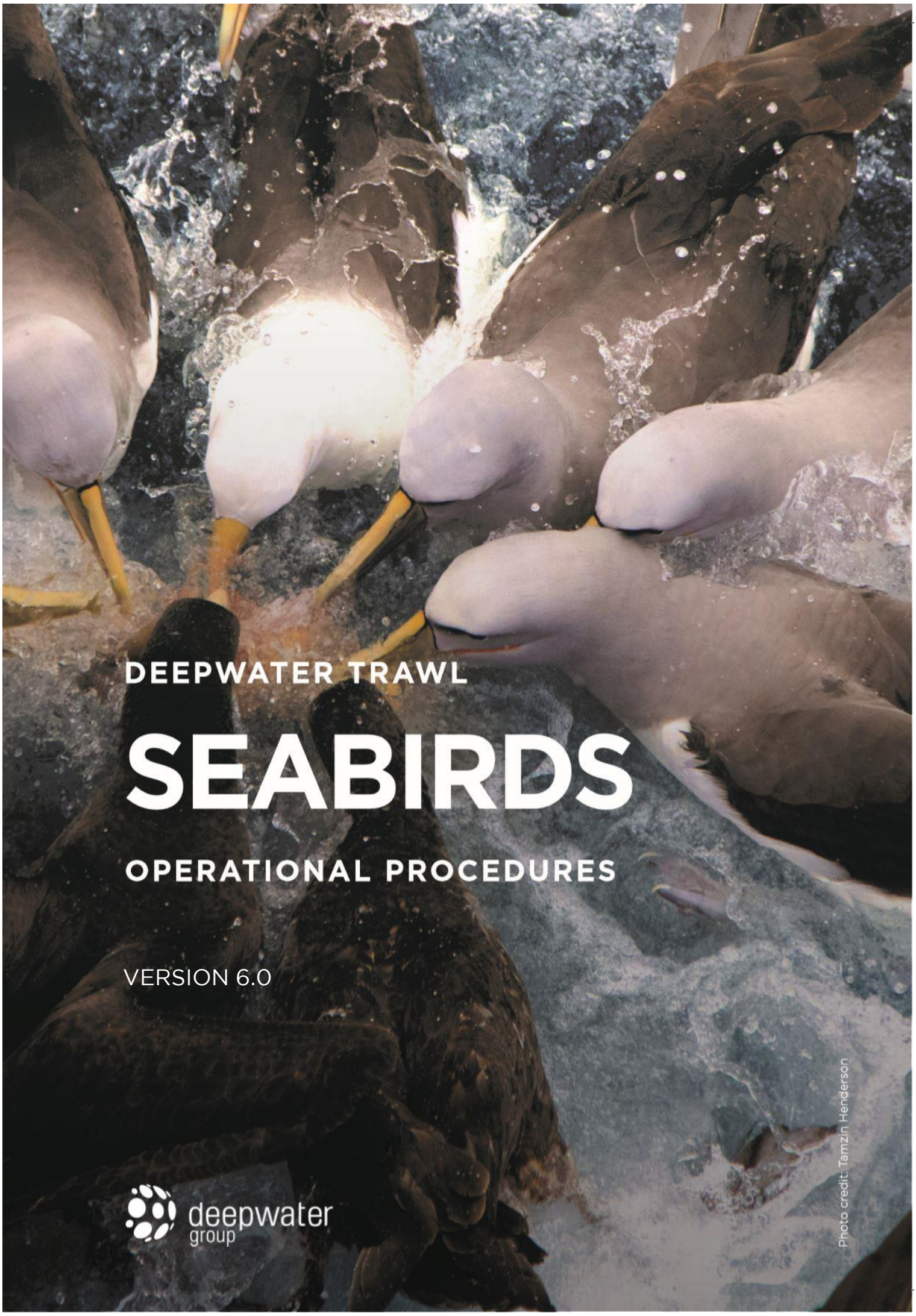

DEEPWATER TRAWL

SEABIRDS

OPERATIONAL PROCEDURES

VERSION 6.0

deepwater group

Photo credit: Tamzin Henderson

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PART 1: INTRODUCTION

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

***Disclaimer**: These OPs do not replace or override any fisheries legislation or other regulations including Health & Safety and Maritime Safety. Vessel operators are required to ensure that both they and their crew understand all regulations that are relevant to the fisheries and environment that they are operating in.*

Background to these procedures

Trawling poses a risk to seabirds through mortality or injury when birds are struck by or caught by trawl gear and associated equipment.

The characteristics of the sector are:

- Approximately 35 deepwater trawlers (over 28 m LOA)
- Around 25,000 trawl shots per annum
- Estimated to capture around 750 birds per annum (dead and alive)
- Estimated captures have decreased from around 1800 per annum since 2003 but remain at a level where improvement is still an important objective

The causes and mitigation of risk are set out further below.

Application of the procedures

These OPs apply to trawlers over 28 m LOA.

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 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; 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 ten 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 ling longline fisheries; notably Chatham, Buller's, White-capped and Salvin's albatross. White-chinned petrels and Sooty shearwaters 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 clearly communicated to and understood by vessel captains, vessel managers and ACE providers.

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:

1. **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
2. **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 cloud 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 2018 risk assessment

SEABIRD SPECIES	RISK AREA AND PERIOD
Salvin's albatross	• Chatham Rise, Cook Strait and East Coast South Island spring, summer and autumn
White-capped albatross	• Auckland Islands, Snares Shelf and West Coast South Island year-round but particularly spring and summer • Chatham Rise year-round but particularly late spring, summer and autumn
Southern Buller's albatross & Northern Buller's albatross	• Snares Shelf and West Coast South Island year-round, except spring • Chatham Rise year-round but mostly autumn and winter
Chatham Island albatross	• Chatham Rise year-round but mostly spring and summer
White-chinned petrel	• Chatham Rise in spring and summer • Auckland Islands and Snares Shelf in spring and summer
Sooty shearwater	• East Coast South Island mostly in autumn • Auckland Islands and Snares Shelf in late spring, summer and autumn

PART 3: MANAGING RISK

Table 2: Summary of risk management actions

RISK	ACTIONS TO MITIGATE RISK
Warp Capture	• 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 • 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) • Bafflers 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 summer months
Net Captures	• 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	• Minimise (with due consideration to ship and crew safety) all unnecessary deck lighting when sheltering or at anchor

The following outlines how to implement these OPs and what is expected of you.

Remember: LOOK – THINK – ACT to situations occurring around you.

Responsibilities of vessel owner, operator or manager

The vessel owners, operators and managers must:

- Ensure key crew are briefed on these Deepwater Trawl Seabird OPs, their VMP and the relevant regulations and fully understand the actions required
- Ensure the current OPs and VMP are on board and easily accessible
- Ensure materials and equipment needed for fish waste management and bird scaring devices are on board
- Advise DWG of need for any review, refresher or briefing of **new or relief** captains or managers
- Ensure handover to new or relief managers or captains includes refresher on DWG OPs and VMP requirements
- Have oversight of protected species capture reports
- Respond to Observer audit reports via DWG
- Promptly pass on trigger reports to DWG

Responsibilities of captain and crew

A vessel's captain and crew must:

- Have full knowledge of the requirements of the OPs and VMP and ensure that all relevant documents are on board and accessible
- Undertake to adhere to the requirements of these OPs and their VMP
- Respond to emerging events based on the principles and actions set out in these OPs
- Manage fishing, fish waste and mitigation devices in adherence with these OPs
- Report correctly and always advise trigger events promptly to DWG
- Seek support from shore management or DWG when needed
- Captain, senior crew and vessel manager maintain and participate with the DWG environmental risk management information and training programmes as required

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
- 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 3: Fish waste control systems

SYSTEM	DETAILS
Fishmeal plant	• 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 the meal plant breaks down • In case of meal plant incapacity, contingency procedures must be in place (e.g. batching or holding)
Mincing	• All fish waste is minced prior to discharge 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	• 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	• All fish waste is retained on board 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

SYSTEM	DETAILS
Sumps/pumps (secondary system)	• 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 able to be used in some form on most vessels • Collecting fish waste accidentally lost to 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 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 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.

Devices

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 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 streamer above the water
- Use of swivels is optional: swivels can cause crushing or cutting of the streamer material
- When in doubt, contact DWG Environmental Liaison Officer.

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 fish waste discharge area
- Four-boom bafflers (2 x side & 2 x 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 DWG Liaison Officer
- 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 4: Fisheries New Zealand approved devices

DEVICE	LOCATION	SUMMARY (SEE REGULATIONS FOR DETAIL)
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		DWG do 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 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 state of warps and ensure joins or sprags are well clipped, whipped or wrapped to reduce 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.

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 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 into 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 spread 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 risk of birds diving into the trawl mouth and tangling in meshes.

PART 4: WHEN CAPTURES OCCUR

DWG reporting requirements

Trigger points and vessel action

Trigger points are the DWG real-time capture reporting threshold system. Once a trigger point is reached, the vessel captain will notify their vessel manager and DWG within 24 hours. The situation is then monitored more closely and steps are taken to mitigate the risk of further captures.

DWG trigger points

A trigger point is 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 or dead)

Trigger reports

Report all DWG trigger point breaches in real time (i.e. within 24 hours) to admin@deepwatergroup.org. Note these emails are automatically forwarded to DWG Environmental Liaison Officer (John Cleal) and Richard Wells. The ELO will follow up to provide support and may seek additional information.

DWG CONTACTS (AVAILABLE 24/7)	PHONE	EMAIL
DWG (email auto-forwards to John & Richard)		admin@deepwatergroup.org
John Cleal (ELO)	021 305 825	admin@deepwatergroup.org
Richard Wells	021 457 123	admin@deepwatergroup.org

Fisheries New Zealand mandatory reporting requirements

The following outlines how to report to Fisheries New Zealand.

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

It is important that all captures (alive and dead) are reported accurately. All protected species landed dead or alive (then returned to the sea) must be recorded via the Fisheries New Zealand Electronic Reporting System (ERS). **Always know and meet your legal requirements.**

"Captures" = birds (and marine mammals) 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 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 Fisheries New Zealand seabird capture estimates but must be reported.

Seabird codes (see list in Appendix 1)

Use the species code or the type code supplied by Fisheries New Zealand and always record any leg band numbers. If you capture a bird with a leg band, add details in the ERS.

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).

Seabird 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. 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. If however, the bird is waterlogged, briefly keep it in a safe place (e.g. a covered empty fish bin or box) until it has recovered.

Contingency procedures

In case of breakdown or overload the following contingency procedures must be in place.

Table 5: Contingency procedures

SYSTEM	CONTINGENCY PROCEDURES THAT MUST BE IN PLACE

Fish waste control system	• Carry sufficient spare parts to maintain system in good working condition
	• If fish meal plant, batching or mincing 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:
	  ◦ Deploy secondary mitigation immediately and maintain deployment for duration of outage
	  ◦ Contact shore management to advise of fish waste system outage
	• If decision is made to discharge fish waste (e.g. SWA heads) and birds are present in the warp danger zone:
	  ◦ Deploy secondary mitigation immediately and maintain deployment throughout the high-risk period

Mitigation	• Must carry and deploy one device. If this is a baffler, 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: ◦ Deploy second mitigation device (tori-lines) immediately and maintain deployment throughout the high-risk period

PART 5: EVENT RESPONSE, AUDITING AND REVIEW OF VMPs

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 crew were following VMP and best practice procedures

Multiple capture events and/or trigger points reached

- Assess and examine potential cause of the event immediately
- 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 as soon as possible

VMP risk management system check

- 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 (Appendix 2)

- Fisheries New Zealand Observers audit at-sea performance against the VMP each trip and complete an audit form which is discussed during the Observer debrief with Fisheries New Zealand Analysts
- The Fisheries New Zealand Observer review 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 captains 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 publicly reported by Fisheries New Zealand in its Annual Review Report (note that individual vessel details are confidential to the operator, DWG and Fisheries New Zealand).

Company internal audit (Appendix 3)

- 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
- If major modifications are made to the mitigation or fish waste control systems on board, 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 Liaison 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
- 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:**

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

Table 6: Common Fisheries New Zealand Non-Fish Species Codes

COMMON SEABIRD NAME	SPECIES CODE
Antarctic fulmar	XAF
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
Grey-backed storm petrel	XGB
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
White-capped albatross	XWM
White-chinned petrel	XWC

APPENDIX 2: VMP & MMOP FISHERIES NEW ZEALAND 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 Baffler				
Tori line				
SLED				
Other *(describe on reverse)*				

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 40.30^0 S? **(JMA7 only)**

APPENDIX 3: DWG 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	☐
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?	☐
FNZ Observer Audit/Review	FNZ	FNZ Vessel Management Plan Review audit form(s) received from DWG & feedback given to crew.	☐
Mitigation Methods	Procedure	Check recorded equipment matches equipment being used and on board; check all mitigation gear is being maintained to the correct specification.	☐
	Personnel	Check contingency plans are properly recorded.	☐
Fish Waste Control Methods	Procedure	Check recorded equipment matches equipment being used on board; check VMP procedures are being followed.	☐
	Personnel	Check contingency plans are properly recorded.	☐
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?	☐
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.	☐
Document Control	Bridge	Are the DWG Operational Procedures on board and are the OP versions current?	☐
	Personnel	Is the VMP current, available and displayed?	☐
Corrective Actions taken	Previous Review Form	Check that previous corrective actions have been carried out.	☐

Details of non-conformance and/or recommended changes. Does the vessel-specific VMP need updating? Contact DWG for advice.

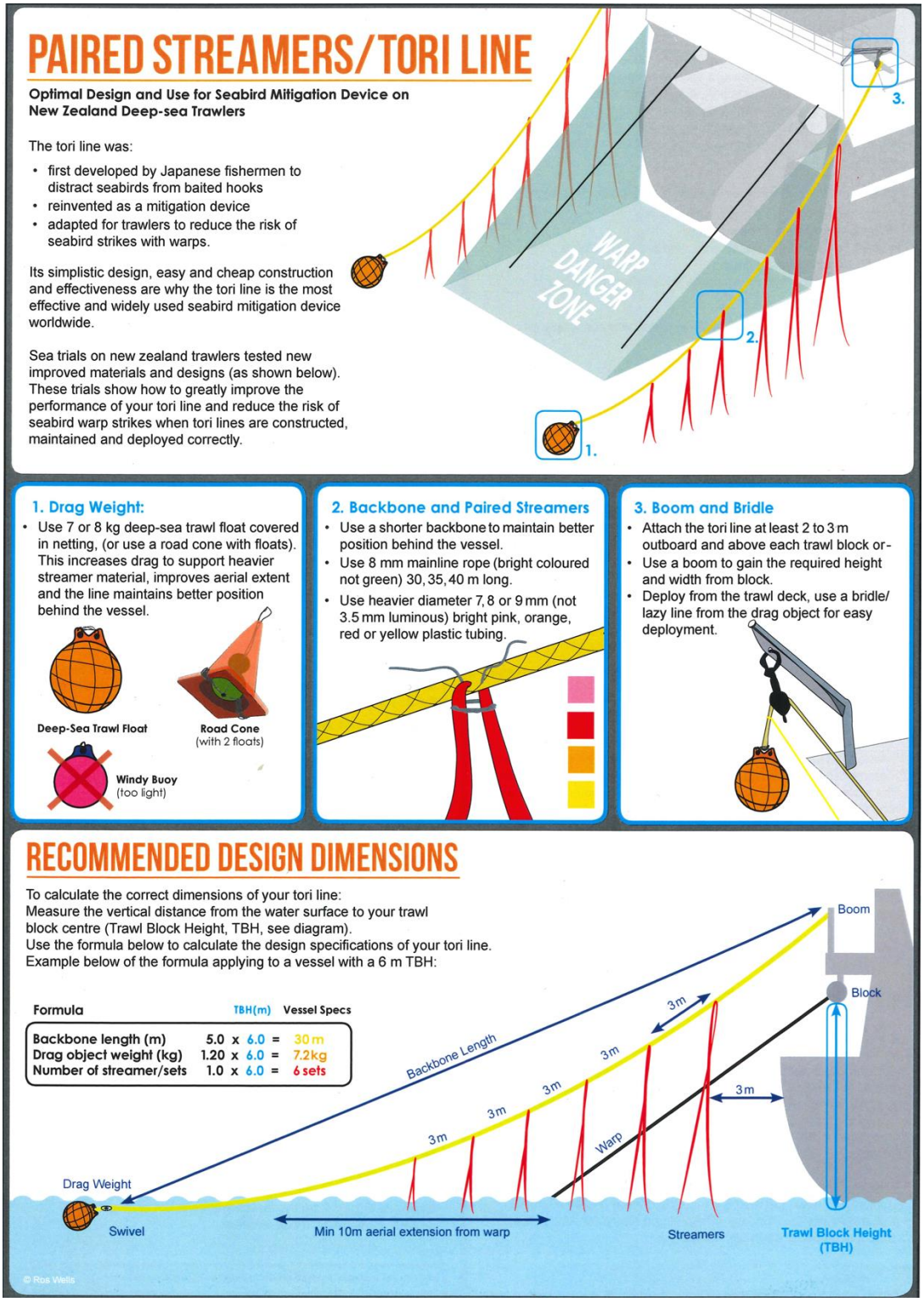
Auditor's Signature	Date Results Advised

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 DWG 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 you comply with all regulatory requirements.



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.

Fig 1: 7 mm mussel lashing with 4 slip hitches applied

Fig 2: 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 your vessel has the current Seabird Operational Procedures and your Vessel Management Plan (VMP) onboard and relevant crew are briefed and comply.

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 appropriate mandatory mitigation device(s) for the prevailing conditions. Do not just 'set and forget'.

5. Always carry tori lines (as a secondary warp mitigation device) and deploy during high risk situations (when birds and fish waste are in warp strike zone).

6. Remove, as practical, all fish stickers from the net before shooting.

7. Haul and shoot as quickly as practical and minimise time gear is on the surface for turns, repairs and breakdowns to reduce the risk of net captures.

8. Every care should be taken to release seabirds alive including handling with care to minimise any further harm or injury.

9. Advise DWG (same day) when seabird captures reach Trigger Point. Email DWG Trigger Point Report to admin@deepwatergroup.org. Assess event and implement further risk reduction measures. Trigger points are:
   - Within any 24-hour period, 5 dead small (e.g. petrel/shearwater) 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 field provided in ERS.

deepwater group **For support phone John Cleal (021 305 825) or Richard Wells (021 457 123)**

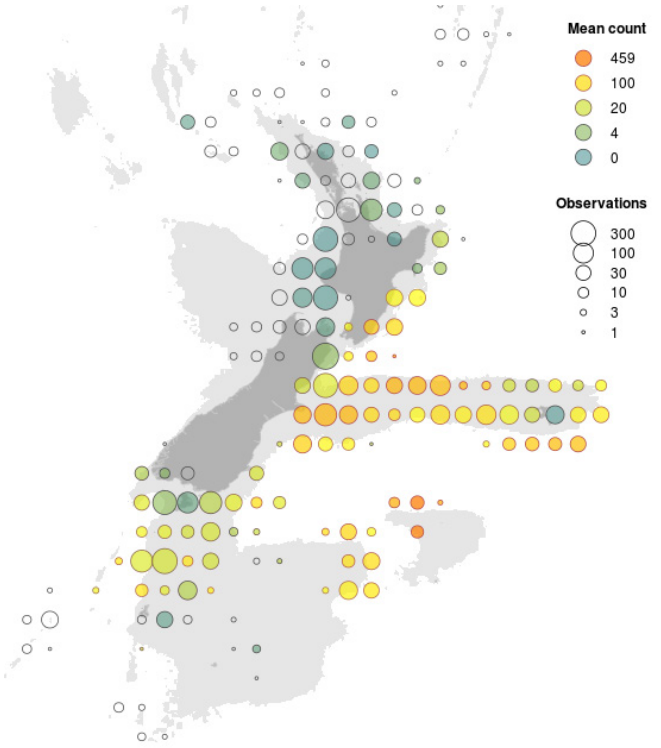
MOLLYMAWK MITIGATION

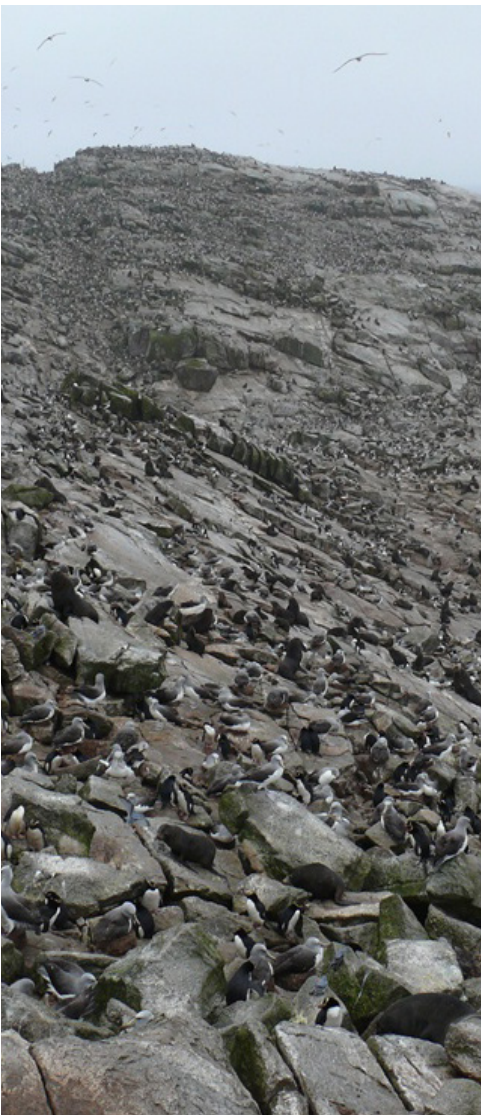
MANAGING RISK TO SALVIN'S ALBATROSS

Photo: Paul Sagar

- 98% of world's population breed at Bounty Islands (about 40,000 pairs nested in 2013)
- Around 1,200 pairs nest on the Snares Western Chain islets
- Classified as "Nationally Critical" (DOC) due to reported decline in population and "Very High Risk" in MPI Level 2 Risk Assessment
- Arrive in New Zealand in August and lay eggs in September. Chicks fledge 7 months later
- Migrate out of New Zealand zone autumn and midwinter
- Majority of birds forage across Bounty Platform, Chatham Rise (CR), East Coast South Island and Cook Strait but are also found on Snares Shelf and East Coast North Island.

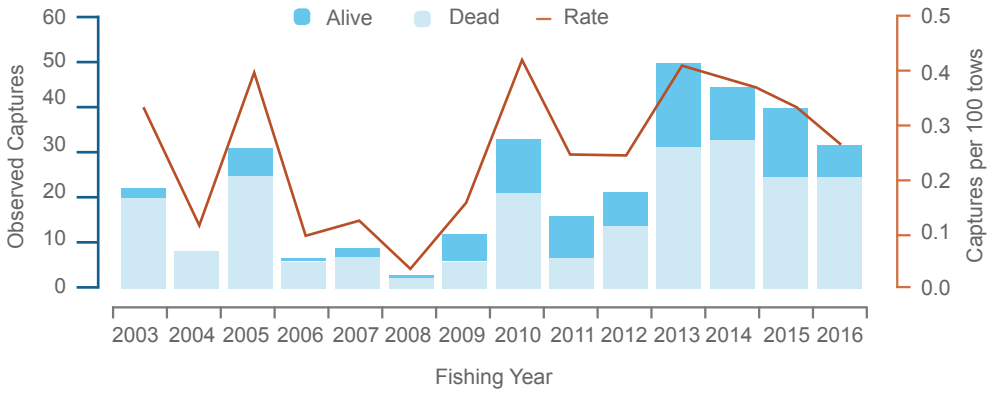
BREEDING SEASON FORAGING RANGE





Left: Breeding Salvin's albatross at Bounty Islands, Paul Sagar

OBSERVED CAPTURES OF SALVIN'S BY DEEPWATER TRAWLERS – 2003-2016 *(SOURCE FISHERIES NZ 2018)*



- As the Salvin's is one of a set of aggressive mollymawks that interacts with our fisheries, focus on reducing captures of this species will also greatly reduce risk to Chatham's, southern and northern Buller's and white-capped albatross on different fishing grounds at other times
- Southern Buller's show a similar trend in increase in captures mostly on the Snares Shelf and at a different time - between March and July.

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TRAWL FISHERY INTERACTIONS

RISK

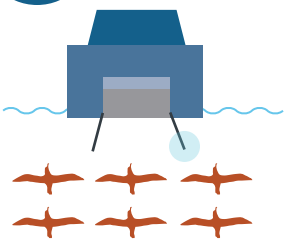
- Particularly vulnerable to trawlers but also caught by bottom longline and to a lesser extent surface longline
- Target fisheries in FMA 3 and 4 for scampi, hoki, barracouta, and silver warehou; to a lesser extent FMA 5 and 6 for squid and southern blue whiting
- Highest number of captures occur on western Chatham Rise between Canterbury Banks and the 180 line mid Chatham Rise
- Warps are main source of mortalities but in the last several years majority of captures have been in the net (most have been fatal)
- Trawl fishery capture rate increased between 2007-20013 but has trended down since then.

MITIGATION

Basic measures for all the mollymawk species:

- Excellent offal control at all times:
  - No offal discharge during shooting and hauling
  - Batching offal during tow
  - Contingency when unable to fishmeal
- Good bafflers and tori lines and deploying both at times of high risk
- Net restrictors in 3rd net of scampi trawls
- Line weighting, tori lines and offal control on longliners (or only ever night set).

CASE STUDY OF RISK - EXAMPLES OF REAL EVENTS FROM 2013



EVENT 1

6 Salvin's mollymawks (dead) taken on starboard warp

Operation:

- Domestic factory trawler on Chatham Rise in December, fishmeal plant operating, targeting hoki

Mitigation in use:

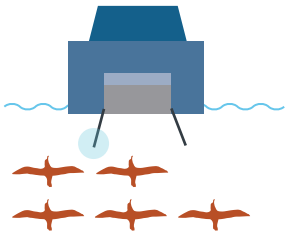
- Two boom bafflers and VMP offal procedures

Cause:

- Large bycatch of silver warehou; heads discarded overboard through starboard sump in path of starboard warp; fitted bird scaring devices inadequate

Corrective Actions:

- When fishmeal plant is bypassed, hold or batch offal; deploy tori lines.



EVENT 2

5 Salvin's mollymawks (dead) taken on port warp

Operation:

- Domestic factory trawler on Chatham Rise in December, targeting hoki

Mitigation in use:

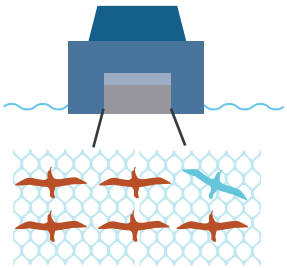
- Two boom bafflers, tori line deployed and VMP offal procedures

Cause:

- Fishmeal processing interrupted; offal from port discard chute in path of port warp; fitted bird-scaring devices not adequate, tori line not over warp path

Corrective Actions:

- Better batching of offal; more focus on offal control contingency plans when fishmeal plant unavailable; upgrade bird scaring devices.



EVENT 3

6 Salvin's mollymawks (5 dead, 1 alive) caught in net

Operation:

- H&G vessel midwater trawl on western Chatham Rise in September, fishmeal plant operating, targeting barracouta

Mitigation in use:

- Two boom bafflers and VMP offal procedures

Cause:

- Offal released from factory deck freeing ports during hauling; bad weather slowed hauling

Corrective Actions:

- Better attention to offal and waste on factory floor at critical times of operation, reduce hauling time.

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Produced by Richard Wells and John Cleal
October 2018