

**DRAFT**

**Subject to change and approval by the ISC26 Plenary**

**Appendix 4**

**Response to the Joint IATTC and WCPFC-NC Working Group on the Management of PBF**

At its third intersessional meeting held in March 2026, the Joint IATTC and WCPFC-NC Working Group on the Management of Pacific Bluefin Tuna (JWG) requested ISC to provide (i) TAC1 calculation for the new candidate HCR (shown below), and (ii) update on the PBF recruitment index to JWG11. Further, JWG10 in 2025 had requested ISC to provide input for Exceptional Circumstances provisions for PBF MP. This document provides responses of the ISC to those requests from JWG.

**(i) Calculation of TAC1 for the new candidate HCRs**

**HCRs**

The new candidate HCR provided by JWG in March 2026 is as follows:

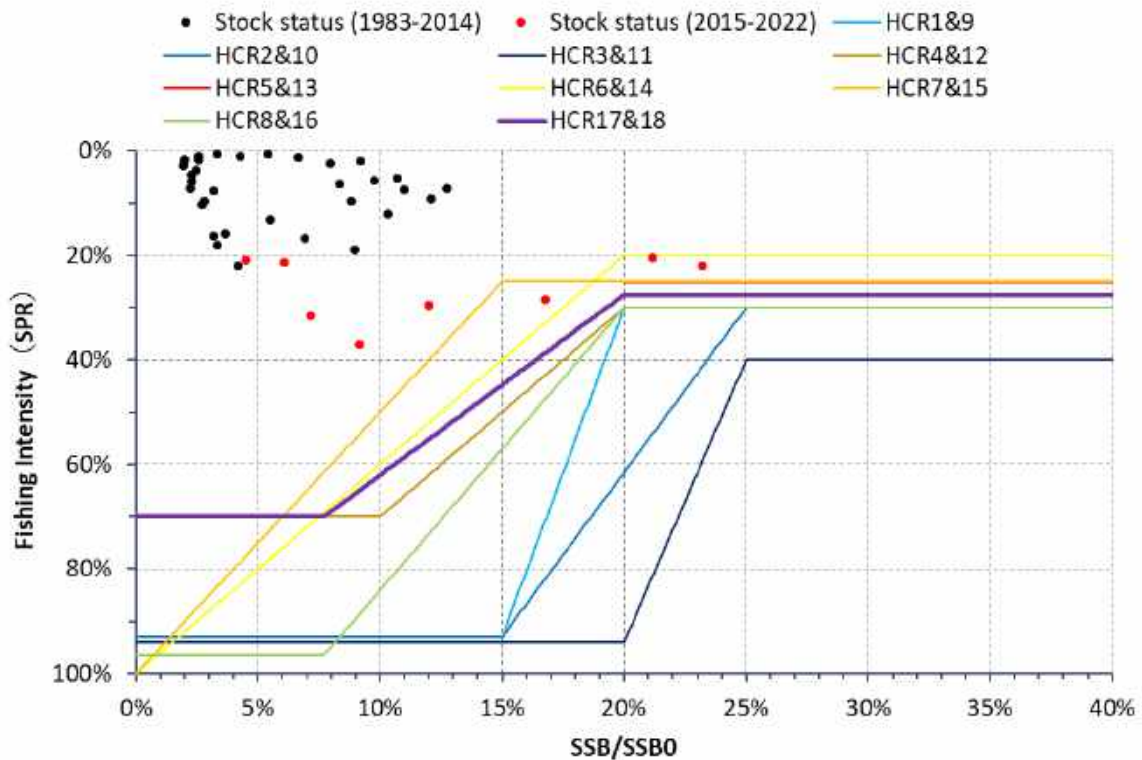
<b>F-target</b>	<b>Control Point 1 (ThRP)</b>	<b>Control Point 2</b>	<b>No. of Control Points</b>	<b>Fmin</b>	<b>Review</b>
FSPR 27.5%	20% $SSB_{F=0}$	7.7% $SSB_{F=0}$	2	SPR70%	MP will be reviewed after 6 years (3 x 2-year cycles)

The ISC PBFWG calculates TAC1 for this HCR based on the two impact ratio assumptions (status quo and 70:30 East-West) as in the case for the original HCRs. For the ease of interpretation, we provide the list of HCRs and their shape, including the new HCRs (numbered as 17 and 18), as Table 1 and Figure 1.

**Table 1.** List of harvest control rules (HCRs) tested in the PBF MSE and the two new candidate HCRs 17 and 18, put forward by the JWG in March 2026. The target reference point ( $F_{TARGET}$ ) is an indicator of fishing mortality based on SPR. SPR is the spawning potential ratio. An  $F_{TARGET}$  of  $F_{SPR40\%}$  is associated with a fishing mortality that would leave 40% of the SSB per recruit compared to the unfished state. An  $F_{TARGET}$  of  $F_{SPR20\%}$  implies a higher fishing mortality (i.e., 1-SPR of 0.8) and would result in a SSB per recruit of 20% of the unfished SPR. The control points are SSB-based and refer to the specified percentage of equilibrium unfished SSB ( $SSB_{F=0}$ ). The minimum F ( $F_{min}$ ) refers to the fraction of the  $F_{TARGET}$  that the fishing intensity is set to when SSB is below the LRP, except for HCRs 4, 12, 17 and 18, which specify a specific fishing mortality. For HCRs 5 and 13, when the ThRP is

breached, the HCR switches from constant fishing mortality at the  $F_{TARGET}$  to a constant TAC set at the catch limits defined in CMM2021-02 (WCPFC 2021) and C-21-05 (IATTC 2021). While HCRs 5, 6, 7, 13, 14, and 15 do not have second control point, an LRP of median SSB from 1952-2014 ( $6.3\% SSB_{F=0}$ ) has been specified by the JWG to compute performance metrics. HCRs 9 to 16 and 18 are identical to HCRs 1 to 8 and 17, except for the allocation of fishing pressure between the Western Central Pacific Ocean (WCPO) fleet segment and the Eastern Pacific Ocean (EPO) fleet segment. HCRs 1 to 8 and 17 uses status quo impact ratio between the WCPO and EPO of about 80% to 20% (80:20), while HCRs 9 to 16 and 18 were tuned to reach a WCPO:EPO fishery impact ratio of 70:30.

HCR #	$F_{TARGET}$	Control Point 1 (ThRP)	Control Point 2	$F_{min}$	WCPO:EPO Impact Ratio	MP update cycle
1	FSPR30%	20%SSB <sub>F=0</sub>	15%SSB <sub>F=0</sub>	10% $F_{TARGET}$	80:20	3 year
2	FSPR30%	25%SSB <sub>F=0</sub>	15%SSB <sub>F=0</sub>	10% $F_{TARGET}$	80:20	3 year
3	FSPR40%	25%SSB <sub>F=0</sub>	20%SSB <sub>F=0</sub>	10% $F_{TARGET}$	80:20	3 year
4	FSPR30%	20%SSB <sub>F=0</sub>	10%SSB <sub>F=0</sub>	FSPR70%	80:20	3 year
5	FSPR25%	20%SSB <sub>F=0</sub>	NA	NA	80:20	3 year
6	FSPR20%	20%SSB <sub>F=0</sub>	NA	NA	80:20	3 year
7	FSPR25%	15%SSB <sub>F=0</sub>	NA	NA	80:20	3 year
8	FSPR30%	20%SSB <sub>F=0</sub>	7.7%SSB <sub>F=0</sub>	5% $F_{TARGET}$	80:20	3 year
9	FSPR30%	20%SSB <sub>F=0</sub>	15%SSB <sub>F=0</sub>	10% $F_{TARGET}$	70:30	3 year
10	FSPR30%	25%SSB <sub>F=0</sub>	15%SSB <sub>F=0</sub>	10% $F_{TARGET}$	70:30	3 year
11	FSPR40%	25%SSB <sub>F=0</sub>	20%SSB <sub>F=0</sub>	10% $F_{TARGET}$	70:30	3 year
12	FSPR30%	20%SSB <sub>F=0</sub>	10%SSB <sub>F=0</sub>	FSPR70%	70:30	3 year
13	FSPR25%	20%SSB <sub>F=0</sub>	NA	NA	70:30	3 year
14	FSPR20%	20%SSB <sub>F=0</sub>	NA	NA	70:30	3 year
15	FSPR25%	15%SSB <sub>F=0</sub>	NA	NA	70:30	3 year
16	FSPR30%	20%SSB <sub>F=0</sub>	7.7%SSB <sub>F=0</sub>	5% $F_{TARGET}$	70:30	3 year
<b>17</b>	<b>FSPR27.5%</b>	<b>20%SSB<sub>F=0</sub></b>	<b>7.7%SSB<sub>F=0</sub></b>	<b>FSPR70%</b>	<b>80:20</b>	<b>2 year</b>
<b>18</b>	<b>FSPR27.5%</b>	<b>20%SSB<sub>F=0</sub></b>	<b>7.7%SSB<sub>F=0</sub></b>	<b>FSPR70%</b>	<b>70:30</b>	<b>2 year</b>



**Figure 1.** Candidate HCRs evaluated in the PBF MSE and the new candidate HCRs 17 and 18 put forward by the JWG in March 2026. Fishing intensity is an indicator of fishing mortality based on SPR. SPR is the spawning potential ratio that would result from the current year’s pattern and intensity of fishing mortality relative to the unfished stock.  $SSB/SSB_{F=0}$  is SSB relative to the equilibrium unfished SSB ( $SSB_{F=0}$ ). The points are annual estimates of SPR and relative SSB from the latest PBF stock assessment (ISC 2024). Red dots represent the years when stricter catch limits were in place to rebuild the stock. For HCR 5 (red line), a constant catch management, which was similar to the one applied in 2015-2022, is used if the SSB breaches a control point set at 20%  $SSB_{F=0}$ . Note that HCRs 9 to 16 and 18 are not represented as they are identical in shape to HCRs 1 to 8 and 17.

**TAC1 calculation for HCRs 17 and 18**

As requested, TAC1 for HCRs 17 and 18 were calculated in a same manner as the candidate HCRs evaluated in the PBF MSE and are shown below (Table 2). They are applicable for 2026-2028 and based on an estimation model that includes data up to FY2023. Other performance metrics of MSE are not calculated due to time constraints. Generally speaking, the performance of HCRs 17 and 18 should fall between HCRs 7 and 8 for 17, and between 15 and 16 for 18 as its target level (FSPR27.5%) falls in between those of HCRs 7/15 (FSPR25%) and those of HCRs 8/16 (FSPR30%). However, due to the change of management cycle from 3 to 2 years, the performance could be different, i.e., HCRs 17 and 18 should respond to changes in biomass more quickly, with faster increases in TAC when the stock is growing and vice versa.

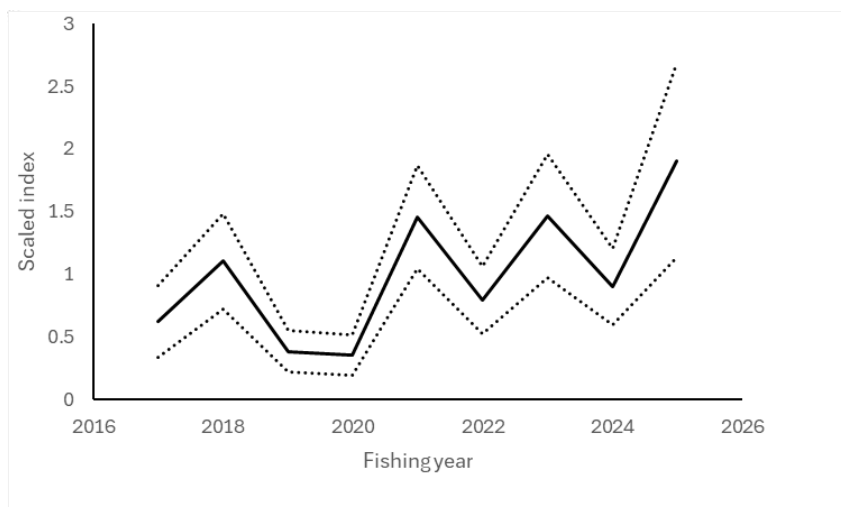
**Table 2.** Calculated TAC1 (for 2026-2028) for HCRs 17 and 18 based on the PBF MSE estimation model updated with FY2023 data. TAC includes all the landings but does not include unseen mortality such as release mortality.

HCRs	TAC1 Total (mt)	TAC1 WCPO large fish (mt)	TAC1 WCPO small fish (mt)	TAC1 EPO (mt)
17	26642	14836	4823	6983
18	28388	14836	4076	9476

**(ii) Update on the PBF recruitment index**

PBF has a long-term recruitment index from sales slips of troll fisheries in Japan and its early time period (1983-2010) is included in the latest stock assessment in 2024 but the recent period (2011-) was not included due to a possible change in catchability and model misfit. In addition, PBFWG has been reviewing a newly developed standardized CPUE from Japanese troll fisheries based on the troll monitoring program. However, at the time of the last stock assessment, it was considered premature to include this index in the base case model, as not enough years of data were available to assess its consistency with the adult CPUE index. Nevertheless, the PBFWG concluded that this index provides a qualitative indication of recruitment trends.

The PBFWG reviewed the preliminary result of the recruitment monitoring index update provided by Japan up to 2025 (Figure 2). Though caution is warranted for interpretation of an index which is not endorsed to be included in the stock assessment and is preliminary, the PBFWG concluded that this index is considered to be a qualitative indication of recruitment trends. According to the updated index there is no indication of serious recruitment decline in recent years.



**Figure 2.** Updated recruitment CPUE index from recruitment monitoring program of Japanese troll vessels. The value of 2025 is preliminary.

**(iii) Input for Exceptional Circumstances Provision**

The PBFWG used the Exceptional Circumstances provision of northern Pacific albacore as a starting point and provides the attachment for the consideration of the JWG. TAC overage is not included here, as it is controllable through management actions.

## **Criteria for identifying exceptional circumstances for Pacific bluefin tuna.**

**March 2026**

**DRAFT**

The Bluefin tuna Working Group (PBFWG) of the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC) was tasked by the Joint IATTC and WCPFC-NC Working Group on the Management of Pacific Bluefin Tuna (JWG) with developing criteria for the identification of exceptional circumstances that would result in suspending or modifying the application of the adopted management procedure (MP) of PBF, and potentially requires updated Management Strategy Evaluation (MSE) simulation work. Exceptional circumstances define situations outside the range of scenarios over which robustness of MPs was evaluated in the MSE analysis, and for which a different management action than specified by the adopted MP may have to be taken. This guidance document provides an outline of the process for identifying exceptional circumstances for Pacific bluefin tuna (PBF). The document, however, does not provide all necessary actions to apply should an exceptional circumstance be identified for this stock, nor does it cover all possible exceptional circumstances as it is logically impossible to consider all the possibilities.

To identify exceptional circumstances for PBF, the PBFWG will update CPUE every year, continue to update the estimation model for the scheduled MP run, and conduct stock assessments for the stock with updated data sources. The PBFWG will also conduct research to examine new evidence about the current stock status and environmental conditions.

The following general elements will be considered when examining signals of possible exceptional circumstances for PBF:

**Stock and Fleet Dynamics:** Evidence from stock assessment estimates that the stock is in a state not previously simulated in the MSE (e.g., current SSB estimates are outside the range of uncertainty, or new evidence about the biology of the stock is presented). As well as evidence that the fleet structure or fishing operations have changed substantially.

**Application:** Data collection required to produce the stock assessment is no longer available and/or appropriate to apply the adopted MP.

**Implementation:** The implementation of the management action is substantially different from what is prescribed by the MPs. For example, the total removals by the fishery differ substantially from what is prescribed by the MPs. TAC overage is not included here, as it is controllable through management actions.

Based on the general elements above, indicators are summarized in the following table:

<b>Element</b>	<b>Indicator</b>	<b>Range</b>	<b>Evaluation Schedule</b>
<b>Stock and Fleet Dynamics</b>	Depletion of stock biomass	In any year estimates fall outside the range of uncertainty simulated by the operating models (OMs) used in the MSE.	EM update or stock assessment
	Fishing intensity ( $F_{\%SPR}$ ) where SPR is the spawning potential ratio		
	Longline CPUE	In any year estimates fall outside the range of uncertainty simulated by the MSE.	Every year when CPUE is updated.
	Changes in fleet dynamics or selectivity	Any substantial differences from the structure and parameterization used in the OMs of the most recent MSE	As new evidence and research is presented and accepted by the PBFWG
	Biological parameters		
	Recruitment drop	Recruitment index shows low trend persistently.	Every year when CPUE is updated.
<b>Application</b>	EM or Stock assessment	EM or Stock assessment is not producible or estimates are unreliable.	EM update or stock assessment
	Realized catch or effort	If there is evidence that catch or effort outside of management, such as discard mortality or by new fleets, is greater than assumed in the MSE.	As new evidence and research is presented and accepted by the PBFWG

Should evaluation of the above criteria by ISC identifies any exceptional circumstances, the PBFWG will assess the severity and potential impacts on the performance of the MP and provide advice on the action required, including the need for a change in MP, additional research, and/or updates to the MSE framework for PBF.