

## **TERMS OF REFERENCE FOR THE PROVISION OF SCIENTIFIC SERVICES TO THE IOTC: ALBACORE STOCK ASSESSMENT USING SS3**

### **Scientific Services to be provided:**

Following the assessments of the Indian Ocean albacore (*Thunnus alalunga*) stock undertaken in 2012 and 2014, the IOTC requires a short term consultancy for the following activities:

### **ALBACORE STOCK ASSESSMENT**

- To undertake an assessment using the Stock Synthesis III (SS3) platform, and draft a working paper to be presented at the WPTmT06 (**18–21 July 2016**).
- The assessment will be expected to consider data submitted before the data submission deadline of 60 days before the meeting (**19 May 2016**), data received after this will not necessarily be considered by the consultant, and will not be considered if received after **3 June 2016** (less than 45 days before the meeting).
- The new assessment shall incorporate the 2014 assessment discussions/comments of the WPTmT05 (including those detailed in para. 109 and Table 12 of the WPTmT05 Report, 2014) and the SC in 2014 and subsequent years, and use updated and additional data available (i.e. fishery and biological data). The assessment shall incorporate projections for 10 years and include Kobe II Management Strategy Matrices, as required by the Commission and detailed in the revised IOTC *Guidelines for the presentation of CPUE standardisations and stock assessment models*, adopted by the IOTC Scientific Committee in 2014.
- To conduct, to the extent possible in the available time, sensitivity runs with alternative parameters (e.g. natural mortality, growth, selectivity, steepness, aggregate vs. disaggregated spatial structure, etc.) including the following:
  - **Review the modelling of size data:** The fit of the Stock Synthesis model to the size data is very influential, and further investigation of factors affecting observed sizes is warranted. Important issues include seasonal selectivity, and potential bias in size sampling data for some fisheries, as noted in working paper IOTC–2013–WPTT15–41 Rev1.
  - **Review CPUE inputs:** The albacore stock assessment is highly dependent on the quality of the CPUE data inputs. Particular attention should therefore be given to ensuring that these primary inputs are reliable, and take into account target change and spatial variation in effort at the 5 degree square level.
  - **Explore alternative M and growth rates:** The different tuna-RFMOs use very different M estimates/assumptions in their albacore stock assessments, but it is not clear that there is compelling evidence for real biological differences. Plausible growth rates based on recent results from the north and south Pacific could be explored.
  - **Examine conflicts among different sources of data and assumptions.** In addition to the explorations above, interactions/conflicts among the CPUE and size frequency should be quantified by down-weighting the different data sources. This could also be done in context of a structural uncertainty grid, where other assumptions on selectivity, natural mortality and steepness could be examined.

The above explorations should be summarized to describe which of the plausible assumptions have important implications for management advice. The interactions among the most important assumptions should be recognized in the stock status advice. To the extent possible, estimates of uncertainty need to be provided in relation to all of the important structural assumptions and parameter estimation errors that are of interest for management.

- To document the assessment in accordance with the IOTC “*Guidelines for the presentation of CPUE standardisations and stock assessment models*”, adopted by the IOTC Scientific Committee in 2014; and to provide a draft report to the IOTC Secretariat no later than 30 days prior to meeting of the WPTmT06, i.e. **18 June 2016**, and the final report no later than 15 days prior to the meeting of the WPTmT06, i.e. **3 July 2016**.
- To present the results of the work undertaken to the WPTmT06, in Shanghai, China, from the 18–21 July 2016.
- To undertake any additional analyses deemed relevant by the WPTmT06 or the IOTC Secretariat up to 60 days after the start date of the contract.
- To provide an updated stock assessment report no later than 15 days after the meeting of the WPTmT06, i.e. **5 August 2016**, which will be updated using the model run(s) agreed to during the WPTmT06 meeting, and the subsequent projections, management quantities and Kobe II Management Strategy Matrices.

### Conditions and payment

In total this Service will require 45 days of work and will include a mission to attend the 6<sup>th</sup> Session of the Working Party on Temperate Tuna (WPTmT06).

Honorarium is determined by FAO based on previous earnings and pre-approved consultant daily rates in Category A.

The IOTC Secretariat will pay the cost of a return airfare (based on FAO travel regulations) from the contractor’s home to the WPTmT06 meeting. A Daily Subsistence Allowance will also be paid in accordance with FAO procedures for attendance at the Working Party meeting.

#### KEY PERFORMANCE INDICATORS

Expected Outputs:	Required Completion Date:
<ul style="list-style-type: none"> <li>• To provide a draft report of the albacore stock assessment to the IOTC Secretariat no later than 30 days prior to meeting of the WPTmT05, i.e. <b>18 June 2016</b>.</li> </ul>	18 June 2016
<ul style="list-style-type: none"> <li>• To provide the final draft report of the albacore stock assessment to the IOTC Secretariat no later than 15 days prior to the meeting of the WPTmT05, i.e. <b>3 July 2016</b>.</li> </ul>	3 July 2016
<ul style="list-style-type: none"> <li>• To present the results of the work undertaken to the WPTmT06 to be held from the <b>18–21 July 2016</b>.</li> </ul>	18–21 July 2016
<ul style="list-style-type: none"> <li>• To provide the final report of the albacore stock assessment no later than <b>5 August 2016</b>.</li> </ul>	5 August 2016