UN environment programme

Convention on the Conservation of Migratory Species of Wild Animals

CMS

6th Meeting of the Sessional Committee of the CMS Scientific Council (ScC-SC6)

Bonn, Germany, 18 – 21 July 2023

UNEP/CMS/ScC-SC6/Inf.12.4.4.2b

NEW ZEALAND'S MITIGATION STANDARDS TO REDUCE LIGHT-INDUCED VESSEL STRIKES OF SEABIRDS WITH NEW ZEALAND COMMERCIAL FISHING VESSELS

(Submitted by the Government of New Zealand)

Summary:

New Zealand has developed an evidence-based guidance document relevant to light pollution and migratory species — Mitigation Standards to Reduce Light-induced Vessel Strikes of Seabirds with New Zealand Commercial Fishing Vessels, which is reproduced in this document.

March 2023

Mitigation Standards to Reduce Light-induced Vessel Strikes of Seabirds with New Zealand Commercial Fishing Vessels

1. Introduction

Artificial light can form a major threat to seabirds.[1] At sea, disorientation and attraction due to artificial lights can result in seabirds landing on and colliding with the vessel and its superstructure. Birds can succumb due to the direct impact of the collision, due to injuries following the impact, or due to getting waterlogged.[2] This phenomenon is known as vessel strikes.

Vessel strikes refer to any seabirds landing on or colliding with the vessel or its superstructure, with the exception of birds that land and subsequently fly off unassisted (e.g., gulls or terns perching on vessels). Vessel strikes are sometimes referred to as deck strikes[3], deck landings, vessel impacts, or vessel collisions. The term vessel strikes builds on previous Mitigation Standards in which the following definitions were used: "*A deck landing (also known as a deck strike) is a situation when a seabird lands on a vessel and is assisted from the vessel by the crew or an observer. An impact with a vessel is a situation when a seabird collides with the superstructure of the vessel*." [4] The term vessel strikes is introduced here to provide a more descriptive and intuitive terminology.

To effectively reduce the risk of light-induced vessel strikes of seabirds, commercial fishing vessels need to use a combination of different light mitigation practices that best address the risks and needs of their individual operations. As the various fishing fleets are highly diverse with respect to vessel size, gear set-up, on board equipment, and most importantly, lighting requirements, the particulars of the mitigation practices employed may differ between vessels.

To ensure light mitigation practices employed by fishing fleets follow internationally endorsed light management guidelines[5], while accounting for heterogenous lighting requirements depending on vessel setup and operations, these Mitigation Standards document what is expected of effective mitigation practices. Mitigation Standards are grouped by what the mitigation practices aim to achieve

[1] https://www.sciencedirect.com/science/article/pii/S0006320719307499

[2] Waterlogged means that birds have lost the waterproofing of their feathers, for example due to contamination with oil, fuel, or other chemicals, and are no longer able to keep themselves dry and afloat.

[3] In current reporting legislation (e.g., Fisheries (E-logbook Users Instructions and Codes) Circular 2022 (https://www.mpi.govt.nz/dmsdocument/53998-Fisheries-E-logbook-Users-Instructions-and-Codes-Circular-2022), vessel strikes are reported as "deck strikes".

[4] E.g., https://www.mpi.govt.nz/dmsdocument/38006-Set-net-vessels

[5] Convention on the Migratory Species endorsed guidelines: https://www.agriculture.gov.au/sites/default/files/documents/national-light-pollution-guidelines-wildlife.pdf.

(Desired Outcomes). These Standards for commercial fishing vessels[6] align with advice being provided to other marine users, such as cruise ships, recognising that vessel strikes are important to manage across many sectors.

This document also details how the Mitigation Standards will be implemented in commercial fisheries (i.e., through integration into existing Vessel Management Plans (VMPs) and Protected Species Risk Management Plans (PSRMPs)) and how adherence to the Mitigation Standards will be monitored and reported.

2. Scope

These Standards are applicable to all commercial fishing vessels, regardless of vessel size.

3. Desired Outcomes

1. The number of vessel-struck seabirds due to light-induced disorientation and attraction to vessels is minimised.
2. Vessel-struck seabirds have a maximum chance of survival.

4. Mandatory Measures

Currently, there are no mandatory light mitigation measures in place.

5. Mitigation Standards

This section details the Mitigation Standards necessary to achieve each Desired Outcome and the equipment and/or operational practices currently needed to meet each Mitigation Standard. Each Mitigation Standard will be updated as alternate technologies or operational practices are demonstrated to be effective in achieving the desired outcomes.

These Mitigation Standards do not replace or override any fisheries regulations, or legislation on workplace health and safety, maritime safety, or other relevant subject.

These Mitigation Standards do not cover navigational lights, as these must meet specific legal requirements[7]. While navigational lights can be adapted to reduce vessel strikes, a recognized surveyor or Maritime New Zealand should be contacted before adjustments are made.

[6] https://www.doc.govt.nz/our-work/conservation-services-programme/csp-resources-for-fishers/how-to-manage-marine-light-pollution/

[7] E.g., navigational lights have predetermined intensity requirements, defining specific visibility ranges and the spectral ranges of "white", "yellow", "red", and "green" lights as per Maritime Rules Part 22 https://www.maritimenz.govt.nz/content/rules/part-22/Part22-maritime-rule.pdf.

Desired Outcome 1: The number of vessel-struck seabirds due to light-induced disorientation and attraction to vessels is minimised.

Mitigation Standards 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, and 1.7 (in order of effectiveness) are necessary to achieve Desired Outcome 1.

Mitigation Standard 1.1:	Lights not essential for operations and/or vessel/crew safety are eliminated.
Mitigation Standard 1.2:	Activities requiring external lighting at night are avoided whenever possible.
Mitigation Standard 1.3:	High-risk areas are avoided at high-risk times when using external lighting at night.
Mitigation Standard 1.4:	All essential lights are shielded, angled, and/or positioned to only light areas required for operations and safety and minimise light spill.[8]
Mitigation Standard 1.5:	All essential lights use the lowest intensity as appropriate for operations and vessel/crew safety.
Mitigation Standard 1.6:	Windows are blacked out wherever and whenever practical (e.g., while at anchor).
Mitigation Standard 1.7:	All essential lights filter light spectra[9] as appropriate for operations and vessel/crew safety.

To meet Mitigation Standards 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, and 1.7 vessel operators should:

- Develop a light management plan for the different operations of the vessel that describes:
  1. The practices and actions that ensure that Mitigation Standards 1.1, 1.2, 1.3, and 1.6 will be met,
  2. The tools/equipment that ensure that Mitigation Standards 1.1, 1.4, 1.5, and 1.7 will be met.

  This plan should be documented as part of any broader bycatch mitigation plan for the vessel, such as a VMP or a PSRMP (see Appendix 1), if available. This plan must always stay on the vessel and be accessible to, and understood by, senior crew. It should be recognised that some practices and/or tools may be practical for some operations, but not for others (e.g., black-out blinds on the bridge are not practical), and may be relevant for some fleets, but not for others (e.g., trawlers and bottom-longliners have different light requirements due to health and safety concerns). Plans should be adjusted to mitigate light, while accounting for the requirements of operations and fleets.
- Assess which activities are necessary to be conducted at night with external lighting and which activities can be deferred until daytime (e.g., deck cleaning). The final discretion of decisions on the timing of activities remains with vessel operators.

[8] Light spill is light that falls outside the area intended to be lit for the operation.

[9] Seabirds, and wildlife in general, are less attracted to warmer lights such as amber lights without blue and violet wavelengths https://www.agriculture.gov.au/sites/default/files/documents/national-light-pollution-guidelines-wildlife.pdf.

- Be familiar with locations of known seabird colonies in their area, where risk is highest (e.g., most are located on offshore islands). Consider times of the year when seabirds are more likely to be present (e.g., many species breed September-April)[10]. Consider the light catch basin creating risk[11] and consider conditions that increase risks of light attraction to seabirds, such as low clouds, fog, and mist, as well as new moon phases.
- Use tools/equipment that allow adaptive management of light timing, intensity, and spectrum. Equipment can include, but is not limited to, light shields, dimmers, timers, motion sensors, filters, filtered bulbs (e.g., refit white lights with amber lights at ~1800-2200 K), and black-out blinds/curtains. Installation of these tools/equipment should be documented (see Appendix 2 for recommended template).

Desired Outcome 2: Vessel-struck seabirds have a maximum chance of survival.

Mitigation Standard 2.1 is necessary to achieve Desired Outcome 2.

Mitigation Standard 2.1:	Seabirds are handled and released in ways that maximise their chance of survival (whilst managing the risk to the crew)[12]

To meet Mitigation Standard 2.1, vessel operators should:

- Instruct the deck crew in safe seabird-handling procedures and protocols and ensure these procedures and protocols are adhered to.
- Take care not to release waterlogged and/or oiled seabirds, instead allow them to dry and recover in a box. Do not place more than one bird in a box.

6. Implementation

Fleet-specific Operational Procedures[13, 14] set out the fleet-wide management measures to meet these Mitigation Standards and reduce vessel strikes. Each vessel is also required to have, and follow, a Vessel Management Plan (VMP; for deepwater operations) or Protected Species Risk Management Plan (PSRMP; for inshore and highly migratory species operations) to further reduce risk and meet the Mitigation Standards. These plans set out the mitigation measures agreed by the vessel owner/operator that will be used on that vessel.

VMPs are implemented and administered by the Deepwater Group Ltd, an organisation that represents the majority of deepwater quota holders. The Deepwater Group contracts an environmental liaison officer (ELO) to oversee Operational Procedures, VMPs, and associated

[10] Supporting resources will be available describing high-risk areas and times for seabirds in your region.

[11] E.g., light catch basins of large objects have a 5 km radius. https://doi.org/10.3389/fmars.2022.816659

[12] https://www.doc.govt.nz/globalassets/documents/conservation/marine-and-coastal/marine-conservation-services/resources/protected-species-handling-guide-20192.pdf

[13] https://deepwatergroup.org/newsresources/op-manual/

[14] https://www.inshore.co.nz/operational-procedures/

processes. The ELO visits most vessels annually[15] to train crew, and review and update VMPs. The number of vessels visited by the ELO is reported annually be Fisheries New Zealand and are included in the seabird annual review report[16].

PSRMPs are developed with fishers with support from Department of Conservation's (DOC) Protected Species Liaison Programme. As part of the Liaison Programmes, Liaison Officers support fishers in the development and implementation of PSRMPs. Liaison Officers regularly visit fishers to audit and review plans and assist operators with changes as necessary. The progress of Liaison Officers is reported back to the DOC Liaison Programme Coordinator monthly. The number of PSRMPs in place and the number of vessels visited is reported annually by DOC[17] and is included in the seabird annual review report.

To ensure that the Mitigation Standards outlined above are successfully implemented, existing operational documents should incorporate a light management plan for the vessel operations by:

1) Integrating the actions necessary to meet the Mitigation Standards directly into the PSRMPs and VMPs (see Appendix 1 for an example), and
2) Documenting tools and/or equipment used to meet the Mitigation Standards within, or appended to, relevant vessel documentation (see Appendix 2 for recommended template).

Separating tools/equipment and daily actions needed to meet the Mitigation Standards facilitates the conciseness of VMPs and PSRMPs, while still enabling transparency. Using information on the vessels' light management plan within the VMP or PSRMP and the additional documentation, ELOs and Liaison Officers can assess compliance using a scale to measure adherence (e.g., fully = 100% adherence, mostly = 50-99%, partially = 1-49%, none = 0%), rather than a pass-fail approach. Using a scale to measure performance will allow vessel operators to improve light mitigation over time while simultaneously enabling the transparent documentation of improvements.

Implementation of these Mitigation Standards in fishing fleets that are not covered through VMPs and PSRMPs will be facilitated in the future as ongoing opportunities for extension of Liaison Programmes are being developed.

7. Verification

Vessel adherence to the Mitigation Standards will be verified through Fisheries New Zealand observer coverage. After each trip, the observer will complete a fleet-specific review form. Fisheries New Zealand will discuss the review form with the observer and then send it to the Deepwater Group ELO or the Liaison Officer Programme Coordinator to follow up on any issues with the vessel operator. In addition to audits conducted by observers, vessel operators should review their VMPs or PSRMPs

[15] The ELO prioritises visiting new vessels and those deemed 'higher risk' due to the number of reported captures or other issues.

[16] https://www.mpi.govt.nz/dmsdocument/52396-National-plan-of-action-Seabirds-2020-Seabird-annual-report-202021

[17] https://www.doc.govt.nz/our-work/conservation-services-programme/csp-reports/2017-18/protected-species-liaison-project/

together with the relevant Liaison Officers at regular intervals to assess performance. A summary will be included in the seabird annual review report.

8. Review

This Mitigation Standard will be reviewed in line with the Mitigation Standard Review Framework to ensure that new information or technological advances will be considered in setting best practice and that any barriers to full implementation are addressed.

Appendix 1. Example of a PSRMP with an integrated light management plan (highlighted), detailing daily actions and practices ensuring that the Mitigation Standards 1.1, 1.2, 1.3, and 1.6 are met.

SLL - Protected Species Risk Management Plan

FV		**Vessel ID**		**Home Port**	
Owner		**Skipper/s**		**Date**	

Purpose of this RMP

This PSRMP documents agreed procedures that skippers of this vessel will follow to reduce risk of protected species captures and includes implementation of best practice as outlined by the Mitigation Standards. **This document is to be prominently displayed onboard.** Skipper(s) and crew must also read and understand the supporting 10 Golden Rules & Operational Procedures. Information in this plan will be provided to MPI and FINZ for reporting and management.

Regulations

Regulatory requirements can be found in the SLL circular (2019), which are included in your mitigation folder. All protected species captures must be reported using the electronic NFPS Catch Report.

Remember it is not illegal to catch a protected species however it is illegal to not report it!

Vessel's Practices	
Fish waste management *(Describe how used bait and fish waste is contained; location of discharge; contingency plan)*	- No discharge immediately before or during setting. - While hauling, all used bait is retained. Fish waste is held and/or batched at 30min intervals. - Storage & discharge point: *Example – used bait and fish waste are held in fish bins and discarded off the opposite side to the hauling station* - Keep gear and deck clean of any remaining fish waste
Tori line *(Describe setup)*	- Tori line meets regulations and is used for duration of all sets. - Tori line can be adjusted/repositioned to cover hooks to suit varying conditions - Attachment height and location: x metres above waterline at stern - Spare materials and/or second tori line are carried on board
Hook-shielding device	- x% gear coverage (or No)
Weighting regime	- *100% weighted snoods* - Weight and **distance** from hook (g/ m) (specify both inside and outside high-risk periods) - Bait is sufficiently thawed (i.e. not fully frozen)
Night-setting	- Always/Sometimes/Never (+ during x target species)
High-risk periods/areas	*- Don't fish during these times? Increase setting gear sink rate? Avoid fishing near seabird colonies?*
Hauling protocols *(Describe how seabirds are actively deterred via behaviour and/or device)*	- If break during hauling, hooks must remain 10m below surface - Hauling mitigation behaviour: *Examples - hose, low pressure water sprayers, sound (such as banging a gaff against the superstructure) and/or vessel manoeuvres* - Hauling mitigation device: *Example – hauling curtain*
Light management *(Describe agreed daily practices)*	- Lighting reduced to minimum requirements for vessel operations and safety, especially at anchor - Non-essential activities requiring external lighting at night are avoided whenever possible - High risk areas are avoided when using external lights - Windows are blacked out as appropriate - Fixed light specifications are detailed as appropriate
Handling and Release	- Skipper and crew know and follow safe protected species handling and release procedures - Return live fish (meeting legal requirements) to the sea as soon as practicable - Turtle kit is kept onboard and accessible
Other *(gear/mitigation)*	*- Example - 100% use of large 16/0 circle hooks and fish bait are used to reduce risk to turtles*

Contact your Liaison Officer when a TRIGGER POINT is reached.

Any 24 hr period

(Alive or Dead) Any great albatross, penguin, dolphin, sea lion, turtle or basking shark

(Alive or Dead) 3 large (e.g. albatross/mollymawk, giant petrel, gannet), or 5 small (e.g. petrel/shearwater) seabirds, or 2 fur seals

(Dead) Any black petrel or flesh-footed shearwater

Any 7-day period

(Alive or Dead) 10 protected seabirds of any type, or 3 turtles, or 5 fur seals

Contact:	**Ph:**	**Email:**

DOC PSRMP (Version - January 2023)

Appendix 2. Template documentation to detail tools/equipment required to meet Mitigation Standards 1.1, 1.4, 1.5, and 1.7.

1.1 Lights not essential* for fishing operations and/or vessel safety are eliminated.

**Non-essential lights refer to lights that are not essential at a given time/place for a given task. Lights can be essential for one task and non-essential for another.*

This Mitigation Standard is to be met by following these steps:

Step	Action	Vessel implementation
1.1.1	Remove completely non-essential lights (i.e., vanity lighting).	*List of lights removed:*
1.1.2	Fit lights with dimmers, motion-sensors, and/or timers.	*List of lights with dimmers, sensors, or timers:*

1.4 All essential lights are shielded, angled, and/or positioned to only light areas required for operations and safety and eliminate light spill.

This Mitigation Standard is to be met by following these steps:

Step	Action	Vessel implementation
1.5.1	Shield/angle/position essential lights to limit light to essential areas only.	*List of shielded/angled/repositioned lights:*

1.5 All essential lights use the lowest intensity as appropriate for operations and safety.

This Mitigation Standard is to be met by following these steps:

Step	Action	Vessel implementation
1.6.1	Replace lights to lower intensity as appropriate.**	*List of lights with lowered intensity:*

** Before adjusting navigational lights, contact a recognized surveyor or Maritime New Zealand.

1.7 All essential lights filter light spectra as appropriate for operations and safety.

This Mitigation Standard is to be met by following these steps:

Step	Action	Vessel implementation
1.7.1	Replace lights to adjust spectra as appropriate (e.g., filter blue/violet wavelengths, i.e., use amber lights).**	*List of lights with filtered spectra:*

** Before adjusting navigational lights, contact a recognized surveyor or Maritime New Zealand.