

Vessel Management Plan

2017

Operational Procedures

Mitigation of the Incidental Capture of Seabirds
>28 Metre Freezer and Fresher Trawlers

Version 1.0 2017-18

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Part 1: Introduction

The following Operational Procedures (OPs) stipulate the management measures agreed between quota owners, ACE owners and the Ministry for Primary Industries (Ministry) to reduce risk to seabirds from fishing. It is implemented and administered by Deepwater Group Ltd (DWG). The Seabird Risk Management Operational Procedures outlined in this document are the standards and supporting information for the vessel operator to develop and document each vessel's specific Vessel Management Plan (VMP). These OPs are derived from the Version 4 VMP which was aboard all vessels in 2014 and seeks to rationalise and separate generic fleet requirements (OPs) from vessel specific actions (VMP).

National Plan of Action – Seabirds

The National Plan of Action to reduce risk to seabirds in New Zealand fisheries (NPOA-Seabirds) sets the approach to managing seabirds for the next five years (2013 to 2018). It was drafted in accordance with the requirements of the Agreement on the Conservation of Albatrosses and Petrels (ACAP), to which New Zealand is a signatory.

The NPOA-Seabirds seeks to ensure that effective mitigation methods are applied in New Zealand fisheries, best practice risk reduction methods are applied as appropriate, and actions to manage risk to seabirds are prioritised based on the level of risk faced by particular seabird species.

A Level 2 Risk Assessment (L2 RA) has been completed which assessed the risk to seabird species from particular fisheries. Around ten species are assessed to be in risk categories that require our continued attention. Three of these species are regularly caught in deepwater fisheries (Salvin's albatross, Southern Buller's albatross, and white-capped albatross). White-chinned petrels and sooty shearwaters are also of particular concern due to the relatively high numbers of captures.

Background and Rationale

Seabirds are attracted to fishing vessels because of the availability of food. Food sources include fish waste discharged from vessels during processing, bycatch discarded by the vessel, and fish or food items in the net (both before it is hauled on deck and 'stickers' that are left during shooting). Once seabirds are attracted to a vessel, there are generally two ways in which they may be injured or drowned:

1. Warps

- May collide in flight with trawl warp and be injured (perhaps fatally)
- May be struck or caught by trawl warp while foraging on the water surface and be injured
- May be dragged under and drowned.

2. Trawl net

- May become entangled in meshes when trawl is on the surface
- Diving birds may enter the trawl through the mouth or meshes (even while the net is below the surface) and become trapped and drown.

The risks to seabirds are highest where there is overlap between fishing operations and large

numbers of foraging seabirds. Seabirds foraging to provide for their chicks are usually more abundant and aggressive in their behaviour. Processing vessels continuously discharging significant volumes of fish waste will attract large numbers of seabirds, and interactions with the warps and the trawl will occur.

Main Seabird Species (Area & Period) Risk

Species (Based on 2014 L2 RA)	Risk Area/Period
Salvin's albatross	<ul style="list-style-type: none"> Chatham Rise, Cook Strait and East Coast South Island year-round, except autumn
White-capped albatross	<ul style="list-style-type: none"> Auckland Islands, Snares shelf and West Coast South Island year-round but particularly spring and summer Chatham Rise year-round but particularly spring and summer
Southern Buller's albatross & Northern Buller's albatross	<ul style="list-style-type: none"> Snares shelf and West Coast South Island year-round, except spring Chatham Rise year-round but mostly autumn and winter
Chatham Island albatross	<ul style="list-style-type: none"> Chatham Rise year-round but mostly summer
White-chinned petrel	<ul style="list-style-type: none"> Chatham Rise in spring and summer Auckland Islands and Snares shelf in spring and summer
Sooty shearwater	<ul style="list-style-type: none"> East Coast South Island mostly in autumn Auckland Islands in spring, summer and autumn Snares shelf mostly in summer and autumn

Identified Risks and Actions to Mitigate Risk

Risk	Actions to Mitigate Risk
Warp Capture	<ul style="list-style-type: none"> • Prevent, control (batch) or mince fish waste discharge while warps are in the water • Ensure warp splices are 'wrapped', any sprags removed or 'whipped', and that warp splices are not near to the water surface • Deploy well made and maintained mitigation devices, double up at high risk times • Tori lines are proven to be most effective. With these, use best practice design and deployment methods and adjust regularly to maintain coverage over the warps • Heavily greased new warp wires are known to increase the risk of smaller diving birds sticking to the warps. Avoid using new heavily greased warp wires on your first trip fishing in the Southern Ocean in summer months • When the trawl warp is exposed outside the hull, particularly if this is on the fish waste discharge side of the vessel and birds are present, there is a high risk of warp captures. Reduce the risk by stopping or minimising fish waste discharge or turn the vessel to move the warp out of the path of the fish waste discharge
Net Captures	<ul style="list-style-type: none"> • Eliminate fish waste discharge immediately before and during hauling and shooting periods • Properly clean the net of stickers before shooting • Minimise the amount of time the net is on the surface • If possible, maintain the trawl at depth (50-100 m) when turning or, if required, bring the trawl to the surface with doors up (wing ends and net mouth closed) • Net-binding is an option if and when bird captures are identified when shooting midwater trawls • Turn vessel when hauling trawl to close trawl across stern ramp quarters to reduce risk of birds diving into the trawl mouth and tangling in meshes

Part 2: Responsibilities

The vessel's owner, operator, manager and skipper are responsible for ensuring the Vessel Management Plan (VMP) is current and procedures listed are followed.

The Vessel Operator or Manager is responsible for:

- Supply of mandatory and other mitigation equipment and sufficient spare parts to rebuild or replace mitigation devices if damaged or lost at sea
- Ensuring skipper and crew are briefed on VMP requirements and attend training programmes as required
- Supply of MPI seabird identification guide
- Management of VMP compliance – ensure skipper is aware of their responsibilities to implement the VMP
- Auditing and reviewing the VMP onboard systems, including corrective actions where systems are found to be defective and updates where operations on the vessel change.

The Skipper is responsible for:

- Ensuring key crew are briefed on the VMP and fully understand the actions required
 - Deploying one or more mitigation device(s) at all times (always carry a tori line onboard if this is not the primary device)
 - Awareness of fish waste control plant and procedures, so that no ad-hoc continuous discharge of fish waste system occurs
 - Deploying and/or adjusting mitigation devices to best suit weather, fishing, and processing conditions to minimise risk during periods of high seabird presence, interactions or observed captures
 - Regularly inspecting warps to ensure they are spliced using methods that do not leave sprags
 - Awareness that the vessel turning, tide and currents may expose a warp outboard of the hull in line with offal discharge and increase the likelihood of warp strikes
 - Awareness that heavily greased new warp wires cause small birds to 'stick' to the warp and be hauled up through the trawl block (risk is especially high in the Southern Ocean during summer months)
 - Awareness of seabird activity around the vessel, regularly assessing and minimising risks of captures with warps and nets by adjusting procedures as required
 - Ensuring correct reporting to MPI and DWG, including reporting trigger point breaches to DWG in real time
 - Ensuring crew are meeting their responsibilities with regard the VMP.
-

Crew are responsible for:

- Effectively operating the fish waste control system as specified to ensure no continuous or ad-hoc discharge of offal and fish waste occurs while towing the fishing gear
- Never discharging fish waste during hauling and shooting
 - Hauling is defined from when the doors reach the surface until the cod-end is on deck
 - Shooting is defined from when the cod-end is off the deck until the doors are below the surface
- Shooting and hauling the net as quickly as practicable and always seeking to minimise the time the net remains on or near the surface
- Always clearing the net of stickers before shooting
- Deploying further mitigation devices at times of increased risk and ensuring immediate adjustments are made to the offal control system discharge if that is causing the risk
- Rebuilding or replacing mitigation devices if damaged or lost
- Attending DWG training programmes as required.

Part 3: Reporting & Review

DWG Reporting Requirements

Trigger Points and Vessel Action

Trigger points are the DWG capture incident threshold system to trigger real time reporting. Once a trigger point is reached, the vessel skipper will notify their vessel manager and DWG within 24 hours (and must monitor the situation more closely and take the steps noted above to manage the increased risk).

DWG Trigger Points

These are reached when in any **24-hour period** seabirds captured and landed **dead** on deck equal or exceed:

- **3** or more large seabirds (Dead albatross or mollymawks)
- **5** or more seabirds (Dead petrels, shearwaters, albatross or mollymawks)

Or when in any **7-day period** there are:

- **10** captures or more of seabirds of any type (**alive and/or dead**)

Trigger Reports

Report all DWG trigger point breaches in real time (within 24 hours) to admin@deepwatergroup.org and contact the DWG Environmental Liaison Officer (John Cleal) or Richard Wells directly for advice as required. The Liaison Officer will provide support and may seek additional information for any necessary follow-up.

DWG Contacts (available 24/7)	Email	Phone
DWG Office (send trigger reports here)	admin@deepwatergroup.org	-
John Cleal	-	021 305 825
Richard Wells	-	021 457 123

MPI Reporting Requirements

It is not illegal to accidentally capture protected species while commercial fishing **but it is illegal to fail to properly report the capture**. It is important that all captures and mortalities are reported accurately. All protected species landed dead or alive (then returned to the sea) **must** be recorded on a **Non-Fish Protected Species Catch Return (NFPSCR)**. **Always meet your legal requirements**. Record all captures (dead or released alive) in the appropriate form and return to MPI as required under the fisheries reporting regulations.

NFPSCR Codes (see list in Appendix 1)

Use the species code or the type code supplied by MPI and **always record any leg band numbers**. If you capture a bird with a leg band, add details to CEDRIC (comments section) or, if using hard copy NFPSCR form, handwrite details (time, date, position, band number, alive or dead).

Unless you can positively identify the seabird species, only use the generic codes for unidentified seabirds listed here:

- **XAL – albatrosses (unidentified)**
- **XXP – petrels, prions and shearwaters (unidentified).**

“Captures” = birds/mammals that have become fixed, entangled or trapped, and are prevented from moving freely or freeing itself (i.e. interactions with fishing gear)

“Deck-strikes” = birds which collide with the vessel superstructure or deck and are unable to leave the vessel on their own, either through death, injury or disorientation. Do not report any seabird if it is alive and leaves the vessel unassisted.

Note: Deck-strikes are not included in the MPI fishing seabird mortality estimates but must be reported.

Auditing and Review of VMPs

MPI Observer Audit (see form in Appendix 2)

- MPI observers audit at-sea performance against the VMP each trip and complete an audit form which is discussed during the observer debrief with MPI fisheries managers
- The MPI audit form and observer comments are reviewed by the DWG Environmental Liaison Officer and feedback (positive/negative) goes to the vessel operator
- The vessel managers and skippers can then undertake corrective actions or provide positive feedback to crew. The observer's feedback will also form part of the internal VMP audit process and inform the DWG environmental training provided to the crew
- The aggregated outcomes of these audits, and the number of issues that arise each fishing year, is publically reported by MPI in its Annual Review Report (note that individual vessel details are confidential to the operator, DWG and MPI).

Company Internal Review (Appendix 3)

- It is the vessel manager's responsibility to ensure the VMP is reviewed annually, is up to date, and accurately reflects practices onboard the vessel
- If major modifications are made to the mitigation or fish waste control systems onboard, the vessel manager must notify the DWG Environmental Liaison Officer so that the VMP can be updated accordingly
- The DWG Environmental Liaison Officer will review VMPs during vessel visits and crew briefings.

DWG Environmental Officer Review

Each vessel is expected to participate in the DWG environmental training programme, with an annual vessel visit to deliver senior crew and managers with an update on: best practice mitigation; review of the vessel's VMP; MPI observer's feedback; and any triggers reported.

Seabird Release and Handling

Every care should be taken to release seabirds alive and unharmed. Handle with care to reduce stress and to minimise any further harm or injury to the animal, this will increase its chances of survival when being returned to the sea.

Beware large birds can inflict a serious bite, use gloves and eye protection!

Handling Guidelines, Net Release

- Try to keep the bird calm by covering its eyes and head with a cloth. Where possible, use two crew. One to support and hold the bird, and one to free the bird from the gear.
- Carefully isolate the tangled meshes. Peel the netting back over the tail, feet, and then wings while holding the bird firmly. Remove the head from meshes last.
- Try not to 'pull or rip' the bird out of the net by pulling on its head or neck.
- When freed from the gear, release the bird over the side of the vessel away from any other gear or prop wash. Although, if the bird is waterlogged, briefly keep it in a safe place (e.g. a covered empty fish bin) until it has recovered.

Part 4: Fish Waste Management

Rationale

Fish waste (offal and discards) management is the number one method to reduce the number of, and risks to, seabirds around fishing vessels. Seabirds are attracted to fish waste as well as whole fish in the trawl net. Continuous discharging of fish waste is proven to be the single greatest contributing factor to seabird captures (especially warp captures but also net captures). Mealing fish waste reduces the amount that is discharged, while mincing reduces its attractiveness, particularly to large seabirds, and batching breaks the seabirds' attention span and reduces the number of birds continuously near the vessel.

Purpose

To ensure every vessel has the ability to control its fish waste to best reduce the risks to seabirds by:

- Eliminating continuous discharge
 - Reducing the amount of time fish waste is within the warp danger zone
 - Stopping fish waste discharge during hauling and shooting periods
-

Fish Waste Control Systems

System	Details
Fishmeal plant	<ul style="list-style-type: none"> • Converts fish waste into fishmeal • In some circumstances, there will be discharging of some fish waste, especially whole fish that can't be mealed • Meal plants may not have the capacity to meal all fish waste, particularly high-volume fisheries or if it breaks down • In case of meal plant incapacity, contingency procedures must be in place (e.g. batching or holding)
Mincing	<ul style="list-style-type: none"> • All fish waste is minced prior to discharge overboard; the smaller the particle size the better • Minced fish waste may be batch discharged (preferred) or pumped overboard continuously • Pumping systems must be able to be turned off for hauling and shooting (the only exception being for surimi processing) • In case of mincer breakdown or overload, contingency procedures must be in place (e.g. batching or holding)
Batching	<ul style="list-style-type: none"> • Fish waste is retained during the tow for a minimum of 30 minutes and discharged in less than 5-minute intervals (in batches) to avoid continuous discharge • Best practice is an automated (hydraulic release) system of tanks designed for holding at least 30 minutes waste and discharging in less than 5 minutes • Fish waste is always retained during shooting and hauling
Holding	<ul style="list-style-type: none"> • All fish waste is retained onboard for the duration of the tow; there is no discharge during fishing with the exception of water from sump pumps or freeing ports • Discharge needs to occur when the vessel has gear out of the water
Sumps/pumps (secondary system)	<ul style="list-style-type: none"> • The factory wash sump-pumps are required to remove water from the factory deck; they are considered a secondary offal control system and while crew need to restrict the quantity of fish waste going through the sumps, unrestricted access for water to the sumps is paramount for vessel safety • Removable sumps, grating and 'offal -traps' are all used in some form or another on most vessels • Collecting fish waste accidentally lost to the factory floor is time consuming. Where possible, have equipment in place to reduce loss of fish waste to the floor • Reducing volumes of water use in the factory also greatly reduces fish waste being washed overboard and also makes it easier to collect

Part 5: Trawl Net Captures

Rationale

Seabirds are attracted to food in or around the trawl gear including fish in the net while hauling, 'stickers' left in the net when shooting, and any fish waste discharged while the net is on or near the surface. Net captures (both dead and released alive) contribute approximately 70-80% of total trawl seabird captures. Net captures can occur on the surface and well below the surface. Net captures occur mostly during the hauling period when smaller diving birds, generally shearwaters and petrels, either dive into the trawl mouth or through open meshes where they become trapped and drown. Some birds become tangled by meshes from outside of the net, these are often released alive. Albatross can also become entangled in top meshes, most often when a leg or wing becomes entangled. Approximately 30-40% of net captures are released alive but some are injured and may not survive.

Net captures can also occur when shooting; those birds that are retained in the trawl will be found dead, usually in the fish pound.

Purpose

To minimise the risk of net captures through implementing principles and actions recognised as best practice.

Risk Reduction Methods

- Remove all stickers as practicable from the net before shooting
- Haul and shoot as quickly as practicable, limiting the time the trawl is near or on surface
- Stop fish waste discharge during hauling and shooting periods
 - This period is from when the doors reach the surface until the codend is on deck when hauling, and from when the cod-end is off the deck until the doors are below the surface during shooting
- Maintain the trawl at depth (50-100m when turning or, if required, bring the trawl to the surface and turn with "doors up" (wing ends and net mouth closed as much as possible)
- Avoid mending the net while it lies on the surface, particularly when hauling (if trawl has to be in the water to effect repairs, it's best done when shooting)
- Net-binding is an option if significant bird captures are observed when shooting midwater trawls. Birds returned dead 'washed-out' will often be found in the fish-pound. Net-bind to 'choke' trawl closed and stop access into the trawl meshes when shooting. Net binding instructions are appended to this OP.
 - Net binding consists of tying short lengths of rope at intervals down the length of the trawl's large meshes. Held with slip knots, these pull apart when the force of the doors spread the net during shooting
 - Turn vessel when hauling to close trawl mouth across stern ramp quarters, this can 'close-off' some meshes to reduce risk of birds diving into the trawl mouth and tangling in meshes.

Part 6: Trawl Warp Captures and Seabird Scaring Devices

Purpose

Seabird scaring devices are intended to deter seabirds from the danger zone where there is a risk of warp strikes. These devices are required because fish waste attracts seabirds to the danger zone. Fisheries regulations require trawlers of >28 m LOA to use an approved scaring device at all times while fishing. Tori lines and bafflers are approved types of scaring device and the only systems now used by the New Zealand fleet to meet the regulations. The paired deployment of these devices (secondary deployment) during high-risk periods (e.g. when there is fish waste discharge with seabirds feeding in the 'warp-zone' or after a warp capture) is crucial to reducing warp strikes.

Devices (see Appendix 4)

Tori lines

- The tori-line is **proven** to be the most effective mitigation device in most conditions
- To be effective it must be designed, built, and deployed correctly (see DWG tori-line factsheet Appendix 4)
- Key parameters: attached to best position to get required **height** above and outside each warp; a proper **drag** object to maintain proper **tension and aerial extent**; correct **length** backbone; and **streamers of proper spacing and lengths**
- Streamer lines must not be lying in the water where they could entangle seabirds. The correct number and length of streamers, backbone length and, most importantly, the correct amount of drag will keep the line well above the warp and steamer above the water
- Use of swivels is optional, swivels can cause crushing or cutting of the steamer material
- When in doubt contact DWG.

Bafflers

- Bird bafflers are the most commonly used device due to ease of use
 - While not always as effective as tori lines, bafflers work best when they are properly built, maintained and coupled with excellent fish waste management
 - Two-boom bafflers (2 x side booms) reduce birds' access down the side of the hull and around the offal chute area
 - Four-boom bafflers (2 x side & 2 x aft booms) provide more protection over the warp danger area directly behind the vessel
 - Droppers should be out of the water most of the time (droppers lying in water can tangle/capture birds)
 - At times of increased risk (see above) **always** deploy tori lines **as well!**
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Approved Devices

Device	Location	Details
Tori lines	Stern, outside port and starboard warps	Two lines extending from the stern of the vessel to a point in the water at least 10 m behind the entry point of the warps into the water. Each line has branched streamers of fluorescent material.
Bird Baffler	Stern quarters, port and starboard	Two or more booms attached to the stern quarters with dropper lines terminating in some brightly coloured material.
Warp deflector	On port and starboard warps	<p>A device/backbone rope attached to each warp with clips or hooks with a large weight at the end to hold the device down to the water line and tied back to the vessel stern. The backbone is fitted with streamers which dangle below the warp to deter birds from the area.</p> <p>DWG do not recommend them for large (>28 m) vessels.</p>

Maintenance of Mandatory Seabird Scaring Devices (see Appendix 4)

- Have crew check mitigation device(s) regularly during the voyage to ensure they meet mandatory specifications and are operating as effectively as possible in all conditions
- Undertake careful repairs to failed or damaged equipment, checking repairs against specifications
- Have sufficient spare parts aboard to replace broken or failed equipment.

Part 7: Contingency & Response

Procedures & Equipment

System	Contingency Procedures (in case of breakdown or overload, these must be in place)
Fish waste Control system	<ul style="list-style-type: none"> Carry sufficient spare parts to maintain system in good working condition If fish meal plant, batching or mincing plant fails, have contingency in place to hold and stop fish waste discharge for the hauling & shooting periods If fish meal plant or fish waste system fails and is non-repairable but large volumes have to be continuously discharged, contact and notify vessel management ASAP: <ul style="list-style-type: none"> Deploy secondary mitigation immediately and maintain deployment for duration of outage Contact shore management to advise fish waste system outage If decision is made to discharge fish waste (SWA heads etc.) and birds are present in the warp danger zone: <ul style="list-style-type: none"> Deploy secondary mitigation immediately and maintain deployment throughout the high-risk period
Mitigation	<ul style="list-style-type: none"> Must carry and deploy one mandatory mitigation device. If this is a baffle, then you must also carry tori lines as a secondary device Carry sufficient spare parts to maintain devices to the required specifications and in good working condition If warp captures occur: <ul style="list-style-type: none"> Deploy second mitigation device (tori-lines) immediately and maintain deployment throughout the high-risk period

Response to Capture Events

Assess & Act: (Make effort to reduce the risk of a similar capture event reoccurring)

- Single 'one-off' captures: Quickly assess that systems and procedures are being followed**
 - If obvious error found that can be corrected, make changes to reduce risk of re-occurrence
 - Check crew were following VMP and best practice procedures
- Multiple capture event and/or Trigger Point reached: Assess and examine potential cause of the event ASAP**
 - Check crew were following VMP and best practice procedures
 - Check if there was gear or plant failure
 - Take immediate action to reduce risk of further events
 - Report Trigger Point event to vessel management and DWG ASAP (within 24 hours)

VMP Risk Management System Check

- **Fish Waste System**
 - No continuous discharge occurring?
 - Is vessel holding batching/mincing as per VMP?
 - **Net captures**
 - Try to reduce the time birds have access to the trawl by ensuring no fish waste discharge while hauling and shooting
 - Do what you can to minimise the time the gear is near or on the surface
 - **Warp Captures: Warp captures are mostly preventable. When they occur, there should be an immediate response**
 - Assess if anything more can be done to reduce the amount of time and volume of fish waste discharged into the warp danger zone
 - Check all factory discharge points (e.g. sumps and scuppers) and see if fish waste can be reduced
 - Ensure you deploy additional mitigation (e.g. a tori line well above or over the warp to reduce birds' access)
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Appendices

Appendix 1: MPI Non-Fish Species Codes

Unless you can positively identify the seabird species, **use the generic/unidentified codes listed below:**

- **XAL – Albatrosses (unidentified)**
- **XXP – Petrels, Prions and Shearwaters (unidentified)**


Item	Common Name	Species Code
Seabirds	Antarctic fulmar	XAF
	Antarctic petrel	XAP
	Antarctic prion	XPR
	Antipodean and Gibson's albatross	XAG
	Australasian gannet	XGT
	Black petrel	XBP
	Southern Buller's and Pacific albatross	XPB
	Campbell albatross	XCM
	Flesh-footed shearwater	XFS
	Grey-backed storm petrel	XGB
	Northern giant petrel	XNP
	Northern royal albatross	XNR
	Salvin's albatross	XSA
	Sooty-shearwater	XSH
	Southern giant petrel	XSP
	Southern royal albatross	XRA
	White-capped albatross	XWM
	White-chinned petrel	XWC
Marine Mammals	Common dolphin	CDD
	Bottlenose dolphin	BDO
	Dusky dolphin	DDO
	New Zealand fur seal	FUR
	New Zealand sea lion	HSL
Protected Sharks	Basking shark	BSK
	Great white shark	GWS

Appendix 2: VMP/MMOP – MPI Observer Review Form

Vessel Management Plan/Marine Mammal Operating Procedure Observer reviews (Version 4 - Jun 2011)

1. Write the trip number start date of trip / /

and vessel name



Ministry for Primary Industries
Manatū Ahu Matua

2. If any of items 1-10 are "U" or "N" then a comment is required in section 5: Y/N/U

Item 1.	Did the vessel have a copy of the Marine Mammal Operating Procedure?.....	<input type="checkbox"/>
Item 2.	Was a Vessel Management Plan onboard and was it specific to this vessel?.....	<input type="checkbox"/>
Item 3.	Were key crew members familiar with the contents of the above documents?.....	<input type="checkbox"/>
Item 4.	Did the crew clear the net of "stickers" before shooting?.....	<input type="checkbox"/>
Item 5.	Did the vessel attempt to minimise the amount of time the net spent on the surface?.....	<input type="checkbox"/>
Item 6.	Did the vessel refrain from discarding plastic or netting?.....	<input type="checkbox"/>
Item 7.	Did the vessel use mechanisms or procedures that reduced accidental discharge of floor offal and fish to the sea (e.g. grates)?.....	<input type="checkbox"/>
Item 8.	Did the vessel steam away from large congregations of marine mammals?.....	<input type="checkbox"/>
Item 9.	Did the vessel refrain from setting gear when dolphins were nearby?.....	<input type="checkbox"/>
Item 10.	Was there a designated crew member looking for marine mammal captures?.....	<input type="checkbox"/>

3. Items 11-13 use "Y" to indicate which options were present:

Item 11.	The seabird scaring devices available during this trip were:	
	None Tori Line Bird Baffler Warp Scarer Other	
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Item 12.	The most regularly used seabird scaring device was:	
	None Tori Line Bird Baffler Warp Scarer Other	
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Item 13.	The main offal management strategy employed during this trip was:	
	Meal Held Batch Mince Other	
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

4. If any of items 14-20 are "Y" or "U" then a comment is required in section 5: Y/N/U

Item 14.	When targeting JMA, was there evidence to suggest that the net was shot or retrieved between 2:30am and 4:30am (Only applies north of 40 deg 30 mins S).....	<input type="checkbox"/>
Item 15.	Was offal or fish discharged during net shooting or net retrieval periods?.....	<input type="checkbox"/>
Item 16.	Was an additional seabird mitigation device(s) deployed during this trip?.....	<input type="checkbox"/>
Item 17.	During turns, were the doors ever fully submerged with a headline depth of less than 50m?..	<input type="checkbox"/>
Item 18.	Were any marine mammal or seabird 'trigger' points activated during this trip?.....	<input type="checkbox"/>
Item 19.	Were there equipment failures that increased seabird/marine mammal capture risk?.....	<input type="checkbox"/>
Item 20.	Were there any other notable seabird or marine mammal related events during this trip?.....	<input type="checkbox"/>

Appendix 3: VMP Internal Audit Form

Name of Vessel		Auditor's Name	Review Date	Conforms?
				Yes / No
Item	Location / Subject			OK
Non-Fish Protected Species Catch Return	Bridge	Completed and being furnished to MPI as required		<input type="checkbox"/>
Trigger points (report within 24hrs)	Bridge	Was a trigger point reached? If so, did the captain report this to shore management and or DWG? Did shore management contact DWG?		<input type="checkbox"/>
Bridge Log	Bridge	Is the Bridge Log being used for recording any mitigation equipment failure, multiple captures etc.?		<input type="checkbox"/>
MPI Observer Audit/Review	MPI	MPI Vessel Management Plan Review audit form(s) received from DWG & feedback given to crew.		<input type="checkbox"/>
Mitigation Methods	Procedure	Check recorded equipment matches equipment being used and on board, check all mitigation gear is being maintained to the correct specification.		<input type="checkbox"/>
	Personnel	Check contingency plans are properly recorded.		<input type="checkbox"/>
Offal Control Methods	Procedure	Check recorded equipment matches equipment being used on board, check VMP procedures are followed.		<input type="checkbox"/>
	Personnel	Check contingency plans are properly recorded.		<input type="checkbox"/>
Corrective Actions taken	Previous Review Form	Check that previous corrective actions have been carried out.		<input type="checkbox"/>
On-board Management	Bridge	Are officers and crew monitoring changing conditions and making changes to mitigation devices when risk to seabirds increases?		<input type="checkbox"/>
Training	Personnel	Check crew in key positions are well aware of the VMP and its procedures and are maintaining equipment and on board management systems to meet the VMP OP requirements.		<input type="checkbox"/>
Safety Hazard Management	Bridge	Have hazards associated with the equipment or procedures to adhere to the VMP been assessed/ identified and crew advised.		<input type="checkbox"/>
Changes advised or details of non-conformance (comments). Contact DWG for advice:				
Auditor's Signature			Date Results Advised	
Return Form to Deepwater Group Ltd:		DWG	VMP Internal Audit Form	
		Email	admin@deepwatergroup.org	
		Call	John 021 305 825 / Richard 021 457 123	

Appendix 4: Seabird Scaring Device –Tori Line Specification

This Fact-Sheet is the DWG best practice Tori line specifications and standards for the design construction and deployment for deep-sea trawlers. Operators must refer to the appropriate MPI regulation and gazette circular for full details to ensure you comply with all regulatory requirements.

PAIRED STREAMERS/TORI LINE

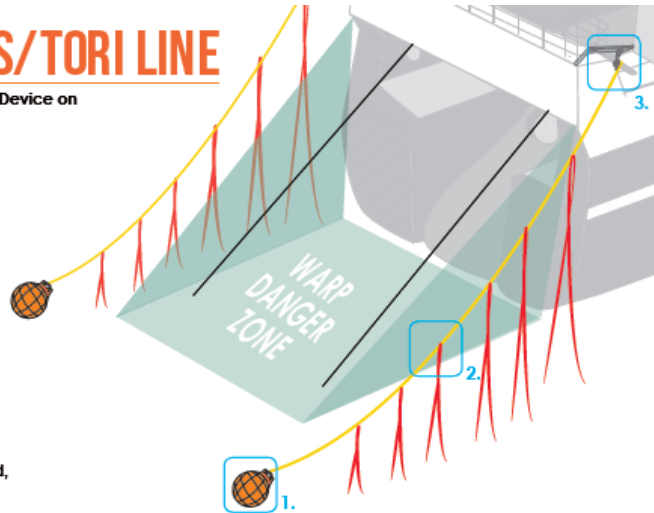
Optimal Design and Use for Seabird Mitigation Device on New Zealand Deep-sea Trawlers

The tori line was:

- first developed by Japanese fishermen to distract seabirds from baited hooks
- reinvented as a mitigation device
- adapted for trawlers to reduce the risk of seabird strikes with warps.

Its simplistic design, easy and cheap construction and effectiveness are why the tori line is the most effective and widely used seabird mitigation device worldwide.

Sea trials on new zealand trawlers tested new improved materials and designs (as shown below). These trials show how to greatly improve the performance of your tori line and reduce the risk of seabird warp strikes when tori lines are constructed, maintained and deployed correctly.



1. Drag Weight:

- Use 7 or 8 kg deep-sea trawl float covered in netting, (or use a road cone with floats). This increases drag to support heavier streamer material, improves aerial extent and the line maintains better position behind the vessel.



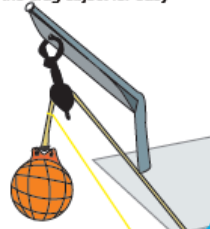
2. Backbone and Paired Streamers

- Use a shorter backbone to maintain better position behind the vessel.
- Use 8 mm mainline rope (bright coloured not green) 30, 35, 40 m long.
- Use heavier diameter 7, 8 or 9 mm (not 3.5 mm luminous) bright pink, orange, red or yellow plastic tubing.



3. Boom and Bridle

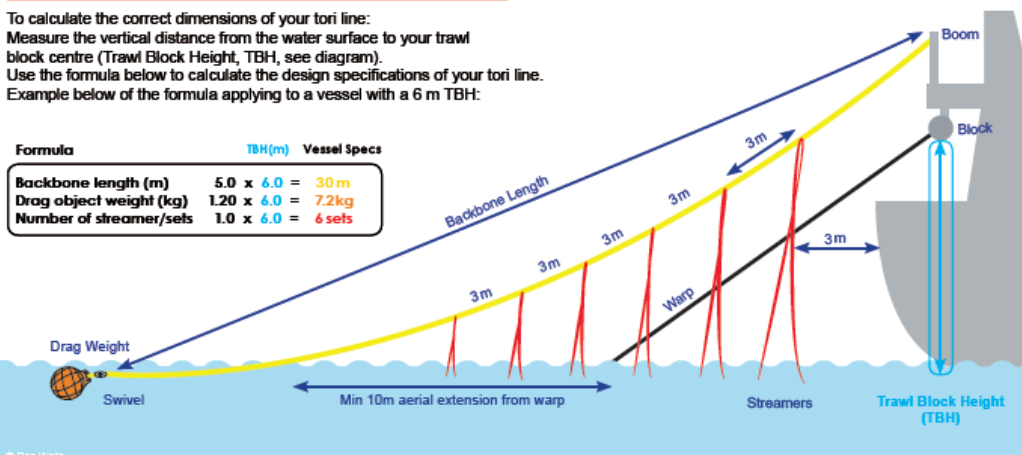
- Attach the tori line at least 2 to 3 m outboard and above each trawl block or -
- Use a boom to gain the required height and width from block.
- Deploy from the trawl deck, use a bridle/lazy line from the drag object for easy deployment.



RECOMMENDED DESIGN DIMENSIONS

To calculate the correct dimensions of your tori line:
Measure the vertical distance from the water surface to your trawl block centre (Trawl Block Height, TBH, see diagram).
Use the formula below to calculate the design specifications of your tori line.
Example below of the formula applying to a vessel with a 6 m TBH:

Formula	TBH(m)	Vessel Specs
Backbone length (m)	5.0 x 6.0	= 30 m
Drag object weight (kg)	1.20 x 6.0	= 7.2kg
Number of streamer/sets	1.0 x 6.0	= 6 sets



Appendix 5: Net Binding Midwater Trawl – Specification

Net binding holds the meshes in a tight bundle during shooting preventing the birds from becoming entangled or entering the open meshes of the trawl. Sea trials in New Zealand took place in the hoki and mackerel fisheries on midwater trawls during 2008. The New Zealand trials proved that net binding could be carried out relatively easily on midwater trawls although its effectiveness in reducing captures has not yet been tested. *(No known trials have been documented on bottom trawls)*

Net binding should be a “last resort”; cleaning the net properly and not discharging offal and fish waste should greatly reduce seabird interactions when shooting the trawl, if these measures are carried out properly and captures continue then bind the trawl net.

Net binding consists of tying the mesh into a tight “bundle” at set intervals down the length of the trawl; these binds slip/pull apart when the trawl doors spread the trawl open. Net binding reduces the volume of netting “lofting” on or near the surface so birds can’t become entangled in the mesh or dive into the open meshes under the surface and become trapped when the meshes close up.

A net bind is a short length of rope (700–900 mm) of rope tied off/knotted in the middle of each length onto a mesh or salvage on one side (so you don’t lose the binds) and on the opposite side use simple twists of the rope “slip hitch” tied with 3 to 5 twists depending how much grip you wish to apply.

Net bind the smaller to medium size meshes from 120 mm to 1,200 mm these have been observed as being the major cause of entanglements. You should net bind up past the “shark’s teeth” and beyond into the bigger rope meshes.



7 mm mussel lashing with 4 slip hitches applied



Trawl shot away with net binds

When fixing all the net binds for the first time takes around ten minutes. You may have to change the number of twists you apply to the binds or change rope material depending on how much grip you require to stop any binds from “falling out” before the net has submerged, after this it takes only 1 or 2 minutes for the crew to check and re-tie them each tow.

Depending on the size of the trawl, 8 to 12 net binds should be placed down the length of the trawl, using rope with either 3 or 4 slip hitches giving the bind enough “grip” or “hold” to stay firmly in place until the trawl doors are deployed and the spreading force of the doors opens the trawl and net binds.

Net binding will not hold the bigger/heavier rope meshes further up the trawl closer to the head of the net. These tend to pull out either when the net drum forces the rope mesh apart or the weight comes on the larger rope meshes and the binds pull out.

The netting is tied into bundles down the length of the trawl net. Most types of PE rope will work, use larger diameter ropes. During the New Zealand Sea trials, 12 binds were used; a mix of 7 mm mussel lashing rope on the smaller meshes and heavier 12 mm PPE on the bigger rope meshes, all with 4 twists and these held well.

Rope Type	Mesh Size	Hitch	Intervals
7mm mussel lashing or PE/mainline 6-8 mm	120 mm – 1,200 mm mesh	3 – 4 slip/twists	6 m apart
10 - 14 mm PE/mainline etc.	1,200 mm – 6/8 m rope mesh	4 – 5 slip/twists	6 - 8 m apart

Tested; rope size and number of binds

The rope binds need to be tied carefully. They must “slip” out so the hitches must not be overlapped etc. or they could knot-up. The rope must be in good condition and each checked by the crew every haul and reset. Any found frayed or knotted should be replaced as they will eventually not slip or untie and will cause the trawl not to open. Whip or splice the ends of the binds to stop the rope from fraying