

**Towards Improving Seabird Bycatch Mitigation
in New Zealand's Surface Longline Fleet:
Fishers' Behaviours, Barriers and Drivers**

Social research report

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1.0 Research background

1.1 Project background

The Department of Conservation (DOC) commissioned Southern Seabirds to apply social science research to better understand the drivers and barriers related to the uptake of the seabird bycatch mitigation standards. Commercial fishers are expected to meet the mitigation standards under the Government's recently renewed National Plan of Action – Seabirds 2020.

The overall purpose of this research was to help provide an understanding of what could be done, by whom and how, to lead fishers to consistently follow the mitigation standards.

The surface longline fleet was selected for this research because information from a range of sources suggested there are issues around full uptake of the mitigation standards amongst some fishers within the fleet. Within New Zealand, at the time this project was undertaken there were around 26 boats operating in the surface longline fleet.

Regulations and mitigation standards

An understanding of the New Zealand seabird bycatch mitigation regulations and their relationship to the mitigation standards is an important foundation for this report.

Within New Zealand, surface longline fishers need to comply with the Fisheries seabird bycatch mitigation regulations.¹ Legally required mitigation measures have been in place for the surface longline fleet since 2008. The requirements current at the time of preparing this report came into force in 2020. Under the current regulations, fishers must use hook shielding devices, or use a streamer line (also termed a tori line), and either set at night, or use a prescribed line weighting regime. These measures must be used at all times when the line is set.

Separate from the regulations, the mitigation standards are encouraged to further reduce the risk of seabird captures. In 2020, a revised National Plan of Action – Seabirds (NPOA – Seabirds) was approved by the Ministers of Fisheries and Conservation to reduce the incidental mortality of seabirds in fisheries. In conjunction with the new plan, mitigation standards were prepared for each key fishing method. The mitigation standards for the surface longline fleet match those recommended by the Agreement for the Conservation of Albatrosses and Petrels (ACAP). ACAP advises that the simultaneous use of weighted branch lines, tori lines and setting lines at night (night setting) is the most effective approach to mitigate seabird mortalities in surface longline fisheries.

Meeting the mitigation standards is not a legal requirement; they are deemed 'best practice' and their use is promoted through the NPOA – Seabirds. The Government planned to measure their uptake as part of the annual review of progress against the NPOA – Seabirds.

DOC's Protected Species Liaison Programme is playing a central role in the implementation of the mitigation standards. Since the NPOA – Seabirds was approved in 2020, 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 recommended measures.

¹ Fisheries (Seabird Mitigation Measures—Surface Longlines) Circular 2018.
<https://www.legislation.govt.nz/regulation/public/2018/02/13/latest/LMS95828.html>.

This research focused on behaviours and attitudes with regard to mitigation standards 2.1 and 2.2, which together aim to achieve the desired outcome of: 'Seabirds are not able to access baited hooks during setting'. These two mitigation standards are shown in Table 1.1.

Table 1.1 Screenshot of the relevant mitigation standards for this research²

Desired outcome 2: Seabirds are not able to access baited hooks during setting	
Mitigation standards 2.1, 2.2 and 2.3 are necessary to achieve desired outcome 2.	
Mitigation standard 2.1:	A tori line effective at deterring birds from accessing baited hooks is deployed throughout setting unless a hook shielding device is used.
Mitigation standard 2.2:	Hooks are either protected by a hook shielding device or are set at night and are weighted in accordance with ACAP minimum standards. ⁶
Mitigation standard 2.3:	Bait state (such as whether it is frozen) does not reduce the sink rate.

Table 1.2 compares the mandatory mitigation measures in the seabird bycatch regulations with those in the non-regulatory standards. There is overlap between the regulations and the standards. As with the regulations, the standards provide for the option of hook shield devices. The standards differ from the regulations in that the alternative to using a hook shielding device follows the ACAP advice for the simultaneous use of weighted branch lines, tori lines and setting lines at night (night setting).

Table 1.2 Comparison of mitigation measures in the regulations and the non-regulatory standards

Mandatory mitigation measure options (the regulations)	Non-regulatory mitigation measure options (the standards)
Hook shielding device, or	Hook shielding device or
Day setting, line weighting and tori line, or	Night setting, line weighting and tori line
Night setting and tori line	

Table 1.3 compares the line weighting specifications for the regulations with those in the weighting standards.

Table 1.3 Comparison of the regulations and standards for line weighting

Mandatory weighting options	Non-regulatory weighting options
40 g or more within 50 cm of the hook or	40 g or more within 50 cm of the hook or
45 g or more within 1 m of the hook or	60 g or more within 1 m of the hook or
60 g or more within 3.5 m of the hook or	80 g or more within 2 m of the hook
98 g or more within 4 m of the hook	

² Department of Conservation and Fisheries New Zealand, *Mitigation Standards to Reduce the Incidental Captures of Seabirds in New Zealand Commercial Fisheries Surface Longline*, June, 2019, <https://www.mpi.govt.nz/dmsdocument/38018/direct>.

1.2 Project objectives

The objective of the research was to comprehensively answer the following questions.

Current knowledge, attitudes and behaviours

1. What do fishers know about best practice mitigation (including knowledge of the mitigation standards, their specifications and when they apply)?
2. How did fishers learn what they know about best practice mitigation, including the mitigation standards?
3. How likely is it that fishers are fully following the mitigation standards?

Motivations and barriers to the uptake of mitigation standards

4. Where relevant, what are the stated and underlying reasons that fishers don't fully follow the mitigation standards and what is the relative weighting of those reasons?
5. Why would fishers choose to follow the mitigation standards and what else would motivate them to do so?
6. Where (or from whom) do fishers get their knowledge of how to fish and of fishing gear?
7. What has convinced them to try new fishing gear in the past?
8. Would performance or social norm-related information sourced from their peers motivate them to alter the mitigation measures they use?

Steps that might encourage compliance with regulations and standards

9. Who have been shown to be the most effective types of people or organisations in changing how fishers carry out their fishing operations? Who are the least?
10. What types of messaging/information/statistics would encourage fishers to follow the mitigation standards?
11. How do fishers prefer to consume information – what channels or types of resources are likely to be most effective? What makes some communications better than others?
12. What types of creative approach or messages would encourage fishers to follow the mitigation standards?

1.3 Research approach

Southern Seabirds commissioned The Navigators (an independent social research agency) to design and undertake the social research. To better understand the behaviours, drivers and barriers in relation to the minimum standards, The Navigators conducted eight qualitative in-depth interviews with skippers and owners within New Zealand's surface longline commercial fleet.

To invite fishers to take part in the qualitative research, Fisheries Inshore NZ (FINZ) (<https://www.inshore.co.nz/>) contacted 10 fishers to provide an overview of the research and ask if they were willing to take part in an interview. The fishers selected were known to the FINZ contact point for this project through their active engagement in various meetings associated with the management of the fishery. Those fishers were then contacted by The Navigators to explain the research process in more detail and to schedule a one-hour interview. Two fishers did not respond to messages left, resulting in eight fishers being interviewed for the research.

The eight fishers³ interviewed included four owner-operators, two skippers and two owners. In total they represented 16 boats, which is approximately three fifths of the currently operating fleet. To gain access to a range of experience and responses, the fishers we

³ Throughout the report, 'fishers' includes owners, owner-operators and skippers.

interviewed included both younger and older fishers and those who fish in North and South Island waters.

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.

The findings in this report are a summary of the thoughts, behaviours and sentiments shared by the fishers who participated in the interviews.

Overview of qualitative research

Qualitative rather than quantitative social research was undertaken to best meet the research objectives. Qualitative research seeks to understand how people talk about, think about and feel about issues. It is different from quantitative research in that it does not seek quantification or quantitative analysis – it instead focuses on exploring and understanding. Qualitative research uses people to understand people – to understand in-depth motivations and feelings.

In-depth interviews were the qualitative methodology for this research. In-depth interviews are relatively unstructured one-on-one interviews. The researcher is thoroughly 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 interviews allow 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 in any way and the researcher does not create any bias in the responses.

The findings in this report are a summary of the thoughts, behaviours and sentiments shared by the fishers who participated in the interviews. To enable fishers to speak freely, the researcher became familiar with the key fishing and 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 a very measured way, grouping quotes into themes to gain each of the key findings.

1.4 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 us to provide this summary of the themes currently prevalent in the fleet. We respect their views and also acknowledge that the research findings have been collected from a subset of fishers within the wider fleet.

We would also like to thank:

- DOC for funding the research and for their support and guidance
- Southern Seabirds for their support and guidance
- FINZ for their support and guidance.

2.0 Research findings

To document the research findings, we have first summarised the current seabird bycatch mitigation practices of the fishers we interviewed. Then we have detailed the barriers to and drivers of the uptake of the mitigation standards under the key themes that arose in the interviews – again based on the fishers’ thoughts and experiences. In the section on drivers, we have used a behaviour change model (COM-B)⁴ as a framework to structure and understand what could be done to lead fishers to consistently follow the mitigation standards.

2.1 Current seabird bycatch mitigation behaviours

(Research objective 3)

Fishers use a range of mitigation practices – but these are not completely in line with the mitigation standards

Table 2.1 summarises the mitigation practices each fisher was undertaking for line setting (that are relevant to mitigation standards 2.1 and 2.2).

Table 2.1 Summary of fishers’ mitigation practices in accordance with the line setting mitigation standards

	Number of boats	Meeting mitigation standards	Hookpods	Night setting	Tori line	Line weighting	Weighting mass/ distance meets mitigation stds
Fisher 1	1+	✓		✓	✓	✓	✓
Fisher 2	1+			✓	✓	Sometimes	✓
Fisher 3	1			Most of the time	✓	✓	✓
Fisher 4	1			✓	✓	✓	
Fisher 5	1+			✓	Most of the time	✓	
Fisher 6	1			✓	✓	Some line weighting	
Fisher 7	1	✓	✓	✓	Sometimes		
Fisher 8	1	✓	✓				

Three fishers were undertaking seabird bycatch mitigation practices that meet the mitigation standards (that is, fishers 1, 7 and 8). The other five fishers were undertaking a range of seabird bycatch mitigation practices, but overall did not meet the mitigation standards (which were introduced in 2019 and are not a legal requirement).

Two of the fishers interviewed were using Hookpods, a practice that is in line with the mitigation standards. One was also using a tori line for full moon periods and only setting at night (and dimming deck lights) to stop seabirds taking the baits. The other fisher was not using a tori line as it was a key reason for switching to Hookpods.

⁴ Susan Michie, Lou Atkins and Robert West, *The Behaviour Change Wheel: A guide to designing interventions* (London: Silverback Publishing, 2014), www.behaviourchangewheel.com.

Of the six fishers who were not using Hookpods, one was using practices that meet the mitigation standards for setting lines. This fisher was using:

Fisher 1. A tori line, setting at night and 60 g sliding weights within 1 m of the hook. Plus the bait is discarded after hauling, in one hit so that it sinks in bulk.

For the other fishers who were not using Hookpods, five fishers were not using the combination of a tori line, weighted lines and night setting all of the time, as detailed in the mitigation standards. Instead they were using a combination of other practices. Where each fisher was **not** following the mitigation standards for line setting, this is highlighted in bold below (the numbers correspond to the respective fishers).

Fisher 2. Tori line, night setting, **weighted hooks occasionally**, line shooter and lasers.

Fisher 3. Tori line, weighted hooks, setting mostly at night but **sometimes in the day** for swordfish.

Fisher 4. Tori line, always shoot after dark, weighted gear (**60 g lead swivels, 2 m from the hook**), well thawed bait and don't throw baits back while hauling.

Fisher 5. Tori line, only setting at night, weighted hooks, laser, line shooter (in bad weather), and dimmed lighting on the boat. The **tori line is not used in bad weather** for crew safety reasons.

Fisher 6. Tori line, night setting only, **some weights (60g lumo sliding leads at 2 m)**, laser, reduced deck lighting, and dyeing bait at high-risk times.

Looking more closely at line weighting, three types of weights are generally used in the New Zealand surface longline fishery. These are:

- lead swivels attached to the branchline
- lumo leads attached to the branchline
- weighted hooks (the lead swivel is directly attached to the hook – see figure 2.1).

With regard to the mitigation standard specifications for line weighting (for those not using Hookpods), three of the fisher's practices met the standards, and three practices met the regulations but not the standards.



Figure 2.1
Weighted hook

Each fisher was using the following methods:

- Weighted hooks (this meets the mitigation standards)
- Weighted hooks (this meets the mitigation standards)
- 60 g sliding weights within 1 m of the hook (this meets the mitigation standards)
- Weighted hooks occasionally when they get short of normal hooks, because the fisher uses a line shooter to get the lines down and only sets at night
- 60 g lead swivels, 2 m from the hook
- 60 g lumo sliding leads at 2 m from the hook.

All fishers said they were also using other practices that in their view help to mitigate seabird captures. These other practices included:

- retaining fish waste (as per mitigation standards 1.1 and 1.2)
- light dimming (as recommended by mitigation standard 4.1)
- thawing bait (as recommended by mitigation standard 2.3)
- using lasers: three fishers had been using a laser

- using line shooters: two fishers were using line shooters
- avoiding large full moons
- dyeing the bait (used as an extra measure when seabirds are around)
- using artificial bait
- in strong winds, setting the tori lines slightly off so the seabirds cannot hover and go for the baits under the tori lines.

2.2 Barriers to the uptake of the mitigation standards

(Research objectives 1 & 4)

2.2.1 Fishers' knowledge of the regulations is good, but they have less knowledge of the mitigation standards

A key barrier at the moment to fishers following the mitigation standards is that most are not exactly clear on or aware of the standards. Fishers did not spontaneously talk about the 'mitigation standards', the New Zealand Government's (or ACAP's) thoughts on best practice, or the National Plan of Action – Seabirds.

Fishers instead focused on the regulations and undertaking the other practices they see as best for mitigating seabird bycatch.

All fishers were aware of the mitigation regulations as they relate to surface longline fishers needing to either set their lines at night and use a tori line; or if setting during the daytime, to use a tori line and line weighting, with the alternative stand-alone measure being to use Hookpods. All fishers could speak confidently about these regulations.

Fishers take a certain sense of pride in knowing the regulations and knowing they are following them. They feel proud that they are doing the right thing by the law.

2.2.2 Fishers don't see the standards as being very different from the regulations – this creates some confusion for them

Some fishers were not aware of the term 'mitigation standards'. Other fishers said they were aware of the 'mitigation standards', but then in describing them, a few described the regulations. A few fishers used the terms 'mitigation standards' and 'regulations' interchangeably.

One fisher was able to describe the mitigation standards correctly.

Once the 'mitigation standards' versus the 'regulations' were clarified in some of the interviews, some fishers felt the mitigation standards were basically the regulations and they didn't sound like too much of a stretch for them. They could understand that the combination of a tori line, weighted lines and setting at night would be a good approach (if they were not using Hookpods). However, some fishers also commented that there are better alternatives to some of these three practices that are more effective, safer for the crew, do not hinder catch and/or are more efficient. These included:

- lasers instead of tori lines
- line shooters instead of weighted gear.

When it was raised by the researcher, fishers were not aware of ACAP (the international expert group that the New Zealand Government is a part of).

2.2.3 The barriers to following the mitigation standards when setting include safety, target catch, effectiveness, effort and hindrance

For those who were not using Hookpods, the reasons for not following the three-method combined practice (that is, line weighting, tori lines and night setting) at all times varied for each fisher. It appears that some of these barriers could be reduced with a combination of trials and communication.

The following reasons were each mentioned by one fisher:

- **Safety of crew:** One fisher noted that the tori line creates a dangerous situation in bad weather conditions and so they use other mitigation measures at these times.
- **Target catch:** One fisher preferred to set in the day (with weighted gear) to target swordfish, since this was within the regulations, but had previously only set at night. One other fisher agreed that day-time is their preferred time to set for swordfish, but they didn't do so to avoid the seabirds.
- **Another method preferred:** A line shooter was preferred over weighted hooks, to get the baits down faster and avoid the safety risks associated with line weighting.
- **Effort:** One fisher preferred not to weight the line completely at night to stop bait being pulled down too far and to save on work.
- **Hindrance:** One fisher mentioned he did not want to hinder his fishing by having weights closer to the hook.

2.2.4 Fishers believe their methods work, except in unusual circumstances

A potential barrier to fishers feeling the need to follow the mitigation standards is that most say they don't catch many seabirds using their current practices and as a result they feel they are taking good steps in their seabird mitigation activities. They stated that when they do have a large unexpected seabird bycatch, it is due to exceptional events, such as a very large moon, and as a result of these occurrences they put in place further mitigation measures. But generally, because they consider their seabird captures low, they are not driven to undertake additional practices that do not seem necessary to them. However, they are open to easier, more effective and/or more practical methods if and when they come along – if they see them as an improvement on what they are currently doing.

2.2.5 Hookpods (as the alternative option) have many perceived barriers

According to the mitigation standards for line setting, fishers can choose between the combined practice (of line weighting, tori lines and night setting) and using a hook shielding device such as Hookpods (shown in figure 2.2).

Hookpod Minis were rolled out in a trial by government to fishers who were interested in trying them. Hookpod Minis open at a depth of approximately 20 m.⁵

Most of the fishers interviewed had tried the Hookpods that were supplied as part of the trial, but were not interested in using them again in their current form as one of the mitigation standard options.



Figure 2.2 Hookpod
(Source: Hookpod)⁶

⁵ 'Product Details', Hookpod, accessed 15 October, 2021, <https://www.hookpod.com/en/product/details/>.

⁶ Hookpod, *Hookpod Mini*, photograph, ©Tamzin Henderson Photography, accessed 15 October, 2021, <https://www.hookpod.com/en/product/details/>.

Of the fishers interviewed, two fishers were favourable towards the Hookpods supplied in the trials and six were unfavourable towards them – there was no one who was undecided or ambivalent.

The rollout of Hookpods was seen as not ideal

Many fishers felt the Hookpods Minis had been provided without a lot of support or ideas to enable their successful implementation, and as a result this had hindered fishers' acceptance of the Hookpods.

Hookpods appear to have been taken up by those fishers who were willing to persevere despite the issues they faced to get the devices to work for them. Other fishers who trialled them were not so keen to persevere, given the loss in catch they experienced and other significant barriers.

For future trials, one fisher suggested that the rollout needs to be better thought out, so the equipment or innovation can be easily implemented and to ensure it works effectively for those who trial it. He suggested that this may require making different options available to suit different fishers and their particular circumstances. Whatever the equipment or innovation being trialled, the fishers felt it was important that it have as few failures as possible to have the best chance of being accepted. This may mean further testing is required before a trial begins, to iron out any technical issues.

Barriers to overcome to support wider use of Hookpods

Understanding the current barriers to the trialled Hookpods is important in gaining wider support for their use by fishers in future.

The key barriers to using Hookpods were as follows (roughly ordered from the most mentioned to least mentioned):

- **Some/many Hookpods don't open.** Many of the fishers who had trialled the Hookpods said too many of the Hookpods came back unopened and had not released the hook. This was thought to be because these fishers don't fish as deep as 20 m (the depth needed to activate the opening trigger); for some it was difficult to know how deep their lines do go.
 - One fisher commented that to get Hookpods to work for him, he would need to change the way he fished – for example, use deeper gear. However, he felt there were also other barriers to using them.
 - Another fisher suggested the Hookpods might work better if they were on a timer instead of the depth sensor (for example, if they opened after 15 seconds).
- **Hookpods have ongoing costs** compared to some other mitigation options. These include:
 - upfront costs (if they were purchased outside of the trial)
 - lost Hookpods due to shark predation (this seemed to be more of an issue than broken Hookpods)
 - the cost of replacing broken pods (for example, when they hit the side of the boat)
 - the cost compared to weighted hooks (Hookpods were estimated to be \$8, compared to \$2.30 for a weighted hook).
- **Hookpods create line tangles in the bins.**
- **Hookpods might hinder catch.** Some fishers felt the Hookpods might hinder catch as they add an unfamiliar object in the water near the bait.
 - This was also a concern for one fisher who had not trialled the Hookpods.
 - However, those who were currently using Hookpods did not feel their catch had been hindered by the Hookpods.

- **Hookpods slow down the setting process.**
- **Hookpods may still be killing seabirds.** A couple of fishers felt that because seabirds will still go for the baits, the seabirds could get strangled (or drowned if their wing gets caught) in the loop of line between the Hookpod and the hook, and that this would go unnoticed because the seabird would be released when the Hookpod opens. One fisher noted that seabirds could also get caught when the hooks are unprotected during the soak – and to avoid this, line weighting should be used in conjunction with Hookpods.
- **Baits can be lost to seabirds** as nothing is protecting the baits during setting unless additional mitigation practices are deployed.
- **Catch can get lost on occasion** (for example, when the branch line gets caught in the opening of the Hookpod and is cut off).
- **Hookpods add to plastic pollution.** Broken pods can result in more plastic going into the ocean.
- **Hookpods are perceived to create a safety risk to the crew.** One fisher felt the Hookpods could hit a crew member in the face and cause damage.

One fisher had heard that some fishers have the Hookpods, but don't use them unless an observer is on board. He thought introducing cameras would help to ensure this doesn't happen. One fisher who was using Hookpods said he was using a camera on the boat to ensure the crew were using a Hookpod on every hook.

Proposed solutions to some of the barriers

Two of the fishers interviewed were using Hookpods and were advocates for them; their motivations for using Hookpods are documented in section 2.3.7.

These advocates had come up with solutions to some of the issues they and others were having with the Hookpods. These were as follows:

- To deal with the tangles in the bins, place layers of mats in the bins. Rubber mats were found to last longer than carpet mats.
- To help deal with frustrations from the crew, give them time to get into the new routine, and provide good training.
- One solution that was proposed for dealing with several different issues (such as, tangles, snap offs, and lost or broken Hookpods) was to have Hookpods at the clip.

2.2.6 Cost, catch and safety issues are barriers to fishers changing to better weighting practices – but they don't appear insurmountable

As mentioned earlier, three types of weights are used in the New Zealand surface longline fishery. These are:

- lead swivels attached to the branchline
- lumo leads attached to the branchline
- weighted hooks (where the lead swivel is directly attached to the hook).

As documented on page 7, half of the fishers (who were not using Hookpods) were following the weighting specifications as per the mitigation standards and half were not. With those who were not, the mass of the weight they were using and the distance between the weight and the hook did not meet the standard.

Some of the reasons fishers were reluctant to either change to weighted hooks or use weights that were closer to the hook were:

- **the cost** of changing/adding gear and replacing lost weights or hooks

- **the risk of hindering catch** – for one fisher, having a weight closer to the hook would mean the branch line would need to be stronger and this would deter the fish
- **the risk to the safety** of the crew from weights flying back (compared to having no weighting)
- **tangles** caused by the weights
- **their preference to use a line shooter** to get the bait down into the water quickly, rather than using weights to do so.

It's worth noting that when fishers discussed these barriers, they didn't talk about them in such strong terms as they used when discussing the barriers associated with the Hookpods or the issues they are facing with the tori lines. Some also mentioned that weighted hooks only became available last year and so more fishers may move to them in time, since the barriers are not as significant as with other alternatives.

With regard to crew safety and using line weighting (as opposed to no line weighting), fishers mentioned the issues with flybacks. But the fishers interviewed had also found solutions to these issues: either using lumo leads, or slowing down and lowering the hauling height. That is, it seems the fishers in the interviews were finding their own individual solutions for avoiding flybacks – however, they were still cognisant of the original issues.

With regard to line tangles, one fisher preferred line weights over weighted hooks to reduce the amount of twisted branch line that needed replacing. For example, he said a shark could twist 12 m of a branch line that has a weighted hook, but by having the lead swivel at 2 m the shark only twists the top 2 m, rather than the other 10 m.

2.2.7 There appears to be a lack of shared understanding of the ideal mitigation practices

Fishers have concerns and frustrations about some government mitigation recommendations (for example, in relation to Hookpods or tori lines (including the tori line minimum standards, required use in dangerous conditions and the government supplied materials)) and/or they see more benefit in using alternative mitigation techniques (such as lasers, line shooters and bait disposal).

Some fishers say they are trying to implement and improve mitigation practices, but their perspective on what works better is not always accepted by the Government, NGOs or other stakeholders – for example, their views on methods such as lasers and line shooters, and on the Government's approach to tori lines.

Lasers are preferred by some fishers, but are not recognised in the regulations or the standards

Three of the fishers interviewed had been using lasers on board their boats.

A range of fishers (some using lasers and some not) viewed lasers as a useful mitigation device. They feel lasers have benefits in terms of crew safety, ease and effectiveness that outweigh what the fishers believe is the small chance of a seabird being seriously harmed by a laser.



Figure 2.3 (Source: Doug McLean/Shutterstock.com)

Fishers commented that lasers are used in orchards and have been found to work in other countries. They explained that seabirds don't want to cross the beam of light and so they fly away from it rather than into it. Fishers say they get 'pushback' when they raise lasers as a

possible mitigation method, because of Forest & Bird's claim that the lasers could hurt seabirds' eyes. They say they have heard there is no scientific evidence to say for certain that lasers harm seabirds. Fishers would like lasers to be considered as a recognised seabird mitigation device.

Some fishers said they prefer lasers over tori lines. With a laser they simply need to push a button. In comparison, with a tori line the crew needs to go through the process of putting it out, they can get hook ups (which can be dangerous for the crew if line pulls back and hooks come flying back), and they always need to carry two tori lines in case one breaks off. Some fishers felt that tori lines were dangerous for their crew, were cumbersome and not always effective.

Gimbaled lasers were mentioned by one fisher as the best type of laser to use, since the beam stays in the same position regardless of what the boat is doing.

Line shooters are favoured by a few fishers, but are not recognised in the regulations or the standards

Two of the fishers interviewed were using line shooters. These fishers see line shooters as the best, or a very helpful, mitigation practice, based on their experience and use over time. One fisher used the line shooter primarily in bad weather, with weighted hooks attached to the line as well. The other fisher also used some weighted hooks while using the line shooter.

They stated that with a line shooter the baits go straight down and the gear sinks deeper, so the seabirds cannot get to the baits.

Tori line minimum standards and government-supplied materials are appreciated – but fishers say could be more effective and easier to use

As part of the regulations, a fisher's tori lines need to meet the minimum standards. To help them meet these minimum standards, the Government currently supplies fishers with free materials to make their own tori lines (this may not continue in the future).

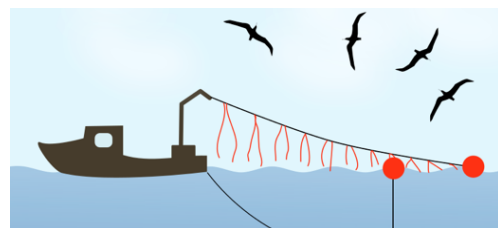


Figure 2.4 Tori lines (Source: Michal Klajban)⁷

Many of the fishers interviewed felt that both the minimum standards for tori lines and the government-supplied tori line materials could be improved to make the tori lines:

- more effective at scaring away seabirds
- easier to handle
- less dangerous, especially in bad weather.

Based on their experience with tori lines, fishers raised the following points regarding the minimum standards for tori lines and/or the tori line materials supplied by the Government:

- **The recommended length for the tori line is too long.** Fishers feel it creates tangles and drag.
- **The material used for the tori line is problematic.** Fishers find that the hooks dig into it.
- **The supplied streamers are too long.** They can catch the mainline as it goes out.
- **The streamers are too heavy.** They don't blow enough and they weigh the tori line

⁷ Michal Klajban, *Bycatch – tori lines (streamer lines)*, image, <https://creativecommons.org/licenses/by-sa/4.0/deed.en>. Creative Commons License CC BY-SA 4.0, <https://creativecommons.org/licenses/by-sa/4.0/deed.en>.

down.

- **The streamers are not the best option for scaring seabirds** – some seabirds are not scared of them.
- **Aerial extent can be hard to achieve** without lines getting hooked up – particularly when fishers add their preferred (perceived as more effective) gear to the tori line.

The fishers are grateful for the tori line items being supplied, but they want the materials and standards to be more effective for mitigation purposes and practical use.

Fishers are making adjustments to their tori lines to, in their view, make them more effective for mitigating seabird bycatch. These modifications vary for different boats, but include the following:

- Adding other items to the tori line (for example, rubbish bags, cones, light sticks, rope, tinsel) to have a greater perceived impact on seabirds – that is, to make more noise and be more easily seen.
- Making the trailing rope shorter.
- Using a higher attachment point for the tori line (on bigger boats) and adjusting the streamers to suit.
- Offsetting the tori lines about 2 m from the bait and mainline – to avoid hook-ups in bad weather. This fisher saw this as the same as setting over the lines to discourage seabirds, as the seabirds do not want to fly across the line.
- Adding a release aid clip (or similar system) to help avoid large tangles and dangerous situations, to improve safety and efficiency.

Many fishers commented that it does not feel as though fishers have been consulted on the best approach to tori lines, and their experience would help improve the effectiveness, handling and safety of the lines – which in turn would improve fishers' satisfaction while using them.

Using baits to distract seabirds during hauling rather than holding them

One fisher commented that seabird bycatch could be more effectively reduced if used baits were thrown out the back of the boat during hauling, to keep the seabirds away from the baits and the hooks.

2.2.8 Other work pressures are also potential barriers to fully implementing the mitigation standards

Fishers are currently dealing with a range of stresses that may also impact on their ability or motivation to change their current mitigation practices. The key ones fishers named were:

- difficulties in finding and keeping good crew
- their income being hit by COVID-19 (due to exchange rates and overseas pricing)
- increasing expenses
- needing to pay for and implement new regulatory equipment (for example, the Ministry for Primary Industries' electronic reporting system) and the stress on fishers associated with this
- the possibility of needing to pay for new technology in future (for example, boat cameras)
- the need to spend more time on compliance
- that surface longlining is hard work, tiring and can be dangerous
- mental health pressures.

These types of pressures are having a negative impact on fishers in the following areas:

- the ease with which they can train crew on specific mitigation practices
- their ability to purchase new mitigation equipment
- having time to implement new mitigation practices
- their willingness to maintain practices or deal with monitoring checks during particularly tiring times
- their willingness to undergo practices that they see as increasing the likelihood of a dangerous situation for themselves and their crew.

With regard to mental health, the fishers said they have reached the point where there is now too much pressure on them – from NGOs, from government and the public. They see other fishers leaving the industry because of this pressure and some were thinking of leaving themselves. Some fishers felt the Government and NGOs want there to be no fishing industry. They feel supported by government in some respects, but unsupported in terms of government working with them on the common goal of seabird mitigation. Fishers said they are in the industry for ‘their love of being on the water’, ‘being out in the elements’, ‘the adventure’, ‘the challenge’, and ‘being a hunter/gatherer’ and ‘a provider’ – and not for the social and compliance pressure they receive.

2.3 Drivers for increasing uptake of the mitigation standards

(Research objectives 5, 7 & 8)

In this section we look at the potential drivers for increasing uptake of the mitigation standards. We have used the COM-B model⁸ as a framework to group the potential drivers.

COM-B is a behaviour change model that is useful for obtaining a well-balanced understanding of the range of possible drivers of (or opportunities for) behaviour change.

In the model (shown in figure 2.4), COM-B stands for: Capability, Opportunity, Motivation and Behaviour. The premise is that by understanding fishers’ capability, motivation and opportunity to carry out the ideal desired behaviour (that is, to follow the mitigation standards), we can understand how to enable the behaviour.

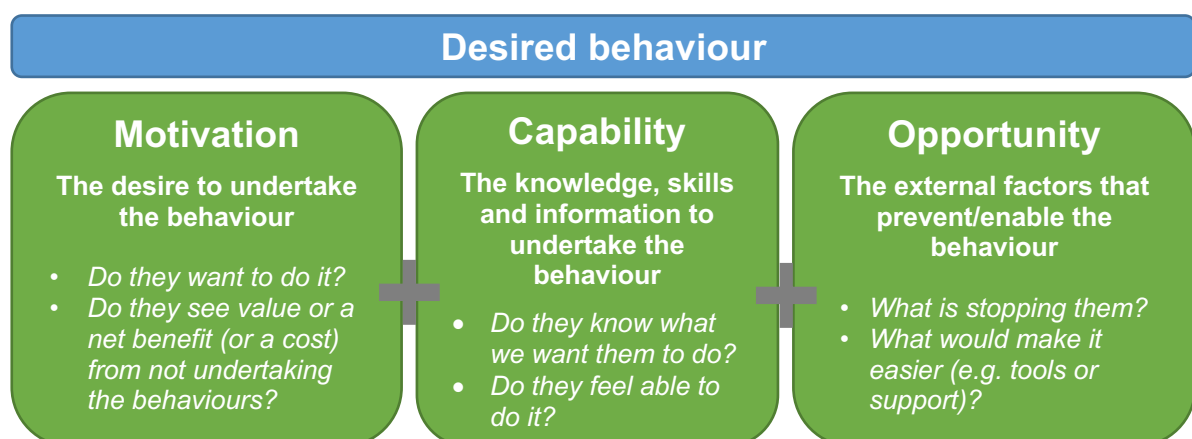


Figure 2.5 COM-B model for behaviour change⁹

⁸ Susan Michie, Lou Atkins and Robert West, *The Behaviour Change Wheel: A guide to designing interventions* (London: Silverback Publishing, 2014), www.behaviourchangewheel.com.

⁹ Susan Michie, Lou Atkins and Robert West, *The Behaviour Change Wheel: A guide to designing interventions* (London: Silverback Publishing, 2014), www.behaviourchangewheel.com.

Motivation drivers

In this section we look at whether, and why, fishers are motivated (or might be) to follow the mitigation standards. As part of this we have also looked at whether/why fishers are motivated to follow the regulations and also to reduce seabird bycatch.

2.3.1 Motivation driver: Fishers don't want seabird bycatch for several reasons

The fishers in the interviews said they want to do what they can to stop seabird bycatch, but this desire is tempered by what is practical and safe for them. Their motivation is not simply that they are legally required to avoid bycatch. Their primary reasons for wanting to prevent seabird bycatch are financial, values-based and as a response to social pressure.

More specifically, the fishers interviewed were motivated to use tori lines, line weights and night setting for the following top reasons:

- **To reduce baits lost to seabirds.** Example sentiment: *If a seabird takes the bait, we lose a fish. We prefer to set at night to reduce the amount of bait we lose to seabirds.*
- **To save seabirds.** Example sentiment: *We don't want to kill seabirds, we have no reason to want to do that. We want to look after the seabirds.*
- **To do the right thing.** Example sentiment: *I want to ensure we are doing everything we can.*
- **Because of public pressure.** Example sentiments: *The public see us as rapists and pillagers. Men are breaking down in tears due to the pressure put on us.*
- **Because of government pressure.** Example sentiment: *The Government could close the fishery.*

As an example of their interest in seabird bycatch mitigation, when fishers are not catching seabirds they feel they have 'cracked it' in terms of their mitigation practices; they feel proud and successful. This was the case for most fishers. Two fishers were particularly confident they had 'cracked it' and felt their mitigation systems were working extremely well. These two fishers were using methods that met the mitigation standards:

- Hookpods for one fisher
- a combination of tori line, line weighting, night setting, a line shooter and lasers for the other fisher.

2.3.2 Motivation drivers: Mitigation standards are more likely to be adopted if they are perceived as effective, safe, affordable, efficient and practical

When fishers are looking at their mitigation options, they are looking for practices that are:

- **effective** – they reduce seabird bycatch
- **safe** – they ensure the safety of crew
- **affordable** – not too cost-prohibitive to purchase and maintain
- **efficient/easy** – not too time-consuming in the setting process
- **practical** – they don't hinder the catch.

Ideally, proposed mitigation measures need to be seen by fishers as meeting the above criteria to increase their willingness to undertake them.

2.3.3 Motivation driver: Fishers are motivated to do more than the regulations

Most fishers were undertaking more mitigation practices than they are required to under the regulations. For instance, one fisher noted that he doesn't set his lines in the daytime (with a tori line and weighted gear) even though the regulations allow it.

Fishers also stated they had been undertaking mitigation practices before these became regulation. For example, they were already using tori lines before the regulations were introduced because they helped with seabird mitigation, rather than because they were told to use them.

2.3.4 Motivation driver: Fishers believe more than one mitigation technique is needed

Most fishers are using a range of mitigation techniques and they feel this is important if they are serious about not catching seabirds. Additionally, they feel the regulations are not sufficient to stop seabird bycatch and that other things can and should be done, especially when there are bright moons or a lot of seabirds around.

As well as not wanting to catch seabirds, fishers also feel they need to be doing as much as they can around mitigation because of the scrutiny they come under if they do have a large seabird catch. This is another driver for the range of mitigation practices fishers are undertaking.

Fishers agree that simply having a tori line is not enough – tori lines can help but they are not 100% effective

Fishers use other methods in conjunction with their tori lines to reduce seabird bycatch. These include line weighting, night setting, using lasers (for a few), line shooters (for a couple), and using dye for bait when more seabirds are around and extra precautions are necessary (for a few).

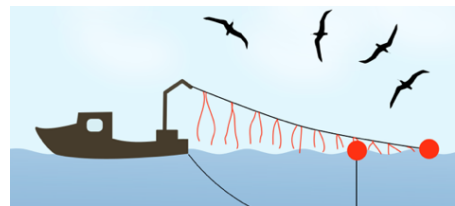


Figure 2.6 Tori lines (Source: Michal Klajban)¹⁰

Fishers feel that tori lines do help with seabird bycatch mitigation, but they are not the total answer – it's still possible to catch seabirds when using a tori line. One fisher explained that with a tori line and nothing else, two seabirds might be caught, but without a tori line 10 seabirds might be caught.

Fishers agree that sometimes it is not enough to have tori lines and night setting (as required under the regulations) – weighted gear is also needed

Most of the fishers interviewed were using weighted gear at night despite this not being a legal requirement. Line weighting was seen by most fishers as an effective and sensible method of mitigating seabird bycatch, especially during large full moons.

¹⁰ Michal Klajban, *Bycatch – tori lines (streamer lines)*, image, <https://creativecommons.org/licenses/by-sa/4.0/deed.en>. Creative Commons License CC BY-SA 4.0, <https://creativecommons.org/licenses/by-sa/4.0/deed.en>.

A few fishers stated they need/want to use other measures with Hookpods

Although seabirds can't get caught on the hook when it is inside a Hookpod, fishers said they still need to use other mitigation techniques along with the Hookpods to protect their baits (for example, using a tori line, especially if setting in the day or during full moon periods).

One fisher wanted to use line weighting, in order to have the Hookpod at the clip to reduce a lot of the issues with using Hookpods, but this is not currently allowed under the regulations.

2.3.5 Motivation driver: Night setting is preferred by most fishers

Of the fishers interviewed, most preferred to set their lines at night anyway, as it suits the 'bite times' for their fishing, and/or they do it to avoid seabirds. With regard to swordfish fishing, some fishers feel it is better to set their lines for swordfish during the day, but say they are setting them at night to avoid the seabirds. A couple set for swordfish in the day, but it seemed they could set at night if encouraged to do so.

One fisher commented that day setting should be avoided altogether; they felt it is too easy to do something wrong and end up with seabird bycatch.

2.3.6 Motivation driver: Switching to better line weighting options was not disregarded

Switching to weighted hooks is a potential option

Weighted hooks were perceived quite favourably by fishers generally. Weighted hooks did not attract the strong criticism associated with the Hookpods, and the only real barrier appeared to be cost. A weighted hook was stated to cost \$3.20 while a regular hook is \$1. One fisher said this could cost \$8,000 to \$10,000 a year due to hooks lost to sharks.

Lumo leads or weighted hooks are preferable to lead swivels

A motivation driver for using weighted hooks or lumo leads (sliding weights) is that they reduce the safety issues associated with the weighted leads (or lead swivels) – that is, the sliding weights reduce the risk of hooks springing back at the crew or boat (called 'flybacks').

Switching to line weighting helps reduce tangles

Line weighting, rather than no line weighting, was also seen as a good way to avoid tangles in lines – for example, to avoid tangles with the tori line when setting or to keep branch lines off the backbone while hauling.

2.3.7 Motivation driver: A couple of fishers saw Hookpods as a valuable mitigation technique

Two of the fishers interviewed were using Hookpods and were advocates for them. They felt Hookpods are the best option to avoid catching seabirds and did not compromise their catch. But they also commented that the Hookpods that are part of the current trial are only suitable for fishers who like to fish quite deep (below 20 m), and some fishers, especially when targeting swordfish, like to have their gear at around 10 to 15 m (which means the Hookpods don't open).

One of the fishers was using the Hookpods without a tori line and the other was using a tori

line at times (for example, during the full moon period to keep seabirds away from the baits). The fisher who wasn't using a tori line felt one of the big advantages of the Hookpod legislation was not having to use a tori line. He said tori lines could be difficult for the crew during the set and are a hassle when they get caught up, meaning another one needs to be put out.

One fisher who was an advocate of Hookpods acknowledged that they require a bit of work to implement and felt there were improvements that could be made, but he believed it was worth it if it meant he didn't catch seabirds.

2.3.8 Motivation driver: Compliance monitoring increases use of mitigation practices

A couple of fishers mentioned that the monitoring that is carried out increases compliance with the regulations. The examples they gave were the Orion aircraft (which fishers feel has likely increased the use of tori lines) and vessel boardings (which are expected by fishers). Some fishers commented that cameras are also going to help ensure compliance – either to prove that they are complying or to ensure others are complying.

2.3.9 Motivation driver: Large, unexpected seabird captures can create greater motivation for further mitigation measures

One fisher had recently switched to weighted hooks after a seabird bycatch incident that occurred after dusk, during a particularly bright moon. The incident prompted him to investigate further mitigation measures. He was advised to add weighted hooks (hooks purchased with the weighted swivels attached) to his gear as a further preventive measure – and had done so. Before the incident, the fisher had not seen line weighting as necessary, as he was following the regulations using a tori line and only setting at night.

2.3.10 Motivation consideration: Mitigation practices are perceived as more important while fishing in the South Island over winter

A few fishers commented that seabird bycatch mitigation practices become more important the further south they fish; they are much more likely to see masses of seabirds in the south during winter than they are up north.

They said that further north there seem to be fewer seabirds, and most of the time they do not have to try very hard not to catch seabirds in the winter (but there are a lot of young petrels in summer). By contrast, from 42 degrees latitude¹¹ and below there can be large numbers of seabirds such as albatrosses.



Figure 2.7

(Source: Alexander Lukatskiy/Shutterstock.com)

¹¹ 42 degrees latitude is roughly where Wellington lies.

2.3.11 Motivation consideration: Performance or social norm information from their peers motivates fishers to investigate alternative mitigation measures – and then they make their own judgements

Performance or social norm-related information sourced from their peers motivates fishers to consider the mitigation measures they use. Fishers listen to other fishers' experiences, as they are seen as their most trusted and knowledgeable sources of information. They take everything on board and then weigh it up against their own knowledge and experiences.

Fishers need to see that a proposed mitigation measure is likely to work for them. The tool or technique needs to meet their assessment criteria and be suited to their boat and the conditions. For example, they may know that other fishers use Hookpods and like them, but this may not be enough to convince them to use Hookpods given their own thoughts, knowledge, experiences or practices.

As another example, one fisher knew about weighted hooks but was reluctant to use them because he doubted they would be beneficial for his particular situation, based on his knowledge and experience of fishing and how equipment works. As a further example, some of the fishers had heard about the success other fishers were having with lasers, and as a result, lasers were viewed quite favourably by these fishers.

Capability drivers

In this section we look at whether fishers have the necessary knowledge, skills and information to undertake the mitigation standards.

2.3.12 Knowledge: Fishers need to understand the mitigation standards in order to follow them

For fishers to undertake the mitigation standards, they need to first be aware of them. As noted in the 'barriers' section (section 2.2.1), most fishers in the research did not appear to be clear on, or aware of, the mitigation standards. Fishers instead focus on the regulations and other practices they see as best for mitigating seabird bycatch. Fishers did not spontaneously talk about the 'mitigation standards', the New Zealand Government's (or ACAP's) thoughts on best practice, or the National Plan of Action – Seabirds.

With regard to line weighting specifications, most fishers understood the regulation specifications for line weighting: they could recite them with ease. However, a couple of fishers cited the mitigation standards specifications for line weighting, thinking they were the regulation specifications.

2.3.13 Skills: Fishers appear to have the skills for the combined approach

For fishers to undertake the mitigation standards for line setting, they need to have the skills to do so.

With regard to the combined practice of night setting, using tori lines and line weighting, the fishers interviewed appear to mostly have these skills since they are undertaking these practices most of the time (or for some, have done so at some point). To meet the mitigation standards, several fishers will need to be convinced to combine the practices they already use, or move their weights closer to the hooks (and ensure there are weights on every branch line).

2.3.14 Information: Fishers may benefit from information or their peers' experience with Hookpods

With regard to capability and the use of Hookpods, the fishers who stopped using them did not find them practical to use. These fishers might benefit from the experience of others who have persevered with them – for example, to gain the information and skills needed to avoid tangles in the bins and to set with Hookpods efficiently.

Opportunity drivers

In this section we look at the external factors that the research found could either enable or prevent effective seabird bycatch mitigation practices, including those that are or could be useful for following the mitigation standards.

2.3.15 Opportunity driver: The protected species risk management plans create awareness and knowledge of the regulations for fishers – but the inclusion of the standards is not obvious to them

The protected species risk management plan (PSRMP) that each fisher has been completing with help from the DOC liaison officers has been a useful tool and process for some fishers; it helps them to understand what is required to meet the regulations and to actively set down their personalised plan for mitigating seabirds.

Some also mentioned that the PSRMPs provide an endorsed program for mitigating seabird bycatch, and a benefit of creating the plan is that it can be shown to interested parties, such as NGOs or the Ministry for Primary Industries (MPI).

As mentioned in the research background (section 1.1), liaison officers have been discussing the mitigation standards with fishers and working to update each vessel's PSRMP to reflect the recommended measures. However, this work and the emphasis on the standards was not mentioned by the fishers spoken to. Further thought is needed on how the PSRMPs could help increase awareness of, and engagement, with the mitigation standards.

2.3.16 Opportunity driver: DOC liaison officers are seen as helpful for guidance/checking on the regulations – but less so for guiding best practice

Fishers see the DOC liaison officers as very helpful in guiding them on their PSRMPs, being available to talk with and ensuring they are meeting the regulations. Fishers commented that the liaison officers do not talk about their mitigation options beyond the regulations. Some fishers commented that the DOC liaison officers can take too much of an auditing approach (or a 'tick the box' approach). Some suggested that mitigation knowledge and practice might move forward more productively if liaison officers engaged with fishers on best practice mitigation (beyond the regulations) and were open to discussing alternative points of view and ideas. Given that liaison officers have been tasked with discussing the mitigation standards with fishers, but this has not been apparent to all fishers, one option may be for liaison officers to more clearly point out, or communicate, the components relating to the standards.

2.3.17 Opportunity driver: Government observers see mitigation practices in action across the fleet – could they help with knowledge collection and guiding best practice?

One fisher suggested that it would be helpful if learnings on all mitigation methods (that is, from fishers using them) could be collected by the observers to help develop best practice process and thinking. That is, observers could document wider information on how all mitigation methods are working on a vessel, including what works and doesn't work, rather than just gathering basic data. The observers' learnings could then be shared with others to improve and build on knowledge of mitigation practices.

2.3.18 Opportunity driver: Subsidising and providing gear encourages trialling and adopting of new mitigation methods

As seen with the Hookpod trial, the provision of mitigation gear definitely encourages fishers to try new mitigation practices. Most fishers in the interviews had trialled the Hookpods. Provision of gear had also encouraged trial and use in other ways: fishers were using the tori line materials provided to them and one fisher had trialled an underwater bait setter.

Fishers are open to trialling gear and/or receiving subsidies on mitigation-related equipment. However, feedback on previous trials suggests that these need to be closely managed, and trialled with fishers who have a 'can do' attitude and are open to working with researchers to improve the gear or methods. Experiences with previous trials also suggest that any teething problems with the new gear need to be completely resolved before there is widespread distribution. As previously mentioned, fishers will be most motivated to use new gear or methods voluntarily (and keep using them) if the mitigation method is shown to be effective, safe for crew, affordable, efficient and practical.

2.3.19 Opportunity driver: Fishers are looking for greater collaboration to advance seabird bycatch mitigation best practice

Fishers feel more progress on seabird bycatch mitigation could be made if there was greater collaboration between fishers and government. At the moment, fishers feel they are largely being told what to do and then audited on those rules. Some said the auditing approach creates a bad feeling amongst fishers, rather than the more ideal environment of collaboration, cooperation, learning and progress.

Fishers feel they have a wealth of knowledge based on years of experience that they can use to help inform and progress mitigation practices. They want to have the opportunity to explain which practices work better than others, and which don't work so well and why, and for this to inform government decisions on recommended and mandated mitigation practices. Particularly because they are the ones who need to implement the practices and specifications, and they also don't want to catch seabirds. They want to have conversations about the pros and cons of different practices and not just be told that a particular practice is no good.

Fishers want to be listened to. They don't feel there has been enough collaboration between themselves and government, or perhaps the fishers interviewed were not aware of past engagements. Some of their key sentiments with regard to lack of collaboration were as follows:

- 'They need to listen to us.'
- 'Everyone means well, but they need to be practical.'

- ‘It’s not logical, it’s unbalanced, the health and safety of fishermen doesn’t get taken into account’.
- ‘We need what works and what is safe.’
- ‘Everyone wants to run us, but they don’t want to help us do it... it’s a big challenge.’
- ‘It’s unrealistic to have a zero-tolerance mindset.’

Fishers stated that their relationship with government/NGOs would feel more collaborative if:

- they were **acknowledged** for the mitigation practices they are undertaking and the successes they are having – rather than most ‘voices’ saying they are not doing enough
- they were treated as **partners** – that is, if they were listened to and included in testing and co-design of practices, rather than being legally required to use practices that are not effective for mitigation, or being used as ‘guinea pigs’ for trials
- they were being **supported** more often than they are criticised
- their **livelihood was respected**: in other words, if there was an acknowledgement that they need to make money and cannot support large investments in regulatory requirements, if those costs cannot be passed on via their fish sales.

When asked how they would prefer to receive information, fishers typically (and some quite strongly) stated that they do not need more communications to motivate them – they felt they receive too much communication about seabirds and mitigation. They want to move past having information pushed to them, towards a more collaborative approach. One fisher mentioned that he felt it was good that the interviews (for this report) were being undertaken, as it demonstrates a form of listening and taking account of their views.

Some fishers also commented that there should be more collaboration between fishers and NGOs. Fishers perceive NGOs as putting pressure on them (which is compounded by the public pressure they create) – but they feel the NGOs are not willing to listen, help or work on things together with the fleet. The NGOs they mentioned by name were Greenpeace, Forest & Bird, Legacy and, to a lesser extent, WWF.

Fishers want to be able to talk about both sides of different potential mitigation methods: to evaluate the pros and cons of different measures together with other stakeholders. One example of this is using lasers as a seabird mitigation device. They feel they have simply been told that lasers are not okay, without a discussion about the wider benefits for crew safety and avoiding seabird deaths.

As a suggestion to enable a more collaborative approach, one fisher suggested it would be useful to have a central source of information on evolving learnings about new tools, that everyone could contribute to (for example, on how to overcome some of the issues fishers have had with Hookpods). It was thought that this central knowledge hub could help fishers engage with the mitigation standards and advance knowledge generally.

Overall, fishers currently see the relationship with government and NGOs as an external barrier to improving mitigation practices. This barrier could be turned instead into an external opportunity for advancing mitigation practices with a more collaborative approach: one that demonstrates greater listening, partnership and working together; that acknowledges fishers’ current practices; that encourages, and that is understanding. Fishers stated they want less auditing and more ‘working together’ for the common good.

2.4 Insights for communications and guidance

(Research objectives 2, 6, 9, 10, 11, 12)

2.4.1 How do fishers currently receive communications and how would they like to be communicated with?

Word of mouth appears to be the dominant source of information for fishers

All fishers in the interviews said that they mostly gain their fishing related information by talking to other people: on the phone, face to face or via their vessel radios.

Fishers also receive communications or information about seabird bycatch mitigation through email and at industry events

Fishers said they also learn about seabird bycatch mitigation:

- through emails (for example, from MPI, FINZ, DOC)
- at industry meetings (some fishers said they attend these, a few said it is hard to get to them, and one commented that numbers are dropping at the meetings)
- via internet searches (for example, Google) – for some but not others.

One fisher had learnt about line shooters from the hard copy tick-box reporting forms that were previously used on the boats.

The fishers had varying reactions to emails. Some read emails about seabird mitigation (for example, from MPI or DOC) and others were frustrated by the amount they receive. The level of interest in the emails also depended on the topic. Receiving too many emails on the same or particular topics caused some fishers to tune out. Fishers did not say emails were currently an important source of information for them; talking to others was a more valued source of information.

More generally, fishers receive information on fishing gear via suppliers and magazines

Fishers noted that fishing gear does not change much over time, so they do not need to be monitoring information continuously. But when they do buy fishing gear:

- some purchase their fishing gear online (or via 'direct contact with the suppliers') and get it delivered (for example, from Australia, Korea)
- some visit commercial fishing outlets (for example, in Auckland or Tauranga).

A few read commercial fishing magazines from New Zealand or Australia: for example, one fisher had read about lasers in an Australian magazine.

Fishers want conversations rather than one-way communications

Fishers said face-to-face interactions, rather than push (one-way) communication methods, are the best way to get their attention and increase their awareness on new initiatives, such as the mitigation standards. They want to move past having information pushed to them, towards more collaborative engagement between vested parties.

2.4.2 Who do fishers currently receive communications from and who is most influential?

Fishers currently receive most of their communications or information from a range of people

The fishers interviewed said they gain most of their knowledge on how to fish or fishing gear either from experience of working for many years on boats, or from other fishers in the fleet. Other fishers are seen as having valuable knowledge (based on experience) that other information sources lack.

In terms of mitigation practices specifically, fishers learn about them mostly from other people, including:

- DOC liaison officers (or 'bird liaison officers') – these officers are a key information source and contact point for fishers. Fishers are in contact with them via:
 - a visit every year to review their risk management plans
 - regular phone calls and/or emails
- other fishers in the fleet (in New Zealand and, for some, in Australia) – they talk in person, on the phone, on the radio or at industry events
- FINZ representatives
- MPI representatives.

Supportive/experienced people are more likely to motivate fishers to change how they carry out their fishing operations

Fishers primarily prefer to gain information from other fishers as they have knowledge based on experience. They also like getting phone calls from FINZ or the DOC liaison officers.

Most fishers agreed that the people or organisations that are most effective in helping them implement mitigation practices are:

- other fishers in the fleet
- DOC liaison officers (with regard to the regulations; less so for the standards)
- the FINZ representative.

One fisher each also mentioned:

- the Talley's representative
- a local MPI officer
- Fishing Industry Board
- Federation of Commercial Fishermen.

The people who are seen as the most effective in motivating fishers:

- have experience
- work collaboratively – or have a good working relationship with fishers
- listen
- provide good practical direction
- care and understand what fishers are dealing with
- are supportive
- are knowledgeable
- are proactive at providing useful and relevant information (for example, emailing when a large full moon is going to occur)
- are good to talk to (and effective communicators)
- have been good for the industry
- help to make a difference.

One fisher mentioned that 'Southern Seabird Solutions' would be a good body to hear from because they are looking to provide 'solutions'. Other fishers were familiar with the organisation from seeing their stickers around and because the Southern Seabirds name comes up quite often at the tuna meetings. One fisher thought Southern Seabirds could act as a sounding board for a discussion on the use of lasers as a seabird mitigation tool, since he felt that MPI and DOC 'don't want to know about them'.

The people or organisations fishers see as less effective in motivating and helping them are those that don't possess the qualities listed above. Fishers specifically mentioned that NGOs were not helpful or supportive and did not provide a source of positive motivation for them.

2.4.3 What do fishers want to hear (and not want to hear)?

Fishers said they currently receive a lot of information about mitigation practices, mostly about the mitigation regulations or what other fishers are doing in their fleet. There does not appear to be a shortage of this sort of information. One fisher commented that they get 'bombarded' with information all the time.

Fishers want to hear about new mitigation opportunities

Fishers are open to new ideas that will improve their mitigation practices, particularly improvements that could make the practices more effective, safe, affordable, efficient or practical.

Fishers also want to hear more about the mitigation practices they see as useful and practical but that are not being discussed – for instance, lasers. They also want to hear more about any ideas for increasing the practicality and safety of tori lines (including the minimum standards for the lines and the materials provided).

To communicate well with fishers, conversations need to align with, or at least gain an understanding of and acknowledge, fishers' experiences, knowledge and challenges, to recognise and discuss their points of view.

Fishers are less willing to hear about rules and requirements their fleet has had no input into. They are less willing to hear about audits and checks, and prefer to talk about what works and what does not.

Fishers would prefer to work towards better mitigation methods, that everyone agrees on. They want to be engaged on whether a particular approach is the best way to go; to provide their thoughts based on their knowledge and experience, so that it is the best agreed approach for mitigating seabird bycatch.

Fishers are more receptive to positive than negative statistics and information

When asked if statistics would help them follow best practice or the mitigation standards, fishers commented that statistics can make them feel worse; they feel scrutinised, 'hammered on' and blamed. When responding to this question they were more likely to be thinking about less positive statistics. However, one fisher commented on a recent positive statistic relating to the increase in the number of fishers who were reporting their bycatch – he felt positive about that.

Information on seabird behaviour may help some fishers understand the need for the mitigation standards – but they are less in need of hearing about seabirds generally

Based on feedback from fishers in the interviews, messaging about seabirds generally and about their species and their populations may not encourage fishers to follow the mitigation standards. However, information about seabird behaviour in relation to mitigation practices may be helpful in terms of explaining why some practices (or their specifications) are more effective than others.

This proposition is based on the following feedback from fishers:

1. Fishers understand that all seabirds are protected, and have a rough idea of which seabirds are endangered or threatened. One fisher was able to identify the seabirds that are most at risk. The fishers who work further south are aware that albatross numbers are higher down there. Fishers did not state that they were keen for more information on which seabirds are endangered or threatened.
2. Fishers do not want to catch seabirds – so they do not need much convincing on this point.
3. Some fishers say they are 'sick of hearing about seabirds'. This is mostly driven by their feeling that they are seen as the ones to blame (despite their efforts) and are not being listened to.
4. One fisher said he had learnt a lot from Southern Seabird Solutions on seabird behaviour and he had used this this knowledge to help him mitigate seabird catches.

The zero bycatch commentary is frustrating for some fishers

Two fishers shared their frustration with the zero-tolerance mindset held by the Government and NGOs. They believed it was impractical to be talking about zero-catch targets and that the more realistic narrative would be around reducing seabird bycatch to as low as practically possible.

3.0 Conclusions and implications

3.1 Conclusions

The overall purpose of this research is to help understand what could be done, by whom and how, to lead commercial fishers to consistently follow the mitigation standards.

The first key finding from the research is that most fishers are not clear on the mitigation standards. Fishers talk confidently about the regulations, but not the standards. To follow the mitigation standards, fishers need to be made aware of them.

The second key finding is that fishers are motivated to improve their mitigation practices. Fishers do not want to catch seabirds for a range of reasons, including commercial, social and compliance reasons, as well as simply to do the right thing. Fishers believe a combination of mitigation practices is required to effectively reduce seabird bycatch. Fishers are proactively learning about and experimenting with mitigation options. They are seeking mitigation practices that are effective, safe, affordable, easy and practical.

Thirdly, the research suggests there are some key opportunities to work with fishers to help them consistently follow the mitigation standards (beyond increasing awareness of the standards). These are namely in regard to:

- **Line weighting:** Most fishers are not opposed to weighted hooks as a new innovation. The key barriers are cost and time (to add the hooks), and one fisher also felt it would hinder catch. The barriers do not appear to be significant when compared to the stated barriers associated with the Hookpods that have been trialed.
- **Tori lines:** The minimum standards and the materials supplied for the tori lines are seen as less than ideal by fishers, in terms of their effectiveness and the practicalities. Some fishers also have concerns about the safety of tori lines, particularly in bad weather.
- **Night setting:** Fishers agree that night setting is better than day setting for mitigating seabird bycatch. Most fishers set at night, with some setting in the day when targeting swordfish. There does not seem to be strong opposition to only setting at night.
- **Hookpods:** There are currently three key barriers with Hookpods: some fishers' lines do not reach the 20 m depth that triggers the device to open; fishers are experiencing tangles while using them; and they are concerned about future costs. Accordingly, Hookpods may be seen more favourably if:
 - changes could be made to their technical specifications to enable their use at a shallower fishing depth
 - fishers were given advice on how to avoid tangles in the bins
 - fishers had some certainty about the future costs.

One clear barrier to fishers fully embracing the mitigation standards is the lack of shared understanding between government/NGOs and fishers on the ideal mitigation practices. For example, some fishers perceive lasers and line shooters to be valuable mitigation practices, based on their experiences of using them. However, these practices are not part of the mitigation regulations or the standards, and from the fishers' perspective there has been no opportunity for open discussions about the pros and cons of these methods to understand their viability. Fishers are keen to discuss and share their experiences using various approaches to mitigation, and to work collaboratively to advance seabird bycatch mitigation practices as a whole. There is a general feeling among fishers that they do not yet have the ideal mitigation solutions and they are keen to keep working with others to improve and develop the techniques and to encourage further innovation.

Fishers appreciate that they have a range of mitigation options to work with – for example, the choice of using Hookpods versus the other practices, and the flexibility they have in the

design of tori lines while keeping within the minimum standards. Different methods are agreeable to different fishers for various reasons.

With regard to communication methods, word of mouth appears to be the strongest driver of fishers' learning, perceptions and attitudes. In line with this, fishers prefer conversations, and the opportunity to engage, rather than one-way or push communications.

Word of mouth is a strong driver of social norms within the fleet. Word of mouth appears to be more persuasive than any other form of communication. It is an important influence for the general favourability of different mitigation practices. In particular, fishers trust information from other fishers, as they are seen to have the practical know-how and years of experience to draw on. However, they do undertake their own sense checks; after gaining information from others, fishers make up their own minds as to what suits their own vessel and style of fishing.

3.2 Implications

So, what could be done to lead fishers to consistently follow the mitigation standards?

First and foremost, fishers need greater **awareness** of the standards. They already have an understanding that the combined approach of line weighting, tori lines and night setting is more effective than the regulated requirements, so the rationale for the standards is unlikely to be a hard sell. Moreover, fishers do not perceive the standards to be a huge leap from what they are currently doing.

However, to support fishers' **motivation and ability** to follow the standards, there will need to be conversations and engagement with fishers on each of the following:

- tori line minimum standards, supplies and safety
- weighted hooks – or at least the line weighting specifications in the standards
- Hookpod options/innovations – to overcome their perceived key barriers
- lasers as a mitigation practice – since fishers perceive that lasers get around the practical and safety issues associated with tori lines
- line shooters as a mitigation practice.

Motivation will be further improved by working with fishers to advance current mitigation practices and including them more closely in the process. Conversations, understanding and listening will also create greater motivation, compared with one-way, written or no communication. Rather than sending information or advice to fishers, requesting information from them or using a tick-box approach, more productive approaches are likely to be meetings, phone calls and collaborative trials.

With regard to who engages with fishers on key topics, favourable voices currently include other fishers, DOC liaison officers and the FINZ representative. But primarily, it needs to be people who:

- **have experience** working with mitigation practices and/or on boats
- **are collaborative** and can build good working relationships with fishers
- **listen** and can understand fishers' point of view
- **are knowledgeable** – including being able to provide good practical direction (from fishers' point of view)
- **are supportive** – including caring about and understanding what fishers are dealing with in their wider roles (for example, other stresses and constraints)
- **are proactive** in providing useful and relevant information and staying in regular contact
- **are innovators** – they are passionate about and able to work with others to advance

mitigation practices (that is, they are also looking to innovate, not just to tick boxes and maintain the status quo).

In summary, to enable fishers to consistently follow the mitigation standards, there is a need to increase awareness of the standards, engage with fishers on tori lines, weighted hooks, lasers and line shooters, and work more closely with the fleet on new innovations and trials.