

## ***Interactive comment on “Standardization of a geo-referenced fishing dataset for the Indian Ocean Bigeye Tuna, *Thunnus obesus* (1952–2014)” by Teja A. Wibawa et al.***

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### 1. Concept of raising catch data to the nominal catch data:

Response: The introduction was revised to give a more detailed explanation: “The nominal catch data set is the official annual catch declaration by each Country Member to the Commission. It gives total annual catch and fishing effort by species and by fishing gear, usually sub-divided by month. However, there is no geo-referenced information on where the fish are caught. This information is partially provided in the second dataset that gives sub-samples of monthly geo-referenced catch and effort by fleet”.

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2. The disparity between the two (Table 1 and Figure 4) is so large that it reduces confidence in the reliability of the data resulting after the complex adjustments that the authors have made.

Response: Since the geo-referenced catch are subsets of the nominal catch, it is necessary to use a raising procedure. There is no other choice to obtain a spatially explicit distribution of total catch allowing to account for all fishing mortality in studies requiring geo-referenced fishing data. We use the most accurate approach for conversion from number of fish to weight and for raising to nominal catch, by using available size frequency samples of catch with the best possible match between fishery, location and date. For the main fisheries that have generally large enough sub-sampled geo-referenced data of both catch and length frequencies of catch, the result is very consistent. A good example is provided with a new figure (Fig. 1) comparing nominal catch with total catch from geo-referenced dataset after conversion from individual number of fish to weight using available samples of size frequencies of catch. For the main Japanese longline fishery, the difference is only  $\sim 11\%$ . The largest uncertainty is essentially for small fisheries but thus concerning a small amount of catch.

3. p.1 L 27 delete 'of' between Eastern and Indian. Response: done

4. L 32 'of' should be 'for'. Response: done

5. p.2 l 15 delete 'to'. Response: done

6. p.3 l 33 Need to say what was the cutoff length (or weight) between 'large' and 'small' purse seiners.

Response: The first sentence of the subsection "2.1.2 Purse seine" was modified as follow: "Geo-referenced purse seine fishing data was divided between large (PS) and small purse seine (PSS). The PS has carrying capacity about 1,000 to 1,500 tonnes, while the PSS has less then about 200-250 tonnes (Joseph, 2003). The PS consists of geo-referenced data from fleets of Spain, France, Seychelles, Japan, Mauritius, Thai-

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land, Korea, former Soviet Union, NEISP and NEISU.

7. p.5 | 24 change 'to be provided' to 'being provided'. Response: done

8. p.9 | 15, delete "it". Response: done

9. p.11 | 23 This is the first mention of Iran, India, Pakistan and Oman.

Response: The original sentence is rephrased and moved to perspective subsection. The new sentence is follow: “. There are some uncertainties that are described and need to be accounted for when using these data. The uncertainty of fishing mortality for certain fleets due to unreported geo-referenced catch should be addressed in future datasets. Catch monitoring in some Countries has been long to implement or is still inexistent, especially for artisanal fleets that however may contribute to a substantial catch due to a large number of small boats. This is likely the case for the artisanal Iranian and Pakistan driftnet fleets or the Sri Lanka gill net fleet (IOTC, 2015), the purse seine fleet of Iran and from distant-water longline fleets of India, Indonesia, Malaysia, and Philippines..”

10. p11 | 26 insert "on" between "based" and "fishing". Response: done

11. p.13 | 4 “for” should come after “searching”. Response: done

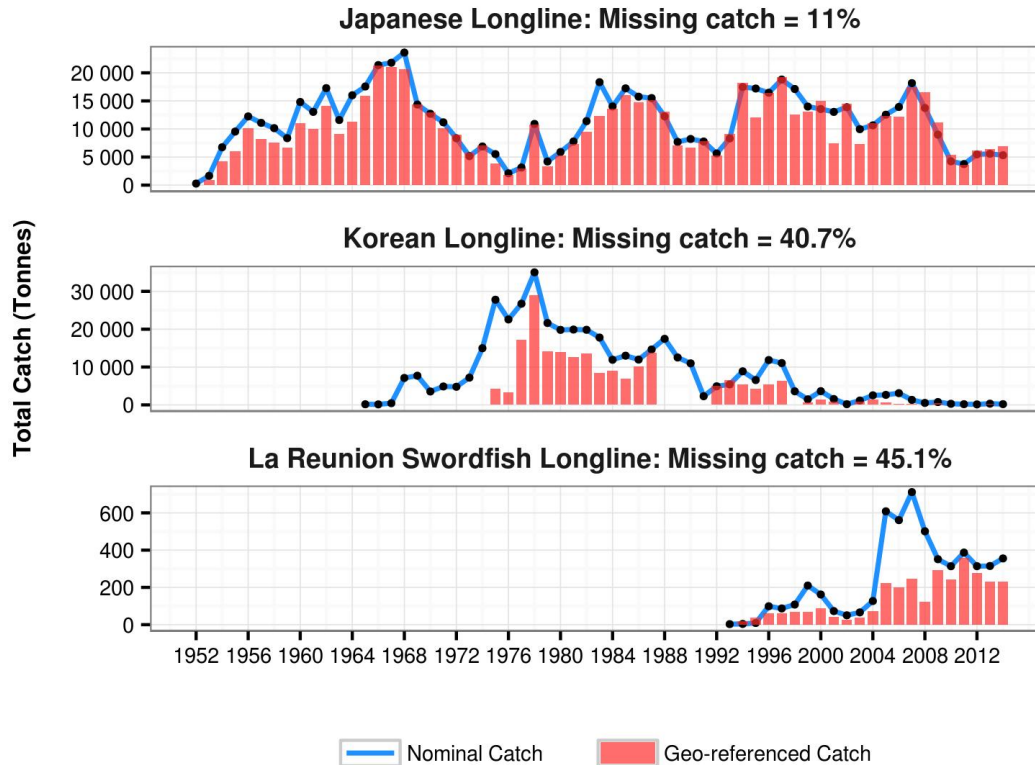
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**Fig. 1.** Total annual converted weight catch (red bars) and total annual nominal catch (solid blue line).