



Agreement on the Conservation of Albatrosses and Petrels

Fourth Meeting of Seabird Bycatch Working Group

Guayaquil, 22 – 24 August 2011

IOTC Working Party on Ecosystems & Bycatch 2010 Meeting Report – ACAP Observer Report

Secretariat

‘This paper is presented for consideration by ACAP and may contain unpublished data, analyses, and/or conclusions subject to change. Data in this paper shall not be cited or used for purposes other than the work of the ACAP Secretariat, ACAP Advisory Committee or their subsidiary Working Groups without the permission of the original data holders.’

IOTC Working Party on Ecosystems & Bycatch 2010 Meeting Report – ACAP Observer Report

Submitted by the Secretariat

Meeting Title: 6th Meeting of the Ecosystems & Bycatch Working Party

Meeting Organisation: Indian Ocean Tuna Commission

Date and Location: 26 – 30 October, 2010 Victoria, Seychelles

Website Address: <http://www.iotc.org/>

Your Name/Affiliation: Barry Baker, ACAP Secretariat.

Karine Delord, France

Capacity of Attendance: ACAP representatives

Relevant Paper(s) Tabled:

IOTC-2010-WPEB-06. Experimental determinations of factors affecting the sink rates of baited hooks to minimize seabird mortality in pelagic longline fisheries. Author: Australia

IOTC-2010-WPEB-07. Effect of line shooter and mainline tension on the sink rates of pelagic longlines, and implications for seabird interactions. Author: Australia

IOTC-2010-WPEB-08 Progress in development and testing of an underwater bait setter for pelagic longline fisheries Author: Australia

IOTC-2010-WPEB-17. Review of Seabird Bycatch Mitigation Measures for Pelagic Longline Fishing Operations. Author: ACAP

IOTC-2010-WPEB-14. New information on the distribution of southern seabirds and their overlap with the IOTC zone: Seasonal changes in distribution and the importance of the non-breeders and juveniles in assessing overlap between seabirds and longliners. Author: France

IOTC-2010-WPEB-24. Level 1 Risk Assessment of Indian Ocean Seabirds Susceptible to Bycatch in Longline Fishing Operations. Authors: ACAP and BirdLife International

Working Papers None

Background Documents None

Information Papers None

National Reports None

Author(s) and/or Presenter if Different: All papers were presented by the respective delegations, with the exception of Australia, which did not attend the meeting. The Australian papers were presented by Barry Baker (ACAP) as requested by Australia.

Summary of Content:

IOTC-2010-WPEB-06. Experimental determinations of factors affecting the sink rates of baited hooks to minimize seabird mortality in pelagic longline fisheries. B.Baker on behalf of Australia.

Although line weighting and other mitigation measures are required in the pelagic longline fishery off Australia's east coast, some seabirds are still caught, suggesting that mitigation measures are not fully effective in all conditions. An experiment was conducted in that fishery to establish a scientific basis for potential changes to reduce seabird mortality; in particular, different combinations of line weighting and other variables affecting line sink rates were evaluated. The experiment examined the effects of different bait species (blue mackerel, yellow-tail mackerel and squid), bait life status (dead or alive), weight of leaded swivels (60 g, 100 g and 160 g) and leader length (distance between leaded swivel and hooks: 2 m, 3 m and 4 m) on the sink rates of baited hooks from 0-6 m deep.

On average, live bait sank much slower than dead bait, greatly increasing the exposure of baited hooks to seabirds. Sink rates of individual live bait were highly variable. Many were < 2 m underwater 18 seconds after deployment, including some on the heaviest swivels, and some were < 10 m deep after 120 seconds. With dead bait, gear with 60 g and 100 g swivels on the same leader length sank at similar rates, as did all three swivel weights on 4 m leaders. The 160 g x 2 m combination sank the fastest, averaging 0.27 m/s and 0.74 m/s from 0-2 m and 4-6 m, respectively. The 60 g x 4 m combination sank the slowest, averaging 0.16 m/s to 2 m depth and failing to attain 6 m depth after 18 seconds. Initial sink rates (0-2 m) were increased by placing leaded swivels close to hooks and final sink rates (> 4 m) by increasing the weight of the swivels.

The results indicate that the small (incremental) changes to the weight of leaded swivels and the length of leaders typically preferred by the fishing industry are unlikely to make an appreciable reduction in seabird mortality because resultant increases in sink rates will be insubstantial.

Changing line weighting regimes to reduce seabird mortality requires consideration of sink rates close to the surface (i.e. 0-2 m) in addition to cumulative rates to the deeper depths. It is suggested that to substantially reduce seabird mortality compared to that associated with 60 g swivels and ~3.5 m leaders (the preferred option by industry in Australia) may require branch lines be configured with swivels ≥ 120 g ≤ 2 m from hooks. An alternative to the latter regime would be to place a smaller amount of weight at or very close to the hook. The exact amount of weight would have to be determined experimentally. The WPEB agreed that the Resolution 10/06 should be revised to reflect this advice.

IOTC-2010-WPEB-07. Effect of line shooter and mainline tension on the sink rates of pelagic longlines, and implications for seabird interactions. B. Baker on behalf of Australia

The likelihood that seabirds will be hooked and drowned in longline fisheries increases when baited hooks sink slowly. This paper reported on an experiment conducted in Australia's pelagic longline fishery to test the hypothesis of no difference in sink rates of baited hooks attached to mainline set under varying degrees of tension. Fishermen target different fishing depths by setting mainline through a line shooter which controls the tension (or slackness) in the line. Mainline was set in three configurations typically used in the fishery: a) surface set tight with no slackness astern; b) surface set loose with two seconds of slack astern and; c)

deep set loose with seven seconds of slack astern. Sink rates of baited hooks were measured using time depth recorders. Tension on the mainline had a powerful effect on sink rates. Baited hooks on branch lines attached to tight mainlines reached 2 m depth nearly twice as fast as those on the two loose mainline tensions, averaging 5.8 s (0.35 m/s) compared to 9.9 s (0.20 m/s) and 11.0 s (0.18 m/s) for surface set loose and deep set loose tensions, respectively. The likely reason for the difference is propeller turbulence. Tight mainline entered the water aft of the area affected by turbulence whereas the two loose mainlines and the clip ends of branch lines were set directly into it about 1 m astern of the vessel. The turbulence presumably slowed the sink rates of baited hooks at the other end of the branch lines.

The results suggest that mainline deployed with a line shooter (as in deep setting) into propeller turbulence at the vessel's stern slows the sink rates of baited hooks, potentially increasing their availability to seabirds. Unless mainline can be set to avoid propeller turbulence the use of line shooters for deep setting should not be accepted as an effective deterrent to seabirds.

IOTC-2010-WPEB-08 Progress in development and testing of an underwater bait setter for pelagic longline fisheries. B. Baker on behalf of Australia

This paper described updated information on the development of an underwater bait setter for pelagic longline gear. Preliminary trials had been encouraging, compared to hand setting. There is slightly improved bait retention, and similar setting speed. The device was currently being tested in a bird "hot spot" in a pelagic longline fishery in Uruguay, with further work planned in Australia later in 2010 and early 2011.

IOTC-2010-WPEB-17. Review of Seabird Bycatch Mitigation Measures for Pelagic Longline Fishing Operations. B.Baker

IOTC-2010-WPEB-17 reported on a review of recent research on seabird mitigation measures for pelagic longline gear conducted by ACAP's Seabird Bycatch Working Group (SBWG) in 2010. The review is considered to represent the current best scientific advice for pelagic longline gear.

Since the last meeting of the WPEB a considerable amount of research has been undertaken on seabird bycatch mitigation measures in pelagic longline fisheries. Evidence is emerging that the use of appropriate configurations of weights on branchlines is currently the most effective means of reducing seabird access to baits, although it still needs to be used in conjunction with other measures, such as bird scaring lines (BSL) and night setting.

A summary of key findings was provided to assist IOTC in its consideration of the efficacy of the mitigation measures currently in use within the IOTC convention area, as required by IOTC Resolution 10/06. These related specifically to line weighting, use of line shooters, and offal management.

Line weighting of branchlines: Particularly relevant were two papers, which were highlighted: "Shrink and defend: A comparison of two streamer line designs in the 2009 South Africa tuna fishery" (Melvin, E.F., Guy, T.J. and Read, L.B. 2010. SBWG-3_Doc_13, <http://www.acap.aq>), and "Effect of line shooter and mainline tension on the sink rates of pelagic longlines and implications for seabird interactions" (IOTC-2010-WPEB-07).

The Melvin research found that in order to defend baited hooks with streamer lines from bird depredation (and in particular white-chinned petrels), the distance from the vessel at which baits sink beyond the birds' reach (10 m) must be within the aerial extent of the streamer line (100 m). Achieving this rate of sink could only be achieved if adequate line weighting was applied. The need to modify IOTC Resolution 10/06 to focus on combinations of measures that can achieve this was emphasized.

Results from Robertson et al (IOTC-2010-WPEB-06) indicate that in order to achieve sink rates sufficient to ensure that dead baits reach depths of 10 m within 100 m of their deployment (and therefore under protection of the bird scaring lines) would require one of the following line weighting regimes: 40 g weight attached at the hook; 60 g weight attached within 1m of the hook; or 98 g weight attached within 2m of the hook. It was stressed that these are minimum specifications, and increasing weight or decreasing distance from the hook would further improve sink rates.

Use of line shooters. IOTC-2010-WPEB-06, reported upon in more detail above, found that initial sink rates of branch lines on mainline 'set deep' was actually slower than when mainline was set 'tight' contrary to what is generally thought to occur by most fishers. As a result, line shooters should not be considered as a mitigation measure because they do not improve initial sink rates, although they will continue to be used on many vessels because they are considered to improve fishing efficiency. ACAP recommended that line shooters should be deleted from the list of accepted seabird bycatch mitigation measures in Table 1 of Resolution 10/06.

Offal management. Offal management is generally of little importance to minimising seabird interactions in pelagic fisheries as there are much smaller quantities of fish waste derived from fishing operations, in direct contrast to the situation in demersal fisheries. The inclusion of offal management as a mitigation measure in Resolution 10/06 most likely has been taken from use of this measure in CCAMLR and other demersal longline fisheries, where it is much more important. Good offal management should be encouraged in IOTC fisheries as good practice, but the measure should be deleted from the list of accepted seabird bycatch mitigation measures in Table 1 of Resolution 10/06, as there is no scientific information to support its mitigation effectiveness in pelagic fisheries.

Management advice on line shooters and offal management. The meeting agreed that IOTC Resolution 10/06 should be revised to reflect the advice that the use of line shooters and offal management be removed from the list of accepted seabird bycatch mitigation measures in table 1 of the Resolution, noting the advice by one Member that new information on the efficacy of these measures may be tabled at the Scientific Committee meeting in 2010.

IOTC-2010-WPEB-14. New information on the distribution of southern seabirds and their overlap with the IOTC zone: Seasonal changes in distribution and the importance of the non-breeders and juveniles in assessing overlap between seabirds and longliners. Karine Delord

Up-to-date information on the distribution of albatrosses and petrels in the IOTC area was presented. The populations of several species have been decreasing over several decades, and one species, the Amsterdam Albatross, is critically endangered. This decrease has been related to bycatch mortality in longline fisheries. Several species forage in subtropical waters 1000-2000 km to the north of the breeding islands, where their ranges overlap extensively

with tuna longline fishing effort. Demographic models suggest that the decrease of all populations, through increased mortality of adults, is related to longline effort in the IOTC/CCSBT areas. Until now, however, little information was available on the distribution of the non-breeding part of the population, especially juvenile and immature birds that represent half of the total population, although for some species, decreases of population are due to reduced recruitment, i.e. to high mortality during the juvenile and immature phase. To investigate the degree of overlap of the juvenile and immature part of populations with longline fishing, juveniles and immatures of eight species of albatrosses and petrels from Crozet, Kerguelen and Amsterdam Islands were tracked. A surprising result from these studies was that these young and naive birds, believed to be very susceptible to bycatch, range much further north than do adult birds. In particular, juveniles range widely in the southern part of the IOTC area, as far north as latitude 25°S, where they encounter a high density of fishing effort. These results show that a significant part of these populations rely entirely on the IOTC area during critical parts of their life cycle. Data were presented for Sooty Albatross and White-chinned Petrel tracked during breeding, non-breeding or juvenile periods. These results highlight the high overlap that exists with longliners (high fishing effort), and more specifically with the area of highest estimated bycatch (for Taiwanese, Japanese or South-African fleets, the only IOTC fleets for which any bycatch data exist). Importantly, the overlap varies by season due to variability in seabird and longliner distribution

These results highlight the crucial need to have access to reliable recent data on fishing effort and bycatch estimates (by fleet, area and species composition, and also band recovery data) in order to better understand the potential impact on seabirds and enable effective management of fisheries and seabird populations.

IOTC-2010-WPEB-24. Level 1 Risk Assessment of Indian Ocean Seabirds Susceptible to Bycatch in Longline Fishing Operations. Barry Baker and Ross Wanless

This paper represents a preliminary risk assessment for seabirds occurring in the Indian Ocean, which had been carried out intersessionally by ACAP and BirdLife International (BirdLife). The methodology adopted for the assessment closely follows that used recently by ICCAT. The assessment examines characteristics that would put seabirds at risk from bycatch in longline fisheries operation and combined these characteristics in algorithms to calculate relative risk.

Forty seabird populations were identified as High Priority under all three of the risk algorithms used, relative to the other species considered in the assessment. These included 10 species of albatrosses, together with grey and white-chinned petrels, and the Flesh-footed Shearwater. The Amsterdam Albatross is critically endangered, and might also be potentially susceptible to disease². In some cases, a high risk score was the result of a precautionary approach given a lack of available data, particularly on population trend e.g. sooty, grey-headed and Indian yellow-nosed albatrosses.

The presence of a large number of seabird species that are known to interact with pelagic longline gear, many of which have an unfavourable conservation status, lends support to the proactive approach taken by the IOTC in implementing bycatch mitigation measures within the Indian Ocean. It also highlights the need to ensure that Resolution 10-06 is regularly updated to ensure best-practice mitigation measures are applied in areas of highest risk to seabird species and populations, and high levels of compliance are achieved by fishers. Currently, this measure is broadly applied to waters south of 25 degrees South, but the risk

to seabirds may not be evenly spread across such a large area, and it may be appropriate to further refine the area of application to ensure risk to seabirds is adequately addressed through appropriate management. For example, applying more rigorous measures in areas adjacent to important seabird breeding sites during critical times of the breeding cycle.

The WPEB recommended the adoption of such an approach by initially undertaking a Level 2 Risk Assessment for those species identified as High Priority in the Level 1 assessment, or a Level 3 assessment for a smaller number of species where data are available to permit a highly quantified model-based analysis. However, it noted that resources to facilitate such further work would need to be provided, and that high-quality fishery observer data will need to be collected and made available for analysis.

The WPEB discussed the value of the ERA process for seabirds, and recommended that one be commenced with work carried out inter-sessionally and at the next meeting of the WPEB.

There were discussions on the existing conservation measure for pelagic longline gear for seabirds in the IOTC convention area. In light of the new scientific assessments of various aspects of mitigation measures which left only 4 recommended mitigation measures available for use, it was suggested that the two-column approach would no longer be appropriate. It was proposed to greatly simplify the resolution by requiring that fishers choose two of the four available options from a list. This advice was met with general agreement, but a small minority of scientists expressed reservation about the proposed removal of line shooters and offal management from the list of mitigation measures available. The scientists who expressed those reservations were encouraged to produce research results at the December 2010 Scientific Committee meeting in support of their positions. It was agreed that unless this was done, the advice to the Scientific Committee, to revise the resolution, would stand.

It was also noted that there was a need to adjust some of the specifications in Resolution 10/06. Line weighting regimes should be changed as per the recommendations in IOTC-2010-WPEB-17. It was pointed out that several lines of research in South Africa have shown great promise in demonstrating that weights can be added safely to lines (without risk to crew safety) and the initial indications from several studies are that heavier weights make no difference to target catch rates. It was agreed that this is a field of very active research and new information should be reviewed by the WPEB on an annual basis.

The following proposed changes (in red font) to Resolution 10/06 reflect the recommendations of the WPEB, with some reservations expressed by a few scientists.

Paragraph 3.

~~CPCs shall *as soon as possible and, at the latest before 1 November 2010*, ensure that all longline vessels fishing south of 25°S use at least two of the mitigation measures in Table 1 below, including at least one from Column A. Vessels shall not use the same measure from Column A and Column B. Until 31 October 2010, CPCs shall ensure that all longline vessels fishing south of 30°S use at least two of the mitigation measures in Table 1 below, including at least one from Column A. Vessels shall not use the same measure from Column A and Column B~~

Paragraph 7.

CPCs shall provide to the Commission, as part of their annual reports, information on how they are implementing this measure and all available information on interactions with seabirds, including bycatch by fishing vessels carrying their flag or authorised to fish by them. This is to including details of species where available to enable the Scientific Committee to annually estimate seabird mortality in all fisheries within the IOTC area of competence. CPCs are encouraged to develop systems, such as retention of carcasses for later identification, or establish photo identification processes, to improve identification of seabirds to species level.

Table 1. Seabird mitigation measures

Weighted branch lines
Night setting with minimum deck lighting
Bird-scaring lines (Tori Lines)
Blue-dyed squid bait

The specification of the weighted branch line measure in Annex 1 should be replaced by the following scheme:

- 40 grams weight attached at the hook; or
- 60 grams weight within 1 metre of the hook; or
- 98 grams weight within 2 metres of the hook

Point 8 in Resolution 10/06 calls for a review from the SC, to be presented at the 2011 Commission meeting, of the impact of the resolution on seabird bycatch rates. There are no data, available so it is unlikely that the WPEB or SC will be able to provide the Commission with any details. However, it was noted that South Africa was probably in a position to

provide some information. BirdLife agreed to follow this up with the South African government for presentation at SC in December.

Outlook for Future ACAP Involvement:

Ongoing involvement in the work of the IOTC is recommended. ACAP has a good relationship with the Secretariat and members of the Working Party and it would be productive to build on this to enhance the work of the Agreement.

Recommended Actions for ACAP:

Consult with ACAP Parties who are members of IOTC in the lead-up to the next WPEB and SC meetings to discuss possible approaches that may be taken, particularly in relation to revision of the bycatch mitigation measure (Resolution 10/06) and progressing action on Level 2 and 3 ecological risk assessments for seabirds.

While there is strong support for a revised line weighting regime by many Members, more information on the impact on target species would assist in convincing all fleets to adopt line weighting as an efficient mitigation measure. ACAP Parties should be encouraged to report on any work done on this within their jurisdictions.

Have relevant papers been forwarded to Secretariat:

Yes. Electronic copies of the meeting documents are held by the Secretariat.