

**JOINT IATTC AND WCPFC-NC WORKING GROUP MEETING ON THE
MANAGEMENT OF PACIFIC BLUEFIN TUNA
SEVENTH SESSION (JWG-07)**

**ELECTRONIC MEETING
09:00-13:00, Japan Standard Time
12-14 July 2022**

Excerpt from NC15 Summary Report related with JWG07-DP-12

IATTC-NC-JWG07-2022/IP-02

Japan



**Commission for the Conservation and Management of
Highly Migratory Fish Stocks in the Western and Central Pacific Ocean**

**Northern Committee
Fifteenth Regular Session**

**Portland, Oregon, USA
3 – 6 September 2019**

SUMMARY REPORT

the expected fishery impact on spawning stock biomass (SSB) of each of the major eastern Pacific Ocean (EPO) and western and central Pacific Ocean (WCPO) fisheries upon reaching each of the two targets, and any other outputs deemed useful by the ISC.

Table 1. Scenarios for catch increase. (A 250t transfer of catch limit from small fish to large fish by Japan is assumed to continue until 2020 under all scenarios.)

West Pacific		East Pacific
Small fish	Large fish	
0	500t	500t
250t	250t	500t
0	600t	400t
5%	1300t	700t
10%	1300t	700t
5%	1000t	500t
0	1650t	660t
5%		5%
10%		10%
15%		15%
20%		20%
125t	375t	550t

13. NC15 requested that ISC provide fishery impact on the SSB under recent conditions, taking into account the difference in age caught. ISC was also requested to provide a matrix of conversion values across age classes.

14. NC15 adopted the terms of reference for the Pacific bluefin tuna MSE in Attachment F.

15. NC15 adopted candidate reference points and harvest control rules for Pacific bluefin tuna in Attachment G.

16. NC15 agreed that NC16 meeting will be held early in September 2020 in Japan. Japan announced that it is prepared to host the next IATTC-NC JWG meeting on July 28-31, 2020 in Fukuoka, Japan, and that a 1-day meeting to discuss a Pacific bluefin Catch Documentation Scheme will be held on July 27, 2020 in Fukuoka, Japan.

2.2 North Pacific albacore (CMM 2005-03)

2.2.1 Reports from CCMs and Observers

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**TERMS OF REFERENCE FOR PACIFIC BLUEFIN TUNA
MANAGEMENT STRATEGY EVALUATION**

The Northern Committee (NC) of the Western and Central Pacific Fisheries Commission (WCPFC) in consultation with the Inter-American Tropical Tuna Commission (IATTC), requested the International Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean (ISC) to begin work on a management strategy evaluation (MSE) for Pacific bluefin tuna (PBF) in 2019 with a goal of completing the first iteration of the MSE by 2024. As requested in the WCPFC harvest strategy for PBF fisheries, the ISC organized two MSE workshops, one in 2018 in Yokohama, Japan, and one in 2019 in San Diego, California, USA, to support the identification of specific management objectives, including level of risks and timelines. These terms of reference will guide the MSE.

Purpose of MSE

To evaluate the expected performance of alternative long-term management strategies for Pacific bluefin tuna fisheries once the second rebuilding target is reached. This does not prevent the earlier use of the MSE if the JWG agrees.

Role of the ISC

To provide technical guidance on and oversee the development, execution and outputs of the model to be used in the PBF MSE.

Role of the IATTC-WCPFC NC Joint Working Group (JWG)

The JWG will provide overall guidance on the MSE. Depending on the availability of necessary funds, the JWG will convene workshops to solicit input from managers, scientists, and stakeholders. In providing guidance on the MSE, the JWG will take into account views expressed in stakeholder workshops. The guidance on the MSE may include, but is not limited to, specification of management objectives, performance indicators, timelines, candidate reference points, and candidate harvest control rules. The JWG will provide progress reports on the MSE to the IATTC and WCPFC NC, as appropriate.

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**CANDIDATE REFERENCE POINTS AND HARVEST CONTROL RULES FOR
PACIFIC BLUEFIN TUNA**

The Western and Central Pacific Fisheries Commission (WCPFC) harvest strategy for Pacific bluefin tuna fisheries states that “The Joint WG will start to discuss in 2018, and aim to finalize no later than 2019, guidelines for the MSE, including at least one candidate long-term target reference point (TRP), two candidate limit reference points (LRPs) and candidate harvest control rules (HCRs), which will be provided to the ISC.”

The following candidate HCRs and reference points will be considered in the management strategy evaluation (MSE) for Pacific bluefin tuna fisheries. Additional HCRs and reference points may be submitted and considered.

Harvest Control Rules

Candidate HCRs 1a and **1b** are illustrated in Figure 1 where fishing mortality is controlled depending on stock status relative to the defined reference points. The F_{target} rate applies when the stock is larger than $SSB_{threshold}$, while F_{min} rate applies when the stock is smaller than SSB_{limit} , and there is either a linear or sigmoidal transition in F for stock sizes between SSB_{limit} and $SSB_{threshold}$. F_{min} would be defined as an F rate that is less than the F rate corresponding to the SSB_{limit} . **Candidate HCR 1a** has a linear transition between SSB_{limit} and $SSB_{threshold}$ whereas **Candidate HCR 1b** has a sigmoidal transition between SSB_{limit} and $SSB_{threshold}$ and could be viewed as more conservative with respect to uncertainty in underlying biomass/abundance estimates when approaching SSB_{limit} , as well as avoiding abrupt management breakpoints.

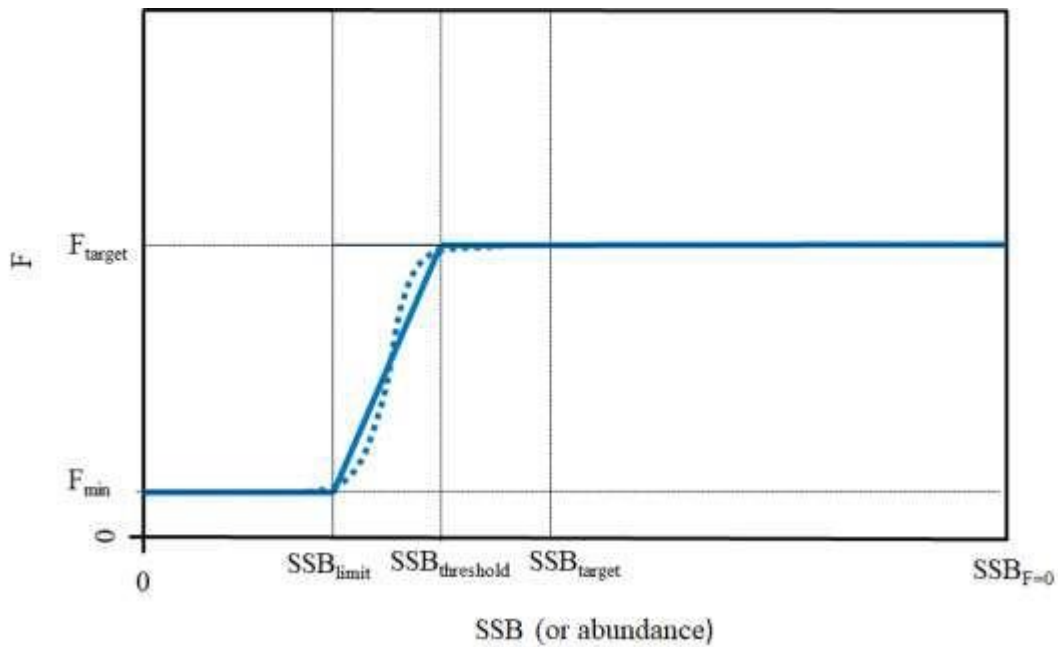


Figure 1. Candidate HCRs 1a (solid line) and 1b (dashed line)

Candidate HCR 2 is illustrated in Figure 2 and is similar to Candidate HCRs 1a and 1b in that F declines once the SSB_{limit} is breached, but unlike Candidate HCRs 1a and 1b, there is no $SSB_{threshold}$ between SSB_{limit} and SSB_{target} .

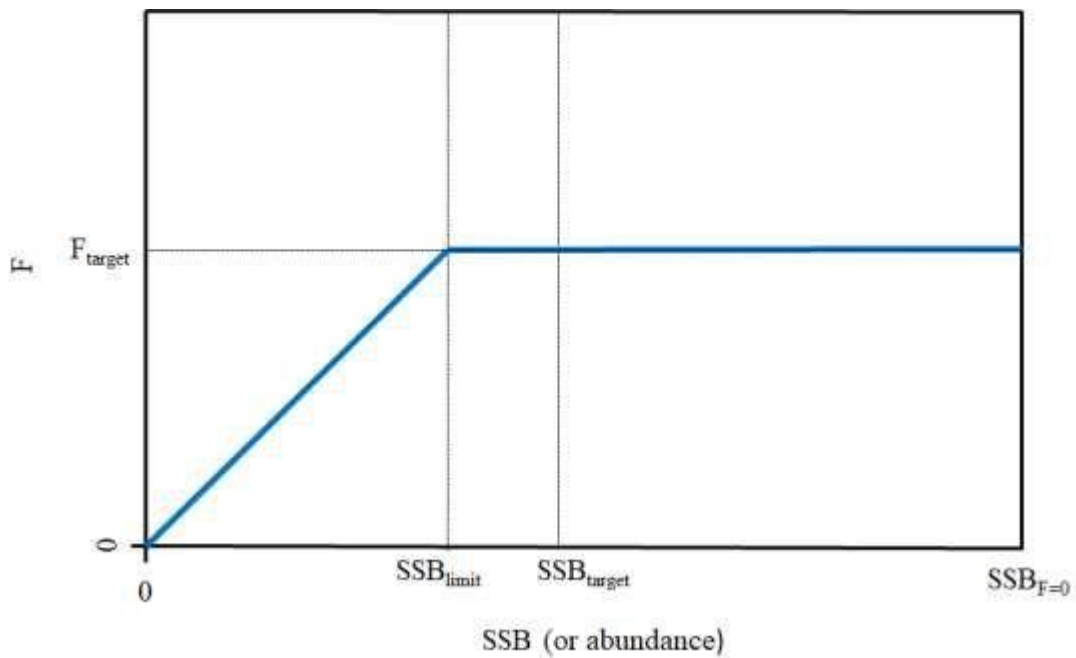


Figure 2. Candidate HCR 2

Candidate HCR 3 specifies two HCRs, one for old-fish fisheries and one for young-fish fisheries. For fisheries that harvest primarily mature Pacific bluefin tuna (e.g., longline fisheries), the HCR could be either Candidate HCRs 1a, 1b or 2 (i.e., fishing mortality is controlled as a function of the size of the spawning stock), and for fisheries harvest primarily immature Pacific bluefin tuna, the HCR would control fishing mortality as a function of recruitment, such as using an index of recruitment based on CPUE in age 0 or 1 fisheries. This approach is similar to that used in Maunder 2014¹¹.

All of the above candidate HCRs are general in concept and require further work to address issues such as regional distribution, fishery selectivity and fleet allocation.

Candidate Reference Points

The following candidate reference points for the Pacific bluefin tuna MSE are based in part on the hierarchical approach that the WCPFC adopted for identifying limit reference points for key target species as well as the approach taken by the IATTC in identifying interim LRPs for tropical tunas. Under the hierarchical approach adopted by the WCPFC, and as indicated in the harvest strategy for Pacific bluefin tuna fisheries, Pacific bluefin tuna is a Level 2 stock, as the stock recruitment relationship for Pacific bluefin tuna is not well known, but key biological and fishery variables are reasonably well estimated. LRPs for Level 2 stocks are identified as either $FX\%SPR_0$ and either $X\%SB_0$ or $X\%SB_{current, F=0}$. In the IATTC, the interim LRP for tropical tuna stocks is the SSB associated with 50% of the unfished recruitment with assuming a stock-recruitment relationship steepness of 0.75. In addition to an LRP and a TRP, each of Candidate HCRs 1a and 1b require identification of a threshold reference point ($SSB_{threshold}$) and an F_{min} . The combinations of LRPs, threshold reference points and TRPs will depend on which of the Candidate HCRs are evaluated. Further consideration is needed for the reference points associated with the recruitment-based HCR in HCR 3.

Candidate Limit Reference Points: 5% $SSB_{F=0}$, 7.7% $SSB_{F=0}$, 15% $SSB_{F=0}$, 20% $SSB_{F=0}$

Candidate Threshold Reference Points (for candidate HCRs 1a and 1b): 15% $SSB_{F=0}$, 20% $SSB_{F=0}$, 25% $SSB_{F=0}$

Candidate Target Reference Points: $F_{SPR10\%}$, $F_{SPR15\%}$, $F_{SPR20\%}$, $F_{SPR30\%}$, $F_{SPR40\%}$

Candidate F_{min} : 5% F_{target} , 10% F_{target}

¹¹ Maunder, Mark. (2014). Management Strategy Evaluation (MSE) Implementation in Stock Synthesis: Application to Pacific Bluefin Tuna. IATTC Stock Assessment Report. 15. 100-117.