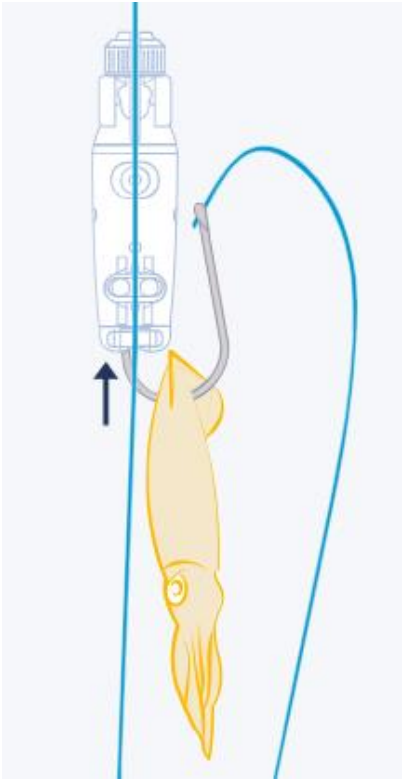
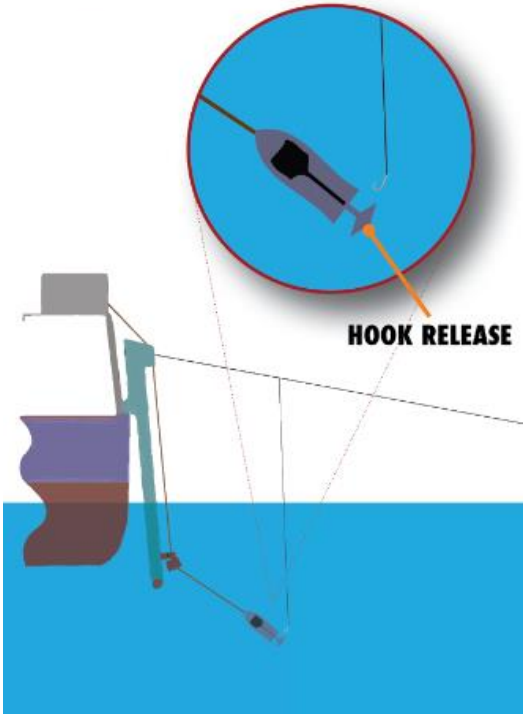
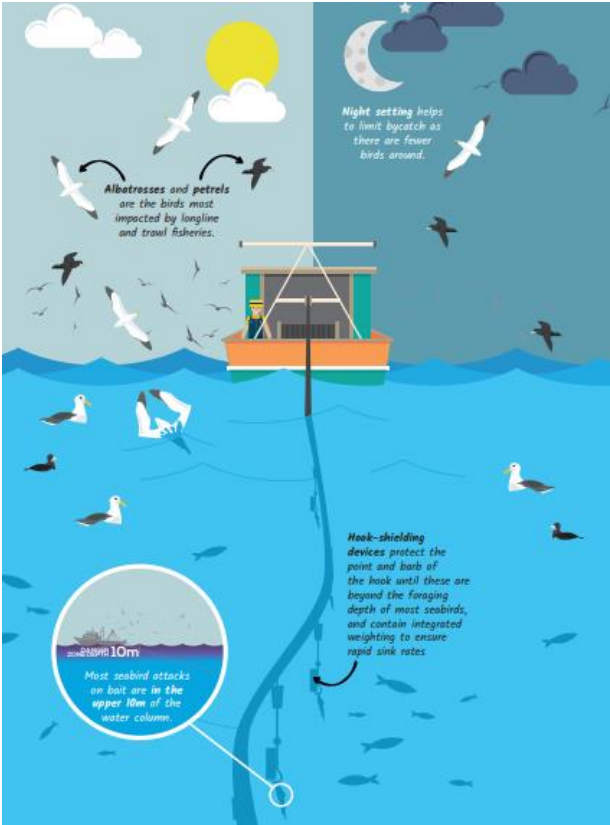


# Overview of seabird bycatch mitigation methods



# Why seabirds are bycaught



Seabirds are attracted to fishing operations by the availability of food

Longline baits represent food

Seabirds actively pursue baited hooks

Some petrels can dive to great depths

Seabirds can become hooked or entangled

Once hooked seabirds are drowned by the sinking line

# Principles of seabird bycatch mitigation

Seabird bycatch in pelagic longline fisheries can be effectively reduced by:

- Avoiding fishing when (and where) interactions with seabirds are most likely;
- Reducing the attractiveness of fishing operations to seabirds, including when hooks are accessible to them; and
- Reducing seabird access to baited hooks.





# Key mitigation measures

Greatest risk is on setting when baited hooks are in surface waters and is the focus of mitigation options

All the key mitigation measures I will introduce target the setting period

Additional mitigation may be needed to prevent bycatch during the haul, or during soak if baited hooks become accessible



# The Agreement on the Conservation of Albatrosses and Petrels (ACAP)

- multilateral agreement which seeks to conserve listed albatrosses, petrels and shearwaters
- 13 Parties to the Agreement
- provides advice on best practice seabird bycatch mitigation measures



# ACAP Best Practice Advice

This WCPFC CMM review includes the purpose that *“bycatch mitigation studies would be evaluated with respect to bycatch mitigation effectiveness and compared against current ACAP Best Practices”*

To identify best practice, seabird bycatch mitigation research is assessed by ACAP against six criteria:

1. Be shown by experimental research to significantly reduce the rate of seabird incidental mortality to the lowest achievable levels
2. Have clear and proven specifications and minimum performance standards for their deployment and use



Agreement on the Conservation  
of Albatrosses and Petrels

# ACAP Best Practice Advice (contd)

3. Be demonstrated to be practical, cost effective and widely available
4. To the extent practicable, maintain catch rates of target species
5. To the extent practicable not increase the bycatch of other taxa
6. Have minimum performance standards and methods of ensuring compliance provided and clearly specified

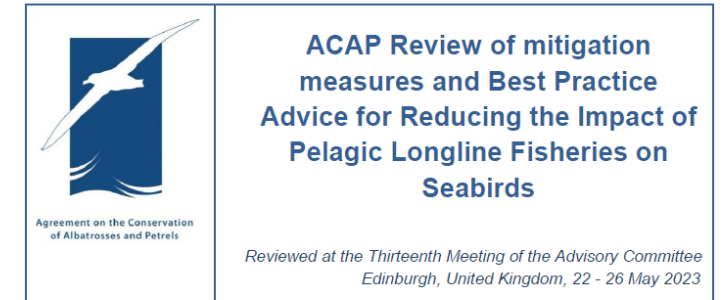


Agreement on the Conservation  
of Albatrosses and Petrels

# ACAP Best Practice Advice (contd)

ACAP recommends that the most effective way to reduce seabird bycatch in pelagic longline fisheries is:

- The simultaneous use of branch line weighting, night setting and bird scaring (tori) lines; or
- The use of an assessed hook-shielding device; or
- The use of an assessed underwater bait setting device.



## INTRODUCTION

The incidental mortality of seabirds in pelagic longline fisheries continues to be a serious global concern, especially for threatened albatrosses and petrels. The need for international cooperation in addressing this concern was a major reason for establishing the Agreement on the Conservation of Albatrosses and Petrels (ACAP). In pelagic longline fisheries seabirds are killed when they become hooked or entangled and drowned while foraging for baits on longline hooks as the gear is deployed. Seabirds can also be hooked or entangled as the gear is hauled; however, many of these seabirds can be released alive with careful handling.

There have been significant efforts internationally to develop mitigation measures to avoid or minimise the risk of incidental catch of seabirds in longline fisheries. Although most mitigation measures are broadly applicable, the application and specifications of some will vary with local methods and gear configurations. ACAP has comprehensively reviewed the scientific literature dealing with seabird bycatch mitigation in pelagic longline fisheries (see review section below) and this document is a summary of the advice informed by the review. Most of this scientific literature relates to large vessels, with lesser research attention given to small vessels and gear configurations and methods used in artisanal or semi-industrial fleets. Seabird bycatch mitigation advice for these fisheries is currently under development.

This document provides advice about best practices for reducing the impact of pelagic longline fishing on seabirds. ACAP's best practice advice is that the simultaneous use of weighted branch lines, bird scaring lines and night setting is the most effective approach to mitigate seabird bycatch in pelagic longline fisheries. Three hook-shielding devices, the 'Hookpod-LED', 'Hookpod-mini' and the 'Smart Tuna Hook', and one underwater bait setting device, the 'Underwater Bait Setter (Skadia Technologies)' have recently been assessed and on the basis of this assessment have been included in the list of best practice measures for mitigating seabird bycatch in pelagic longline fisheries. These best practice bycatch mitigation measures should be applied in areas where fishing effort overlaps with seabirds vulnerable to bycatch to reduce the incidental mortality to the lowest possible levels. The ACAP review process recognises that factors such as safety, practicality and the characteristics of the fishery should also be considered when assessing the efficacy of seabird bycatch mitigation measures and consequently in the development of advice and guidelines on best practice.

[www.acap.aq/bycatch-mitigation/mitigation-advice](http://www.acap.aq/bycatch-mitigation/mitigation-advice)



# Weighted branch lines

Weighting branch lines sinks the baited hooks rapidly out of the diving range of feeding seabirds

The mass and distance to hook determine the speed and consistency of sinking baited hooks

Because weighting is integral to the fishing gear it has the advantage of being more consistently implemented



# Weighted branch lines (contd)

Weighting will shorten but not eliminate the distance behind the vessel in which birds can be caught

There is a period of time when hooks are accessible to birds even when branch lines are weighted

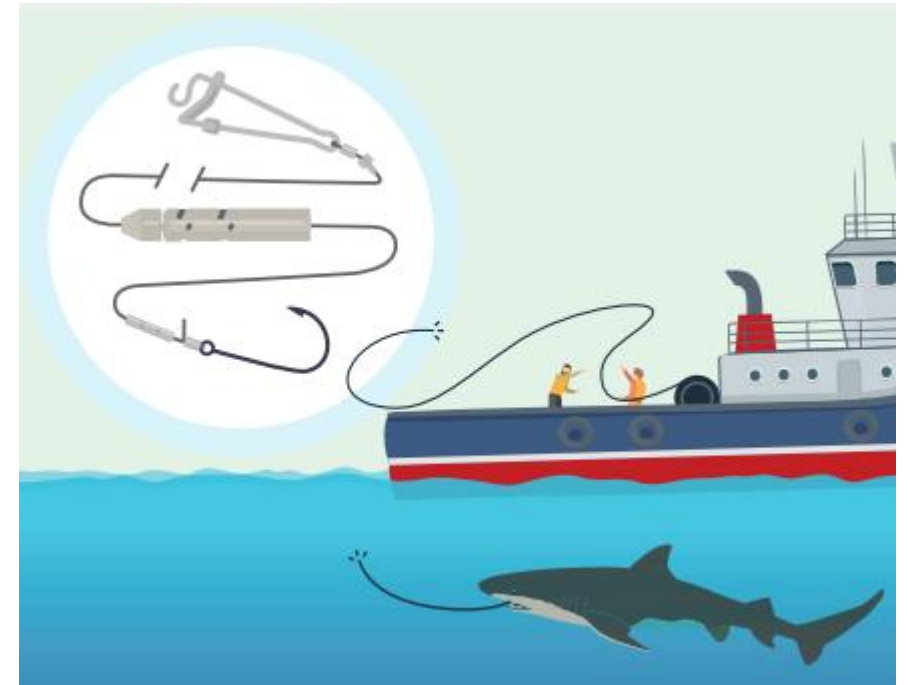
Sliding weights are priced at approx. USD 1. Cost savings possible by reducing the need for crimps and light sticks.



# Weighted branch lines (contd)

During the haul, branchline weights may increase the hazard from “flyback” events when a fish breaks away under high line tension

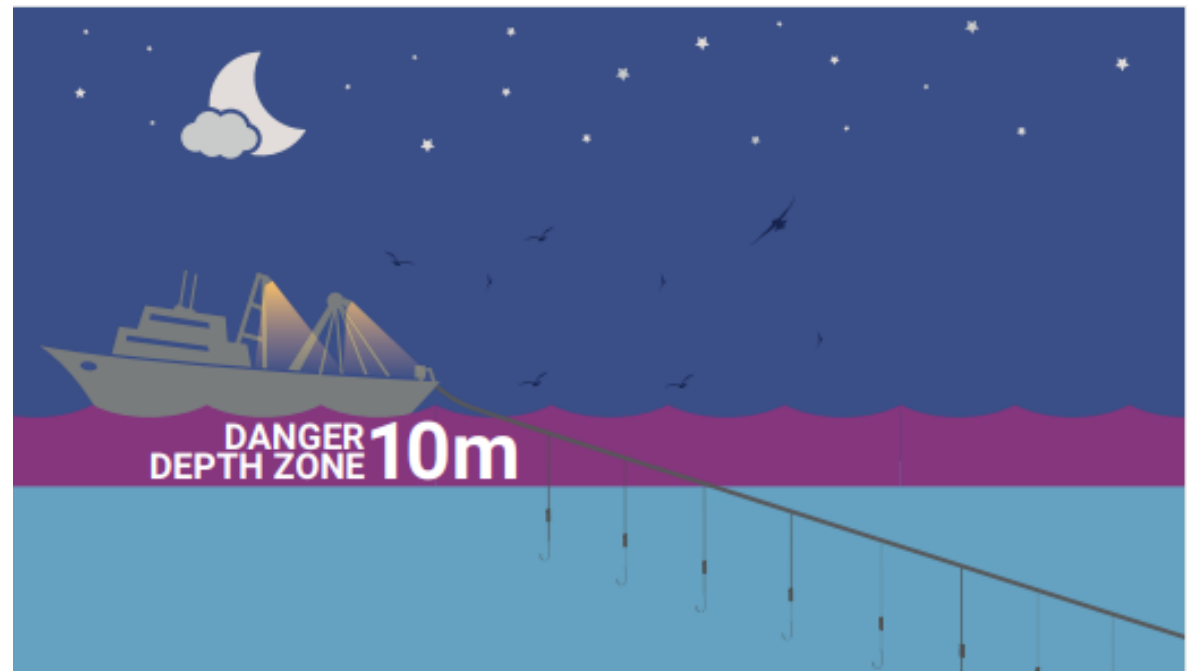
Sliding weights, and other operational practices, have been designed to address safety risks from flybacks



# Night setting

The majority of vulnerable seabirds are less active at night.

No additional gear or equipment necessary.





# Night setting (contd)

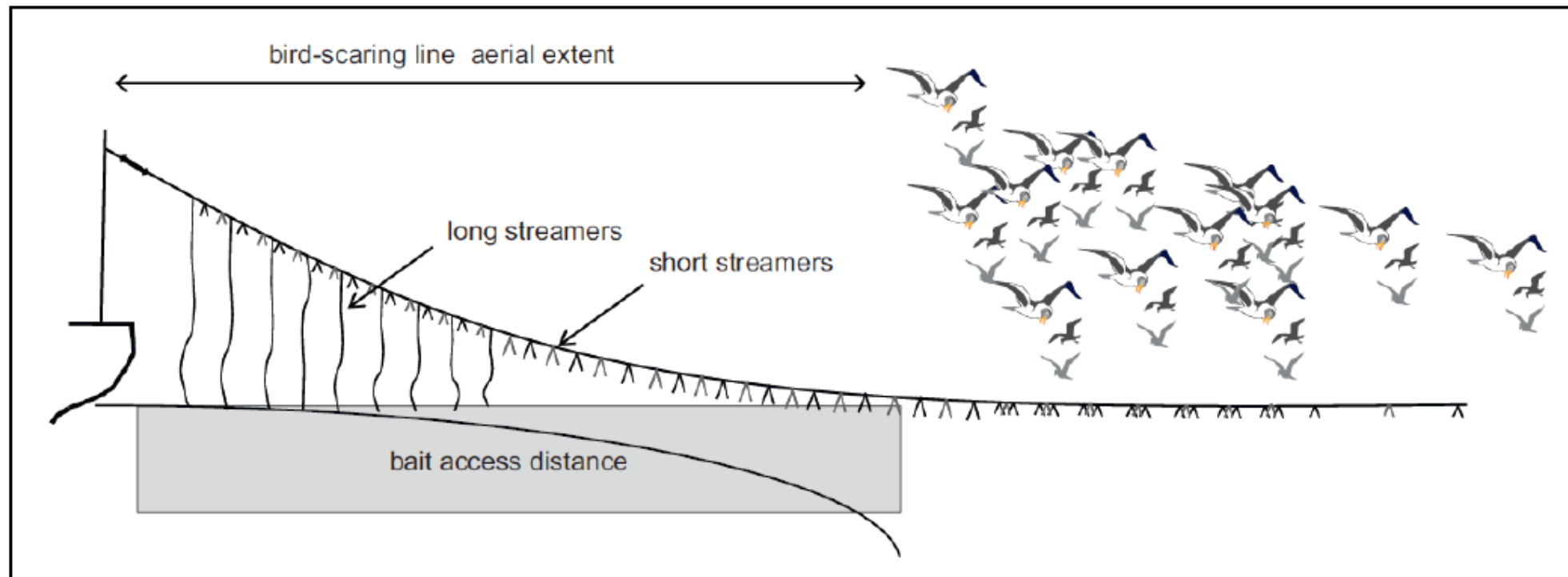
- Night setting is not as effective for crepuscular/ nocturnal foragers (e.g. White-chinned Petrels *Procellaria aequinoctialis*).
- The effectiveness of night setting may be reduced during bright moonlight and when using intense deck lights.
- Night setting is less practical in high latitudes during summer, when the time between nautical dusk and dawn is limited



# Tori lines

Also known as bird scaring lines.

Brightly coloured streamers hanging from the aerial extent of the line scare birds from flying to and under the line, preventing them from reaching the baited hooks.



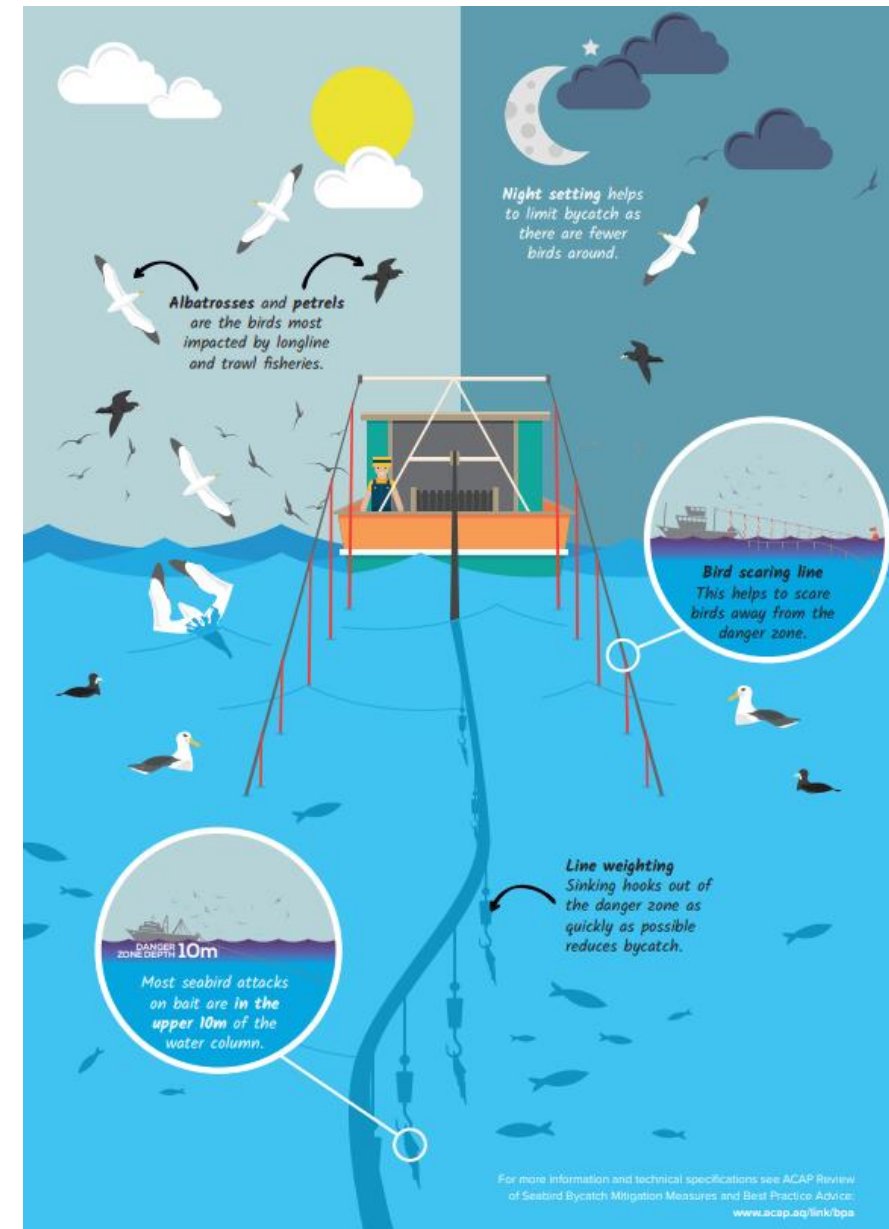
# Tori lines (contd)

Specifications for effective tori lines are relatively complex.

Tori lines must be deployed and retrieved, have risk of tangling with fishing gear, must be adjusted according to environmental conditions and require ongoing maintenance.

Tori lines only provide protection to the baited hooks within the area protected by its aerial extent.

Cost approx. USD150-350, though a custom attachment pole may cost thousands.



# Hook-shielding devices

Hook-shielding devices encase the point and barb of baited hooks to prevent seabird attacks during line setting.

They release the hook at a prescribed depth (e.g. a minimum of 10 meters), or after a minimum period of immersion has occurred (e.g. a minimum of 10 minutes).

Baited hooks are released beyond the foraging depth of most seabirds.





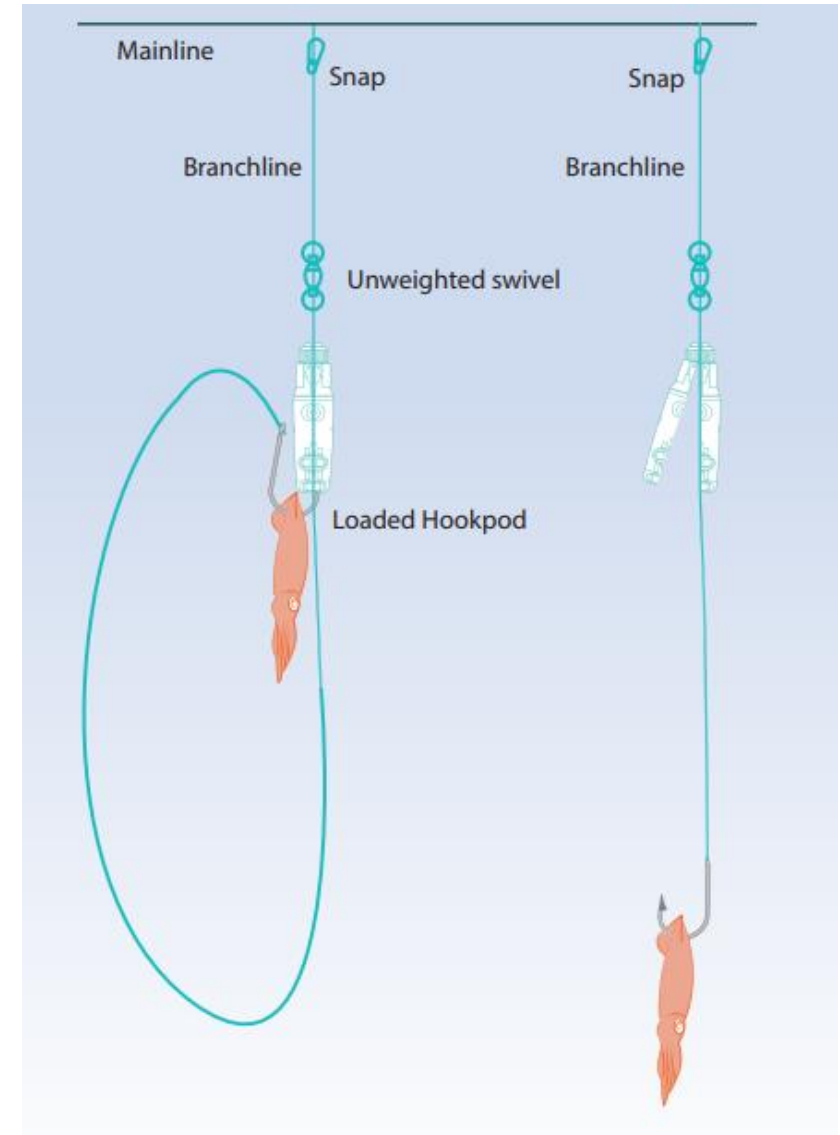
# Hook-shielding devices (contd)

Approved hook-shielding devices must also meet current minimum standards for branch line weighting and be designed to be retained on the fishing gear.

There is potential for seabird entanglement in the looped length of branchline.

Crew need to reset the devices after each haul.

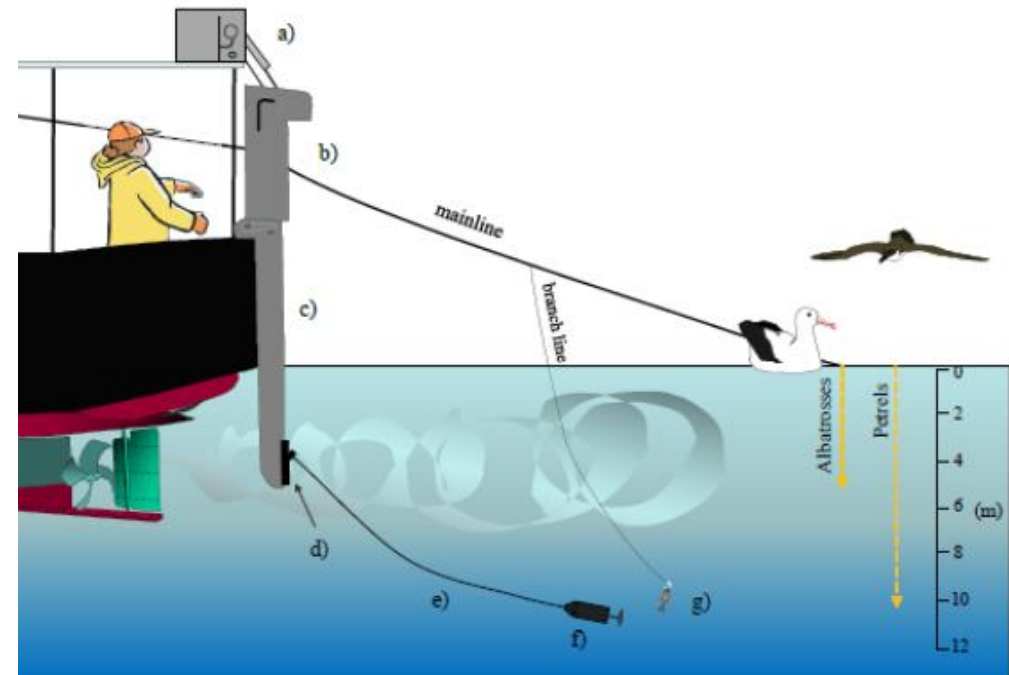
Cost approx. USD10 each. Cost savings possible if using LED products instead of light sticks.



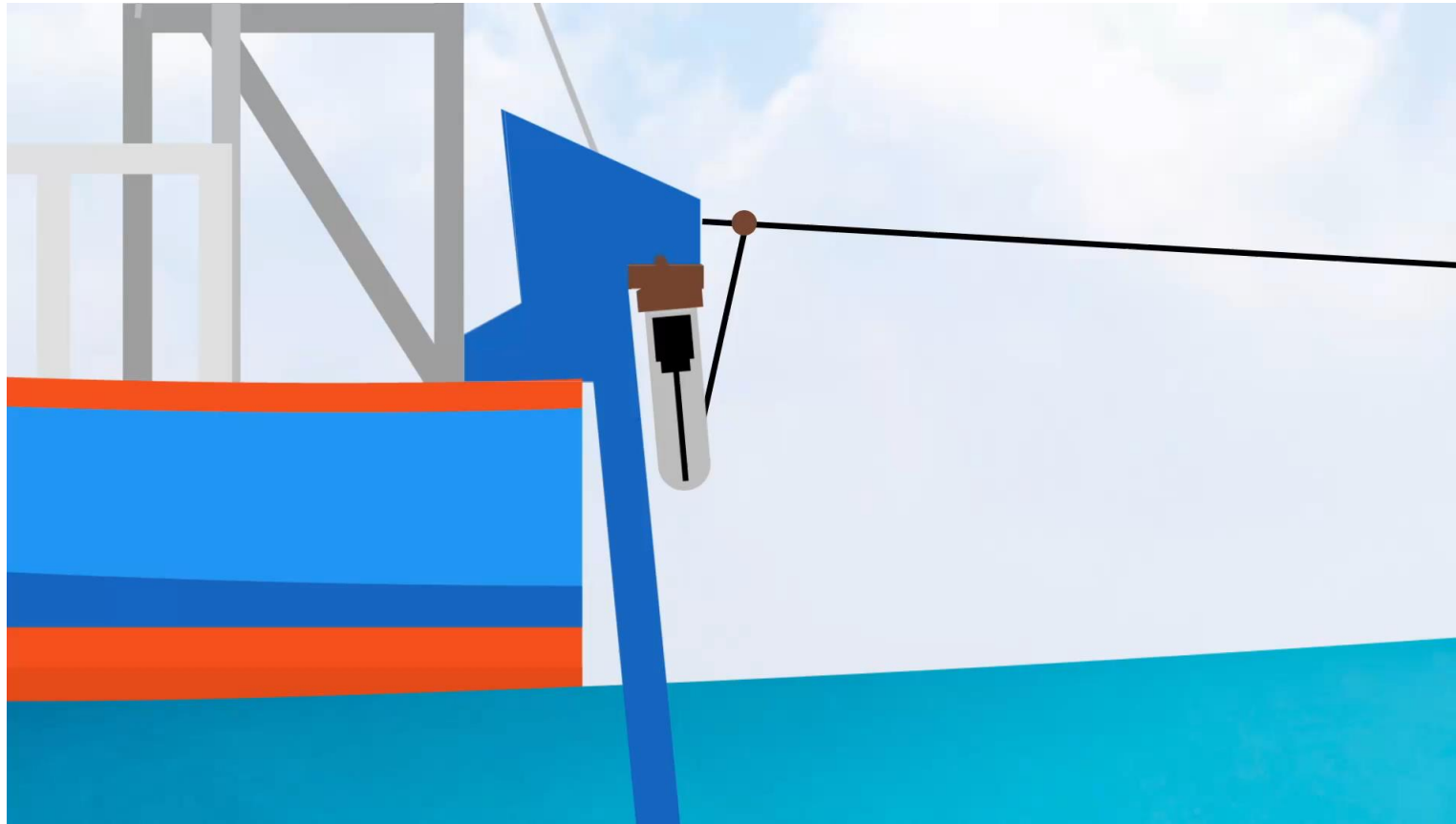
# Underwater bait setters

Underwater bait setting devices deploy baited hooks individually underwater down a track fitted to the fishing vessel in a capsule or similar device.

Underwater bait setting eliminates visual stimuli for seabirds following the vessel.



# Underwater bait setters (contd)

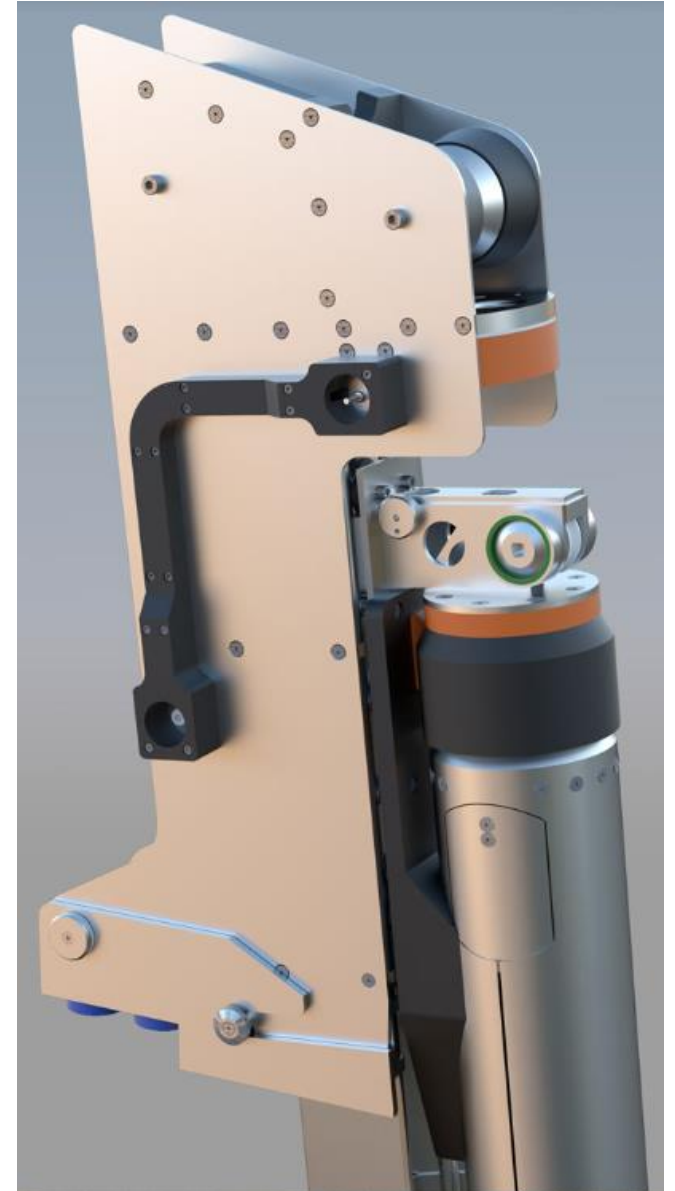


For explanatory video visit: <https://skadiatech.com/discover/>

# Underwater bait setters (contd)

Approved devices should deploy hooks at a minimum depth of 5 m and branch lines should meet minimum standards for branch line weighting.

Cost approx. USD 30,000





Questions?

