Ling Fishers
Training Manual

The Mitigation of Incidental Seabird Capture in New Zealand Ling
Longline Fisheries

Important message: ***Since this was written new Fisheries Bottom Longline Regulated measures have been introduced, offal control, Night setting & Line weighting are regulated, ensure you know and understand the new regulations & specifications.***

Greg Lydon

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Introduction:

The United Nations Food and Agriculture Organisation (FAO) stated in 1999

"Fisheries, provide a vital source of food, employment, recreation, trade and economic well-being for people throughout the world, both for present and future generations and should therefore be conducted in a responsible manner."

Throughout the world's oceans, seabirds such as albatrosses and petrels are accidentally caught each year in longline fisheries. This issue has become a priority for national, regional and international government and non-government agencies. There is a pressing need to develop and use mitigation methods which will reduce incidental seabird capture.

The purpose of the Fisheries Act 1996, is to provide for the utilisation of fisheries resources in New Zealand while ensuring sustainability. Sustainability is defined as maintaining the potential of fisheries resources to meet the reasonably foreseeable needs of future generations and avoiding, remedying or mitigating any adverse effects of fishing on the aquatic environment. Responsibilities for the management of incidental seabird capture in fishing operations are defined in this Act for the Ministry of Fisheries and in amendments to the Wildlife Act 1953 for the Department of Conservation.

Purpose of Training Manual:

The 'Code of Practice (COP) for the Mitigation of Incidental Seabird Capture in the LIN Longline Fishery,' sets out the standards of behaviour for responsible fishing practices, with a view to ensuring the effective management and development of ling fishing resources, with due respect for the ecosystem and biodiversity. The Skipper is responsible for the COP being adhered to. This Training Manual is designed to be used as an additional information resource for the COP and as a educational resource for the crew.

As responsible fishermen all reasonable steps will be taken to avoid or reduce incidental seabird capture. Mitigation measures have been chosen that are appropriate, effective and practical because each fishery area has its own characteristics and the solution to incidental seabird capture requires a multi-faceted approach requiring different fishing techniques and mitigating equipment. The New Zealand Seafood Industry must use environmentally responsible practices. The problem of reducing incidental seabird capture is a challenge for fishermen but it is one that cannot be ignored.

Objectives:

1. Incidental seabird captures in target ling fisheries will be minimised and will reduce over time.
2. Robust data reporting regimes will be put in place to document incidental seabird capture, analyse the effectiveness of mitigation measures and monitor compliance with the COP.

3. New mitigation measures will continue to be investigated. Where new measures prove to be effective they will be assessed for possible inclusion into the COP.
4. Mitigation measures will not cause unsafe working conditions. The health and safety of the crew is paramount at all times.

Longline fishing

Longline fishing is one of the world's major methods of catching fish and encompasses small-scale fishing to modern mechanised operations. It is regarded as a relatively environmentally friendly fishing method because it:

- is effective at targeting the desired fish species
- has low rates of discards of undersized or unwanted fish
- does not cause destructive effects on bottom habitats and
- captures high quality fish with relatively low fuel consumption.

The catching success of baited hooks is based on the target species' demand for food –i.e. fish are caught on longlines because they are attracted to the baits. During longline setting and hauling, seabirds can also attempt to feed on baits causing incidental capture. The most common method used for target fishing for ling in New Zealand is bottom longlining where the gear is set at the seabed (demersal longlining). All longline gear used worldwide is based on the basic unit, which consists of four parts: the mainline, the snood, the hook and the bait. (Figure 1). However, in the various longline fisheries, variations are found in type and dimension of all these parts. There are also variations in the setting and hauling operations (Figure 2). Variations in gear configuration and operation affect incidental seabird capture rate and effectiveness of mitigation measures. It is envisaged that with the widespread use of a suite of mitigation measures, a reduction in incidental capture of seabirds will be achievable at a minimal cost.

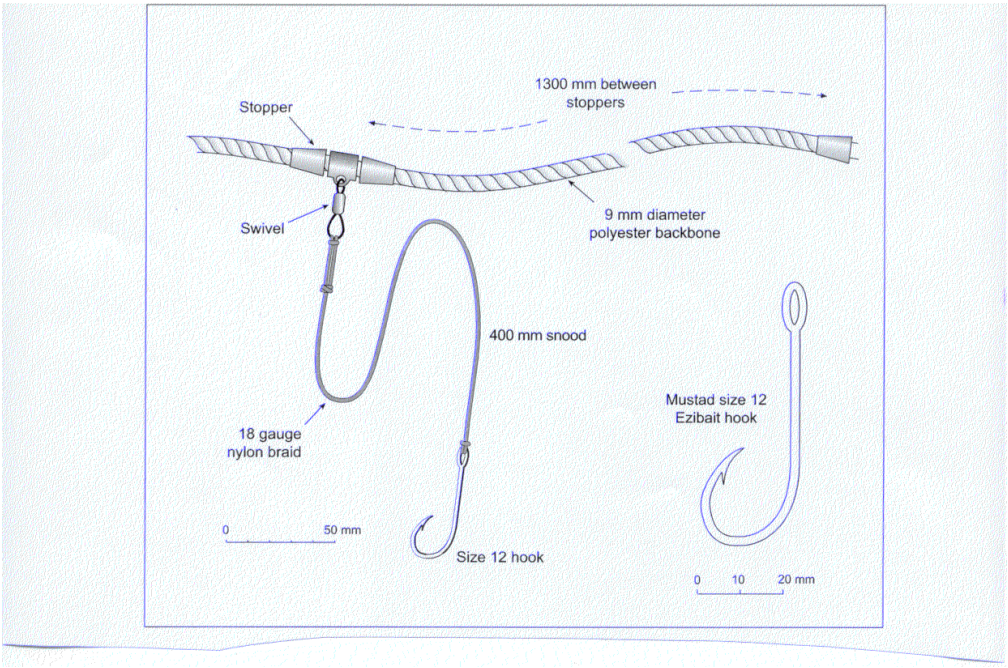

Figure 1-Example of Longline Gear

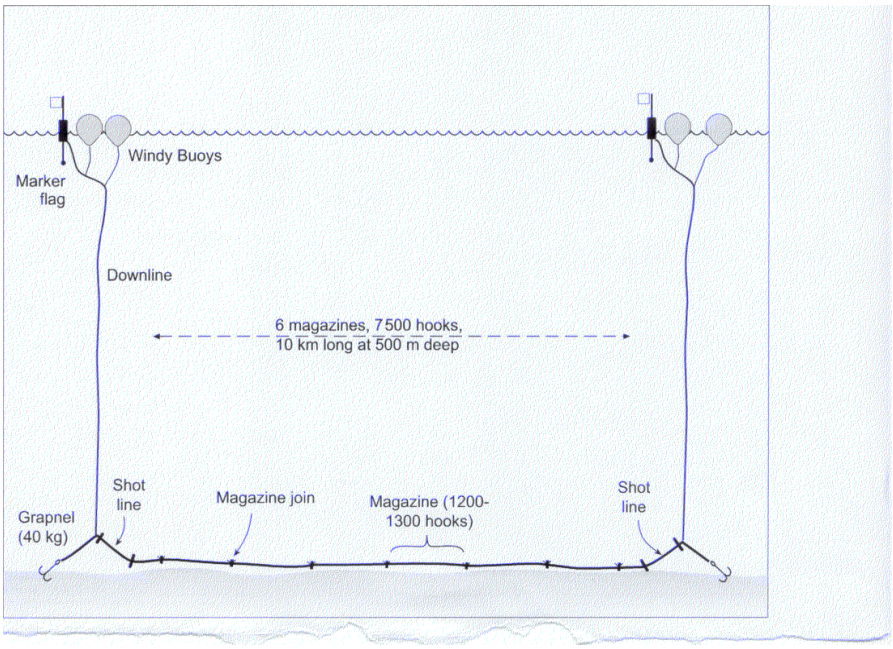

Figure 2 -An example of a demersal longline

Ling

"Ling (*Genypterus blacodes*) are widely distributed through the middle depths (200-800m) of the New Zealand EEZ, particularly to the south of latitude 40°S. From 1975 to 1980 there was a substantial longline fishery on the Chatham Rise (and to a lesser extent in other areas), carried out by Japanese and Korean longliners. Since 1980 ling have been caught by large trawlers, both domestic and foreign owned, and by small domestic longliners and trawlers. This catch has been predominantly by-catch in other target fisheries. In the early 1990s, the domestic fleet was increased by the addition of several larger longliners fitted with autoline equipment. This has caused a large increase in the catches of ling off the east and south coasts of the South Island (LIN 3, 4, 5, and 6). The principal grounds for smaller domestic vessels are the west coast of the South Island and the east coast of both main islands south of east cape. For the large trawlers the main sources of ling are Puysegur Bank and the slope of the Stewart-Snares shelf and waters in the Auckland Islands area."[1]

Figure 3 Ling

The Problem

Accidental capture of seabirds tends to occur when a seabird foraging zone overlaps with commercial fishing grounds. The commonly hooked seabird species are albatrosses, petrels, and shearwaters. Seabirds and fishing vessels concentrate in areas of high biological productivity. Seabirds are gregarious by nature and quickly congregate when one seabird identifies an easy source of food such as used baits and offal. That fishing vessels may provide a source of food seems to be recognised by most seabird species. Seabirds search for food using both the senses of sight and smell and are primarily surface foragers, taking prey from the top few metres of the sea. However, some species of petrels and shearwaters have the ability to dive for food to depths around 20 metres. Some albatross species can dive to depths around 5 metres.

Seabirds are hooked by either:

1. swallowing the bait during the setting operation
2. being foulhooked on a snood during the setting operation.
3. becoming entangled as they try to take unused baited hooks during hauling
4. or more rarely by flying into the line.

Seabirds caught during hauling are often released alive, however, their survival rate is unknown.

On any single vessel the problem may appear to be small, with only an occasional seabird being caught in a fishing season. However, the cumulative mortality total over the entire fishing fleet can be significant for some seabird species.

Studies worldwide indicate thousands of seabirds are being drowned annually. Estimates are usually conservative because of low observer coverage and seabirds not always being brought on board. The effect of the incidental capture of seabirds on populations depends on the biology of the species, the level of incidental take, seabird population size, recent and historic population trends and threats from sources other than fishing.

Albatrosses and petrels are particularly vulnerable to incidental mortality because they are generally long lived (albatrosses can live into their 60's). They also have low levels of productivity -some species produce only one egg every 2 years. Albatrosses are slow to mature and need to be between 5 and 12 years old before they first breed. If a breeding bird is killed, the dependent chick waiting for food from the parent will also die. The remaining adult may take years before mating again.

Adult survival rates are normally high. Mortality from longlines is now one of the most serious threats for seabirds with some populations declining because of it. Even small increases in adult mortality can produce steep population declines as reproductive success reduces.

The impact of the incidental capture by longline fishing on a seabird species depends on:
1. the seabird's biology (for example reproductive rate)
2. the total population size of the seabird species
3. the level of incidental take - annual mortality rates will vary from year to year
4. recent and historic population trends for the seabird species and
5. threats to the seabird species from sources other than fishing.

The waters around the coast of New Zealand support the most diverse seabird community in the world. 84 species breed here, including 35 seabird species (42%) that breed nowhere else (they are endemic to NZ). New Zealand has more kinds of petrels and albatross in our waters than any other country. Unfortunately, 47 seabird species in New Zealand are considered to be threatened and are listed as critical, endangered or vulnerable using the IUCN 1996 ranking (The International Union for Conservation of Nature and Natural Resources).

Incidental catch of seabirds varies with:

- Fishing practice (particularly setting method)
- Area fished (the degree of overlap with seabird foraging range)
- Season of the year
- Light level – time of setting, day/night, dusk or dawn
- Moon phase – around the full moon is a danger time
- Weather conditions (higher seabird captures in bad weather)
- Which mitigation measures are used and how well they are employed
- Seabird behaviour – for example how hungry birds appear to be
- If bright deck lighting is used at night which illuminates the setting line.

Areas of Concern for Ling Fishing

For albatross species, the main area of concern extends from the south of the Chatham Rise (22 to 460 kilometres offshore) to the southern areas of the South Island, such as the Snares, Puysegur Bank and the Fiordland Trench. For petrels, the area of concern is the Chatham Rise area north to the Bay of Plenty (22 to 330 kilometres offshore), and south to Puysegur Bank, Snares Shelf, Auckland Islands and the Campbell, Pukaki and Bounty Plateaus.

Table 1 Main Seabird Species* Caught by Ling Vessels:

Common name	Species name	Estimated Average Diving Depth	IUCN Threat Status 2000
1. Salvin's albatross	*Thalassarche salvini*	6 m	Vulnerable
2. Buller's albatross	*Thalassarche bulleri*	6m	Vulnerable
3. Grey petrel	*Procellaria cinerea*	13 m	Lower Risk - Near Threatened
4. White chinned petrel	*Procellaria aequinoctialis*	13 m	Vulnerable
5. Northern giant petrel	*Macronectes halli*	13 m	Lower Risk - Near Threatened
6. Southern giant petrel	*Macronectes giganteus*	13 m	Vulnerable
7. Cape Pigeon	*Daption capense*	1	Least Concern

1. The **Salvin's albatross** is listed as 'vulnerable' as breeding is largely restricted to Bounty, Snares, and possibly the Chatham Islands. The total population is estimated to be 76,000 pairs. It breeds in densely packed colonies with nests as close as 1 metre apart. Young Salvin's fly to the east of New Zealand and spend several years off the coast of South America.

2. The **Bullers albatross** breeds only in the New Zealand region and is listed as 'vulnerable' because it is restricted to a very small area when breeding. The total population is estimated to be 120,000 birds (32,000 breeding pairs). Population trends are unclear but are assumed stable overall. Bullers albatross forage widely in the South Pacific Ocean. Two subspecies; the Northern breeds at the Three Kings and Chatham Islands, the Southern on the Solander and Snares Islands. Birds mate for life. Long lived with one bird being fifty years old.

3. The **Grey petrel** is the most commonly caught seabird species in the observed ling fishery. It has a circumpolar distribution, nesting on many subantarctic islands including Campbell and Antipodes Islands in NZ. It is estimated that the NZ population is 100,000 to 200,000 pairs. Feral cats and rats are a major threat to breeding populations especially on Campbell Island. Grey Petrels nest in burrows. Can dive, using its wings underwater, to depths of up to 10 metres.

4. The **White chinned petrel** is the largest petrel species to nest in underground burrows. It has a circumpolar distribution, nesting on many subantarctic islands including Auckland, Campbell and Antipodes Islands in NZ. An abundant petrel in sub-Antarctic waters with a population of over several million birds. It is estimated that the NZ population is 10,000 to 50,000 pairs. They are able to forage by day and night and can dive deeply for baits. While most birds have a white chin, it is usually very difficult to see.

5. The **Northern giant petrel** (also know as nelly or stinkbird) has a circumpolar distribution but unlike the Southern Giant breeds on many of New Zealand's Sub-Antarctic Islands - Campbell, Antipodes, Auckland and also Stewart and Chatham Islands. The total population of 40,000 birds appears to be decreasing. Has a more laboured flight and tends to flap more than the albatrosses which are more efficient gliders. Adult birds have a brownish tip to their beaks, hence distinguishable from the Southern giant. Closely related to the albatrosses. A predator of smaller seabirds. Much rarer than the Southern Giant Petrel overall (ie small world population), yet more common than the southern giant in coastal waters around New Zealand.

6. The **Southern giant petrel** is listed as vulnerable because it is inferred to have sustained a population reduction of at least 20% over the last 60 years (three generations), however, there is some evidence of recent improvements in status at some sites. Circumpolar breeding distribution on southern islands outside the NZ EEZ. Total population estimated to be 150,000 birds. It has a fierce looking appearance (a large and distinctive hooked beak), hence called sea vulture.
Giants petrels will attack and eat smaller species of seabirds. They are also generally scavengers and are frequently seen around floating seal and whales. They also naturally feed on squid. Has two colour phases, a dark phase which is easily confused with the northern giant petrel (although the northern giant petrel has a brown tip to it's bill) and the distinctive white morph Giant Petrel (10 % of southern Giants are white-morph birds which blend into the snow covered areas where the birds breed). Southern giants breed on ice free islands around the Antarctic continent. Mainly a winter and spring visitor to New Zealand waters from more southern latitudes.

7. The **Cape pigeon** is one of the most distinctively coloured petrel species with a mottled black and white colouration. Named Cape Pigeons because of the way they bob their head back and forth like feral pigeons in parks and because of their presence around the windswept Cape Horn. Yet the name cape pigeon is misleading as they are actually a medium sized petrel. Two sub species – the southern cape pigeon breeds on small rocky islets around the Antarctic continent and the snares cape pigeon breeds on the Snares, Bounty, Antipodes, Auckland, Campbell and Chatham Islands. The most conspicuous petrel species and noisiest at sea (most petrels are silent at sea) and flocks can be heard making a distinctive chuckling sound.

Mitigation Methods for Avoiding Incidental Seabird Captures

The following mitigation methods can help to reduce the likelihood of accidentally catching a seabird. They involve modifying fishing practices and using devices to reduce the accessibility of baited hooks to seabirds. To reduce the incidental catch of seabirds, it is essential to reduce the number of encounters between seabirds and baited hooks. Using a combination of methods improves mitigation effectiveness.

For completeness a range of mitigation methods are discussed and the ones most likely to apply to ling fishing are highlighted.

Bird by-catch mitigation methods can be grouped into three categories:

1. Scaring Birds Away from Bait Line
2. Removing Bait Availability
3. Changing Bird Behaviour

1. Scaring Birds Away from Bait Line

(a) *Bird scaring (Tori) lines

Seabirds sit on, or fly low over the water behind a boat when diving and attacking baits. A bird-scaring line or lines (originally designed by the Japanese, hence 'Tori') are suspended some distance above the deck, and are positioned over or in the area where baited hooks enter the water. They are relatively cheap to make and install and are designed to trail out behind the fishing boat to create a 'moving fence' that deters birds from entering the area where the fishing lines are set and hauled i.e. the 'scarecrow' effect prevents seabirds accessing baited hooks.

Research worldwide has shown that tori lines significantly reduce seabird bycatch – by up to 70% in comparison to vessels not using them. Research in Alaskan Longline Fisheries has shown

that paired streamer lines are more effective and significantly reduce incidental seabird capture. This is also the case in NZ trials as paired tori lines are robust in a wide range of wind conditions and require little adjustment as physical conditions change.

Tori line design specifications vary by vessel, fishing operation, and location, however the tori line needs to:

1. Have a minimal risk of entanglement with fishing gear
2. Be simple to construct and repair
3. Have streamers that move freely, unpredictably and not wrap around the backbone of the tori line.
4. Set and retrieve with ease (advantage to use a small winch).

Suggested guidelines for an effective tori line design:

- The point of attachment of the streamer line suspended from the stern should be as high as possible whilst remaining practical and providing an effective aerial section. 4.5 m is the suggested minimum.
- The streamer line should maintain a position that enables the streamers to effectively fly above the baited hooks.
- The streamer line should be as long as possible and have enough drag to create an effective aerial section – 150 m is a minimum length.
- A Streamer line of approx 3-4mm diameter is proving to work well.
- The maximum gap between branch streamers should be 5 meters within the aerial section and it is recommended that there are a minimum of 5 branch streamers attached to the main streamer line between the vessel and where the main streamer hits the water.
- Branch streamers can comprise single or double strands of approx 3mm cord, plastic tubing or coloured PVC tape.
- Swivels are best incorporated at the towing point and can also be inserted before and after the point of attachment of each branch streamer.

N.B.

1. When operating under strong wind conditions and setting lines across the wind direction, the tori line is less effective as the wind takes the streamers out of their ideal position which is right above the line (the baited hooks). A "bridle and boom" system that allows lateral movement of the tori line, can adjust the line position to help counter cross winds.
2. Paired lines work better in strong wind than a single tori line.
3. A spare tori line must always be carried in case of failure or loss of the primary tori line.

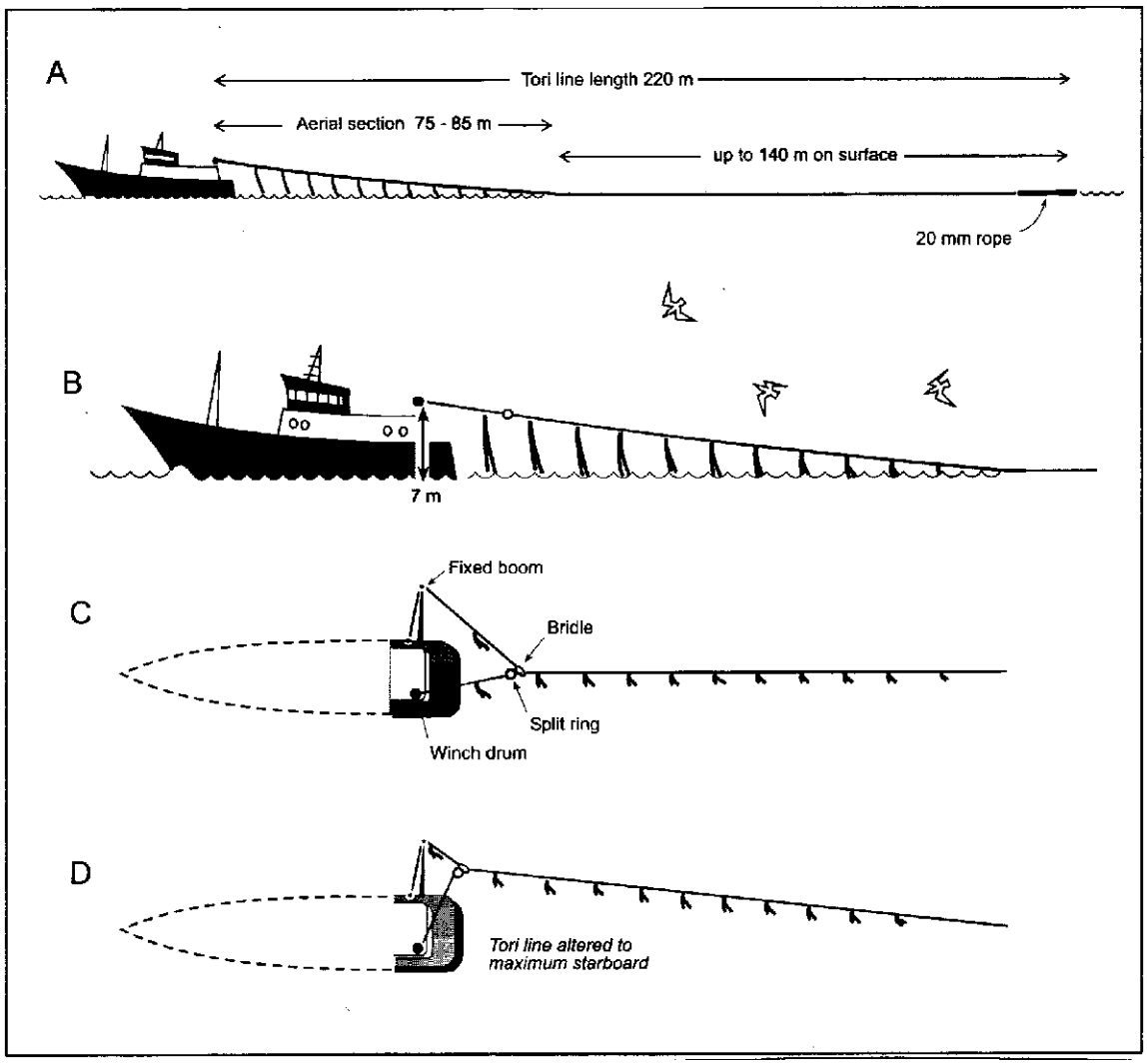

Figure 4 An example of a Tori Line with Bridle and Boom system (Smith 2001)

Acoustic deterrent

One mitigation measure that can work well at times is to deter birds from the longline using high volume sounds. Habituation to noises is common among seabirds so noise deterrents may work effectively when used sporadically but can become ineffective if used too often.

Gas Guns

Pros: Deterring birds from the longline using "loud bangs" from a gas gun (commonly used in orchards) can work well. One off cost to buy a gas gun. However to avoid birds becoming used to the sound, sporadic use is recommended. A gas gun that has settings that allow varied number of bangs and varied times between bangs is best for keeping the element of surprise.

Cons: A gas gun can be annoying for crew trying to sleep and may require crew to wear earplugs or cabins to have sound proofing installed. The timers for the guns are clocks and therefore must be protected from the elements especially salt spray and knocks. A supply of sufficient full gas

canisters is required for a trip. If the gas gun is on continuously and with a regular time between bangs, birds will become blasé and unworried by the noise.

Use of Bird Scaring Cartridges:

Pros: Using bird fright cartridges is an effective way of scaring a group of seabirds that are following a vessel. A cartridge is fired from a shotgun at a point 20 metres above the seabirds. After travelling100 metres the cartridge explodes with a loud bang and sparks. There is no harm caused to the seabirds apart from scaring them.

Cons: Having a shotgun on board a vessel may be prevented by Company Policy. Safety of crew must be the primary concern when firearms are used. A firearms licence is required for the person in charge of the shotgun. Firearms and 'birdfright' must be stored in full compliance with all existing laws for example shotgun locked in ammunition safe, birdfright stored separately. Only designated individuals who have all the appropriate training and license can possess, transport or use a shotgun.

Water cannon

Scaring seabirds away from the longline by using high pressure water has not proved to be an effective method. When hauling this helps

Magnetic deterrent

Perturbing the magnetic receptors of the birds by creating magnetic fields has also not proved to be an effective method.

2. Removing Bait Availability

There are mandatory regulated required measures you must follow;
Night setting and or Line weighting, which now over ride a lot of the info below (See current regulations)

Night setting

Setting longlines at night is a recommended practice as the visibility of the bait is reduced for most seabirds Night setting works well in combination with a tori line and other mitigation measures.

Setting lines at night reduces the visibility of the bait for most seabirds. However care must be taken:

1. In the three days before and after a full moon and
2. In the hour after sunset and the hour before sunrise. This is when many seabirds are most actively feeding so are danger times.

Pros: Most seabirds species caught on longlines are active during the day. Seabirds mainly hunt by looking for their prey. Setting lines at night reduces the visibility of the bait and is generally recognised as being highly effective in Tuna fisheries (70 – 90 % reduction in seabird bycatch). However, effectiveness can vary between fishing grounds and also seasonally according to the seabird species. Effectiveness of this measure is reduced within 5 days of a full moon - in one study 35 % of all birds observed caught in tuna longlining, were in the period from the day before until the day after the full moon.

Cons: a restriction of line setting to the hours of darkness may affect fishing capacity, especially for smaller longliners. Small costs may be incurred to make vessel lighting appropriate to enable work on the boat while reducing the illumination of bait in the water.

In summary:
Night setting reduces incidental seabird capture although extra care must be taken around a full moon and dusk and dawn. [Crew safety is paramount so light levels must be sae onboard the vessel deck]. The after gantry lights should be switched off when not required for shooting and haulingas lights attract seabirds to the vessel

Thawing of Bait
The use of totally frozen bait is to be avoided because it usually sinks at a slower rate. Bait must be taken out of the freezer or ice several hours before the set. Partially frozen bait works well as the bait is cut up as it is hooked. The auto baiters need firm bait. If bait is fully thawed, baiting efficiency reduces. The intention of this measure is to overcome buoyancy problems by thawing bait so that it sinks as quickly as possible so that seabirds are less likely to detect it and then dive for it.

Fortunately on autoliners, bait has to be thawed as part of the bait preparation to maximise baiting percentage's during the setting operation. The autoliner cuts baits to a size where swim bladder or air pockets are unlikely. This mitigation measure is therefore already a standard operating practice on all autoline vessels in NZ.

Weighting of Hooks or Longline Gear
By increasing the sinking speed of baited hooks by weighting the longline gear, we reduce the exposure time of baits to seabirds. Studies have shown that appropriate line-weighting can be highly effective in preventing bait loss to birds. The cost is the initial purchase of the weighting material (either heavier gear or weights) and any ongoing replacement of weights lost during fishing.

Weights can be added to the line if other mitigation measures are not being effective. If weights are being attached to a demersal mainline avoid jerking the line to the surface and exposing the hooks to birds.

N.B. Care must be taken - this procedure can be dangerous especially during the hauling operation when weights can "fly" over the overboard roller.

It can also hamper fishing as the hauling process is slowed down to remove the weights from the line. Research is underway in NZ into integrated line wighting systems that will make this method safer for fishers.

Artificial Baits
Artificial baits used in combination with real bait are being trialed in Tuna fisheries in New Zealand but as a result of trials undertaken, this avenue of research is not considered to be an effective mitigation measure for demersal ling longline fisheries.

Below-the-water setting chute or funnel
Below-the-water setting chutes or funnels prevent the access by seabirds to baited hooks by setting the long line under water. Underwater setting devices are still under development to make them "user friendly" and could eventually be very effective in longlining. At present they are a relatively expensive mitigation method when compared to other mitigation methods, although they are a one off cost.

They work by removing the visual and olfactory (smell) clues to birds that food (the bait) is being released from the fishing vessel. Baits are also released deeper in the water column and outside of the diving range of some seabird species. Underwater setting when used in conjunction with an effective tori line is probably one of the more effective mitigation practices. A 'Mustad' funnel is commercially available but has produced mixed results.

The Underwater Setting Capsule; is designed for tuna fishing, is still in the development/design stage and is relatively expensive.

Blue Dye
The dying of bait with an environmentally safe blue dye has been shown to be effective in pelagic experiments in Hawaii and Japan. Investigations and experimental trials will be undertaken in New Zealand so see if it is an effective option. Birds find it harder to see blue baits and distrust the unusual appearance of the bait. The catch rate of fish when using blue bait is not reduced in pelagic longlining. The use of mackerel bait does not allow blue dye to work. It may be a more effective method with squid bait but this is used less frequently when ling fishing. Blue bait will be trialed in New Zealand this fishing year in a Department of Conservation CSL experiment on a tuna longliner.

3. Changing Bird Behaviour

Disposal of Waste, Baits and Offal
Seabirds can benefit from fishing activities due to the increase in food supply from discarded fish and waste. However, disposal of waste attracts seabirds to the longlining operation. Retaining waste on board by freezing or using a fish meal plant may be an option on larger vessels and is

an encouraged practice. Retaining waste on board teaches seabirds that a free meal is not available and therefore reduces the attractiveness of longline vessels.

Line setting is the danger time for seabird capture – the disposal of waste overboard during this time attracts seabirds to the longlining operation and puts seabirds in danger from baited hooks.

- Offal is only allowed to be released when the vessel is steaming.
- Offal will not be discharged during setting - this includes the bait that is missed during autoline setting.
- If offal or missed baits are drifting into the area where the line is being set – then steps must be taken immediately to prevent this happening.
- All efforts must be made to remove embedded hooks from offal.

Wind Direction
Setting downwind may reduce rates of seabird bycatch as some fishers have found that albatrosses have difficulty diving on bait if they have to fly with the wind to do so.

New Developments (in trial stage)

The Mayo Line
Tom Mayo from the 'Daniel Solander' has designed some modifications to the Tori Line. He uses green fluorescent streamers with squid lights. Results are encouraging, and further trials will be undertaken.

Hook modification
One option being thought about by gear designers is the use of hook types that reduce the probability of seabirds either getting caught when they attack a baited hook or by being foul hooked. Smart hooks that open at a certain depth are in the development stage. Hook size may effect the species composition of incidental caught seabirds overseas.

Jiggler
The 'San Aotea II" is using a 'Jiggler' device on calm days to make the tori line streamers move up and down to frighten seabirds away form the baited line.

Integrated line weighting
Many autoliners are now using lineswith lead cores, very effective measure.

Seabird Identification & Reporting

For the purpose of monitoring bird behaviour and populations, best endeavours must be made to accurately record the species of the bird caught. All seabird captures and band numbers (when they exist), must be recorded. Unless you are 100% sure of its species identification, just use these two main seabird 'group MPI codes'

- AXL- All Albatross & Mollymawk
- XXP- All Shearwaters & Petrels

What to do if Seabirds are Caught Alive

If despite the precautions, seabirds are incidentally caught alive, every reasonable effort should be made to ensure that birds are released alive. Fishers must attempt when possible to remove hooks without jeopardizing the life of the bird by following the Guidelines:

Guidelines for Handling and Releasing Hooked Seabirds:

Crew Safety:

Always wear gloves, long sleeves, and protective eyewear when handline seabirds, they have sharp beaks and are capable of hard bites. Work in teams of two.

1. Gently lift the bird on board with a long handled dip net
2. One person should hold the bird and secure the birds head while the other person gently isolates the hooked or entangled area.
3. Fold the birds wings to their natural resting position against the body.
4. Cut and remove all fishing line carefully, dispose of it in a rubbish container – never throw it overboard.
5. If the bird is hooked lightly in the bill, leg or wing, and the barbed end of the hook is visible, use bolt cutters to pare the hook barb, then thread the hook out.
6. If the hook has been ingested, cut the line as close to the hook as possible and leave the hook in place. Never attempt to remove a hook from anywhere on a bird by pulling on the line.
7. Place the bird in a container e.g. a plastic crate, which is at least twice the size of the bird and leave in a clean quiet area for the bird to dry.
8. Keep the bird free from oils and other foreign materials as they affect the birds ability to recover and fly properly.
9. The bird should be able to stand on its feet, hold its head erect, and respond to sound.
10. Record the details of the capture on the logbook sheet and note leg band numbers if one.
11. When releasing the bird, stop the boat, keep it out of gear and gently ease the bird into the water. Do not motor away until the bird is clear of the vessel.