Agreement on the Conservation of Albatrosses and Petrels

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Concern about the potential for bait casting machines to increase seabird mortality in the high seas Japanese-style tuna fishery

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CONCERN ABOUT THE POTENTIAL FOR BAIT CASTING MACHINES TO INCREASE SEABIRD MORTALITY IN THE HIGH SEAS JAPANESE-STYLE TUNA FISHERY

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Bait casting machines

A bait casting machine is a hydraulically/electrically operated, gimbal-mounted device used for deploying branch lines on high seas Japanese-style tuna vessels (Figure 1). Bait casters were invented in the 1990s to reduce the effort involved in setting baits and to potentially reduce seabird by-catch (Brothers, et al., 1999; Lokkeborg 2008). The logic in achieving the latter objective is a) mechanical casting of baits should reduce the incidence of line tangles by landing baits further from propeller and hull turbulence than when caste by hand. Line tangles could slow sink rates and increase bait taking by seabirds. b) baits set with a caster could be more accurately landed under the 'protection' of the bird scaring streamer line, including in rough seas and in strong winds. Regarding the effectiveness of bait casters in seabird by-catch mitigation, Klaer and Polacheck (1998) suggest that mechanical bait casting is associated with lower seabird by-catch rates; however, evidence as to bait landing positions in relation to the position of streamer lines was lacking in their study.

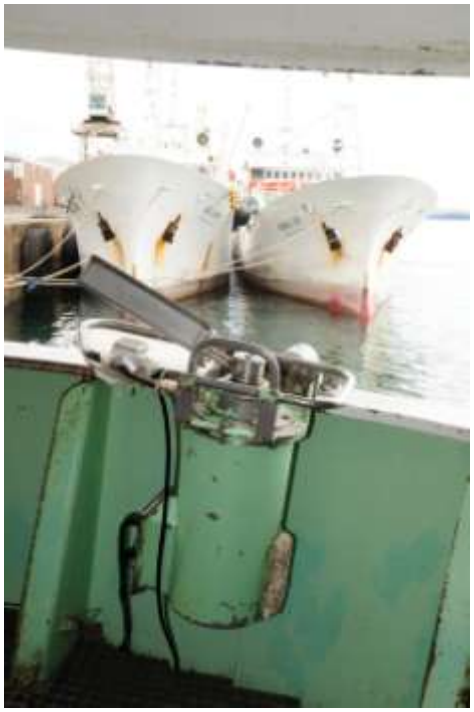

Figure 1. Bait casting machine fitted to a high seas-type tuna vessel in Cape Town, South Africa. Baited hooks are placed in the rectangular container (projecting at left) which rotates at high speed in a clockwise direction, casting baits in a direction to the right of the picture.

Potential to increase seabird mortality

The bait casting machine is an example of what can happen when a device is modified in a manner that eliminates some of the key reasons for its development. As stated in Brothers et al., (1999) the

original Australian made bait casting machine was displaced by alternative models which lacked the gimbal facility and controls to vary the casting power and direction of the throw. The principle objectives with the alternative models was to straighten branch lines so the coil would not tangle. The absence of control over the power output mean devices operated on full power (Figure 2). If machines are operated to straighten (or almost so) branch lines they could deploy baited hooks outboard of the vessel well beyond the area of the streamer line. Landing baits beyond the streamer line is likely to increase exposure of hooks to seabirds and increase mortality. The water outboard of vessels is not aerated by the propeller and in good weather is usually clear, affording good visibility down the water column. Landing baited hooks beyond the streamer line has the potential to increase seabird mortality.

Figure 2. Japanese-made "Tuna Mate" bait casting machine in operation on a Japanese tuna vessel fishing out of Hobart (under the CCSBT agreement) in the mid 1990's. Still photography does not impart an accurate impression of the velocity of the cast which, in this case, straightened the 40 m branch line. Baited hooks landed in clear (un-aerated) water 15-20 m outboard of the streaming position of the bird scaring streamer line.

As a related aside, this misuse of bait casting machines should be kept in mind if side setting is ever considered viable for high seas tuna vessels. Initial sink rate trials have been conducted by the Japanese government (Yokota and Kiyota, 2006) but the motivation behind this research is unclear. Still, in the interests of strategic decision making to protect seabirds on the high seas it is important ACAP members are aware of the potential risks involved in setting gear with bait casters off the side of high-seas style vessels. Casting branch lines by hand off the side of vessels in the windy latitudes of the southern hemisphere is likely to be problematic. Bait casters are already fitted to many vessels and the potential for mechanized bait casting from vessels equipped for side setting is high. Baits cast in this manner have the potential to greatly increase risks to seabirds.

Recommendation

It is recommended that:

1) Members to the Agreement with access to high seas tuna vessels using the Japanese method of fishing conduct an assessment of the potential for the use of bait casting machines to negatively impact seabirds. The assessment can be achieved by tasking fisheries observers with the responsibility to collect information to inform objective decision making on the issue. Examples of the types of questions relevant to the topic are given in the appendix.

2) ACAP encourage the data collection and agree to review the findings at SBWG 4.

References

Brothers, N. P., Cooper, J., and Lokkeborg, S. (1999). The incidental catch of seabirds by longline fisheries: worldwide review and technical guidelines for mitigation. FAO Fisheries Circular No. 937. FAO, Rome.

Lokkeborg, S. (2008). Review and assessment of mitigation measures to reduce incidental catch of seabirds in longline, trawl and gillnet fisheries. FAO Fisheries and Aquaculture Circular No. 1040. FAO, Rome.

Klaer, N., and Polacheck, T. (1998). The influence of environmental factors and mitigation measurers on by-catch rates of seabirds by Japanese longline fishing vessels in the Australian region. *Emu*. 98: 305-316.

Yokota, K., and Kiyota, M. (2006). Preliminary report of side-setting experiments in a large sized longline vessel. WCPFC-SC2-2006/EB WP-15

Appendix

Examples of information that could be sought by parties to ACAP (where appropriate) to determine the frequency of use and method of operation of bait casters in order to be able to assess the potential for bait casting machines to increase seabird mortality rates above those associated with bait casting by hand.

For each vessel:

1) Is the vessel equipped with a bait casting machine?
2) If yes, does the vessel use the bait casting machine routinely to deploy baited hooks?
3) What is the brand name and country of manufacture of the bait caster?
4) Is the bait caster gimbal mounted or fixed?
5) Does the machine have a power setting control (Y/N)?
6) If yes, please describe the power setting options,
7) What power setting(s) is/are used during line setting?
8) Estimate the average distance from the caster that baited hooks land in the water,
9) If baits land outboard of the streamer line, estimate the distance between the streamer line and the position where baits land in the water,
10) Please write any supporting information that you think might be relevant to improve understanding of the risks (if any) to seabirds of deploying baited hooks with a bait casting machine compared to hand deployment. Include a sketch if required.