



SEAFOOD
NEW ZEALAND

DEEPWATER TRAWL
SEABIRDS
OPERATIONAL PROCEDURES
2023-24

Photo credit: Tamzin Henderson



TABLE OF CONTENTS

PART 1: INTRODUCTION 3

PART 2: RISK..... 5

PART 3: MANAGING RISK 6

PART 4: ANIMAL HANDLING/RELEASE AND CREW SAFETY11

PART 5: REPORTING - WHEN CAPTURES OCCUR.....12

PART 6: EVENT RESPONSE, AUDIT AND REVIEW.....13

APPENDIX 1: FISHERIES NEW ZEALAND SEABIRD SPECIES CODES16

APPENDIX 2: VMP & MMOP FNZ OBSERVER REVIEW FORM.....17

APPENDIX 3: DWC VMP INTERNAL AUDIT FORM.....18

APPENDIX 4: SEABIRD SCARING DEVICE –TORI LINE SPECIFICATION.....19

APPENDIX 5: NET BINDING MIDWATER TRAWL – SPECIFICATION.....20

APPENDIX 6: TEN COMMANDMENTS.....22

Document History	Version No.	Date	Name, Position
Document creation	6.0	06 Nov 2018	R Wells, S Gargiulo I Wisselink, DWG
Minor edits, bringing doc in line with InfoPortal OP; updating name to SNZ Deepwater Council (DWC), new logo	2023-24	10 July 2024	I Wisselink

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PART 1: INTRODUCTION

The following Operational Procedures (OPs) stipulate the management measures agreed upon between Deepwater Council (DWC) shareholders, ACE owners and Fisheries New Zealand to reduce the risk to seabirds from large vessel trawl fishing. They are monitored and administered by DWC with performance and conformance audited by Fisheries New Zealand Observers. These Seabird OPs and associated Vessel Specific Management Plan support the objective of decreasing the risk to seabirds.

Disclaimer

Nothing in these procedures shall be interpreted to replace or override any of the requirements in the fisheries legislation or other regulations, including those for Health & Safety and Maritime Safety. Vessel operators are required to ensure that at all times, both they and their crew understand all regulations that are relevant to these fisheries and to the operating environment that they are in.

Objectives of these procedures

The objectives of these Seabird Operational Procedures are to:

- Reduce the risk of incidental captures of seabirds during deepwater trawling operations in New Zealand's Exclusive Economic Zone (EEZ)
- Ensure the safe and careful handling of seabirds
- Enable the proper collection of data and reporting of seabird captures

Legislative framework

The key legislation that underpins the management and protection of seabirds in New Zealand includes:

- **Seabird Scaring Devices Regulations 2006:** requires trawlers over 28 m LOA to deploy devices to reduce warp risk to seabirds
- **Fisheries Act 1996:** requires that measures are taken to avoid, remedy or mitigate any adverse effects of fishing-related mortality on any protected species. This Act also includes requirements to report captures of protected species.
- Other relevant statutes include the **Wildlife Act 1953** and **Animal Welfare Act 1999**.

National Plan of Action-Seabirds (NPOA-Seabirds)

The National Plan of Action to reduce risk to seabirds in New Zealand fisheries (NPOA-Seabirds) sets the management approach. It is drafted under 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; acknowledged 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 and posed by particular fisheries.

Through Fisheries New Zealand, a spatially explicit risk assessment is used to assess the risk to seabird species from particular fisheries. Currently, about five seabird species are assessed to be in a high-risk category and therefore need continued attention. Several of these species with high-risk scores have been observed captured in the deepwater trawl and longline fisheries; notably Buller's, White-capped and Salvin's albatross and Westland petrels. White-chinned petrels are also of particular concern due to the relatively high numbers of annual captures.

These OPs have been established so that agreed and required management measures are communicated in a clear manner to and understood by vessel captains, vessel managers and ACE providers.

Responsibilities of vessel owner, operator or manager

All vessel owners, operators and managers must:

- Ensure key crew are briefed on these OPs and VMPs as well as the relevant regulations and fully understand the actions required
- Ensure crew are familiar with Deepwater InfoPortal and it is pinned to your PC's taskbar for easy access
- Brief vessel on particular Fisheries New Zealand Operational Plans when relevant
- Ensure materials and equipment needed for fish waste management and mitigation is onboard
- Advise DWC of the need for any review, refresher or briefing of new (relief) captains or managers
- Take responsibility for corrective action should the vessel, captain or crew fail to observe the requirements of these OPs
- Ensure handover to new or relief managers or captains includes a refresher on DWC OPs
- Have oversight of protected species capture reports
- Respond to Observer audit reports via DWC
- Promptly pass on trigger reports to DWC

Responsibilities of captain and crew

This vessel's captain and crew must:

- Have full knowledge of the requirements of the DWC Operational Procedures and VMPs and ensure that all relevant documents (including other risk plans and Fisheries New Zealand Operational Plans) are accessible.
- Adhere to the requirements of these OPs, noting specific needs for different fisheries
- Respond to emerging events based on the principles and actions set out in these OPs
- Be diligent with reporting as per regulations and DWC triggers
- Seek support from shore management or DWC when needed
- Captain, senior crew and vessel manager maintain and participate in the DWC environmental risk management information and training programmes as required.

PART 2: RISK

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 (either before it is hauled on deck and/or 'stickers' that are left during shooting).

Once seabirds are attracted to a vessel, there are generally two areas in which they may be injured or killed:

Warps

- Collide in flight with trawl warp
- Be struck or caught by trawl warp while foraging on the water surface
- Be impaled on wire sprags or stuck to grease on warp
- Be trapped by the warp and dragged underwater

Trawl net

- Entangled in meshes when trawl is on the surface
- Enter the trawl through the mouth or meshes (even while the net is below the surface) and get trapped

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 unless managed.

Risk increases at times when vessels turn and expose warps into the path of offal discharge or when breakdowns mean gear is on the surface for extended periods, or when fish waste control systems such as meal plants or mincers fail.

Multiple bird deck strikes are occasionally reported (particularly in the Southern Ocean) when vessels are on anchor or sheltering in harbours at night. Seabirds (usually prions & petrels) are attracted by the light, especially in low clouds or fog. They end up either seeking shelter or landing on deck (e.g. bad weather) or if blinded by the light can collide with the vessel's superstructure.

Table 1: Main seabird species at risk, based on 2023 risk assessment

SEABIRD SPECIES	RISK AREA AND PERIOD
Salvin's albatross	<ul style="list-style-type: none"> Chatham Rise, Cook Strait and East Coast South Island spring, summer and 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 in late spring, summer and autumn
Southern Buller's albatross Northern Buller's albatross	<ul style="list-style-type: none"> Snares Shelf and West Coast South Island year-round, except in spring Chatham Rise year-round but mostly autumn and winter
White-chinned petrel	<ul style="list-style-type: none"> Chatham Rise in spring and summer Auckland Islands and Snares Shelf in spring and summer
Westland petrel	<ul style="list-style-type: none"> West Coast during the winter months

PART 3: MANAGING RISK

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 and marine mammals 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 can control its fish waste to best reduce the risks to seabirds by:

- eliminating continuous discharge
- mealing or mincing waste
- reducing the amount of time fish waste is within the warp danger zone (batching)
- stopping fish waste discharge during hauling and shooting periods.

Reducing the abundance and activity of seabirds by controlling fish waste is paramount to risk mitigation. Details of each vessel's offal control systems and contingency plans are detailed in its VMP, as this is specific to the engineering and fishing operations of each vessel.

Table 2: 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 in high-volume fisheries or if the meal plant 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 before being discharged overboard; the smaller the particle size (aim for 1 cm) the better • Minced fish waste may be discharged 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 a system of tanks (automated or hydraulic release) designed to hold waste for at least 30 minutes and discharge 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 on board for the duration of the tow; there is no discharge during fishing except for 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 ofal control system and while the 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 ofal - traps can be used in some form on most vessels • Collecting fish waste accidentally lost on the factory floor is time-consuming. Where possible, have equipment in place to reduce the loss of fish waste to the floor • Reducing volumes of water used in the factory also greatly reduces fish waste being washed overboard and also makes it easier to contain fish waste

Trawl warp captures and mandatory seabird scaring devices

Seabird scaring devices deter seabirds from the danger zone where there is a risk of warp strikes. Fisheries regulations (www.mpi.govt.nz/dmsdocument/20321/loggedIn) require all trawlers of >28 m LOA to always use an approved scaring device while fishing.

Tori lines and bafflers are approved types of scaring devices and the only systems now used by the New Zealand deepwater fleet. The paired deployment of these devices (i.e. 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.

Tori lines (see Appendix 4)

- The tori line is proven to be an effective mitigation device in most conditions
- To be effective it must be designed, built, and deployed correctly (see Appendix 4)
- Key to the tori line's effectiveness: attaching to the best position to get the 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 streamer above the water
- Use of swivels is optional: swivels can cause crushing or cutting of the streamer material
- When in doubt, contact the DWC Environmental Liaison Officer (ELO).

Bafflers

- Bird bafflers are the most commonly used device due to their 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 (2x side booms) reduce birds' access down the side of the hull and around the fish waste discharge area
- Four-boom bafflers (2x side and 2x aft booms) where the aft booms are more effective as they provide more protection over the warp danger area directly behind the vessel
- A "super-baffler" has been designed for New Zealand conditions and these are proving very effective – for more information contact DWC ELO
- Droppers should be out of the water most of the time (as droppers lying in water can tangle/capture birds) and made of suitable materials (flexible pipe or hard plastic tube threaded on ropes work best)
- At times of increased risk (see above) always deploy tori lines as well.

Table 3: Fisheries New Zealand-approved devices

DEVICE	LOCATION	SUMMARY (SEE REGULATIONS FOR 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 brightly coloured 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		DWC does not recommend them for large (>28 m) vessels.

Maintenance of mandatory seabird scaring devices

- Monitor performance of mitigation devices at all times (e.g. deck and bridge crew observations) and stay alert to the need to change or manage devices
- 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.

Warp management

- Monitor the state of warps and ensure joins or sprags are well clipped, whipped or wrapped to reduce the risk of spiking birds
- If using new warps, request that the supplier minimise grease loading and avoid using them when Southern Ocean summer fishing if possible.

Table 4: Summary of risk management actions

RISK	ACTIONS TO MITIGATE RISK
Warp Capture	<ul style="list-style-type: none"> • Manage or control (hold, 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

RISK	ACTIONS TO MITIGATE RISK
	<ul style="list-style-type: none"> • Tori lines are proven to be very effective. With these, use proper design, materials and deployment methods and adjust regularly to maintain coverage over the warps (see Appendix 4) • Baffles divert seabirds from fish waste discharge points and warps • Avoid using new heavily greased warp wires on your first trip fishing in the Southern Ocean in the summer months
Net Captures	<ul style="list-style-type: none"> • Eliminate fish waste discharge immediately before and during hauling and shooting periods • Properly clear 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
Deck Strikes	<ul style="list-style-type: none"> • Minimise external lighting when not required for crew and vessel safety • Non-essential activities requiring external lighting at night are avoided whenever possible • Known high risk areas and times are avoided at night when using external lights

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 80-90% of total trawl seabird captures
- Can occur on the surface and well below the surface
- 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 while on the outside of the net, these are often released alive
- Albatross can become entangled in top meshes, when a leg, head or wing becomes entangled

- Approximately 30-40% of all net captures are released alive but some of these birds are injured and will not survive
- Can occur when shooting, and birds captured at this stage will usually be found dead and in the fish pounds.

Risk reduction actions

- 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 codend is off the deck until the doors are below the surface during shooting
- Remove as practicable all stickers from the net before shooting
- Haul and shoot as quickly as practicable, limiting the time the trawl is near or on the surface
- Maintain the trawl at depth (50-100 m 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 the trawl has to be in the water to effect repairs, it’s best done when shooting)
- Net-binding of midwater trawls is an option if significant bird captures are observed when shooting. Birds returned dead ‘washed-out’ will often be found in the fish-pound. Net-binding will choke the mid-water trawl mouth closed and reduce access to the trawl meshes when shooting. Net-binding instructions are in Appendix 5.
 - 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 spreads the net during shooting
 - When fishing operations, weather and navigation allow, turn your vessel when hauling to close trawl mouth across stern ramp quarters. This can close off some meshes to reduce the risk of birds diving into the trawl mouth and tangling in meshes.

PART 4: ANIMAL HANDLING/RELEASE AND CREW SAFETY

Release alive

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

It is an offence to deliberately harass or harm any protected species and this includes wilfully retaining, damaging, mutilating or removing parts of dead birds.

Beware - large birds can inflict a serious bite; it is recommended to use gloves and eye protection.

Handling guidelines for net release

- Try to keep the bird calm by covering its eyes and head with a cloth. Where possible, use two crew members. 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.

Return to sea

When freed from the gear, release the bird over the side of the vessel away from any other gear or prop wash. If the bird is waterlogged, put it in a safe space (e.g., an empty fish crate, box, or an open, safe area on deck) and let the bird dry out. When the bird is dry or active again, ease the bird back into the water as close to the water surface as possible.

PART 5: REPORTING - WHEN CAPTURES OCCUR

DWC trigger points and vessel action

Once a DWC trigger point is reached (see below), the vessel captain will notify their vessel manager and DWC within 24 hours. The situation is then monitored more closely by DWC, the vessel manager and the captain, and steps are taken to mitigate the risk of further captures.

Trigger points help the crew to assess capture risks and how to minimise these in the future. The crew is required to assess why the captures may have occurred and if a cause can be found take responsive actions to mitigate future risks including where necessary deploying additional mitigation devices.

DWC trigger points

A trigger point is reached when in any **24-hour period** you capture and land on deck:

- 3 or more large dead seabirds (albatross and mollymawks)
- 5 or more small dead seabirds (petrels and shearwaters)
- 2 or more dead or alive fur seals
- 1 or more dead or alive sea lion
- 1 or more dead or alive basking shark or any dolphin species.

or when in any **7-day period** you capture:

- 10 or more dead or alive seabirds (all types of seabirds)
- 5 or more dead or alive fur seals.

Trigger reports

Report all DWC trigger point breaches immediately (within 24 hours) to admin@deepwatergroup.org.

Emails are automatically forwarded to John Cleal, DWC Environmental Liaison Officer (ELO) and Ben Steele-Mortimer, Environmental Programme Manager.

The ELO will follow up to provide support and may seek additional information.

Contacts

DWC CONTACTS (AVAILABLE 24/7)	PHONE	EMAIL
DWC (email auto-forwards to John & Ben)		admin@deepwatergroup.org
John Cleal (ELO)	021 305 825	admin@deepwatergroup.org
Ben Steele-Mortimer	027 234 3140	admin@deepwatergroup.org

Fisheries New Zealand mandatory reporting requirements

It is not illegal to accidentally capture protected species while commercially fishing **but it is illegal to fail to report the capture.**

As required under Fisheries Regulations, all protected species landed dead or alive (then returned to the sea), must be recorded via the vessel's Electronic Reporting System (ERS).

Capture Reports should be made via the Non-Fish and Protected Species part of the daily ERS report, and if a trigger point is reached also to the DWC ELO.

Note: The ERS has fields to allow reporting of leg-band or flipper tag numbers found on a captured animal. This information is highly valued so please always record and report.

Always know and meet your legal requirements.

Definition of captures and deck strikes

Captures = animals that have become fixed, entangled or trapped and are prevented from moving freely or freeing themselves (i.e. interactions with fishing gear or tori lines).

Deck strikes = birds that 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 Fisheries New Zealand seabird capture estimates but must be reported.

PART 6: EVENT RESPONSE, AUDIT AND REVIEW

Onboard response to capture events

Assess and act to reduce the risk of further captures

Single, one-off, captures

- Quickly assess that systems and procedures are being followed

- If an obvious error is found that can be corrected, make changes to reduce the risk of re-occurrence
- Check the crew were following VMP and best practice procedures

Multiple capture events and/or trigger points reached

- Assess and examine the potential cause of the event immediately
- Check the crew were following VMP and best practice procedures
- Check if there was gear or plant failure
- Take immediate action to reduce the risk of further events
- Report trigger point event to vessel management and DWC as soon as possible

VMP risk management system check

- Is the fish waste system OK?
- No continuous discharge occurring?
- Is vessel holding/batching/mincing as per VMP?

Net captures

- Try to reduce the attraction birds have to the risk area 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 frequency and volume of fish waste discharging 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 over the warp to reduce birds' access)

Fisheries New Zealand Observer review form

Fisheries New Zealand Observers audit at-sea performance against the VMP each trip and complete a review form which is discussed during the Observer debrief with Fisheries New Zealand analysts.

The Fisheries New Zealand Observer review form (Appendix 2) and Observer comments are reviewed by the DWC ELO, and feedback (positive/negative) goes to the vessel operator.

The vessel managers and captains can then undertake corrective actions or provide positive feedback to the crew. The Observer's feedback will also form part of the internal VMP audit process and inform the DWC environmental training provided to the crew.

The aggregated outcomes of these audits, and the number of issues that arise each fishing year, are publicly reported by Fisheries New Zealand in its Annual Review Report (note that individual vessel details are confidential to the operator, DWC and Fisheries New Zealand).

DWC VMP internal audit form

It is the vessel manager's responsibility to ensure the VMP is reviewed annually, is up to date, and accurately reflects practices on board the vessel (Appendix 3).

If major modifications are made to the mitigation or fish waste control systems on board, the vessel manager must notify the DWC ELO so that the VMP can be updated accordingly.

The DWC ELO will review the VMP during vessel visits and crew briefings.

DWC Environmental Liaison Officer review

Each vessel is expected to participate in the DWC 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
- Fisheries New Zealand Observer feedback
- Any triggers reported.

APPENDIX 1: FISHERIES NEW ZEALAND SEABIRD SPECIES CODES

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

XMA – Smaller albatross

XGA – Large albatross


XXP – Petrels, prions and shearwaters (unidentified)

Table 6: Common Fisheries New Zealand Seabird Codes

SEABIRD NAME	SPECIES CODE
Antarctic petrel	XAP
Antarctic prion	XPR
Antipodean and Gibson's albatross	XAG
Black petrel	XBP
Campbell albatross	XCM
Cape petrel	XCP
Chatham Island albatross	XCI
Flesh-footed shearwater	XFS
Northern giant petrel	XNP
Northern royal albatross	XNR
Salvin's albatross	XSA
Sooty shearwater	XSH
Southern Buller's and Pacific albatross	XPB
Southern giant petrel	XSP
Southern royal albatross	XRA

APPENDIX 2: VMP & MMOP FNZ OBSERVER REVIEW FORM

Deepwater Trawl VMP & MMOP Fisheries New Zealand observer review form



Fisheries New Zealand
Tini a Tangaroa

Trip Number	Vessel Name	FMAs fished	Trip start date	Trip end date
			/ /	/ /
Target species		Observer name		Tows observed

Record Yes (Y), No (N), Unknown (U) or Not Applicable (N/A) in the box provided. If you answer N or U to any questions, or Y for items 3, 4 or 19, then please make detailed comments on the reverse.

Item 1. Were copies of the DWG vessel specific *Vessel Management Plan (VMP)* and *Marine Mammal Operating Procedures (MMOP)* carried on board and made available upon request?

Item 2. Were the senior crew familiar with and have access to the above documents?

Item 3. Were any seabird, marine mammal or protected shark 'trigger-points' activated during the trip?
(if Y record details of the triggers and the action taken by the vessel)

Item 4. Did a gear or equipment failure event occur that increased the risk of seabird or marine mammal captures?
(if Y detail the event and the action taken by the vessel)

Item 5. Were there any changes in crew behaviour, fishing activity, mitigation devices or gear used following 'trigger-point' events or during high risk periods?

Seabird/Marine Mammal Mitigation Devices

Item 6. Record what mitigation devices were carried by the vessel and when they were utilised

	Carried on board	Deployed all tows	Deployed some tows	Not deployed
Bird Baffle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tori line	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SLED	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other <i>(describe on reverse)</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Item 7. Was an additional seabird mitigation device deployed when required by the VMP?

Item 8. Was a Dolphin Dissuasive Device deployed on every JMA7 night tow (JMA7 only)?

Item 9. Were net restrictors fitted into the centre net of a triple-rig configuration when required? **(SCI only)**
(i.e. once a 'trigger point' was reached)

Fish Waste Management:

Item 10. Was the discharge of fish waste from the vessel managed as per the VMP?

Item 11. Were there any periods of continuous fish waste discharge during the tow *(apart from minced offal)*?

Item 12. Was all fish waste (including offal and whole fish) held on board during shooting and hauling?

Item 13. Was the net cleared, as practicable, of all stickers prior to shooting?

Item 14. Was a grating or trap system used to prevent fish or offal accidentally lost to the factory floor or deck from being discharged overboard via scuppers or sump-pumps *(whilst still allowing the free egress of water)*?

General Procedures:

Item 15. Were all plastics and netting retained on board?

Item 16. Was shooting fishing gear near congregations of marine mammals avoided?

Item 17. Was the amount of time the net spent on the surface minimised as much as practicable?

Item 18. Were any turns conducted with the doors fully submerged and a headline depth of less than 50 m?

Item 19. Were all seabird, marine mammal or protected shark captures reported by the vessel?

Item 20. Were all seabirds, marine mammals or protected sharks released alive handled with due care?

Item 21. Was gear shot between 02:30 and 04:30 (NZST) when targeting JMA North of 40.30° S? **(JMA7 only)**

APPENDIX 3: DWC VMP INTERNAL AUDIT FORM

VMP Internal Audit Form				
Name of Vessel		Auditor's Name	Review Date	Conforms
				Yes / No
Item		Location / Subject		OK
Report Non-Fish Protected Species Catch	Bridge	Completed and being furnished to FNZ 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"/>
FNZ Observer Audit/Review	FNZ	FNZ 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"/>
Fish Waste Control Methods	Procedure	Check recorded equipment matches equipment being used on board; check VMP procedures are being followed.		<input type="checkbox"/>
	Personnel	Check contingency plans are properly recorded.		<input type="checkbox"/>
Onboard Management	Bridge	Are officers and crew monitoring changing conditions (trigger points reached etc) assessing the risk and making changes to mitigation devices and/or procedures when the risk to seabirds increases?		<input type="checkbox"/>
Training	Personnel	Check crew in key positions are well aware of the VMP, its procedures and are maintaining equipment and management systems to meet the VMP requirements.		<input type="checkbox"/>
Document Control	Bridge	Are the DWG Operational Procedures on board and are the OP versions current?		<input type="checkbox"/>
	Personnel	Is the VMP current, available and displayed?		<input type="checkbox"/>
Corrective Actions taken	Previous Review Form	Check that previous corrective actions have been carried out.		<input type="checkbox"/>
Details of non-conformance and/or recommended changes. Does the vessel-specific VMP need updating? Contact DWG for advice.				
Auditor's Signature			Date Results Advised	
DWG VMP Internal Audit Form - admin@deepwatergroup.org				

S:\Operational Procedures\OP Manual 2018-19\Final\Seabirds\VMP Internal Review Form 261018.xlsx\VMP Audit

APPENDIX 4: SEABIRD SCARING DEVICE –TORI LINE SPECIFICATION

This factsheet outlines DWC best-practice tori line specifications and standards for deep-sea trawlers. Operators must refer to the appropriate MPI Regulation and Gazette Circular for full details to ensure they 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.

Deep-Sea Trawl Float

Road Cone (with 2 floats)

Windy Buoy (too light)

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

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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 or knotted in the middle of each length onto a mesh or selvedge 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.



7 mm mussel lashing with 4 slip hitches applied



Trawl shot away with net binds

Net bind the smaller to medium size meshes from 120 mm to 1,200 mm as 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.

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 1-2 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.

Table 7: Net binding specifications

ROPE TYPE	MESH SIZE	HITCH	INTERVALS
7 mm 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

The rope binds need to be tied carefully. They must ‘slip’ out so the hitches must not be overlapped, 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.

APPENDIX 6: TEN COMMANDMENTS



TEN COMMANDMENTS

FOR SAVING SEABIRDS

1. Ensure senior crew have access to the current Seabird OP and are briefed and comply with procedures.
2. Avoid continuous or uncontrolled discharge of fish waste (offal and fish discards) while towing and prevent discharge while shooting and hauling.
3. Minimise spillage of fish waste to the factory deck and reduce the risk of it being continuously discharged.
4. Manage the use of the seabird mitigation device(s) for the prevailing conditions and always carry tori lines and deploy during high-risk periods.
5. Remove, as practical, all fish stickers from the net before shooting.
6. Haul and shoot as quickly as practical and minimise the time gear is on the surface for turns, repairs and breakdowns to reduce the risk of net captures.
7. When safe to do so, turn vessel when hauling trawl to close trawl across stern ramp quarters to reduce the risk of birds diving into the trawl mouth and tangling in meshes.
8. Every care should be taken to release seabirds alive including handling with care to minimise any further harm or injury.
9. Advise DWC (same day) when seabird captures reach Trigger Point. Email DWC Trigger Point Report to admin@deepwatergroup.org. Assess the event and implement further risk reduction measures. Trigger points are:
 - Within any 24-hour period, 5 dead small (e.g. petrel/shearwater/prion) or 3 dead big (albatross/mollymawk); or
 - Within any 7-day period, 10 birds dead or released alive (all species).
10. As legally required, report all captures via your vessel's Electronic Reporting System (ERS). Record and report bird band numbers in the field provided in ERS.

SEAFOOD NEW ZEALAND | DEEPWATER COUNCIL
FOR SUPPORT PHONE JOHN CLEAL: 021 305 825 OR BEN STEELE-MORTIMER: 027 234 3140