



Department of
Conservation
Te Papa Atawhai

Understanding drivers and barriers to seabird bycatch mitigation uptake in small vessel bottom longline fisheries

Social research report

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Executive summary

Commercial fishers are expected to meet the seabird mitigation standards under the New Zealand Government's *National Plan of Action — Seabirds 2020* (NPOA 2020). Objective one of the NPOA 2020 is to “ensure all New Zealand commercial fishers are using practices that best avoid the risk of seabird bycatch, enabled by appropriate regulations”. These practices referred to are outlined in the 2021 legislative requirements as well as the 2019 mitigation standards, and are supported via collaborative industry approaches including the Department of Conservation's (DOC) liaison programme.

In the past, DOC has mostly focused on technical solutions and support to help fishers mitigate seabird bycatch. To help supplement their work, DOC identified the need for a deeper understanding of fishers' drivers and barriers to seabird bycatch mitigation uptake using a social science research approach.

To undertake the research, The Navigators (an independent social research agency) were commissioned to seek feedback from fishers in New Zealand's inshore small vessel bottom longline commercial fleet. The Navigators conducted 18 in-depth interviews with skippers, owner-operators and owners, representing two-thirds of the fishing effort across the fleet.

The research found that fishers are driven to avoid seabird captures, with the key drivers being their respect for seabirds, government interventions (e.g. outreach support, industry education, and compliance monitoring and enforcement), protection of themselves, their crew and industry, and productivity and commercial demand interests.

The research also found fishers have a broad range of motivational and capability barriers to implementing the mitigation standards. Two of the core motivational barriers were:

- fishers were not personally catching any or very few seabirds per year; and
- fishers didn't understand why it's necessary to mitigate against seabird captures at times when seabirds are not present.

In addition to the above motivational barriers, bluenose and hāpuka fishers had significant capability barriers in being able to meet the tori line and line weighting regulations. There are also a broad range of other barriers specific to each of the mitigation standards.

The recommendations from this research list a broad range of opportunities to improve seabird mitigation in the fishery and/or to get fishers to consistently follow the mitigation standards. The recommendations are grouped under four topic areas to address each of the following:

- achievable and safety barriers:** These barriers are in most need of attention from a fishers' point of view and ideally need to be addressed before cameras come onboard. They mostly relate to bluenose and hāpuka fishing, solo fishing, as well as the use of tori lines and hauling mitigation.
- motivational barriers:** These barriers must be resolved if fishers are going to willingly do more than they are currently. They mostly relate to fishers' experience in regard to not catching seabirds, their low versus high risk scenarios, and technical issues regarding tangles, weighting, and sink rate tests.
- information, clarity and direction:** The recommendations in this section relate to suggested areas of improvement to help fishers better understand what is expected of them as well as to help increase their knowledge (e.g. through knowledge sharing).
- sense of fairness and robustness:** These recommendations in this section relate to fishers' understanding and the measurement of seabird capture statistics, as well as how fishers are perceived by the public and NGOs.

1.0 Research background

1.1 Project background

National Plan of Action — Seabirds 2020

Commercial fishers are expected to meet the seabird mitigation standards under the New Zealand Government's *National Plan of Action — Seabirds 2020*¹ (NPOA 2020).

Objective one of the NPOA 2020 is to “ensure all New Zealand commercial fishers are using practices that best avoid the risk of seabird bycatch, enabled by appropriate regulations”. These practices are outlined in the 2021 legislative requirements² as well as the 2019 mitigation standards³, and are also supported via collaborative industry approaches including liaison programmes.

The mitigation standards closely align to international best practice and were developed by New Zealand's Government to provide guidance and expectations for vessel-specific risk management plans. Meeting the mitigation standards is not a legal requirement, but they are recommended to help reduce the risk of seabird captures.

The Department of Conservation's (DOC) Protected Species Liaison Programme is playing a central role in the implementation of the mitigation standards. Since the NPOA 2020 was approved, DOC liaison officers have been discussing the mitigation standards with fishers and working to update each vessel's Protected Species Risk Management Plan (PSRMP) to reflect the mitigation measures that they undertake.

The need for a social science perspective

To date the Department of Conservation has mostly focused on technical solutions to help fishers mitigate seabird bycatch (e.g. including research and guidance on weighting regimes, streamer lines, underwater bait setters). DOC identified the need to compliment these technical efforts with social science to understand how to further engage with fishers to either drive the uptake of a range of the technical solutions already in place and/or to understand if new solutions need to be explored.

To do so, DOC commissioned The Navigators (an independent social research agency) to apply a social science methodology to better understand fishers' perspectives on mitigation in New Zealand's inshore bottom longline fleet. The study was scoped to be exploratory in nature and follows similar research conducted by The Navigators in 2021 in the surface longline fishery.

Research objective and outcomes

The overall purpose of this social science research⁴ was to better understand the drivers and barriers to uptake and implementation of best practice seabird bycatch mitigation by small vessel bottom longline (BLL) vessel operators.

¹ National Plan of Action — Seabirds 2020: Reducing the incidental mortality of seabirds in fisheries. <https://www.mpi.govt.nz/consultations/national-plan-of-action-for-seabirds-2020/>

² Fisheries (Seabird Mitigation Measures — Bottom Longlines) Circular (No. 2) 2021 (Notice No. MPI 1375)

³ Mitigation Standards to Reduce the Incidental Captures of Seabirds in New Zealand Commercial Fisheries Bottom longline (hand baiting). June 2019. <https://www.mpi.govt.nz/dmsdocument/38012/direct>

⁴ As documented in DOC's Conservation Services Programme (CSP) Annual Plan 2022/23 under CSP MIT2022-02. <https://www.doc.govt.nz/our-work/conservation-services-programme/csp-plans/>

Best practice for this project was defined by the measures listed in the 2019 mitigation standards (which include the legislative requirements in the 2021 regulations).

Beyond the best practice recommendations in the mitigation standards, there are other mitigation measures suggested in industry and supporting documentation (such as in the “Operational procedures: Protected species risk management” produced by Fisheries Inshore New Zealand (FINZ) and the PSRMP produced by DOC). Some of these additional measures were also discussed in the social research to understand fishers’ thoughts on these additional practices.

The outcomes from this research were to inform management actions and future research, to promote drivers and overcome barriers to best practice mitigation uptake, and to specifically provide insights for:

- outreach activities, such as education or liaison activities
- the development of fit for purpose mitigation tools
- future updates to the mitigation standards and regulations.

Stakeholder insights

The project commenced with a workshop with government, industry and consulting representatives to discuss the research approach and gain primary insights. The workshop covered the following topics:

- project background and objectives
- recap of the 2021 social research findings from small vessel surface longline fleet, including how the findings were being implemented
- proposed approach for the 2023 social research with the small vessel bottom longline fleet, including sampling dimensions for the selection of fishers to take part in the research
- overview from DOC liaison officers on the current sentiment amongst fishers.

Following the workshop, two nominated subject matter experts and DOC helped to refine the research approach and interview discussion guide. The interview discussion guide and proposed research approach was then shared with the wider stakeholder group who had participated in the workshop to gain feedback.

DOC liaison officers also provided valuable insights and project support, including background information on the fishery and current mitigation measures, insights on fishers’ drivers and barriers to undertaking the mitigation measures, and selection of fishers’ to take part in the research.

1.2 Research approach

To better understand the drivers and barriers to undertaking the mitigation standards, The Navigators conducted 18 qualitative in-depth interviews with skippers, owner-operators and owners within New Zealand’s inshore small vessel bottom longline commercial fleet.

Overview of qualitative research

Qualitative research, as opposed to quantitative research, was undertaken to best meet the research objectives which were exploratory in nature. Qualitative research seeks to understand how people talk about, think about and feel certain things and why they do the things they do. It is different from quantitative research in that it does not seek quantification

or quantitative analysis — it instead focuses on exploring and understanding i.e. to understand in-depth motivations, thoughts and feelings.

In-depth interviews were the qualitative methodology used for this research. In-depth interviews are relatively unstructured one-on-one interviews. The researcher is trained and experienced in the skill of probing for detailed answers. The direction of the interview is guided by the responses while also ensuring the research objectives are covered. As the interview unfolds, the researcher explores the replies and uses them as a basis for further questioning. The interview allows time for the researcher to build rapport and trust with the research participant, and time for the participant to express their opinions, attitudes and experiences. Careful attention is paid to ensure questions are not leading and the researcher does not create any bias in the responses.

Research population and sample

The fishers⁵ selected to take part in the qualitative research were sourced from a defined population of vessels. This population included 37 bottom longline vessels (owned by 28 operators).

The population was defined based on the following vessel characteristics:

- **inshore** i.e. not managed by the Deepwater Group (this excluded 36 hand-baiting bottom longline vessels targeting deepwater fish stocks)
- **hand baiting** i.e. excluding autoline baiting vessels (four vessels in the inshore fleet)
- **between seven and 28 metres** (this excluded four vessels in the fleet)
- **undertaken at least five trips** in the 2021/22 fishing calendar year (this excluded five vessels in the fleet)
- **not dahn liners** given these vessels are not required to line weight or use a tori line (this excluded an additional 13 vessels)
- **fish in the following quota management areas:**
 - Bluenose: BNS1, BNS2, BNS3, BNS7, BNS8
 - Hāpuku and Bass: HPB1
 - Gurnard: GUR1, GUR7, GUR8
 - Ling: LIN1
 - School shark: SCH3, SCH5
 - Snapper: SNA1
 - Tarakihi: TAR1, TAR2, TAR3.

To gain a sample that best represented the population, we used a number of dimensions to select fishers to take part in the interviews. The dimensions agreed on with subject matter experts and the wider stakeholder group, were a mix of fishers based on following dimensions:

- fishing type (defined by target species)
- known compliance with the standards
- capture reporting levels
- fisher experience (based on age and time in the industry)
- fishing locations.

The final sample included:

- those who target a range of fish species⁶ including:

⁵ Throughout the report, 'fishers' refers to vessel owners, owner-operators and skippers.

⁶ Noting that some fishers target a range of species.

- 15 fishers who target snapper, tarakihi or gurnard (grouped due to similar types of fishing operation) — all of the fishers in this group targeted snapper with four also targeting tarakihi
- 11 fishers who target bluenose
- nine fishers who target hapuku, bass or ling — all of the fishers in this group targeted hāpuka with three also targeting ling and one targeting bass
- six fishers from vessels who had not met the mitigation standards in 2020–22 (based on DOC and Fisheries NZ reviews/audits)
- 10 fishers from vessels who had, and eight who hadn't, reported seabird captures⁷
- a mix of younger and older fishers
- fishers who had been in the industry from one to 30+ years
- fishers who fish in FMA1, FMA2, FMA8 and FMA9 (mid to upper north island).

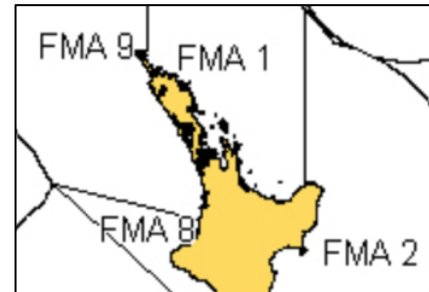


Figure 1: Map of Fishery Management Areas (FMA) included in the research⁸

To invite the selected fishers to take part in the qualitative research, DOC liaison officers contacted fishers to provide an overview of the research and ask if they were willing to take part in an interview. Those fishers who agreed were then contacted by The Navigators to explain the research process in more detail and to schedule a one-hour interview.

The 18 fishers interviewed included six skippers, 10 owner-operators and two owners. In total they represented 19 vessels, which was half of the currently operating fleet and two-thirds (67%) of the fishing effort in the 2021–22 fishing year.

Most interviews were conducted via Zoom, with one interview conducted over the phone. Fishers were reassured that their interview would be kept confidential by The Navigators and their opinions and experiences would be represented in an anonymous format in the report.

Role of the researcher

To enable fishers to speak freely in the interviews, the researcher prepared for the interviews by becoming familiar with bottom longlining fishing, mitigation methods and key terminology — knowing enough but not too much, so fishers could explain scenarios in their own words. To objectively summarise the feedback from the fishers, the researcher listened to each interview recording in detail and grouped responses and quotes into themes to gain each of the key findings.

1.3 Acknowledgements

We would like to thank the fishers who participated in this research for their time and for sharing their thoughts and experiences, to enable this summary of the themes and sentiment currently prevalent in the fleet in regard to seabird mitigation. We value and respect their views and descriptions of their experiences.

⁷ Vessels were counted as 'having reported captures' if a DOC liaison officer responded to a trigger event in 2021–2023, a trigger event or a lower seabird catch was reported to Fisheries NZ in the 2021–2022 fishing calendar year, or a capture had been reported via an onboard observer.

⁸ Source: NIWA https://marlin.niwa.co.nz/files/sources/CE-1stopshop/Reference%20files/reference_files.htm

We acknowledge that the research findings have been collected from a subset of fishers from within the wider fleet.

We would also like to thank:

- DOC and industry for funding the research through the Conservation Services Programme (CSP)
- DOC for their support and guidance throughout the project, including Dr Karen Middlemiss for contract management and review of earlier drafts, and the support and assistance from the DOC liaison officers
- FINZ, Vita Maris, Southern Seabird Solutions Trust and Fisheries NZ for their support and guidance throughout the project.

2.0 Research findings

The findings in this report are a summary of the thoughts, observations, experiences and sentiments shared by the fishers who participated in the interviews in relation to seabird mitigation.

The first two sections in the report provide background on fishers' overall thoughts and observations regarding high-risk times for seabirds and effective seabird mitigation practices. These sections are important as they provide a base for understanding fishers (attitudinal and behavioural) reactions to the mitigation standards, and other recommended mitigation measures developed by government and industry bodies.

The next two sections provide an overview of fishers' overarching drivers for undertaking seabird mitigation behaviours and the overarching barriers to following the mitigation regulations and standards.

The research findings then provide a more detailed understanding of the barriers to meeting each of the mitigation standards and other recommended mitigation measures.

The last sections of the research findings summarise fishers' views on the DOC liaison programme and other forms of engagement including how fishers learn about seabird mitigation, how they prefer to engage, and what changes they would like to see. These findings are important to consider given they influence fisher sentiment and their motivation to follow the mitigation standards.

The conclusions and recommendations section consolidates what could be done to improve seabird mitigation practices generally in the fleet as well as encourage fishers to follow the mitigation standards.

2.1 Fishers' views on high-risk times for seabird captures

Understanding fishers' thoughts on higher risk situations for seabird captures, helps us to understand what could be done to improve seabird mitigation practices and the implications for:

- outreach activities, such as education or liaison activities
- the development of fit for purpose mitigation tools
- future updates to the mitigation standards and regulations.

The mitigation standards and regulations refer to practices that should be undertaken during "high-risk periods" in addition to the baseline practices. The 2021 regulations state that the high-risk periods are during "daylight hours (0.5 hours before nautical dawn and 0.5 hours after nautical dusk) or during a full moon and three days either side of a full moon". Further to this, the mitigation standards state that high-risk periods are defined "because seabirds (especially albatross) are generally less active at night" or conversely that seabirds are more active in the day so there is greater risk of capture.

Fishers agreed that daylight hours were a higher risk time for seabird captures, but caveated this with saying when seabirds are present (i.e. seabirds are in their fishing area and/or in New Zealand for the breeding season). In understanding this risk, some fishers preferred to set at night to avoid seabirds; they said they would feel nervous setting during the day, and if they did would be looking around a lot for seabirds and taking all the extra precautions.

Some fishers also agreed moonlit nights were a higher risk for seabird captures, but other fishers did not feel so strongly about this.

Building on this idea of high-risk periods, all fishers in the interviews spontaneously spoke about broader circumstances that they deemed to be higher risk for seabird captures. They spoke about these times in reference to their extra vigilance to avoid the possibility of catching a seabird. It's at these times that fishers said they increase their mitigation measures⁹ to avoid seabird bycatch.

Fishers talked about high-risk times for seabird captures, not only being during daylight and three nights either side of the full moon, but also:

- in the summer months, especially when seabirds first return for the breeding season
- in the Hauraki Gulf up to Cape Brett, in particular the nesting islands in this area
- at dawn and dusk
- when active seabirds were around the vessel
- during a seabird feeding frenzy
- while line setting (more so than hauling)
- with gear issues: floating lines (due to a line break or large catch), line tangles, boat stops, baited hooks lost overboard
- when adding the end anchor
- with less experienced crew
- when hand baiting faster, using lighter weights and/or smaller hooks (e.g. for snapper rather than deepwater)
- when the weather is windy.

Each of these higher risk situations for seabird captures as experienced by fishers, is described in detail below.

Fishers felt strongly that summer is a high-risk period and winter is low-risk — and the highest peak is when seabirds first arrive back for the breeding season

Many fishers said they don't see seabirds over winter, as seabirds migrate north and leave New Zealand. Fishers said the summer months are when seabirds are around and over these months, they increase their mitigation measures to avoid seabird captures, especially in higher risk locations. In reference to the definition of high-risk in the regulations (i.e. daylight and full moon periods), fishers felt summer days were much higher risk compared to winter days (when seabirds had migrated).

Fishers generally described the peak months for seabirds in New Zealand being from December to February (summer), with some noting the season could start from October.

“By May we don't have a bird issue as they have all migrated away. And then we start to get the first of the birds coming back in late October. And then over the summer there is a peak period obviously.”

“In the summer, it's a degree of risk all the time because the birds are in existence, they're there. The high-risk period [in the regulations] has always been an interesting one. It's high-risk in the daylight or during the moon, etc., but they do not actually give us the option of when there's no mitigation requirement, at the times when there's no bird interaction. We gotta survive four months of high bird intensity, and then the rest of the year we've still got to practice 'high bird intensity' when there's no birds.”

⁹ Increased mitigation measures included increasing line weighting, setting at night, avoiding locations, running tori line/s, stopping setting, holding all baits, actively looking out for seabirds, watching seabird behaviours, further reducing lighting, adding floats behind the vessel, throwing bait for emergency scenarios, etc.

Fishers also noted that the riskiest period for captures was when the seabirds first arrived back in New Zealand for the breeding season. They said that at this time, seabirds are particularly hungry and so are more actively and intensely seeking food.

“We had a bad run a couple of months ago. It was around that period when the birds all came back. [Our DOC liaison officer] said that a lot of captures had been happening. And they were just going crazy. They were so hungry. I think we had like maybe four in a week.”

“When they're hungry, you can pull out all the tricks in the book and you'll still catch them [if you don't change practices]. There's just that much competition if you've got 100 or 150 or 200 birds and they're all hungry, they're all starving.”

In the peak season, fishers said the Hauraki Gulf and up to Cape Brett is the higher risk location for seabird captures, in particular the nesting islands in the area

Along with summer being the peak for seabirds and need for increased mitigation, the fishers interviewed also spoke about the locations that were higher risk because they had more seabirds over summer. These locations included the Hauraki Gulf up to the Poor Knights Islands, in particular the islands where seabirds nest in this zone e.g. Great Barrier Island, Poor Knights Islands. Some also noted that over summer there are large seabird numbers around Bay of Plenty, as well the East Cape when the large pelagic schools come through. They said there were much fewer seabirds north of Cape Brett and decreased the further north they go.

Some said they only set at night in these locations during the peak seabird season. Fishers didn't talk so much avoiding these high-risk areas, but instead stating they really needed to increase their mitigation measures if they were fishing in these areas. They felt confident that they had enough mitigation options to be in these areas and would stop setting if it turned out to not be the case.

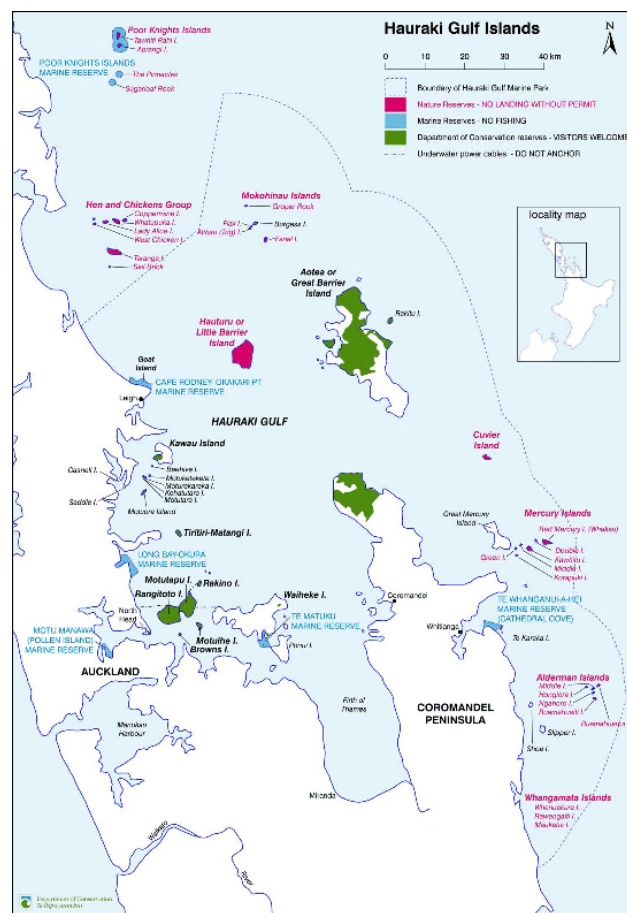


Figure 2: Map of the Hauraki Gulf and the Poor Knights Islands¹⁰

Some fishers noted that seabirds could occasionally (and unexpectedly) turn up north of Cape Brett when the seabirds were travelling back from overseas or if there was a strong southerly.

“The time when we find birds to be the biggest problem is in the summertime sort of between October and into January, in Bream Bay and out around the Hauraki Gulf, that's

¹⁰ Source: Department of Conservation (2010) www.doc.govt.nz

the danger zone time for the birds. Once you're sort of north of Cape Brett, the birds aren't even really a problem up here. There have been times when they have been a problem, generally due to a good southerly blow you'll get a bunch of birds turning up. But the further and further north, you get less and less risk as to the birds."

"For us, it's only really those three or four hot months in summertime in the Hauraki Gulf, when you've really got to be on the ball. Probably the rest of the time for what we're doing around FMA9, we still run the tori line, but the birds just aren't a problem. We sort of can relax a little bit when it comes to the birds up that way. Like last week we probably had eight to 12 for the whole trip, whereas down here, you'd have 50 to 150 birds. So of course, when there's that many, the competition for food's huge. So, you can relax a bit once you get north of Cape Brett."

"It depends where you are. Around the Hauraki Gulf islands, in summer, it's just stupid down there. They're just everywhere, the whole sky's black. Generally, there's more down there, but in North Cape we just get them for a little bit. But if we fish just south of North Cape, you won't see them year-round."

"Risk varies by different areas that you're in. You can go down to the Poor Knights or something, and you'd have 10,000 birds behind you. We don't have the birds up here that they do have down around the islands and stuff. MPI has only got to look at my observer reports. I've taken observers for 20 years now, or more. And we've never caught a bird with an observer on board. But no one seems to look at that."

In commenting on the riskier locations for seabird captures, some also noted they are more likely to encounter the seabirds at risk of extinction in particular locations and those areas should be avoided and may also need greater protection.

"[The regulations should vary by the] areas where the problem is. You guys need to get the data, look where the problem is, and then 'that's one area'."

"We don't get black petrels here, so they need to have a look around the country and go 'well that area is a high-risk area'. They might need to do special areas. You can't turn around [and ask] every fisherman around New Zealand [to avoid fishing three days either side of the full moon]. All birds need to be protected, but you've got to be reasonable about it too."

Fishers find that during daylight hours seabirds are most active on dawn and dusk

Some fishers actively tried to avoid dawn and dusk when setting their lines, because they saw this as a high-risk time when seabirds were actively looking for something to eat. One felt that seabirds were most active in the late morning.

"Dawn and dusk is a high-risk period. Definitely. Seabirds are like humans; you get up out of bed and the first thing you think of is 'where's my coffee and where's my breakfast?' So yeah, that change of light is real, real, real bad for birds. So if you can get your gear in the water before sunrise, during those high-risk periods, that's the best way to go about it."

Fishers commented that a high-risk time for seabird captures is when there are active seabirds around the vessel — especially if it turns into a feeding frenzy

Fishers said that sometimes there are no seabirds around, sometimes there are seabirds around but they are not active or looking hungry, and then there are times when seabirds are around and actively looking for food. When seabirds weren't around fishers said they are

looking out for seabirds, just in case some turn up and they need to increase their mitigation practices. When seabirds were around and inactive, they said they keep an eye on them to see if their activity levels changed. Whereas, if the seabirds were active, the fishers said that this was the time they would be taking extra precautions through their mitigation practices.

In the worst extreme, fishers also noted that sometimes if there are many seabirds their behaviours can turn into a frenzy. When this occurred, the seabirds could start ignoring the tori line and other mitigation, and so the best thing to do was stop setting or take additional mitigation practices. They also talked about how they actively tried to avoid frenzies e.g. by keeping baits during hauling.

“You only need one coming in to get a bait, and that’ll bring another one, and then before long there’s 200 of them there.”

“When the birds are really bad, they do not care. You’ve just got to stop setting. They just fly into everything. They just don’t care. Sometimes they just go crazy. I don’t know what it is.”

“[In the bird peak season] there’s certain times when the birds just go crazy. [You know how there are] bite times for fish... it must be like a feeding time for the birds, because there’s times when the birds just sit around on the water and do nothing. And then there’s other times when they just go berserk, and they all go berserk!”

Fishers feel that setting is a higher risk time compared to hauling

Fishers saw setting as a much higher risk time for seabird fatality compared to hauling, for the following reasons. Firstly, if a seabird is caught on a hook while setting, the seabird is likely to drown, whereas if it is caught on a hook while hauling the seabird is generally caught in the wing and once is unhooked it is able to fly away, with no obvious serious injury. Secondly, there was more opportunity for seabirds to access the hooks during setting as the line went out on an angle, whereas during hauling the line comes more vertically out of the water. Thirdly, they noted that there are less baits coming up when hauling, compared to the baits available when setting, that is, every hook has a bait on it during setting, whereas during hauling many of the baits are protected by caught fish or lost in the ocean.

“Birds don’t die there [on the haul]. I’ve never seen a bird die from it being hooked. The hook is always just taken out and it’s let go. And it’s not that hard to do. [The priority for mitigation] is on setting. That’s when they die. They don’t die when you’re hauling.”

“I’ve never caught a bird hauling.”

“[Over all my years] I’ve never killed a seabird in hauling. I’ve caught them, yes, but they always fly away. I know how hardy they are. They are one very, very hardy little bird. You take out the hook and if he flies away, he’s got no issues.”

“A lot of it’s due to how the fishing is, a lot of the time you won’t be retrieving baits while you’re hauling, the baits have done their job, they’ve either caught a fish or the lice have got to them, therefore there’s nothing really for the bird to eat anyway.”

As a result, fishers said they were very alert and wary during setting. Many were taking extra precautions (beyond the regulations or mitigation standards) at this time. For example, adding extra weight or floats behind the boat, if seabirds were around and looking like they would go for the baits.

In contrast, those with very small boats that set at very slow speeds (where the line sinks down more quickly) said there was more risks to seabirds while hauling rather than setting for their scenario.

Fishers state that there's an increased risk of seabird captures during issues with gear on setting or hauling

Fishers state that a key thing to do to avoid seabird captures is to ensure their systems and crew are operating effectively and efficiently. As it's when things go wrong that the likelihood of seabird captures increase.

Gear issues included: floating lines due to line breaks or large catch, line tangles, when the boat stops, and baited hooks going overboard.

Floating lines were discussed in the context of hāpuka or bluenose fishing. Whereby a section of the mainline can float to the surface, either due to a break in the line (e.g. due to a shark bite or a snag) or due to a huge haul of fish (which causes the line to float up faster than the fisher can haul). In both scenarios it is the bloated fish (which have big air bladders) that cause the line to float to the surface. Sometimes a line break will happen, and the line won't float to the surface if there is not enough fish on it. Fishers said whole lines used to float to the surface but that doesn't happen so much anymore. An example provided by one fisher was that a big fish on the end of the line can float up about 10–20 metres of line, which then may have about 8–10 hooks on it; and then if one of those hooks has a bait on it and they can't retrieve those hooks quick enough, there is a chance of catching a seabird.

When the line floats to the surface, the risk to seabirds is that they can access hooks with baits still on them, their wings can get caught on a hook if they are diving around the line, or they can get tangled in the line. In these situations, they said the seabirds are going for the fish rather than the baits. Plus, it is less likely that a seabird swallows a hook, but more likely that they get a hook in their wing. When this happens, the fisher gets the seabird onboard, they unhook or untangle it, and then the seabird flies away. And they are usually not too far away from the seabird e.g. 10 to 20 metres.

“With the small petrels diving around the line, they can get a wing hooked. They're pretty savage to unhook, but they're definitely not drowned or injured, and they still fly away.”

In terms of how often or how many seabirds have been caught due to floating lines, one fisher said it would have been a few seabirds in the last 5–10 years and another said 2–3 seabirds over ten years. They also commented that those captures had mostly been in the wing, rather than a swallowed hook.

Fishers said that they try “hard out” to stop lines from floating on the water surface on the haul, and one of the ways they do this is keeping their mainline off rough seafloors to avoid snags and ultimately line breaks. But it can be hard to avoid floating lines.

Once the line is floating fishers said they are doing everything they can, going as fast as they can, to get things under control. Because not only do they not want to catch a seabird, but they also don't want the seabirds eating the fish, plus once the fish swell the waves can knock the fish off the hooks. One fisher said that in the past they have used the boat to keep the seabirds away from the floating line, as the seabirds don't like bubbles and movement.

“It normally happens quite quickly. Sometimes you can just do circles around that piece of line. So the boat's constantly protecting the line, because birds don't like bubbles and

movement and that. We just do donuts around the bit of line that's in the water. And you can retrieve your gear.”

One fisher noted that he didn't get bluenose coming up to the surface during a large haul as he has three crew and as a team, they can haul very fast. But if he needed to stop and repair the mainline (e.g. cut and tie it), the line could float to the surface if there was a lot of fish on it. However, he hadn't found this to be an issue for seabird captures, as they peck at the fish rather than the baits, and during a large haul there weren't any baits left anyway.

“Generally there is no bait left. The birds will come in and try and peck at a bluenose, but you've only got to be pulling that bluenose a little bit in the water and they stop, they back off. They go for the fish if they are floating like that.”

Tangles while setting or hauling were seen to increase the risk of seabird captures. If a tangle happened while setting it usually resulted in the vessel needing to slow down or stop to deal with the tangle, and with the vessel slowing down the tori line is no longer at its full aerial extent to protect the baited hooks in the water. Alternatively, when a tangle came up while hauling, it can result in baited hooks on the sea surface in easy reach of seabirds.

“If you get a big tangle coming up, we call it a parachute. Cause it's a bit like hauling up parachute lines, because there's that many lines and they've all got hooks on them and also got baits on them. You can't haul something like that in quick enough, and if the birds are hungry [they are in there]. In the past I've done boat circles to keep the birds away, but that can become a hazard because of prop entanglement. So sometimes we just get a crew to yell and scream at the birds, waving their arms around.”

The boat stopping for other reasons was also raised by fishers as a higher risk time for seabird captures. It might be for an injury or other “stuff up”. They said the key was to keep everything running smoothly on setting or hauling to avoid any need to stop the boat.

“When you have a stuff up is when things go wrong with the birds. Big time. If you're shooting fast, everything's going out nicely, the birds don't really have a chance to realise what's going on. But if that boat suddenly stops, they come in and yeah.”

Baited snoods¹¹ lost overboard while hauling was also raised as a time when seabirds are put at greater risk. This happens when a snood is accidentally flicked off the table into water and then if there are seabirds around and they are hungry, the seabirds quickly go for the snood. They commented that this was a very high-risk moment for seabirds, as firstly a seabird could get hooked, and secondly they would not be able to help it as the hook wasn't attached to the mainline.

Fishers said that snoods are more likely to go overboard when they are hauling quite fast and not many fish are coming up on the line, so there are more baits being returned.

They commented they work hard to get their crew to prevent snoods going overboard in the first place, and then, if one does go over, they immediately take action, such as yelling, banging, throwing water, with the ultimate deterrent being quickly throwing some bait in a different direction. They said it happens fast and action needs to be swift. These actions are discussed more in sections 2.2 and 2.5.5.

“I'll actively interact with a bird, if a hook with a bait and clip still on it accidentally goes over the side. If the bird eats that hook it basically flies around with a bit of nylon and a clip hanging out of its mouth. And I'm sure at some point it's either going to kill it

¹¹ A snood is the clip, the nylon and the hook.

internally, or it's going to end up suspended in a tree or something somewhere. So that's at the point that I will yell at the birds, bang a screwdriver on the side of the boat, or chuck a bucket of water at them as we don't have a deck hose running full time. And then as the last resort, I'll yell to my crew to 'throw bait' basically."

Fishers noted that a high-risk time for seabird captures was when a vessel stops to add the end anchor

Some fishers noted the captures can happen at the end of a line set, when the vessel stops to put the end anchor on, if the hooks are run right up until the anchor. That is, when the boat stops to clip the anchor on, there can be hooks on or close to the surface; the line may be sinking slowly but can be up quite high and close to the boat. And then because the boat is stationary, the tori line is not working at all or as intended.

To mitigate for this, one person stated that he had changed his practice so that the last weight is sunk low, before the boat stops to add the end anchor. He was not sure if he was the only one who undertakes this strategy or whether other fishers did it as well. But, he felt this was an important practice to reduce the capture of seabirds. There were other fishers who noted the issue but didn't know if much could be done to improve the situation.

"If you're going to catch a bird, it's at the end of the set, when you stop to put the anchor on. [To mitigate for this] I've got a longer rope now, so you finish clipping on, extra weights go on, you keep your line going out, then the anchor goes on a fair way up the rope about another 20 metres away, so [in this way] you keep your line down so the seabirds don't get it."

"The time that I feel is most dangerous is when we've set the line, and then we stop. We cut the nylon, tie a loop in the nylon, tie the rope onto the nylon, let it down the back, then tie the grapnel to it and then let it go. That whole process takes maybe two minutes. And that's when that last 15–30 hooks are sitting on the surface. And that's often where we see the bird sitting there behind you in your light. And that's when the tori line is coming in and not effective, because you're not moving anymore. But I don't know if you can do anything about that."

Fishers said that less experienced crew can also increase the risk of seabird captures

Some noted the chance of seabird captures can increase when less experienced crew are working on the boat (including trainee crew) and also when crew are learning to lead the setting or hauling. Most of the time the skipper is leading the setting or hauling, but sometimes more experienced crew need to step in, and they are not as practiced at leading the setting or hauling compared to the skipper (e.g. they are not as fast or the wrong gear may be put on the lines that then affects sink rate).

Fishers saw a number of reasons for the increased chance of seabird captures due to less experienced crew members. Firstly, from the technical perspective they are less likely to be aware of how everything must be done i.e. they are still being trained. Secondly, they are not as quick and efficient at the job i.e. they are less practiced. Thirdly, they said that some of the newer crew take a while to understand the importance of protecting seabirds (and the vigilance required) or to develop an affinity with seabirds in general (which more experienced crew have).

Fishers noted that a compounding factor for the increased risk of seabird captures, was when there were less experienced crew and it was one of the high-risk times for seabird captures.

“When there’s new crew, they don’t know what’s going on at all — quite often, they’ve never been on a fishing boat before. So I’ve really got to dumb it down to like, ‘this is the things that are important here... the tori line goes out, straightaway, just before the first weight goes on... it’s really important to get the weights on... the guy that’s setting isn’t getting grumpy at you because he’s holding the line waiting for you to put it on, it’s because we need to get that line sunk down.’ It might not be as important 95% of the time, but when we’re in a high-risk environment, that’s when the weighting becomes very important, and it’s sort of like explaining all these key points and what it means. And then there’s the stuff during the haul about the discharging of bait and making sure hooks with bait are also not going over the side. So I’m like ‘try really hard, stop flicking the hooks over the side man’.”

Fishers said the snapper fishing and larger crews create a higher risk for seabird captures

Fishers said that fishing practices that involve hand baiting faster, using lighter weights, more floats, day sets, more hooks and/or smaller hooks are higher risk for catching seabirds.

They noted that faster hand baiting, lighter weights, and/or more floats results in the line sinking more slowly, making it more accessible to seabirds and as a result there is a greater need for mitigation practices.

They also noted that the following scenarios generally involved faster hand baiting and/or lighter weights, thereby reducing sink rates:

- snapper fishing — as setting is faster due to the hooks being more spread apart on longer lines, plus more hooks are set.
- vessels with larger crews — as a crew of 3–4 can set faster than a crew of 1–2.

“Some fishers are only a one- or two-man operation, they set a lot slower. Whereas some people are more susceptible to catching seabirds, like we would be. Because we set 5,000 hooks every morning, we’re setting the line fast and there’s that much gear going in the water that your likelihood of catching a bird is way higher than someone setting 1,000 hooks, three times a week.”

Regarding day sets, and based on those interviewed, snapper lines were generally being set in daylight hours and deepwater lines were being set at night. Fishers stated this reduced the risk to seabirds for deepwater sets and generally increased the risk for snapper sets.

“I’ve skippered and crewed for the hāpuka guys. I’ve never seen a bird caught on the hāpuka boats, for years. The hāpuka is a weird one. With the hāpuka they set so early, most of those guys, like 1am–3am sort of thing, they generally start setting and they’ve got all their gear in before sunrise. I don’t know whether something different needs to be set for them. I know it’s a lot harder for them to use tori lines, because they split the lines in the tide and stuff.”

With regards to hooks, they felt that the smaller snapper hooks increased the risk of seabird captures compared to the larger hooks used on the deeper water species. Plus, more hooks were set on longer lines for snapper fishing, compared to deeper water fishing, further increasing the risks to seabirds. Also, in regards to hooks, larger crews could set more hooks in day, which was again seen to increase the risk to seabirds.

“I think [tori lines are] justified in the snapper longline fishery. Definitely, across the board, just because the hooks are so small, they’re lethal at catching birds. If you want to catch

birds, you'll catch them on those hooks. If you ever slip up, you know they'll get you. [Plus] in the snapper fishery, it's lighter weights, the boat speed is faster, so the sink rate is slower.”

“There’s definitely less risk targeting bluenose as opposed to snapper. The bluenose hooks are massive, so it’s harder for the birds to get hooked up. And the baits are massive. The line sinks a bit faster because it’s set at about 2-3 knots, because it’s all a lot harder to set, whereas for snapper fishing we’re going more like six knots setting thousands of hooks. For bluenose we only set a very small amount of hooks. I haven’t caught a seabird on the set for bluenose.”

Below is a summary of some of the general differences between snapper fishing and deepwater fishing as noted by fishers, which they believe create different levels of risk and/or ability to effectively implement mitigation practices.

Snapper setting	Deeper setting (for other fish species)
Lighter weights	Heavier weights
One long line is set — so more chance of seabirds gathering	Multiple short lines set in different locations — so less chance of seabirds gathering
Setting is faster (e.g. 5–6 knots) — so slower sink rate	Setting is slower (e.g. 2–4 knots) — so faster sink rate
Lines are set over sand/mud so don’t need to be specific about line placement	Line placement needs to be quite specific for two reasons. Firstly, the gear is set based on what’s happening on the bottom e.g. starting the line on clear ground and then hang the line (with floats) over foul ground where the target fish are. Secondly, given the line is going deeper it is more at risk of tangles if not set right. So it’s more difficult to use tori lines at times
Smaller hooks and smaller baits — easier for seabirds to get caught	Bigger hooks and bigger baits
More hooks on a line	Less hooks on a line
Faster setting speed so slower sink rate	Slower setting speed so quicker sink rate
More day sets	More night sets

Some fishers commented that more seabirds are around when it’s windy

One fisher commented that they see more seabirds when it’s windy because the seabirds use the wind to fly. They said that when it’s deep calm there aren’t many birds around. So windy conditions were also seen as a higher risk time for seabirds. Also, because seabirds can use the wind to get under tori lines or beside the boat when hauling.

Another noted that they see seabirds further up north (north of Cape Brett) when there is a strong southerly blowing.

2.2 Fishers' views on effective mitigation practices

Before looking to understand the drivers and barriers to fishers following the mitigation standards, it is important to understand what they see as the most effective practices for seabird mitigation, given they are working first-hand on the issue.

This is also a valuable process to go through to understand how the mitigation standards fit with fishers' views on the most effective mitigation practices and how they don't. These insights help us to build our understanding on how to develop:

- outreach activities, such as education or liaison activities
- fit for purpose mitigation tools
- future updates to the mitigation standards and regulations.

In talking about effective mitigation practices, fishers firstly noted that a large part of effective mitigation is their knowledge and experience, in terms of knowing the risks, knowing the high-risk times (as they define them, as covered in the previous section), and then knowing what combination of practices to use for different scenarios. Below we cover this topic first, before getting into the more specific practices regarding effective seabird mitigation, from a fishers' perspective.

Fishers state that effective seabird mitigation is about knowing the risks and then knowing how to reduce those risks — through knowledge, experience, combined mitigation practices, effort, and the right attitude

Fishers noted that effective mitigation is about eliminating as much risk as possible across the wide range of variables that can lead to a seabird capture. It includes being knowledgeable about locations, seasons, moon cycles, bird behaviour, tori line and weighting best practice, having other methods to implement when birds are around, being prepared to stop setting, as well as having experienced crew.

They feel they have a good understanding on when and where they need to mitigate against seabirds — and have a very good understanding of seabird behaviour.

"I know my area, and other people know their bird interaction areas. Up in Northland, they don't have the birds up there. They are all around the islands and Bay of Plenty and then they all move down to the East Cape to feed when all the big pelagic schools are coming up down there. But notwithstanding that, in the winter, they just aren't here."

They also talked about the importance of adjusting their methods and times to work with the seabirds.

"A lot of it is about adjusting your fishing to suit the birds. Not trying to fight them and being like, 'oh, let's run a million tori lines and let's try and get this great depth below them'."

"At high-risk times, I'll run multiple tori lines, interact a lot with what's going on at the back of my boat and be looking for birds through my binoculars. The last thing I want to do is catch a bird, so I do everything in my power to not."

Ultimately, they said that good seabird mitigation comes down to experience, effort and the right attitude.

“You’ve got to put that bit of effort in. You can’t be doing it half arsed. If you are not getting the height so your tori line is running properly, then they are pretty ineffective.”

“The key thing for good mitigation is the interest of the crew and skippers. The mindset of the crew or the whole company is probably at the forefront of it. Their attitude towards seabird smart fishing would have to be the most important thing. [It’s about] having a massive respect for the ocean, animals, and really caring about and being heavily involved in the industry.”

In terms of the most effective mitigation practices, fishers stated that night setting, tori lines, quick sink rates, and fast hauling are their best means for mitigating against seabirds. Their opinions on each of these and other methods they use, are discussed in turn below.

Night setting is seen as a very effective mitigation measure

Fishers felt there was very little risk of catching a seabird in the hours of darkness. As a result, night setting was seen as one of the best methods for avoiding seabird captures. Some only set at night, and some ensure they set at night during the high-risk months. Others set in the day due to other reasons, but acknowledged that hours of darkness were better for seabird mitigation.

“Setting early enough in the darkness, not on a full moon, there’s very, very little risk to seabird capture. It’s about being smart about how you’re shooting gear as far as timing, moon cycle... as from what I have seen there is very little bird activity in the dark. At midnight to 3–4 o’clock, there’s next to no bird activity that we can see.”

“Night is still the best [way to avoid seabird captures].”

“We just don’t see a lot of birds during the night.”

“If you’re setting as the sun’s coming up [you’re more likely to catch birds]. For hāpuka, bluenose and ling it’s about setting early to avoid seabirds. We set the gear at one o’clock in the morning, it’s very dark, to finish at roughly 5am before the sun is looking like it’s going to come up.”

“In the danger zone months, sort of October through till the end of January, we just shoot at night, either 2–3 o’clock in the morning or 10 o’clock at night.”

“Nights sets are the more prudent thing to do, mostly regarding the fish and definitely the most prudent thing to do regarding birds. Night setting is the main trump factor. I don’t think they even feed at that time of day. There’s times when you see them sitting out the back, but they don’t seem to be actively attacking the baits. They sit there and look, but they don’t actively get in there. Night setting is the key thing that does 90% of the work.”

One fisher commented that if they want to set in the evening, they will wait to set, if there are lots of seabirds around and there is still some daylight.

“In the summertime, when the birds are around, it doesn’t really get dark until 9pm. So we just wait until it gets dark, until it’s completely dark, at around 10pm, and then set the gear. We just have a quick count of how many birds we’ve got, and if too many we’ll be like ‘Oh yeah, the risk seems a little bit high, we’ll wait until it gets dark.’”

Tori lines are seen as very important for day setting — and effective most of the time

Fishers agree that tori lines are an effective mitigation tool for keeping seabirds away from baited hooks during setting, especially when it is needed during light hours. As a testament to this, some noted that they had been using tori lines well before they were legally required to do so. Furthermore, some said the tori line can keep seabirds away from a long distance just due to the sight of it¹². They had also noticed that if the tori line went down, the seabirds would come to the boat, as another indicator of the effectiveness of a tori line.

“The tori lines are definitely very good.”

“The tori line helps amazingly.”

“I run the tori line if I do a daytime shot, because it’s in the day and I feel there’s risks.”

“The shearwaters or muttonbirds are the biggest issue because they dive down. But the tori lines work amazingly well. I tell other fishers, make sure you run your tori line. I really, really promote anyone into using them. My crew is trained; it’s just first nature to them now. As soon as I bring the revs off the boat, the tori line goes straight over the side, even if we are doing multiple sets in the day and needing to pull it in every time.”

“[You avoid seabirds] as long as you’ve got the tori line working and you’re moving forward. As soon as you stop, that’s when the tori line will drop down to the water and the birds will come in.”

“The tori line is pretty effective at what it does. When there’s birds in the area, the tori line will keep them away. We mostly get muttonbirds and the tori line keeps them away from the back of the boat — they won’t dive where there’s stuff in the air. We haven’t had many albatross, they stay well away from the tori line. The odd time we’ve lost the tori line, and even with no birds in the area... you lose the tori line and as soon as one bird comes, they all come. So we just stop. It’s pretty cool how the tori line works in that way.”

“We were using tori lines in the 90s. A long time before it ever became legal or anything. And we used the tori line to keep the birds away, because every bait that doesn’t hit the bottom, doesn’t catch anything. So it’s always been in our interest to keep the birds away. Not catch them. If there was no rules and regulations, I’d still be towing a tori line.”

Fishers said that although tori lines are one of the most effective tools that they have, occasionally seabirds will ignore the tori line. They mentioned that at these times, it seems that seabirds are extra hungry or worked up into a frenzy, and can ignore the tori line and go for the baits. For this reason, they said they need other mitigation measures in place to compensate for these times, such as a good sink rate or stop setting thresholds.

“The tori line is pretty good. It definitely does something, except there’s times when the birds are feeding really hard, and they just don’t even care. They could not care less; they will just fly into it and just keep going down. So it’s just not 100%, we still get the odd bird just randomly. But it’s pretty good. The tori line is good if it’s all running right. It’s still not perfect though aye.”

“A tori line that works [is one of the best mitigations], but sometimes it doesn’t work. You can just have a freak accident where the birds are so hungry, they’ll just fly straight through the thing. So line weighting and drum tension [are also important].”

¹² Although one fisher also commented that when they start setting there are sometimes no birds around, but when they put the tori line up the seabirds arrive.

“From what I've seen is that if the birds are hungry and it's a full moon, you can get your sink rate spot on, you can run the tori line bang on, you can do all these things to avoid catching them... but if they're hungry, they'll get your baits, it doesn't matter what you do. The only thing you can do is adjust the time you're setting really. That's the only thing that will win that war. They're just so hungry.”

In the interviews, fishers were passionate about making sure their tori lines are working as best as possible given they rely on them during setting when birds are around in daylight hours.

“As far as the snapper fishery goes, there's no problem running a tori line. Our one doesn't even get hooked up anymore. We used to have problems with it getting tangled in the main line, but we've refined the tori line so much now that it's sort of brilliant really.”

A number of them had made improvements to their tori lines to get them working more effectively for their vessel including:

- Using a road cone as the drag item (rather than floats) so the tori line runs straight
 - *“Road cones run true. They don't vary from side to side at the back. They make the tori line run straight. Floats make it fly from side to side and it doesn't work as well.”*
- Adding floats in the drag item (e.g. road cone) to keep it on top of the water — to create buoyancy along with the drag created by the road cone
- Adding a bigger drag item (i.e. road cone) road cone to get more drag
- Not having a road cone and using extra rope instead to create drag, as a road cone creates too much drag for some of the smaller vessels in the fleet
- Adding floats at the end of the tori line, so if the tori line is cut or snaps, it can be easily retrieved, rather than lost
- Adding floats on the tail of the tori line to keep seabirds away from the mainline past the aerial extent
 - *“At 50 metres back if you're not sunk enough, there's a dive zone there, so we just try and keep them off the water. The floats make the end of the tori line much more visible and if you can't get your sink rate right to get it down quick enough, that's still having an effect by stopping [the birds] landing at the end of the tori line.”*
 - *“The last 50 metres [that is in the water] has a lot of floats, swivels and twirls on it so it looks hard to dive through for the birds. They hate the tori line.”*
- Adding bigger floats.
 - *“The tori lines come with those little net floats, the tiny ones, but we are using bigger net floats. They're about six inches long, and they create a bit more drag. It just shows up a bit more, creates a bit more disturbance in the water.”*
- Adding an arm to swivel and keep the tori line over mainline while setting — and away from the mainline when releasing floats
 - *“We have a tori line that swings on a big boom, so we can go left and right to try and cover [the mainline] and adjust for windage or if turning corners. Because the higher you get the tori line [for the minimum aerial extent], the more difficult it is with windage to actually keep it tracking behind the boat. And that is the key, to have it straight over the food, if you don't have it straight over the food you run into problems. And when we start setting, we have [the boom] out the side of the boat, so we can get our buoy lines and everything in.”*
- Adding extra streamers in between the required streamers. Some fishers have also added bait packaging straps to create a rustling noise that the seabirds don't like

- Adding more length to the tori line e.g. so the tori line is 100 metres long in total, 50 metres for the aerial extent and another 50 metres to drag behind in the water as a “tail rope” to keep protecting the surface of the water beyond the aerial extent
- Changing the tori line from a reel to a fish bin, so streamers are not caught on the reel as the tori line goes out.

Some of the other changes they have made to their setting procedures to reduce tangles or hook ups with between the tori line and other gear (e.g. with the mainline or floats) were:

- Using consistent weights across the mainline i.e. no irregularity in weights
- Creating less tension on the main line
- Changing the boat angle when releasing the main line and floats, including mid floats.
 - *“Our tori line is the first thing that goes out. Then I’ll turn the boat on a different angle so when you chuck your longline floats out, they don’t get tangled on the tori line. So I’ll run that on an angle, turn, you get the floats out under the tori line, and then the first anchor goes out. You won’t catch birds at the start of your line because that’s going out quite fast and sinking rapidly.”*

A quick sink rate is seen as very important for avoiding seabird captures

All fishers talked about the importance of a good sink rate while setting to reduce the chance of seabird captures. After a seabird capture, some fishers said they had further increased their sink rates via their weighting regimes.

“Firstly, it would be line weighting and getting enough weight on that line to get it sinking. A lot of that can be attributed to boat speed as well. But ideally, you need to get that line sinking quick. The first thing is to get that line out of range so they can’t get to it.”

They spoke about increasing their sink rate via three different and/or combined mechanisms:

- line weighting
- less line tension (or increased line tension for one fisher)
- removing floats.

Each of these three mechanisms are discussed in turn below.

Line weighting

Fishers agreed that line weighting is important to avoid risks to seabirds while setting. Increasing line weighting was seen to not only help the line sink faster, but also allow the line to come more directly out of the water during hauling.

When seabirds are around, many talked about putting more weight on their lines to sink their line even quicker, in the form of either heavier single weights and/or more regular weights. For example, instead of one kilo weights, they’ll use two kilo weights, instead of a weight every 25 hooks, they do so every 12 hooks, and/or instead of a weight every 50 hooks, they do so every 25 hooks.

“If the birds turn up, we’ll chuck more sinkers on, just to get it sinking down a bit quicker.”

“The only thing we will do sometimes when the birds are getting carried away [while setting] is to add an extra weight every half a card. Normally we will put a weight on every 50 hooks; if there’s birds around, we’ll go down to a weight every 25 hooks.”

“Obviously line weighting is a big one.”

Heavy line weighting was also seen as very important for vessels that can't currently achieve an aerial extent of greater than 50 metres with their tori line.

Less line tension

Some fishers said their line sinks faster if there is less tension on the line, so it's best if the line hits the water in a loose form. They explained that this can be achieved by slowing down the boat and/or ensuring the line is coming freely off the drum either using hydraulics, free spooling, reversing the drum, and/or ensuring there is a lot of extra line on the drum. Some fishers said they use less line tension all the time and others were using it as an extra method at high-risk times.

When targeting deepwater species, they said they need to let their line fall very freely and tidily, going out at the same pace as their boat, and they use hydraulics for this. They said they don't let the line free spool like some other fishers, as the line needs to be very straight and true to get to the exact spot down deep where their fish target is.

"Our guys on the boat are all told to slow the boat down if there's birds, it allows the line to sink faster."

"Another thing that helps sink rate is the line tension. So, the speed at which you set, or the looseness of your drum as it spins, allows the equipment to sink faster. On our little snapper boats... we make sure the drums have always got lots of nylon on, because the line sinks faster when there's less friction, and when our drum gets down lower, the line tension gets more taut and therefore doesn't allow the line to sink as quick."

"Most boats have got a way that you can adjust tension. We set out all our snapper gear as slack as we can. I think most snapper boats do, because it just fishes better. Because I think when there's tension down the line, it puts a vibration down the line or something. We don't have the best drums for this, other drums are like clutch-plate drums that completely free spin. But what we do is reverse ours."

"We shoot a very slack line with a lot of weight on it. [We can do that] because I've got my hydraulics set up, quite technically, we've been doing that a long time. The line is going out at the same pace as the boat, but we have very little weight on the drum, so it goes out under no load, just free falls very, very tidily. It all goes down very straight and true, because if you're 30–40 metres out, you're wasting your time."

One fisher said they were working on improving the consistency of their line tension when they were setting, by changing their hydraulics slightly. At the moment, their line tension increases as the set progresses, and they want to sort this out to improve their sink rate.

"Sink rate has a lot to do with the tension on the main line. So as the main drum gets smaller, your line tension increases. A lot of vessels can adjust that tension down to next to nothing, but we've got the problem with the tension increasing as the set progresses. So I've got a higher tension at the end of the line, as we did at the start of the line. So that does affect the sink rate a lot. We are working on that, to change the hydraulics a little bit on it, so we can achieve an even sink rate through the whole set. But yeah, that's one of the issues we've got at the moment, it's just that line tension isn't really consistent."

Shooting down tide was also seen to reduce seabird captures, as there was less strain on the line.

More line tension

Conversely, one fisher was using his drum brake to increase line tension when setting to increase sink rates. This fisher stated that more tension creates a better sink rate as the tension takes the bow out of the line, so the hooks are going down in line with the weights. But, he also said that having the extra tension on the line may also reduce the catch rate as a tight line can create vibration in the water and ward fish off, like flicking a guitar string.

Removing floats

Some fishers had removed some of their floats to increase their sink rate.

Some had found this fine for their fishing, while others said that removing floats meant the line doesn't sit so well in the water, with the line more on the bottom, rather than varying in depth in the water. One snapper fisher suspected he is catching less fish because of this, but overall felt there is still enough catch while reducing the risk to seabirds.

Some deepwater fishers said they had removed or tried to remove some floats to increase their sink rate but had to be very careful of not getting their lines caught on the bottom and losing gear, for financial and ecological reasons.

Fast and efficient hauling was seen as an effective mitigation measure

A number of fishers mentioned that hauling at a fast but safe speed was a very good tactic for keeping seabirds away from the hooks as they left the water and came onto the vessel. Because, it didn't leave much, if any, opportunity for seabirds to get to the hooks.

Fishers noted that the ability to haul quickly was largely down to the skills and experience of the skipper (who does the hauling), and not having things that slowed the hauling process down. Some also noted that having the boat straight above the line (so the line was not on an angle), also gave the seabirds little chance of getting the hooks.

“When you're hauling the snapper gear, if you can get that speed going it reduces the ability for birds to get to the baits.”

Experienced setters/haulers reduce the risk of seabird captures

Some fishers said they had seabird captures in the past because of inexperienced or less experienced setters or haulers. For example, when an inexperienced setter put more space between the hooks, resulting in more line going out between the weights, reducing sink rates.

As a result, fishers commented that skippers or experienced deckhands must take the lead on setting and hauling, or if new leads were being trained up, other mitigation should be put in place e.g. a hauling mitigation device, or training should happen at lower risk times.

Stop setting or hauling if large numbers of seabirds are active

Many fishers talked about stopping setting or hauling if they were worried about seabirds getting baited hooks, as one of their mitigation practices. As stated previously, fishers said that tori lines are effective but don't provide 100% protection, so if the seabirds looked like they were ignoring the tori line, because they seemed extra hungry, they would stop setting. Fishers would also stop setting if something went wrong e.g. a gear tangle or a lost tori line. Some would stop setting if there were just too many seabirds around. Stopping setting could include ending a line they were setting or not setting a line they were about to start.

“One of the most effective things, and I’ve done it probably half a dozen times, if the birds look too bad and I’m worried, I stop setting. And then you’ve got to go somewhere else or do it in the dark. I say, ‘that’s it mate, we will do an evening one or we’re heading into the beach, we’ve got to get away’. But I haven’t had to do that for over a couple of years now.”

One fisher stated they stop hauling if large numbers of seabirds start turning up, and just let the line drop back down and wait for them to fly away.

“If I see them coming in, I’ll let the line drop back quickly down again, so they don’t get it. Then I lift it back up. The birds get all miffed and fly away again, because they didn’t get what they want and then you carry on hauling.”

Low lighting was seen as a good method for reducing seabird captures

Many fishers noted that they reduce their lighting at night to reduce the risk of seabird captures.

Avoiding locations with large numbers of seabirds to reduce the risk of captures

Some snapper fishers said they avoid locations with large numbers of seabirds. For example, in peak season they would come in close to the beach to get away from seabirds. It was noted that those targeting deeper fish species, may have less choice in avoiding seabird locations as there are more seabirds further out from the coast.

“Another thing I do when I know the birds are bad is that, there is enough snapper around, so you don’t need to go where the birds are. If they are out further, I’ll just fish the beach. I can still make a living doing that and I don’t see a bird all day. It’s about fishing a bit smarter.”

Some said they avoid nesting areas (e.g. island locations) when seabirds are actively feeding in those areas, to reduce the risks.

Adding floats behind their boat when seabirds are present

A few fishers said they add floats on short ropes behind their vessel when seabirds are more active, to stop them coming in close to the tori line near the boat where the streamers are shorter.

“If we do get a lot of birds come in closer to the boat, under the tori line, we do chuck another rope out with a couple of windy buoys on (big, bright orange floats) and run that in closer behind the boat, so it runs under the tori line — about 10-15 metres behind the boat. It’s virtually right above the line as it’s hitting the water. Because some birds, when they are going nuts, will come in and under the tori line anyway, even with the streamers.”

“We have our surface floats which vary in length. They are like a big polystyrene float with rope wrapped around it. So I’ll just run them 20 metres off the back of the boat just to have something else splashing in the water.”

For emergency situations, throwing bait as also seen as an important mitigation practice to avoid seabird captures

Fishers said that when a baited snood accidentally goes overboard during hauling, they need to have an instant mitigation practice in place to immediately stop a seabird from grabbing the bait and hook. As previously mentioned, this was one of the most high-risk events for seabirds on hauling, because the fisher had little chance of collecting the seabird once they had the bait and the seabird is likely to swallow or get the hook in its beak with the snood attached.

Throwing bait was seen as a highly effective mitigation practice for these events. They also practice other methods for these events, but they weren't seen as effective as throwing bait, these included using sound, water, or waving arms.

Skippers commented that as part of their processes, they also actively train and remind their crew to be aware of and avoid the situations that can cause a baited hooks to go over the side while hauling e.g. being aware of "butter fingers" and of flapping fish. One fisher said he actively reminds his crew of the lost dollar every time a clip goes over the side — he found if you start talking money it helps less snoods going over.

Bird lasers were seen as an effective mitigation practice by some

Some fishers were using bird lasers. Others had heard about the use of lasers as an additional form of mitigation and could see their benefit for when the tori line was not working optimally (e.g. due to wind, swell, tide, setting speed, or hook ups with the mainline) or it was rough conditions. One felt lasers would be a good idea given that he had caught seabirds at night while running a tori line. Some saw them as a good idea during full moon periods, when it's quite dark but not completely dark.

Some fishers had heard that the lasers can hurt seabirds eyes, but they either didn't agree or hadn't heard much about it.

"I think there could be other mitigation explored as well. In Australia they've been using lasers at the backs of boats to mitigate birds, but they're worried about damage to the eyes over here. But I haven't really heard much of a discussion about it."

"We run something that not a lot of people run and that's a bird laser. They haven't made that mandatory yet, but it's not illegal, but they reckon it hurts the birds' eyes. But it doesn't. I mean, only if it was held in their eyes for a minute. Anyway, that works really well."

Bait types were seen to reduce seabird captures

Some fishers were using different types of bait to reduce their risk of seabird captures. Based on fishers' feedback, different baits work better for avoiding different types of seabirds.

Some snapper fishers were using squid bait rather than fish bait for avoiding muttonbirds. They would use squid bait when the birds were bad to "take the heat out" of them.

"With squid and the tori line up, I'll start setting and might have a heap of birds, then they work out that it's all squid and the tori is out. And by the end of the set, I've got no birds, they've given up and gone. But if I had fish bait on, it would be a different story. They just

lose their brains for pilchers or anything like that. I have less trouble than other boats because I use squid bait.”

Regarding albatross, fishers had mixed views. Some snapper fishers had noticed that albatross swim straight past a piece of barracuda, to get to a piece of squid. Another noted that albatross don't like squid and would only eat fish bait.

Whereas a hāpuka fisher said the seabirds would go for both squid and barracuda.

Underwater bait setters and line suppressors were seen as promising mitigation options for the future

Some fishers had heard about or were experimenting with underwater bait setters, some saw them as the next promising innovation to greatly improve setting mitigation. But it was thought that underwater line setters are still in experimental mode and requiring further testing and refinement. Some commented that the issues may be too great to overcome. Some of the perceived issues at present with implementation of the bait setters were damage to baits as they go down so fast (e.g. to soft baits such as pilchards), not being very easy to implement, and difficulty in avoiding hook ups. For the present, tori lines were seen as easier to implement than underwater bait setters, although the bait setters were seen as potentially better than having to use extra heavy weights.

“They’re working on the [underwater bait setters] that come straight off the back of the boat and straight down. That seems like a good idea. So the birds don’t even see the bait go over the back of the boat. But I don’t know how far that went or if they found a practical solution. But I think the big thing is looking at that underwater deployment. Cause if the birds don’t see the baits leaving the boats, that makes sense to me. But it’s got to be practical as well.”

Line suppressors had also been trialled on some boats and are used to push the mainline down lower at the back of the boat when setting, so the hooks go down quicker. Some commented that line suppressors may be more promising as a future tool because they are perceived to be less complicated, less expensive and easier to use compared to underwater bait setters.

Ultimately, fishers felt there was more work to be done to find a better solution for seabird mitigation while setting, given the current practices weren't totally reliable and not always easy or even possible to implement for particular types of fishing.

“Someone hasn’t come up with a 100% bulletproof idea yet. Otherwise, we’d be using that, and this would all be gone away.”

2.3 General drivers for undertaking mitigation behaviours

Understanding what drives fishers to undertake the mitigation practices, helps us to understand their mindset, their beliefs, and how they compare in relation to other stakeholder drivers.

Fishers' drivers for undertaking seabird mitigation practices are multifaceted. Those interviewed state they don't want to catch seabirds in the first place. They also don't want to get fined or put themselves or the fishery at risk, and are being supported to undertake the correct practices by the DOC liaison officers and others. Those who have had previous large captures or fines were the most acutely driven to avoid seabird captures.

Across the interviews, fishers shared strong conservation values and respect for wildlife, these were strong drivers for avoiding seabird captures. Government interventions were also strong drivers for undertaking the practices listed in the mitigation standards (e.g. liaison programme, surveillance fly overs, fines, wharf checks, observers, incoming cameras). Protection of and respect for themselves, their crew, co-fishers and their industry, was also a strong driver for avoiding seabird captures. Productivity in terms of not losing baits to seabirds was a long-standing driver for fishers. Lastly, ease and practicality was a very important driver for mitigation implementation.

In terms of the level of drive for undertaking mitigation behaviours, the fishers interviewed were quite paranoid about not catching seabirds. They talked about how they are always on the lookout for seabirds and are actively watching seabird behaviour when seabirds are around the vessel i.e. to see if they are just sitting or looking like they might go for the baits. They also talked about their high-risk periods for seabirds, times when they need to be extra vigilant and can't relax (as outlined in section 2.1). This paranoia leads them to take extra mitigation measures where they see it's necessary (in addition to the mitigation standards), or to meet them in the best way possible for the fishers who are finding they can't meet the regulations (e.g. when fishing for bluenose).

These fuller insights help us to build our understanding on how to better engage with fishers, what interventions help, and what beliefs we may hold that we can start to discount. All of these are important to consider for the continual refinement of:

- outreach activities, such as education or liaison activities
- fit for purpose mitigation tools
- mitigation standards and regulations.

The full range of drivers for fishers' seabird mitigation behaviours are discussed in turn below.

Driver 1: Respect for seabirds

All of the fishers interviewed said they have a strong respect for seabirds; ranging from some who see seabirds as ocean friends at one end of the spectrum, to not being a "bird lover" but just not wanting to kill anything unnecessarily at the other end of the spectrum.

They talked about wanting to do their job and "to feed the masses", in the least harmful way possible, protecting the lives of seabird. They spoke about not being cruel to animals in general and there being no need for any seabirds to get hurt.

"We don't want to catch seabirds; I think they're beautiful animals. It's as simple as that. You know, they've been here as long as us and we all have to share that space. They

obviously get hungry, and they see an easy meal, so we want to be as proactive as we can.”

“The birds are part of our environment, when we're out there. I sort of see them as our mates. There's nothing else out there, it's only water, water just looks the same every day. So it was quite cool seeing them, they come and hang out by the boat. We've seen quite a few of the royal albatross up north, they are massive, huge. The new crew get a real buzz from seeing them. That's our main reasoning behind it, we wouldn't want to see them disappear forever.”

“[I'd do seabird mitigation if it wasn't regulation] because I don't like killing things. I like animals. It took me a long time to even kill snapper when I first started going fishing. I really like birds; albatross would be my favorite bird.”

Fishers also spoke about the importance of seabirds for the environment and ecosystems, and some also mentioned the importance of the seabird chicks needing both of their parents to survive.

Older fishers who had been in the industry for a long time spoke about the general positive change in fisher's attitudes towards seabirds and seabird mitigation, as well as their increased knowledge on seabirds, which had developed alongside increasing ecological understanding worldwide.

“Over the last 10 or more years, fishermen have changed their whole perception on bird mitigation. A lot of them are a lot more thoughtful about what they are doing and if a bird interaction starts to happen, they make a decision to stop the set and put a short set in. And then to review what they were doing. Whereas years ago, it was 'bugger the birds'.”

As a result of this sentiment towards seabirds, interviewees were actively thinking about ways to improve their seabird mitigation activities. This thinking was intensified when a fisher had had a capture event. As part of the capture event, they put a lot of thought into what caused the event and what they could change to prevent the same thing from happening in the future. Some of the improvements fishers had made were increasing line weighting, adding extra tori lines, ensuring inexperienced crew are not setting and hauling, stopping setting if too many seabirds are active, etc.

Driver 2: Interventions

Interventions, in a range of forms, were also drivers for fishers' seabird mitigation practices and improvements. Interventions included outreach support, industry education, and compliance monitoring and enforcement.

Outreach support

Those that were interviewed spoke about the positive interventions (as opposed to enforcement interventions) that had helped drive change in the fishery, this included support, advice, encouragement and assistance. They spoke about this support mostly coming from DOC liaison officers and consultants, but also from some observers and Fisheries officers.

At the forefront of outreach support, DOC liaison officers were seen to be playing a strong and vital role in driving fishers' uptake and improvements in seabird mitigation practices. The liaison officers are seen to be driving this change by:

- educating skippers and their employers on best practice mitigation — and how to achieve it

- informing fishers of changes in the mitigation regulations — and how to meet the new regulations
- the provision of tori lines that meet the regulations
- providing support and discussing ideas for mitigation improvements when seabird captures happen.

Fishers commented that the above support helps them deliver on their motivations for undertaking mitigation behaviours, i.e. protecting seabirds, avoiding fines, protecting their industry, and peace of mind.

“We want birds to stay away from our line and we certainly don’t want to catch them. In the last year and a half, they had the change in regulations. [Our DOC liaison officer] came onto the boat and we had a long talk about birds, and he asked me to do some things, and I just did them because I want to do the right thing. I want to play a good part, because I’ve got nothing to lose [by doing them]. We don’t want to get fined or anything like that. So, we just do everything right [where it’s possible] and then there’s no real problem. There’s no losing sleep over it.”

Through the discussions with fishers, it was apparent *outreach support* was most effective at driving change when undertaken via conversations, especially at the vessel, rather than via one-way communications or printed materials. Conversations allowed for practices and issues to be discussed and explored.

Some fishers noted the importance of liaison officers talking to their employers, as they handed information down to them, which ultimately was another driver of change.

Beyond education and advice, fishers also commented that the tori lines constructed and provided by DOC in recent years, have made the tori lines easier to implement, more effective, and ensured they were meeting the regulations. They felt these regulation tori lines were working really well and were reducing the risk of seabird captures. As a result, they have become more willing to run a regulation tori line. Fishers said they don’t make any changes to the tori lines provided by DOC, as they know they are meeting the regulations and they are working well.

“DOC delivered me a tori line. So, we started using the government required one and they work. [We don’t modify it], it works fine the way it is.”

In terms of other outreach support, fishers mentioned how some observers and Fisheries officers had contributed to improvements in their mitigation practices. They said some observers (many years ago) would watch their practices onboard and provide advice on how to make their mitigation practices more effective and/or how to avoid issues with they were having with implementation, based on what they had seen on other vessels. (Note: others said that their observers had not helped them at all in this way.) In Northland, they said that the Fisheries officers are very helpful in providing updates on mitigation best practice, upcoming high-risk events or general mitigation advice. (Note: fishers in other areas said they did not receive the same support from Fisheries officers and in fact they felt threatened by their Fisheries officers (see section 2.7 for information on this)).

“About fourteen years ago when they started putting observers on the boats, they would see what was done on other vessels [and pass it on]. [So change was happening by] having people go around and say, ‘this is what you can do’.”

Lastly, an interesting observation was that many fishers thought that some of the non-regulatory mitigation standards were legally required. It appears they have picked up the non-regulatory mitigation standards (and thought of them as regulation) as a result of

encouragement from the DOC liaison officers and Fisheries officers, rather than being specifically aware of the “mitigation standards”. Fishers did not appear to be aware of the mitigation standards as the enhanced set of recommendations that included regulatory and non-regulatory measures. They referred to non-regulatory requirements as “the regs”. For example, most fishers felt it was a legal requirement to have a second tori line on board, even though it’s not.

Seabird education sessions

In terms of another form of intervention, fishers said involvement in seabird education sessions (e.g. DOC seabird programmes or seabird smart courses) created a sense of connection and respect for seabirds, which ultimately drove positive change in crew attitudes towards implementing mitigation behaviours.

Those interviewed appeared to be well informed on the types of seabirds they encounter, mentioning them by species and knowing facts about them and their behaviours. Some said the importance of seabird mitigation was further amplified for them when they learnt information about seabirds and their behaviours, such as the loss of one adult seabird also results in the loss of the chick.

“[When I had my big capture] I wasn’t aware of a lot of the stuff going on with the birds and the detriment that can be caused by us. Like when you kill one bird, it also kills the chick as well, cause they need both parents to live. And they only make one chick a year or every two years. Just all this information that I didn’t know. I used to think ‘oh there is heaps of these birds out there’.”

In terms of their learning, some talked about their valuable experience attending a DOC seabird tagging programme on Great Barrier Island. These fishers said that the programme also encouraged their crew to have a deeper and more meaningful understanding of seabirds and improved their skills when it came to handling seabirds.¹³

“The majority of our crew go up Mount Hobson on Great Barrier Island every two years and we’re involved in the black petrel tagging programme with DOC. So most of us have had a really good interaction with pulling the chicks out of their burrows, and then handling the birds and tagging them. It’s a really good programme. And it encourages us to have a deeper, more meaningful relationship with the birds. I’d say that our handling of birds would be some of the best. The knowledge I gained from that hit me really hard.”

“We take all the new crew and new skippers up Mount Hobson to band the black petrel chicks and learn about them and watch them. It changes the mindset of some of the deck hands who [are new to the industry]. They see the bird habitats and form a connection with the seabirds. The bird that they see at the back of their boat is no longer a gull or a black duck or sky rat. It’s something that they’ve got a bond with, and they want to do everything they can. You don’t see it at the time, but it completely changes the mindset and the feeling towards the birds. Some of the boys come from fairly hard backgrounds and a seabird’s life may not mean a lot to them. It’s definitely helped, and I think it should be encouraged. It just really helped set the mood with the seabird thing. It really did. They start to have a bit of pride and feel good about what they are doing. It’s about making sure that everyone’s heavily invested in protecting the birds as you fish.”

¹³ Although the DOC seabird tagging programme had been very valuable at driving positive attitudes towards mitigation behaviours for some fishers, other fishers commented that it might not be so suitable for their crews. Some fishers mentioned there had been an effort in the past to get skippers and deck hands to take part in the tagging programme, with Licensed Fish Receivers (LFR’s) paying some of the travel costs. However, it was felt that it wasn’t totally successful and had fizzled out. Some mentioned that this was because some of the older or less fit fishers didn’t want to hike up Mount Hobson to do it, and others weren’t sure if their crew would turn up during their week off if asked. Some fishers suggested it would be easier to get their crew to attend a seabird smart course.

Other fishers described the seabird induction they received via the seabird smart courses had been very valuable to them, and the industry in general, in increasing knowledge on seabirds and driving change. Skippers mentioned the change in their crew's attitudes towards seabird mitigation due to these education sessions.

"There's more understanding about birds. At some of our conferences we have had Cam Speedy. He's a bird guru. People learnt a hell of a lot off a guy like that. Things like the Southern Alps being filled with albatross burrows and that's having an impact on the land environment and the lizards. And going back 1,000 years, all of New Zealand's coast had albatrosses on it."

"The seabird smart workshops, with Cam Speedy, were a real game changer and the start of the 'new world' in that sense."

"I remember years ago, we had that seabird smart meeting. That was good. I still remember the facts about birds from that. We haven't had another one since then. I don't know if they're still doing them."

Skippers felt it would be useful for their newer crew to attend a seabird smart course. Some felt it should be a legal requirement, so all crew had some understanding about seabirds and the importance of mitigation. The skippers said they do talk to their crew about the importance of seabirds and mitigation, but also said there is only so much they can say, so a seabird education session was very useful to back up what they communicate. It was noted that just one seabird sessions was enough to get the understanding required for a healthy respect for seabirds.

Compliance monitoring and enforcement

Compliance monitoring and enforcement was also a driver for undertaking mitigation behaviours, in the form of fines, surveillance flights, wharf checks, observers, and incoming cameras.

Some fishers talked about past experiences where they had been fined for not following the regulations. They talked about how they further improved their mitigation practices following the fines. For some these experiences were a strong motivator to do everything they could to follow best practice procedures.

As well as agreeing that tori lines are an effective form of mitigation (as mentioned in section 2.2), fishers also run their tori lines to avoid prosecution. A few said the Royal New Zealand Air Force's Orion maritime surveillance aircraft had flown over them to check their tori line was out, and this made them aware of how easily someone could get caught if they didn't have one while setting. They also used the risk of prosecution to explain the added importance of running the tori line to their crew.

"I saw how serious they were. They were sending the aeroplane, the Orion, to fly over and check us out."

"The Orion flew over and took a photo, but the tori line was working perfectly, I just had to add more streamers. They were at five metres, but ours had got ripped off by hooks."

"I run a tori line in the dark, but I never used to. Because I had an Orion fly over me while I while shooting gear with no tori line."

"I say to [my crew] if someone takes a photo of me setting gear without the tori line in the water, you ain't got a job. That's it."

Fishers also commented on wharf checks, knowing that they can happen without warning. This involved checking the measurements of their tori line, but they were not concerned about this as they know their tori lines meet the regulations, given they are prepared by DOC. However, some did comment that they don't like the way the Fisheries officers approach them to do these checks (see more detail in section 2.7).

Observers were another driver to ensure all mitigation practices were being conducted as per the regulations. Before an observer came onboard, would be a time to check everything was in order.

With cameras coming onboard, some fishers mentioned they would need to start pulling out of deepwater fishing, as it was not possible to meet sink rate or tori line regulations, and so with cameras they had no other option. Other than this, and the expense of the cameras, fishers were looking forward to the camera rollout, so they had a means of proving their no/low seabird captures, fulfilment of mitigation obligations, and as a means of ensuring the entire fleet was performing as expected. In preparation for cameras coming onboard, some fishers said they just needed to keep doing what they were doing, but they would be double checking everything in advance to make sure they've got right, just to be sure.

Driver 3: Protection of self, crew and industry

The third type of driver reflected fishers' desire to protect themselves and their crew, their co-fishers and their fishery. Where protection was guarding themselves from people thinking badly of them or their crew, being shown in a negative light in the media, further control measures being brought in and/or ultimately, the fishery being shut down. Fishers state that by undertaking the mitigation measures, it gives them peace of mind that the former won't happen.

Fishers are driven to undertake mitigation measures because they don't want to be the ones catching and having to report captures of protected species, they don't want to be called "the bird catcher" amongst the fleet, they prefer to keep themselves out of "harm's way".

On a fleet level, they feel a need to look after their reputation as a group. Fishers spoke about doing their part to avoid catching seabirds, and if someone in the fleet was having trouble with captures, the rest of the fleet would help them out, offering advice from their own knowledge and experience.

"I'm doing my part not to catch birds. If any of us keep catching birds, they are going to shut us down. And we are going to get crucified in the media."

To this point, some felt they are still made to feel like criminals, even though they themselves are not catching birds. Fishers expressed that the threat and prevalence of heavy fines, observers, wharf inspections, cameras and general lack of trust, makes them feel like criminals. They feel it not only via the media, but also in their local communities and even at their school pet days, to provide an example.

"Contrary to public opinion, we're not all rapists and pillagers of the ocean and bad guys. Some of us just use the ocean to make a living and we fully respect everything in it."

"There's the ones that end up on the news. And then of course, Joe Bloggs thinks that's widespread."

Driver 4: Productivity and demand

Another driver for fishers undertaking mitigation measures was a long-held sentiment that if seabirds eat the baits they are less likely to catch fish i.e. it's less productive and comes at an economic cost.

“If I catch a bird, I'm not going to catch a fish on that hook. The bird doesn't deserve to die. But there's no money in catching birds.”

“Every bait a bird eats, doesn't catch a fish.”

In line with the business aspects of fishing, they also commented that another driver for undertaking mitigation measures is the higher demand for sustainably caught fish, especially for the restaurant market and exports to America.

Driver 5: Easy, practical and warranted

The last main driver theme, was how easy, practical and necessary a particular mitigation measure is seen to be. If fishers felt that a particular mitigation was needed at a particular time, in combination with being relatively easy and practical to implement, then they would be more driven to undertake the practice. Whereas, if a mitigation practice was not seen as necessary at the time, or was difficult or impractical to implement, they were less driven or even able to do so.

Suggestions for other intervention drivers

Some fishers suggested other initiatives that could be implemented to reduce seabird captures. One involved Licensed Fish Receivers (LFRs) playing a monitoring role and the other was based on a performance system.

Placing controls on fishers via LFRs

One fisher suggested that LFRs are in a good position to further reduce seabird captures, given they have a relationship them and can stop receiving fish for fishers. It was suggested that when electronic monitoring on boats (i.e. cameras) are rolled out, the LFRs could stop a fisher from harvesting for a period, if they caught too many seabirds or a particular at-risk species. As a precedence, they referred to a South Island bluefin tuna example, where FINZ, a LFR and the fishers have agreed to close a fishery, or penalise fishers, when there are too many protected species captures in a particular area. They mentioned that this was a good option without direct government involvement, while it also affected fishers' ability to harvest for a period rather than using fines (which created headlines and the fisher needing to find the money). It was also suggested that “tying up the boat for two weeks” would get “everyone in the food chain” thinking about it.

Performance/reward system

One fisher suggested there could be a performance-based scheme connected to a skipper's ability to fish higher risk areas/times. It was suggested there should be greater allowances for the fishers who were not capturing seabirds and/or restrictions for those who were catching seabirds. So that fishers that had a history of not catching seabirds and had proven they know how “to work all the little moving parts of seabird mitigation”, were allowed to harvest in the higher risk areas. It was felt that this would incentivise fishers to undertake all the mitigation steps they can. That it would give fishers more incentive to “go over and above and do things that makes their day twice as long”. Primarily, they felt that fishers that can't show that they can fish effectively amongst seabirds i.e. don't have a track record of fishing sustainably, should not have access to areas with larger numbers of seabirds or

larger numbers of at-risk seabirds. They suggested that it could be monitored by the visual monitoring system (VMS).

Alternatively, as another way to implement a performance system, it was suggested that boats could be stopped from fishing if they are making captures (i.e. if captures were being picked up on cameras). It was thought that if boats were stopped from fishing for a period due to catching seabirds, the owners (i.e. their income) and the crew (i.e. their pay) would get penalised, so then everyone on the vessel would take seabird mitigation more seriously.

2.4 General barriers to following the mitigation standards

Fishers had overarching barriers to following the mitigation standards, as well as barriers that related to specific requirements in the mitigation standards. This section covers the general barriers, while the next section covers the more specific barriers.

Understanding the barriers to undertaking the mitigation standards, helps us to understand what fishers are struggling with from a motivational, practical or capability viewpoint. We can then use this understanding to attempt to reduce the various barriers through:

- outreach activities, such as education or liaison activities
- further development of fit for purpose mitigation tools
- refinement of the mitigation standards and regulations (where possible).

Amongst the general barriers, two core motivational barriers are:

1. the universally shared sentiment that their vessel is not catching any or very few seabirds per year.
2. it doesn't seem necessary to mitigate against seabird captures when seabirds are not present.

In terms of other barriers, a key capability barrier when targeting bluenose and hāpuka is some fishers find it is difficult or impossible to achieve some of the mitigation standards for technical reasons.

The general barriers to following the seabird mitigation standards are discussed in turn below.

General barrier 1: We don't capture any/many seabirds

To varying degrees, fishers found it frustrating that they need to follow a range of mitigation practices when they aren't personally catching any or very few seabirds. They state that they are legally required to address a problem that doesn't exist in their fleet or on their specific vessel.

"We don't even have a bird problem."

"I haven't caught a bird for 25 years. Straight up."

"I've been bottom longlining [for over 15 years] and I do not recall catching a bird on the set, like a dead bird coming up, in the last decade. I've caught live ones on the haul. We're talking two, maybe three, birds over 10 years type of thing. It's not like it's an everyday occurrence or even every year occurrence. And then mostly it is just in the wing."

"I haven't caught a bird for 10 years. Seriously, for bottom lining, we have not caught a bird ever. We just do not have a bird problem. In the far north it's not even a worry. We don't even worry about catching birds, cause it's just not a thing."

"I've had two seabirds this season and maybe one last season. That's not bad. I run on average 3–4,000 hooks a day and do that 200 times a year. That's a lot of hooks in the water for two birds. So yeah, if you're running 700,000 hooks a year and catch two seabirds, I think I need a medal just for that. And in some seasons, I haven't even caught one!"

"We've haven't had any problems with seabirds for a long, long time... maybe 2–3 years ago we had a bird. And that's just a fact. So what we are doing is working really well for us, we are using the tori lines that they offered us. I have never seen a problem with the birds, and I don't know what all the fuss is about."

"Over the last year it's been really, really good. We've been quite low. We've probably had only two or three dead captures and maybe five or six live captures during the haul."

Some mentioned that their observer reports were clear evidence that they are not catching seabirds.

Fishers stated that they hear there is a problem with seabird captures in their fleet, but that goes against what they experience at sea.

"We don't have a big problem with it. We hear there's a problem, but doing what we do, we don't have a problem. People tell me that there are lots of birds caught, but we don't see them."

Some were following the mitigation requirements, but they also commented that all the measures were not necessary. If they could see good reason for doing so, they would be less frustrated with having to undertake all the practices all the time.

"We will do everything we can not to catch birds, but we weren't catching them in the first place. Like, it was three to five years between a bird capture. And when you read the leaflet about when you should start worrying, it's about eight birds for your day, then you should start worrying about what you're doing wrong. For us, if we caught one bird, we're like, 'why did that happen?' And generally, you can track it back to maybe a full moon, and things like that."

Some weren't undertaking all the mitigation standards all the time, due to safety reasons or because they didn't see it as necessary at certain times (e.g. in the dark, when the seabirds had migrated), and then further to this was the argument that they don't catch seabirds.

"Why am I going to risk all of this, when we don't even have a bird problem."

"The observers have been out enough to know that we don't catch [birds]. So just let us do what we're doing [even if it's not matching the regs] and we won't catch them."

"I've got to do all these things, when I don't have a problem. So it doesn't work for me. The area we fish, it doesn't work towing a tori line, and our area doesn't have a bird problem. It's more of a hazard than anything. I think they need to look at individual fisheries and areas just as that area, because this whole 'one rule for all' definitely doesn't work. It's just ridiculous. It should be more of a case-by-case basis, or an area-by-area basis."

One fisher stated that it's frustrating that they are still having to talk about seabird mitigation, when the main issue for seabirds now is in recreational fishing.

"To talk about catching seabirds is the frustrating part for me because we're not really catching them. I can say 'we're not', but it's only every three to four years we will catch one. So we are catching them, but to me that's not a problem. Yet, I can put out a marlin lure, recreationally, and catch three or four seabirds a day. And if you're running braided line, you cut through their wings and you hurt them and damage them. So to be targeting the commercial industry, because we're using a hook, and this is a problem; it's not the right problem, we're not looking at the real problem anymore. There's so many other

bigger problems [for seabirds], but they can't control those problems because it's a recreational or charter industry problem. And it's too hard for them to deal with. We're very easy for them to deal with. And they're spending a fortune trying to deal with us, where they should be looking at other bigger problems."

Some mentioned that there have been big advancements in seabird mitigation over the years, and as a result they felt that seabirds have become aware that it is difficult to get their baits, so they are less likely to go for them.

"It's a long time ago now, but I do recall catching a few birds. And I'm pretty sure they would have been our daytime shots. Our fishing has evolved since then, we've got heavier weights, and we're getting better at getting our gear back."

One fisher felt that their risk of seabird captures had reduced possibly because there were less seabirds around as a result of cyclone Gabrielle¹⁴.

"We haven't had to stop setting for over a couple of years now. The birds haven't been showing up in the numbers that they were. Either they are not hungry or there were a lot more birds here before Gabrielle. It seems since that went through, the birds have disappeared a bit. I don't know if it's related or what, but there's definitely not the birds out there that you would be expecting at the moment."

General barrier 2: We don't need to mitigate when seabirds aren't around

As the second motivational barrier, some fishers felt it was pointless mitigating against seabirds, when the seabirds are not in their fishing area, either because the seabirds have migrated (e.g. in winter) or they are not fishing in an area with populations of seabirds.

"Essentially, it's only about 15 or 20% of the time that we're even worrying about birds. The rest of the time they are not there, they're not a problem. It's just a short period of time that we actually need to use all of the [mitigation] stuff. But we need to use it every day of the year, whether we need to or not."

"The seabirds leave the country in the middle of winter. They've left! It's what's called migration. They leave our section of the world. The silly thing is, you've got to run those requirements year-round, even when a fishery doesn't have birds. The muttonbirds, they leave, they all migrate away. They are here for the summer and all go back for the winter. We do have common gulls, little shearwaters and terns and that, but they don't interact with us. The capture rate of them is so low it's probably non-existent."

Some inshore fishers noted that there are not many seabirds where they fish close to the coast, i.e. seabird populations are further out to sea.

"Anything inside about 2–3 miles off the coast, you don't have any bird interaction really. But once you get outside of that you start to run into the various groups, and we do have a couple of islands here which are really heavy bird areas."

"We don't get a lot of birds down where we are. We do see them, but the further out to sea you go, the more there is. But we're relatively inshore, we only go maybe five miles out to sea. Like a bad day for us with birds would be about 20 [of them around]."

¹⁴ Tropical cyclone Gabrielle hit the east coast of the North Island in February 2023.

Some said they would prefer a system where they are required to take extra steps when/where there are seabirds around and to have more freedom when they are not (i.e. less mitigation required).

“There should be a low risk, out-of-season regime, where you've got the foot off your neck, and you can actually do away with running a tori line and cut your weights right down. The weights can be there, but why run something that's not needed? Some of the seasonal scenarios need to be looked at around high-risk population areas. We avoid high-risk areas down here, because it's a high risk, and some of those islands up in the Gulf and Coromandel.”

“Across the board a tori line probably doesn't need to be run every single night, I mean, probably not north of Cape Brett or north of North Cape. The further and further north you get, the less and less risk there is to the birds, so I don't know if it needs to be some adjustment there.”

Note: Alternatively, some said they valued the importance of habit in doing the same mitigation practices all the time, either for themselves, for their crew and/or for fleet in general. They didn't think there should be any variation by season or location, and if there was any variation it would be more worthwhile to do it via target fish species, given fishing techniques and seabird risk varies fish target.

“[I don't think there should be variation in the mitigation requirements by months of the year]. I think we should just do the same thing all the time, like we are already doing. And then if there are extra birds, we need to deal with it. Like if we are around a thousand birds, we would move somewhere else or do something about it. We're having a good run and we're settled now. And our tori line has become a routine [in the day]. We have our system.”

“It would get too messy [varying the regulations by locations]. [It makes more sense to vary by fish target]. Like I've never seen a bird caught on the hāpuka boats. But it would be too messy to be saying 'oh, this area has to have this, at this time. And this area has to have this, at that time'. The logistics of it would be a pain really.”

“It's just sort of become part of our routine now. It's just what happens. No one even says anything about [setting the tori line every time] anymore. It's just what we do.”

On a more ad hoc level, some fishers said they preferred to keep a look out for seabirds and judge how things were looking as to whether they implemented seabird mitigation. Conversely, others noted that they “safeguard” against seabird captures, even if seabirds weren't in the area or looking active. For example, one fisher noted that seabirds could occasionally turn up north of Cape Brett if there was a strong southerly, but they always had their tori line and other mitigation in place as a safeguard.

General barrier 3: It is difficult or impossible to follow the mitigation standards for bluenose and hāpuka — and less needed

Fishers felt that seabird mitigation was needed and relatively easy to implement when targeting snapper, but was relatively difficult or actually not possible when targeting bluenose and hāpuka. They also commented that seabird mitigation was needed when targeting snapper, but less warranted when targeting bluenose and hāpuka.¹⁵

¹⁵ The reasons for these sentiments are detailed in section 2.5 under the barriers to meeting specific mitigation practices.

“In the snapper fishery I think we're doing pretty good there, as far as the bird mitigation is going and the techniques we're already using, it's really good. It's definitely warranted for the snapper fishery, for sure, with small hooks plus the boat speed's up there. But as far as the bluenose and hāpuka fishery goes, I know guys hanging up their boots, they're dropping out of the industry completely over this. The cameras are coming on board and they're not happy to run a tori line, risking their crew, their vessel and changing the whole way they shoot their gear. That's the way they've done it for 25–30 years and there isn't a problem. They're not having a problem with birds, but MPI and DOC have said 'hey guess what, you do have a problem, and this is what you need to do'. It's hard when they can't see our side of the story when it comes to that deep sea stuff.”

General barrier 4: There's 1000s of seabirds

A couple of fishers mentioned there wasn't a strong need for increased levels of seabird mitigation, because there are so many seabirds around. This wasn't their core barrier but was mentioned as an offhanded comment. However, each of these fishers were also aware that of seabird species with dwindling populations e.g. black petrels. Based on the conversations, they didn't appear to be aware of the range of species that are at risk e.g. beyond black petrels. For example, one fisher commented that they see albatross, muttonbirds, shearwaters, and “Jesus Christ birds” (storm petrels), but they “never” see the species that have declining numbers.

2.5 Specific barriers to meeting the mitigation standards

This section covers fishers' barriers to undertaking some of specific mitigation standards.

To summarise the specific barriers to the mitigation standards, we have grouped them under the following mitigation areas:

1. Streamer lines (i.e. tori lines)
2. Line weighting (and sink rate tests)
3. Discharge during setting
4. Hauling
5. Deck landings and vessel impacts
6. Impacted seabirds

Within each of the above sections we firstly provide commentary on fishers' compliant practices and other notes on the topic, then detail the barriers to the regulations, and then the barriers to other mitigation standards (that are expected but not legally required).

Understanding the barriers to undertaking the mitigation standards, helps us to understand what fishers are struggling with from a motivational, practical or capability viewpoint. We can then use this understanding to attempt to reduce the various barriers via:

- outreach activities, such as education or liaison activities
- further development of fit for purpose mitigation tools
- refinement of the mitigation standards and regulations (where possible).

The specific barriers to following the seabird mitigation standards are discussed in turn as follows.

2.5.1 Streamer lines

Below we provide an overview of compliance on the streamer line mitigation standards and other related factors raised by fishers, before listing their key barriers to meeting these mitigation standards.

A. Compliance and related factors

Streamer lines were used by some fishers for every set

Some fishers were using their tori lines for every set and others for some sets.

"I have no problem towing a tori line. We tow it every single shot."

Fishers commented that they found it relatively easy to run a tori line when setting for snapper. They felt streamer lines were most important for day sets, when seabirds were around, when targeting snapper, and/or to avoid prosecution. Some snapper/tarakihi fishers said they had occasionally catch seabirds while setting at night, so they run a tori line at night as well as in the day.

"I think [tori lines are] justified in the snapper longline fishery. Definitely, across the board, just because the hooks are so small, they're lethal at catching birds. If you want to catch

birds, you'll catch them on those hooks. In the snapper fishery, it's lighter weights, the boat speed is faster, so the sink rate is slower."

The reasons some vessels were not running a tori line every set were rough weather (i.e. due to tangles and crew safety), darkness (i.e. due to it being difficult and seen as unnecessary), and for some hāpuka and bluenose sets (i.e. it was seen as unnecessary, unsafe and/or difficult).¹⁶

All fishers said their tori line is attached at least five metres above the water line

All those interviewed said they were able to achieve the regulation requiring their tori line to be attached no less than five metres above the water line.

Most with vessels over eight metres said it was no problem to suspend their tori line at least five metres above the water line. For example, these fishers had their tori lines between five and eight metres above the water line.

Fishers on vessels under eight metres had their tori line five metres above the water line. The fishers said it was difficult on these smaller vessels to have their tori line higher than the five metres. Some of these vessels need to take their tori line pole down to transport the boat for each fishing trip.

Snapper fishers on boats over 10-metres say they achieve the 50-metre aerial extent

Snapper fishers who have their tori line suspended more than five metres above the water line (e.g. at 7–9 metres) and are setting at over five knots, say they are easily achieving the required 50-metre aerial extent with their tori line, with some vessels achieving around 70 metres. These fishers stated that they achieve the 50-metre aerial extent at all times when they are fishing, not just during high-risk times as stipulated in the regulations.

"In the snapper fishery it's easily done."

One fisher, whose tori line is at five metres above the water line, said that they achieve the 50-metre aerial extent easily but it wouldn't be any more than 50 metres.

Some are not able to achieve the required aerial extent. Especially those setting at less than four knots. For those setting at lower speeds they also feel the regulation aerial extent of 50 metres is not necessary.¹⁷

Improving tori line aerial extent takes time, consideration and investment — if it's not working properly, it causes a lot of issues

Some fishers commented on the issues associated with tori lines when they are not functioning correctly. As noted in section 2.2, most had made a range of improvements to get their tori lines to run effectively and avoid hooks ups.

"Setting in the dark, you can't see what's going on, you don't know if you've hooked your floats on and then it's a balls up when it happens. I've done it in the early days when I was getting myself sorted. It's a pain and it cocks up your fishing day and everything else! You try to sort it out, it costs you an hour and then you're late!"

¹⁶ More detail on the barriers to running a tori line is provided in the following barriers section.

¹⁷ More detail on the barriers to achieving the 50-metre aerial extent is provided in the following barriers section.

Some had increased their aerial extent beyond the required 50 metres and made other improvements, but said it takes time, effort, commitment and/or assistance from others.

“Anyone can mitigate if they put enough effort in. If you can’t make it happen yourself, then get someone who knows what they are doing to help. It can take three or four days.”

They also noted that what might work for their boat might not work for others. That individual fishers need to work on their own system for their tori line which may differ by vessel set-up, type of fishing, etc.

“There are a few little things that make my system work for me, that might not work for somebody else. Others need to work out how to do it, but just maybe in a different way from how I do it.”

For bluenose fishing, some use extra crew to be able to run the tori line

One fisher said they increase their crew to three members to run the tori line for bluenose fishing, but others said they can do it with two crew.

“When I go and catch bluenose, it is far easier for me to take another crew. When there’s two of me out there it is hard to get the line started and the mitigation out and land the gear on the rock. Running around, doing everything, including keeping the boat in line, and your hook speed. Two-handed... I used to be able to do it. But now that we have to run a tori line, I really need to take a third man. I need a third man, basically just to run mitigation.”

Most fishers had no issues implementing the streamer regulations

Fishers felt they were able to follow the regulations for the streamers that hang down from the tori line and had no issues with these requirements. The streamers provided by DOC were seen to improve the ease of use, as these streamers did not create hook ups with the main line.

They noted that it is good that the streamers don’t need to touch the water immediately behind the boat, to avoid tangles with the main line, because otherwise it results in the boat being stopped and the hooks no longer being protected by the tori line.

One fisher kept losing their streamers that were closer to the stern and didn’t realise that the regulations stated that the streamers could be shortened along the first 15 metres of the tori line — to a minimum of one metre. He was thankful for this knowledge and allowance.

Fishers commented they do regularly need to replace their streamers as they wear over time.

“If there’s a bit of swell running, your line pops up and down and you do hook the streamers. The streamers get shorter as they get caught.”

“Occasionally the hooks will hook the rubbers and it rips the rubber off, but it’s fine.”

All fishers were carrying an extra tori line

All those interviewed said they were carrying an additional tori line, which is not legally required¹⁸. Most fishers thought it was legally required. Some had two additional tori lines onboard, plus extra gear to build another one should they lose a tori line while setting.

“We have to carry a second tori line on the boat, a spare one, so if Fisheries New Zealand turn up and say, ‘where’s your second streamer line?’ I can say, ‘here it is, it’s here’.”

“That’s a legal requirement now. I’ve been told by MAF that it’s a legal requirement, that it became a legal requirement to carry a second storyline. So we do carry a spare one on board, fully complete, ready to throw over at a moment’s notice.”

B. Barriers to following the regulations

Below are the regulations for seabird mitigation in relation to streamer lines.

5. Use of Streamer Line Required During Setting of Bottom Longlines

A streamer line must be used on vessels seven metres or greater in overall length during the setting of bottom longlines, in accordance with clause 6.

6. Streamer Line Specifications

2. The streamer line must meet the following specifications:
 - a. the streamer line must be attached to the vessel so that when deployed the baits are protected by the streamer line, even in a crosswind; and
 - b. the streamer line must achieve a minimum aerial extent of 50 metres when fishing in high-risk periods; and
 - c. streamers must be brightly coloured; and
 - d. streamers must be spaced at a maximum of five metres apart, beginning not more than five metres from the stern of the vessel and extending along the full aerial extent of the line; and
 - e. when deployed, each of the streamers must reach the sea surface in the absence of wind and swell. Streamer length will therefore vary depending on the height of their attachment point above the water; and
 - f. despite subclause 2(e), streamers may be shortened along the first 15 metres of the streamer line, however streamers must be maintained at a minimum length of one metre.
 - g. the streamer line must be suspended from a point on the vessel at least five metres above the water in the absence of swell.

Fishers don’t always run a tori line or think it’s necessary in all circumstances. Their key barriers are that tori lines:

- create risks in rough weather
- are unnecessary, difficult to deploy and unsafe in hours of darkness and for deepwater fishing
- are unnecessary in winter and when seabirds are not around
- are difficult to deploy in a strong following tide
- are difficult to have over the main line in a crosswind
- are not able to always achieve the aerial extent of 50-metres and/or it’s unnecessary for some types of fishing.

¹⁸ Carrying a complete additional streamer line as a spare is not required as part of the circular specifications, but is part of the guidelines in the accompanying schedule to the regulations.

Barrier 1: Tangle and crew safety risks in rough weather

A tori line was seen as risky in rough weather, especially on rough nights, and for this reason some fishers don't run their tori line in rough weather. One fisher explained that if the wind was over 25 knots; that would be considered the onset of rough weather. They felt much more comfortable running their tori line in calm weather.

Fishers also said that in rough weather the tori line can tangle with the main line or floats. The issues with a tangle is that the boat must stop to untangle the lines, and in doing so the tori line no longer has a good aerial extent to protect the baited hooks in the water, and the crew need to start again to set the line.

"You have to feel comfortable about the tori line not tangling. If it gets caught up it means the shot is ruined and we need to stop and untangle it, and the line goes all slack. We want to have a really smooth operation. But we usually only work in good weather and not in anything over 20 knots."

"When we throw the floats over, sometimes the floats get tangled around the tori line. Especially if there is a lot of wind and the current is going the wrong way. Sometimes it'll blow the boat over the tori line, and your floats and the line just get tangled, and it either snaps or you have to chop it. So then we just stop and clip the next tori line on."

Fishers also commented tori line tangles due to rough weather can create risks for their crew. They commented that it can just become too dangerous. The chief safety concern for crew was the main line getting hooked on the tori line, the main line coming up, lines snapping, and ultimately a hook coming up, grabbing the crew member deploying the line and pulling them overboard with weights attached. Some skippers said that in rough weather they were constantly watching their crew knowing that something could happen with the tori line.

Fishers commented that it also didn't make sense to them to run a tori line in rough weather, create risks for their crew, when there were no seabirds around.

Some noted that in rough weather, and resulting safety and tangle risks, they would prefer to run a laser than a tori line.

Barrier 2: Difficult to deploy and unnecessary in the dark

Another barrier to meeting the streamer line regulations is that tori lines are more difficult to deploy, and/or are seen as just unnecessary, in the hours of darkness.

"I honestly don't feel I need to run a tori line in the dark, but the law says I do, so I do. But you can't see what's going on in the dark, you don't know if you've hooked up in your gear and towing it. There's just times when I don't feel we need to use tori lines and we are being made to."

Fishers commented that there is more risk of the tori line tangling with their fishing gear at night given low visibility. They don't have bright lights while setting, to reduce seabird risks, so it was difficult to see what was happening with the tori line in the water. They don't like throwing the tori line and floats overboard, when they can't see what's happening to the gear in the water. The risk of a tangle is higher in the dark when it is windy, as they can't see if the tori line is in drag or which direction it is in the water. Then it is very frustrating if the tori line gets tangled, as they must untangle everything and start the set again. For some it can

happen once a trip to once a month, and sometimes it's not an issue depending on various factors (e.g. tides, wind, etc.).

“When you can't see what you're dragging behind you, you could be hooking up what you are putting in the water... and if you're not going to catch a bird... why are you doing this? It's making what could be easy... hard. But it's a blanket rule and we've got to run them regardless.”

A tori line was also seen as unnecessary by most when setting at night. Most fishers feel it is okay to set in the dark without a tori line, as they believe there is a very low risk of catching seabirds at this time. Given that in hours of darkness, few seabirds are around, seabirds don't interact or aren't active at night (“they seem half asleep”), and the tori line and baits are difficult to see anyway.

“It's all dark so the birds can't see the streamer line anyway. We are in the dark and there's no lights. It makes no difference if we put the tori line out, because there's no birds in the dark. It's pitch black and so five metres behind the boat you can't see the line anymore.”

Some further stated that they don't need to run a tori line at night to avoid seabird captures, because they haven't been doing so (some for over 15 years) and they haven't caught a seabird on the set during this time. If they thought there was a risk of catching a seabird, they said they would run their tori line, but they strongly feel it's unnecessary.

Most felt that the regulations should be changed so that they don't need to run a tori line in hours of darkness, given it's not necessary and with cameras coming onboard (to demonstrate this).

Fishers who weren't using a tori line at night, they mostly also didn't do so when there was a full moon. For one of these fishers, when asked if he put the tori line out on a full moon, he said they could do that, but he still didn't think there was much risk to seabirds given how quickly their line sunk.

Barrier 3: Unnecessary, unsafe and can't meet the regulations for hāpuka and bluenose fishing

When targeting bluenose or hāpuka (i.e. deepwater species), fishers stated it wasn't necessary to run a tori line, felt it was also unsafe to do so (especially at night), a tori line was difficult to deploy (especially compared to snapper fishing or surface lining), and they can't achieve the 50-metre regulatory requirement.

On this topic, fishers felt they are not being listened to. They feel like they have been saying for years that they don't need to run a tori line for these fisheries (as there is very low risk to seabirds), plus it is impractical and unsafe due to their slower setting speeds. Fishers are beyond frustrated on this issue, and many are looking to pull out of these fisheries when the cameras come on board; they feel there is no other option with no engagement from government on the issue. They feel a blanket regulation has been set that is not relevant to bluenose or hāpuka fishing.

Tori lines are unnecessary for hāpuka and bluenose fishing

Fishers stated that a tori line is unnecessary when targeting bluenose and hāpuka. They agree a tori line is needed when targeting snapper, but not when targeting bluenose or hāpuka due to:

- the use of bigger hooks (i.e. less risk to seabirds),
- heavier weights (i.e. increased sink rate),
- slower setting speeds (i.e. increased sink rate),
- heavier anchors,
- shorter lines/sets (i.e. less time for seabirds to see what is happening),
- sets are mostly undertaken at night (when seabirds are inactive and have less visibility), and
- the mainlines are less likely to hit the seafloor before the end of the set (so the line angle entering the water stays more vertical, unlike when a snapper line hits the seafloor).

"[A tori line is] definitely not justified in the bluenose or hāpuka fishery. I've said this to fisheries officers as well... we're setting at 2–3 knots and we're putting a heap of weight on the gear, and you just don't catch birds. I definitely can't even recall ever seeing a bird caught on longline gear on the big stuff. We're running six kilo weights every 33 hooks, it's going straight down. And obviously, you're setting at night. You might have a problem if you're setting during the day, but we don't set during the day, you set at night for bluenose, hāpuka and ling. And your lines are shorter. In the snapper fishery, it's lighter weights, the boat speed is faster, so the sink rate is slower."

"The thing with the hāpuka is that we use heavier gear and we've never ever caught a seabird while running that gear, never. [It's different with targeting hāpuka compared to snapper] ... it's bigger J hooks, heavier backbone, heavier weights, just heavier gear. The line just goes down a lot faster. Also, we normally run that in the dark coming into the daylight [unlike our snapper fishing in the day]."

"With hāpuka you want to be closer to the bottom, so we have heavier weights, heavier everything, our gear's sinking so quickly. [For other fish targets] you definitely need a tori line if you're running a big, long line [with lighter weights], I can see [the reason for] that. That would be alright, because your gear is sitting right up on the surface for a longer period of time. But for our stuff, it's just a waste of time."

"Snapper lines are a lot longer and they're fishing in a lot shallower water. [But for deepwater] it's not often that the first end of the line has hit the bottom before we finish setting, it's still sinking. Whereas a snapper line can be on the bottom straightaway nearly, if you're fishing in 10 metres of water. So that reduces the angle for the snapper boats. And it's just a lot smaller, lighter gear, like our gear is quite big and heavy. Our grapnels are about 27 to 30 kilos."

"The line just drops off the back, they drop like a 40 kilo anchor off at the start of their line and it's just straight down. It's a whole other thing from snapper fishing."

"[For bluenose] the gear sinks faster. You're using heavier weights cause you want your gear to sink down as quick as you can, so you don't miss the rock."

Below is a fishers' explanation of how quick it is to set a hāpuka line and the associated lower risk to seabirds.

"Setting shorter lines helps because you're only in an area setting for less than 10 to 15 minutes. So by the time you throw your heavy anchor over the side, the line's going down

on a sharp angle for at least half the line. And then you've only got another five minutes where the line's up higher. And then you throw your other anchor in, and it doesn't give the birds a chance to work out what's going on. And then you move, whether it's a quarter of a mile or 1–2 miles, they just haven't caught on what you're up to."

Tori lines are unsafe for hāpuka and bluenose fishing

Fishers felt it was unsafe to run a tori line while deepwater fishing, due to risk of the tori line ending up in the prop (due to the lower setting speed e.g. 2–3 knots) and risk of tangles with main line (due to lower setting speed and the heightened risk in rough weather).

"Quite often once you get to the end of your set, you need to put your boat in reverse to fight that one knot of tide, so your boat speed comes down to zero. And to do that, when you've got 150 metres of extra line trailing out behind you, unless you've got another crew that can pull in the tori line quicker than you can reverse, it means that that tori line's going to end up in your prop and it's not going to work out well. So that's the biggest issue I find with it."

The deepwater fishers also stated these risks are increased for their crew when attempting to deploy their tori line in the dark.

"The tori lines are so dangerous [for our crew]. They're not dangerous if you're setting a five-mile line that takes you an hour to do [e.g. for snapper]. But for a line that takes 10 to 15 minutes, we're throwing out and retrieving the tori line five times a morning, and if it gets snagged and caught, and you've got guys trying to clip on hooks and untangle things in the dark, it's not very safe."

Fishers said they can't increase their setting speed, given how close together the hooks are (e.g. one metre apart), plus the crew need to be very careful not to work too fast and risk ending up with a hook in their hand as it could pull them overboard on the heavily weighted line.

"You have to set slower for hāpuka, because it takes longer for the boys to get the hooks on. The hooks are going out closer, so the boys just physically can't get the hooks on quick enough [at a higher setting speed]. That would be really dangerous. Like we're talking two-millimetre snood mono which has got a breaking strain of about 100 kilos. So rule of thumb is pretty much if you get a hook in your hand, it's not going to break, it's going to take you over, and you've got all that weight on the line, so if you get a hook in your hand, you're history. And if you are running a tori line as well, now you're trying to retrieve the mainline with the crew attached to it, plus if you've got this tori line dangling around in the air, so you see what I mean by the risks are just getting far too great."

One fisher noted they had worked on trying to get a safer deployment of their tori line about eight years ago and weren't able to come up with a solution. They had tried things like increasing the size of the road cone to increase the resistance, but felt it was still unsafe due to other elements e.g. tides, etc.

They were fine to deploy their tori line for their snapper fishing, because the increased setting speed (e.g. 5 knots) reduces the risk of tangles or prop interference.

Fishers feel worried they are legally required to use a tori line for bluenose or hāpuka when there are safety issues with doing so, and also frustrated given they feel there's not a problem with seabird captures while setting for these species. Ultimately, they feel they are being forced to decide between compliance for an issue that doesn't exist, versus the safety of their crew and vessel. As a result, some said they will need to pull out the hāpuka and bluenose fishery when cameras come on board.

“In the hāpuka and bluenose fishery, with the cameras coming out at the end of the year, we’ve pretty much decided to step away from that fishery. Just because the hazards involved in running a tori line are far too great. It’s just too dangerous. And I’m not really willing to put my crew and vessel at risk in that fishery anymore. I mean, we’ve always known that we don’t need to run tori lines in that fishery. But obviously, if I go there and do that bluenose and hāpuka fishery and I’m not running a tori line, you’ll get dragged over the coals. So it’s come to that position now where, either I’m going to endanger my crew or I’m going to get in the crap. And I feel like, ‘why are we taking all these steps to avoid catching seabirds? When there’s no problem?’ There’s never been a problem, yet we’re endangering our crew, potentially endangering our vessel, when there’s never been a problem. So I feel a little bit pushed out of it.”

Furthermore, they commented that if deepwater fishers do start using tori lines in the dark, due to cameras coming onboard, it may result in crew getting hurt due to the dangers associated with doing so.

“I am quite passionate about [seabird mitigation], but really big part of this is killing our industry. Once the cameras come out in November, a lot of guys are going to end up with a whole lot of heartache or there’s going to be a lot of people hurt. And I just don’t want to see that.”

Some hāpuka and bluenose fishers can’t achieve the 50-metre aerial extent

Some hāpuka/bluenose fishers who have their tori line suspended more than five metres above the water line (e.g. at 6–7 metres) and who set at four knots, say they can just achieve the required 50-metre aerial extent with their tori line, but can’t achieve more without creating too much drag and they can’t set any faster for these species.

Hāpuka/bluenose fishers who set at less than four knots are not able to achieve the required 50-metre aerial extent, due to their slower setting speed. They said that when they are targeting hāpuka or bluenose their slower setting speed (e.g. 2–3 knots) creates a sag in the regulation tori lines, and this sag then creates hook ups with the mainline, causing frustration, risks to crew and lost time.

“You have to be able to achieve the 5-knot boat speed to make the tori line work.”

They felt the 50-metre aerial extent should not be required for bluenose and hāpuka fishing, as due to their slower setting speed (and heavier weights), their sink rate is higher compared to snapper boats. Snapper boats generally set faster, and so can reach the 50-metre aerial extent (due to the resistance from the drag item), but the mainline also sinks more slowly so the 50-metre aerial extent is more necessary.

To help overcome these issues, some of these fishers have created their own tori lines which are shorter and have streamers that are closer together (e.g. a metre apart rather than the five metres in the regulations). This means that the tori line doesn’t sag and there is less risk of it getting caught on the mainline, while still covering the mainline as it sinks (with the higher sink rate).

“It’s all about not letting it hook on our gear. And if there’s a chance that it’s going to hook in that gear, it just creates a real danger to the crew.”

In discussing with other fishers what they could do to increase their tori line’s aerial extent, they weren’t sure.

Those who bottom and surface longline, said that running a tori line while surface longlining is much easier and makes sense to do so, but doing so for bottom longlining for the deeper fish targets is unsafe, unnecessary and much harder. With it being harder due to the slower boat speed, much shorter setting time per line, more (shorter) lines set, and because the setting of bottom longlines is much more crew intensive.

“Running a tori line on surface lining is easy. Running a tori line on bottom lining is hard. A surface long line set is 4.5 hours, and you do one of them. A deeper water bottom long line set 12.5 minutes and you do five of them. The boat is traveling at seven knots at full steam surface lining. Bottom longlining the boat is traveling at idle, which is 3.5 knots. The crew is a lot more involved in setting the bottom long line than the surface long line, so everyone’s quite busy already. So it’s hard to spare the extra man to get it out and get it in. And then there’s just the pure fact that we know it’s not necessary.”

Some of those who set are slower speeds and used heavier weights, stated they meet the five-metre sink rate under a shorter tori line, and this should be reflected in the regulations.

“The rules on the aerial extent at the moment, are just ridiculous for us. I mean, our gear goes in at an angle of at least 30 degrees, 15-metres behind the boat it’s 10-foot down, because we clip so much weight onto it. So, by the time the line is 20-metres behind the boat, it’s 10–15 metres down, which is out of depth, so we’ve got another 150 metres of tori line out, it’s just a waste of fricken time. [When I do the bottle tests on the snapper gear, the bottle sinks] less than halfway before the end of the tori line. Most guys don’t use weights as heavy as we do. We shoot a very slack line with a lot of weight on it.”

Regulation tori lines are difficult to deploy for hāpuka and bluenose fishing

Hāpuka and bluenose fishers also stated that because they set multiple (e.g. 5–6 lines) shorter lines (compared to snapper lines which are much longer), it is either very time consuming to put the tori line out for each 15-minute set or dragging the tori line between sets is a lot for a small vessel to drag.

“The tori line then comes in and out with every line and that’s what takes the labour and is hard.”

Deepwater fishers also noted that, given the need for greater accuracy while setting (compared to snapper fishing), it’s also more difficult to use tori lines e.g. if the wind, tides or currents are not in the same favourable direction for setting the line as it is for running the tori line. Unlike snapper fishing, their line placement needs to be set in quite a specific way for two reasons. Firstly, their gear is set based on what’s happening on the seafloor e.g. starting the line on clear ground and then hang the line (with floats) over foul ground where the target fish are. Secondly, given the line is going deeper it is more at risk of tangles if not set right.

“With bottom fishing, it’s a lot deeper, we set the line from 180 metres to 400 metres. So as the line drifts it can create more tangles. As you get to 400 metres, it can really start affecting how your gear sits. But with snapper fishing, it’s usually closer to the coast, there isn’t much tide, it might be 20 to 100 metres deep, and it just drops kind of straight.”

Barrier 4: Unnecessary in winter

Another barrier to fishers meeting the streamer line regulations is that tori lines are seen to be unnecessary in winter when the seabirds have migrated north. Running the tori line when the seabirds have migrated is seen as “pointless”.

“We should be able to not bother with the tori line in the middle of winter when there's no birds. They want a [standard] compliance level. But there's not a lot of allowance. There's not a lot of practicality.”

Barrier 5: Difficult to deploy in a strong following tide

Fishers said a tori line is difficult to deploy in a strong following tide, because it can hold the tori line towards the boat and create hook ups with the main line. They said that sometimes it's not an issue and other times it is a “real pain” for them. Setting into the tide wasn't a solution in these scenarios because their gear doesn't deploy properly.

“At Three Kings we have so much tide, it's really hard to tow a tori line, if the tide is following the boat. If it's going with you, there's no water movement past the boat, because it's pushing you, so it doesn't keep the tori line horizontal. So it can actually sag down a lot more and give you problems. If you do it the other way and you set into the tide, your gear will bag up and you'll just get tangles and lose gear, but then your tori line sits really nice because obviously the water's going faster this way. So that is another problem.”

“So a big issue with the tori line... going with the tide, it is really hard to achieve the aerial extent. It's almost pointless towing it cause it's doing nothing. It's just drooping, when it should be tight.”

Barrier 6: Floats get caught on the tori line

Some fishers have been getting tangles with their tori lines when their floats went out — it had happened for one fisher in the last month.

Other fishers said they delay deploying their tori lines to avoid the floats that go out on the mainline and can have about 100 hooks in the water before the tori line is fully deployed. However, these fishers also said their line starts off almost vertically with the anchor going in, so it is less risk to seabirds at this time.

However, as stated in section 2.2, one fisher said he was using vessel manoeuvres (i.e. turns the boat for a second) to avoid the main line getting tangled with the tori line when adding floats e.g. at the start of the line or for any intermediate floats. Changing the boat angle when releasing the main line and floats, including mid floats, could be useful to share with other fishers to help improve the use of their tori lines.

Barrier 7: Difficult to always have the streamer line protecting baits

Most snapper fishers stated that their tori lines were straight over the main line, as they generally set with or against the wind for snapper sets. However, a few snapper fishers said that it was hard to keep the tori line over the main line all the time, due to tides, currents and/or wind.

“Sometimes it's not easy. If you're setting across the current, the current just drags the tori line. But it still keeps the birds away, still does what it's meant to do, even if the line doesn't run directly under the tori line.”

When targeting deepwater species (e.g. hāpuka or bluenose), fishers commented that the mainline needs to set on a particular angle, to target the edge of a reef or a rocky area, or are setting in strong tides which causes the tori line to go a different way from the main line.

As a result, fishers said they are less able to have the tori line directly over the main line to fully protect the baits.

“Especially north of North Cape, there’s so much tide your boat goes along on a funny angle. So, your line goes out backwards sometimes, out to the side sometimes, and the tori line’s sitting another way. And it’s like ‘stop, start’, so you’re backing up into the tide and the tori lines trying to go into the boat and it’s not easy to tow them. It’s doable but it’s not easy.”

When this occurs, some fishers add more weight to their line if they can’t fully protect their main line with their tori line, and have found that that is enough to provide enough mitigation for seabirds.

Other fishers had made their tori lines adjustable or ‘semi-adjustable’ by using a boom or by tying the tori line to one side of the boat. One person who had been tying it to one side noted that doing so decreased the suspended height of the tori line. He is hoping that when cameras on boats are deployed, there will be an allowance to be able to adjust the tori line while not reaching the five-metre height above the waterline, and ultimately that this could be reflected in the regulations. Along with reducing the height of the tori line, fishers also noted that pulling the tori line to one side also reduces the aerial extent on of the tori line. However, deepwater fishers said they did not see this as a problem for seabirds, given that their lines sink so fast.

Fishers are still working out how best to make their tori lines adjustable, with one having an idea and hoping to look at it next time the boat was on the slip.

“Wind angles can be an issue with tori lines, they need to be adjustable. So you can go from the dead above, to off to the side, off to the side, off to the side. Otherwise, if you’re setting across the wind, the tori line will sit over [to the side] and it’s nowhere near the line. Ours is semi adjustable, we just tie it down at the moment with a rope, but we’ve got an idea to make it [more] adjustable, so you can fix it in three different positions.”

“It is not easy [to protect deployed baits in a crosswind]. If you get a big crosswind, it is very, very hard to sort it all out properly. I do [try and adjust it], I’ll just pull it down lower left or right if it’s blowing off to the side and there are birds around. I’ll pull it down so it’s doing its job, to maybe three metres off the waterline, just above head height. Which would leave me in a big open basket if I was pulled up, or MAF turned up and saw me doing that. I’m trying to do my best, but I’m still breaking the law. But we just do that and adjust it if we need to; if there’s birds and it works. I haven’t caught a bird for 25 years. On the rare occasion, if I’m worried there’s too much crosswind and we can’t get the tori line hanging right, we’ll just put some weight on, so it sinks even quicker.”

There was some differing opinions on whether the tori line needs to sit straight over the mainline or not. Some felt it did need to sit straight over it or else the tori line was ineffective and seabirds would go straight for the baits. Others said that in a crosswind the seabirds will normally feed upwind. So having the tori line off to one side meant the seabirds had to fly through the tori line to get to the baits, which was difficult for them.

Barrier 8: 50-metre aerial extent difficult and not necessary for small snapper boats

As well as some hāpuka/bluenose vessels that set at under four knots, some snapper fishers also stated that they are unable to achieve the legally required aerial extent for their tori line, and they also felt the required aerial extent was not necessary given their slower setting speed.

Difficult to achieve the 50-metre aerial extent

Most snapper fishers on boats over 10 metres and setting at 5+ knots say that they are able to easily achieve the aerial extent of 50 metres.

Some snapper fishers on smaller vessels weren't sure if they met the 50-metre aerial (but "wouldn't be far off"). For example, a day fisher (on a smaller vessel) wasn't sure if they achieve the 50-metre aerial extent for all their day sets. They expected they did when the water was flat as all their streamers were out of the water. But they weren't sure if they were achieving the 50-metre aerial extent at all times e.g. in rough seas, given that going over big waves resulted in shorter and longer aerial extent for the tori line — they thought that "on average" they would be achieving the 50-metre aerial extent, but it was "hard" to achieve at all times.

"When you slow down for a wave, you achieve less [aerial extent]. And then when you're shooting down a wave, you achieve more."

For snapper boats crewed by a solo skipper, it was difficult to achieve the aerial extent as they set at a slower speed, and it was also difficult to handle the extra long tori line.

These fishers felt the tori line requirements were made for boats over 10 metres, as they had more structure on the vessel to attach a tori line to get it to work as required, and they have more crew to be able to handle the tori line. For fishers on boats under 10 metres, their tori line was already as high as they could get it (e.g. at 6.5 metres) above the waterline (e.g. beyond what is required by regulations). Some said they couldn't make their tori line higher or add more drag as their aluminium pole wouldn't cope with it and they would need a larger steel boat to have a steel pole.

Furthermore, having a tori line that is at least five metres above the waterline on a vessel that is under 10-metres, was said to create risk for solo skippers, especially if the boat is not docked and the tori line pole needs to be put up and taken down for each trip single-handedly.

"My tori line pole is probably nearly 50 kilos. I have to lift it up onto my deck and then lift it up and put it into a stand on my boat. It's a really nifty idea we've done, but it's quite hard to put it up and take it down. And there's all the risk of slipping over, but I try and be careful. But sometimes you lose it and you've just got to let it slip a bit and go back where it is and then start again. It's heavy and it's like a pendulum to control. So that's a bit of a hazard. They should [change the requirements for the tori line for much smaller vessels], that would take a swathe of risk and work and dangers off me, that I'm already mitigating with other methods."

50-metre aerial extent not necessary

Solo snapper fishers (on vessels under eight metres) set at slower speeds and have higher sink rates, and so felt the required 50-metre aerial extent was too much and unnecessary.

On smaller vessels with a solo skipper, the line is set while the boat is idling (e.g. under two knots), whereas larger boats with crews set at higher speeds (e.g. five knots was about average speed for snapper vessels with full crews). Due to the lower vessel speed and resulting higher sink rate, solo fishers felt there was less need for a tori line with a 50-metre aerial extent. Their experience had found that a tori line with a 20-metre aerial extent was enough to protect the hooks until they were five-metres deep. Then, if the tori line was shorter the whole thing would also be less difficult, as their tori line pole could also be shorter making it more manageable and safer for a solo skipper, and the tori line itself would also be less challenging to pull in.

“My sink rate is really quick. When I do my bottle test, it’s down before the third or fourth streamer. Yet I have another eight streamers, plus another 80 metres of rope and floats behind that. But the line’s gone. But if there’s lots of birds, I can actually double my sinkers, and the hooks will be five metres deep before they’re 15 metres off the boat. It’s down, so deep, so quick. So the birds don’t even get a chance because it’s too close to the boat, they won’t come that close, they like it to be further out. My speed mitigates better than a tori line. [It would be better with] a littler tori line, that would fit a bit lower. I do have a problem with this big, massive thing, one size fits all. If you see the specs for the tori line and the [associated] diagram and see the size of the boat that that’s on... put my little boat next to it, it’s like a third of the size.”

These fishers felt they met the five-metre sink rate under a shorter tori line, and this should be reflected in the regulations.

C. Barriers to non-regulation mitigation standards

Below is a non-regulatory recommended practice from the mitigation standards in relation to streamer lines.

Mitigation standard (non-regulation)
<ul style="list-style-type: none"> Carry a second streamer line on board (that meets the mandatory requirements) and use it immediately following the loss of the primary streamer line.

Barrier 9: Unnecessary to carry an extra tori line

All the fishers interviewed said they were carrying an additional tori line. However from a motivational perspective, a few fishers did not see it as necessary, because they felt they were very unlikely to lose one; and if they did, they would stop and get it back given they take so long to assemble.

“I don’t think it’s necessary [to carry an extra tori line]... because I haven’t lost one. You’re not going to lose it because they float. It’s only if a white pointer came and grabbed it and decided to take it under the water and disappear with it — but that’s highly unlikely. And if [something did happen], that would be the end of my set. I’d just put a dropper on, turn around and go get my tori line back, because it takes hours to make one, whereas putting an anchor on and turning around to go back and get your tori line takes 10–15 minutes. So that’s what I’d be doing, and I don’t know anyone that’s lost a tori line myself.”

2.5.2 Line weighting

Below we provide an overview of fishers’ compliance on the line weighting regulation and other related factors raised by fishers, before listing their key barriers to meeting the line weighting regulation and other line weighting measures in the mitigation standards. The line weighting regulation is as follows.

Regulation
<p>8. Line Weighting</p> <ol style="list-style-type: none"> Bottom longlines must be weighted such that the slowest sinking hook can be demonstrably shown to reach a depth of five metres within the aerial extent of the streamer line under clause 6.

A. Compliance and related factors

Sink rate regulation is achievable for snapper fishers with tori line aerial extent beyond what is required

Snapper fishers whose streamer lines have an aerial extent beyond 50 metres, said they are achieving the five-metre sink rate based on bottle tests i.e. the bottle sinks at about 50 metres with their snapper gear. Snapper fishers who were using heavier weights than others, said they more easily achieved the sink rate, for example, using 5kg weights (rather than 1kg) every 70 metres (i.e. approximately every 25 hooks).

“Yes, in the snapper fishery, that is achievable, definitely.”

“With our snapper longlining we are achieving our five-metre sink rate.”

Some fishers had increased their line weighting due to the sink rate regulation

Some fishers had increased the weighting on their lines due to introduction of the sink rate regulation in 2021. Some who already had an aerial extent beyond 50 metres said they hadn't made changes to their gear following undertaking their sink rate tests, as they were already achieving the regulations.

“We changed our weighting when the sink rate requirements came in. We had [our DOC liaison officer] on the boat and reviewed our weighting plans and so on.”

Some snapper fishers were not always achieving the sink rate regulation

Some snapper fishers explained that they prefer to set lighter gear as it is easier to handle, better for their fishing, less damage to the seafloor, and less chance of hitting snags and losing their lines. They do apply heavier weights in daylight hours to meet the regulations, especially when there are seabirds around. But, because of the combination of the main barriers, some snapper fishers are setting before dawn to mitigate against seabirds, rather than applying what they see as “excessive weights”. Or they are not applying increased weighting in rough weather as it is too difficult to haul up. Ultimately, snapper fishers feel that the line weighting regulation should not apply when seabirds have migrated north or if they are setting in hours of darkness, primarily due to the barriers they face with the increased weighting required.

“I feel there should be a seasonal change in the regs. I feel that if we haven't got birds, why are we piling all this weight on? I'll do what's required and we are when mitigation is duly needed. But they want us to use mitigation when it's unneeded.”

“I don't think you need to have the sink rates that they say. That's the main thing I've learnt. Down where we are, it's just excessive, all that weight, and it makes it hard.”

Some fishers were uncertain of their sink rates

Some fishers weren't sure if they were achieving the required sink rates. For example, one said they thought they were achieving the sink rate based on MPI using time depth recorders on their vessel and not hearing any issues. But they didn't have a copy of the results from time depth recorders to know for sure. They also thought an observer had said their sink rate was okay in the past. They had undertaken one bottle test themselves, but didn't know for sure if they were achieving the sink rate as required by the regulations.

Deepwater fishers are not legally able to fish for some species under the sink rate regulation

Deepwater fishers on the other hand, say the required sink rate means they are no longer legally able to bottom longline for the deepwater stock over foul ground, in particular for bluenose where the gear needs more floats to set the line a bit higher in the water. Fishers feel frustrated that the new line weighting regulations are impossible or very difficult to achieve, when they are catching no or very few seabirds while fishing for deepwater species.

“The biggest problem we have in the bottom longlining is actually people can't physically meet the regulations. For bluenose fishery, your gear is set a bit higher (than hāpuka), and the sink rate has to be within five metres of the tori line. So now they're actually setting their gear illegally, and with the fines that can get imposed on you, it's pretty risky business. But, it's a huge grey area for a lot of these fisheries, because they've blanketed bottom longlining as snapper lining and the whole thing is just ridiculous. It's completely two different things. So it's a real mess.”

Many of the fishers were able to target snapper and deeper stocks with their gear — and they switched between them depending on what was best given seabird numbers in different locations, seasons, lunar activity, etc. With the sink rate regulation, many said they would need to pull out of targeting mixed stocks and instead just focus on snapper.

“We are worried our mixed fishing is gonna suffer terribly, with the sink rate stuff. All the other forms of mitigation for setting are completely cool.”

In terms of other mitigation to compensate for not being able to achieve the sink rate requirements, fishers said they were mostly setting in the dark for these species. They also said that compared to snapper fishing, their bigger hooks and baits were of less risk to seabirds.

“The snapper boys are mostly setting during the day, with multiple little hooks, little baits, whereas our baits are big with bigger hooks. It's very hard for the bird to actually get caught.”

“A typical [hāpuka or bluenose] day, you get up at 1am. You start setting at say, 2am, and we've finished setting at 5 or 6am, most of the time before dawn.”

Fishers said that there should be changes to the regulations to allow them to fish at night, with a sink rate requirement that they could achieve, for the deepwater species.

Alternatively, they also suggested that there should be a seasonal and area allowances for targeting deepwater stocks without the current sink rate requirement. That is, they should be able to target deepwater stocks in winter when the seabirds have migrated north, and then there should be strong requirements when the seabirds are back and particularly in seabird hotspots.

“The seabirds are only here for four to six months maximum, before they disappear again. [The line weighting regulation] makes sense when they're here, and when they're on the egg, or in the spring when they turn up and they're starving, to really up the mitigation and go hardcore. It should also be area specific. Where we fish is a real hotspot for black petrels, who are on the list. And it makes sense, if you're in that area, or within 100 miles of these areas where they're breeding, that you should be doing this extra work. But if you're right up north, or in the Hauraki Gulf and it's August or September, and there's not

a duck to be seen, well maybe the regs can go down again in these months, but at the moment it's a blanket ban."

One fisher commented that there should be different sink rate regulations for snapper versus bluenose versus the other deepwater species.

B. Barriers to following the regulations

Below is the regulation for seabird mitigation relating to the five-metre sink rate requirement¹⁹ and then the associated barriers with meeting it.

Regulation
8. Line Weighting
1. Bottom longlines must be weighted such that the slowest sinking hook can be demonstrably shown to reach a depth of five metres within the aerial extent of the streamer line under clause 6.

Barrier 1: Extra weights required are frustrating to handle, risky and stressful

Some fishers have achieved the sink rate by adding extra weights along the line e.g. having a weight every 15 hooks rather than every 30 hooks. But they state that it makes setting and hauling harder to do.

"Having to put that extra weight on every 15 hooks is a nuisance. It's so much more weight."

"Before we would have 50–60 kilos of weight [on the boat] and we weren't having any bird issues, we had our mitigation, and we monitored the birds. Now we're looking at having 150–200 kilos of lead stacked on the corner of a 10-metre boat. We can't [stack that in the corner] anymore, we've actually got to shift it around the boat, which then increases our labour and handling, and the ridiculous bit is that when we are fishing in winter there is no bird interaction!"

Most fishers felt that the sink rate requirement puts too much strain or tension on the mainline. They have increased the strength of their line and/or their drums to allow for heavier weights, but they still don't like having that much tension on the line, especially when they are hauling. It feels unsafe, stressful and risky.

"It makes hauling the line difficult because it's so heavy."

"It's a lot of weight you got to put on your line. It puts a lot of tension on the line especially when you're hauling. We don't have a big wheel or anything on our boat, and it's not hydraulic, so we don't have that much oomph, so I find it really hard. You risk snapping your line and losing your gear, or worst case, you get a hook. Plus you end up stretching your line out, the more you stretch it, the weaker it becomes. I really don't like it. To lose gear, that's a lot of money too. Whereas if we shoot it at a lighter weight, it's just nice easy hauling, the winch just rolls it up. You don't have to be directly on top of it. It just makes for a far easier day."

Snapper fishers also commented that when hauling a heavier line, the boat needs to be kept directly over the line, which is hard for a small boat to do in rough weather.

¹⁹ Fisheries (Seabird Mitigation Measures—Bottom Longlines) Circular (No. 2) 2021 (Notice No. MPI 1375)

“In a smaller boat, we get blown around the place quite a lot. And [with heavier weights] you have to keep your boat right on top of the line. You can't have your line out at the side and be hauling it. With that much weight on it, you've got to be directly on top of it to bring it up, so there's not that extra drag, which makes it pretty hard.”

Barrier 2: Extra weight required is not so good for catching snapper

Some snapper fishers commented that by increasing their weight to meet the sink rate regulation, it is negatively affecting their ability to catch fish. These fishers explained that the increased weights while snapper fishing, pins the line to the seafloor, and as a result the baits get so eaten by seafloor organisms and the baits are less visible to the fish.

“It's hurting our fishing abilities by really overweighting the line. Not allowing the line to move about much on the bottom, because you're weighting it down so much. Which does affect fishing quite often because if the baits move, they stop getting buried in shellfish and getting covered by crabs and starfish and so on. But they are weighted to the bottom, they are just sitting there. The fish don't get it, the starfish get it. If you can keep it moving a little bit and not weighted down so much, it can bounce across the bottom, so when a fish gets hold of it and jerks the baits back up, the next fish gets in, and the next fish. But if it's just weighted down like a railway track, it doesn't. I feel it affects our fishing quite a bit.”

To overcome this issue, one fisher has been trialling the use of small fluorescent floats on his snoods. The floats keep the baited hooks off the seafloor by a few centimetres to minimise starfish, welks and crabs eating the bait. He has also noticed that the fluorescent floats (which had a big black spots on the topside of them) provide a means of seabird mitigation during setting and hauling. He has experienced seabirds from small shearwaters to large petrels coming in for a look, but when the seabirds see the floats they are not interested in the baits and fly away. He feels this method of mitigation is working better than his tori line for his operation, given he has a slow setting speed. This is an example where a fisher has been proactively experimenting to work with the increased line weighting requirements, while also finding new solutions for seabird mitigation.

Barrier 3: Extra weight required is harmful to seafloor and can result in lost gear

Some snapper fishers have achieved the sink rate by adding extra weights along their line, but they feel that it harms the seafloor.

“People don't look at the extra damage from dropping blocks of lead on the bottom, every 60 odd metres. They talk about trawls damaging the bottom, but we've got so much lead going over the side it's embarrassing.”

Both snapper and deepwater fishers commented on the increased risk of their fishing gear getting stuck on the bottom due to the line weighting regulations, resulting in lost gear, associated financial costs and environmental impacts. Some of these fishers said that they have stopped fishing for deeper fish stocks for this reason or were about to.

“For [deeper] target species²⁰ on foul ground, putting [extra] weights down exponentially increases our risk of our line being caught on the bottom and losing gear. And that's the 'catch 22' of not catching birds, as we become financially viable by leaving a lot of gear on the bottom and ecologically viable because we're leaving a lot of plastic down there.”

²⁰ Deeper target species were explained as those at 100+ metres depths (e.g. tarakihi, red snapper) and deeper (for harpuka and blue nose). As opposed to snapper which is caught over sand or mud (i.e. not foul ground) and within 100 metre depths.

It's basically now illegal for us to float our gear up and over big coral formations and big rocks. Traditionally we put floats on to get over the rocks, and that's where we catch a lot of red snapper and other species that are up off that foul ground."

Barrier 4: Haven't caught seabirds using lighter weights

Some fishers feel that they don't need to sink their line to five metres within the aerial extent of the tori line, because they haven't caught seabirds with their usual (lighter) sink rate.

"I just think it's overkill myself because we've shot the gear without that sink rate, and there's been birds around and no issue. And that's in the middle of the day. If there are birds hanging around, we just clip the line, and the hooks are gone. I used to get really worried about [the birds], I dreaded catching one. I still do. But I haven't caught a bird, so whatever we're doing it's working. And I'm very grateful for that."

Barrier 5: Can't always achieve required sink rate over foul ground

Although fishers say the mainline sinks faster when targeting deepwater species compared to snapper (or tarakihi), some deepwater fishers are not always able to meet the required sink rates when fishing species over foul ground (e.g. reefs or rocky seabed), given they need to sink the line deep (increase weights) but keep it off the bottom (with floats).

"You can get close to [the regs] with hāpuka fishing, but every now and then you've got to change that because they live in nasty ground. [It depends on location], as soon as you go to the East Cape and south, the ground is very easy to fish, so it doesn't matter, because it's a different type of bottom and you can pull the gear off the bottom fine and even over really nasty rocks. But if you fish up by the Three Kings or in the northern part of the area, if you don't set your gear right, you will lose it."

To achieve the required sink rates for this fishing, fishers say they would need to remove floats and replace them with more weight. However, the nature of the fishing over foul ground requires them to hang their line via floats and weights just over the foul ground to avoid getting snared while targeting the fish who live in this zone. If they increased their weights further, they risk catching their lines on the seafloor.

"With the new line weighting we're not actually legally allowed to try and target certain species because we'd be going outside of the line weighting regulation. That's for hāpuka and bluenose, and other fish that are up off the bottom, kingfish, red snapper, pink maomao, and stuff like that. We've tried to fish over the hard bottom using that regulation, we have to double our weights, and we just keep getting stuck and losing fishing gear."

"The main thing for bottom longlining, you've got to get your gear back. And if you do the wrong thing, you can lose the whole lot. For bluenose and hāpuka, the ground can be quite gnarly, and you get scared of not getting it back. So fundamentally you're trying not to lose gear. That's the biggest overriding thing"

Some fishers had tried following the line weighting regulation, but their gear got stuck on the bottom resulting in them losing their gear. As a result, they suggested that they should be able to undertake other forms of mitigation to compensate for not being able to achieve the five-metre sink rate within the 50-metre aerial extent (as noted at the beginning of this section — section 2.5.2).

One fisher noted that ling is typically targeted on muddy bottoms, so the issue with the sink rate didn't apply so much ling fishing.

Barrier 6: Can't achieve required sink rate for bluenose

Although some fishers said they can achieve the sink rate for some deepwater species (e.g. hāpuka), no one said they are achieving the sink rate for bluenose due to the extra floats that they need to put on the line to keep the line sitting higher in the water, and the float and weight combination they need to keep their line in the right shape.

"[We are not achieving the sink rate] for bluenose or hāpuka. With bluenose, you're trying to get your line to sit higher, cause you're higher off the bottom. But with hāpuka, you're pretty much putting less buoyancy on the line. We use a 100 ml pressure floats, so we'll use two for hāpuka and we'll use four for bluenose. So your gear is sort of in a pyramid for bluenose and for hāpuka it's coming up and down. Essentially, you're setting the line higher off the bottom for bluenose, which requires more flotation, so you can't achieve the sink rate. There's no way to achieve it. You would have to put 20 kilos of weight on, but when you come to haul it back, the line would be so tight, it's dangerous. Plus your gear would sit funny, because the weights pull down and the floats pull up."

"With bluenose fishing you'll never get the regs with that, because you're trying to float your gear up higher to catch bluenose."

"We have a system for our line, we use six kg weights and then we put four floats, so it sinks about three metres a second. So that it keeps it off the bottom, as we are going for the mid water fish [bluenose]. To change my weighting system would also make the line out of shape, it's unthinkable. To change it all would be very difficult. That's why we've tried to do everything we could to make the tori line good enough, but it's still a little bit short. But it seems to be working well, so I'm happy with it."

"We are not achieving the five-metre sink rate when we go bluenose fishing. To target bluenose you have to keep your line 50 metres off the seafloor, and that requires using a small amount of weights or just big heavy weights with a lot of floats to get the line sitting up high in that water column to catch them. We have a lot of trouble trying to meet the regulation and I can't understand how that's being met."

One bluenose fisher said they have tried to increase the aerial extent of the tori line to cover their hooks (until five metres deep) by increasing its drag, but based on bottle tests they have come close but not close enough. The fisher noted they can't increase their tori line pole any higher (than five metres above the waterline) without extensive investment and increased wind risk on their 10–15 metre boat. So, the fisher had also increased the length of his tori line (to a total length of 150 metres) and added extra floats to create more disturbance in the water beyond the tori line's aerial extent. The fisher is finding that this approach is working to keep seabirds away from the mainline and didn't see the need to do more given he's not catching seabirds.

Barrier 7: Required sink rate not achievable for about 5 minutes on deepwater sets

Some fishers said they achieve the sink rate for the first part of their line (due to dropping their first anchor); the line is almost vertical going into the water. But not the second part until the second anchor is dropped about five minutes later. One fisher did not think this was a risk to seabirds, given they always set in the dark.

"You've got to have a certain amount of floats-to-weight ratio on your line to keep the line off the bottom. If you don't do that, you're going to lose your line. If you have to work to

the regs every time, you will lose your line. [We can achieve the sink rate] for half of the line, but for the second half of the line it can't."

C. Barriers to non-regulation mitigation standards

Below are some of the non-regulatory recommended practices from the mitigation standards in relation to line weighting.

Mitigation standards (non-regulation)

- | |
|---|
| <ul style="list-style-type: none">• During <u>high-risk periods</u> the slowest sinking hook should reach of depth of <u>10m</u> within the aerial extent of the streamer line (or don't set in high-risk periods).• Use bait that is thawed (not fully frozen). |
|---|

Barrier 8: The 10-metre sink rate within the aerial extent of the tori line is hard, if not impossible, to achieve

Most fishers had not tried to achieve a 10-metre depth within their tori line, either because they are struggling to meet the five-metre depth, they are not catching birds at the five-metre depth, and/or it is not possible when setting at shallower depths e.g. if fishing within 10-metre depths.

"So the hard part is, what if you are setting in a depth of water that is less than 10 metres? You can never achieve that if you've only got eight metres of water."

"I could achieve it, but I would need to put an excessive amount of weight on my line. But then again, sometimes I'm only working in 10 metres of water. And it would be too heavy to get up off the bottom."

"It would be impossible to achieve that. I'm only just achieving the five metres and I think that's at a stretch to achieve the five metres. And that's with my tori line eight metres up the mast. I think you'd have to slow down. But at an idle my boat does 3.5 to four knots, so I can't go any slower than that without putting the boat in and out of gear all the time, and that would just destroy the gearbox. And to put more weight on the line, I would have to tow another boat to carry all the extra stuff that you need!"

Some fishers weren't sure if they could achieve the 10-metre sink rate under their tori line, because they hadn't measured it yet.

"I might need to do my bottle test on the bluenose gear to tell you that."

Some fishers stated that no one has suggested they aim for a 10-metre depth in high-risk periods, but were happy to meet the legal requirement of the five-metre depth which seems sensible and reasonable.

One fisher said that instead of trying to gain the 10-metre sink rate, if it was a high-risk period, and seabirds were being caught, it seemed better to avoid setting in those high-risk periods.

No barriers to using defrosted bait — but is it relevant to the fishery?

All of the fishers interviewed were setting with bait that is thawed. From a practical perspective some fishers thaw their bait to attach to their hooks, as it is too cold to work with

frozen. Some noted that their bait is small, so it doesn't stay frozen by the time they come to use it. Others bait up the day/night before, so it's thawed by the time the line is set.

"That's fine. It's easy for us. We get our bait out of the freezer in the morning and by the time we get to sea it's pretty much defrosted, they're in small little chunks."

"Ours is thawed out. It gets cut at lunchtime the day before it's baited and then put back into the slurry box."

Fishers agreed that frozen bait floats, but snapper fishers noted that the small sized bait they use is unlikely to have much buoyancy given the weights that they apply. They felt that this mitigation standard would be more relevant to other fisheries.

"I don't think that makes much of a difference. If you've got enough weight on your line, with those sinkers, a little bit of mackerel is not gonna float your line. It just won't."

2.5.3 Sink rate tests

Below we provide an overview of fishers' compliance on the sink rate test regulation and other associated factors raised by fishers, before listing their key barriers to meeting the sink rate test regulation. The sink rate test regulation is as follows.

Regulations
8. Line Weighting
2. Sink rates must be measured at regular intervals (at least once per calendar month or when gear setup significantly changes) via bottle tests or time-depth recorders and the results documented and retained on the vessel for a minimum of one year. These records must be made available to fisheries officers and observers upon request.

Some fishers were conducting monthly sink rate tests — others were not

A few fishers said were undertaking the bottle tests once a month and/or were measuring sink rates by other means e.g. wet tags that download the sink rate data.

However, these fishers didn't see the point in doing it once of month, with one explaining he just did them to keep their DOC liaison officer looking good.

Many were not undertaking bottle tests on a monthly basis or were not aware of their electronic test results as an alternative method of recording their sink rates.

Most fishers agree sink rate tests are good to redo when there is a gear change

Fishers agreed that their sink rates might or would change with different gear set ups and so it was good to conduct a sink rate test to understand this. Gear changes included using different weights, running different floats, changing gear for different fish targets, or any other gear changes that might impact sink rates.

"I think if you change your setup, you should check it again."

"[You'd want to do a bottle test] if you're trialling new stuff."

Some fishers agreed it was good to redo the sink rate tests in different conditions

Some fishers agreed it was good to do their sink rate tests in different conditions to understand how their sink rate may vary. Different conditions included different wind directions, tides, swells, etc.

Some fishers preferred doing bottle tests — rather than electronic methods

Some fishers felt the bottle tests were a good way to do a sink rate test without the use of advanced technology — it gave them a tool to use and get instant results for any changes.

“[The bottle tests are good in that] you can do them yourself to check that you are achieving what you are supposed to be achieving. It’s simple and easy. A lot of the other devices, wet tags and time depth recorders, have too much variation.”

Some fishers preferred electronic sink rate recorders

Some fishers (typically younger) preferred electronic recorders, rather than bottle tests, as they found them much easier to use, felt they were a more trustworthy recording, and liked how they gave a range of data points as the link sunk. One also commented that it didn’t like the idea of throwing a plastic bottle into the ocean.

“We use TDRs. The bottle test is like ‘what are they up to?’ Chucking bits of plastic over the side... if you lose gear, there’s a bottle on the bottom. Why don’t we just use this electronic device, which tells us every 30 seconds what our gear is up to?”

“I think that if the electronic recorders are available, it’s so much easier to whack those transmitters on than deal with the bottle tests.”

Some fishers suggested electronic documentation is better than paper-based

Some fishers stated they would like electronic recording and reports for their sink rate tests, rather than the paper-based version they currently have. So that it was easier for reporting, understanding their sink rates over time and generally looking up information. One also suggested it would be handy to have sink rates incorporated into the Sea Flux reporting system which they use for Maritime NZ, because they like how that system prompts them to do things and it’s a system they are currently using.

“The electronic stuff has definitely made my life easier. Instead of going back and looking through books, which is pretty much what the bird mitigation stuff is. It’s all paper and it just gets chucked in the corner and it’s not ideal.”

Observers should be undertaking the sink rate tests

One fisher suggested the sink rate tests should be undertaken by observers using an electronic test to get proper records, for example once every six months or once a year. This fisher felt that it shouldn’t be left up to fishers to record their own sink rates.

Fishers would like access to their electronic sink rate reports

A number of fishers noted that they were adding wet tags or other devices to their lines for different sorts of research, but the sink rate data from these devices haven’t been shared

with them. They said it would be helpful to have this data as another way of understanding their sink rates.

One said he does see the electronic data and he had a better understanding of how the sink rates can change using the same gear.

“The sink rates always change depending on tide. Strength of tide will change that and speed of setting. There’s a lot of variation.”

Fishers had used the lookup tables to understand their sink rates and found these useful

Fishers had used the lookup tables to calculate their sink rates and found these useful. They said they were easy to use and no one had any problems using them.

“We went through [the lookup tables] and I could see what was happening, and we tried to correct our sink rates, but we couldn’t.”

B. Barriers to following the regulation

Below is the regulation for seabird mitigation relating to the sink rate tests²¹ and then the associated barriers with meeting it.

Regulation
8. Line Weighting
2. Sink rates must be measured at regular intervals (at least once per calendar month or when gear setup significantly changes) via bottle tests or time-depth recorders and the results documented and retained on the vessel for a minimum of one year. These records must be made available to fisheries officers and observers upon request.

Barrier 1: The sink rate test results do not change significantly

Some fishers are not doing bottle tests once a month, because they say the test results don’t change very much if they have no changes in their gear.

“I’ve done it three or four times. Nothing changes for us. To me, it’s pretty wasted information. Most of us do the same thing over and over, so a lot of it doesn’t change.”

“I’ve done one [bottle test]. That came in shortly after we did the electronic tests, so we are like, ‘What’s the point? We’ve just done all this.’ And we set our lines exactly the same every day. So the sink rate is not changing day to day. We know what works for us and we do the same thing. So I could do it every day and write down the same thing. But nah. We’ve done the sink rate test.”

“I think that if you’re doing the same thing over and over and over, particularly for the smaller longline fleet that are just doing [the same thing], they’re not going to have any significant variable in their sink rate. It’s gonna continuously be the same for us, until we go out into deep water, that’s a significant gear change.”

“It had interest for the first ten [tests], because it showed me where my line was dropping, so I’d get an understanding of when it’s rough, when it’s calm, etc. But now I see no

²¹ Fisheries (Seabird Mitigation Measures—Bottom Longlines) Circular (No. 2) 2021 (Notice No. MPI 1375)

validity except for ticking the box for the bureaucracy. What changes from one month to the next?"

Other fishers said were not undertaking the bottle test every month if they had undertaken the tests for their current gear setup in a broad range of conditions. Others said they had done one or a couple of bottle tests and felt that was okay as a read on what their sink rate was.

A few commented that tides and swell might make a difference to their sink rates, but they either hadn't noticed a significant difference or felt it wasn't something they could really control. Ultimately, they felt gear changes would cause the greatest variation in their sink rates. A few also noted that the experience of the setter may also affect the sink rate, but again they didn't think that this was something that needed measuring.

"I think the tide would [have an effect on sink rate], but I don't think whether it's rough or not would affect anything because it's just going to sink down. But maybe if you're shooting across the tide, it might slow it down a bit. I know that if you shoot your gear across the tide, it puts a lot more strain on your line, there's a lot of pressure on it, so you kind of want to shoot with the current. But I've never noticed our gear sinking any slower or any quicker really."

"You can't control all the [environmental] variables, so if on a good day we are meeting the requirements [that should be fine]. Even in a big swell the line can sink flat out (and surpass the sink rate test) and then the boat will go so fast you can hardly keep your gear on (and you won't meet it). But I generally believe there is not much change in the sink rate test."

Barrier 2: Fishers feel they can judge if their line is sinking fast enough

Some fishers who didn't feel the need to repeat their bottle tests, felt they could get a good read of their sink rates by watching the line in the water and/or the angle the line is going into the water.

"I have done it a couple of times. But I'm not very good at keeping up with it. I've done it on our snapper gear [and the bottle sinks] less than halfway. To be honest, I haven't tried it on our bluenose gear, I just do it on our snapper gear. We are going to have to improve ourselves on that. But no, I don't think we need to do it every month. I can see how quick my gear is sinking by having a look over the back of the boat. I can judge the five-metre depth very easily. Maybe not by the metre, but I can tell you if a bird is going to dive on the thing."

Barrier 3: Sink rates should not have to be undertaken every month

All fishers felt that sink rate tests should not have to be undertaken every month, as they felt their sink rates were quite consistent. They felt that after the tests had been undertaken for each gear set up and, for some, in a range of sea conditions, sink rate tests should only be required when there was a gear change, and if there was no gear change, they felt sink rate tests should only be required once a year at the most.

"Once you've done [the bottle test] five or 10 times... and you haven't changed anything to your gear... that shouldn't be mandatory to do once a month, forever. When you've done into the wind, with the wind, across the wind. And every angle that you can, into the set, with the set, up the swell. Once you've done it a few times and you know what you're

doing, if you're not changing anything, why should you have to keep doing it? Especially if we are not catching birds."

"Why do we need to test every month if we are running the same weighting regime and complying with what the plan is? Is it because our steel has worn away? What's changed? Why? I generally believe there is not much change in the sink rate test."

Fishers also commented that undertaking the sink rates every month also creates more "paperwork" when they already have enough to do.

"I just think if you've got your gear sinking at a certain rate or using certain weights, once you've done it, nothing changes. We pretty much just shoot the same routine over and over again with the same weights. It's all good, but it's just more paperwork when you're already rushed, and you've already got enough stress on your plate."

Barrier 4: Difficult to see the when the bottle goes down

Fishers said they find it hard to see the bottle go down when they are night setting, in larger swells or poor weather. Some fishers commented that they haven't been able to do their own bottle tests as they only set at night.

"I've been doing the sink rate tests, apart from in January when I was doing all night sets, at night you can't do sink rate tests because you can't see the bottle. You can't do it. It's physically impossible."

"I have done the bottle tests, but you can't tell when it sinks, even with a light stick in it, because it's dark."

Fishers have tried different things to improve the visibility of the bottles. They said the orange colour on the bottles provided by DOC help the bottle to stand out, but the orange wears off over time and needs repainting. For night setting, some have added light sticks to their bottles to try and make it easier to see out the back of the boat, but some fishers still have difficulties sighting when the bottle goes down. Some have also added reflective tape and used spotlights, but then a swell at the wrong time can also create sighting issues.

"A lot of the time, it can be a little bit challenging because it is dark. We do put light sticks in the bottle. But it is quite hard to try and see a light stick 50 metres behind the back of the boat."

"We've mucked around with having glow sticks in them and putting reflective tape on them and using high powered spotlights to try and watch them. But as soon as you've got a following sea (swell coming behind you) or swell you're punching into, you get that trough in the swell and [the bottle] completely disappears from sight. And you're like, 'Oh, has that sunk yet? How many seconds was that! Oh no, there it is, there it is again...'"

"It's quite hard. You've got to throw a light stick in the bottle to be able to see it, because we're setting in the dark. It's not easy, but it can be done."

Barrier 5: Don't run a tori line

Some fishers don't regularly undertake bottle tests because they set at night and don't run a tori line at night.

Barrier 6: Not catching seabirds

Some fishers were running their bottle tests, but didn't think they were necessary because they weren't catching any/many seabirds.

"For us the proof is in the pudding. It's just what we've always done. And you can just look at the bird count and see that there's only a dozen birds there, they're not feeding frantically, our sink rate is good, whether it's five metres or not, we're not catching them. You know, that's not a problem."

Barrier 7: Holes in the bottles can result in varying sink rate measures

Another potential barrier to undertaking sink rate tests is perceived consistency of the results. A couple of fishers raised that where the holes are placed in the bottle can result in varying sink rate measures.

"If the bottle's made right and has plenty of ventilation, it just lays on its side on the surface, and as soon as it gets any pull down it floods and sinks quickly. But if it doesn't have the right vent holes in it, then it actually bobs and floats for maybe an extra three or four metres and that might be the difference between compliance and not. They gave me one bottle and said they are simple to make, so we have a couple on the boat here."

Barrier 8: Bottle tests increase risk of tangles

Another reason why some fishers queried the need to do bottle tests every month, was the increased the risk of tangles. Some had found the bottle can easily tangle with the tori line.

"The bottle gets tangled up in your hooks and everything. It adds about five to ten minutes to your day every time you do a sink rate test, which doesn't sound like a lot, but when I'm asking my crew to 'hurry up, hurry up' and then this tangle comes up because you do a sink rate test, [it's not good]."

Barrier 9: Some fishers do not see their time depth recorder results

Some fishers said their sink rates are measured via time depth recorders. However, they do not see the results of their sink rate tests, so the results are not retained on their vessel as required by the regulations.

Barriers 10: Sink rate legislation is misinterpreted by some

Some fishers didn't realise they needed to measure sink rates every month, given the legislation is worded "or when gear setup significantly changes". They felt this meant that they only need to do the tests when their gear setup significantly changes. Fishers wondered if the "or" should be replaced with an "and". So the phrase reads: "Sink rates must be measured at regular intervals (at least once per calendar month and when gear setup significantly changes)".

"I thought that once you've established your sink rate, and you're doing the same thing with the gear all the time, you don't need to a sink rate test because nothing changes. I thought it was just when you are changing the set-up of your gear, like if you are changing from two weights a card with floats, to shooting during the day with four weights on, and then switching back again. So we do bottle tests, but we haven't had to do sink rate tests for a while because we don't dramatically change our gear format. The last

bottle test I did was when I did a day shot [and changed the weighting regime] to get the line down really quickly because I was worried about the birds, and so chucked a bottle on. But we had had digital sink rate recorders on there for quite a while [for external testers], so when we're running those, they are in place of the bottle tests basically."

2.5.4 Discharge during setting

Below is the regulation for seabird mitigation relating to discharge during setting²².

9. Restriction on Discharge of Offal or Fish While Hauling Bottom Longlines

1. Offal or fish must not be discharged during setting of bottom longlines.

No barriers to not discharging during setting — but is it relevant to the fishery?

Fishers said they were not discharging during setting and there wasn't any reason why this would happen. They said there is nothing to discharge at the time of setting. They bait their cards the day before or in a separate session earlier in the day, so all they are dealing with during setting is baited hooks. They felt this mitigation standard may be relevant to other fisheries, but is not relevant to their fishery.

"It doesn't happen anyway, there is no reason to throw anything over the side while you are setting."

2.5.5 Hauling

In this section, we provide an overview of fishers' compliance to the hauling regulations and some other thoughts on this topic, before listing their key barriers to meeting the regulations, and then we cover compliance and barriers to meeting the other hauling mitigation standards.

A. Compliance and related factors

Below are the regulations for seabird mitigation in relation to hauling²³.

9. Restriction on Discharge of Offal or Fish While Hauling Bottom Longlines

2. Offal or fish may be discharged during the hauling of bottom longlines, but only from the side of the vessel that is opposite to the side on which the hauling station is located.
4. Despite subclause (2), during the hauling of bottom longlines, —
 - b. Any live fish and those whole dead fish greater than 30cm in (fork) length that can legally be discarded may be discharged on the side of the vessel on which the hauling station is located if a hauling mitigation device is deployed.

Some fishers discharge their offal and fish after hauling (rather than during)

Rather than discharging offal during hauling, according to the regulations, some fishers preferred to discharge offal after hauling. This was also the case for their used baits. For

²² Fisheries (Seabird Mitigation Measures—Bottom Longlines) Circular (No. 2) 2021 (Notice No. MPI 1375)

²³ Fisheries (Seabird Mitigation Measures—Bottom Longlines) Circular (No. 2) 2021 (Notice No. MPI 1375)

some of these fishers it was to keep seabirds away while they were hauling. Whereas for others it was due to the regulation, in that they prefer to hold offal and baits, rather than have a mitigation device or discharge from the opposite side from the hauling station.

“I keep all my bait, everything I can, in a bucket. And then when I’m finished, I slowly tip it out on the other side of the boat, so they don’t see it anyway. I don’t want them around my boat thinking they’re gonna get a feed. So I do it when they’re not looking, so they don’t get used to it. Even when I’m trunking my shark, I’ll steam at least half a mile from where I finished picking up my line before I trunk my shark.”

“All our stuff that we’re going to throw away, whether it’s dead, or it’s old bait or anything like that, all just go into a bin on the floor and gets tipped over when we’re finished. [We mostly do it] due to the regulation actually.”

Some fishers don’t discharge anything while hauling if there are seabirds around.

“It comes down to the risk really, the risk of where we’re going fishing. I know when we were fishing in the Gulf, we were retaining anything under 30 centimetres. That’s when you’re in the danger zone, it’s things like that, you do automatically... you hold it all on board, don’t throw anything over the side.”

Along similar lines, some deepwater fishers said they kept all fish that was hauled, except for spiny sharks for safety reasons (and because they are still alive), and some eels and rays. For these deepwater fishers, their general philosophy is that they just land everything. They explained that for deepwater fishing, unlike snapper fishing, there’s no undersized limits and the fish come up dead so there’s no reason to release these fish for survival reasons.

“We don’t deploy offal or fish anyway from the same side as the hauling station. It just doesn’t happen that way, because we don’t do it while we are hauling. There’s nothing undersize, because it all comes up from too deep, so everything is legal, it’s all dead cause it’s got the bends, but it’s all worth money. The only thing we throw over the side is a spikey dog shark.”

“We are getting the deep, midwater fish, and we land them all. There is no bycatch to throw away or nothing. Except maybe eels, we get one of them every now and then, but no one really wants it, and we just chuck it back in the water and the birds don’t even want it. And we do get a few spikey dogs, but they are still alive, so we let them go. And every now and then we get a big shark, but they usually break off the line before they come to the boat.”

Some fishers agree it’s good to hold small dead fish (under 30 centimetres)

Some snapper boats hold their dead fish and even live fish if seabirds are around, even though they are allowed to discharge them from the other side of the hauling station under the mitigation regulations.

“I think it’s a pretty good call [if seabirds are around], as anything under 30 centimetres is pretty good tucker for the birds. Everything attracts birds, anything that’s potential food. It’s quite impressive sometimes, you can watch a fully grown albatross swallow a 30-centimetre fish, no worries. It’s quite impressive to watch.”

Some fishers said they discharged fish and offal at the hauling station — without a mitigation device

Some fishers discharge undersized live snapper, dead snapper, rays, spikey dogs, and other species at the hauling station — without a hauling mitigation device. See the following barriers section for their reasons.

“If [undersized fish] are alive and happy to swim off, I just put them over the side of the boat. It’s the same with stingrays, on a bad day we might catch 10 or 20.”

“We only discharge spikey dog sharks [at the hauling station] and they just swim away.”

“We discard some species like eagle rays, but there’s not much we don’t keep though.”

Fishers felt it was more important to hold baits rather than fish while hauling

The regulations refer to the restriction on the discharge of offal and fish while hauling bottom longlines (with no reference to baits), but some fishers felt it was more important to restrict the discharge of baits (and offal) rather than the discharge of fish.

The hauling discharge regulation was seen to be largely irrelevant for fish given the anti-dumping regulations

Regarding discharge of fish, some fishers said that the mitigation regulation relating to discharge wasn’t that relevant to them as they needed to keep all caught fish onboard due to the Fisheries Act, section 72 in relation to “Dumping of fish prohibited”.

“Legally we’re supposed to keep [undersized fish], that’s as far as I know. They say you’re not allowed to discharge anything that’s undersize.”

“There’s not much we can return to the ocean. There’s only those few ‘schedule six’ species and that, but a lot of those are only if they’re likely to survive that you can return them.”

The hauling mitigation regulation was seen to conflict with the rules about returning undersized snapper

Some fishers said that other laws stipulate they need to return undersized dead snapper immediately if caught and this was in conflict with the mitigation regulations that state that they can’t return dead fish under 30 centimetres from the haul station. They prefer to retain dead undersized snapper until after hauling given they tend to float on release.

“You’re supposed to chuck undersized dead snapper over the side straightaway, but I should retain them, because most of the time undersized dead snapper float. By law we need to return them to the sea, but it’s not a good look with dead snapper floating. You’d be better off to leave them on the boat and get the boys to pop their swim bladders so they sink.”

Some fishers had hauling mitigation devices or were considering their options

Most fishers who were using a hauling mitigation device are finding them easy to use and very effective at keeping seabirds away. One fisher had been using a hauling mitigation device for a couple of years and was planning to install an extra one, to have one in front of

the hauling station and one just behind. He felt his current one is pretty good, but two would be better, given they were easy to install on his boat.

“It’s really easy to put it out. You just pull it out and it drops in and no worries. It works really well. We used to get birds coming on when we were hauling, but now we have a new system, we are not getting any birds at all.”

“We do run streamers at our hauling station as well, which means the birds can’t come into our hauling zone. Which is also helpful. We have rubber colourful streamers.”

Fishers who hauled at the side of their boat had mitigation devices in the form of streamers or droppers hanging down from poles that were connected to the boat e.g. connected to the roof.

Some fishers weren’t having any issues with their mitigation device getting hooked up with the main line. Some stated because they use circle hooks, which have a very small opening, there isn’t really anything on their hauling mitigation device that they can hook onto.

Other fishers were making changes to their hauling mitigation device to make it more useable. One fisher had experimented with using plastic conduit with floats on the end of it, but they kept getting ripped off by big chunks of seaweed or bouncing around and caught up during rough weather. To improve on this, he was now using tori line streamers run off his “pole and string set up”, and they were working much better in terms of not getting ripped off. But the streamers were getting caught on the hooks causing frustration, and injury, when hauling. As a remedy to this, he was about to try some weighted streamers.

“I’ve had a streamer go full stretch and whack me on the forehead before.”

Fishers who hauled at the stern of their vessel had mitigation devices in the form of a small tori line and a flapper board to create a disturbance on the water to keep seabirds away.

“[The flapper board] drags out the back of the boat and the birds just hate it; they give up and leave. We can virtually claim 100% haul mitigation, without any bird interaction.”

One fisher had a hauling mitigation device to install but hadn’t done so yet, as they find that if they hold their baits onboard it is enough to keep seabirds away from the hooks.

Another had ordered a hauling mitigation device and was waiting for it. They didn’t feel they needed it for hauling as they weren’t catching any seabirds, but were doing so to be proactive.

Another fisher was looking to install a hauling mitigation device, because they had seen them on other boats and thought they were now legally required. But they didn’t see the need for one while hauling, as they didn’t think it would save seabird lives given seabirds don’t die from being hooked on the haul. They said they couldn’t easily install a hauling mitigation device, so they would have to look at how to do it the next time the boat was on the slip.

One snapper fisher felt they could discard some species on the other side of the boat, but it takes more effort, so their preference was to look at installing a mitigation hauling device.

A hauling mitigation device seen as more critical for inexperienced crew

Some skippers commented that if they or an experienced crew member was hauling there was little risk to seabirds. However, when crew were being trained to haul, the line coming out of the water is more likely to be “all over the place” rather than coming straight out of the water. So, they said a mitigation device provided some protection for seabirds during hauling at these times.

Being able to discharge dangerous fish from the hauling station is important for crew safety

Fishers were glad the hauling regulations allow for discharge of live fish from same side as hauling station with a mitigation device. They said that being able to quickly discharge dangerous fish, such as spiny dogs, was important for the crew’s safety.

“As soon as the spiny dog comes up, I dehook it straight out of the side, that gets rid of the hazard. They have spikes on each dorsal fin.”

B. Barriers to following the regulations

As a reminder the relevant regulations for seabird mitigation in relation to hauling are listed below²⁴. This section summarises the key barriers to meeting these regulations.

9. Restriction on Discharge of Offal or Fish While Hauling Bottom Longlines

2. Offal or fish may be discharged during the hauling of bottom longlines, but only from the side of the vessel that is opposite to the side on which the hauling station is located.
4. Despite subclause (2), during the hauling of bottom longlines, —
 - b. Any live fish and those whole dead fish greater than 30cm in (fork) length that can legally be discarded may be discharged on the side of the vessel on which the hauling station is located if a hauling mitigation device is deployed.

Barrier 1: The hauling regulations were not well known and not easily interpreted

Most fishers were not clear on the mitigation regulations regarding discharge during hauling. When reading through them in the interviews, it was hard for them to understand exactly what was required. As well as how it relates to their other legal requirements.

“It’s a little bit confusing aye.”

Most fishers found subclause 9.4b hard to understand. During the interviews, a few fishers worked out that they need to start discharging dead fish under 30 cm from the other side of the boat from the hauling station, even though they had a hauling device in place. Whereas other fishers without a mitigation hauling device, realised they shouldn’t be discharging anything from the hauling side. These fishers were glad to have gained this understanding, in order to change their practices before the cameras are implemented. They were happy to hold their waste in bins, to then discharge when not hauling or to discharge from the other side of the hauling station; these options were seen as easier than discharging from the opposite side of their boat as they were hauling.

“I need to change that. I can change that.”

²⁴ Fisheries (Seabird Mitigation Measures—Bottom Longlines) Circular (No. 2) 2021 (Notice No. MPI 1375)

“The dead small fish can just accumulate in our offal bin, with our baits, shark heads and livers and stuff, and be discarded at the end of the haul with the baits.”

In terms of further misinterpretation, some fishers thought that clause 9.4b stated they weren't able to discharge live fish under 30 cm from the same side of the boat with a hauling mitigation device in place. And then, they were concerned about the survival rate of undersized fish and the impracticality of having to release the fish on the other side of the boat while hauling. It seems the “and” in clause 9.4b of the mitigation regulations created the confusion. It results in some interpreting the rule as: *any live fish [greater than 30 cm] and whole dead fish greater than 30cm.*

“I don't like that the fish has to be over 30 centimetres. Because if you have a snapper less than 25 centimetres (or less than the commercial legal limit) come up on a hook, as a skipper hauling, you just flick that hook out and drop that small snapper back into the ocean and that's just gone, immediately. It has that instant survival rate. So to then pass that fish to my crew to walk around the fishing gear and three and a half metres over to the other side of the boat and duck under the curtain, and for me to basically stop hauling, it's a little bit impractical. And the fish is in the air for a longer period of time.”

Another area of uncertainty in the hauling mitigation regulations was whether offal included bait. That is, fishers were unsure if there was a legal restriction on the discharge of bait as a part of offal.

Barrier 2: Dangerous to not discharge a spikey dog on the same side of the boat

Those without a hauling mitigation device state it is dangerous not to discharge a spikey dog on the same side of the boat, but it's illegal if they don't have a hauling mitigation device installed.

“Spikey dogs swim away straight away. Risk says I won't pick up a spikey dog and walk it or throw it over the other side of the boat. Because [of this scar here] and that's from a young one when I saw trying to dehook it, it still managed to flick around and puncture me. I thought he just nicked it, but he actually punctured it in about 10 mil. It took literally a month to heal. So I just flick them off with a dehooker, and if they've swallowed the hook, I just let them come up to the hauling block and as their nose goes through the block, it just pulls the hook out or breaks the line and they swim away from that.”

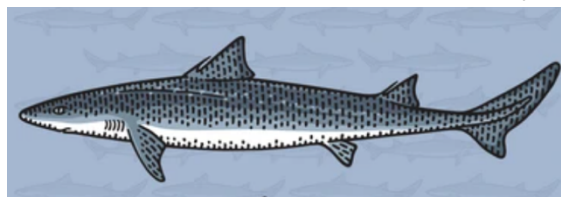


Figure 3: Spikey dog (spiny dogfish) with fine dorsal spikes

Barrier 3: Seabirds don't die when caught while hauling

A higher-level barrier to following the hauling regulations, was that some fishers are just generally not as concerned about seabirds getting caught on the haul, compared to on the set. Given that seabirds are more likely to be alive and released if caught while hauling, but more likely to be dead if caught while setting. They further added that it is relatively easy to unhook a seabird if it does get caught, and it just flies away.

“I don't think using [a hauling mitigation device] will be saving any lives in regard to us. Birds don't die there. I've never seen a bird die from it being hooked. The hook is always just taken out and the bird's let go. And it's not that hard to do. [The priority for mitigation] is on setting. That's when they die. They don't die when you're hauling.”

Barrier 4: No need for hauling mitigation if seabirds aren't around

One fisher was discharging some dead undersized snapper when seabirds weren't around, they held them onboard when there were seabirds around so as not to attract them.

Barrier 5: Best to discharge fish at the hauling station for survivability and sustainability

Some fishers said they prefer to release unwanted fish on their hauling side to get the fish straight back into the water, rather than it die in a bucket or be harmed while moving it to the other side of the boat for release. Furthermore, some stated that they don't catch seabirds on the haul, so they also don't see a need for a hauling mitigation device to release fish on their hauling side.

"If I catch a small fish and it's still alive, I throw it over the side. I don't put it in a bin to die. If it's a small fish that's alive and I'm releasing it, of course I'm gonna throw it back. It's just the right thing to do, isn't it? I know that's against the law, but I'm not going to chuck it in a bin and let the fricken thing die just for the sake of it! That's just stupid isn't it."

Fishers also stated that the seabird mitigation regulations were also in conflict with the regulations for returning undersized fish. They stated that having to move to the other side of the boat to release an undersized fish (e.g. snapper) as per the mitigation standards, was not returning the fish to the sea immediately, as per the regulations for undersized fish.

"The legal requirement is to return undersized fish to sea immediately."

Barrier 6: Not easy to return fish opposite the hauling station

Some fishers commented said that it takes more effort to release fish on the other side of the vessel. It is much easier to flick unwanted fish off the line as they are hauling, so they don't need to handle the fish at all.

With regards to the effort to release fish on the other side of the boat, fishers said it can depend on how many crew there are. It is difficult for the person who is dehooking the line to throw a fish out the other side of the boat. One option is for other crew members behind the skipper (the hauler) to throw the fish to the other side, but this wasn't seen as ideal as dehooking the fish before it came onto the boat. The other option was to put the undersize fish into a bin, to be thrown out the other side of the boat, but fishers were reluctant to do this given it decreases fish's survival rates.

"[For hauling] I'm facing forward and over the side, I don't want to turn around. There's just too much stuff in the way [for me to chuck a fish over the other side]. I've got a dehooker, so you dehook the fish straight back over the side or the fish is dehooked straight into a bin. So I'm not touching the fish, I'm not grabbing a hold of the fish, I'm not throwing it over the side with my hand. And to try and flick a fish right over the other side of the boat, half the time the fish would hit the haulers or the deck or something; instead of surviving it's probably going to die."

One snapper fisher agreed they could discard some fish species on the other side of the vessel, but it takes more effort, so their preference was to look at installing a mitigation hauling device. Some boats could not do this as they had barriers to installing a mitigation hauling device (see barrier below).

Note: There was one deepwater fisher who said he found it easy to discharge their non-quota species from the opposite side the hauling station.

Barrier 7: Live fish do not attract seabirds when snapper fishing

For snapper fishers, a barrier to discharging fish away from the hauling side (without a mitigation device) was that the return of live fish was not seen to attract seabirds, especially compared to the discharge of baits or offal. For example, one fisher said that muttonbirds don't even look at the types of fish they discard. They felt that would be more relevant for fishers in high albatross areas.

“Live fish don't attract birds when you throw them back, but bait is the big one. If you start throwing over a bit of bait, bang, they will turn up dam quick.”

Some snapper fishers said they could throw undersized fish off the other side of the boat, but they don't understand the reason for this given the seabirds that are around their boats don't go for the small snapper. They said an albatross would go for a snapper, but the albatross are rarely around their snapper boats.

“The little snapper that are alive, go straight down anyway. They don't hang around. And the shearwaters won't touch them. All the smaller seabirds won't touch them. It's only albatross. And if the albatross are around, I suppose the deck hands could just chuck them over the other side. The deck hands stand right behind me.”

One fisher commented that albatross will chase a live gurnard if it falls off the line. But the snapper fishers said don't see many albatross compared to those who fish further out.

Barrier 8: Discharging a few dead snapper does not create a high risk for seabirds

One fisher stated that discarding undersized dead snapper was not a contributor to seabird captures, unlike the discharge of bait. That the occasional dead snapper they discarded was not enough to attract a lot of seabirds or provide a high-risk scenario for seabirds.

“If you get little snapper that are floating, they're not really a problem. For the odd small fish, 50% of them go straight back down. And the ones that are floating, the birds just peck away at them. We're not getting enough of them to create a burley trail, so to speak. Not like if you had baits coming up on the line and you were just biffing them over the back, as you went all the time, then the birds would just hang around. So if you retain your bait and there's no real offal going over except a few sub-MLS fish, that's not much.”

Barrier 9: Can't discharge from the opposite side from the hauling station

A few fishers are not able to discharge opposite to the hauling station because that part of the boat is covered in. So, they discharge over the stern from the belt or table.

Barrier 10: Installing a tailored hauling mitigation device takes money and effort

For some fishers it wasn't easy to install a hauling mitigation device on their vessel. For example, some vessels didn't have an obvious place to attach it to, whereas others could more easily attach it to a roof or something similar.

For one fisher a curtain style hauling mitigation device was seen as impractical to install on his small vessel (under 10 metres), so as an alternative option for a mitigation device he was looking to design and deploy a continuous sprayer using water from the boat's deck hose. However, at the moment he didn't want to spend the money on it.

Barrier 11: Hauling mitigation device seen to increase risk of tangles

Although fishers aren't required to install a hauling mitigation device, they are allowed to discharge certain fish directly from the line with such a device in place. However, some were reluctant to install a hanging hauling mitigation device, because they felt it would create tangles with the main line.

"For a boat like mine... it would just be a shambles. It's something else to get tangled up in. I can see issues with trying to put a curtain around the side of the boat."

As an option to remove the risks of tangles, a continuous sprayer wasn't seen as a solution for a hauling mitigation device for some fishers, due to the limited power on the boat.

"[A sprayer] just wouldn't work on my vessel. Because I've got a deck hose and if that's turned on the hauler doesn't work, because my hydraulics aren't grunty enough to run two hydraulic systems at once. Not without about several thousand dollars to upgrade the hydraulics."

Barrier 12: Hauling mitigation device seen as unnecessary if hauling fast and efficiently

Some fishers were reluctant to install a hauling mitigation device, because they don't have a concern about seabirds getting to their hauled line. With their low concern due to their line coming straight up out of the water due to heavy weights, and good, fast and experienced hauling. They commented that if an experienced person is leading hauling, the line comes straight out of the water²⁵ and the seabirds don't get a chance to come near it.

"I don't need one, because I don't have a problem. If I had a problem, I'd have something hanging out there. When we are hauling our line comes straight up. It's straight below me. And because I'm quite good at what I do. I'm sitting right on top of the line; I'm not letting myself get off it."

Barrier 13: Hauling mitigation device seen as unnecessary if not catching seabirds while hauling

Some fishers felt that it was unnecessary to install a hauling mitigation device, given they had never caught a seabird while hauling or it rarely happens, and they have other mitigation options while hauling when needed.

"[My DOC liaison officer] has told me about hauling mitigation. And I was looking at it and seeing what possibilities there were. But to make something come in there, when you're not actually catching birds at that point in the whole set up, it's like... 'why should I have to do that if I'm not catching a bird there?' If I was catching birds when I was setting, definitely, but the tori line's stopped that. So trying to stop something that's not started, like I'm not catching birds at that point of the process, that would start getting my hackles up and I'd go, 'Why do I have to do that, when I'm not actually catching birds there, I've

²⁵ Note: some fishers said that their hauling line comes out of the water on an angle due to the tide.

had observers on the boat, you've had cameras on the boat, you've seen that I don't catch them there, don't make me do something stupid.”

“We don't really have any mitigation at hauling. But it's pretty rare that we hook a bird while we are hauling. Sometimes we'll spray them with a deck hose if they're getting a little bit excitable. We probably could have [a hauling mitigation device] but like, we only occasionally hook one in the mouth, and I'll just grab it and just pop the hook out in five seconds, and it flies away and it's happy as. We just try not to throw bait over, around the hauling area, so there's no offal around us when we're hauling.”

C. Compliance and barriers to non-regulation mitigation standards

Below are some of the non-regulatory recommended practices from the mitigation standards in relation to hauling.

Mitigation standards (non-regulation)

- Retain all used bait on board until hauling has finished.
- Offal/ dead fish discharge (if required) should be at no less than 30-minute intervals.
- Haul as quickly as practicable.
- Actively deter seabirds approaching hauled hooks e.g. using low pressure sprayers, sound (e.g. banging a gaff against the superstructure), hauling mitigation devices or vessel manoeuvres.
- If breaks are taken during hauling, all hooks must remain below 10 metres.
- Maintain a secondary system that prevents fish waste being lost to the deck from being lost overboard. Examples of such secondary systems include equipment to minimise the volume of fish waste lost to the deck and the use of gratings or trap systems to reduce the volume of fish waste discharged through scuppers (whilst still allowing the free movement and egress of water).

Bait retention is one of the best seabird mitigation practices for hauling — and it's easy to do

Many fishers agreed that retaining baits on board, is one of the best seabird mitigation practices while hauling. They commented that they have found that retaining baits is much more effective for mitigating seabirds, compared to retaining fish on the hauling side (as legally required in the regulations). Furthermore, if they don't throw baits overboard while hauling there are generally less seabirds around, but if the crew start “getting casual” and throwing baits over they will start seeing seabirds turning up and then they'll stay around for the day if baits continue to be thrown.

“Say you're having a slow day and you're getting baits back, if you're throwing every single bait over that you get back, the birds will sit there and fight over every single one. But if there's nothing going over the side, they're not going to sit there and hang out all day, they'll go find food somewhere. It does definitely make a difference. It's as clear as day.”

Fishers also commented that releasing of baits while hauling, can create frenzied behaviour amongst the seabirds, which can then result in seabirds diving for baits and ignoring the mitigation in place.

Many fishers weren't throwing baits or offal overboard while hauling in order to have the best chance of keeping seabirds away from the vessel. They also said that it is a relatively easy process to retain any baits onboard by just throwing it into a bin.

“We do it all the time. We got the boys on to that this summer and they’ve just continued doing it.”

“The less you encourage birds to come around, the less you will have. So we don’t throw anything over the side until we’ve got all our gear onboard. All baits and everything are kept until the end of the day. We catch sharks, and head and gut them and throw it in a bin. We just don’t encourage them to come around.”

“We keep all our baits when we are hauling. We put them all in a bin, so we are not feeding the birds beside the boat.”

In terms of when fishers were discharging bulk baits, when there were many seabirds around (e.g. in the peak seabird season in summer), most were keeping everything on board until the end of all hauling. This would change if they had a significant break (e.g. if they “buoyed off”) or if there weren’t many/any seabirds around they either discharge at the floats, or if hauling shorter multiple lines, discharge after they pull up the end weights on a line, move to the start of the next line, leaving the seabirds well behind them.

Retaining baits also reduces seabird noise

Some fishers say they have never caught a seabird while hauling and see hauling as pretty low risk for seabirds, but they retain their baits (and for some retain everything) during hauling to reduce the noise from seabirds.

“Retaining the bait on board stops the bloody noise. A whole lot of birds around the boat, making a noise, is a pain.”

“The birds are annoying if they are around all day. They squawk all day and make a racket. It’s better without them there.”

Some fishers are not holding all their baits while hauling, but are willing to

Some fishers are not holding all their baits while hauling as they feel there is not much risk to seabirds during hauling. However, on thinking about it, some feel they should focus more on this to ensure no baits go over while they are hauling, because it makes a difference to the number of seabirds around the boat.

Barrier 14: Some fishers flick baits from line as a habit

A few deepwater fishers weren’t holding their baits while hauling out of habit. They explained “it’s like a muscle instinct” and “it’s quite hard for me not to do it”.

Unlike most others, they did not see releasing baits while hauling as an issue for seabirds. These fishers commented that there is little risk for seabirds getting hooked as they are hauling straight up and down and doing so very quickly. They also noted that they flick the bait out, away from the line and the vessel, so any seabirds are only going for baits that are flicked away from the line. One fisher said that they had not caught a seabird on any baits while hauling in the last 5–10 years. Another fisher said that seabirds did get hooked on the very rare occasion, but they just carefully unhook the seabirds and they fly away.

These fishers had found that offal created more of a frenzy amongst the seabirds, and not so much their baits²⁶.

“When the birds go nuts, is when you cut a shark open, and they get shark liver. That’s when all the petrels and the rest all just go crazy! That’s when the big feeding frenzy is. They’re not that fussed about the baits. I really don’t feel [flicking baits out] adds risk to hooking a bird. If I did, I wouldn’t do it.”

One fisher agreed that it is rare to hook a seabird on hauling, so could understand why some don’t think there is too much risk to the seabirds. But he also felt that sometimes the seabirds might go for a bait and so it is better that seabirds are just not around the vessel.

Barrier 15: Some fishers prefer to discharge baits in batches

Fishers also felt that it should be okay to discharge baits in batches. So, the mitigation standard could read something like “Retain all bait on board until hauling has finished, or discharge in batches if needed”.

Barrier 16: Holding baits can cause seabirds to go for baits on the line

One fisher holds their baits while hauling, but feels that can cause seabirds to attack the line. So, he said that sometimes it’s better to just throw some bait to keep them away from the line.

“We batch dump our baits, but sometimes I find the birds actually get hungrier when you do that. And so, because they’re so hungry, they start trying to attack the line. So if they are attacking the line, we’ll just throw bait the opposite way to the line, as it comes off. Sometimes you’re better off just to feed them and then they just sit there happy. But it just depends what they’re doing on the day really. If they are hungry, they’re hungry, so feed them, and if they’re not hungry, they just hang around anyway.”

Barrier 17: For emergency situations, throwing bait was also seen as an important mitigation practice to avoid seabird captures

Fishers were using a range of tactics to protect seabirds from a baited hook when a snood accidentally went overboard, including using sound, water, waving arms, and also throwing bait²⁷.

Some commented that although throwing bait might not be ideal in relation to government requirements, but it was a pertinent and quick way to save a seabird in times of emergency.

“I have noticed there could be more done around hauling mitigation. We call it ‘throw bait’. Because if you’re not onto it, then nine times out of 10, a seabird will fly away with that hook in its mouth or worse in its throat with a string and a clip. So what we do is, you’re meant to discard all your baits on the opposite side that you haul and that’s great, but we keep a big pile of bait on the table and as soon as someone spots a snood’s been flicked off... like we’re really cautious of it happening, but we’re handling 5,000 hooks a day so it does happen... and we just say ‘throw bait’ and everyone just grabs a handful and you just hiff it out wide and the group of birds that are right next to the boat fly immediately out

²⁶ Researcher note: This may be due to the different baits used by these deepwater fishers.

²⁷ “Throwing bait” is also discussed in sections 2.1 on the high-risk times for seabird captures and 2.2 on fishers’ views of the more effective mitigation practices.

wide and start gobbling all the bait. It's a very, very successful method. And I don't know if that's a thing amongst other boats, but I think it should be brought to fishers' attention."

In terms of frequency, one fisher commented that he yells to his crew to "throw bait" approximately once a fortnight — sometimes less and sometimes more. Another thought that this strategy should be shared with others as a strategy to use when a snood or hook is lost over the side of the boat, to distract the seabirds and stop it swallowing a hook.

There were mixed views as to whether it was illegal to "throw bait". The regulations relate to the discharge of offal on the haul side and some thought offal would include bait. But fishers strongly felt that if they could save a seabird's life, it was important to do.

"I suspect throwing bait is a grey area, but you're throwing the baits into the water to distract that bird, to take that bait rather than take the hook. Because the hook's not attached to the line anymore, it's just sinking slowly down the side of the boat depending on how fast I'm going. I do my utmost to not drop clips in the water, but it's the last resort to chuck the bait in the water even though we're not meant to discharge any bait into the water."

*"It's against the law, because you're discarding bait on the haul side. But we say f*ck it, like, you're going to save a life. You're absolutely going to save a seabird's life by doing that. Because as soon as they go to roost or to breed, he's gonna be hooked up immediately and die a terrible, terrible death. But I would really like to see something come out about that. It can be easily fixed; you just have a container or something on your table. And then again, that all boils down to your frame of mind, if you don't care, you're not going to go to that effort. But we do everything we can."*

Fishers also felt that there should be allowance in the regulations and other documentation for throwing bait in emergency situations to save a seabird. So that act is allowable in the mitigation standards, and they are not penalised for it.

"It should be black and white. It should say something like 'At most times discharge bait in batches, but if you need to avoid a bird capture, you can throw a bait in a different direction to distract it'. Maybe something like that."

The timing for discharging of offal was mostly meeting the mitigation standards

In regard to the mitigation standard that states offal/fish discharge (if required) should be at no less than 30-minute intervals, some fishers were discharging offal when they took a break from hauling (at more than 30-minute intervals) or others were doing so at the end of a set.

In both situations hooks were not being hauled up at the time, so it was seen as a safe practice for seabirds.

"The only fish we gut is a shark and that's done after the line's hauled."

"We get it all over in one hit when we are finished and that's the only discharge we do."

One snapper fisher discards offal/fish at their mid floats, but thought that this happened more like every 20–30 minutes.

Fishers agreed that it made sense to haul as quickly as practicable to avoid seabirds

Some fishers agreed that efficiency and speed was one of the best ways to reduce the risks to seabirds while hauling.

“A lot of the time, [avoiding seabirds] is based on speed. If you can keep that line moving, any baits that are coming back, are coming on board that quick the birds haven’t got a chance.”

All fishers agreed that they haul as quickly as practicable. Those in fishing over rough seabeds said they hauled fast to avoid snags.

“We do already haul very quickly because the quicker we can get our gear off the bottom, the less snags. If you sit there hauling slow, you drag your line around on the bottom and snag it. So you’re trying to haul it as quick as you possibly can.”

Some fishers commented that they liked the use of the word ‘practicable’ in the mitigation standard, because they can only haul a certain speed and keep things in control.

However, others commented that it would be dangerous to try and haul any faster than what they were doing, and another fisher said it would be dangerous to tell his crew to do so.

“If that was on a piece of paper and I was showing that to one of my skippers to do that, I wouldn’t say that, because that’s just dangerous. I just worry about human life first, so it’s best to haul to your own safety. So I wouldn’t say that. It’s not good.”

One fisher commented that it was easier to haul faster in shallower water than in deeper water.

“If you’re in shallow water you can haul faster; if you’re in deepwater, like, over 100 metres you’ve got to slow it down, because you’ll just snap your line, because of all the extra weight that we have to put on.”

Most fishers said they actively deter seabirds approaching hauled hooks via various means

In terms of methods to actively deter seabirds approaching hauled hooks, fishers felt different methods are used for different circumstances, depending on what was available on board and how close the seabirds were to the hooks, and then just their personal preference.

Some fishers agreed sound was a good option to keep seabirds away, either banging or yelling. However, others didn’t use sound as they felt it doesn’t always distract seabirds, especially hungry albatross. They felt something loud like an air horn might work better, but that could give the crew a fright and they could knock their heads or hurt themselves, so that wasn’t very practical.

Some fishers felt water spray was a good option and used this when needed (for the boats that could run a deck hose, some can’t while running their hauler). Some who can’t use a hose, instead throw a bucket of water.

“Sometimes they come in, I might have 10 or 12 of them, so I’ll just spray my hose because they don’t like getting wet and it keeps them away.”

“Sometimes we’ll spray them with a deck hose if they’re getting a little bit excitable.”

Likewise, hauling mitigation devices were favourable, if one was able to be installed on the boat and was seen as necessary.

In addition to the suggestions in the mitigation standards, fishers were also throwing bait to actively deter seabirds from approaching hauled hooks. A few were using this as a general practice and others for emergency situations only.

Likewise, some fishers occasionally throw offal over the other side of the boat to distract the seabirds from the hauled line.

Some fishers also use broomsticks with streamers taped onto the end to keep seabirds away while hauling, and they felt this worked quite well “a bit like a wand”.

Vessel manoeuvres while hauling (as suggested in the mitigation standards) were seen as less favourable, because with bottom longlining they need to keep their vessel directly over the line while hauling. Also, those on larger vessels, felt it wasn’t practical to use boat manoeuvres (on a boat over 20 metres), as a method for deterring seabirds while hauling.

“Vessel manoeuvres... no, you’re not doing that. You can’t just manoeuvre the boat; it doesn’t just work like that.”

One fisher commented that they didn’t need to “actively deter seabirds approaching hauled hooks”, because they haul fast enough to avoid seabirds.

“The birds are there, but if you are hauling the gear quick enough, they don’t get a chance to bite the hooks. So that doesn’t really apply to us. You’ve gotta be hauling pretty bloody slow for a bird to have a chance to grab a hook.”

Fishers had no issues with keeping hooks below 10 metres when breaks are taken during hauling

Fishers felt that this mitigation standard made good sense and it was easy enough to keep their hooks below 10 metres when breaks were taken.

Some fishers said they don’t take breaks during hauling, because they only have short lines so it doesn’t take long (e.g. 45 minutes per line), and/or for those setting on the rough, they would lose their line if they took a break, or for longer hauls (e.g. three hours) they just prefer to get the job done or “to get it over and done with”.

Some fishers said they do take breaks sometimes during hauling and they keep their hooks well down over this time. One fisher explained that in term of sinking hooks below 10 metres during breaks, he sinks his line back to the bottom, with a blank line back to the surface so there is no gear near the surface.

Barrier 18: Fishers weren’t sure what would be done in terms of “maintaining a secondary system to prevent fish waste being lost to the deck and through scuppers” — and didn’t think it was necessary

It was not obvious to fishers what the “secondary system” referred to in the mitigation standards would be. One fisher wondered if it meant having nets around the table/belt.

“What is that? What is that system? Ummm, I don’t know what that is.”

The suggestion of using gratings or trap systems to reduce the volume of fish waste discharged through scuppers was deemed a huge safety risk. Fishers also thought that it was probably illegal because it could stop water leaving the boat in rough weather.

"I don't know a way to do that [or if it's needed]. Like, baits will fall off the tables, but fish don't get lost to the deck, they just get put straight in the slurry. The only thing I can think of is lockable scuppers, but I don't think that's legal. [Even with a fine grill] any time you are blocking scuppers is pretty risky; say the bait blocks it and you take on a lot of water at once, that's getting pretty close to a safety hazard I would say."

"You can't go there with the scuppers; you're starting to mess around with vessel stability. So nah, you just retain what you can, and if a bit of bait goes out the scupper, a bit of bait goes out the scupper. You can't and don't want to muck around with them. It's 100% a safety thing, because if someone drops a bit of bait, and even if all those little baits pressed against, say a wire mesh, and then you take a big wave, that can potentially stop ports getting freed and then you can get... yeah that's no good. So now we're putting a bird life in front of a human life."

Most fishers stated that they have no fish waste being lost to the deck that would require a secondary system, because they are only dealing with whole fish while they are hauling. Some had their bins underneath the table, so waste didn't end up on the floor.

"When we're snapper longlining, we have no waste or anything going over the side anyway, because all the fish are whole going into the slurries. We used to have an extra crew that used to trunk out as we're hauling, but we don't do that now, as all the shark goes straight into slurries whole, and then we trunk them out once we finish hauling so we don't have to worry about that. None of that stuff is done while we are hauling now."

"That really doesn't apply to us. Every fish I grab and spike, goes in the bin."

"We don't lose fish waste to the deck; no we don't have that problem. The fish bin is underneath the tables, so everything just gets thrown in underneath the table. It's not like you can miss or anything."

Some snapper fishers noted that a small amount of bait does fall off their belts or tables onto the deck and can then be washed out the scuppers, but given it was a small amount they didn't think this was needed. That is, losing a small amount of baits through scuppers was not contributing to seabird captures. They also noted that no fish or offal was going out the scuppers, as fish was either kept or fish/offal was thrown over the side.

"There's a little bit of bait here and there that falls on the ground from the belt and then might wash out through the scuppers. No offal goes out. But because it's such a small amount [the birds] don't go too stupid."

2.5.6 Deck landings and vessel impacts

Compliance and barriers to non-regulation mitigation standards

Below are some of the non-regulatory recommended practices from the mitigation standards in relation to deck landings and vessel impacts.

Mitigation standards (non-regulation)
Minimise risk of deck landings or vessel impacts. <ul style="list-style-type: none">• Minimise all deck lighting (including outward facing lights) that is not necessary for ship or crew safety, especially when the vessel is sheltering or anchored near seabird breeding colonies.• Clean the deck and fish waste handling equipment (such as fish bins) regularly, so that excess fish waste is removed.

Fishers didn't see deck landings as a risk for seabirds and vessel impacts were uncommon

Fishers stated seabirds crashing into their boats was not an issue, it doesn't really happen. Some noted that some seabirds might occasionally fall from the sky if they wind suddenly changed, but the seabirds just land on the vessel.

"I don't have a lot of birds crashing into the boat. The only place I've seen that is down south, on the Auckland Islands, the Chatham islands. Down there, there is just that many birds that they are crashing into the boats. It's horrendous, but we don't get that up here. That's a Southern Ocean thing from my experience. I've never seen that on long liners. Well not in the Bay of Plenty. I've never seen birds crashing into the boat and killing themselves except at the Auckland Islands."

Likewise, they didn't see deck landings as a risk for seabirds. Fishers said they do have birds land on their boats to rest, but there is little risk for the seabird while they are doing this.

"The odd little bird might land one day and have a rest for a day and fly away."

Most fishers were minimising deck lighting

Most fishers said they minimise their deck lighting so as not to attract seabirds. They agreed that this is a good thing to do to avoid seabirds coming in towards the vessel.

"I don't travel with my lights on or anything. If you travel with your lights on when they're hungry they might start following you. Unless we're working on deck, we keep the lights off and then turn them on when we're ready to set up and go."

"We haven't got bugger-all outward facing lights. It's all focused on the deck, so yeah, we comply to that as good as we can, while having the appropriate amount of deck lighting for health and safety."

"And at higher risk times I'll reduce the lighting significantly and do the 'flick-on, flick-off' of the spotlight. You know, after every surface float has gone out or to check for bird activity, and stuff like that."

“If there's a lot of birds around, you just don't put a lot of light on, you make sure your light is shining down on the boat, not out into Neverland.”

“We have no flood lights, so it's all in the dark with no light coming off the boat.”

“That's smart. We do that. We just run one set of lights over the setting station in the morning. We turn on our anchor floods to haul our anchor up, and then I make sure they turn it straight off when they come inside. I definitely think that's one.”

“Definitely, that's just all common sense. So yeah, you just minimise it as much as you can.”

All fishers said they were cleaning the deck and equipment regularly

Fishers stated they regularly clean down the vessel, because having a clean deck and equipment was also important for health and safety e.g. so things weren't slippery, and because they like to have a clean boat without the smell of old fish.

“It gets scrubbed every night, after every job pretty much. So our boat is pretty clean.”

“We do that anyway. Our boat's spotless so we don't have problems there. So I'm just used to that. I don't know what it's like having a dirty boat. We don't operate like that. Fishing boats can get smelly if they're not tidy.”

“No one likes a dirty boat. We clean the boat down every day. Every day. It's one of our big things on our boat — it's kept immaculate and clean. Cause it stinks if you don't and looks nice when it's done.”

One fisher explained that as part of keeping the deck clean, they retain their baits while they were actively hauling (i.e. in between each float) and then discharged the baits at the end of each section of the line (at the floats). A section of the line takes about 40 minutes to an hour to haul, so they like to stop at the float and get everything clean and “squared up” and go again, so it doesn't create a “big mess”.

One fisher said their deck didn't get “excess fish waste” on the boat and therefore extra mess, because they didn't gut fish on the boat.

“I guess that would be happening if you're catching a lot of sharks or gutting your fish. [For us] the fish come up, it gets spiked, it gets bleed and then it goes into a slurry. In 15 seconds it's in a chilly bin.”

Suggested use of red anchor lights over white — to minimise seabird impacts

One fisher suggested it's better to have a red anchor light to minimise seabird vessel impacts — as white anchor lights can cause seabirds to crash into the vessel. Others said they don't have issues with their small white anchor lights, but they didn't actively fish near the main nesting islands.

“If we're in a bay where there's lots of birds and we're anchored up, we run our red flashing light as our anchor light. Because if you put a white anchor light on the birds crash into your boat all night long, but if you put a red light on, they don't. They're only worried about us putting hooks in the water and catching birds, but there would be a million times more birds killed by charter boats, sitting up at Three Kings for instance at night with a white light going. Birds are breaking their necks doing that. I see the biggest

issue for seabirds is any boat that goes to say, the Poor Knights Islands and sits there with a white anchor light going, it's just dumb. I've had multiple recreational fishers at the Kings have a go at us for using a red anchor light, and it's like 'Yeah, well, how many birds do you wake up with on your deck in the morning?' And then they are like 'Oh, I see'."

Almost all had no barriers to reducing deck lighting and keeping deck clean

Fishers didn't raise any barriers to minimising deck lighting or keeping the deck and equipment clean. Fishers noted that these practices were just "common sense" to keep seabirds away and safe.

Barrier: One fisher can't turn their lights off

One fisher said they don't minimise their deck lighting because they can't turn their lights off. Furthermore, they didn't think it would make any difference at night, because seabirds aren't around or at least they don't see them.

2.5.7 Impacted seabirds

Compliance and barriers to non-regulation mitigation standards

Below is a summary of the non-regulatory recommended practices from the mitigation standards in relation to impacted seabirds.

Mitigation standard (non-regulation)		
<ul style="list-style-type: none"> Maximise the chance of survival of any impacted seabirds whilst managing the risk to the crew, by instructing deck crew on safe seabird handling procedures and protocols and ensuring these are adhered to. Where safe seabird handling procedures and protocols include: <table border="1" data-bbox="252 1290 1366 1503"> <thead> <tr> <th>Seabirds</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> Keep the bird calm by covering the head with a cloth. Use two crew if possible; one to support the bird, while the other frees the gear from the bird. Use gloves and eye protection (some birds can inflict a nasty bite). Carefully isolate the tangled snood or hook. Remove the snood or hook while holding the bird firmly. Once freed, place the bird gently back into the water. If the bird is waterlogged keep it in a safe place, such as an empty fish case, until it has recovered. Refer to the DOC Handling and Release Guide for further diagrams and instructions. </td> </tr> </tbody> </table> 	Seabirds	<ul style="list-style-type: none"> Keep the bird calm by covering the head with a cloth. Use two crew if possible; one to support the bird, while the other frees the gear from the bird. Use gloves and eye protection (some birds can inflict a nasty bite). Carefully isolate the tangled snood or hook. Remove the snood or hook while holding the bird firmly. Once freed, place the bird gently back into the water. If the bird is waterlogged keep it in a safe place, such as an empty fish case, until it has recovered. Refer to the DOC Handling and Release Guide for further diagrams and instructions.
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Fishers agreed it's important to maximise the survival of impacted seabirds

All fishers strongly agreed with the need to maximise the chance of survival of any impacted seabirds whilst managing the risk to the crew. They stated that otherwise it would just be cruelty. Most skippers were quite stanch about treating seabirds with care.

"I'd kick my crew's arse if they did anything untoward to a bird. We haven't had any situations like this, only in the harbour when recreational fishers have caught seabirds."

Most fishers had seen the DOC Handling and Release Guide — but don't refer to it often

Most fishers had seen the DOC Handling and Release Guide. Whereas a few couldn't recall it, but felt it was what they would do anyway.

Fishers said they don't refer to the guide very often, as they feel they know what they need to do if they catch a seabird. Some had only looked it at when shown to them by their DOC liaison officer.

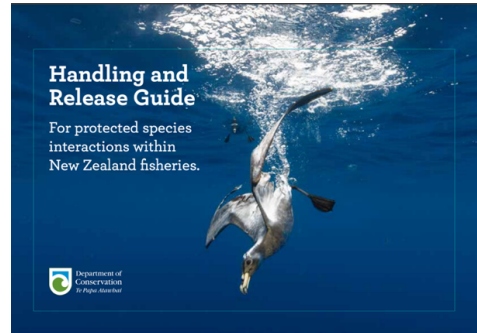


Figure 4: DOC Handling and Release Guide

“I can honestly say I don't read them. But if I did catch something, I would be very careful about things. We're not killers for the sake of killing.”

Despite not being referred to often, some fishers did comment that it is good to have the guides on the boat, either to show people or to have it handy.

“It's all pretty straight forward, when you've been doing it for 15 years, you know what you're doing. See it once when you're young fella and you get the picture. But it is good to have on the boat just to show people or just have it handy. They're handy.”

The ACAP poster seemed less relevant to bottom longline fishers

Only some fishers remembered seeing the ACAP poster about hook removal. Some did not feel it was so relevant to them as they do not see or catch albatross while fishing.

“The pictures they are using here are albatross, this is not me. My birds are a little wee brown one [sooty shearwater], much smaller than the one he is holding at point 5.”

“Most of that relates to tuna longliners by the looks of it, because of the albatross — we just don't catch them. If we catch a bird, it's going to be one of those little shearwaters or something like that.”

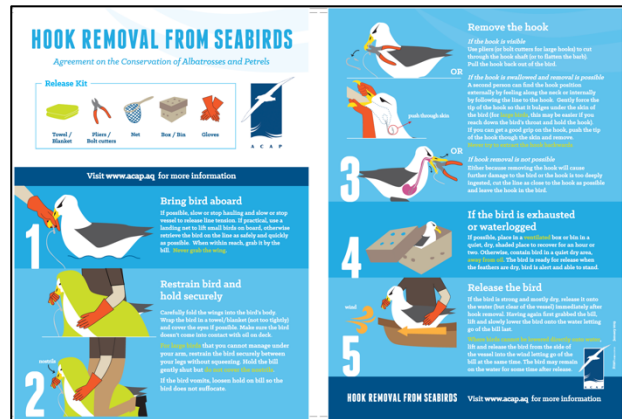


Figure 5: APAC's guide on Hook Removal from Seabirds

Fishers knew to use a towel if needed and how to carefully remove hooks

Most fishers mentioned using a towel to handle a seabird and all were very conscious of not hurting the seabird when removing the hook.

“You need to treat them pretty gently. Pull its wings under and just hold it tight. Get someone to hold the beak. And try to get the hook out. Try and be as nice as you can. It’d be me doing it.”

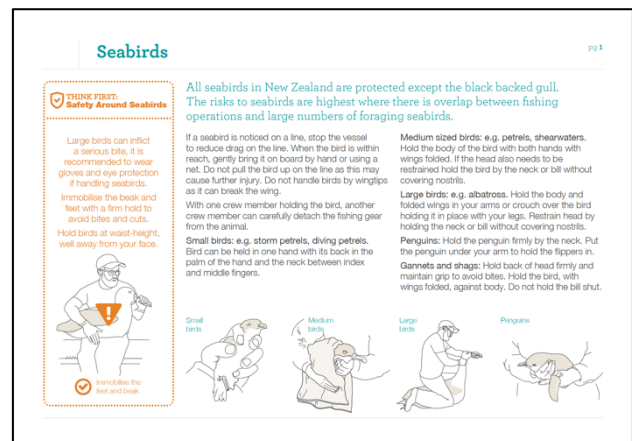


Figure 6: An instructional page from DOC Handling and Release Guide

“I have caught a black-backed gull [while hauling], it hooked itself in the wing, so I just brought him up, grabbed a towel and wrapped it round him and just unhooked it out of his wing and just let him go.”

“You drop a towel over it, push the hook out and off he goes. It’s the easiest way not to hurt it. I know how to work my hooks, if I got one in me, I’d get it out the same way for the bird as I get it out of me.”

Fishers noted that they are very aware of how to remove hooks, because they need to know this if they or their crew get hooked. Some also stated that they regularly remove hooks from seabirds for recreational fishers.

“We know what to do [with hooked birds], we do enough of them at the wharf for the kids fishing off there. The kids catch the cormorants left, right and centre. But those poor buggers swallow the whole hook down.”

Some skippers and their crew had experience handling black petrels though a DOC tagging programme. From taking part in this tagging programme, these skippers felt confident in handling small seabirds, including being careful with their delicate necks and wing bones.

“So we know how to handle them gently and look after them. We get the hook out as quickly as possible. Not getting bitten, not getting scratched, and with as less harm to the bird as possible. You’ve got to be careful as they’ve got quite delicate necks, you don’t want too many feathers coming off, or to snap any wing bones and that sort of thing. So we’re quite careful.”

It’s easier to snip the nylon to remove the hook, rather than use tools

One fisher suggested that it’s easier to snip the nylon and pull the hook through to remove a hook, rather than use pliers or snips as suggested in the DOC Handling and Release Guide.

Barrier 1: No need to instruct deck crew

Some skippers hadn’t taken their crew through the DOC handling and release guide because they would be handling the seabird, not their crew.

“[The crew] wouldn’t be touching it, because I do all the hauling. So that’s on me.”

All skippers said that they take lead on managing a hooked seabird while hauling (i.e. they don’t hand it over to crew); they feel it is their responsibility. Although sometimes, if they have an experienced crew member on board, the skipper may keep hauling while a crew member helped the seabird. Fishers mentioned that some of the crew are “petrified” of seabirds and won’t touch them.

“Normally, if we do have a capture, the skipper is normally the guy at the hauling station, he’s the first person to come in contact with it. It’s very rarely a crew would come into contact with a bird on a hook anyway. I would normally just do it myself.”

“Usually I’d deal with it and it’s usually a two-man effort, one person holds the bird, one person dehooks it. But we don’t catch birds. In our area we haven’t had to deal with that.”

Barrier 2: Fishers disagreed with “placing the seabird gently back into the water”

Most fishers said that seabirds just fly away after they are released and it didn’t make sense to try to “place the bird gently back into the water” (as noted in the operational procedures), or if it doesn’t fly off (as noted in the DOC Handling and Release Guide).

If a seabird wasn’t ready to fly off, fishers said they would just let a seabird sit quietly or “cruise about the boat” until it was happy to fly off, rather than placing it on the water.

Fishers also noted that they’d do the same if a seabird’s feathers were waterlogged.

“The waterlogged part’s quite true. You’ve just got to let them chill out and dry out in a nice safe spot and then release them.”

One fisher thought that maybe the “placing the seabird on the water” instruction applied to larger birds, rather than the smaller birds in their fishing areas.

“Maybe it’s different for albatross, but there is no way you are going to have a muttonbird sit peacefully on the water while it gets over a hook experience, he’s gone!”

2.6 Drivers & barriers to other recommended mitigation measures

As well as the seabird mitigation measures covered in the regulations and mitigation standards, there are also other recommended measures in the FINZ operational procedures and in the DOC PSRMP. Some of these other measures were also discussed with fishers in the interviews to get their thoughts and any barriers to these.

2.6.1 Responses to other setting recommendations

Below are some of the other recommended practices for seabird mitigation while setting that were also discussed with fishers.

From FINZ's operational procedures
Avoid setting: <ul style="list-style-type: none">• in the day to reduce visibility of gear to seabirds• on a full moon and 3 days either side when possible• when large numbers of birds are present• if close to nesting areas While setting: <ul style="list-style-type: none">• add another streamer line in high-risk periods and areas
From DOC's Protected Species Risk Management Plan
<ul style="list-style-type: none">• Use 'stop-setting' thresholds (e.g. 'when x happens we'll stop setting until y')

Below is a summary of how fishers responded to each of these other recommended practices, including whether they agreed with the practice and any barriers to doing so.

Fishers liked the use of the term “avoid”, rather than “don’t”

In the recommendations in the operational procedures, fishers liked the use of the term “avoid”, rather than using a term like “don’t”.

“It’s good they are saying ‘avoid setting’, rather than you ‘can’t set’. ‘Avoid’ makes sense, if you know they are there, then avoid it.”

Some fishers set at night — as the best way to mitigate against seabird captures

All fishers agreed that setting at night (i.e. “avoid setting in the day”) was one of the best ways to mitigate seabird captures. For this reason and others, some fishers only set at night.

“The night is still the best [to avoid seabird captures]. We try and get our gear in before that first light, sort-of, crack the hill.”

Some fishers are setting at night because it was better for their fishing. A couple of snapper fisher set in the early hours of the morning (so their line was in just before daylight — just before the change of light), because they found they caught more fish, and avoided lice (and other organisms) that attacked the bait. These fishers are “under pressure” to get their lines in the water at their ideal hours of darkness²⁸. One hapuku fisher set at night because he

²⁸ For one fisher, setting takes approximately two to four hours. For smaller boats, it takes around half an hour to 45 minutes.

could catch more hāpuka over the length of his gear (i.e. because the hāpuka spread out at night but clump into schools in the day).

Some fishers set in the night if there were a lot of seabirds in the day, and then would switch to day setting when there were less seabirds around.

“Occasionally we’ll do day sets but it depends on what’s happening with the birds. Essentially when the birds are really active, we’ll not do much setting during the day. Or we’ll go to have a go at it and like in more recent times, I’ll pull the pin because there’s too many birds around.”

Barrier 1: Some fishers set in the day — for different reasons

Some fishers acknowledged night setting was best, but set in the day for other reasons. For example, some snapper fishers preferred to set in daylight hours because:

- they catch more fish they set in the day — with some fishers noting that they have started setting more in daylight hours as the snapper seem to be feeding more then
- they are setting for other species in the night hours (e.g. lines for deepwater species are generally set at night)
- they don’t want to leave the port at midnight in order to finish their set before daylight
- they lose too many baits if they set at night
- they catch less bycatch (e.g. spiny dogs) if they set in the day.

“I do probably 80% of my setting in the day now, because I catch more fish. We don’t have the problem with the birds, so I don’t know where that came from.”

*“If you set in the night [for gurnard] all you’re going to catch is spiny dogs; the more light that’s on the water, the less sh*t you catch. You’ve got to set in the day, otherwise you might as well not go to sea, depending on what you’re targeting.”*

“When you’re running four-thousand hooks, it takes you 2.5 to three hours to set it. So I’m not going to start fishing at three o’clock in the morning, to avoid setting in the day, when daylight’s at six o’clock. As that means... if you’ve got 1.5 to two hours to get to your fishing grounds, you’re going to have to leave at midnight. It’s not practical.”

“If you shoot in the dark that certainly helps, cause the birds aren’t around. But we’ve stopped shooting in the dark, because a lot of the bait just gets striped, because of the crabs and little fish that are around avoiding the big predators. So we wait till the sun’s up and then shoot the gear, which does bring in more birds, but we still haven’t caught a bird and that’s hand on heart.”

Fishers that set in the day felt they had enough seabird mitigation to do so with their tori line, heavy weights, and other mitigation practices.

Some fishers avoid the full moon because the fishing is not as good

A few fishers avoid setting during a full moon because the fishing is not as good.

“Our fishing is very fickle over the full moon. It goes really weird, so that’s when I try to have a couple of days off anyway.”

Some hāpuka fishers don’t fish over the full moon, as they prefer to fish during small tides (and small tides don’t happen during the full moon).

Barrier 2: Some fishers felt it wasn't practical or necessary to avoid setting three days either side of the full moon — they felt this was more relevant to surface longliners

No fishers said that they avoid fishing during a full moon to reduce the risk of seabird captures.

Some fishers stated it was impractical to not fish over the full moon period. Firstly, because their catch is better over the full moon. Secondly, because it wasn't practical to not fish six days in a month when they need to work to weather conditions as well (which also account for lost fishing days).

"The full moon is when you catch the hāpuka, shark, rig."

"We shoot on the moon. There is some good fishing on the moon sometimes."

"It's hard to tell people to avoid setting if that's the best weather."

"It's hard enough to get enough days in every year to fish now. If they start saying you can't fish on three days before the moon, three days after the moon, well that'll be the end of it for me, I'd be just shutting up shop and giving up."

"That isn't really that practical, is it? That's a week off [in a month]. It's not that practical for us. It's not like as soon as there's a full moon there, there's birds all over the line when you set before sunrise. I don't think that's necessary."

Some fishers also commented that they don't have a problem with seabird captures during the full moon, so avoiding the full moon was also not necessary for that reason. They also commented that this recommendation seemed more relevant for surface longline fishing, rather than bottom longlining.

"If you don't have a problem, it doesn't matter. If there was a problem there, yeah, that would be smart. [We don't have a problem there.]"

"I don't think the moon's got anything to play. We've literally never had an issue with birds. So I don't see why the moon makes a difference."

"Who's gonna pay my mortgage for those six days? We don't have a problem. We don't have a problem with moon phases. It's more the surface longliners that have those problems. Not the bottom setters like us. And it's also the best fishing over those days, for all species I find."

One felt there was a higher risk of seabird capture with a full moon, but it was not a significant problem.

"[The full moon] does affect that. Totally. But it's still not a massive problem. I catch a bird every three to four years and it generally would have been over a full moon."

Some fishers felt that the recommendation to avoid fishing three days either side of the full moon, should only apply to areas where there are seabirds that are at high-risk e.g. where there are higher numbers of black petrels.

Barrier 3: Some fishers felt there is low risk for seabirds in the day or on the full moon — if they used their mitigation measures

Some fishers set their lines in the day or during a full moon for more productive fishing, or to make the most of the best weather whether there is a full moon or not. These fishers felt it was safe to set in the day or over a full moon period if they had their tori line and other mitigation measures in place.

“My tori line has me so that I’m not worried. And if I am, then I stop setting.”

Fishers also said they increase their mitigation practices when setting in the day and/or on the moon.

“That becomes part of your high-risk scenario where you’ve basically got to increase your weight. We’ve got a high and low-risk scenario; we basically increase our weight at the higher risk times.”

Some fishers avoid setting if large numbers of seabirds are present

Some fishers agreed with this mitigation standard. They said that if large numbers of seabirds are present in a particular fishing area, they fish somewhere else. As a further example, some mentioned that they avoid setting in daylight in the Gulf and certain islands between September and January when large numbers of seabirds are present.

Barrier 4: Only need to avoid large numbers if seabird behaviour looks risky

Some fishers don’t necessarily avoid setting when large numbers of seabirds are present, given all their mitigation measures being in place. Although, they did also say they stop setting if seabirds start getting too close to the gear at a particular the time. That is, if the seabirds looked really active and they felt their mitigation might not be enough to protect the baits (e.g. with a tori line, extra weighting, etc.).

“We’re trying to fish the bite time, so if there are birds around, it’s all good. But we don’t get a lot of bids down where we are.”

“Why would you have all these mitigation devices and then not set your gear because there’s some birds around?”

One fisher commented that this recommended measure should be reworded, because sometimes the seabirds are there but they are not interested in the fishing gear. The statement is currently worded: “Avoid setting when large numbers of birds are present”.

“[It’s not when they ‘are present’], it’s when they’re diving on the baits, like sometimes I’ll watch them and they’re sort of fluffing around back there, but they’re not really doing anything. Like they just fly in and sit next to the line and sort of look around. I’ll be sitting there watching while we’re setting. Just watching, watching, watching, and it’s like ‘no, they’re not diving on the baits, they’re getting scared away by the tori line before they even get anywhere near it, everything’s okay here.’ And then sometimes if they get a little bit more excited, you make a call, and we’ll go to a weight every card. And then if it gets too much, we just stop.”

Most fishers agreed with avoiding nesting areas when setting

Some fishers said setting near nesting areas didn't apply to them as they didn't fish in these areas, but they thought it was a "smart idea" to avoid nesting grounds and "made sense".

Some said they do avoid nesting areas and they know their local nesting areas, but fishers who come in from other areas don't always know where they are.

"We do tend to stay away. And it's a localised thing, it's something that you learn as a local fisherman. Some of the guys that come down here from up north, when I've spoken to them, I've said, 'well just stay away from [that island], otherwise you'll find out in a hurry'."

"With nesting areas, you know where they are, so you avoid them if you can."

One fisher suggested that it could make sense to put 'no fishing' areas around nesting areas at certain times a year.

Barrier 5: Some fishers fish close to nesting areas because they haven't had any problems

Some fishers do fish near nesting areas, but they said they never have any problems, and they need to go where the fish are.

"It all depends on where the fish are and what time they're going to be there, you're not going to sit there and not go to an area because the birds are nesting when the fish are there. You're still gonna go there and catch the fish, that's what you've got to do. Because fish aren't in the same place all the time."

Some vessels run multiple tori lines when needed

A few fishers said they run multiple tori lines. Those with multiple tori lines decide how many tori lines to run based on their assessment of the seabird risk at the time i.e. more seabird risk, more tori lines.

"If I need to shoot the gear later in the morning around a moon, then I'll run two tori lines. Or if I'm day shooting. I'm so paranoid about catching birds, so I run two tori lines and extra floats out at shorter distances because the birds can come in close either side of the tori lines sometimes when they are really hungry."

One fisher said they had talked about adding another streamer line in high-risk periods, but didn't currently have the set up for a second one. But were considering setting up the boat for running two tori lines when the vessel was next on the slip, especially given they were doing more day setting over the past year.

Barrier 6: Wouldn't add a second streamer line due to risk of tangles

Some fishers stated they wouldn't add another streamer line in high-risk periods and areas as recommended, because an extra tori line would increase the tangles with their floats and with the other tori line. One fisher stated that two tori lines might be easier to operate on bigger boats, but on their smaller boat the distance between the two lines while dragging behind the boat is too close.

“I think if you're gonna have two tori lines out something's definitely gonna go wrong. They're going to tangle together because you know they're quite a fair way out the back. And if it's rough and your boat's going [all over the place], they're gonna tangle and it's just gonna be a nightmare. It's gonna be a stuff up.”

Barrier 7: Wouldn't add a second streamer line as not necessary — better to use other forms of mitigation

Some fishers felt that it wouldn't make much of a difference adding another streamer line. Instead, these fishers felt that when the birds are in a frenzied state, it was better to stop setting rather than add another tori line.

Some just stated that they don't need to run a second tori line because they don't catch seabirds. They thought that it could be a good option for any vessels that were catching seabirds.

Some felt that it was better to set in darkness than to add an extra tori line. They felt that if a fisher wanted to set in daylight over the higher risk months (e.g. October to January) it might be a good idea to run two tori lines. But ultimately, if a fisher felt they needed two tori lines, they should be trying to set at a different time.

“It's getting ridiculous running two tori lines. I mean, you could just set at night-time or in the middle of the morning when it's still dark. You know, it's going to achieve the same thing, probably better.”

Some fishers were using 'stop-setting' thresholds — triggered by seabirds' interest in the baits, losing the tori line, and/or seabirds “going crazy”

Many fishers said they actively look out for seabirds while setting and if too many seabirds look as though they might go for the baits, they will stop setting. Especially if seabirds were getting worked up into a frenzy around the vessel.

“We've stopped setting. Like, when we lose our tori line, we'll stop shooting.”

“When the birds are really bad, they do not care. You've just got to stop setting. They just fly into everything. Sometimes they just go crazy. I don't know what it is. So we stop if they are getting silly. Sometimes we'll do our morning line and then we'll do a quick reset. We'll just start setting it and just instantly they'll go nuts. And it's like ‘Nope, not happening!’.”

Fishers said that once they stop setting, they think about how they will do their next set. Some said they wouldn't move location, as over the summer period that would be too far away to avoid the seabirds, and they would be more likely to set at night.

Fishers also said they stop setting if they lose their tori line.

Barrier 8: Unclear of stop-setting triggers

One fisher wasn't sure what the 'stop-setting' thresholds would be.

“I don't know what the government thresholds would be. To me if you could see a real problem, you wouldn't do it anyway.”

Barrier 9: Stop-setting is not necessary, when have other mitigation options

One fisher felt that it wasn't necessary to stop setting. If they were concerned about the seabirds they would just add extra weight to the line.

"We haven't stopped setting because of the birds. If I was concerned, I would put another weight on every board. And I have done that. Very rarely, but if I'm worried there's too much crosswind and we can't get the tori line hanging right, we'll just put some weight on, so it sinks even quicker."

For night setting, fishers felt that 'stop-setting' thresholds wouldn't be necessary. It was more seen as something for daylight hours when seabirds are active.

2.6.2 Responses to other hauling recommendations

Below are some of the other recommended practices for hauling seabird mitigation that were also discussed with fishers in the interviews.

From FINZ's operational procedures
Avoid hauling: <ul style="list-style-type: none">• when large numbers of birds are present
While hauling: <ul style="list-style-type: none">• ensure vessel is moving at an appropriate speed to keep the line under water

Barrier 1: Impractical to avoid hauling when large numbers of seabirds are present

Most fishers thought it was impractical to avoid hauling when large numbers of seabirds are present. Mostly because when their line is in the water they need to retrieve it. Firstly, because they just need to get on with their job, but also because there is a risk they will lose the whole line if they leave it down for too long e.g. due to the increased chance of the line getting caught on the bottom or cut by sharks.

Some said that if there were a lot of seabirds around during hauling they would haul faster instead and/or actively deter seabirds approaching the hauled hooks e.g. using water squirt.

Barrier 2: Don't have a problem with seabirds while hauling

Most fishers stated they don't have a problem with seabirds while hauling, so they don't need to avoid hauling when large numbers of seabirds are present.

"What should you do? Leave your gear in the water and let the sharks get it? We don't do that, we just keep hauling if there's birds there, we don't have a problem with them."

Barrier 3: Don't get large seabird numbers

Other fishers stated that they don't get large numbers of seabirds, or at least they don't come very close to the vessel.

Barrier 4: Keeping the vessel moving to keep the line under water was not relevant

Some fishers commented that the recommendation to keep the vessel moving while hauling in order to keep the line under the water, was ill-informed for snapper fishing, given weights are applied to the line. Although, they said it might make more sense for ling or hāpuka fishing, where the line can float up if there is a lot of fish on it.

2.7 Fishers' views on the DOC liaison programme

The Department of Conservation's (DOC) Protected Species Liaison Programme is in place to play a central role in the implementation of the mitigation standards. Since the NPOA 2020 was approved, DOC liaison officers have been discussing the mitigation standards with fishers and working to update each vessel's Protected Species Risk Management Plan (PSRMP) to reflect the mitigation measures that they undertake.

Below is a summary of feedback from fishers on their experiences with the DOC liaison programme.

DOC liaison programme seen as very valuable for the advancement of mitigation practices

Fishers were very appreciative of the support they received from the DOC liaison programme. Fishers felt the DOC liaison officers were a key asset and the main driver of seabird mitigation education, knowledge sharing, and maintaining good mitigation practices.

"I would say [the liaison programme] has been the best education for the fishermen. And in a scenario where you do have a bad event, they've actually mitigated some of the issues and got boats up to best practise."

"The liaison programme is an amazing initiative that has changed the world, especially in our area, by having the liaison to talk to."

"[Our DOC liaison officer is] great. He's good. And it's good to have support around that. Because if you're left on your own, it's just another thing. He pops up once a year. He's good for everyone. He's good for advice, everything. If you've got questions about your tori line, questions about birds or timing, where they are, just absolutely everything, he's crucial to just education and advice. Everything, yep, he's just good."

"We get updates through email and through [our DOC liaison officer]. They keep you up to date with everything."

The DOC liaison officers were seen to provide a valuable resource for younger or newer skippers, who have less experience with seabird mitigation.

"I think it is really good for passing experience down. Like if you've got a new skipper. I know quite a lot, and I'm sorted, but I've learned a lot of lessons the hard way. So I think it's valuable for the younger newer guys to get someone. I don't think it's that valuable for me now, but I can see the value in it. Definitely."

Fishers have good working relationships with their DOC liaison officer

Fishers felt that the DOC liaison officers understood them (their struggles, their needs, their personalities) and commented on the good working relationships they had developed.²⁹ Some commented that their good relationships were helped by having officers that had an understanding of fishing and first-hand experience e.g. from being a past observer and/or an interest in game fishing.

²⁹ Fishers were selected to take part in the interviews according to the specifications in the approach section on pages 5 and 6. Fishers were selected to be contacted by the DOC Liaison Officers for the research, based on direction from the researcher to meet the range of sampling dimensions. Not all of the fishers put forward by the Liaison Officers took part in an interview. The researcher is confident that the sample was a representative group of fishers and due to measures put in place was not solely selected (or hand picked) by the Liaison Officers.

"I find [my liaison officer] easy to deal with. He's a straight shooter. He knows how to handle me. He's all good."

"I actually really like [my liaison officer], we're starting to build a rapport as good kind-of friends as opposed to another man with a big stick."

"I find it really good working with [my DOC liaison officer]. He's a good guy. He's really approachable. He's good to get knowledge off."

"It [doesn't feel like] a government-controlled mechanism, because someone who's actually observed and worked on the boats, and has seen the fleet, sits down and says, 'well, we just got to think smarter maybe and make a change'. I think it is an educational tool and [the programme] is probably one of the best things that has happened."

Fishers liked that the DOC liaison officers came to visit them to discuss things; this was seen as the ideal way to communicate, understand things and find solutions for mitigation issues.

"He's helped out with heaps of stuff."

"The liaison officers have been real good. He pops in from time to time, to see how we are going and to make sure we are doing things by the book too. It's definitely good to have that refresh on what you should be doing."

Fishers feel supported by their liaison officer when they had a capture event

Fishers were very appreciative of the support they received from DOC liaison officers when they had a seabird capture event, they felt the officers were supportive while also offering good solutions for avoiding the same situation occurring in future.

"[My DOC liaison officer] is my first point of contact if I have any protected species interactions. We'll talk about the interaction."

Fishers also commented that the DOC liaison officers have helped them dissipate potential conflicts with NGOs. With the liaison officers being able to "put a few people's minds at ease".

DOC liaison programme played a crucial role in improving tori lines

Fishers commented that DOC liaison officers have played an important role in the implementation and improvement of tori lines. They really valued the advice they have received on their tori lines and the tori line supplies provided by the liaison programme.

"[The DOC liaison programme] is certainly helpful. I think it's brilliant that you get given tori line material. I think that's really important, because it is hard for fishermen to go buying all that stuff. And to have somebody to talk to, and discuss things, because I didn't know how to build a tori line."

Fishers were very pleased with the road cones provided by the DOC liaison programme for their tori lines. They commented the drag achieved as the result of the cones has helped lift their tori line up and reduced hook ups with their floats.

Some fishers also stated that the tori lines that were constructed by the DOC liaison officers were the best they had used. Furthermore, by receiving a tori line from the liaison officer,

they could be sure that the tori line met the regulations. Fishers really appreciated the amount of time the DOC liaison officers spent constructing the tori lines to meet the legal requirements as they said it would be a lot of work.

"[Our DOC liaison officer] makes a really good tori line. His are the best. He makes the best one I've ever seen and that's what we use now. The last time we had an observer on, we were towing it and he said, 'that's the best running tori line I've ever seen'. It's how much drag he puts on them to make them lift up, and how he designs them, they don't hook up as the floats go past when you're setting; they used to do that occasionally. He's got a float in the cone and then he uses the little egg floats spaced up the rope, and then the joins just all spliced together at the end really nice. They're still just a basic tori line, but they just work really well. I just rate them."

"He builds us our tori lines for us, which makes sure our tori line is compliant, as far as the streamer length, the distance, etc. I know it's done by the book and can give it to the boys, put it up in the air and know that if MPI pulls us over it's down to spec."

"He's made me two or three tori lines for me now. It's good to get a regulation tori line, cause there's actually a hell of a lot of work making one up to the legal requirement."

Fishers also noted that the silicon tube streamers provided by DOC were working well and fit for purpose, especially given they break or unhook themselves instead of creating a hook up with the mainline. Some fishers have been quite surprised at how well these streamers work in this regard.

"We'll be setting the line and the tubing will get wrapped around the backbone and it's like 'oh no, we're gonna have a hook-up', but it just kind of stretches like a rubber band and then it's like 'pew' and it just comes off and it's like 'woah that was good!!'."

One fisher did note that the streamers provided by DOC did need to be kept in the shade or else they deteriorate quickly if left in the sun.

"The only real problem with them is they are really susceptible to UV. If you leave them out in the sun, they just deteriorate real quick, those silicon streamers become brittle and then they snap easy peasy. We've got ours in the shade, that's our policy."

Fishers felt the level of contact with their DOC liaison officer was about right

Fishers said they had a visit from their DOC liaison officer about annually, to top up tori line supplies and see how they were going. As well as contact when they had reported seabird captures. They said this level of contact from their liaison officer felt about right.

"We see him just every so often. And it's about the right amount of time. He asks if we need anything and he's always got everything on him. And if he doesn't, he sends it straight out. We've got heaps of spare streamer stuff for our tori line. And even the other day, he rang up and said, 'Oh, look, I've seeing you getting a few birds, what's going on?' and we had a chat. Yeah, he's good. He's good at what he does."

Fishers couldn't think of anything the DOC liaison officers should be doing better or differently. They were very happy with the support they provided.

One fisher felt the DOC liaison officer role was not needed

One fisher felt the DOC liaison officer role was not needed, as seabird risk was not a major issue in their fleet. They suggested the resources would be better spent in areas where there was greater risks to seabirds.

“To me [my DOC liaison officer] is just doing his job. We just take the material; I’ve glanced through it. I’ve filled in the template of what we do, he rewrote it and gave it back to me, and he gave me a few little booklets about birds and bird identification, and gave me the tori lines. Like most government things, I don’t believe it needs to be done. If they actually saw where the real problems were, they’d be targeting other issues, not us.”

Most fishers don’t regularly refer to their PSRMP

Most fishers said they don’t refer back to their PSRMPs, given that they wrote them, know them and carry out the practices every day.

Most say they just use their PSRMP to show observers what they are doing. With a few fishers saying that it is useful for the observers to check that they are doing what is in the plan.

“The observers ask for it, so I guess it is a plan to say... ‘you’re saying this, but you’re doing this’. Really, it’s essentially what you’re about. So yes, it is handy, because that is what you initially set up to say, ‘we’re doing this’.”

Some fishers noted that although they have what is in their plan, they do adjust their mitigation actions based on what is happening on the day e.g. depending on what the seabirds are doing, if they are around, what is happening with sea/weather conditions, etc.

“Putting it down on paper is I guess helpful, but there’s so many different things that come into play when you’re sorting out your line, and how you’re going to set it. [The plan] is a procedure, but not always helpful. We don’t refer back to it if that’s what you mean.”

Some fishers said their PSRMP is useful for stakeholders, crew inductions, and reviews

Some fishers said it was good to have their PSRMP to show to observers, Fisheries Officers and other stakeholders, in terms of what they are doing in regard to seabird mitigation. A few skippers said they also actively use their PSRMP for crew inductions and use it for their reviews.

“Part of my crew induction on the boats is to go through the golden rules and to know about our mitigation [documented in the PSRMP] and why we put it in place. The documents are laminated and on the wall of our wheelhouse as soon as you walk in the door. So it’s all very good. I don’t find that a pain at all. Maybe before I caught birds, I would have found it a pain, but I think it’s all there for a reason now.”

“[The PSRMP] mostly feels like another piece of paperwork, but it is probably just a base for continuing education. It’s quite good to have a chat with [the DOC liaison officer] and noting when we’ve got a change of gear. Mostly [the PSRMP] is just stuck in the back of the boat and there if you want [the DOC liaison officer’s] phone number.”

2.8 Fishers views on engagement: current, ideals, frustrations

This section provides insights for outreach programmes and how to better and more fully engage with fishers. It covers how fishers mostly learn about seabird mitigation, how they prefer to engage, and what changes they would like to see.

Fishers learn about seabird mitigation from talking — not reading

Fishers mostly learn about seabird mitigation practices from talking to others, with DOC liaison officers being the main source of information, with some also getting information from vessel owners, Fisheries Officers and other fishers (and observers³⁰ in the past).

“[We mostly learn about seabird mitigation from] our seabird liaison officers, and then other fishers. You talk to other fisherman about it, and they give you ideas of what to do.”

“I never read the plan. The MPI boys keep us posted. ‘Are you doing this? Have you done that? Have you heard about the new regulations?’ They are fantastic guys. I see them pretty regularly in the streets. We have a very good relationship with MPI.”

Fishers prefer conversations to discuss seabird mitigation, whether it be updates to regulations, their current practices, innovations, or issues they are currently having. Ideally the conversations with government officials are scheduled and in person, so the fishers are not busy/exhausted, and a hands-on approach may be undertaken.

Fishers are less inclined to read documents that are given to them. Some fishers said the only documents they had been through, was when their liaison officer taking them through them during a catch up.

“More of it is just conversations and practical stuff you know. You're not gonna find many fishermen that are just everyday popping through the paperwork and having a read over. You need to be more realistic with most of the guys in the fishing industry. They're hands on people, they're not like ‘oh, this paperwork is making my life so much better’. You gotta go and talk to them and be practical about it.”

In terms of where fishers would proactively go to find out information about seabird mitigation, most say they would firstly contact their DOC liaison officer, some would talk to other fishers, with one fisher (who had good relations) saying he would contact their local Fisheries Officer. None said that they would look up information in their provided documents or online.

“I'd ring [my DOC liaison officer], he's the one that's up with what's going on.”

Some Fisheries Officers are seen as overly authoritarian

Although fishers viewed their current engagement and relationship with the DOC liaison officers as very favourable, some commented on the poor interactions they had with some Fisheries Officers. These fishers said that Fisheries Officers do not treat them with respect and instead treat them like they are guilty. They also commented that Fisheries Officers were confrontational and intimidating, in their attitudes, which was exacerbated by approaching fishers at the wharf wearing stab vests. Fishers felt stab vests were unnecessary and they

³⁰ A few fishers stated that some government observers have helped them with their mitigation practices and issues in the past, and they found this very valuable given they are on the vessel with them. Whereas other fishers stated that their observers just do their job and don't seem to have any interest in the issues at hand.

would like to be treated with a bit more respect, understanding, positive communication, and common courtesy.

“[Fisheries Officers] treat us like we are guilty until you can prove yourself innocent. That’s their attitude. They have their chests out when they come down the wharf. It’s the uniform that does it. I get zero respect from anyone at MPI. I used to, but the culture has changed. It’s painful.”

“Last year, they sent officers down to the wharf to measure my tori line, to every last centimetre. They were waiting for me on the wharf when I came in, to check out my line. And I said, ‘what is this?’. It felt like we were under siege, they were wearing stab vests! And treating us like criminals and intimidating us, saying ‘we are watching you every time you come in, every time you come in, so be aware’. What sort of thing is that! It was very unpleasant. We had been out for six days, and we just wanted to go home and have a shower. But we had to wait for two hours for them to pull the line out and measure it. Everything was up to scratch.”

Observer visits on some vessels are seen as excessive

In terms of other areas of interaction between government and fishers, some fishers commented that their observer visits seem excessive. This point was based on a large number of requested days, boats who already have a camera onboard, and for observer visits during seasons when seabirds have migrated away.

Fishers commented that some observers want to do a huge amount of time on their vessel e.g. 25 days in a row. They felt that observers can see everything they need to see based on less days than this e.g. 10 days in a row was plenty. Some fishers also didn’t understand why they needed to have an observer when they already had a camera onboard.

Fishers also noted that it wasn’t easy hosting observers on their vessels for long stints, as they have to drop them off every day (as they can’t stay overnight on the vessel), it’s an invasion of their privacy, and they have to feed the observers (with the fisher not receiving any money in return for doing so).

Fishers want to engage on realistic solutions — for realistic problems

As well as conversations as the ideal way to communicate (rather than communicating via documents), fishers’ other ideal was to keep working with industry and government on improving seabird mitigation, in terms of the techniques, estimation of capture numbers, and what is required of the fleet.

“They’ve got to be realistic, we’ve still got a job to do. Everyone’s got to be realistic. No one wants to kill seabirds, but we still want to catch fish. So we’ve got to find the best realistic way to do it. Which is hard I know. I am proactive and I’m willing to try and do stuff to make it better.”

In terms of what is required of the fleet, fishers acknowledged that some good thinking had gone into the last revision of the regulations. They also commented that ideally more work still needed to be done on the regulations to ensure they were achievable.

But where is the problem?

In terms of working on realistic problems, fishers want to work with government to understand the seabird capture problem within their fleet. Some are feeling frustrated and “slacked off” with so much focus on seabird mitigation when they aren’t experiencing seabird

captures on their vessels. Because they are told there is a problem by government and NGOs, fishers assume that it must just be:

- a small number of fishers in their fleet capturing a lot of seabirds (which creates anger towards those other fishers without knowing who they are), or
- other fleets (e.g. in the South Island or surface liners) that are capturing large numbers of seabirds and then their fleet is being “blanketed” with the same conclusion.

However, based on their relationships within the industry, fishers didn’t know who within their fleet is catching significant numbers of seabirds to gain the attention it is getting from government and NGOs. They felt that most of the fishers in their fleet are doing the right thing and avoiding seabird captures.

“I think most fishermen are all there for the same reasons. None of them want to catch birds. And any of the ones that do, they shouldn't be in the fishing industry to start off with. We don't need bad eggs in the industry. I think you'll find 95% of fishermen have got the same [good] view towards protected species.”

Many fishers welcome cameras to substantiate the problem

Most fishers are looking forward to having cameras on their boat, so there is evidence of their mitigation practices and lack of (or very low) seabird captures.

“I welcome cameras, I want to be recognised as someone that does care. I'm trying to do the best job I can do and I'm quite proud of my records since I've been trying to get better at it.”

“The cameras will clear it up. Now with the cameras they can have some footage, which means they can go ‘Okay, these guys aren't a problem. These guys aren't a problem’. We need transparency, so that we can see where the problems are. They don't even have a spreadsheet of who's catching the birds or where, it's just averaged out through the whole fleet, and everyone gets the same blanket approach.”

“If I was crooked and I was doing something wrong, I'd be worried. But I'm not and I won't be, so I don't care. Put the cameras on. But I'm pissed off that we need to pay for them.”

However, fishers are unhappy that they must go to these lengths to prove that they are not capturing seabirds, given the extra power required to run the cameras and the invasion on their privacy. They explained that they see their boats as their second home as well their time to get away from it all, so having cameras on them for days 24/7 is seen as confronting and invasive.

“It puts more strain on my boat, because I've got to have more power to run all this stuff. It puts more load on my batteries, because I only use electrics, nothing else. But none of that seems to come into consideration.”

“I haven't got a toilet on my boat; I use a bucket. What's normally done in privacy is going to be recorded. I spend a third of my life on my vessel, it's a home away from home.”

“We go out on the deep blue sea, we go away from the stress and strain, we go away from civilization, and it goes against that to have a camera on us. We like walking around in G-strings and now we are going to get videoed? It's a part of our privacy out on the boat; no one should be videoed on a regular basis. It's so wrong and antisocial. It's ridiculous.”

Some fishers want to evidence “the problem” before the cameras come onboard

Some fisher want the opportunity to prove they don't need certain mitigation measures, before the cameras come into play, so the regulations can be adjusted to reflect this. For example, for the following situations:

- so they don't need a tori line at night when targeting hāpuka (given it is seen as unsafe, difficult and unnecessary — see section 2.5.1)
- so they don't need to undertake certain mitigation practices when seabirds have migrated and/or their presence is low
- so they don't need to undertake certain mitigation practices in low-risk areas.³¹

As a way of demonstrating this, one fisher suggested that before the cameras come onboard, fishers could take an observer on trips to show they don't catch seabirds at certain times or locations e.g. at night while targeting hāpuka without a tori line.

“I'm dreading getting the cameras because it's going to make me do something that I don't need to do. I'd like to see an opportunity to prove that I don't need [a tori line at night]. My main thing is, I would like to see a provision in the regulations that lets me not run a tori line, while an observer's on board, so I can prove to him that I don't catch birds. So it's like 'look I don't have a problem, here let me show you legally'. And if I can demonstrate that with say seven observer days, [then I get an allowance to not use tori line for a certain period e.g. for 70 days]. And then when that time's up, you take an observer again, and prove it again.”

“Generally the winter months are a lot safer, but ideally the different FMA areas would each have their own set of rules. There's a lot of things that could be improved a lot more, if you broke it down and managed it in smaller areas, it would make a lot more sense.”

“Especially for low-risk times, out of season times, we need a bit more flexibility. [If there was flexibility] you could have a little bit of a breather, and then when the summer comes, the heat's then on.”

Target those causing the problem

As part of the “where is the problem” theme, fishers also suggested that those who are capturing seabirds should be required to undertake heightened mitigation measures, and those who are not, should have allowances.

Likewise, they suggested that when new crew are leading the setting or hauling, the vessel should also have to undertake heightened mitigation measures, whereas those who have proven themselves (e.g. via observers or cameras) should have allowances to do the measures they know they need to do and not do other measures when unnecessary e.g. tori line at night.

Observers have seen there's no problem on my vessel

Some fishers stated that the observers can see there is not a bird issue on their boat, but they feel government is not taking notice of this — so they “lose faith” and feel their money is being wasted on a problem that barely exists.

“The frustrating part about all this is the observers have been coming out for so long. They know there's not a problem, but the 'powers at be' aren't listening to what the observers are telling them. I've asked the observers multiple times, 'are you going back and relaying what we're saying?' And they are, but no one's listening above them. The

³¹ Alternatively, some fishers said they valued the importance of habit, in doing the same mitigation practices in all areas and at all times, either for themselves, for their crew and/or for fleet in general. (As also mentioned in section 2.4). However, these fishers were less likely to be having issues implementing certain mitigation practices.

observers feel that it's now pointless. So we just lose all faith. [Especially given the DOC liaison officers'] time and the tori lines are all coming from the fishing industry and our bird levies, and it's all just wasted money."

Seabird capture statistics are inflated

Fishers don't think it's right that observers should record a seabird as captured if it just lands on their boat and then flies away. Due to this definition of a capture, fishers feel the seabird capture statistics are inflated.

Fishers also questioned why observers count it as a capture if the seabird gets a line around the wing, the seabird is released from the line, and then the seabird flies away.

"When we've had an observer on the boat, if a bird flies over your boat and lands on your boat, they say you've caught it. And it's like, 'well, no, we never caught it, it just landed on the boat'. So then you get a mark against your name. And it's like, 'well, no, it flew away, it was happy', and it never got caught. But they call that a bird capture. The observers even say it doesn't seem right, but they need to mark it down. The last time I had an observer on the boat, there was a bird flying beside the boat and it just dropped into the boat because it just lost its wind, and the observer was like, 'we've got to count that as a bird capture'."

"When you're hauling, if you pull up a seabird and it's just caught around the wing, not actually the hook going into the wing, you just take it off and let it go, but they'll still consider that a bird capture. And I'm like 'well it's not really.'"

Fishers are frustrated by the misrepresentation by NGOs

In terms of further exaggerating "the problem", fishers commented that NGOs use the capture rates to state that the fishing industry has escalating seabird captures, whereas the seabird capture numbers are increasing because more fishers are reporting their captures. Fishers were also frustrated that NGOs claim fishers do particular things, when they don't. They commented that it would be better if the NGOs worked with them, not against them.

"Greenpeace keeps saying that we do all these things, that we don't do, because they don't understand."

"Historically there's no documentation of bird captures up until recent times. Now we need to legally report. It makes the industry look worse — it looks bad for our numbers. Environmentalists latch on to that and say 'look it's escalating, you never used to catch birds and now you catch birds and it's getting worse every day'."

Government should be focusing on more important issues — given seabirds captures are low

Some fishers stated feel that the Government should be focusing on more important issues for their fleet, seabirds and the environment given their seabirds captures are low or non-existent.

In fishers' minds, the more important issues are fish stocks, the regulations that are harming fish stocks, the quota system, and seabird captures by recreational fishers.

Anti-dumping regulations are harming fish stocks — not good for sustainability

Many fishers explained they can't throw some juvenile fish (e.g. gurnard) back into the ocean due to antidumping regulation. They said they understand that the dumping regulation was brought into place to reduce "high grading" (e.g. fishers throwing fish back that were

worth less, or they didn't have quota for, etc.), but they feel that rule does not make sense given (in their minds) live fish should be returned to the ocean to sustain the fishery. Some commented that the rule was more applicable to other fisheries, such as trawling (as opposed to snapper fishing), where most of the fish come up dead. They felt there should be different rules for longlining close to the shore (where most fish comes up alive) versus other fisheries.

Many fishers said they would prefer to be throwing live juveniles back for the sustainability of the fishery and want this regulation changed for their fishery for this reason. Some also commented that if this was not the case, it needs to be made clearer for fishers i.e. what they can discharge and what they can't, but taking into account the sustainability of the fisheries.

"We catch them on a hook, it's alive, I could let it go but I'm not allowed to. So I need to kill every little gurnard. And that to me is crazy, as the gurnard fishery around here is collapsing, because we are not allowed to release a little gurnard. When we are catching fish out at 20–30 metres, it's perfectly healthy and it can swim back down to the bottom and survive. Our snapper fishery is wonderful, but the tarakihi, gurnard and some other fisheries are as sad as."

"99.9% of the stuff we catch is alive. So if it's undersize it goes back. But I'll get persecuted for it! And I'm looking after our industry!"

"[Having to retain undersized fish] is extremely bizarre, it's stupid. So if we chuck an undersized fish over the side, that is still swimming, that's 'dumping fish', because you have to keep everything you catch."

As well as fishers not being happy they have to dump live fish that could have survived, it also frustrates them it may cost them money to dump unwanted fish in future, and pay for the quota of the dumped fish.

"They want us to bring every single fish back to shore that we catch, bycatch or not. So we catch lots of spiky dogs here, it's a shark with no value, no one will buy it, so it goes back alive. But the government is saying they will use their discretion about what by-product is and so I asked them 'how do we dispose of it?' So they sent this email saying, 'Well, you could put it in your waste bins and send it to the dump'. So that means I would need to spend money taking it to the dump to get it thrown in the green waste. But how is that going to look? It's just bizarre. That's a new rule that's coming in. And the other part of that is you still have to pay quota for it. I catch it, I dump it, and I still pay quota for it. Even though it's three cents a kilo, it doesn't matter. I don't make lots of money, every dollar to me counts. It's just bizarre."

Seabird captures by recreational fishers

Fishers felt that the majority of their fleet are doing the right practices, had good attitudes and knowledge about seabird mitigation and their captures rates are relatively low. That there had been big improvements, yet government and NGOs were still focusing on them, with little focus on recreational fishing. They felt government should start putting more focus on recreational fishing mitigation practices, and commented on the actions of recreational fishers who weren't undertaking appropriate seabird mitigation behaviours.

"All of the recreational boys feed the birds. That frustrates me a bit, because the people left now in the fishing industry as a collective understand now and are trying to do the right thing. But all we get is more and more litigation and rules. [Government] is targeting the wrong people. It's time to start looking at some of this recreational stuff. They need to

start hammering these people and educating them about 'don't feed the birds'. Don't do this...'. ”

“The biggest change we need now is related to recreational fishing mortality. Birds are being found with recreational fine line in them, with wings snapped and necks broken. We get the blame when the hidden thing in the big picture is recreational fishing. It's education, we're educated!”

Dwindling fish stocks

One fisher stated that rather than focusing so much on seabird mitigation (when they aren't catching seabirds), the Government should instead put more focus on improving their fish stocks. Fishers say they are having problems getting enough quota and each year it's getting less.

“I have never seen a problem with the birds, and I don't know what all the fuss is about. I'm happy to do what they ask us because it's the right thing to do obviously. I just wish they would stop [focusing so much on seabird mitigation] and start doing something else. Honestly, I would like them to concentrate more on our fish stocks. It's dwindling. I've been doing this for 20 years and every year it is getting less and less. And now the recreational fisherman and charter boats go out and can take half a ton of bluenose. And I'm having a problem getting my quota. I would rather have them spending their energy looking into that sort of thing. That would be a great help from MAF.”

The quota system

Fishers are frustrated with the quota system and feel more should be done to improve it. They commented that they understand why the quota system was put in place, when there were a lot of commercial fishers, but now there are much fewer fishers in the fleet. Fishers also commented that they don't think it's fair that they earn much less per fish, compared to the quota holder, when they are doing the work to get the fish in the first place.

“I might get \$9.50 for a kilo, which is exported. And I get \$3.50 for that because of the quota. I'm paying \$6.50 to someone who sits on shore just because the quota. It's frustrating and it's flawed.”

3.0 Conclusions and recommendations

The conclusions and recommendations detailed below are based on feedback from a subset of fishers from the small vessel bottom longline fleet. The subset of fishers was selected to provide a representative view of the fleet using a number of dimensions as detailed in the approach section.

3.1 Conclusions

The objective of this research was to better understand the drivers and barriers to uptake and implementation of best practice seabird bycatch mitigation by small vessel bottom longline vessel operators.

The research found that fishers are driven to avoid seabird captures, they have a range of drivers for this, but they also have a broad range of barriers to achieving or feeling motivated to implement all of the mitigation standards.

Fishers' passion for avoiding seabird captures was evident in their descriptions of the higher risk times for seabirds around their gear, what they see as the best forms of risk mitigation, and the time and effort they put into their mitigation practices including a range of innovations. There were a number of drivers that contribute to their passion and dedication.

First and foremost, fishers shared a strong respect for seabirds, a dominant driver for wanting to avoid seabird captures. Protection of themselves, their crew, co-fishers and their fishery was also a strong motivator for avoiding seabird captures. Productivity (in terms of not losing baits to seabirds) was also a long-standing driver for fishers, with sustainability of the fishery an increasingly important driver. Beyond these drivers for avoiding seabird captures generally, government interventions were a clear motivator for undertaking practices in the mitigation standards, driven by activities such as the DOC liaison programme, surveillance fly overs, fines, wharf checks, observers, and incoming cameras on boats.

Due to their motivators, it was evident in the interviews that fishers are quite paranoid about not catching seabirds. They spoke about how they are always on the lookout for seabirds and are actively watching seabird behaviour when seabirds are around the vessel i.e. to see if the seabirds are just happily sitting or looking like they might go for the baits. They also talked about the many high-risk periods for seabirds, as the times when they need to be extra vigilant and can't relax. This paranoia leads them to take extra mitigation measures where they see it's necessary, in addition to the mitigation standards and/or to meet the standards in the best way possible when they can't meet the regulations (e.g. for capability or safety reasons).

There are a number of areas where fishers are not meeting the mitigation standards, due to capability, safety and motivational barriers. Amongst these, there are fundamental cruxes that fishers say they need engagement on from government.

Level and types of risk for seabirds are two important and significant disconnects between the views of fishers and the views of government, that are hindering seabird mitigation compliance and mitigation best practice. That is, firstly, fishers and government have differences in the understanding of the number of seabird captures for their fleet. Secondly, fishers and government have differences in the expression of higher risk times for seabird captures, or at least fishers' knowledge is not represented in the mitigation standards. Both disconnects need engagement, exploration and resolution in order to advance seabird mitigation practices.

In regard to the first disconnect, fishers hear there is a problem with seabird captures in the commercial fishery, and there must be because of the high focus from government and industry on this issue, however they say they are not experiencing any, or at least very few, seabird captures with the mitigation practices they have in place. At present, fishers feel their established mitigation practices are effectively avoiding seabird captures. They don't deny that there may be an issue in some fisheries, given what the statistics say, but they are just not seeing it for themselves on their own vessels. This is where fishers' frustration comes in. To increase motivation to undertake the mitigation standards, fishers need to understand the issue that government is seeing. For any person it is difficult to keep trying to implement extra solutions to a problem that does not exist based on their lived experience.

The second disconnect, is the expression of higher risk times for seabird captures as seen by fishers versus government. The mitigation standards and regulations refer to practices that should be undertaken during "high-risk periods", in addition to the baseline practices. The 2021 regulations state that high-risk periods for seabird captures are "during daylight hours (0.5 hours before nautical dawn and 0.5 hours after nautical dusk) or during a full moon and three days either side of a full moon". The mitigation standards state this is the high-risk period "because seabirds (especially albatross) are generally less active at night" or conversely that seabirds are more active in the day so there is greater risk of capture.

Fishers strongly agree that daylight hours are a higher risk time for seabird captures, to the point that they also state that night setting is the most effective form of seabird mitigation. But they do caveat this, stating that daylight hours are a higher risk time when seabirds are present (i.e. are within sight of their vessel and/or in New Zealand for the breeding season). In terms of fishers' definition of higher risk times for seabird captures, fishers spontaneously spoke about higher risk times not only being during light hours, but also:

- in the summer months, and especially when the seabirds first return for the breeding season
- in the Hauraki Gulf up to Cape Brett, in particular the nesting islands in this area
- at dawn and dusk
- when active seabirds were around the vessel
- during a seabird feeding frenzy
- while line setting (more so than hauling)
- during gear issues: floating lines (due to a line break or large catch), line tangles, boat stops, baited hooks lost overboard
- when adding the end anchor
- with less experienced crew
- when setting faster, using lighter weights and/or smaller hooks (e.g. for snapper rather than deepwater fishing)
- when it's windy.

Fishers spoke about these times in reference to their extra vigilance to avoid the risk of catching a seabird; it's at these times that fishers increase their mitigation measures to avoid seabird bycatch, not just during light hours as required in the regulations.

With these disparate views of high-risk times for seabird captures, fishers are working at cross-purposes with their mitigation practices. Firstly, they are implementing practices that they see are best to mitigate against the broad range of risks they experience while setting and hauling. And secondly, they work to implement practices that are legally required, even if they do not believe they are necessary based on their first-hand experience. Fishers implement these second practices to avoid fines and negative public perceptions — not because they feel they need to be implemented.

Fishers listed a broad range of mitigation practices they believe are effective and important, and undertake not just due to legal obligation. Fishers note that a large part of effective mitigation is their knowledge and experience, in terms of knowing the range of risks, knowing the higher risk scenarios, and then knowing what combination of practices to use for these different situations. In terms of mitigation practices, fishers state the most effective seabird mitigation practices are:

- night setting
- tori lines for day setting (noting that a tori line is not always effective, achievable or safe)
- quick sink rate: achieved via three different (combined) mechanisms:
 - heavy line weighting
 - less line tension
 - removing floats
- fast and efficient hauling
- use of experienced setters/haulers
- stop setting/hauling protocols when large numbers of seabirds are active around baits
- low lighting
- throwing bait in emergency situations.

Other practices also favoured by some fishers were:

- avoiding locations with large numbers of seabirds
- adding floats behind the boat when seabirds are present
- holding baits
- bird lasers (when tori lines are not safe, effective or achievable)
- use of bait types.

Despite the range of mitigation measures fishers do have at hand, they note there is still need for innovation to find better seabird mitigation techniques. Some are hopeful that underwater bait setters or line suppressors are the next promising initiatives to improve setting mitigation, especially for those who are experiencing safety issues or are not currently able to achieve the practices laid out in the mitigation standards.

To summarise the core barriers to following the mitigation standards, there are two significant motivational barriers:

1. fishers are not catching any or very few seabirds per year; and
2. fishers don't see why it's necessary to mitigate against seabird captures at times when seabirds are not present.

In addition to these motivational barriers, a significant capability barrier exists for bluenose and hāpuka fishers in that they are not able to achieve the tori line and line weighting regulations for technical reasons.

As well as these core barriers, there are a range of other barriers to implementing the mitigation standards. The section below outlines the full range of barriers to following the mitigation standards, in the form of recommendations. As well as other recommendations for consideration.

3.2 Recommendations

The outcomes from this research seek to inform management actions and future research in order to promote drivers and overcome barriers to best practice mitigation uptake, and in doing so to specifically inform:

- outreach activities, such as education or liaison activities
- the development of fit for purpose mitigation tools (i.e. technical solutions)
- future updates to the mitigation standards and regulations.

The following tables summarise a range of recommendations to either improve seabird mitigation in the small vessel bottom longline fishery, or to get these fishers to consistently follow the mitigation standards. These recommendations are grouped in four sections as follows:

- A. Recommendations to address **achievability and safety** issues: these need the most urgent attention from a fishers' point of view, and ideally before cameras come onboard.
- B. Recommendations to increase/address fishers' **motivation** to undertake all practices in the mitigation standards at all times. This section contains some key barriers that must be resolved if fishers are going to willingly do more than they are currently.
- C. Recommendations for the provision of **information, clarity and direction** to help guide improvements in mitigation practices.
- D. Recommendations to increase the sense of **fairness and robustness** in regard to capture statistics and how fishers are perceived.

First and foremost, the two main issues that currently need addressing are:

- the inability for bluenose and hāpuka fishers to meet the seabird mitigation regulations with cameras about to come onboard, and
- the lack of fishers' experiential evidence that there is an issue with seabird captures in the small vessel inshore bottom longline fleet.

All recommendations are summarised below.

A. To address significant achievability and safety issues

		Addressed through?			
		Outreach	Technical solutions	Standards/regulations	
1	<p>Engage with hāpuka and bluenose fishers on a way forward</p>	<ul style="list-style-type: none"> • Hāpuka and bluenose fishers who set at less than four knots will be forced out of these fisheries when cameras come onboard unless: <ul style="list-style-type: none"> ○ help can be provided to meet the streamer line (50-metre aerial extent) and line weighting regulations (they haven't been able to achieve these regulations through experimentation and feel they can't increase their setting speed for safety reasons) or ○ the regulations can be changed so they can meet them (can other measures be used to compensate given there are a range of reasons their fishery is lower risk for seabird captures than snapper?) • Hāpuka and bluenose fishers mostly set over rough/rocky bottoms, so unlike snapper or ling fishers, the lines need to be off the seafloor. The lines also need to be off the seafloor to reduce seabird risk, as floating lines as the result of snags are a high-risk scenario for seabirds (see section 2.1). • Given most hāpuka/bluenose fishers set at night and there is less risk of seabird captures given a range of other variables, as a way forward fishers have suggested there could be an allowance for these deepwater fishers to have a shorter aerial extent, extra floats on the tori line to create disturbance beyond aerial extent, no tori line, and/or reduced sink rate requirements (e.g. if sets are undertaken at night, in lower risk areas/seasons). • Fishers are keen to prove the effectiveness of their ideal/current mitigation scenario through observer trips, so all stakeholders can be confident with the approach. • A solution is required before cameras come onboard given current regulations are unachievable and seen as unsafe — or allowances made in regard to the regulations until this issue is resolved. • (See background detail in sections 2.1, 2.4, 2.5.1 & 2.5.2). 	✓	✓	✓

		Outreach	Technical solutions	Standards/ regulations	
2	Consider solo fishers who are not able to meet the 50-metre aerial extent	<ul style="list-style-type: none"> • Solo snapper fishers set at slower speeds find it hard to achieve aerial extent (due to their slower setting speed) and find the tori line and pole requirements unsafe. • What should they do? Due to their slower setting speed, could the regulations be changed if they can meet sink rate requirements under a shorter tori line? • (See background detail in section 2.5.1) 	✓	✓	✓
3	Engage with fishers on deploying a streamer line in a strong following tide	<ul style="list-style-type: none"> • These fishers can't set into the tide as a solution, as their fishing gear doesn't deploy properly. • So, what should fishers do in these circumstances? • (See section 2.5.1 for background information.) 	✓	✓	✓
4	Consider what fishers should do if they can't discharge from opposite side of hauling station	<ul style="list-style-type: none"> • A few fishers are not able to discharge opposite to the hauling station because that part of the boat is covered in. • Is discharging from the stern okay if the opposite side from the hauling station is covered in? • (Referenced in section 2.5.5). 			✓
5	Consider the discharge of dangerous fish from hauling station without a mitigation device	<ul style="list-style-type: none"> • Consider making an allowance in the regulations for the instant release of dangerous fish whether they have a hauling mitigation device or not e.g. for the release of spikey dog sharks. • (See background detail in section 2.5.5). 			✓
6	Engage with fishers on safety risks with tori lines at night or in rough weather	<ul style="list-style-type: none"> • Fishers are not running tori lines in rough weather or at night due to safety risks. • Fishers see these scenarios as too dangerous. • Fishers need advice on what to do in these scenarios, given they are currently unwilling to risk crew safety over complying with the regulations. • Is a laser an option to replace the tori line at night? • (See further details in sections 2.5.1). 	✓	✓	✓

7	Engage with fishers on how to have the streamer line protecting the baits at all times, even in a crosswind	<ul style="list-style-type: none"> • Some fishers find it difficult to keep the tori line over the main line due to tides, currents, wind and target area. • So how should fishers do this? • Is it okay to tie the tori line to the side and not achieve tori line height and aerial extent requirements for these circumstances? • Do vessels need to install a boom as the solution? • Is a solution to add more weight to the line for those who can? • Does the tori line need to sit right over the main line or is it better to be offset in a crosswind to prevent seabirds accessing the baits? • (Background details in section 2.5.1). 	✓	✓	
8	Continue research into underwater bait setters and line suppressors	<ul style="list-style-type: none"> • Fishers see these innovations as the next promising initiatives to improve setting mitigation, especially for those who are experiencing safety issues or are not currently able to achieve the mitigation standards. • (See further details in section 2.2). 		✓	

B. To increase/address motivation (Note: some of these relate to fishers desire to “engage on realistic solutions — for realistic problems”)

		Addressed through?			
		Outreach	Technical solutions	Standards/ regulations	
9	Engage with fishers on the “seabird capture problem” — because fishers aren’t experiencing the problem themselves	<ul style="list-style-type: none"> • To increase motivation to uptake all measures in the mitigation standards, fishers need a much better understanding of the seabird capture problem. • At the moment fishers feel they are being asked to undertake increasing mitigation measures to address a problem that doesn’t exist in their fleet. They feel the measures they are currently undertaking are enough to ensure no or very low captures for their vessel per year. • From a fishers’ perspective, the current disconnect between what they are experiencing and what they are being told, is a key barrier to undertaking all of the mitigation standard practices all of the time, and also a key frustration. 	✓		

		<ul style="list-style-type: none"> To gain this understanding (i.e. why they're capturing no/few seabirds but being told there's still a problem), fishers need a better understanding of capture rates and nuances for their fishery (e.g. what vessel types, where, when, what) to pinpoint the issue. (See further detail in section 2.4 & 2.8). 			
10	Consider fishers' views on high-risk versus low-risk scenarios — and implications for the regulations	<ul style="list-style-type: none"> The regulations are not currently a good match to what fishers see as the high-risk periods for seabirds. Where mitigation for low-risk periods (as defined by fishers) don't require all of the current regulatory requirements. Consider variations by areas, seasons, times of day, seabird activity and/or fisher (number of captures or level of experience). Fishers are currently varying their mitigation practices by what they see as the high and low risk periods, resulting in fishers outperforming the mitigation standards in their high-risk periods and underperforming in their low-risk periods (e.g. not running a tori line at night). See background detail in sections: 2.1, 2.4, 2.5.1, 2.5.5) 	✓		✓
11	Engage with fishers on how to reduce tangles with mitigation gear	<ul style="list-style-type: none"> Tangles create a high-risk scenario for seabirds so fishers want to avoid these at all costs (see section 2.1) Tangles occur between streamer line and floats or main line (see section 2.2, 2.5.1), main line and hauling mitigation device (see section 2.5.5), bottle test and steamer line (see sections 2.5.2 & 2.5.3), and in rough weather and at night (see section 2.5.1). What should fishers do to reduce tangles in these circumstances? To avoid tangles between the tori line and floats, should fishers delay deploying the tori line or turn the boat when floats are added? Or use less tension? Or should they do something else? (see section 2.5.1, 2.2) 	✓	✓	
12	Engage with fishers on issues with heavier weights	<ul style="list-style-type: none"> Lighter weights are easier to handle, better for snapper fishing, less damaging to seafloor, and reduce chances of hitting snags (losing lines). Are heavier weights needed at all times? Can the regulations be changed so fishers can set in dark hours with lighter weights? If not, and if the sink rate regulations are fixed: 	✓	✓	✓

		<ul style="list-style-type: none"> ○ help fishers to find solutions so: it's easier to handle heavier weights, feels safer when hauling, and easier to haul in rough weather. ○ help snapper fishers improve fishing productivity with heavier weights. One fisher has been successfully trailing small floats on his snoods to raise the hooks off the seafloor; he has also found that the floats mitigate seabirds' interest in the baits. ○ advise fishers on how to avoid losing gear due to heavier weights. ○ consider the environmental impact of heavier weights on the seafloor. <ul style="list-style-type: none"> • (See background detail in sections 2.5.2) 			
13	Consider reason for monthly sink rate tests	<ul style="list-style-type: none"> • Explain to fishers why sink rate tests need to be conducted monthly, via a reason that makes sense to fishers. • Consider fishers' findings that their sink rate test results do not change significantly if they are using the same gear each time. • Or change the regulation that requires monthly sink rate tests. • (See background detail in section 2.5.3) 	✓		✓
14	Address difficulties with implementing bottle tests	<ul style="list-style-type: none"> • Issues with visibility of bottles e.g. at night, in swell, in poor weather. • Consider variability in tests based on where holes are placed in the bottle. • (See background detail in section 2.5.3) 		✓	
15	Consider whether official sink rate tests need to be recorded via other methods (rather than bottle tests by fishers)	<ul style="list-style-type: none"> • One fisher suggested a more robust approach should be taken for official sink rate tests e.g. to be conducted by observers using time depth recorders. • (See section 2.5.3). 		✓	✓
16	Consider provision of electronic documentation for bottle tests	<ul style="list-style-type: none"> • Some fishers stated electronic reporting (rather than paper based) would be a lot easier for reporting and analysis of sink rates. • (See section 2.5.3). 		✓	

17	Continue engaging with fishers on workable hauling mitigation device solutions	<ul style="list-style-type: none"> • Some fishers are using a hauling mitigation device and some are not. • The barriers for some are cost, effort and/or technical solution, given there is no obvious/easy place to attach one on their vessel. • Is a sprayer-style device an option when a hanging-style device is less suitable for a vessel and/or to reduce the risk of tangles? • (See section 2.5.5 for background detail). 		<input checked="" type="checkbox"/>	
18	Explore and consider allowance for discharge of live fish from same side as hauling station	<ul style="list-style-type: none"> • Fishers want allowances made to discharge live fish at the hauling station, without a hauling mitigation device, for the sustainability of the fishery, to follow other “immediate return of undersized fish” rules, as well as practicality and ease. • Snapper fishers did not feel the release of live fish was a risk to the seabirds they have around their vessels. • (See background detail in section 2.5.5). 			<input checked="" type="checkbox"/>
19	Maintain DOC liaison programme	<ul style="list-style-type: none"> • Face-to-face communications drive change — not documentation. • To date the DOC liaison programme has been a key driver of change in their fishery, given the face-to-face communication, good working relationships and provision of tori lines. • (Further detail in sections 2.3 & 2.7). 	<input checked="" type="checkbox"/>		
20	Maintain seabird education sessions	<ul style="list-style-type: none"> • Seabird education sessions have been a key driver of change for fishers. • Consider making one seabird education session compulsory for all new crew. • Consider options for funding. • E.g. Seabird smart course, DOC tagging programme. • (Further detail in section 2.3). 	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
21	Maintain compliance monitoring (but consider approach taken by some Fisheries Officers)	<ul style="list-style-type: none"> • Compliance monitoring activities are a driver for following the regulations, including surveillance flights, wharf checks, observers, and incoming cameras. • Consider positive engagements using these approaches, given compliance can be achieved via positive engagement in this area. Confrontational approaches cause stress and anxiety, and are seen as disrespectful and intimidating. 	<input checked="" type="checkbox"/>		

	<ul style="list-style-type: none"> Consider one fishers' suggestions for industry-led monitoring/enforcement initiatives e.g. where a boat is docked for large/recurring captures by the LRF rather than fined by government. (Further detail in sections 2.3 & 2.8). 			
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C. Provide information, clarity and direction

			Addressed through?		
			Outreach	Technical solutions	Standards/regulations
22	Advise fishers to ensure last weight and hooks are sunk low, before stopping to add end anchor	<ul style="list-style-type: none"> For example, by having a longer rope to do so. To avoid hooks sitting on the surface without tori line protection. (Further detail in section 2.1). 	☑		
23	Explore and consider the practice of having floats behind the boat while setting	<ul style="list-style-type: none"> This practice is currently undertaken by some fishers. Consider adding this practice to the mitigation standards. (Further detail in section 2.2). 			☑
24	Provide fishers with reports from electronic sink rate tests	<ul style="list-style-type: none"> Some fishers conduct electronic sink rate tests, but don't receive the test result data to hold on board, as required in the regulations. (See section 2.5.3). 	☑		
25	Clarify sink rate test legislation wording	<ul style="list-style-type: none"> Some fishers didn't realise they needed to measure sink rates every month, given the legislation is worded "or when gear setup significantly changes". Should the legislation be at least once per calendar month... and when gear change... or when gear changes? (See section 2.5.3). 			☑

26	Consider discharge and use of baits in the hauling regulations	<ul style="list-style-type: none"> • The regulations refer to restricting offal and fish discharge while hauling (with no reference to baits), but some fishers felt it is more important to restrict the discharge of baits (and offal) than fish (in terms of reducing risks to seabirds). These fishers also stated that retaining baits is easy to do, and some fishers saying this would be easy for them to implement. • However, fishers also stated that they should also be allowed to “throw bait” in emergencies, and a few fishers said they use baits as a distraction by flicking them out from the line as they come in. • Some fishers say it’s better to discharge baits in batches during hauling as it keeps seabirds away from the line (as opposed to holding all baits until the end of hauling). • Consider when and how baits should be held/discharged and if changes should be made in the regulations. Note: Baits are referenced in the mitigation standards, but not in the regulations. • Consider allowance for “throwing bait” in emergency situations if it’s the only means to save a seabird. • (See more detail in sections 2.1, 2.2 & 2.5.5). 			✓
27	Clarify wording of hauling regulations	<ul style="list-style-type: none"> • Most fishers were not clear on the regulations in regard to discharge during hauling (clause 9.4b). The current wording is not easy to understand exactly what is required, as well as how it relates to their other legal discharge requirements. • It seems the “and” in clause 9.4b of the regulations creates some of the confusion, as some interpret it as: any live fish greater than 30cm can be discarded from the hauling station with a mitigation device, rather than “any live fish”. • It also needs to be clarified if the reference to offal includes bait. • (See section 2.5.5 for more detail). 			✓
28	Clarify “maintaining a secondary system to prevent fish waste being lost to the deck and through scuppers”	<ul style="list-style-type: none"> • Fishers weren’t sure what would be done in terms of this — and didn’t think it was necessary • Is it necessary for this fishery? • If so, explain to fishers how to achieve this without any risk of blocking scuppers. • (See section 2.5.5 for more detail). 			✓

29	Consider relevance of “placing seabird gently back into the water”	<ul style="list-style-type: none"> Fishers felt this wasn't realistic advice as the seabird either flies off or stays on the boat until it's ready to fly off. Consider the relevance of this phrase or reword for correct interpretation. (See section 2.5.7 for more detail). 			✓
30	Consider suggesting that fishers can also snip the nylon to remove the hook	<ul style="list-style-type: none"> Fishers state that this is easier than getting and using tools to cut the barb. (As per section 2.5.6). 			✓
31	Explore and consider the use of red anchor lights to reduce seabird impacts	<ul style="list-style-type: none"> In particular when vessels are anchored near nesting sites, as one fisher said that white anchor lights cause seabirds to crash into the vessel. (See section 2.5.6 for background detail). 	✓		
32	Explore and consider any evidence on the use of bait types	<ul style="list-style-type: none"> Some fishers have found that bait types appear to have an impact of the attractiveness and risk to seabirds. Can any current evidence on this for different fish targets be suggested as a mitigation technique in the standards? (Further detail in section 2.2) 		✓	✓

D. To increase sense of fairness and robustness

		Addressed through?			
		Outreach	Technical solutions	Standards/regulations	
33	Consider capture definitions	<ul style="list-style-type: none"> Along with fishers need for a better understanding of the “seabird capture problem” they also have questions as to what is counted as a capture and what is not. Is a capture counted if a seabird lands on the vessel and then flies away? Or if a seabird has a line around wing and then flies away unharmed? (See background detail in section 2.8). 	✓		

34	Consider spread of observer trips across the fleet	<ul style="list-style-type: none"> • Some fishers have been asked to do many (e.g. 25 days) in a row, whereas other fishers not had an observer on board for a long time. • (Background detail in section 2.8). 	✓		
35	Consider compensation for feeding and returning observers to shore each day	<ul style="list-style-type: none"> • Providing meals and returning fishers to shore costs fishers money and time. • (Background detail in section 2.8). 	✓		
36	Engage with NGOs on false claims and criticism	<ul style="list-style-type: none"> • Fishers are frustrated when NGOs misrepresent their seabird mitigation actions and performance e.g. when NGOs state seabird captures are escalating. • Can NGOs start working with fishers to advance mitigation practices as a whole, rather than against them? • (See background detail in section 2.8). 	✓		