Pelagic Longline Setting - How day/night-straddling sets impact monitoring, compliance and effectiveness of seabird bycatch mitigation.

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Summary & Recommendations

A better understanding of line setting schedules of the Southern bluefin tuna longline fishery is necessary for fishery data recording accuracy and subsequent reliability of data analysis. Without it, there is uncertainty about the reliability and relevance of seabird CPUE data to mitigation practices, and the true levels of seabird bycatch mitigation compliance. It is suggested that these uncertainties be examined and recommendations formulated by ERSWG. Findings will be of relevance in particular to the CCSBT Compliance Committee and all tRFMO jurisdictions overlapping CCSBT. Otherwise, the deficiencies inherent in RFMO management will persist.

Because treatment by members of sets straddling night/day is likely to reveal data-recording inconsistencies and evidence of the unreliability of both mitigation compliance levels and proportions of the measures in use, it is recommended that:

1. ERSWG consider how line set timing affects seabird bycatch mitigation efficacy outcomes and whether current mitigation prescriptions could be altered to encourage a higher percentage of hooks being set in darkness and better concurrent levels of seabird mitigation measure compliance. ERSWG to specifically;

a) determine the proportion of current 'night sets where not all hooks are actually set in darkness, and the ratio of night-set versus day-set hooks in these straddling sets.

b) examine the extent to which timing of setting changes the efficacy of "night setting" as a mitigation measure; and

c) consider whether current "night setting" practises could be altered to assist with both efficacy and compliance.

2. ERSWG Members consider how fishery data contributions can be used to better examine the prevalence of and catch-consequence of different line setting schedules to ascertain whether there is any scientifically-based evidence for favouring one line setting schedule over another.

It should be possible to answer the above questions, if appropriately aggregated data with partitioned setting times and the corresponding catch data were analysed by members, with results provided to the next ERSWG meeting.

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Introduction

CCSBT members have agreed to a widely recognised definition of night setting, and yet line sets do not necessarily occur entirely in the day or night. During the CC16 meeting of CCSBT a question arose (CC16 Meeting Report para 10 dot point 6) as to how Members are reporting data and in particular, seabird mitigation measure compliance, when a longline set extends from night time into day time, or vice versa. Because of uncertainty about the prevalence of sets running from night into day and how any resulting change in mitigation measures might be then documented in observer and vessel log book records, CC16 agreed (CC16 Meeting Report para 142, item 5) that members will advise the Secretariat 'as soon as practical', 'on whether reports of night setting mean the entire set was conducted at night'.

This document has been produced for ERSWG14, Provisional Agenda item 5.1.4, to assist CCSBT members to review information provided to the Secretariat and to develop any necessary recommendations. Current data uncertainties surrounding treatment of sets that straddle night/day could have implications for obligations of members as well as for compliance levels and efficacy of mitigation measures.

Because the practice of setting hooks at night is alone a highly effective seabird mitigation measure, any proportion of a set made in darkness is preferable to none. This becomes even more important when alternative measures face greater uptake resistance. Vessels should be encouraged (and in no way discouraged) from setting hooks at night, and this is why the implications of setting schedules on mitigation practices and compliance needs to be better understood.

There has been no evidence that seabird bycatch mitigation measures other than either one, two or all three of the required measures, night setting (NS), line weighting (LW) and bird scaring/tori line (BSL) are currently being used by SBT vessels. To be mitigation-compliant (where required) vessels must use at least two of the three measures.

What determines the timing of line setting?

There may be various factors determining timing of line setting, so knowing what primarily motivates setting times would be helpful in management, including for seabird bycatch mitigation. If fisheries data is carefully analysed, reasons for timing may become clearer – and may even provide the justification and encouragement for a change to more night setting.

It has been proposed that the prevalence of mainly daytime setting might have originated in lower latitudes where there are practical advantages to doing line hauling at night when working conditions are more favourable, (hauling is more arduous and longer, involving more crew than setting). This has undoubtedly resulted in gear refinements aimed at maximising catch potential at the currently preferred set and haul times. As distribution of fishing effort expanded into higher latitudes in the southern hemisphere where greater at-risk seabird species overlap, traditional set times were simply maintained, along with strongly held views as to the benefit to CPUE of traditional timing.

However, individual vessels already operate on many different setting schedules. Setting schedules can also cause alterations to the timing of sets by other vessels nearby; the first vessel to enter a fishing ground can dictate the set start times of other vessels in order to maintain line setting positions – this is done in order to minimise drifting gear conflict especially when distances between lines being set are intentionally small.

If the timing of SBT (and other tuna species) setting has its basis in best CPUE prospects rather than in historical habit, this could be easily verified by analysis of fishery data in which set times (entirely at night, night/day straddling, entirely in day) were partitioned for CPUE comparison purposes, (there are obstacles to assigning the actual capture time of each fish landed). Is there a correlation between CPUE and proportions of hooks set during darkness and daylight? Examining the CPUE performance difference between (perceived) typical sets starting at dawn and finishing around 5.5 hours later and all other sets, would be most informative. It would be necessary to also take into account any additional gear configuration and setting method distinctions between the night and the day sets, if for example night sets were to be encouraged, and successful uptake occur.

Rates of reported seabird mitigation noncompliance by some members have remained consistently high, as indicated in CC16/2010/05 (Rev.1). There are huge obstacles to reliable verification of compliance across roughly 90% of unobserved fishing effort. There could be significant seabird conservation gains at no expense to target species CPUE, if NS was encouraged and was to become dominant. Ideally though, this would be in combination with LW. Enough encouragement might be attained by allowing NS alone to be an acceptable single mitigation measure, and this would discourage night/day straddling sets which are likely to be reducing mitigation efficacy. Verification of NS routine has the added prospect of compliance verification using 'remote' and even independent monitoring with AIS, VMS or EMS. The potential NS operational and mitigation gains, over ongoing non-compliance and reporting of high seabird CPUE, needs to be considered against the ACAP recommended best practice mitigation advice.

Night/day set mitigation implications

Reporting by members indicates significant non-compliance - not always are two of the prescribed seabird mitigation measure options being used. It is necessary to question why this is, and if there is any correlation with sets that straddle night/day. When a set commences in darkness for example, a vessel is mitigation-compliant just by using a BSL **or** LW but when daylight comes, it becomes noncompliant unless using **both** BSL and LW.

From a practical perspective, BSL can be onerous or problematic even in daylight. There is even less inclination to use it in darkness, which further diminishes mitigation benefit, (by comparison to mitigation efficacy of BSL in day time). It is also implausible that vessels would switch from operating unweighted gear at night to weighted gear, when setting extends into daylight. Member mitigation compliance reporting does not indicate mitigation practices changing throughout night/day straddling sets.

It would seem logical that weighting of branchlines would be a desirable mitigation measure practice for vessels straddling night/day sets because this would be less onerous than changing to any other mitigation measure when going into daylight. The best mitigation is achieved by combining the most effective measures such as weighted hooks set in darkness – which is better than weighted hooks set in the day, even if protected by BSL. Again, the ambiguities contained within reported observer and logbook data with regard to mitigation practices throughout the whole of a set and particularly night/day- straddling sets, is likely to cause inaccuracies in our understanding of compliance and mitigation measure use.

Because each of the four mitigation options (NS+LW+BSL, NS+LW, NS+BSL, LW+BSL) available under the choice of a two-measure system cannot deliver equal effectiveness, it is very important that reported seabird CPUE is being reliably assigned to the specific mitigation type that was actually in use when the bird was caught. Therefore, how observers (or vessel log books) document mitigation practices is critical, although currently complicated by the legal implications of sets that straddle night/day. How does observer data and reporting track the proportion of fishing effort and the changing mitigation practices from night/day straddling sets when currently the reported data fails to differentiate between entire sets in daylight from night/day straddle sets – each with different mitigation measure needs? It is important to note that unless seabird interactions are correctly assigned against the mitigation practices actually in use, completely wrong conclusions about the effectiveness of mitigation measure combinations will be drawn.