

# South Pacific Regional Fisheries Management Organisation

## 1<sup>st</sup> Meeting of the Scientific Committee

La Jolla, United States of America, 21-27 October 2013

### SC-01-11

#### Review of bycatch data collection and reporting standards

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#### Background

Incidental mortality in fisheries has been demonstrated to be a serious threat to a range of endangered, threatened and protected (ETP) species (Alverson et al. 1996).

This paper considers data collection and reporting standards relevant to the incidental mortality, or bycatch, of ETP species. The current SPRFMO Data Standards are detailed in the Conservation and Management Measure on Standards for the Collection, Reporting, Verification and Exchange of Data (CMM 1.03).

In the context of the SPRFMO area, ETP species include seabirds, marine mammals and reptiles. A number of fish species may also be considered in this definition, for example the elasmobranch species listed by the Convention on the Conservation of Migratory Species of Wild Animals (also known as CMS or Bonn Convention)<sup>1</sup> and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)<sup>2</sup>. This definition excludes endangered, threatened or protected invertebrate species, for the purposes of the review in this paper.

Collecting robust ETP bycatch and associated data are important in order to:

1. characterise and quantify bycatch within a fishery;
2. understand the nature of bycatch and the importance of various factors in contributing to the observed level of bycatch, enabling the identification of specific solutions for the particular fishery; and
3. assess and monitor the effectiveness of bycatch mitigation measures in reducing mortality.

Harmonising data collection across RFMOs is also important to allow the cumulative assessment of any fisheries impacts on ETP species.

It has been recognised that ETP bycatch data for SPRFMO fisheries is currently sparse, and limits the ability to assess the risk these fisheries pose (Baird et al 2012).

This paper aims to identify whether the current SPRFMO Data Standards can be improved to ensure a full understanding of the nature and extent of bycatch interactions across all SPRFMO fisheries. As well as information on ETP bycatch

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<sup>1</sup> Currently three elasmobranch species are listed on Appendix I (*Cetorhinus maximus*, *Carcharodon carcharias* and *Manta birostris*), with additional species listed on Appendix II.

<sup>2</sup> Currently three elasmobranch species are listed on Appendix II (*Cetorhinus maximus*, *Carcharodon carcharias* and *Rhincodon typus*), with the listing of a number of further species coming into effect in 2014.

events, environmental variables such as wind and sea state can influence ETP species behaviour and therefore the degree of bycatch risk. Equally, vessel operational variables can affect risk of bycatch, for example, the weighting regime of demersal longlines affects the sink rate of the line, which influences the amount of time that baited hooks are available to seabirds.

## Data review

This paper describes a review of the relevant data standards described in CMM 1.03 against Food and Agriculture Organization of the United Nations (FAO) best practice guidance (FAO 2009), other international recommendations on minimum standards (e.g. Dietrich et al. 2007; Wolfaardt 2011) and New Zealand domestic ETP bycatch data collection experience.

## Potential improvements to data collection standards

The current SPRFMO Data Standards were found to be largely well aligned with international best practice with a few areas requiring further development. These relate to collecting complete and accurate data on the identity of species interacting with fishing vessels, data on mitigation strategies used and factors related to bycatch. Correct species identification is important for evaluating the risk of a given fishery to individual species. Additionally, in instances where morphologically similar species differ in either distribution or behaviour accurate species identification can help to inform understanding of the nature of bycatch interactions.

Data collection protocols for ETP species capture (Annex 8 of CMM 1.03) could be improved through:

### Data on ETP species

*In Section G:*

- in 1.b) by including numbers caught for each species (currently, only a count of the total number caught per tow or set is required);
- by identifying the type of interaction e.g. hooking/entanglement (bis 1.e);
- in 1. d) by developing better protocols for identification and collection of specimens to allow confirmation of identification. Potential options include:
  - return of carcasses for necropsy and expert examination;
  - implementation of photographic protocols for expert confirmation;
  - collection of tissue samples for genetic determination (e.g. seabird feathers);
  - multilingual training processes and identification manual for observers..

For seabirds, protocols are described for much of this data collection in the draft seabird identification guide being developed by the Agreement on the Conservation of Albatrosses and Petrels (ACAP) (Beck & Inoue 2013).

- record sex of each individual for taxa where this is feasible from external observation, e.g. pinnipeds, small cetaceans, any ETP sharks (bis 2.p);
- record details of any bands or tags;
- describe any circumstances directly related to the bycatch event (e.g. tori line tangle, offal discharge).

Further, the data collection processes must ensure that data for each ETP species interaction recorded in Section G can be matched to a fishing event and other ancillary data recorded in Sections B, C, and D.

### **Data on mitigation employed**

*In Sections B and D:*

- record any offal and discards management (e.g. were there any discards during setting or hauling, or during towing for trawl fisheries);
- record detailed information on bycatch mitigation measures employed. Amend Section B 2. Q) and Section D 2.n) to require detail on:
  - whether a tori line was used (yes/no);
  - the number of tori lines used;
  - the aerial coverage of the tori line;

*(Section D only)*

- if night-setting occurred;
- if weight was added to branchline;
- if weight was added to mainline.

### **Data on fishing operations**

*In Sections B, C and D:*

- providing detail on physical and environmental factors, including:
  - sea state;
  - wind speed and direction;
  - air and sea surface temperatures.
- recording observed hooks/tows hauled observed (as well as total hooks set/tows).

*In Section D*

Bottom longline data requirements should include:

- details on weighting regime:
  - mass of weight;
  - material of weight (metal/non-metal);
  - spacing of weights on mainline;
  - distance from hook of weights on branchline.
- sink rate (m/sec), if observer programme capacity allows;
- bait type (fish/squid, live/dead, frozen/thawed);
- hook size and shape (J/circle);
- use of floats:
  - yes/no;
  - size;
  - spacing on mainline;

- length of dropper line.

The SPRFMO Data Standards described in CMM 1.03 use the term “mammals, seabirds or reptiles”. Consideration should be given to referring slightly more broadly to ETP species which may include certain fish species (e.g. ETP elasmobranch species), noting these species would no longer be included in fish bycatch monitoring. ETP species require increased specificity of data collection to inform more detailed understanding of the bycatch interactions of those species which have been identified as being of potential concern.

### **Fishing activity data collection and reporting standards**

Some of the additional data elements listed above for collection by observers may also be suitable for collection by fishers. Consideration should be given on an item by item basis as to the practicality of seeking to request that information from fishers factoring in any time and crew constraints of vessels, training implications and the need for specialist resourcing.

### **Observer coverage and harmonisation with other RFMOs**

Due to the migratory nature and widespread spatial distribution of many ETP species it is important to harmonise bycatch data collection, reporting and storage processes across RFMOs in order to reduce uncertainty in assessment of bycatch interactions across species ranges. An intersessional group was established at the last meeting of the ACAP Seabird Bycatch Working Group with the aim of identifying minimum elements to review the effectiveness of seabird bycatch mitigation regulations in tuna RFMOs, and to seek harmonisation in data collection and reporting. Preliminary recommendations were presented to the CCSBT ERSWG meeting in August 2013, and whilst targeted at pelagic longline tuna RFMOs, many aspects are readily transferable to other fishing methods, including recommendations on minimum standards for data collection and reporting, and appropriate levels of observer coverage.

### **Reporting**

In order to enable the cumulative understanding of fisheries bycatch on ETP species, and to assess and monitor the effectiveness of bycatch mitigation measures in reducing mortality in SPRFMO fisheries, it is important to provide regular and widely available reporting of key ETP bycatch statistics. To achieve this, a minimum reporting standard of the numbers of each ETP species bycaught together with total and observed levels of fishing effort by fishery should be included in SPRFMO National Reports.

### **Conclusion**

This review found the current SPRFMO Data Standards are largely well aligned with international best practice although some aspects relevant to understanding ETP bycatch do require further development to ensure full alignment. Such amendments, although relatively small, will be important in enabling the development of a full understanding of the nature and extent of bycatch interactions across all SPRFMO fisheries.

**Recommendation 1:** the Science Committee consider and, if appropriate, recommend to the Commission that the data standards described in Annex 8 of CMM 1.03 relevant to the bycatch of ETP species be amended to align these to international best practice, as described in this paper, in order to maximise our understanding of such bycatch.

**Recommendation 2:** the Science Committee consider and, if appropriate, recommend to the Commission that key ETP bycatch statistics be reported as part of standard SPRFMO reporting requirements.

## References

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