

# **Report of the 2014 Meeting of the Indian Ocean Skipjack MSE Advisory Committee**

14-16 October 2014

Media One Hotel, Dubai, United Arab Emirates

## **Summary**

The Maldives Pole-and-Line fishery for skipjack tuna became certified by the Marine Stewardship Council (MSC) in 2012. As part of the certification, various Conditions were set, including the need for a regional (IOTC) management strategy that includes a harvest control rule. To achieve this, the government of Maldives has contracted a consultant to undertake Management Strategy Evaluations (MSE) that would allow for the testing of alternative management strategies and their robustness to major sources of uncertainty. To support this effort, the International Seafood Sustainability Foundation (ISSF) established an Advisory Committee, comprised of several scientists with expertise in MSE that would provide advice and oversight. This report summarizes the findings and recommendations of the first meeting of the Advisory Committee. The recommendations include aspects specific to the MSE simulation work, as well as aspects related to the process of establishing management objectives and adopting harvest control rules at the IOTC level.

### **1. Opening of the meeting**

Gerald Scott of the International Seafood Sustainability Foundation (ISSF) Scientific Advisory Committee opened the meeting at 9:00am on 14 October and, on behalf of ISSF, welcomed the Advisory Committee (AC) members who were able to attend (Appendix 1).

### **2. Adoption of agenda and meeting arrangements**

The draft agenda, which was circulated in advance of the meeting, was reviewed and adopted (Appendix 2).

### **3. Nomination of Rapporteur(s)**

Presentations of the materials reviewed by the AC were made by each of the meeting participants, who also provided summaries of the materials presented and a record of discussion for this report. These presentations and associated documentation have been placed in a Dropbox file for future reference by the AC.

### **4. Review of the Objective of Skipjack MSE Advisory Committee and Expected Meeting Outcomes**

The objective of the SKJ MSE Advisory Committee is to provide guidance to the process of Management Strategy Evaluation (MSE) that the Maldivian Government is sponsoring in support of achieving unconditional Marine Stewardship Council (MSC) certification of its Skipjack Pole and Line fishery, which was awarded conditional certification in November 2012. The expected outcomes of the meeting are to recommend further steps that should be taken to achieve the time-line required to meet conditions for continued certification and to

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contribute to the process of development and adoption of management procedures.

#### ***4.1 Overview of the Motivation for the Maldives to Undertake this Process***

Maldives has very limited capacity by itself to effectively oversee, coordinate and implement the MSE work required for development of reference points and management procedures. Given this limited capacity, it has contracted a consultant to expedite development of MSE for skipjack. And the main motivation for engaging an AC is to oversee the consultant's work. But equally importantly, it is also to create a greater buy-in from a wider expert community and to accommodate views of professionals that have past experience in the MSE related work.

Such oversight role and engagement of an AC, involving the scientists at IOTC Secretariat, chairs of the Working Party of Tropical Tunas (WPTT) and Working Party on Methods (WPM) are important to facilitate greater acceptance among CPC national scientists. The motivation for engaging an AC is also to create additional confidence of the Maldives to undertake the SKJ MSE work.

#### ***4.2 Requirements for achieving unconditional MSC Certification for the Maldives P&L SKJ Fishery***

MSC certification is based on three core principles. The first principle states that fishery must be conducted in a manner that does not lead to overfishing of the harvested stock. The second principle states that fishing operations should not compromise structure, functioning and diversity of the ecosystem including species that are non-targeted, associated or dependent upon the fishery under question. The third is that fishery should be subjected to an effective management system consistent with national, regional and international standards that incorporates institutional and operational frameworks in order to assure the responsible and sustainable use of the resource.

Based on these principles a default assessment requires assessing the fishery against 31 performance indicators. For a fishery to certify without any conditions, each performance indicator should score 80 or more ([www.msc.org](http://www.msc.org)<sup>1</sup>). The Maldivian pole-and-line skipjack fishery attained a score of 80 or more against each of the MSC Principles and did not score less than 60 against any performance indicators. However, the fishery attained a score below 80 against 8 performance indicators leading to setting of conditions for continuing certification that the Maldives is required to address.

The conditions were attached to the following performance indicators ([www.msc.org](http://www.msc.org)<sup>2</sup>)

1. PI 1.1.2 Requirement of appropriate target and limits for the stock
2. PI 1.2.2 Requirements of harvest control rules to be in place
3. PI 1.2.3 Requirements related to information for implementing harvest strategy
4. PI 2.1.2 Requirements relating to a management strategy for retained species

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<sup>1</sup> <http://www.msc.org/documents/scheme-documents/fisheries-certification-scheme-documents>

<sup>2</sup> <http://www.msc.org/documents/scheme-documents/fisheries-certification-scheme-documents/general-certification-requirements-and-guidance-version-2.0>

- (essentially live bait)
5. PI 2.1.3 Requirements relating to level of information required for retained species for effective management
  6. PI 2.2.3 Requirements relating to management of the ETP species
  7. PI 3.2.1 Requirements relating to clear specific objectives designed to achieve outcomes expressed in MSC Principles 1 and 2
  8. PI 3.2.3 Requirements relating to monitoring, control and surveillance of the fishery.

The conditions are applied to the above performance indicators to improve performance to at least an 80 level within the period set by the Conformity Assessment Body (CAB), but not longer than terms of the certification (5 years).

The conditions relevant to the AC Meeting are Conditions #1 and #2 on reference points and harvest control rules. In order to achieve a score of 80 or more within the 5-year certification cycle several requirements are clearly expressed in the Client Action Plan, which was agreed between the Client (in this case, the Maldives Seafood Processors & Exporters Association and Ministry of Fisheries & Agriculture of the Maldives) and the CAB (Intertek Moody Marine– currently Intertek Fishery Certification (IFC)).

Surveillance audits are conducted annually to assess the progress on meeting conditions to see if the developments taken place have reached milestones identified and agreed in the Client Action Plan.

By the third annual surveillance audit (November, 2015), the formal and appropriately precautionary and scientifically based target and limit reference points must be agreed and adopted by IOTC, consistent with the management objectives and best available science.

By the fourth annual audit (November, 2016), formal and appropriately precautionary harvest control rules (HCRs) must be adopted and implemented for the skipjack fishery by the IOTC to reduce the exploitation rate if biomass or fishing mortality approach the limit reference points and the selection of the harvest control rules takes into account the main uncertainties and operate within a robust harvest strategy consistent with the IOTC management objectives and best available science.

In summary, to achieve these objectives the Maldives shall promote and initiate a process of adopting appropriate reference points (targets and limits) and development of harvest control rules for IOTC skipjack fisheries by the third and fourth annual surveillance audits (November 2015 and November 2016, respectively). However, it is noted that the Maldives is dependent on cooperation amongst all of the CPCs to fully meet these conditions.

#### ***4.3 Skipjack MSE Advisory Committee Process to Date***

ISSF is working to remove roadblocks to unconditional certification by MSC (or equivalent) for tuna fisheries. It is broadly acknowledged that the lack of Harvest Control Rules (HCRs) and appropriate reference points in most tRFMOs is one of those roadblocks and that the process of MSE is the current best practice for evaluating the robustness of different HCRs

designed to achieve the fishery sustainability goals of the tRFMOs. Based upon consultations between the Maldives and ISSF, ISSF agreed to assemble and support the activities of an AC to guide the MSE work undertaken by the Maldives in pursuit of achieving unconditional MSC certification. The AC was established in June 2013 and was initially comprised of: K. Sainsbury, C. Davies, V. Restrepo, G. Scott, and S. Adam. Initial discussions of the AC were held in the margins of several different meetings at which 2 or more of the AC members and the consultant to the Maldives (N. Bentley) were in attendance and subsequently through correspondence. The AC was expanded in September 2013 to include the lead assessment scientist at the IOTC (R. Sharma), the IOTC WPM chair (I. Mosqueira), and the IOTC WPTT chair (H. Murua). S. Adam, the vice-chair of WPTT also represents the Maldives on the AC. Progress reports on the work undertaken have been provided to the appropriate IOTC Working Parties and its Scientific Committee and feedback from those groups to date has been taken into account in the development of the operating model to be used for MSE.

## **5. Work Undertaken on Developing an Operating Model in Support of MSE for Skipjack in the Indian Ocean.**

### ***5.1 Status of work undertaken & recommendations made by IOTC WP Methods (WPM)***

The development work on an Operating Model (OM) for Indian Ocean skipjack was discussed first at the informal one-day session on MSE that took place in 2013 during the meeting of the Working Party on Tropical Tunas in San Sebastian, Spain. The initial design considerations and alternative formulations were presented and discussed. Further discussion took place during the meeting of the WPM MSE team, held in Ispra, Italy, in April 2014. The MSE team of WPM was updated on the first stages of development of the OM, and feedback was given to the developer. The chair and vice-chair of WPM have always been kept up to date on the work, and have provided relevant feedback.

### ***5.2 Status of work undertaken & recommendations made by IOTC WP Tropical Tunas (WPTT)***

The chair of WPTT presented the history of skipjack assessments carried out in the IOTC. During his presentation the main gaps, difficulties and needs that skipjack assessment is facing were highlighted, which are not particular for the skipjack in the Indian Ocean but general for all Oceans. Among them, the main issues identified were the lack of accurate basic fishery statistics (catch and effort data by strata) for some countries, especially the gillnet fishery which is increasing in importance, and difficulties associated during the standardization of CPUE for the Maldivian Pole and Line and European Purse seiners. It was highlighted that improved series of CPUE are necessary and will be used in the November 2014 assessment.

Moreover, the parameters used in previous assessments were reviewed and the ones that will be used in the 2014 assessment were also presented. There was some discussion about input parameters to be used in the 2014 stock assessment and the group recommended that the OM being developed make use of the same parameters that are agreed and used in the upcoming 16th WPTT stock assessment for skipjack.

Taking into account the difficulties of carrying out a fully integrated stock assessment for skipjack, it was also mentioned that alternative methods to estimate stock status in relation to reference points and scientific advice for management for skipjack would be investigated. Among those alternatives, length based management procedures were mentioned. The group recommended that alternative methods, such as length based methods, to estimate reference points and develop harvest control rules are explored in the project of Skipjack MSE.

### ***5.3 Status of work undertaken & recommendations made by IOTC SC***

The IOTC Secretariat has followed the priorities of the SC to the extent possible. Noting that the SC had recommended funding on an expert/consultant to deal with work priorities relating to the MSE, the AC noted that much of this has not happened. While WPM and the Secretariat have worked on updating and training CPCs on what the MSE process entails, a lot more such exercises and training needs to be conducted by the IOTC to define objectives and possible HCRs for implementation in the IOTC. The AC noted the following:

- 1) The Secretariat participated in an ABNJ/WWF dialogue in Sri Lanka in April, 2014 to update and solicit views from coastal CPCs on the MSE process.
- 2) The Secretariat along with experts from the CPCs had with the help of ABNJ funding provided an informational session for all CPCs and observers at the Commission meeting in May 2014 to enable Commissioners to understand the MSE process.
- 3) That the WPM had developed an approach to evaluate the interim target and limit reference points as identified in IOTC Resolution 13/10.

The AC also noted that two additional meetings relating science to policy development were conducted by the Secretariat in Phuket in July 2014 and in Cape Town in September 2014. Such meetings need to be conducted with specific objectives pertaining to the MSE. To this effect dedicated staff time and significant financial resources need to be identified and used as recommended by the SC in 2013.

### ***5.4 Status of Work under Contract to Maldives on Developing an Operating Model to support IO Skipjack MSE***

Development of the operating model (OM) has continued incorporating suggestions from the WPTT October 2013 and the WPM MSE team workshop in March 2014. All of the core elements necessary for management strategy evaluations (MSE) are now implemented. Prior distributions for all model parameters can be specified and a simple form of conditioning based on feasibility constraints can be used to reject parameter combination that produce historical dynamics that are infeasible given the observed data. Two classes of MP have been implemented: one based on an estimate of stock status (with an assumed level of precision) and the other based on estimates of fishing mortality. An additional class of MP is planned based on CPUE. Performance statistics and stochastic evaluations have also been implemented. Scripts have been developed to display model outputs. Documentation and associated code is available at the IOTC WPM development repository, <https://github.com/iotcwpm/SKJ>.

## **6. Clarifying Management Objectives**

### **6.1 IOTC Resolution 13/10**

The AC identified language that pertains to Objectives, identified in Paragraph 4 of the resolution:

“In addition the IOTC Scientific Committee shall develop and assess potential harvest control rules (HCRs) to be applied, considering the status of the stocks against the reference points assessed in paragraph 3 for albacore, bigeye tuna, skipjack tuna, yellowfin tuna and swordfish. Based on the results of the MSE and considering the guidelines set forth in the UNFSA and in Article V of the IOTC Agreement, the IOTC Scientific Committee will recommend to the Commission HCRs for these tuna and tuna-like species, which among other factors, taking account of the following objectives:

- i. For stocks which assessed status will match with the lower right (green) quadrant of the Kobe Plot, aim at maintaining the stocks in a high probability within this quadrant;
- ii. For stocks which assessed status will match with the upper right (orange) quadrant of the Kobe Plot, aim at ending overfishing with a high probability in as short a period as possible;
- iii. For stocks which assessed status will match with the lower left (yellow) quadrant of the Kobe plot, aim at rebuilding these stocks in as short a period as possible;
- iv. For stocks which assessed status will match with the upper left quadrant (red), aim at ending overfishing with a high probability and at rebuilding the biomass of these stocks in as short a period as possible.”

With regard to these Objectives the AC noted the following:

1. High probability is generally taken to be more than 50%, and is considerably higher in other tRFMOs.
2. Rebuilding time frames are often defined on the basis of generation times. Thus, in the context of “as short a period as possible”, life history characteristics, relative status of the stocks involved, and the impacts on the fishery should be considered.

The AC noted that progress was being made in developing HCRs that use either CPUEs, model based rules or estimated F rules that could be implemented in the short term.

### **6.2 IOTC Management Objectives Dialogue**

The AC reviewed the outcomes of recent initiatives to stimulate discussion about management objectives between the IOTC CPCs. These included the WWF/ABNJ Management Strategy Evaluation and Rights-based management Workshop (Sri Lanka 22-24 Apr 2014), and the 31 May 2014 MSE meeting associated with the IOTC Commission meeting (also in Sri Lanka). In general, the MSE component of the WWF/ABNJ project was

well received, with active participation in the meeting. Key features of the success were judged to be the modest pace of material presented, and small group facilitated discussions that encouraged interactive participation. There was concern expressed that this workshop was not inclusive to all CPCs, with a focus on coastal developing state participants, and exclusion of DWF nations.

The 31 May 2014 session was judged to be less successful, with the following points flagged for future improvement: i) there was too much material given the limited time allocated, ii) some of the material was too technical for most of the audience, and iii) the format was not interactive enough to engage the audience. These points should be considered in the development of future curricula. In particular, the use of properly designed and tested computer simulation tools for simple gaming of management options and trade-offs are thought to be a powerful teaching aid. Development of such materials could involve significant, dedicated efforts and resources.

### ***6.3 Maldives (and like-minded States) Views on Management Objectives***

There have been several instances where IOTC states have been exposed to discussions related to the Management Objectives. The level of details and specifics were different at different times.

These instances were:

1. February 2011 - Pre TCAC01 in Nairobi in Kenya – Organized by WWF
2. First meeting of the Coastal States – April 2012 Maldives (organized by WWF)
3. Pre TCAC02 Meeting in Oman – Organized by ISSF
4. Meetings organized by Australia for the Coastal States prior to S16 (Perth), S17 (Mauritius) & S18 (Colombo)
5. Second meeting of the Coastal States – February 2014, Beruwala – Sponsored by WWF
6. First Meeting of the Connecting IOTC Science to Management, Colombo, March 2014.

Attendees at these meetings were national scientists, officials of the Ministries, fishery management agencies and Commissioners who attend the Scientific Committee and Commission meetings.

In general, aspirations of the coastal states were highly varied and this is reflected in the types of fishery activity the country is specialized in. Some countries are mainly fishery processors, where as some have well developed harvesting and post-harvest sector. Some countries' objectives are to simply increase revenue through fishing license and access fees. Many also have joint venture arrangements.

Possible overarching objectives are:

1. Maintenance of stock productivity or biological sustainability, in this case identifying stock conservation objectives will be important.

2. Fishery sustainability – identify minimum harvesting levels and acceptable variability
3. Assurance of access – minimize probability of fishery closures
4. Serve consumer needs – there is huge global demand for sustainably caught tuna

An issue that has repeatedly arisen is the chronic lack of adequate capacity in many coastal states required for managing the fishery let alone understanding the MSE principles requiring reference points and harvesting strategies for developing management procedures. Consequently capacity development is identified as a high priority in all these meetings.

Maldives on the other hand is very fortunate to have a well-established data collection system for monitoring its fisheries that has provided long time series of catch and effort data. Maldives has also a history of engagement with IOTC on skipjack research on tagging and standardization of the CPUE series. Maldives genuinely wants to engage with the IOTC community to ensure long-term sustainability of Indian Ocean tuna resources.

#### **6.4 Future Prospects**

On the basis of the April and May dialogues on Management Objectives, the IOTC subsequently adopted Resolution 14/03, *On Enhancing the Dialogue Between Fisheries Scientists and Managers*, which calls for number of dialogues with terms of reference to include:

Identifying and recommending management strategies for the IOTC fisheries, which are consistent with the objectives of the IOTC Agreement, including such as, socioeconomics, food security, etc., identified by the Commission, ecosystem-based approach to fisheries and the precautionary approach for the consideration of the Commission. Specifically, consideration of the following:

- a) Overarching management objectives to guide the development of management strategies for the IOTC fisheries;
- b) Target and Limit Reference Points with reference to the use of interim BMSY and FMSY or other proxies as Target and Limit Reference Points as identified in Resolution 13/10 on interim target and limit reference points and a decision framework (or any subsequent revision);
- c) Harvest Control Rules (HCRs), and associated probabilities of achieving these targets or limits, allowing, in particular, the implementation of a precautionary approach as required by Resolution 13/10 on interim target and limit reference points and a decision framework (or any subsequent revision);
- d) Risks to the fishery and the resource at these limit and target reference points in the context of different hypothetical HCR's and assessing the time and probability to rebuild stocks to the prescribed targets for stocks identified in Resolution 13/10 on interim target and limit reference points and a decision framework (or any subsequent revision).

In view of this, there will be a continuing need for furthering the work of MSE for skipjack



and other species under the purview of the IOTC. It was noted that this continuing activity will require a sustained level of funding to support the work and it was further noted that sources of continued funding for this activity, including the FAO ABNJ project, should be fully investigated and pursued.

## **7. Next Steps**

### ***7.1 Is the OM in its present form sufficient to address the issues confronting the Maldives?***

The AC acknowledged that improvements in the OM could and should be made in the short-run (see recommendations below) in order to more fully address potential issues confronting the Maldives in pursuit of unconditional certification of the Pole & Line Skipjack fishery. The AC agreed that for the immediate issues confronting the Maldives, the current structure of the OM is sufficient to address the issues related to the conditions identified in the Client Action Plan, agreed between the Maldives Seafood Processors and Exporters Association, the Ministry of Fisheries & Agriculture of the Maldives and the CAB (Intertek Moody Marine).

However, it was further noted that the general nature of the fisheries targeting skipjack in the Indian Ocean also result in impact on yellowfin and bigeye tunas. As such, the AC recognizes that the multi-species nature of these fisheries needs to be taken into account in future OMs for use in MSE.

### ***7.2 IOTC WPM, WPTT, and SC Review process.***

The work conducted to date will be presented and discussed at the upcoming sessions of WPTT in November 2014 and WPM in December 2014, to be held prior to the meeting of IOTC's SC in December 2014. The format of this presentation was discussed, with agreement on the idea of trying to make this presentation as practical and interactive as possible. A single presentation platform, for interactive exploration of simulation results, will be pursued for both MSE studies being carried out: skipjack and albacore (and for other stocks the IOTC will pursue).

The possibility of carrying out a similar demonstration during the session of the Scientific Committee was raised, and contacts will be made with the SC chair to find some time for this activity, ideally over the first two days of the meeting.

In the upcoming meeting, the chair of WPM will present a work plan on MSE for the 2015-2016 period, which will include a draft budget, for SC endorsement and raised for consideration of the next IOTC plenary (April 2015). Additional sources of finance, such as the ABNJ project, should be explored, but the main message that WPM will transmit is that development of MSE is a complex and lengthy enterprise that at this stage requires further commitment in funds and time to be devoted to it.

### ***7.3 Exercising the OM to evaluate robustness of alternative HCRs***

While the OM is well documented and freely available at <https://github.com/iotcwpm/SKJ>,

at the moment, it is not in a user-friendly format and requires expertise and familiarity to operate. In view of the desire to involve a wide range of WP scientists in nominating and conducting evaluations, the AC discussed the desirability of working to develop a more user friendly front-end for that purpose. Additionally, in order to encourage more participation of WPTT scientists in conduct of such evaluations, including receiving their feedback on the appropriate level of uncertainty represented in the OM, it was recommended that a demonstration of the OM be conducted at the WPTT meeting in Bali, November 2014.

#### ***7.4 Presenting MSE to the IOTC – Working Toward a Common Platform for Skipjack (SKJ), Albacore (ALB), and other Stocks.***

SKJ MSE should strive to conform to presentation standards that should be developed under the auspices of the joint tRFMO process, with the ABNJ recognized as a potential source of coordinating funds. In the short-run, however, since the joint tRFMO process is slow in developing, the ALB and SKJ MSE initiatives should use common formats and standard output data structures should be agreed that can be used in common presentation software to avoid confusion when present results.

### **8. Advisory Committee Recommendations**

#### *Model Structure and Parameterization*

- Short-term (November 2014 - April 2015)
  - Adopt grid-based assessment conditioning based on 2014 skipjack assessment and potentially some feasibility based conditioning used for those parameters not estimated by the assessment (*e.g.* movement patterns)
  - Add auto-correlation to key observations (*e.g.* estimated from model-specific deviations between predicted and observed CPUE)
  - Add the option to specify different catch proportions among regions/methods in evaluation projections
  - Ensure that SKJ OM scenarios include some low migration rate scenarios in which localized depletion can occur, depending on differential recruitment and/or harvesting.
  - To implement an additional class of MP based on CPUE.
- Long-term (After April 2015)
  - Continue to develop the OM to ensure that MP performance is evaluated against an appropriate range of plausible uncertainty, as indicated through feedback from the WPTT, including but not limited issues identified in section 6 and the following:
    - Proper characterization of observation errors (CPUE, assessment and tag-based estimators)
    - Resolving confounding among seasonal catchability/selectivity and movement/M, including adopting non-spatial assessment results into spatial model.
    - Eventual need for multispecies management
  - To properly represent Maldives fishery selectivity in the operating model, the status of the Maldives bimodal catch distribution should be investigated in relation to i) spatial and temporal patterns, ii) FAD and free-school targeting, iii)

potentially biased 2-stage sampling procedure of large and small fish (which was very different and possibly less biased in the early 1980s), and iv) evidence for bimodality in other P&L fleets.

- To properly represent gillnet fishery selectivity in the operating model, the catch at size distribution of the gillnet fishery should be investigated more thoroughly.
- Need to explore range of fleet behavior scenarios, including fleet development plan aspirations.
- To implement an additional class of MP based on size characteristics.

#### *Performance Statistics*

- Short-term (November 2014-April 2015)
  - Performance graphics that illustrate performance variability in addition to mean
  - Add more performance statistics related to (a) the proportion of time spent in each quadrant of the Kobe plot and (b) CPUE of each gear.
- Long Term (After April 2015)
  - Recognize that performance statistics for individual nations will probably be required at some stage to demonstrate the harvest strategy implications for specific CPCs and spatial/gear strata.

#### *Documentation and Presentation*

- Short term (November 2014-April 2015)
  - Seek feedback from the WPTT at its November 2014 meeting and where possible, make corresponding adjustments and report back on revised results during the WPTT meeting.
  - Hold a demonstration session during this meeting.
  - Document the MSE shortfalls that cannot be addressed without further technical development (and funding). The ALB and SKJ MSE initiatives should use common formats and standard output data structures in presentation of results to the WPs and SC.
- Long Term (After April 2015)
  - Development of a more user friendly front-end for the OM to encourage broader involvement of IOTC scientists in conduct of MSE for skipjack (and eventually other species) should be initiated.
  - There is a clear need to increase CPC understanding/engagement with the MSE process and should encourage the Commission to devote sufficient time to the capacity building exercise, noting feedback from recent similar initiatives (i.e. more important to answer “why MSE?” than “how to do MSE?”, using interactive scenario gaming (possibly computer-based) without too much technical detail.

### *General Recommendations*

- A fluent communication needs to be established between WPM, assessment WPs and SC in order to
  - (i) increase the understanding of all parties of the MSE process (particularly SKJ MSE process),
  - (ii) to improve the feedback received from the WPs and SC, and
  - (iii) to speed up the process. For that purpose, it is recommended that the chair of WPs and SC maintain a continuous communication through email to review the progress of the MSE work and also organize a face-to-face meeting during the SC plenary each year.
- Need to urgently explore funding opportunities to ensure continuity of the MSE technical development process

### **Report Adoption**

After review, the AC adopted the report.

### **Adjournment**

The meeting was adjourned at 6pm on 16 October 2014.



### **Appendix 1. List of Attendees**

Dr. Rishi Sharma (rishi.sharma@iotc.org); Dr. Iago Mosqueira (iago.mosqueira@jrc.ec.europa.eu); Dr. Nokome Bentley (nbentley@trophia.com); Dr. Dale Kolody (dale.kolody@csiro.au); Dr. Shiham Adam (msadam@mrc.gov.mv); Dr. Hilario Murua ([hmurua@azti.es](mailto:hmurua@azti.es)); Dr. Jerry Scott (gpscott\_fish@hotmail.com)

## **Appendix 2. Agenda**

AGENDA (Skipjack MSE Advisory Committee Meeting, 14-16 October, Dubai, UAE)

1. Opening of the meeting
2. Adoption of agenda and meeting arrangements
3. Nomination of Rapporteur
4. Review of the Objectives of Skipjack MSE Advisory Committee and expected meeting outcomes
  - 4.1 Overview of the Motivation for the Maldives to undertake this process
  - 4.2 Requirements for achieving unconditional MSC Certification for the Maldives P&L SKJ Fishery
  - 4.3 Skipjack MSE Advisory Committee Process to date
5. Work undertaken to date on developing an operating model in support of MSE for skipjack in the Indian Ocean.
  - 5.1 Status of work undertaken & recommendations made by IOTC WP Methods
  - 5.2 Status of work undertaken & recommendations made by IOTC WP Tropicals
  - 5.3 Status of work undertaken & recommendations made by IOTC SC
  - 5.4 Status of work under contract to Maldives on developing an Operating Model to support IO skipjack MSE
6. Clarifying Management Objectives
  - 6.1 IOTC Resolution 13/10
  - 6.2 IOTC Management Objectives Dialogue
  - 6.3 Maldives (and like-minded States) views on Management Objectives
  - 6.3 Future Prospects
7. Next Steps
  - 7.1 Is the OM in its present form sufficient to address the issues confronting the Maldives?
  - 7.2 IOTC WP Meth, WP Trop, SC Review process.
  - 7.3 Exercising the OM to evaluate robustness of alternative HCRs
  - 7.4 Presenting MSE to the IOTC – Working Toward a Common Platform for Skipjack (SKJ), Albacore (ALB), and other Stocks.
8. Advisory Committee Recommendations
9. Report Adoption
10. Adjourn