

 <p>Agreement on the Conservation of Albatrosses and Petrels</p>	<p>Eleventh Meeting of the Seabird Bycatch Working Group</p> <p><i>Edinburgh, United Kingdom, 15 - 17 May 2023</i></p> <p>Procella Hook development update and heavy hook inclusion in ACAP best practice pelagic longline seabird bycatch mitigation advice</p> <p><i>Nigel Brothers</i></p>
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SUMMARY

ACAP Best Practice pelagic longline mitigation advice does not currently allow for the most effective weighting because hook weight is not being taken into account.

Proof of 'Heavy Hook' mitigation effectiveness isn't necessary because the minimum recommended weight of 50 g equals or exceeds the performance range achievable if current weighting options in the ACAP pelagic longline mitigation advice are used.

Clear guidance to hook manufacturers and distributors about heavy hook design would help stimulate further development in order that this mitigation option becomes available to fishers in its most practical and cost-effective form.

ACAP acceptance of 'Heavy Hooks' would be appropriate in Best Practice guidelines with a 50 g minimum weight stipulation that excludes the use of lead.

RECOMMENDATIONS

1. SBWG agree to clarification in pelagic longline Best Practice mitigation advice, that a minimum of 50 g (which includes weight of hook) meets current criteria.
2. SBWG review current text in the mitigation advice which recommends against any 'hook size and design changes.'
3. SBWG recommend that the AC allow ACAP to provide pelagic longline hook manufacturers and distributors with weighted hook concept advice, for ACAP mitigation advocacy and to stimulate product development and availability.
4. SBWG add to ACAP mitigation advice, that using lead in order to make pelagic longline hooks heavier is not recommended because the same outcome can be accomplished using less potentially harmful metals (to fishers in handling and to discards carrying lost hooks).

Actualización del desarrollo de anzuelos Procella e inclusión de anzuelos pesados en las recomendaciones de mejores prácticas del ACAP en materia de mitigación de la captura secundaria de aves marinas en pesquerías de palangre pelágico

RESUMEN

Las recomendaciones de mejores prácticas del ACAP en materia de mitigación en pesquerías de palangre pelágico no incluyen actualmente datos sobre los métodos más eficaces de lastrado porque no se tiene en cuenta el peso de los anzuelos.

No es necesario demostrar la eficacia del anzuelo pesado en la mitigación porque el peso mínimo recomendado de 50 g iguala o supera el rango de desempeño alcanzable si se utilizan las opciones de lastrado actuales en dichas recomendaciones.

Disponer de una orientación clara a los fabricantes y distribuidores de anzuelos sobre el diseño de anzuelos pesados ayudaría a estimular un mayor desarrollo para que esta opción de mitigación esté disponible para los pescadores en su forma más práctica y eficaz en cuanto a costos.

Sería adecuado que el ACAP incluya los anzuelos pesados en las directrices de mejores prácticas con una estipulación de peso mínimo de 50 g que excluya el uso de plomo.

RECOMENDACIONES

1. Que el GdTCS esté de acuerdo con que se aclare en las recomendaciones de mejores prácticas en materia de mitigación en pesquerías de palangre pelágico que un mínimo de 50 g (incluido el peso del anzuelo) cumple los criterios actuales.
2. Que el GdTCS revise el texto actual de las recomendaciones en materia de mitigación que desaconseje cualquier cambio en "el tamaño y el diseño de los anzuelos".
3. Que el GdTCS recomiende al CA permitir que el ACAP proporcione a los fabricantes y distribuidores de anzuelos de palangre pelágico recomendaciones sobre el concepto de anzuelos lastrados, para la defensa de las recomendaciones del ACAP en materia de mitigación y para estimular el desarrollo y la disponibilidad de productos.
4. Que el GdTCS añada a las recomendaciones del ACAP en materia de mitigación que no se recomienda utilizar plomo para hacer más pesados los anzuelos de los palangres pelágicos, ya que se puede conseguir el mismo resultado utilizando metales potencialmente menos dañinos (para los pescadores en la manipulación y en el caso de anzuelos perdidos que queden en los descartes).

Mise à jour du développement de l'hameçon Procella et inclusion de l'hameçon lourd dans les bonnes pratiques de l'ACAP en matière de réduction des captures accessoires d'oiseaux de mer à la palangre pélagique

RÉSUMÉ

Les Bonnes pratiques de l'ACAP en matière d'atténuation pour la palangre pélagique ne permettent pas actuellement d'obtenir un lestage optimal, car le poids des hameçons n'est pas pris en compte.

Il n'est pas nécessaire de prouver l'efficacité de la mesure d'atténuation « Hameçon lourd » (Heavy Hook) car le poids minimum recommandé de 50 g est égal ou supérieur à la plage de performance réalisable en utilisant les options de lestage actuelles recommandées par les conseils de l'ACAP en matière d'atténuation pour les palangres pélagiques.

Des conseils clairs aux fabricants et aux distributeurs d'hameçons concernant la conception de hameçons lourds contribueraient à stimuler le développement de cette option d'atténuation afin qu'elle soit mise à la disposition des pêcheurs sous sa forme la plus pratique et la plus rentable.

Il serait utile que l'ACAP intègre les « hameçons lourds » dans ses lignes directrices sur les Bonnes pratiques, en stipulant un poids minimum de 50 g excluant l'utilisation de plomb.

RECOMMANDATIONS

1. Le GTCA accepte de préciser, dans ses Bonnes pratiques d'atténuation pour la palangre pélagique, qu'un minimum de 50 g (poids de l'hameçon inclus) répond aux critères actuels.
2. Le GTCA réexamine le texte actuel des conseils sur les mesures d'atténuation, qui recommande de ne pas modifier « la taille et la conception des hameçons ».
3. Le GTCA recommande que le CC autorise l'ACAP à fournir aux fabricants et aux distributeurs d'hameçons pour la pêche pélagique à la palangre des conseils sur le concept d'hameçon lesté, afin de défendre les objectifs de l'ACAP en matière d'atténuation et de stimuler le développement et la disponibilité des produits.
4. Le GTCA ajoute à l'avis d'atténuation de l'ACAP que l'utilisation de plomb pour alourdir les hameçons des palangres pélagiques n'est pas recommandée car le même résultat peut être obtenu en utilisant des métaux potentiellement moins nocifs (aussi bien pour les pêcheurs lors de la manipulation qu'en cas de rejets contenant des hameçons perdus).

1. INTRODUCTION

Currently the ACAP pelagic longline Best Practice weighting options (ACAP 2021) include the following: 40 g or more within 0.5 m of hooks, 60 g or more within 1.0 m of hooks and 80 g or more within 2.0 m of hooks.

In these options, hook weight has not been taken into account. Hook weights can vary from around 8 g up to 24 g but are usually around 18 g. Clearly, hook weight alone does improve bait sink rate substantially (by 3 times), but not enough to adequately reduce seabird interactions. However, the addition of a relatively small amount of weight (even 20 g) can increase sink rate of baited hooks substantially (Brothers 2009), provided this weight is located at the hook.

Procella description, development rationale and goals were previously outlined in SBWG10 Inf 09 (2021), which also described the various roles of participants and funding sources, principally DOC with Southern Seabirds in New Zealand, AFMA in Australia and Humane Society International.

Since then, 2,200 Procella hooks were manufactured for trial purposes and delivered in May 2022. From that time until January 2023, small quantities were provided to vessel operators in New Zealand, and also to vessel operators in Australia for a dedicated trial by Tuna Australia in Feb/March 2023. Although there has been anecdotal performance feedback in New Zealand, a better understanding is anticipated in mid 2023 when dedicated performance logs are to be returned by operators. DOC and vessel operators are facilitating the ongoing logistics and monitoring in New Zealand.

Procella received a mixed reaction from prospective operators, from outright rejection on the basis of perceived shortcomings in minor aspects of design and safety, to open-minded willingness to trial them, although initially in small numbers. Procella was based on hooks manufactured to meet cetacean escape requirements (with hook wire diameter being no more than 4.5 mm). The fishery in New Zealand catches heavier individual tuna than the fishery with cetacean escape requirements, so there have been several instances reported of Procella hooks being bent (presumably by big fish). This is not altogether bad news because at least we know Procella was actually catching fish. The initial aim was that Procella be a universally suitable and regulation-compliant product, however this may be unrealistic. In this instance fishers want a stronger (cetacean unsafe) hook for holding bigger fish.

Procella is the first heavy hook for pelagic longline fishing which has entailed alteration of the hook itself as a means of increasing baited hook sink rate. Adequate weight at hooks is superior for mitigation because of the immediacy with which baited hooks commence sinking while also avoiding the increased risk to birds of typical fishing gear handling (Brothers 2021). Procella however is outside current ACAP advice in the following two ways: Because ACAP recommended weighting does not take hook weight into account, Procella arguably fails to meet the corresponding least weight amount option, which is 40g or more within 0.5m of hooks (pelagic longline hooks can vary in weight from as little as 8 g up to 24 g and Procella is built around a more typical 16 g hook to which only 38 g has been added). Secondly, ACAP states 'changes to hook size and design are currently not recommended', as a means of reducing the impact of pelagic longline fisheries on seabirds. This does not support a heavy hook initiative.

Whether the fishing industry has the capability or interest in making Procella (or a heavy hook variant) into a cost effective and user-friendly strategy for getting on with catching fish not birds, remains uncertain. SBWG10 Inf 09 (2021) provides an extensive list of real and perceived Procella advantages and disadvantages. It is suggested that ACAP, in its mitigation measure summary advice, makes clear provision for further development of heavy hooks capable of equalling or exceeding the mitigation performance of current line weighting options. Doing so entails acknowledging that Procella (or equivalent heavy hook variants) can equal or exceed the sink rate performance of weight and placement distances currently recommended by ACAP.

2. ADVICE

In the case of heavy hooks or Procella specifically this is not a case requiring the application of the mitigation measure performance assessment criteria. Instead, what is needed is recognition that there are shortcomings in existing weighting assessments and these can be readily addressed.

Viability of 'heavy hook' manufacturing and product suitability to industry will likely centre around achieving the mitigation goal using the least amount of weight (increased hook weight = increased hook cost), rather than the excessive amount of weight (if at the hook) which can result from the ACAP guidelines. This is particularly relevant in light of high hook attrition rate and its cost, and especially since the dual benefits of wire leaders (hook preservation and bird mitigation) has been mostly lost to industry. However, Robertson et al (2013) did recommend 60 g instead of 40 g be used within 0.5 m of hooks in high-risk areas but recognised 40 g having 'most potential for adoption', listing five benefits in addition to not reducing fish catch. It is unclear if the weighting material is at all significant in terms of mitigation performance. ACAP (2021) failed to specify weighting material, Robertson et al 2013, 2014 specified lead, and Procella is manufactured entirely from stainless steel. However, a Procella hook made of lead should be discouraged in any ACAP heavy hook guidelines on the grounds of environmental and human health.

To reiterate the rationale of SBWG10 Inf 09 (2021), 'in terms of regulations and meeting Best Practice (BP) weighting criteria, a hook weighing 50 g in total (Procella average weight is 55.4 g, range 53 g - 58 g) exceeds the current weighting option of 40 g within 0.5 m of a hook (discounting here inclusion of hook weight) and has a comparable sink rate to the various weighting options of BP (60 g < 1 m, 80 g < 2 m) and others that are not consistent with BP but allowed in certain fisheries regulations (60 g < 3.5 m, 98 g < 4 m). Technically, use of a 50 g weighted hook would be 6 g less than the legal limit option of adding 40 g, if added at the hook, but only if hook weight itself was around 16 g and not as it could be, 8 g (the lightest hooks being used) or say, 24 g (heaviest hook).'

What is the actual sink rate performance of a 53 g heavy hook? Using the same methodology to Brothers 2009, Procella hooks take 7.2 secs (sd 0.65) to reach 5 m depth (Brothers 2021). Table 1 provides a simplified comparison of Procella (Heavy Hook) 53 g sink time to 5 metres with hooks of various size (weight), when more weight is added at increasing distance. Essentially, ACAP's current best performing weight prescriptions halves the sink time of typical unweighted gear (from 15.5 secs to around 8 secs). This can also be accomplished by Procella. Procella sinks faster to 5 m depth than if 40 g is added at a regular hook, let alone if

at 0.5 m maximum recommended distance. Procella sinks faster than a regular hook with 60 g added at 1 metre maximum recommended distance and if 80 g were to be added at the 2 m maximum recommended distance. It stands to reason therefore, ACAP acceptance of 'Heavy Hooks' would be appropriate in BP guidelines with a 50 g minimum weight stipulation. This should exclude the use of lead*. It is not known whether a 40 g or 45 g stipulation (with cost and operational advantages) might prove similarly effective with or without additional reliance upon the mitigation contribution of other measures used simultaneously, night setting for example. It is important to remember that minor weight variations of several grams do not make significant changes to sink rate, so the 50 g minimum stipulation takes this into account.

Table 1. Baited hook sinking time (seconds) to 5 metres comparing Procella heavy hook (53 g) to hooks of different weight with various weight added at increasing distance from the hook. Data sources Brothers 2009, 2021 and Robertson et al 2014 – the latter presented in brackets.

Distance of weight from hook (m)	Hook weight (g)	Time (seconds) to 5 m				
		+ 0 g	+ 20 g	+ 40 g	+ 60 g	+ 80 g
0	8	18.5	9.5	9.5	7	
0	18	15.5	8	7.5 (8.5)	7.5 (7.3)	
0	24	12.5	8.5	8	6.5	
0	mean	15.5	8.5	8.5	7	
0	53 (Procella)	7.2				
0.9	8		12.5	11	9	
0.9	18		10	9.5	8	
0.9	24		10.5	9	7.5	
0.9	mean		11	10	8	
1	8					
1	18			(11.6)	(9.4)	
1	24					
1	mean					
1.8	8		13.5	12	9	8
1.8	18		12.5	11	9.5	8
1.8	24		12.5	10.5	8.5	8.5
1.8	mean		13	11	9	8
2	8					
2	18			(12.5)	(11.4)	(9.4)
2	24					
2	Mean					

There are disadvantages to consider in regular alterations or additions to Best Practice advice. However, because the latest alteration to the pelagic longline weighting advice has not as yet triggered operational change, the inclusion of the recommendations proposed here would be timely.

For hook manufacturers and suppliers to consider producing Procella type heavy hooks, they require clear minimum weight specifications in design and fabrication. Actual mitigation efficacy of Procella is not in question because baited hook sinking performance equivalent to or even better than the existing ACAP weighting Best Practice guidelines is accomplished if Heavy Hooks weigh no less than 50 g.

*There are heavy hooks currently in use that entail permanent attachment of leaded swivels onto hooks. This has similar environmental implications to the use of lead in Procella manufacture. Lead is a convenient and inexpensive option for the manufacturer of heavy hooks, hence discouragement is deemed appropriate.

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