



Fisheries New Zealand

Tini a Tangaroa

Review of the Fisheries (Seabird Mitigation Measures – Surface Longlines) Circular 2019

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Submission Information

Fisheries New Zealand welcomes written submissions on any or all the proposals contained in the Consultation Document. All written submissions must be received by Fisheries New Zealand no later than 5 PM on Friday 28 April 2023.

Submissions can be emailed to: FMSubmissions@mpi.govt.nz

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1 Summary

1. Fisheries New Zealand is seeking feedback from tangata whenua and stakeholders on proposed changes to the mandatory seabird mitigation measures applicable to commercial fishers using the surface longlining method of fishing within New Zealand waters.
2. New Zealand is home to the most diverse seabird community in the world, including a large number of albatross and petrel species, many of which are classified as threatened.
3. Commercial fishers using surface longline in New Zealand waters are required by law to utilise a number of mitigation practices to reduce the risk to seabirds. These regulated practices are set out in the *Fisheries (Seabird Mitigation Measures – Surface Longlines) Circular 2019* and require that:
 - a. During setting fishers must either:
 - i. Use hook-shielding devices on all hooks, *or*;
 - ii. Deploy a legal tori (streamer) line, and *either* set at night, *or* line weight to legal specifications.
4. In addition to the 'two out of three' legal requirement, Mitigation Standards set out voluntary 'best practice' methods to reduce seabird interactions. The *Mitigation Standards to Reduce the Incidental Captures of Seabirds in New Zealand Commercial Fisheries - Surface Longline* recommend that three mitigation measures are used at all times (i.e., tori lines, night setting, *and* line weighting), or hook-shielding devices are deployed. This practice is known as 'three out of three' and contrasts with the current legal requirement to use just 'two out of three' mitigation measures, or hook-shielding devices. The Mitigation Standard also makes other 'best practice' recommendations such as managing waste discharge.
5. In 2022, the Mitigation Standard was reviewed by Fisheries New Zealand. The review identified low uptake of voluntary measures including 'three out of three' (or hook-shielding devices) and low adherence to discharge management practices.
6. In light of the 2022 review, this document assesses potential options to further reduce the estimated risk of surface longline fishing to seabirds, while also considering potential impacts on fishing operations.

2 Background

2.1 Surface Longline Fleet Characterisation

7. Surface longline (SLL) is a method of fishing that involves attaching hooks to a line, setting them at relatively shallow depths behind a fishing vessel and letting them 'soak' for several hours at a time. This method of fishing targets pelagic species such as tuna and swordfish.
8. Surface longline vessels in New Zealand are typically between 12 and 25 metres in length and undertake trips lasting up to ten days. Twenty-four surface longline vessels were active in New Zealand waters during the 2021/22 fishing year (October 2021 to September 2022).
9. Approximately 1,500 fishing events (sets) are conducted annually by the SLL fleet, with up to 1,900 hooks deployed per set. Collectively, the fleet set approximately 1.2 million hooks during the 2021/22 fishing year.
10. In general, effort in the SLL fleet follows relatively predictable trends both spatially and temporally. The spring is relatively quiet but effort picks up in the summer, concentrated in FMAs 1 and 2 (and sometimes 9) in the North Island targeting mostly bigeye tuna (BIG), swordfish (SWO), and yellowfin tuna (YFN). Effort increases in the autumn and into the winter season when the southern bluefin tuna (STN) fishery kicks off and overall effort peaks around June/July. Starting around March effort partially shifts to the South Island to FMAs 3 and 7, but some effort remains in the North Island and also expands into FMA 9 targeting mostly SWO.

Gear set-up varies across the fleet depending on the target species, vessel type and operations.

- Observer coverage in the SLL fleet has historically been low, with approximately 5-10% of effort being observed depending on the target species. This has made data collection by observers relatively limited, meaning the available data on fisher compliance with Mitigation Standards is relatively poor. However, cameras are scheduled to be rolled out in the SLL fleet in the near future, and with time could have the potential to significantly improve our data and understanding of seabird interactions on the water, as well as use and effectiveness of seabird mitigation measures.

2.2 At-risk Seabird Populations

- New Zealand has the greatest diversity of seabirds of any country in the world, including a number of endemic albatross and petrel species. Due to their biological characteristics (late maturity, low productivity), albatross and petrel species have low intrinsic rates of population increase.
- A summary of the main seabird species at risk from SLL fisheries can be found below, along with their conservation status under the New Zealand threat classification system. These seabirds are either amongst the six most frequently caught species by SLL, or for which SLL accounts for at least 20% of the total potential fatalities in all New Zealand commercial fishing methods. Annual estimated fatalities in the SLL fleet were estimated using a spatially explicit fisheries risk assessment.¹

Species	SLL annual estimated fatalities	New Zealand conservation status
Antipodean albatross	54	Threatened – Critical
Gibson's albatross	140	Threatened – Critical
Salvin's albatross	13	Threatened – Critical
Black petrel	92	Threatened – Vulnerable
Flesh-footed shearwater	24	Threatened – Vulnerable
Royal albatross	16	Threatened – Vulnerable
Grey-headed albatross	1	Threatened – Vulnerable
White-capped albatross	220	At-risk – Declining
Westland petrel	61	At-risk – Uncommon
Buller's albatross	317	At-risk – Declining
Campbell black-browed albatross	46	At-risk – Uncommon
Grey petrel	43	Not Threatened

- Antipodean albatross (tōroa) is one of the largest albatrosses and an iconic species in New Zealand, ranging from the coast of Chile to the southern boundaries of various Pacific Island nations. They are currently classified as 'critically threatened' by the New Zealand threat classification system. The population has declined by two thirds since 2005 and the current population is predicted to drop by a further 80% over the next 30 years (based on an approximate 5% annual rate of decline).
- If key threats are not addressed, the tōroa faces a high risk of extinction. While the decline in the tōroa population appears to be driven largely by increased rates of interaction with fishing vessels, other variables linked to climate change have exacerbated the problem.² Bycatch in international SLL vessels operating in the Pacific high seas, predominantly to the northeast of New Zealand, has been identified as one of the greatest threats to the species' population. Tōroa are also periodically caught by domestic SLL vessels operating in New Zealand waters, although estimates of total risk from domestic fisheries do not explain the population decline observed since 2004. The impact on tōroa from fishing within New Zealand waters is likely to be much smaller in comparison to impacts from high seas longline fisheries.

¹ Assessment of the risk of commercial fisheries to New Zealand seabirds, 2006-07 to 2016-27: <https://www.mpi.govt.nz/dmsdocument/39407-aobr-237-assessment-of-the-risk-of-commercial-fisheries-to-new-zealand-seabirds-200607-to-201617>

² Antipodean wandering albatross: satellite tracking and population study 2020: <https://www.doc.govt.nz/globalassets/documents/conservation/marine-and-coastal/marine-conservation-services/reports/202021-annual-plan/antipodean-albatross-2020-final-report.pdf>

16. Gibson’s albatross, a close relative of the Antipodean albatross, faces many of the same threats. Bycatch in fishing operations, along with other threats such as impacts from climate change, has led to them being classified as ‘critically threatened’ under the New Zealand threat classification system. The breeding and foraging locations of these, and many other seabirds causes them to overlap with SLL fisheries and raises their risk of capture.

2.2.1 Seabird Interactions with the Surface Longline Fleet

17. Birds are attracted to SLL vessels because of the availability of food from baits near the surface and by discarded bait and offal (fish waste). Some birds dive down to retrieve the bait from hooks. The incidental capture of seabirds by SLL gear primarily occurs due to birds becoming hooked or tangled in the line as they attempt to forage on baited hooks, fish or discharged fish waste.
18. Incidental captures can occur during the setting, soaking, and hauling of longlines or whenever baited hooks are near the surface. Seabirds caught during the set typically die as a result of the capture because they are dragged underwater and drown; however, seabirds caught during the haul are often released alive, although post release survival rates are unknown.
19. Estimates of seabird captures in the SLL fleet operating in New Zealand’s waters have remained steady for many years (**Figure 1**). While observer data is limited for the SLL fleet, best available information suggests that SLL fishing continues to represent a risk to seabirds and there is a potential need for additional mitigation measures to continue reducing seabird bycatch by SLL vessels.

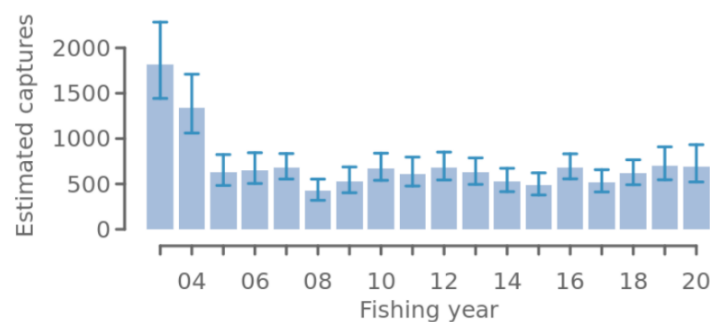


Figure 1. Estimated captures of all seabirds in New Zealand commercial surface longline fisheries from 2003 – 2020 (including 95% confidence intervals) based on observed captures (note: decline in captures post 2004 likely due to overall reduction in fishing effort).³

20. The majority of seabird captures in the SLL fleet occur in the autumn and early winter months (i.e., April through June) in FMA 7 (west coast of the South Island) and are comprised mostly of white-capped albatross, Buller’s albatross, and Westland petrels. However, captures of threatened seabirds (e.g., Antipodean and Gibson’s albatrosses) typically occur in the North Island in FMA 1 (east coast North Island from north East Cape to Northland) around the summer months (i.e., December through February).
21. The high rate of captures in the summer and autumn months could be due to the fact that many seabirds are rearing their young during this time and so are foraging more aggressively, increasing their likelihood of capture in commercial fishing gear. Additionally, some species are only present in New Zealand waters at certain times of the year (usually to breed on New Zealand’s offshore islands) with much of the rest of their time spent foraging on the high seas.
22. Seabird capture rates in the fleet are relatively similar between day and night. Most SLL sets occur during the hours of darkness, partly because night setting is a favoured mitigation option. However, night setting does not totally mitigate risk of seabird captures – there is evidence of increased captures during full and partially full (gibbous) moon phases.⁴

³ Protected Species Capture Webpage: <https://protectedspeciescaptures.nz/PSCv6/released/birds/surface-longline/all-vessels/eez/2002-03-2019-20/>

⁴ Factors affecting protected species captures in domestic surface longline fisheries: <https://fs.fish.govt.nz/Doc/25311/AEBR-296-Factors-Affecting-Protected-Species-Captures-Surface-Longline-Fisheries-4273.pdf.ashx>

Additionally, while fishing effort during the day is limited, there is relatively high seabird captures because of increased seabird activity during daylight hours.

23. Seabird captures in the SLL fleet targeting STN are higher than for the SLL fleet targeting other species (e.g., BIG and SWO). This is very likely because the SLL fleet primarily declare their target as STN. Fishers are only able to list a single 'target species' in their reporting but in reality it is likely that they are targeting a range of species including other tunas and billfish.

2.3 International Context

24. New Zealand is a party to the Agreement on the Conservation of Albatrosses and Petrels (ACAP), which is a multilateral agreement that works to conserve albatrosses and petrels by coordinating international activities to mitigate threats to their populations. ACAP provides recommendations on 'best practice' mitigation measures to reduce the incidental capture and associated mortality of seabirds in fisheries.
25. According to ACAP, best practice seabird mitigation in SLL fisheries is either simultaneous use of 'three out of three' mitigation measures (tori line, line weighting, and night setting), or hook-shielding devices. Tori lines are a deterrent that limits seabird access to baited hooks, while weighted lines cause hooks to sink faster out of reach of diving seabirds, and darkness conceals the baited hooks. ACAP best practice has not been fully regulated by international fisheries management organisations nor by any other country in its own waters.
26. Fishing activities on the high seas, including interactions with protected species, is managed by regional fisheries management organisations (RFMOs) such as the Western and Central Pacific Fisheries Commission (WCPFC) and the Commission for the Conservation of Southern Bluefin Tuna (CCSBT). As a Member of these RFMOs, New Zealand is obligated to implement agreed measures in domestic regulations, including those to mitigate risk to seabirds.
27. The WCPFC has one of the strongest seabird conservation and management measures (CMM) of the tuna-RFMOs. In short, south of 30° South (which includes most of New Zealand's waters), WCPFC members are required to use two mitigation measures at all time (i.e., any two of the following: tori line, night setting or weighted branch lines) or hook-shielding devices.⁵ Other RFMOs such as CCSBT have resolved to align their seabird measures with WCPFC's seabird CMM.
28. The Department of Conservation (DOC), in collaboration with Fisheries New Zealand (FNZ) and the Ministry of Foreign Affairs and Trade, is developing an International Seabird Strategy to implement New Zealand's international seabird conservation commitments. The Strategy's scope addresses the threat of fisheries bycatch in international waters, with particular focus on fisheries that pose a high risk to threatened seabird species. Objectives include working within RFMOs to improve seabird bycatch mitigation, monitoring, and reporting, and working directly with foreign fishing nations whose fisheries overlap with threatened seabirds.
29. A key development in the international space was the publication of the *International Plan of Action for reducing the incidental catch of seabirds in longline fisheries (IPOA Seabirds)* by the Food and Agriculture Organisation of the United Nations in 1999. The IPOA-Seabirds resulted from increasing awareness about seabirds being incidentally captured during fishing activity. A key outcome of the IPOA-Seabirds was the recommendation that relevant countries (i.e., with commercial fisheries that interact with seabirds) should develop their own national plans of action for managing seabird interactions by their fleets within their exclusive economic zones.

⁵ WCPFC Seabird CMM: <https://www.wcpfc.int/doc/cmm-2018-03/conservation-and-management-measure-mitigate-impact-fishing-highly-migratory-fish>

2.4 Domestic Context

2.4.1 Fisheries (Seabird Mitigation Measures – Surface Longlines) Circular 2019 (SLL Circular)

30. The regulated requirements that all fishers operating in New Zealand waters and using the SLL method of fishing must adhere to in order to reduce interactions with seabirds are described in the *Fisheries (Seabird Mitigation Measures – Surface Longlines) Circular 2019 (SLL Circular)*.⁶ These legal requirements are:
- During setting fishers must either:
 - a) Use hook-shielding devices on all hooks, *or*;
 - b) Deploy a legal tori (streamer) line, and *either* set at night, *or* line weight to legal specifications (known as ‘two out of three’).
31. When using line weighting, for each hook, one weight equal to or greater than the specified amount must be attached as follows: 40 grams within 0.5 meters of the hook, 45 grams within 1 meter of the hook, 60 grams within 3.5 meters of the hook, or 98 grams within 4 meters of the hook.
32. Tori (streamer) lines must meet the following specifications:
- The tori (streamer) line must be attached to the vessel at a minimum attachment height.
 - A tori (streamer) line must use streamers that are—
 - brightly coloured; and
 - resistant to damage from ultraviolet light.
 - A tori (streamer) line must be configured so that streamers with a minimum length of 1 meter are attached at intervals of no more than 1 meter along at least the aerial extent of the tori (streamer) line.
33. Additional tori (streamer) line requirements, including specifications relating to streamers and aerial extent, are specified according to vessel size (i.e., whether a vessel is less than 35 metres or greater than or equal to 35 metres in length).

2.4.2 National Plan of Action - Seabirds 2020

34. New Zealand has implemented the recommendation of the IPOA Seabirds to develop its own national plan of action, which was first published in 2004. The *National Plan of Action – Seabirds 2020 (NPOA Seabirds)*⁷ is the third iteration of the plan and outlines the New Zealand Government’s ongoing commitment to reducing seabird bycatch while setting out the approach for managing the impacts of fishing on seabirds.
35. The NPOA Seabirds sets out a vision of working towards zero fishing-related seabird mortalities. This vision is supported by goals and objectives centred around bycatch avoidance, seabird population health, research and monitoring, and international engagement. Performance measures used to monitor progress towards each objective are reported annually in the *NPOA Seabirds Annual Report*. The most recent of these reports was published in July 2022 and covers the 2020/21 fishing year.⁸
36. The NPOA Seabirds is New Zealand’s third iteration of a national plan of action. It builds on the achievements of the NPOA Seabirds 2004 and NPOA Seabirds 2013 and responds to lessons learned from implementing these plans.

⁶ Fisheries (Seabird Mitigation Measures – Surface Longlines) Circular 2019: <https://gazette.govt.nz/notice/id/2020-go30>

⁷ National Plan of Action Seabirds 2020: <https://www.mpi.govt.nz/dmsdocument/40652-National-Plan-Of-Action-Seabirds-2020-Report>

⁸ Seabird Annual Report 2020/21: <https://www.mpi.govt.nz/dmsdocument/52396-National-plan-of-action-Seabirds-2020-Seabird-annual-report-202021>

2.4.3 Mitigation Standards

37. Objective 1 of the NPOA Seabirds is to *Ensure all New Zealand commercial fishers are using practices that best avoid the risk of seabird bycatch, enabled by appropriate regulations*. To give effect to this objective, FNZ and DOC, in consultation with tangata whenua and stakeholders represented on the Seabird Advisory Group (SAG), agreed on an additional set of 'best practice' mitigation measures above and beyond the current legal requirements.
38. These 'best practice' measures are documented in the *Mitigation Standards to Reduce the Incidental Captures of Seabirds in New Zealand Commercial Fisheries for surface longline operations (Mitigation Standard)*.⁹ They define what is expected of effective mitigation practices, both regulated (mandatory) measures, as well as voluntary measures.
39. The Mitigation Standard encourages use of three mitigation practices (i.e., tori lines, night-setting, and line weighting), rather than the legally required two practices (or hook-shielding devices are deployed). This practice is known as 'three out of three'. As the surface longline fleet is diverse with respect to target species, vessel size, gear set-up and on-board equipment, the Mitigation Standard allows for the particulars of the mitigation practices to be flexible between vessels.
40. In 2022, FNZ (with input from the SAG) developed a framework for the annual review of the Mitigation Standard to ensure that it continues to provide the best advice on what constitutes 'best practice' for reducing seabird interactions in New Zealand's SLL fisheries. The review entails an examination of the effectiveness and implementation of the Mitigation Standard under the approved new framework, with input from SAG members.
41. It should be noted that determining the effectiveness and implementation of the Mitigation Standard is challenging given the low levels of observer coverage in the fleet (and therefore limited availability of data). However, the upcoming rollout of onboard cameras, in conjunction with the recently implemented electronic reporting, will better enable FNZ to monitor compliance with measures including implementation on fishing vessels.

2.4.4 Protected Species Risk Management Plans (PSRMPs)

42. To meet the objectives of the NPOA-Seabirds and align their practices with the Mitigation Standard, all SLL vessels active in New Zealand are expected to develop a Protected Species Risk Management Plan (PSRMP). PSRMPs are the key mechanism to implement the Mitigation Standard, setting out the primary mitigation measures and contingency plans that will be used on each vessel. Fishers are assisted with the development of PSRMPs by Liaison Officers (subject matter experts contracted by DOC or the fishing industry) who also provide educational material and training regarding seabird mitigation. All SLL vessels have developed PSRMPs.
43. In addition to the mandatory mitigation measures applicable to SLL vessels, PSRMPs also contain additional non-regulatory mitigation practices taken from the Mitigation Standard. Examples of such non-regulatory mitigation practices include retaining all used bait on board for the duration of hauling and using additional mitigation measures at times of high risk (e.g., increasing the sink rate by adding additional weights or decreasing setting speed). At-sea adherence to PSRMPs is audited through FNZ observer coverage. The plans are reviewed regularly based on feedback from observers, and to incorporate advances in seabird mitigation measures.

⁹ Mitigation standards to reduce the incidental captures of seabirds in New Zealand commercial fisheries – SLL: <https://www.mpi.govt.nz/dmsdocument/38018-Mitigation-standards-Surface-longline-vessels>

3 Why the need for change?

44. Estimates of seabird captures in the SLL fleet have remained stable for many years. This suggests a need to improve the fleet's uptake of mitigation measures in order to help further reduce risk to seabirds.
45. One outcome of the review of the Mitigation Standard in 2022 was the identification of low uptake of key measures – namely 'three out of three' (or hook-shielding devices) and discharge management during hauling. Only 25% of SLL PSRMPs have incorporated 'three out of three' to date. Additionally, only 43% of PSRMP audits observed adherence to 'best practice' discharge management. It was determined that low uptake of these key measures warranted consideration of incorporating additional measures into the regulations.
46. The low observer coverage rate in the SLL fleet and the poor quality of the data that is available makes it difficult to quantify the effectiveness of the mitigation measures currently in use, or how beneficial it could be to implement additional measures. However, there are various options available for consideration that may help reduce risk to seabirds in the New Zealand SLL fleet.

4 Mitigation Standard Implementation Barriers

47. Several barriers to implementation of the Mitigation Standard have been identified through a social research project commissioned by DOC, as well as by observers and fisheries compliance officers. These include concerns about health and safety, cost/effort to implement and maintain mitigation measures, potential impacts on catch rates, as well as a general lack of awareness or understanding among fishers of the difference between the voluntary standards and the mandated regulations.
48. Mandated line weighting in the SLL fleet has been considered in the past, but ultimately was not adopted due mostly to health and safety concerns raised by industry. Weighting lines carries an inherent risk whereas if a line under tension breaks and snaps back toward the vessel, the weight could cause harm to the fisher. Indeed, there have been various injuries sustained in the fleet by snap-backs, including a fatality in the 1990s.
49. However, FNZ considers that this risk has been partially mitigated by various factors. The first is the introduction of hook-shielding devices as an acceptable alternative to the use of 'three out of three' mitigation measures (which includes line weighting). Additionally, line weighting is already used to some extent by many SLL fishers which implies that they have developed their own practices around health and safety such as the use of sliding weights which are designed to reduce the risk of snap-back injuries. Also, ACAP has developed advice on line weighting safety which is published on its website.¹⁰
50. Other measures such as discharge management could also impact on health and safety of fishers. If crew are required to discharge waste on the opposite side of the vessel as the hauling station (considered 'best practice' by ACAP), the accumulation of discharge material may restrict workspace and affect crew movement. This could impact the stability of the vessel, as well as prevent the free egress of water.
51. Implementing additional measures could be costly for some fishers, including cost of gear/materials, disrupted operations while new measures are implemented, and impacts on catch rates. The cost of seabird-friendly gear such as sliding weights is generally higher than traditional gear such as fixed weighted swivels, and hook-shielding devices can cost up to \$10 each. However, DOC has distributed thousands of hook-shielding devices in the past and retain a supply which is available free of charge to fishers. If that supply is exhausted, DOC and FNZ will consider making additional hook-shielding devices available if needed.
52. Additionally, implementing mitigation measures could be disruptive to operations – for example, batch discharging of fish waste may require that hauling is paused which impacts on

¹⁰ ACAP Advice on improving safety when hauling branch lines during pelagic longline fishing operations: <https://www.acap.aq/bycatch-mitigation/mitigation-advice/3959-acap-2021-pelagic-longlines-safety-when-hauling-bpa/file>

crew efficiency. While there has been very little research conducted on how mitigation measures impact on catch rates, there may be a perception from fishers that implementing some measures (such as hook-shielding devices) could impact on target species catch.

53. Uptake of hook-shielding devices in the SLL fleet has been low, reportedly due to some difficulties with the rollout and the devices. There was also concern from fishers about the ongoing cost associated with the devices as they are reportedly lost at sea regularly due mostly to shark bite-offs. However, based on feedback from fishers, DOC have sourced a suitable version of the device and improved support, and a small number of fishers have successfully adopted them into their regular operations, at least partially.
54. Observed use of mitigation measures indicate that many fishers already incorporate 'three out of three' into their operations at least some of the time, indicating that most would be capable of implementing 'three out of three' if it were to be mandated.¹¹ However, there are some fishers that would likely be more heavily impacted than others if 'three out of three' was regulated. For example, fishers targeting SWO generally set during the day so would be impacted by the requirement to set lines only at night. However, hook-shielding devices are available as a standalone alternative which mitigates this impact (noting concerns about hook-shielding devices described previously).
55. A key finding of DOC's social research project was identification of the fact that some fishers lack knowledge or understanding of the Mitigation Standard. While fishers have a good grasp of the legal requirements of the SLL Circular, some were unaware that there were additional recommendations that are considered 'best practice' for SLL operations. Additionally, very few fishers were aware of ACAP or the advice on mitigation that ACAP produces.¹²
56. DOC's Liaison Officer Programme aims to increase uptake of best practice mitigation in SLL operations by educating fishers and has engaged with the fleet regularly to help improve uptake of best practice mitigation measures. Additionally, FNZ engages with fishers via Fish Plan Advisory Group meetings, as well as SLL workshops to help raise awareness and understanding of seabird bycatch and mitigation measures.
57. Studies conducted internationally have demonstrated the effectiveness of using 'three out of three' mitigation measures to reduce or eliminate seabird bycatch in SLL fisheries. These studies also demonstrated little or no impacts on catch rates of target species.¹³ However, this research was conducted on vessels and with gear set-ups quite different than those found in New Zealand's fleet (e.g., much larger vessels with multiple tori lines deployed) so a direct comparison of the effectiveness of the measures is difficult.

5 Review Criteria and Assumptions

58. The objective of this review is to determine whether changes can be made to further reduce the risk of SLL fishing to seabirds, in line with the objectives of the NPOA Seabirds, while considering impacts on fishing operations and efficiency. The following criteria have been used to guide FNZ's assessment:
 - a. The risks to seabirds from domestic SLL fishing operations are reduced in line with the objectives of the NPOA Seabirds.
 - b. The impact on SLL fishing operations is minimised.
 - c. Health and safety risks to fishing crew are minimised.
 - d. The ease and effectiveness of implementation are maximised.
59. While there has never been a formal scientific analysis that quantified the risk reduction from using 'three out of three' mitigation measures in a New Zealand context, international studies have demonstrated the potential for these measures to reduce or eliminate seabird bycatch. A New Zealand analysis of the individual mitigation measures separately indicates that their use

¹¹ Annual Review Report for HMS Fisheries 2021/22: <https://www.mpi.govt.nz/dmsdocument/52384-Annual-Review-Report-For-Highly-Migratory-Species-and-Pacific-Fisheries-202122>

¹² DOC Social Research Project: <https://www.doc.govt.nz/our-work/conservation-services-programme/csp-reports/202021/Drivers-for-fisher-uptake-of-seabird-bycatch-mitigation-in-the-surface-longline-fishery/>

¹³ Jimenez, et al. 'Mitigating bycatch of threatened seabirds: the effectiveness of branch line weighting in pelagic longline fisheries'; Melvin et al. 'Best practice seabird bycatch mitigation for pelagic longline fisheries targeting tuna and related species'

seems to reduce seabird bycatch if measures are employed effectively.¹⁴ There is reasonable grounds to conclude that full implementation of ‘three out of three’ or hook-shielding devices could reduce seabird captures in New Zealand SLL fisheries.

60. Similarly, the impacts on fishing operations from implementing mitigation measures have never been formally examined in a New Zealand context. As discussed above, industry has expressed concerns about reductions in capture rates of target species, as well as health and safety concerns. FNZ considers that implementation of additional mitigation measures such as discharge management and ‘three out of three’ could impact on fishing operations, at least initially while new measures and practices are installed/implemented.

6 Options for Consideration

61. FNZ has developed the following options for consideration based on an approach which balances the criteria and assumptions outlined above. FNZ invites views on these proposed options, noting that Option 2 can be considered independently, or in conjunction with Option 3 or Option 4.

6.1 Option 1 – Status quo

62. The current SLL Circular requires the use of either hook-shielding devices, or a tori line and either night setting or line weighting. This option would retain the regulatory status quo. This is consistent with current requirements of international fisheries management organisations around seabird mitigation.

<i>Risk to seabirds</i>	<i>Impact on fishers</i>	<i>Health and safety</i>	<i>Implementation</i>
Maintaining status quo regulations would likely not result in a reduction of risk to seabirds from fishing as reducing risk would rely on improving fisher performance against existing voluntary measures which have received poor uptake in the past.	There would likely be a negligible impact on fishers except where they chose to implement additional voluntary measures into their operations.	There would likely be minimal health and safety concerns for fishers except where they chose to implement additional voluntary measures into their operations.	The rollout of onboard cameras will allow for improved monitoring of existing implementation of measures. However, it will likely take some time before cameras are fully operational.

6.2 Option 2 – Regulating additional seabird mitigation measures

63. There have been several areas identified where the SLL fleet is underperforming in its delivery of seabird mitigation measures (such as discharge management) that could be added to the SLL Circular. Additionally, there are some elements of the SLL Circular which could be updated to better align with the Mitigation Standard, or to clarify technical specifications around the measure. Option 2 describes these additional measures.

64. These changes could be considered separately or together and are distinct from consideration given to implementing ‘three out of three’ which is discussed under Options 3 and 4. The improved specifications could include:

- a. Regulating discharge management during hauling to align with the Mitigation Standard.
- b. Regulating tori line position over bait entry point to maximise effectiveness.
- c. Clarifying specifications on streamers including on colour and durability of materials.
- d. Amending the line weighting specifications to reflect those in the Mitigation Standard.

¹⁴ Factors affecting protected species captures in domestic SLL fisheries: <https://fs.fish.govt.nz/Doc/25311/AEBR-296-Factors-Affecting-Protected-Species-Captures-Surface-Longline-Fisheries-4273.pdf.ashx>

<i>Risk to seabirds</i>	<i>Impact on fishers</i>	<i>Health and safety</i>	<i>Implementation</i>
Updating the SLL Circular with additional mandated measures and improved specifications could help reduce risk to seabirds. However, these additional mandated measures are still not fully aligned with best practice (i.e., 'three out of three') and thus there will likely still be some risk to seabirds compared to options 3 and 4.	Some vessels in the SLL fleet already align their operations with the additional measures outlined in Option 2 to some extent so impact on them would likely be minimal. However, vessels not using these measures could be impacted as they adjust to changes in their operations. There may also be some cost associated with re-positioning the tori line and replacing existing streamers with materials that meet the new circular requirements.	There may be some health and safety considerations around mandating batch discharging since accumulation of offal, etc onboard the vessel could inhibit crew movement and decrease vessel stability, and not allow for the free egress of water/fish waste on deck. There may also be health and safety concerns around aligning line weighting with the Mitigation Standard.	These changes should help clarify previously identified ambiguities in the Circular which should make for simpler implementation.

6.3 Option 3 – Spatial/temporal mandated use of ‘three out of three’

65. Option 3 would mandate the use of ‘three out of three’ mitigation measures which is considered ‘best practice’ in seabird mitigation, but only during the highest-risk times and locations to seabirds (noting that hook-shielding devices would continue to be an alternative option to simultaneous use of ‘three out of three’ measures). Analysis of SLL effort and seasonality of seabird captures shows strong trends that could support a spatial/temporal approach for managing interactions with seabirds.

66. The majority of seabird captures in the SLL fleet occur in the autumn and winter months in FMA 7 (west coast of the South Island), however most captures of threatened seabirds (e.g., Antipodean and Gibson’s albatrosses and black petrels) occur in the North Island in FMA 1 (east coast North Island from north East Cape to Northland) in the summer months. Therefore Option 3 proposes that ‘three out of three’ (or hook-shielding devices) be regulated between April and June in FMA 7, and between December and February in FMA 1.

<i>Risk to seabirds</i>	<i>Impact on fishers</i>	<i>Health and safety</i>	<i>Implementation</i>
While implementing ‘three out of three’ spatially/temporally based on high-risk periods for seabirds should help meaningfully reduce the risk of interactions, there will still be times/areas where fishers are not required to use ‘three out of three.’ The risk to seabirds therefore remains greater than under Option 4, but less than Option 2.	Option 3 could impact on fishing operations because of the new requirements to implement three measures. This could especially impact on those fishers who operate during the day because of the nature of their target species (i.e., SWO). However, the impact would be less than Option 4 as fishers still retain some flexibility to operate outside of the times/areas where ‘three out of three’ has been mandated. Additionally, many fishers likely already use many of these mitigation measures at least part time so impact may not be extreme.	There are some health and safety considerations around mandating line weighting, although it is considered to be moderated by (a) the alternative option of using hook-shielding devices, and (b) the ability to fish during times and in areas where ‘three out of three’ is not required.	Implementing ‘three out of three’ part time could add ambiguity and complexity to the regulations which have already reportedly caused some confusion for fishers on the difference between mandatory and voluntary measures, as well as what is considered ‘best practice’ in reducing seabird captures. A spatial/temporal approach also makes monitoring and enforcement more difficult, although this could be helped with the rollout of onboard cameras and with improved fisher reporting of mitigation measures.

6.4 Option 4 – Mandate ‘three out of three’ at all times

67. Similar to Option 3, Option 4 would mandate the use of ‘three out of three’ mitigation measures, but at all times and in all areas (again noting that hook-shielding devices would continue to be an alternative option to ‘three out of three’ measures). It is likely that implementing ‘three out of three’ at all times would maximise the reduction in risk to seabirds, however, it is not possible to quantify the level of additional reduction compared to Option 3. Given the strong spatial and temporal trends in seabird captures in SLL, implementing ‘three out of three’ at all times may not offer significantly more reduction in risk to seabirds than a spatial/temporal approach, and could impose significantly more loss on fishers.

<i>Risk to seabirds</i>	<i>Impact on fishers</i>	<i>Health and safety</i>	<i>Implementation</i>
Option 4 would be the option most likely to create the greatest reduction in risk to seabirds.	Option 4 could have the greatest impact on fishing operations because of the new requirements around simultaneous implementation of ‘three out of three’ measures. This could especially impact on those fishers which operate during the day because of the nature of their target species (i.e., SWO). However, many fishers likely already use many of these mitigation measures at least part time so impact may not be extreme.	There may be some health and safety considerations around mandating line weighting, although it is considered to be partly moderated by the alternative of hook-shielding devices.	In addition to the benefits described for Option 3, this option makes for improved ease of monitoring compliance since the blanket measure is simpler to enforce compared to spatial/temporal measures. It would also likely remove some of the confusion experienced by fishers around what is considered ‘best practice’ and what measures are legally required.

7 Conclusion

68. The incidental capture of seabirds by the SLL fleet poses a risk to a number of threatened seabird species. To effectively mitigate this risk, it is essential that mandatory mitigation measures effectively reduce the risk that fishing poses to seabirds, while still being able to be practically implemented by fishers.

69. This consultation document sets out various options for consideration on how the Fisheries (Seabird Mitigation Measures – Surface Longlines) Circular 2019 could be modified to reduce the risk to seabirds. FNZ welcomes the views of stakeholders and tangata whenua regarding the proposed options.