

Bycatch Mitigation FACT-SHEET 12 (Version 1)

Practical information on seabird bycatch mitigation measures

Demersal and Pelagic Longline: Haul mitigation

Seabirds are attracted to longliners during hauling to feed on discards, offal and spent bait. Birds can easily become hooked, in the bill, foot or wing, as the line returns to the surface or swallow hooks left in discards or bait. These interactions are rarely lethal at the time but the injuries sustained could have serious implications for the long-term survival of the individuals concerned.

What measures prevent haul hooking?

The strategies used to prevent hooking during hauling are in principle similar to those used to prevent bycatch during line setting. They consist of a mixture of deterrent devices to keep birds away from hooks and discard management to make the hauling area less attractive.

Offal management

Birds are attracted to fishing vessels to feed on processing waste and discarded fish. Removing this source of food would greatly reduce the number of birds associating with fishing vessels. Until recently, most longliners were designed in such a way that offal discharge occurred adjacent to the hauling hatch. This resulted in large numbers of birds feeding amongst hooks that were being hauled aboard. Now, a minimum requirement in many fisheries is to position the scupper, through which waste is discharged, on the port side of the vessel (opposite to the hauling hatch). This helps to divert the birds' attention away from the area where hooks return to the surface.



Figure 1. Birds can become hooked during hauling, often sustaining non-lethal, but detrimental injuries.

Hauling efficiency

Branchline (snood) hauler

In pelagic longline fisheries, branchlines can be 40 m long. During hauling, each branchline is hauled individually on, or close to, the surface. At this time, birds will attempt to snatch retained bait. The use of a branchline hauler can speed up the hauling process making it more difficult for birds to catch bait.

Moon pool

A moon pool is a well in the hull of the ship through which longlines can be hauled, in the absence of foraging birds. Very few vessels are designed with moon pools and those that are, do not always use them.

Deterrent devices

Brickle Curtain

The 'Brickle Curtain' is a deterrent device that forms a protective barrier around the hauling hatch. It is composed of vertically hanging streamers supported by poles fixed to the railing above the hauling hatch (Figure 2). This measure is very effective at deterring birds from approaching the hauling hatch.

Water cannon/fire hose

Some vessels have experimented with water cannons or fire hoses to deter birds from approaching the hauling station. Using 30 kw electric centrifugal pump, Kiyota *et al.* (2001) experimented with various nozzle tips, flow stabilisers and angles of attack to determine the maximum range of the water jet. Under ideal



Figure 2. The Brickle Curtain.

conditions, the maximum distance attained was 60 m and considerably less in crosswinds. This falls considerably below the recommended aerial extent of a streamer line. Additionally, it was found that under contrary wind conditions, the jet could be blown back towards the ship soaking the fishermen on deck.

Further research

Although water cannons are not suitable to replace streamer lines in longline fisheries, due to insufficient range, there is possibly potential for use in trawl fisheries, where streamer lines are considerably shorter.

Research is required to identify standard specifications for a Brickle Curtain specifically for demersal and longline fisheries.

Effectiveness at reducing haul hooking

There is little data to suggest how effective individual measures are at preventing haul hooking. However, a combination of measures aimed at haul mitigation has been shown to potentially reduce bycatch in the CCAMLR Patagonian toothfish fishery. These include the use of a Brickle Curtain and offal discharge on the opposite side to the hauling hatch (CCAMLR Conservation Measure 25-02).

Best practice recommendation

The minimum standard for offal management is the requirement to discharge on the opposite side to the hauling hatch. Appropriate use of a Brickle Curtain, can also greatly reduce the number of birds hooked during hauling.

Potential problems and solutions

Brickle Curtain

In heavy weather, the vertically hanging streamers, often weighted at the bottom, can flick up and interfere with fishermen working at the hauling hatch.



Figure 3. Water cannons lack the range to effectively deter seabirds from feeding on baited hooks.

Compliance and implementation

Most fishermen do not regard haul hooking as a serious problem, birds are nearly always released alive and the long-term implications of injuries sustained are not considered. Measures such as strategic offal management, which can be inconvenient during operational processes, generally have low compliance. Even with strict regulations and 100% observer coverage to monitor these measures, 100% compliance is not easy to achieve. Greater awareness is needed among fishermen of the long-term implications for birds that are hooked on hauling, as even those released alive face reduced likelihood of long-term survival.

References

Kiyota, M., Minami, H. and Takahashi, M. (2001) *Development and tests of water jet devices to avoid incidental take of seabirds in tuna longline fishery*. CCSBT ERS-0111-63.