Hook-shielding devices to mitigate seabird bycatch: review of effectiveness

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Purpose

This review is aimed to assist the SC in advising WCPFC15:

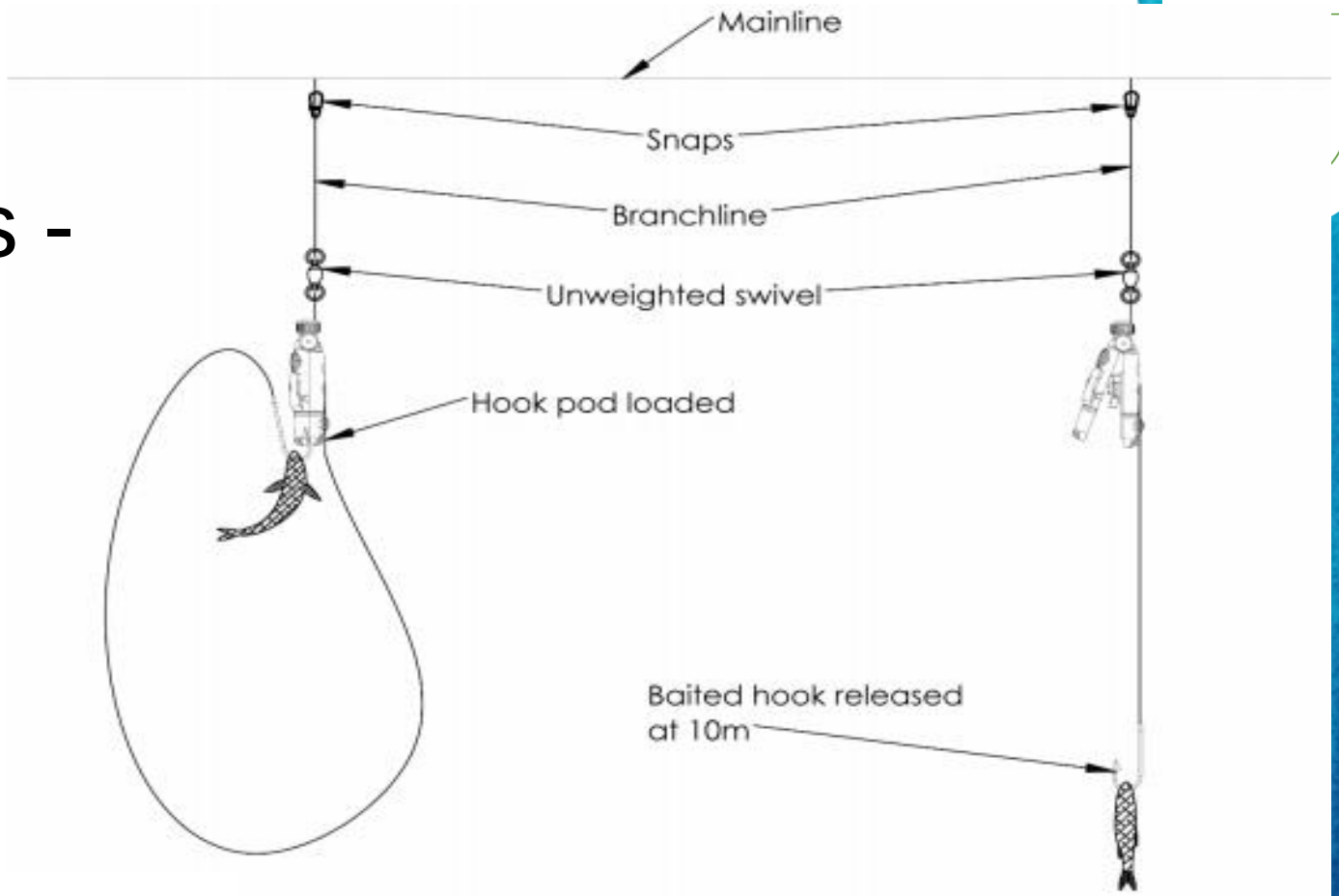
- if hook-shielding devices are effective options for seabird bycatch mitigation in WCPFC fisheries; and
- whether to incorporate them in the seabird CMM as additional mitigation options

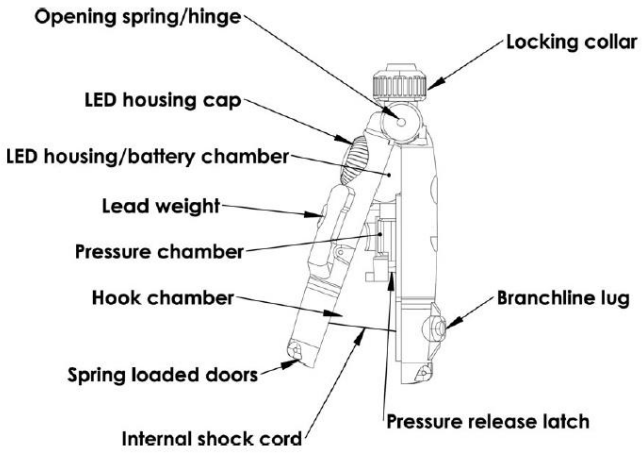
Based on tasking from WCPFC14 (Paragraph 347, WCPFC14 Summary Report)

Background

- ACAP has defined best practice mitigation advice for pelagic longline fisheries as the simultaneous use of branchline weighting, tori lines and night setting
- CMM2017-06 provides for these three options
- In 2016 ACAP recognised hook-shielding devices as an alternative best practice method subject to:
  - the device shields the hook until a prescribed depth of 10 m or immersion time of 10 minutes is reached;
  - the device meets current recommended minimum standards for branch line weighting;
  - experimental research has been undertaken to allow assessment of their effectiveness, efficiency and practicality.

Hookpods - design





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Hookpods – setting (Brazil)

Hookpods - options

- Larger and smaller options
- With or without LED (cost saving to replace light sticks)
- New model opens deeper (20m)
- New model compatible with smaller hooks

Evidence – range of tests

- Research trials in various geographical regions throughout the world: (i) Brazil, (ii) South Africa, (iii) Uruguay, (iv) Australia, and (v) New Zealand
- Tested with various seabird abundances and species assemblages
- Over 124,000 experimental Hookpod deployments over 32 discrete at-sea trips
- Trials up to 10 months in duration
- Tested under commercial fishing:
  - With no control
  - With no mitigation as control
  - With existing mitigation as control

Evidence - effectiveness

- Hookpods consistently provide equivalent or better reductions in seabird bycatch than measures currently stipulated in CMM2017-06
  - Sullivan et al (2017): bycatch rate reduced from 0.8 (no mitigation) to 0.04 birds/1000 hooks (Brazil, Australia, South Africa)
  - Goad et al (2017): bycatch rate reduced from 0.248 (status quo mitigation) to 0.079 birds/1000 hooks (NZ)
- No effect on target fish catch rate found in any study

Evidence – other factors

- Stand alone nature suits fisheries where existing mitigation measures are challenging to deploy, and provides an additional option
- Combined loss and damage rates <1% (loss rates vary by fishery)
  - Silva-Costa (2017): 0.57% (Brazil)
  - Goad et al (2017): 0.62% (NZ)
- Compatible with many fishery operations

Recommendations

1. Agree that hook-shielding devices represent a proven and effective seabird bycatch mitigation option that is relevant to pelagic long line fishing operations in the WCPFC area.
2. Note that for some fisheries hook-shielding devices could be a preferred stand-alone seabird mitigation option, such as fishing operations that may have difficulties deploying other mitigation options.
3. Agree that sufficient evidence is available to support the option of using hook-shielding devices to mitigate seabird bycatch, while still supporting the provision for existing mitigation options.
4. Agree to recommend that TCC consider, and WCPFC revise CMM 2017-06 to include, the use of hook-shielding devices as a stand-alone seabird bycatch mitigation option to provide more choice and greater flexibility to the fishing industry to mitigate seabird bycatch in their fishing operations.