REPORT OF THE 2012 INTERCESSIONAL MEETING OF THE INTERNATIONAL SCIENTIFIC COMMITTEE FOR TUNA AND TUNA-LIKE SPECIES IN THE NORTH PACIFIC OCEAN

PLENARY SESSION

19-21 December 2012
Webinar

LIST OF ANNEXES

ACRONYMS AND ABBERVIATIONS

Names and FAO Codes of ISC Species of Interest in the North Pacific Ocean

FAO Code	Common English Name	Scientific Name
	TUNAS	
ALB	Albacore	*Thunnus alalunga*
BET	Bigeye tuna	*Thunnus obesus*
PBF	Pacific bluefin tuna	*Thunnus orientalis*
SKJ	Skipjack tuna	*Katsuwonus pelamis*
YFT	Yellowfin tuna	*Thunnus albacares*
	BILLFISHES	
BIL	Other billfish	Family *Istiophoridae*
BLM	Black marlin	*Makaira indica*
BLZ	Blue marlin	*Makaira nigricans*
MLS	Striped marlin	*Kajikia audax*
SFA	Sailfish	*Istiophorus platypterus*
SSP	Shortbill spearfish	*Tetrapturus angustirostris*
SWO	Swordfish	*Xiphias gladius*
	SHARKS	
ALV	Common thresher shark	*Alopias vulpinus*
BSH	Blue shark	*Prionace glauca*
BTH	Bigeye thresher shark	*Alopias superciliosus*
FAL	Silky shark	*Carcharhinus falciformis*
LMA	Longfin mako	*Isurus paucus*
LMD	Salmon shark	*Lamna ditropis*
OCS	Oceanic white tip	*Carcharhinus longimanus*
PSK	Crocodile shark	*Pseudocarcharias kamonharai*
PTH	Pelagic thresher shark	*Alopias pelagicus*
SMA	Shortfin mako shark	*Isurus oxyrinchus*
SPN	Hammerhead spp.	*Sphyrna* spp.

ISC Working Groups

Acronym	Name	Chair (Member Country)
ALBWG	Albacore Working Group	John Holmes (Canada)
BILLWG	Billifsh Working Group	Jon Brodziak (USA)
PBFWG	Pacific Bluefin Working Group	Yukio Takeuchi (Japan)
SHARKWG	Shark Working Group	Suzanne Kohin (USA)
STATWG	Statistics Working Group	Ren-Fen Wu (Chinese Taipei)

Other Abbreviations and Acronyms Used in the Report

CDS	Catch documentation scheme
CIE	Center for Independent Experts
CPUE	Catch-per-unit-of-effort
DWLL	Distant-water longline (Rep. of Korea
DWPS	Distant-water purse seine (Rep. of Korea)
EEZ	Exclusive economic zone
EPO	Eastern Pacific Ocean
F	Fishing mortality rate
FAD	Fish aggregation device
FAO	Fisheries and Agriculture Organization of the United Nations
FL	Fork length
HMS	Highly migratory species
IATTC	Inter-American Tropical Tuna Commission
ISC	International Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean
LTLL	Large-scale tuna longline (Chinese Taipei)
NC	Northern Committee (WCPFC)
NRIFSF	National Research Institute of Far Seas Fisheries of Japan
OFDC	Overseas Fisheries Development Council (Chinese Taipei)
PICES	North Pacific Marine Science Organization
SAC	Scientific Advisory Committee (IATTC)
SC	Scientific Committee (WCPFC)
SPC-OFP	Oceanic Fisheries Programme, Secretariat of the Pacific Community
SSB	Spawning stock biomass
STLL	Small-scale tuna longline (Chinese Taipei)
t	Metric tons, tonnes
WCNPO	Western Central and North Pacific Ocean
WCPFC	Western and Central Pacific Fisheries Commission

1 INTRODUCTION AND OPENING OF THE MEETING

1.1 Introduction

The International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC) was established in 1995 through an intergovernmental agreement between Japan and the United States of America (USA). Since its establishment and first meeting in 1996, the ISC has undergone a number of changes to its membership, charter and name (from the Interim Scientific Committee to the International Scientific Committee) and has adopted a number of guidelines for its operations. The two main goals of the ISC are (1) to enhance scientific research and cooperation for conservation and rational utilization of the species of tuna and tuna-like fishes that inhabit the North Pacific Ocean during a part or all of their life cycle; and (2) to establish the scientific groundwork for the conservation and rational utilization of these species in this region. The ISC is made up of voting Members from coastal states and fishing entities in the North Pacific as well as coastal states and fishing entities with vessels fishing for highly migratory species in the region, and non-voting Members from relevant intergovernmental fishery and marine science organizations, recognized by all voting Members.

At the twelfth Plenary session of the ISC (ISC12) held in July 2012, ISC members agreed to hold an intercessional Plenary meeting in order to resolve outstanding issues. These issues include finalizing the ISC Operations Manual, as well as adopting the Pacific bluefin tuna assessment and related scientific advice.

1.2 Opening of the meeting

The intercessional meeting of the ISC was convened via webinar at 2pm (HST) on 19 December 2012 by the ISC Chairman, G. DiNardo. A roll call confirmed the presence of delegates from Canada, China, Chinese Taipei, Japan, Korea, Mexico, and USA. Representatives from the Inter-American Tropical Tuna Commission attended as observers (Annex 1).

2 ADOPTION OF THE AGENDA

The proposed agenda of the session was considered and adopted with no changes (Annex 2). S. Shoffler and L. Katahira were assigned lead rapporteur duties. A list of meeting documents is contained in Annex 3.

There was a recommendation that ISC address WCPFC-SC8 requests, as well as concerns about ISC reporting requirements, during this session. The ISC Chair reminded Members that the WCPFC-NC is the only body that can directly task the ISC, and this relationship is outlined in the existing Memorandum of Understanding (MOU) between ISC and WCPFC.

The ISC Chair reported that all requests and concerns were discussed in detail at the 9th Regular Session of the WCPFC Commission (WCPFC9) in December 2012. Since WCPFC-NC8 endorsed the request made at WCPFC-SC8 for the ISC to conduct additional analyses associated with the striped marlin stock assessment, the BILLWG conducted the analyses and presented them for review at WCPFC9. The Chair also reported that a potential solution to the concern over SC reporting requirements raised during WCPFC-SC8, while unfounded, has been

developed. The ISC would forward assessment reports to the SC as soon as they are approved and the Plenary concluded. Members were satisfied with the progress and agreed to suspend further discussion on these topics until ISC13.

3 PACIFIC BLUEFIN TUNA STOCK ASSESSMENT

Y. Takeuchi summarized results of the stock assessment conducted by the ISC Pacific Bluefin Tuna Working Group (PBFWG) (ISC/IM12/Annex 4). The Stock Synthesis software (version 3.23b) was fit to the stock assessment input data in a likelihood-based statistical framework. Maximum likelihood estimates of model parameters, derived outputs, and their variances were used to characterize stock status and to develop stock projections. A single pan-Pacific stock of PBF is assumed. The model used quarterly catch-at-length data; 14 fisheries defined by gear, location and season; and with abundance indices from longline fleets and a troll fleet. The PBFWG recognized there are substantial uncertainties in the current stock assessment. In particular procedures used to standardize CPUE and weight the input data, as well as method to estimate selectivities. The influences of these uncertainties on stock dynamics were considered using alternative models and characterized by 20 trial runs. While no single model provided a good fit to all sources of data considered reliable, there was a general agreement among models in terms of key model results. All plausible models depicted large long-term fluctuations in spawning stock biomass (SSB) and a highly depleted stock that has been declining for over a decade. Model estimates of current biomass are at or near the lowest level; however there is no evidence of reduced recruitment. Estimated age-specific fishing mortalities on the stock in the recent period (2007-2009) relative to 2002-2004 (the base period for the current WCPFC conservation and management measure 2010-04) show 4,17, 8, 41 and 10% increases for ages 0,1,2,3 and 4+, respectively (Figure Ex-5). Although no target or limit reference points have been established for the Pacific Bluefin tuna stock under the auspices of the WCPFC and IATTC, the current F (average 2007-2009) is above all reasonable target and limit biological reference points (BRPs).

The PBFWG offers the following conservation advice:

- PBF is currently (2010) near historically low biomass levels and experiencing high exploitation levels above BRPs. Extending the status quo (2007-2009) fishing levels is unlikely to improve the stock condition.
- Based on projection analyses the recently implemented WCPFC (entered into force in 2011) and IATTC (entered into force in 2012) conservation and management measures, if properly implemented and enforced, are expected to contribute to the recovery of the stock.
- Additional Japanese domestic regulations aimed at reducing fishing mortality are projected to further contribute to the recovery of the stock.

The ISC Chair thanked the WG for their hard work and noted that it produced a report in very short order. It was also noted that additional revisions are required before the stock assessment report can be released. Plenary agreed that the assessment report would be distributed within 60

days and an Executive Summary of the assessment report be posted on the ISC website by January 7, 2013.

Plenary discussed the stock assessment and sought clarification on CPUE series used in the assessment; in particular, whether EPO CPUE associated with the purse-seine fishery had been used. The PBFWG Chair clarified that the assessment did not use CPUE from the EPO purse-seine fishery due to issues concerning the representativeness of standardized CPUE from this fleet to stock abundance. The WG recognized the importance of the information particularly as it relates to the development of a spatially explicit PBF assessment model. In the meantime, the WG decided to rely on CPUE series in the WCPO as measures of PBF abundance in the North Pacific Ocean.

It was noted that the report needs more detail on how CPUE time series were standardized and the process used for weighting CPUE and size composition data. Plenary noted that the report also needs more detail on the steepness parameter in the stock-recruit relationship, particularly the rational and analysis that supports the adopted value (0.999) used in the assessment.

Plenary noted that a Kobe plot was not included in the assessment report. The ISC Chair indicated that Kobe plots are standard "calculations" in any stock assessment, and the PBFWG will need to complete that calculation for review and adoption at ISC13. To initiate discussions on the topic, a Kobe plot using 20% of expected unfished SSB as the biomass reference point and 20% SPR as the F reference point was computed (not included) and reviewed. In the plots the recent Kobe trace (2010) was located in the in the upper left quadrant, indicating a stock that is both overfished and experiencing overfishing, consistent with the stock status determination in the stock assessment report. In addition, most of the Kobe trace (1952-2010) was restricted to the upper left quadrant, indicating that the stock had been in an overfished and overfishing state for most of the assessment period. Since the Kobe traces do not resemble the usual pattern observed in most Kobe plots (usually starting out with a relatively healthy stock before showing signs of stress) the validity of the computed trace, as well as possible explanations for the observed pattern, were discussed There was no resolution on this matter, therefore Plenary tasked the PBFWG with completing the calculations and recommending a Kobe plot(s) for PBF that is consistent with the current assessment for review at ISC13. Plausible explanations for Pacific bluefin tuna being in an overfishing and overfished state for most of the assessment period should also be presented at ISC13.

Stock Status

Based on the reference point ratios, overfishing is occurring (see F-based ratios in Table 1) and the stock is heavily overfished (see depletion ratios in Table 1). Model estimates of 2010 spawning stock biomass (SSB) are at or near their lowest level and SSB has been declining for over a decade; however, there is no evidence of reduced recruitment.

Table 1. Computed F-based biological reference points (BRPs; F_{max}, F_{med}, and $F_{20\%}$) for Pacific bluefin tuna relative to $F_{2002\text{-}2004}$ and $F_{2007\text{-}2009}$, estimated depletion rate (ratio of SSB in 2010 relative to unfished SSB), and estimated SSB (mt) in year 2010 for 20 model configurations (Runs). Run 2 is highlighted as it represents the base case model for the PBF stock assessment. F-ratio based BRP values less than 1 indicate overfishing.

	F_{max} ($F_{2002\text{-}2004}$)	F_{max} ($F_{2007\text{-}2009}$)	F_{med} ($F_{2002\text{-}2004}$)	F_{med} ($F_{2007\text{-}2009}$)	$F_{20\%}$ ($F_{2002\text{-}2004}$)	$F_{20\%}$ ($F_{2007\text{-}2009}$)	Depletion Ratio	Estimated SSB (mt) (yr = 2010)
Run 1	0.54	0.45	0.90	0.71	0.56	0.45	0.032	20,030
Run 2	0.57	0.48	0.91	0.73	0.58	0.47	0.036	22,606
Run 3	0.51	0.39	0.88	0.63	0.53	0.38	0.022	13,678
Run 4	0.54	0.41	0.89	0.64	0.55	0.40	0.025	15,794
Run 5	0.58	0.49	0.93	0.75	0.59	0.48	0.037	23,794
Run 6	0.60	0.50	0.97	0.78	0.60	0.49	0.041	25,595
Run 7	0.52	0.39	0.90	0.65	0.53	0.39	0.022	13,996
Run 8	0.54	0.40	0.90	0.65	0.55	0.40	0.024	15,388
Run 9	0.61	0.54	0.94	0.82	0.61	0.53	0.047	30,085
Run 10	0.63	0.57	0.96	0.84	0.63	0.55	0.051	32,519
Run 11	0.51	0.38	0.92	0.64	0.54	0.38	0.022	13,141
Run 12	0.46	0.39	0.82	0.66	0.48	0.39	0.021	13,060
Run 13	0.46	0.39	0.82	0.66	0.48	0.38	0.021	12,944
Run 14	0.62	0.55	0.98	0.82	0.64	0.54	0.051	31,196
Run 15	0.60	0.55	1.04	0.87	0.64	0.54	0.053	32,741
Run 16	0.61	0.55	1.04	0.87	0.65	0.55	0.054	33,383
Run 17	0.49	0.38	0.91	0.63	0.54	0.37	0.021	12,838
Run 18	0.46	0.39	0.81	0.65	0.48	0.39	0.022	13,389
Run 19	0.50	0.45	0.83	0.74	0.50	0.45	0.030	18,419
Run 20	0.49	0.45	0.82	0.74	0.50	0.45	0.030	18,206

Conservation Advice

The current (2010) PBF biomass level is near historically low biomass levels and experiencing high exploitation levels above all potential biological reference points (BRPs). Extending the status quo (2007-2009) fishing levels is unlikely to improve the stock condition.

Recently implemented WCPFC[1] (entered into force in 2011) and IATTC[2] (entered into force in 2012) conservation and management measures combined with additional Japanese voluntary

[1]This refers to WCPFC CMM 2010-04 which specifies that "total fishing effort by their vessels fishing for Pacific bluefin tuna in the area north of the 20 degrees north shall stay below the 2002-2004 levels for 2011 and 2012, except for artisanal fisheries. Such measures shall include those to reduce catches of juveniles (age 0-3) below the 2002-2004 levels, except for Korea. Korea shall take necessary measures to regulate the catches of juveniles (age 0-3) by managing Korean fisheries in accordance with this CMM. CCMs shall cooperate for this purpose." For full text see: http://www.wcpfc.int/system/files/documents/conservation-and-management-measures-and-resolutions/conservation-and-management-measures-/CMM%202010-04%20%5BPacific%20Bluefin%20Tuna%5D%2004112011.pdf

[2]This refers to IATTC Resolution C-12-09 which specifies that "1. In the IATTC Convention Area, the commercial catches of bluefin tuna by all the CPCs during the two-year period of 2012-2013 shall not exceed 10,000 metric tons; 2. The commercial catch of bluefin tuna in the commercial fishery in the Convention Area shall not exceed 5,600 metric tons

domestic regulations aimed at reducing mortality[3], if properly implemented and enforced, are expected to contribute to the recovery of the stock. Based on those findings, it should be noted that implementation of catch limits is particularly effective in increasing future SSB when strong recruitment occurs. It is also important to note that if recruitment is less favorable, a reduction of F could be more effective than catch limits to reduce the risk of the stock declining.

The ISC requires advice from the WCPFC regarding which reference point managers prefer so that it can provide the most useful scientific advice. Until which time a decision is rendered, the ISC will continue to provide a suite of potential biological reference points for managers to consider.

Future work

To finalize the PBF stock assessment report by February 21, 2013, Plenary tasked the PBFWG with the following:

1. Clarify how the WG dealt with data weighting of the size composition data and how CPUE standardizations were conducted;
2. Clarify justification for the adopted steepness value used in the assessment;
3. Move figures to the back of the executive summary

The Plenary also requested that the PBFWG Chair work with the ISC Chair to develop a strategy for prioritizing and completing the following tasks for presentation and review at ISC13:

1. Conduct additional projection scenarios with recruitment levels consistent with the lower values estimated in the 1980s;
2. Pending approval from the WCPFC-NC, conduct reference point research similar to that being conducted for North Pacific albacore and swordfish (see item 4 WCPFC-NC8);
3. Conduct fishery impact analyses to determine the extent to which gears are contributing to the overfishing and overfished status;
4. Develop and recommend Kobe plot(s) based on results from the current Pacific bluefin tuna stock assessment. Provide plausible explanations for PBF being in an overfished condition throughout the entire assessment period.

4 WCPFC-NC8

ISC reviewed the NC8 (Nagasaki, Japan; September 2012) request to provide information for determining appropriate reference points for both North Pacific albacore and swordfish (ISC/IM12/PLENARY/01). Plenary endorsed the requests and tasked the ALBWG and BILLWG, respectively, with completing the assignments and presenting the results for review at

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during the year 2012; 3. Notwithstanding paragraphs 1 and 2, any CPC with a historical record of Eastern Pacific bluefin catches may take a commercial catch of up to 500 metric tons of Eastern Pacific bluefin tuna annually." For full text see: http://www.iattc.org/PDFFiles2/Resolutions/C-12-09-Conservation-of-bluefin-tuna.pdf

[3] This is described in WCPFC-NC8-2012/DP-01. For full text see; http://www.wcpfc.int/system/files/documents/meetings/northern-committee/8th-regular-session/delegation-proposals-and-papers/NC8-DP-01-%5BEXPLANATION-AND-IMPLEMENTATION-CMM-2010-04%5D.pdf

ISC13. Plenary also agreed that conducting similar work for Pacific bluefin tuna and striped marlin would be appropriate and the ISC Chair agreed to seek approval on this matter from the NC. If accepted the results would be presented and reviewed at ISC13. The Plenary also agreed that it would be beneficial to address reference point considerations for these species even if no positive feedback is received from the NC.

5 ADMINISTRATIVE MATTERS

5.1 Updates to the ISC Operations Manual

ISC has been working to update its Operations Manual (*ISC/12/Plenary/05*) in order to clarify roles and tighten procedures. Members were asked to consider these changes and consider adopting the revised Operations Manual (July 2012). ISC12 Plenary generally endorsed the updates, but asked for more time for Members to review the changes. It was agreed that the changes would be finalized at the 17-21 December 2012 intercessional Plenary meeting including edits to the section on Best Available Scientific Information (BASI) that recommend ISC support and adopt the use of BASI whenever possible (ISC/IM12/PLENARY/02). The December Plenary adopted the changes to BASI and the ISC Chair agreed to incorporate additional changes submitted by Members for other sections of the Operations Manual for circulation prior to ISC13. The ISC Chair was asked to report on the progress of ISC membership documentation that was discussed at ISC12. It was reported that the Office of the Chair is still researching this matter and will provide a full report at ISC13.

5.2 Plenary Observers

Recently an environmental non-governmental organization (eNGO) requested to participate as an observer in the November 2012 PBFWG Workshop in Honolulu, Hawaii. Because working group participants are appointed by Members and must possess credible scientific and fisheries qualifications and actively contribute to the WG proceedings, their request was denied. Because ISC may receive additional requests from other NGOs, including industry groups, to observe ISC Plenary meetings, the ISC discussed if and how Observers can participate in the meetings, as specified in the ISC Operations Manual under Procedures. (ISC/IM12/PLENARY/03)

Plenary agreed that observers should be able to participate at Plenary and that the ISC Chair would develop rules and procedures for their participation. It was noted that because ISC is an RFO (regional fishery organization) it is not under the same dictate as RFMOs (Regional Fishery Management Organization) that require transparency for management decision making. Plenary agreed that the rules and procedures would include the following:

- Advocacy documents are not appropriate for a science organization and ISC will not accept them.
- Plenary may include a single short comment period for observers with comments limited to technical questions about ISC assessments and procedures; they will not include presentations or positions by observers.
- Observers will be subject to rules of conduct.
- Observers wishing to attend Plenary meetings will have to apply to the ISC Chair well in

advance of the meeting (at least 60 days), and any Member can oppose the application.

The ISC Chair will prepare rules for review and adoption by Members in time for them to be implemented for ISC13. Plenary noted that by allowing observers additional costs, in the form of added space and administration, will be incurred. This cost will likely be borne by the Member hosting the Plenary meeting.

5.3 ISC Review Update

The ISC Chair discussed the status of the independent ISC Function Review, and indicated that the final report is expected to be complete by late February 2013. The report will note that ISC is unique in its science role in the Pacific Ocean, provide recommendations for incorporating BASI and a process for standardizing reports, and recommend procedures to elevate the stature of ISC in the scientific community.

5.4 Delegation Updates

The Chair noted some changes to the ISC delegations specifically that Dr. Xiaojie Dai now heads the China delegation. It was noted that Heads of Delegation contact information was circulated to all Delegation leads.

5.6 Other Matters

The Chair noted that several countries had not yet provided complete data for the blue shark assessment and that data should be provided to the Chair of the SHARKWG immediately.

6 CLOSE OF MEETING

The meeting closed at 8pm (HST) on 20 December 2012.

Annex 1

LIST OF PARTICIPANTS

2012 Intercessional Meeting of the

INTERNATIONAL SCIENTIFIC COMMITTEE FOR TUNA AND TUNA-LIKE SPECIES IN THE NORTH PACIFIC OCEAN

19-21 December 2012
Webinar

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Annex 2

AGENDA FOR PLENARY SESSION

2012 Intercessional Meeting of the

INTERNATIONAL SCIENTIFIC COMMITTEE FOR TUNA AND TUNA-LIKE SPECIES IN THE NORTH PACIFIC OCEAN

19-21 December 2012
Webinar

1. Introduction and Opening of the Meeting

2. Adoption of the Agenda

3. Pacific Bluefin Tuna
    a. Stock Status and Conservation Advice

4. WCPFC-NC8
    a. Reference Points

5. Administrative Matters
    a. Updating the ISC Operations Manual
    b. Plenary Observers (PEW, WWF, etc.)
    c. Update on the ISC Review
    d. Delegation Changes

6. Close of Meeting

Annex 3

LIST OF MEETING DOCUMENTS

2012 Intercessional Meeting of the

INTERNATIONAL SCIENTIFIC COMMITTEE FOR TUNA AND TUNA-LIKE SPECIES IN THE NORTH PACIFIC OCEAN

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ISC/IM12/PLENARY/01	ISC Action Items from WCPFC-NC8
ISC/IM12/PLENARY/02	Operations Manual – edits to BASI section
ISC/IM12/PLENARY/03	ISC Plenary Observers background document

Annexes

Annex 1	List of meeting participants
Annex 2	ISC meeting agenda
Annex 3	List of meeting documents
Annex 4	Report of the Pacific Bluefin Tuna Working Group Workshop (Stock Assessment of the Albacore Tuna in the North Pacific Ocean in 2011) (November 2012)