) is reviewing sustainability measures for Pacific bluefin tuna (**TOR 1**) (Figure 1).
2. Pacific bluefin tuna is internationally managed as a single stock throughout the Pacific Ocean by the Western Central Pacific Commission (**WCPFC**) and Inter-American Tropical Tuna Commission (**IATTC**). New Zealand is a member of the WCPFC, which sets the Global Total Allowable Catch in its convention area based on stock assessments and the agreed harvest strategy. FNZ is satisfied that the advice from the International Scientific Committee represents the best available information to inform management decisions.
3. At the recent Commission meeting in December 2024, it was agreed by the WCPFC to increase New Zealand's national commercial limit of TOR 1. The biomass of TOR 1 is rebuilding faster than anticipated and catch in New Zealand has been increasing, which represents a utilisation opportunity for the domestic fishery. To give effect to the WCPFC decision and provide for the utilisation opportunity, FNZ is proposing an increase to the Total Allowable Catch (**TAC**) of TOR 1. Additionally, given the increase in abundance of TOR in New Zealand waters, FNZ is proposing a 5-tonne increase to the recreational allowance to accommodate potential increased interactions with the recreational fishery.
4. Pacific bluefin tuna has a fishing year starting on 1 October in New Zealand. To give effect to the WCPFC decision, FNZ is proposing to implement an in-season increase in the TAC for TOR 1, pursuant to section 14(6) of the Fisheries Act 1996 (**the Act**). This would provide for increased utilisation within the current October fishing year, which runs from 1 October 2024 to 30 September 2025.
5. In addition to this in-season increase, FNZ proposes that the TAC settings made in the in-season increase will also apply to the full fishing year from 1 October 2025, pursuant to section 14(1) of the Act with an associated increase in Total Allowable Commercial Catch (**TACC**). The increase to the recreational allowance would also take effect starting from 1 October 2025.

Proposed options

6. FNZ proposes that the TOR 1 TAC for 2024/25 October fishing year be set to the level of New Zealand's allocation set by the WCPFC (Table 1). No change is made to the TACC when implementing an in-season increase. Instead,

additional Annual Catch Entitlement (**ACE**) is generated that equals the amount in tonnes by which the Minister would have increased the TACC. This in-season increase would take effect no later than 1 April 2025.

Table 1: Proposed in-season increase (in tonnes) for TOR 1 during the 2024/25 fishing year.

Option	TAC	TACC	Additional ACE	Allowances		
				Customary Māori	Recreational	All other mortality caused by fishing
Current settings	*145*	*116*	*-*	*0.5*	*25*	*3.5*
Option 1	229 (↑ 84)	116	84	0.5	25	3.5

7. FNZ proposes that the TAC settings made in the in-season increase will apply to the full fishing year from 1 October 2025. These settings are shown in Table 2.

8. A 5-tonne increase to the recreational allowance is proposed, to accommodate potential increased encounters of recreational fishers with TOR as the stock increases. FNZ is interested in feedback on the suitability of this proposal, given the limited data available on the recreational TOR fishery.

9. FNZ considers that the current allowances for customary Māori and all other mortality caused by fishing remain appropriate, and is not proposing changes to these allowances.

Table 2: Proposed management option (in tonnes) for TOR 1 from 1 October 2025.

Option	TAC	TACC	Allowances		
			Customary Māori	Recreational	All other mortality caused by fishing
Current settings	*145*	*116*	*0.5*	*25*	*3.5*
Option 1	234 (↑ 89)	200 (↑ 84)	0.5	30 (↑5)	3.5

10. FNZ is satisfied that the current deemed value rates of TOR 1 provide sufficient incentives for fishers to balance their catch with ACE (consistent with section 75(2)(a) of the Act and the Deemed Value Guidelines). Therefore, no changes are proposed to the deemed value rates at this time. However, FNZ welcomes any feedback on these settings.

11. FNZ acknowledges that if the TACC of this stock is varied, subsequent changes in fishing behaviour and the ACE market may result in the need for deemed values to be re-evaluated in future.

12. For more information on the current management settings and stock status for TOR 1, see the Fisheries Infosite and the WCPFC Science Committee summary report (agenda item 4.3.1). For general information about fisheries management in New Zealand, see our fisheries management webpage, and our webpage about the Quota Management System (QMS).

Analysis of options

Status quo

13. The status quo is not proposed as an option in this review. Retaining the current catch settings would not reflect the recent decision by the WCPFC to increase New Zealand's national allocation. Additionally, failing to utilise the increased national allocation would result in forgone economic and social benefits from the potential additional catch and would make managing bycatch of TOR very difficult in the fishery.

Option 1 – 62% TAC increase

14. Under this option, FNZ proposes to increase the TOR 1 TAC by 89 tonnes, an increase of approximately 62%. This would give effect to the recent decision by the WCPFC to increase New Zealand's national allocation. It will allow for an additional five tonnes of recreational catch and 84 tonnes of commercial catch.

Benefits

15. Increasing the TAC by 89 tonnes would allow fishers to fully utilise the increased national allocation agreed at WCPFC and realize the economic benefit from increased catch.

16. As TOR is primarily a bycatch species, increasing the TAC will remove the current constraints on the fishery which have resulted from insufficient ACE availability as catch has increased as the stock recovers (and possibly due to an increasing presence of TOR in New Zealand due to warming waters).

17. Increasing the recreational allowance by five tonnes will accommodate any potential increase in interactions between recreational fishers and TOR while the stock is increases in New Zealand waters.

Risks

18. Since TOR is currently constraining other target fisheries such as southern bluefin tuna (**STN**), increasing the TACC could lead to an increase in effort targeting STN, which is also a rebuilding stock. The Commission for the Conservation of Southern Bluefin Tuna (**CCSBT**) management procedure ensures that the STN global catch limit (which includes New Zealand's national allocation of 1,288 tonnes) achieves rebuilding targets. Furthermore, New Zealand's national allocation represents only 6% of the global catch limit. Therefore, FNZ considers the risk of negatively affecting the rebuild of the STN stock to be negligible under this option. In addition, deemed value rates for STN are set at $42.23 which provides sufficient incentive for fishers to balance their catch with ACE. Information to inform the magnitude of any potential change in effort resulting from an increase to the TOR TACC is limited and therefore cannot be accurately estimated.

19. There may be an increased risk to protected species interactions resulting from an increase in effort from surface longline (**SLL**) commercial fisheries. The recent decision to strengthen seabird mitigation rules for the SLL fleet, which came into effect on 1 October 2024, could potentially offset the increase in risk to seabirds from any increase in effort, but mitigation options for other protected species like marine mammals and turtles are limited. However, information to inform the magnitude of any potential change in effort is limited.

20. The WCPFC stock assessment in 2024 estimated a 75.9% probability that the stock was above the rebuilding reference point. However, the WCPFC Scientific Committee raised concerns that the probability that the biomass was above the reference point may have been overestimated because stock assessment uncertainty was underestimated (particularly recruitment estimates and steepness assumptions). It was noted that the second rebuilding target would not have been met if alternative assumptions had been used in the stock assessment (WCPFC, 2024). Therefore there is a small risk that increasing the TOR TACC could place strain on the recovery of the stock. However, FNZ recently changed the rules around landing exceptions for TOR, allowing for fishers to return Pacific bluefin tuna to the sea, when caught by surface longline and troll, if it is likely to survive. The ability to release TOR alive will help support the continued rebuild of the stock and support New Zealand to manage the fishery within our WCPFC catch limit.

Who will be affected by the proposed changes?

21. TOR is a highly migratory species that is seasonally present in New Zealand waters and is valued by commercial, as well as recreational fishers, and tangata whenua.

22. TOR is primarily a valuable bycatch fishery for the SLL fleet, which targets STN and swordfish (**SWO**). Commercial interest in this stock includes a number of quota owners, owner/operators, fishers, and Licensed Fish Receivers (**LFR**s). The interests of these groups are represented through organisations such as Seafood New Zealand Inshore Council. Based on the last three fishing years, in TOR 1 there have been on average 108 quota owners (20% of quota shares are settlement quota), providing ACE to 21 permit holders (3% of all permit holders), landing TOR to 8 LFRs (4% of all LFRs). Over the last three fishing years, there were 22-26 vessels landing Pacific bluefin tuna from TOR 1.

23. While TOR is considered a valuable recreational fishery, there is very little data available on recreational catch. Amateur charter vessel (**ACV**) reports indicate very little take of TOR in the last five complete fishing years, however, the increasing abundance of TOR in New Zealand waters could potentially lead to more interactions with recreational fishers.

Input and participation of tangata whenua

24. FNZ circulated a summary of the stocks proposed for review in this round (including TOR 1) to the Chairs of the relevant Iwi Fisheries Forums. FNZ invited feedback from the forums and offered to provide more detailed information for any stocks upon request.

25. To date no specific feedback on TOR 1 has been received, however additional information was requested by Ngā Hapū o Ngāti Porou fisheries forum. FNZ presented on TOR 1 at the December Ngā Hapū o Ngāti Porou forum meeting, but no additional feedback was received. FNZ will engage further with Iwi Fisheries Forums during consultation, and also welcomes any input from tangata whenua outside of this planned engagement.

International management context

26. Pacific bluefin tuna is internationally managed as a single stock throughout the Pacific Ocean by the WCPFC and IATTC. New Zealand is a member of the WCPFC. As a member of the WCPFC, New Zealand is responsible for ensuring that management measures applied within New Zealand fisheries waters align with those of the Commission's Conservation and Management Measures (**CMM**), and that catches are managed within its national WCPFC catch limit.

27. The TOR 1 stock has a rebuilding plan under WCPFC which was adopted in 2014 (CMM 2014-04). Under the WCPFC Convention, members are responsible for ensuring that total fishing effort by their vessels targeting adult fish (30 kg or larger) shall stay below the 2002-04 average annual levels. Annual catch limits of fish less than 30 kg were reduced to 50% of the 2002-04 annual levels. New Zealand agreed in 2014 to accept a WCPFC limit less than the domestic TACC in order to facilitate agreement on the adoption of the rebuilding plan. It was anticipated that the CMM would result in a rebuilding of the stock and therefore facilitate an opportunity to increase New Zealand's national catch limit for what is currently a minor but valuable domestic bycatch fishery.

28. Starting in 2022, New Zealand's commercial catch of TOR began to increase significantly - in July 2024, New Zealand for the first time attended the Joint Working Group of IATTC and WCPFC's Northern Committee to negotiate an increased allocation for its TOR bycatch fishery, noting that the original CMM was not designed to restrict minor bycatch fisheries. The Northern Committee makes management recommendations to the WCPFC as the decision-making body. The meeting resulted in a recommendation to the WCPFC for New Zealand's national commercial catch limit to increase to 200-tonne, which was confirmed at the WCPFC Commission meeting in December (WCPFC21). Further, provisions were agreed for NZ to carry forward up to 35 tonnes per year and 10 tonnes per year, respectively, from 2019, 2020, 2021 and 2022 to 2023 and 2024 (see Figure 2).

Stock status

29. A 2024 stock assessment by WCPFC indicated that spawning stock biomass (**SSB**) of TOR has increased substantially in the last 12 years. Biomass increases are likely a result of a decline in fishing mortality, particularly for juvenile fish (aged 0 to 3) over the last decade which likely resulted from restrictions put in place by WCPFC and IATTC. The latest estimate of SSB (from 2022) is estimated to be 23.2% of its unfished biomass (75.9% probability to be above rebuilding reference points). There are no biomass-based limits or target reference points agreed for TOR, but the stock is no longer overfished relative to the limit biomass-based limit reference point (20% $SSB_{F=0}$[1]) adopted for other tuna species by the IATCC and WCPFC (WCPFC, 2024).

30. Furthermore, the SSB of TOR reached its initial rebuilding target (SSB_{MED} = 6.3% SSB_0) in 2017, seven years earlier than originally anticipated, and exceeded its second rebuilding target (20% $SSB_{F=0}$) in 2021 (WCPFC, 2024). This is a significant outcome for the fishery, and international fisheries management. However, the WCPFC Scientific Committee identified concerns that the probability that the biomass was above the rebuilding reference point may have been overestimated because stock assessment uncertainty may have been underestimated.

Fishery characteristics and settings

Table 3: Fishery characteristics and settings for TOR 1.

Commercial (TACC)
31. Pacific bluefin tuna was introduced into the Quota Management System (**QMS**) on 1 October 2004, under a single Quota Management Area, TOR 1, with a TACC of 116 tonnes.
32. Pacific bluefin tuna is primarily caught as bycatch in the commercial SLL fishery which targets STN, and to a lesser extent the SWO fishery, although periodically it is targeted as well. In the 2023/24 fishing year, TOR comprised around 9.5% of the commercial SLL catch by weight. Surface longline effort is distributed along the east coast of the North Island and the south-west coast of the South Island, although effort has recently expanded to the east coast of the South Island as well. The South Island fishery predominantly targets STN, while the North Island fishery predominantly targets SWO.
33. Currently, the TACC is set above New Zealand's national commercial catch limit set by the WCPFC. New Zealand's historical catch of TOR was significantly below the WCPFC limit, however, in the 2022/23 fishing year, catch significantly increased to 103 tonnes, and increased again in 2023/24 to approximately 113 tonnes. This would have exceeded the WCPFC limit for that year if not for TAC carry-forward provisions allowed for under

[1] $SSB_{F=0}$ is the expected spawning stock biomass under average recruitment conditions without fishing (WCPFC, 2024).

the WCPFC convention, as agreed at WCPFC21[2] (Figure 2). Because fishing effort decreased over this period, the increase in catch may be due to increased abundance of the stock, changing oceanic conditions, or both (Figure 3).

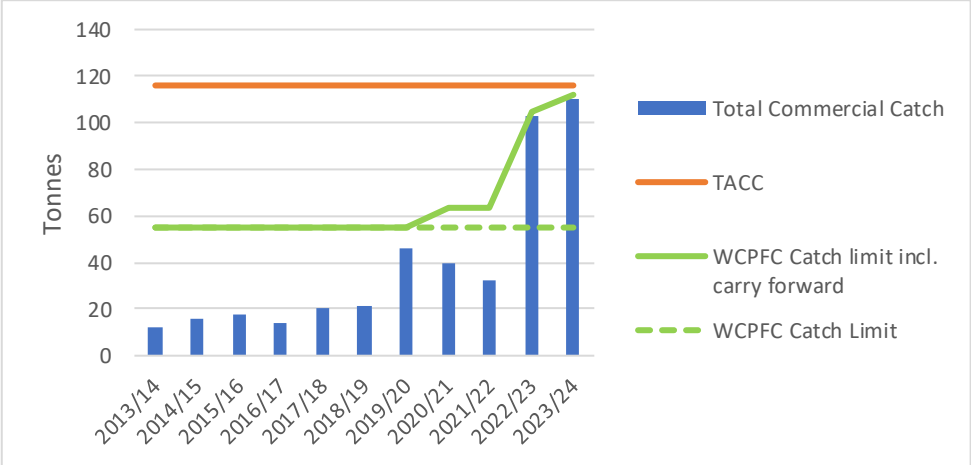


Figure 2: Total commercial catch of TOR, in tonnes. Note the 'WCPFC catch limit' (including relevant carry forward provisions) means New Zealand's catch limit plus any allocation carried forward to following year.

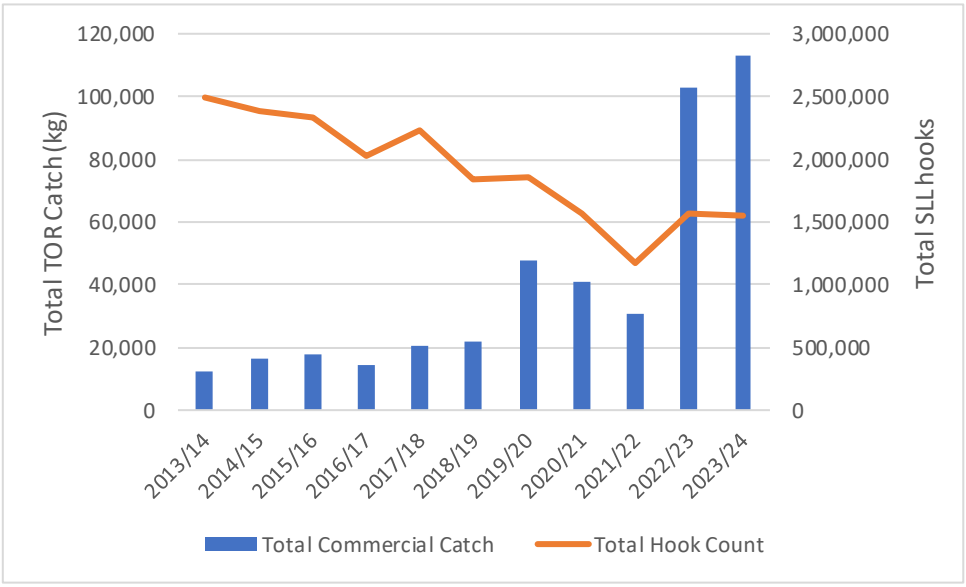


Figure 3: Commercial TOR catch and surface longline hook count in the last ten complete October fishing years.

34. In light of the recent increase in catch, the Minister for Oceans and Fisheries approved a new commercial exception for the return of TOR to the sea, when caught by SLL or troll, if it is likely to survive. This exception came into effect on 1 March 2024. Despite the new provision allowing live release, fishers are reporting increased catch of TOR which are dead and must be landed, often in excess of their ACE. Anecdotal information from fishers is that bycatch of TOR has comprised up to 30% of total catch in some recent trips, and they have been releasing 15-20 live fish per day.

Customary Māori

35. A 0.5-tonne allowance for customary Māori fishing was set in 2004. FNZ currently holds no records of TOR being taken under customary authorisation. FNZ welcomes feedback to further inform this allowance.

Recreational

36. A recreational allowance of 1 tonne was set in 2004. Pacific bluefin tuna is subject to the combined recreational daily limit for finfish of 20 per fisher per day. There is no minimum legal size.

[2] New Zealand can carry forward up to 35 tonnes per year and 10 tonnes per year, respectively, from 2019, 2020, 2021 and 2022 to 2023 and 2024.

37. In 2004, a target recreational fishery developed off the west coast of the South Island targeting TOR 1 that feed on spawning aggregations of hoki. Compulsory amateur charter vessel reporting was introduced in 2011, and a small number of private boats are also active in the fishery.

38. The recreational allowance for TOR 1 was increased from 1 to 25 tonnes in 2011 to recognise the growth in this fishery. There has been a decline in catch rates and recreational fishing effort since 2015, although this may change as the abundance of TOR in New Zealand waters increases (FNZ - Fisheries Assessment Plenary, November 2024).

39. There is limited data available on the recreational harvest of TOR 1, however anecdotally the catch has been increasing. Given the increasing abundance of TOR in New Zealand waters, FNZ is interested in feedback on whether the existing recreational allowance is sufficient, or whether an increase should be considered to accommodate a potential rise in interactions between recreational fishers and TOR.

Other sources of mortality caused by fishing

40. The allowance for all other sources of mortality to the stock caused by fishing is intended to provide for unrecorded mortality of fish associated with fishing activity, including misreporting, predation, and incidental mortality of returned fish. A 3.5-tonne other mortality allowance was set in 2004.

41. In 2024, the Minister for Oceans and Fisheries decided to allow TOR caught using the SLL and troll fishing methods to be returned to the sea if likely to survive. This provides a mechanism for fishers to manage unavoidable bycatch of TOR. Even though TOR has a high likelihood of post-release survival when caught by SLL and troll, there is a level of incidental mortality associated with these types of returns (Moore & Finucci, 2024).

42. FNZ considers that the current allowance for other sources of mortality from fishing is likely to appropriately account for potential incidental mortality associated with the returns. However, the amount of TOR being returned under the new Fisheries (Landing and Discard Exceptions) Notice is uncertain.

43. FNZ is not aware of any new information that would suggest a change to this allowance is necessary but welcomes feedback on the setting.

Supporting information and legal context

44. In Parts 2 and 3 below there is additional information to support the above analysis and proposed options. Part 2 outlines our initial assessment of the proposed changes against provisions of the Fisheries Act 1996. Part 3 provides additional figures, and more detailed science and management information which informed our analysis in Parts 1 and 2.

45. In Part 2, the proposals have been assessed against sections 9, 10, 11, and 14 of the Act. There is also information on mātaitai reserves and other customary management tools which are relevant to the Minister's decision making under section 21(4).

46. For information on how the proposed changes meet the requirements of sections 5 (Application of international obligations and Treaty of Waitangi (Fisheries Claims) Settlement Act 1992), and 8 (Purpose) of the Act, as well as detail on the statutory considerations relevant to TAC decisions, see the Legal Appendix on our consultation webpage.

How to have your say

47. We welcome your views on these proposals. Please provide detailed information and sources to support your views where possible.

- Which option do you support for revising the TAC and allowances? Why?
- If you do not support any of the options listed, what alternative(s) should be considered? Why?
- Are the allowances for customary Māori, recreational and other sources of mortality appropriate? Why?
- Do you think these options adequately provide for social, economic, and cultural wellbeing?
- Do you have any concerns about potential impacts of the proposed options on the aquatic environment?

48. FNZ invites you to make a submission on the proposals set out in this discussion document. Consultation closes at **5pm on 29 January 2025**.

49. Please see the FNZ sustainability consultation webpage for related information, a helpful submissions template, and information on how to submit your feedback. If you cannot access the webpage or require hard copies of documents or any other information, please email FMSubmissions@mpi.govt.nz.

Part 2: Initial assessment against relevant legal provisions

Overview

50. The sections below outline FNZ's initial assessment of the proposed changes against sections 9, 10, 11, and 14 of the Act. Information to support this assessment can be found in Part 3 (Supporting information). Information on kaitiakitanga and mātaitai reserves and other customary management tools has also been provided – this is relevant to the Minister's decision making under sections 12(1)(b) and 21(4).

51. For information on how the proposed changes meet the requirements of sections 5 (Application of international obligations and Treaty of Waitangi (Fisheries Claims) Settlement Act 1992), and 8 (Purpose of the Act), as well as detail on the statutory considerations relevant to TAC decisions, see the Legal Appendix on our consultation webpage.

Initial assessment of the proposals against section 14 of the Act

52. The TAC for TOR 1 is set under section 14 of the Act. This section provides for an alternative TAC to be set for stocks specified in Schedule 3 (including TOR) if the Minister is satisfied that the purpose of the Act is better met in this way. In general, TACs are set in accordance with the provisions of section 13(2) of the Act (i.e., in a manner that would maintain, or move the stock towards, a biomass at or above the level that can support the maximum sustainable yield (***MSY***)). This is not possible for TOR in New Zealand alone since, being a highly migratory species, it is not possible to calculate MSY for the portion of the stock found within the New Zealand Exclusive Economic Zone (**EEZ**) (section 14(8)(b)(iv)). Setting a TAC under section 14 also recognises that a national allocation for New Zealand has been determined as part of an international agreement (section 14(8)(b)(ii)).

53. FNZ is proposing changes to the TAC for 2025/26 as provided for under section 14 of the Act. Setting a TAC under section 14(1) of the Act requires consideration of how to best meet the purpose of the Act as outlined in section 8 – that is, to provide for utilisation whilst ensuring sustainability.

54. The Harvest Strategy Standard (**HSS**) outlines classifications of stocks based on their status in relation to target and limit reference points. For highly migratory species (including TOR), policy guidance outlines where an international organisation or agreement has adopted harvest strategies and rebuilding plans that meet or exceed the minimum standards contained in the HSS, the approach of FNZ to the international organisation or agreement will generally be to support those strategies. This approach has been reflected in the position taken by New Zealand officials at WCPFC when advocating for a precautionary approach in rebuilding the stock. FNZ therefore considers the proposed options to be consistent with the HSS.

55. FNZ is satisfied that the advice from the WCPFC Scientific Committee represents the best available information to inform management decisions.

Kaitiakitanga

56. Information provided by forums, and iwi views on the management of fisheries resources and fish stocks, as set out in Iwi Fisheries Plans, are among the ways that tangata whenua can exercise kaitiakitanga in respect of fish stocks.

57. The Mai i Ngā Kuri a Whārei ki Tihirau Fisheries Forum, Te Hiku o Te Ika Fisheries Forum, and Ngā Hapu o Te Uru o Tainui Fisheries Forum all identify TOR (or bluefin tuna generally) as taonga species of significance in their fisheries plans.

58. FNZ is seeking input from tangata whenua on how the proposed option for TOR may or may not provide for kaitiakitanga as exercised by tangata whenua, and how tangata whenua consider the proposal may affect their rights and interests in this stock.

Mātaitai reserves and other customary management tools

59. Section 21(4) of the Act requires that, when allowing for Māori customary non-commercial interests, the Minister must take into account any mātaitai reserve in that is declared by notice in the Gazette under regulations made for the purpose under section 186, and any area closure or any fishing method restriction or prohibition imposed under section 186A or 186B.

60. There are no customary fisheries management tools such as mātaitai, taiāpure, or section 186 temporary closures relevant to these proposals, as TOR 1 are caught offshore. However, TOR are caught recreationally and

commercially, throughout a number of rohe moana including East Cape, Mid North Northland, Ngā Hapū o Taimai ki Te Marangi, Ngāti Kuta/Patukeha (Te Rawhiti Marae) and Ngāti Takapari, many of which extend out to 200 nautical miles from shore.

61. It is not anticipated that the proposed TAC increases for TOR 1 would negatively impact the availability of these species in these areas, given their increasing abundance and the distribution of commercial fishing effort outside of these areas.

Initial assessment of the proposals against section 9 of the Act

62. Table 4 below outlines FNZ's assessment of the proposed options for TOR 1 against the environmental principles in section 9 of the Act, which the Minister must take into account when considering the TOR 1 TAC. This assessment has been informed by FNZ's knowledge of the current environmental impact of this fishery, which is discussed under *'Information on environmental impacts'* within *'Part 3: Supporting information'*.

Table 4: Initial assessment of the proposed changes under section 9 of the Act.

Associated or dependent species should be maintained above a level that ensures their long-term viability - Section 9 (a) of the Act	63. TOR 1 is not generally a targeted commercial species and is caught as bycatch in the STN and SWO SLL fisheries. However, FNZ recognises that increasing the TACC may result in increased effort in the STN or SWO target commercial fisheries, and therefore lead to increasing risk of protected species bycatch. However, information to inform the magnitude of any potential change in effort is inconclusive. 64. The SLL fisheries that catch TOR interact with seabirds, sea turtles, sharks, and marine mammals, including some that are critically endangered such as the Antipodean albatross. Catch of leatherback turtles and fur seals are known to occur in New Zealand SLL fisheries. Many of these by-caught species are released alive, however, post-release survival rates are unknown. 65. The most recent iteration of the Seabird Risk Assessment indicates that SLL fisheries impact significantly on some species of albatross and petrels, even posing a threat to the long-term viability of some species' populations. SLL impacts on other protected species groups such as mammals and turtles are not as well understood. 66. Information on protected species and current measures in place to mitigate interactions in the SLL fishery are discussed in Part 3 under '*Protected species*'.
Biological diversity of the aquatic environment should be maintained - Section 9(b) of the Act	67. It is unknown whether increasing the TOR TAC may impact biological diversity, however, it has been suggested that the decline of large pelagic predatory fish such as tuna has led to mesopredator releases in the pelagic ecosystem (Kitchell et al., 2002, Ferretti et al., 2010). This is a phenomenon in which populations of medium-sized predators rapidly increase in ecosystems due to the removal of apex or large predators (such as TOR), which can result in sudden changes in the structure of ecosystems including reductions in prey species populations. The high bycatch rate of sharks in SLL fisheries could potentially contribute to this phenomenon as well. 68. There are no known benthic impacts associated with the surface longline fishery (FNZ – Fisheries Assessment Plenary, November 2024).
Habitat of particular significance for fisheries management should be protected - Section 9(c) of the Act	69. Pacific bluefin tuna are highly migratory, moving between New Zealand's EEZ, the EEZs of other states, and the high seas throughout the Pacific Ocean. The only known spawning ground for TOR is in the Pacific Ocean between Japan and the Philippines in April, May, and June, spreading to the waters off southern Honshu in July and to the Sea of Japan in August (FNZ – Fisheries Assessment Plenary, November 2024). 70. Given that SLL gear, which is the method by which the majority of TOR are caught, is set at relatively shallow depths well above the seabed, changes to the TAC under the option proposed are unlikely to increase the risk of adverse effects on potential habitats of particular significance for fisheries management.

Initial assessment of the proposals against section 11 of the Act

71. Section 11 of the Act sets out various matters that the Minister must take into account (sections 11(1) and 11(2A)) or have regard to (section 11(2)) when setting or varying sustainability measures such as the proposed TAC changes. The matters relevant to this review under section 11 are set out below.

Table 5: Initial assessment of the proposed changes under section 11 of the Act.

The Minister must take into account:	
Effects of fishing on any stock and the aquatic environment – section 11(1)(a)	72. The direct effects of fishing on TOR 1 need to be considered, as well as the indirect effects of fishing on other species and the surrounding ecosystem. "*Effect*" is defined in the Act.[3] 73. Information about the direct effects of fishing on TOR 1 is provided throughout this paper, particularly within Part 1 under '*Options and analysis*', *'Fishery characteristics and settings'* and *'Stock status'*. As noted above, there are other stocks caught in the same fishery (notably STN and SWO) and TAC changes for TOR 1 have the potential to also affect catches of those species. 74. Some potential indirect effects of fishing for other species, for example, potential impacts of removing TOR 1 on the food chain, are noted above in Table 4, and described further in Part 3 under '*Interdependence of stocks'*. 75. The magnitude of the effects of fishing on the TOR 1 stock, its associated species, and the wider environment, will vary depending on the TAC setting. Greater effects may occur under a higher TAC setting, and this is something the Minister must consider in the decision on this sustainability measure.
Existing controls that apply to the stock or area – section 11(1)(b)	76. Pacific bluefin tuna is subject to the combined recreational daily limit for finfish of 20 per fisher per day. 77. There is no minimum legal size for TOR 1.
The natural variability of the stock – section 11(1)(c)	78. Pacific bluefin tuna caught in New Zealand waters are mainly adults (FNZ – Fisheries Assessment Plenary, November 2024). Spawning does not take place in New Zealand waters, and juveniles migrate north and east across the Pacific Ocean as 1–2-year-old fish. 79. Although adult TOR of 270 to 300 kg are known to be able to produce about 10 million eggs, there is no information on the frequency of spawning (FNZ – Fisheries Assessment Plenary, November 2024). 80. Increased catch of Pacific bluefin tuna in TOR 1 appears to coincide with increased abundance of the stock, which has been under a rebuild plan since the 1980s. The increased catches may however also be the result of changing oceanographic conditions. There is no scientific data available on the nature and extent each of these mechanisms play in increasing the abundance of TOR 1 in Zealand waters.
Fisheries plans, and conservation and fisheries services – section 11(2A)	81. Domestically, TOR are managed under the National Highly Migratory Species Fisheries Plan 2019. This is an approved fisheries plan under section 11(A) which specifies management and objectives for 5 years. The most relevant objectives to TOR 1 are: • **Management Objective 1:** Support viable and profitable commercial HMS fisheries in New Zealand; • **Management Objective 2**: Maintain and enhance world class game fisheries in New Zealand fisheries waters; • **Management Objective 3**: Māori interests (including customary, commercial, recreational, and environmental) are enhanced; • **Management Objective 4:** Maintain sustainable HMS fisheries within environmental standards;

[3] Section 2(1) of the Act defines "effect" to mean the direct or indirect effect of fishing, and includes any positive, adverse, temporary, permanent, past, present, or future effect. It also includes any cumulative effect, regardless of the scale, intensity, duration, or frequency of the effect, and includes potential effects.

	• **Management Objective 5:** Implement an ecosystem approach to fisheries management, taking into account associated and dependent species; • **Management Objective 7:** Maintain an effective fisheries management regime; and • **Management Objective 8:** Recognise and provide for Deed of Settlement obligations. 82. The National Highly Migratory Species Fisheries Plan 2019 is a formally approved section 11A plan, which the Minister must take into account when making sustainability decisions. FNZ considers the proposed options for TOR 1 are consistent with the Management Objectives in the plan, including those outlined above. **Fisheries and conservation services:** 83. Fisheries services of relevance to the options in this paper include the research used to monitor stock abundance and tools used to enforce compliance with management controls in the fishery. Since the 2020/21 fishing year, observer coverage has been relatively low in the SLL fishery. This was primarily due to observer deployments not proceeding because of health and safety concerns relating to watchkeeping practices. Onboard cameras have successfully been rolled out to the surface longline fleet and will improve FNZ's ability to monitor any environmental interactions occurring in those fisheries. 84. Fisheries Compliance monitors the SLL fleet via aerial surveillance and in-port inspections (or similar).
The Minister must have regard to:	
Relevant statements, plans, strategies, provisions, and documents - section 11(2)	**Regional plans:** 85. There are 17 regional councils that have coastlines within the boundaries of TOR 1: Northland, Auckland, Waikato, Bay of Plenty, Gisborne, Taranaki, Hawke's Bay, Manawatu-Wanganui, Greater Wellington Region, Marlborough, Nelson, Tasman, West Coast, Canterbury, Otago, Southland, and Chatham islands. 86. Each of these regions have policy statements and plans to manage the coastal and freshwater environments, including terrestrial and coastal linkages, ecosystems, and habitats. The provisions of these various documents are, for the most part, of a general nature and focus mostly on land-based stressors on the marine environment. There are no provisions specific to TOR 1. FNZ has reviewed the documents and the provisions that might be considered relevant. A summary of these can be found on our website here. FNZ considers the options in this paper are all consistent with the objectives of these relevant plans.
Non-mandatory relevant considerations	
Other plans and strategies	Te Mana o te Taiao (Aotearoa New Zealand Biodiversity Strategy) 87. FNZ considers that the sustainability measures proposed for TOR1 are generally consistent with relevant objectives of Te Mana o te Taiao – the Aotearoa New Zealand Biodiversity Strategy. This includes Objective 10, which is to ensure that ecosystems are protected, restored, resilient and connected from mountain tops to ocean depths; and Objective 12, which is to manage natural resources sustainably.

Information principles: section 10 of the Act

88. The best available information relevant to this review of TOR 1 is presented throughout this paper, and uncertainties in the information have been highlighted where relevant. The table below provides an additional summary of the best available information and key areas of uncertainty, unreliability, or inadequacy in information. As per section 10(c) of the Act, caution is required in decision making where information is uncertain, unreliable, or inadequate. However, as per section 10(d) of the Act, the absence of, or any uncertainty in, any information must also not be used as a reason for postponing or failing to make a decision.

Table 6. Best available information and key areas of uncertainty for TOR 1.

Best available information	Key areas of uncertainty, unreliability, or inadequacy
From the 2024 WCPFC stock assessment - • Spawning stock biomass has increased substantially in the last 12 years. • Biomass increases are likely a result of a decline in fishing mortality, particularly for juvenile fish (aged 0 to 3) over the last decade. • The latest SSB is estimated to be 23.2% of its original size. SSB for TOR reached its initial rebuilding target (6.3% SSB_0) in 2017, seven years earlier than originally anticipated, and has exceeded its second rebuilding target (20% of $SSB_{F=0}$) in 2021, and the stock is no longer considered overfished.	The stock assessment estimated a 75.9% probability to be above the rebuilding reference point. However, the WCPFC Science Committee identified concerns that the probability that the biomass is above the reference point may have been overestimated because stock assessment uncertainty was underestimated (in particular regarding recruitment estimates and steepness assumptions). It was noted that the second rebuilding target would not have been met if alternative assumptions had been used in the stock assessment. The MSY cannot be calculated for the portion of the stock found within the New Zealand EEZ. Areas of uncertainty are discussed throughout this paper. In particular, see '*Recreational catch*', '*Other sources of mortality*', '*Habitat of particular significance,*' and '*Environmental conditions affecting the stock*'.

Additional figures

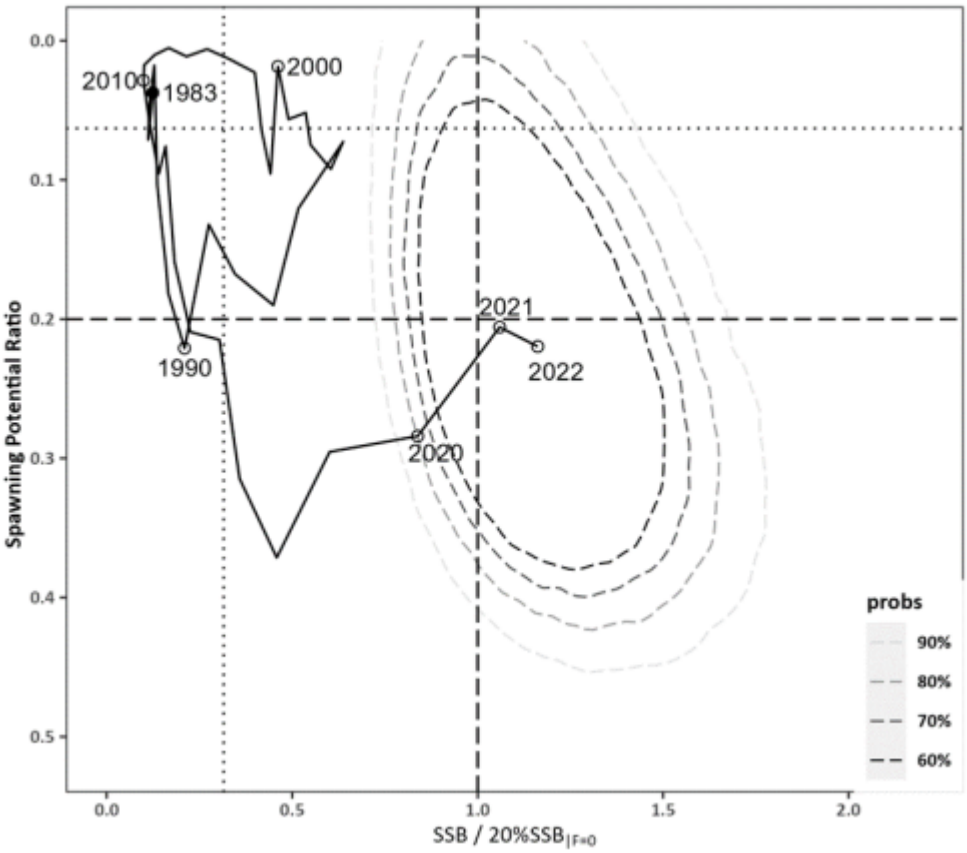


Figure 4: Kobe plot for Pacific bluefin tuna (*Thunnus orientalis*) estimated from the base-case model from 1983 to 2022. The x-axis shows the annual SSB relative to 20%$SSB_{F=0}$ and the y-axis shows the spawning potential ratio (SPR) as a measure of fishing mortality.

Information on interdependence, biology, and environmental factors

89. This information supports FNZ's initial assessment of the proposals against section 14 of the Act in *'Part 2: Assessment against relevant legal provisions*'. Information in this section was derived from the TOR chapters of the November 2024 Fisheries Assessment Plenary and the Aquatic Environment and Biodiversity Annual Review (**AEBAR**), except where cited otherwise.

Interdependence of stocks

90. Pacific bluefin tuna is one of the largest teleost fish species, comprising a single Pacific-wide population whose only known spawning grounds are to the south of Japan, in the coastal area of the Sea of Japan, and likely off the Pacific coast of northeastern Japan (Shiao et al., 2021). They are large pelagic predators, so they are likely to have a 'top down' effect on the fish, crustaceans, hoki, and squid they feed on.

91. Pacific bluefin tuna are also likely predated on by a range of active predators, including toothed whales and certain shark species at different life history stages. However, there is no evidence indicating a dependence on TOR as a key prey species.

Biological characteristics

92. Pacific bluefin tuna are epipelagic (inhabit the uppermost zone of the ocean close to the surface) opportunistic predators of fish, crustaceans, and cephalopods found within the upper few hundred metres of the water column.

93. Adult TOR have been recorded to live up to 15+ years, reaching a maximum size of 550 kilograms and length of 300 centimetres. Maturity is reached relatively early, around 3 - 5 years. Approximately 80% of three-year-old fish,

weighing around 30 kg, were found to be mature in the Sea of Japan (Tanaka, 2006; Okochi et al., 2016). Immature juveniles make extensive migrations north and east across the Pacific Ocean as 1-2-year-old fish.

94. Pacific bluefin tuna caught in the southern hemisphere, including those caught in New Zealand waters, are mainly adults.

Environmental conditions affecting the stock

95. Highly migratory species such as TOR and other tunas are expected to be highly influenced by climate change, particularly changes in the location of isotherms and ocean fronts which may show large and rapid shifts in distribution. Marine heatwaves are also likely to impact on the distribution of TOR (Behrens et al, 2024). As noted above, recent increased catch of TOR 1 could be due in part to changing oceanic conditions, however, information on this is uncertain.

Information on environmental impacts

96. This information supports FNZ's assessment of the proposals against section 9 of the Act in *'Part 2: Initial assessment against relevant legal provisions'*.

Protected species

Information on the impact on associated or dependent species/groups is set out below.

Seabirds

97. Captures on longlines typically occur when seabirds attempt to feed on baited hooks during setting and hauling. Most seabird captures during setting result in mortality, with captures during hauling usually resulting in the seabird being released alive. Information on post-release survival of seabirds caught on SLL gear is limited, however options for assessing survival have been examined (Bell, 2020).

98. The National Plan of Action Seabirds-2020 (**NPOA-Seabirds**) guides management of seabird interactions with New Zealand fisheries. The vision of the NPOA-Seabirds is 'New Zealanders are working towards zero fishing-related seabird mortalities.' It sets out the framework for managing impacts of fishing on seabirds, including the use of Mitigation Standards which are a mix of regulatory and voluntary measures which guide fishers' operations and help avoid interactions with seabirds.

99. A number of species with 'At Risk' or 'Nationally Critical' conservation status (Department of Conservation New Zealand Threat Classification) are captured in the SLL fishery. These are black petrel, Salvin's albatross, Westland petrel, flesh-footed shearwater, southern Buller's albatross, Antipodean albatross, and Gibson's albatross.

100. According to the most recent FNZ risk assessment (Edwards et al., 2023) the six species with the highest ranking all have recorded captures in the SLL fishery. Estimates of seabird captures in the SLL fleet have remained steady for many years (Figure 5). While observer data is limited for the SLL fleet, the best available information suggests that the SLL fishery continues to present a risk to seabirds.

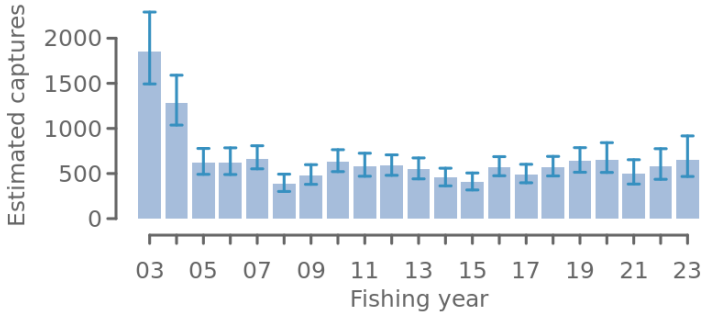


Figure 5: Estimated captures of all seabirds in the SLL fishery from 2003–2023 (including 95% confidence intervals) based on observed captures (note: the decline in captures post 2004 is likely due to an overall reduction in fishing effort).[4]

101. There are mandatory seabird mitigation regulations in place for SLL vessels under the Fisheries (Seabird Mitigation Measures - Surface Longlines) Circular. Following consultation in 2023, Fisheries New Zealand made a decision to

[4] This information comes from the Protected species bycatch website.

strengthen this circular to introduce additional mitigation measures for SLL fishers that will further reduce the risk to seabirds from fishing. These strengthened measures align with the Agreement for the Conservation of Albatross and Perels (**ACAP**) Best Practice Advice for reducing the impact of SLL fisheries on seabirds (ACAP, 2023).

102. Since 1 October 2024, SLL fishers are required to use hook shielding devices or implement a tori line, line weighting, and night setting simultaneously (known as 'three out of three' mitigation measures). Hook-shielding devices have been shown to reduce seabird captures by up to 30% (Goad & Sullivan, 2017). Additionally, line weighting requirements have been strengthened to maximise their effectiveness.

103. These compulsory mitigation measures combined with the voluntary seabird mitigation standards work together towards achieving the objectives of the NPOA Seabirds.

Mammals

104. Incidental captures of New Zealand fur seals on longlines typically occur when fur seals attempt to feed on bait and caught fish during hauling and the soak period. Most New Zealand fur seals are released alive, typically with a short snood or trace still attached. FNZ is not aware of any information on post-release survival of hook-caught fur seals. Captures in SLL fisheries have been reported mostly in waters off the west coast of the South Island but have also been reported in the Bay of Plenty/East Cape area and off the east coast of the South Island. Since the introduction of cameras there has been an increase in reported captures of fur seals, particularly off the east coast of the South Island in FMA 3.

105. The Department of Conservation classifies the New Zealand fur seal population as 'Not Threatened - Least Concern'. The total fur seal population in New Zealand was estimated to be over 200,000 animals in the last survey in 2001 and has been increasing in both abundance and distribution since then.

106. The risk assessment for New Zealand marine mammals estimates New Zealand fur seals as the second most impacted species from commercial fishing (MacKenzie et al., 2022). There were 435 fisher reported fur seal captures in the five most recent fishing years between 2019/20 and 2023/24. Based on observer information, most fur seals encountered in SLL gear are able to be released alive.

107. There has been very little research assessing mitigation measure effectiveness in SLL fisheries specifically for fur seals. However, there are some mitigation measures available for marine mammals in the SLL fishery, including weaker hooks that open to 90 degrees, and catch protection devices, which may potentially deter fur seal captures (Underwood et al., 2024, in press). In addition, there is an upcoming FNZ project trialling LED mitigation in setnet fisheries to assess the effect on target fish species and protected species, that also has the potential utility in deterring fur seal captures in the SLL fishery.

Sea turtles

108. Incidental captures of sea turtles occur relatively commonly in commercial SLL fisheries. Leatherback turtles are the most frequently bycaught species in the bigeye (**BIG**) and SWO fishery, off the east coast North Island (FMA 1 & FMA 2) during January to April. The STN fishery has very little overlap with leatherbacks. About 75% of BIG catch, 80% of SWO catch, and almost all STN catch were taken outside the known leatherback hotspot (Dunn et al., 2024).

109. Leatherback turtles in New Zealand waters are likely to originate from the Western Pacific population and migrate to foraging grounds in New Zealand (Benson et al., 2011). Leatherback turtles are ranked as critically endangered by the International Union for the Conservation of Nature.[5]

110. Fisher reported data suggests that in the last five fishing years, an average of 19 leatherback turtles were caught annually in the SLL fishery. Leatherback turtles are reported as most often caught in the shoulders, occasionally in the flipper or backbone, and sometimes in the mouth or cheeks. Most leatherbacks bycaught in the SLL fishery are reported as released alive (around 96%). Of those released alive, 77.8% are estimated to survive post-release (Finucci & Dunn, 2024).

111. To mitigate accidental sea turtle bycatch in surface longline fisheries, FNZ implemented changes to the Fisheries (Commercial Fishing) Amendment Regulations 2023. As of 3 August 2023, it is mandatory for commercial fishers who are surface longlining in New Zealand waters to use circle hooks. Mandating the use of circle hooks is part of a wider cross-agency (FNZ and DOC) programme of work to manage sea turtle interactions in commercial SLL fisheries, including supporting the continued implementation of best practice handling and release methods, and ongoing support from DOC's Protected Species Liaison Programme.

[5] The IUCN Marine Turtle Red List Assessments are publicly accessible on the Marine Turtle Specialist Group website.

Fish and invertebrate bycatch

112. To give effect to a 2023 decision from CCSBT, the Minister approved an in-season increase for the TAC of STN from 1 April 2024. In addition, the Minister increased the TAC, the allowance for recreational fishing, and the TACC for STN for the full fishing year starting 1 October 2024. Given that TOR is predominantly caught as bycatch in the STN target fishery, FNZ recognises that if the higher STN catch limits result in increased effort in the STN fishery, there will likely be an increase in TOR catch. However, information to inform the magnitude of any potential change in effort is inconclusive.

113. Management of shark species in New Zealand is guided by the National Plan of Action for Sharks (2013). Observer records indicate that a wide range of shark species are caught as bycatch by the New Zealand SLL fleet, including blue shark and porbeagle shark, both of which were introduced into the QMS on 1 October 2004. These species are mostly caught as bycatch in the STN fishery. Since the ban on shark finning in 2015, almost all blue shark and porbeagle shark catches are now discarded or released alive. While there are no sustainability concerns for blue shark, stock status for porbeagle sharks is uncertain. Any increased effort associated with the increased TOR limit proposed is unlikely to put significant pressure on the TACCs for these species.

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