Summary of Stakeholder Meetings on the International Long-term Harvest Strategy for Pacific Bluefin Tuna

NOAA Fisheries
Pacific Islands Regional Office
and
West Coast Region

Background

On April 1, 2022, NOAA Fisheries Pacific Islands Regional Office and West Coast Region hosted a meeting to gather U.S. stakeholder input on the future long-term harvest strategy for Pacific bluefin tuna (PBF). Additional information on the background and content of the meeting, and slides presented during the webinar are included in Appendices A and B, respectively.

On May 4, 2022, NOAA Fisheries WCR hosted a meeting that, in addition to discussing domestic management of PBF, included an overview of the April 1 meeting and solicited additional comments on the long-term harvest strategy. This summary document addresses comments received on harvest strategy development during both meetings. A detailed summary of the May 4 meeting, including domestic topics, is available in the Pacific Fishery Management Council June 2022 Briefing Book.

Comments Received on April 1, 2022

NOAA Fisheries solicited feedback on management objectives and performance indicators. Participants indicated general support for developing management objectives around four broad categories: safety, status, stability and yield. For each category, we received suggestions on potential operational management objectives and performance indicators, which are presented in Table 1 below.

NOAA Fisheries also received some harvest strategy-related comments during the discussion, and below has included a summary of those additional comments received that are not contained in Table 1:

- Explore the collection of more fishery independent data to inform stock assessments.
- Consider developing a metric based on close-kin genetic analysis.
- To maintain age diversity, consider whether there is a need to limit how much of an age class may be harvested if developing relative fishery impact-based harvest control rules.
- Consider a harvest control rule that includes specific controls on small, medium and large fish.
- Consider how a threshold reference point within a harvest control rule supports the management objectives.

- The harvest strategy should inform the overall catch level, and any changes to the overall limit as a result of a new harvest strategy be considered either Pacific-wide or split between the regions and not by individual countries as country allocations should be discussed separately.
- Consider using a management strategy evaluation for the development of a long-term harvest strategy (MSE).

Comments Received on May 4, 2022

Participants of the May 4, 2022, meeting suggested the following:

- The risk tolerance of breaching the biomass limit reference point should depend on how conservative the LRP is.
- It is important to maintain the stock above SSB_{MSY}.
- The candidate LRP of 7.7% unfished spawning stock biomass is too low.
- The last two performance indicators under the safety objectives[1] are not only similar, but should be deleted because the lowest depletion level in either case is too low to be an appropriate LRP.
- MSE should be used to help develop a long-term harvest strategy.

Next Steps

The U.S. intends to prepare a paper or proposal to the Joint IATTC-WCPFC NC Working Group meeting in 2022 with candidate operational management objectives and performance indicators. The U.S. will solicit additional feedback from the Pacific Fishery Management Council during its June 2022 meeting, and the Permanent Advisory Committee to the U.S. Section to the WCPFC and General Advisory Committee to the U.S. Section to the IATTC at their upcoming meetings in 2022.

[1] "Probability that SSB falls below the historical lowest level (2010) in any given gear of the projection period" and "Lowest level of depletion (i.e., SSB relative to $SSB_{F=0}$) over the projection period"

Table 1. Potential operational management objectives and performance indicators suggested by the public during the April 1, 2022, webinar.

Category	Operational Management Objective	Performance Indicator
Safety	There should be a less than [10%] probability of the stock falling below SSB_{LIM}	-Probability that SSB< SSB_{LIM} in any given year of the projection period -Probability that SSB falls below the historical lowest level (2010) in any given gear of the projection period -Lowest level of depletion (i.e., SSB relative to $SSB_{F=0}$) over the projection period
Status	To maintain the stock above SSB_{MSY} and to maintain fishing mortality below F_{MSY} with at least 75% probability	-Probability that SSB>SSB_{MSY} and F<F_{MSY} in any given year of the projection period -Probability that average SSB is at or above SSB_{MSY} throughout the simulation period -Probability that SSB>SSB_{MSY} in any given year of the projection period -Probability that F<F_{MSY} in any given year of the projection period. -Probability that B>B_{Target} in any given year of the projection period -Probability that F<F_{Target} in any given year of the projection period

Status (cont.)	If SSB has been assessed by the ISC as below SSB_{MSY}, to rebuild SSB to or above SSB_{MSY} with at least a 75% probability and within as short time as possible, but not longer than 1.5 generations	-If $SSB<SSB_{MSY}$, probability that $SSB>SSB_{MSY}$ after 15 years further into the projection period -If $SSB<20\%SSB_{F=0}$, time expected to achieve $20\%SSB_{F=0}$
Stability	-To limit changes in overall catch limits between management periods to no more than 15% downwards, unless the ISC has assessed that there is a greater than 50% chance the stock is below [B_{LIM}]	-Percent variation in catches between management periods
Yield	To maximize the productivity of the stock by minimizing the catch of the smallest fish	-Average catch of juveniles (<30 kg) compared to [reference period] in any given year of the projection period -Expected annual fishing effort in any given year of the projection period by PBF directed fishery
	To maximize yield over the medium (5-10 years) and long (10-30 years) terms, as well as average annual catch from the fishery	-Expected annual catch in any given year of the projection period by fishery -Expected annual yield over years 10-30 of the projection period, by fishery -Expected annual yield over years 5-10 of the projection period by fishery
	Maintain a proportional fishery impact between the WCPO and EPO Maintain a proportional fishery impact of 25% EPO and 75% WCPO	-Expected proportional fishery impact (in %) on SSB in any given year of the projection period by fishery and by WCPO fisheries and EPO fisheries -The probability that the EPO proportional fishery impact is at least 25% in any given year

Appendix A

Developing Candidate Operational Management Objectives and Performance Indicators for Pacific Bluefin Tuna

Background

In 2014, the Western and Central Pacific Fisheries Commission (WCPFC) adopted Conservation and Management Measure (CMM) 2014-06 on establishing a harvest strategy for key fisheries and stocks in the western and central Pacific Ocean. This CMM described general provisions and principles for harvest strategies, identified six elements harvest strategies should contain, and for Pacific bluefin (PBF) and North Pacific albacore, tasked the Northern Committee (NC) to develop and recommend work plans and harvest strategies for the WCPFC's consideration.

As PBF are distributed throughout the Pacific Ocean, international management of PBF is split between the Inter-American Tropical Tuna Commission (IATTC) and WCPFC. To facilitate communication between these two organizations, an informal body was established to provide a forum for members of both organizations to discuss and coordinate management of PBF. In 2016, the IATTC adopted Resolution C-16-03 which aimed to establish objectives for this Joint IATTC - WCPFC-NC Working Group (JWG). Among those objectives was to develop a long-term harvest strategy for PBF.

Based on recommendations from the thirteenth regular session of the NC (NC13), the WCPFC adopted a harvest strategy for PBF fisheries in 2017, and revised the harvest strategy in 2021 (see HS 2021-01). Although the WCPFC has adopted a harvest strategy for PBF, this harvest strategy does not contain all the elements identified in CMM 2014-06, but primarily focuses on rebuilding the stock to the second rebuilding target. The IATTC adopted similar elements focused on rebuilding to the second rebuilding target (Resolution C-18-02 later amended by C-21-01). The JWG (and formally NC15) identified a list of candidate reference points and harvest control rules, but to date, no work has commenced to evaluate these candidate reference points and harvest control rules (HCRs). The 2017 WCPFC harvest strategy also included a request that the International Scientific Committee for Tuna and Tuna-Like Species (ISC) begin a management strategy evaluation (MSE) for PBF, and while the ISC conducted two introductory MSE workshops in 2018 and 2019, no commitments have been made to conduct an MSE for PBF.

In 2021, the ISC suggested that in order to make progress toward developing a long-term harvest strategy, regardless of the path to get there (i.e., MSE or not), the JWG develop operational management objectives and performance indicators[1] by which to measure whether a proposed harvest strategy will meet those agreed-upon management objectives. Therefore, NC17 prioritized further development of the PBF harvest strategy, and tasked itself to work through the JWG to identify performance criteria to evaluate candidate reference points and HCRs. While there are ongoing discussions on the best avenue to evaluate potential harvest strategies for PBF, the aim of

[1] The terms performance metrics, performance criteria and performance indicators have been used interchangeably in various harvest strategy and MSE-related literature. In this paper, we are using "performance indicators."

this meeting is to solicit stakeholder feedback on potential operational management objectives and performance metrics that will be useful for future evaluation of potential harvest strategies.

Management Objectives

WCPFC HS 2021-01 contains the following management objective for Pacific bluefin tuna.

> *The management objectives are, first, to support thriving Pacific bluefin tuna fisheries across the Pacific Ocean while recognizing that the management objectives of the WCPFC are to maintain or restore the stock at levels capable of producing maximum sustainable yield, second, to maintain an equitable balance of fishing privileges among CCMs and, third, to seek cooperation with IATTC to find an equitable balance between the fisheries in the western and central Pacific Ocean (WCPO) and those in the eastern Pacific Ocean (EPO).*

In order to eventually evaluate candidate harvest control rules and reference points, management objectives often need to be translated into operational objectives (i.e., objectives that are more specific and can be measured). The current PBF management objective has three components, which could be broken out into three separate operational objectives. Additional operational objectives could also potentially be considered for evaluation as well. Examples of operational objectives used in other tuna MSEs are included in Appendices I (North Pacific Albacore) and II (Atlantic Bluefin Tuna).

Questions for stakeholders

1. **Any suggestions for translating management objectives into operational management objectives?**
2. **Do you have any suggestions for additional management objectives and how to operationalize them?**

Performance Indicators

Performance indicators are needed to evaluate how the candidate reference points and HCRs work towards achieving the overarching management objectives for the PBF fishery. Performance indicators are ways to quantitatively define management objectives. Based on JWG recommendations, HS 2021-01 outlines criteria that should be considered in developing appropriate performance criteria for PBF. The following are some of the criteria related to development of the long-term harvest strategy:

1. *Expected annual yield, by fishery.*
2. *Expected annual fishing effort, by PBF-directed fishery.*
3. *Inter-annual variability in yield and fishing effort, by fishery.*
4. *Probabilities of SSB falling below the B-limit and the historical lowest level.*

5. *Probability of fishing mortality exceeding FMSY or an appropriate proxy, and other relevant benchmarks.*
6. *Expected proportional fishery impact on SSB, by fishery and by WCPO fisheries and EPO fisheries.*

Although these criteria provide a good foundation and examples to develop performance indicators, we have the opportunity to add, remove, and further refine. Further detail is likely required to translate them into operational performance indicators. For example, the ISC recently completed an MSE for North Pacific albacore, and each identified management objective was translated into several performance indicators (see Appendix I). ICCAT has been working on an MSE for five years and developed a suite of performance indicators. Although they prepared a large number of indicators to evaluate the management objectives, the table in Appendix II below notes the final seven currently used in the MSE.

Questions for stakeholders:

1. **What performance indicators should be prioritized for evaluating the candidate reference points and HCRs for PBF?**
2. **Any suggestions for developing clear performance indicators?**
3. **How to translate the proportional fishery impact into a performance indicator?**

Examples Using Management Objective in WCPFC Harvest Strategy 2021-01

The following are examples of potential operational management objectives and performance criteria for some of the objectives in HS 2021-01. These examples are not necessarily intended to be considered as recommendations, but instead to show how we may consider operationalizing objectives.

Example 1: "*maintain…the stock at levels capable of producing maximum sustainable yield"*

> Operational Management Objective: Maintain SSB at or above SSB_{MSY} with at least 50% probability.
>
> Performance Indicator: The probability that SSB is greater than or equal to SSB_{MSY}

Example 2: "*..find an equitable balance between the fisheries in the western and central Pacific Ocean (WCPO) and those in the eastern Pacific Ocean (EPO)."*

> Operational Management Objective: Maintain a proportional fishery impact of 75% in the WCPO and 25% in the EPO.
>
> Performance Indicator: The probability that the EPO proportional fishery impact is at least 25% in any given year.

Appendix I North Pacific albacore

North Pacific albacore tuna MSE Management Objectives and related Performance indicators

Management Objective	Label	Performance Indicator
1. Maintain SSB above the limit reference point	Odds SSB > LRP; *this MSE tested the three LRP's below (20%SSB0, 7.7%SSB0, and equilibrium 7.7%SSB0*	Probability that SSB in any given year of the MSE forward simulation is above the LRP
	Odds SSB > 20%SSB0	Probability that SSB in any given year of the MSE forward simulation is above the 20% of dynamic unfished SSB.
	Odds SSB > 7.7%SSB0	Probability that SSB in any given year of the MSE forward simulation is above 7.7% of dynamic unfished SSB.
	Odds SSB > equilibrium 7.7%SSB0	Probability that SSB in any given year of the MSE forward simulation is above the 7.7% of equilibrium unfished SSB.
2. Maintain depletion of total biomass around historical average depletion	Odds depletion > minimum historical	Probability that depletion in any given year of the MSE forward simulation is above minimum historical (2006-2015) depletion.
4. Maintain catches above average historical catch	Odds catch >historical	Probability that catch in any given year of the MSE forward simulation is above average historical (1981-2010) catch.
	Odds medium term catch > historical	Probability that catch averaged over years 7-13 of the simulation is above average historical (1981-2010) catch.

	Odds long term catch > historical	Probability that catch averaged over years 20-30 of the simulation is above average historical (1981-2010) catch.
5. Change in total allowable catch between years should be relatively gradual	Catch stability	Probability that a decrease in TAC (or catch for mixed control) is <30% between consecutive assessment periods (once every 3 years), excluding years where TAC=0.
	Odds of no management change	Probability of SSB > $SSB_{threshold}$
6. Maintain fishing intensity (F) at the target value with reasonable variability	F_{target}/F	F_{target}/F

** It should also be noted that management objective #3 (maintain historical 2006-2015 harvest ratios of each fishery) was not evaluated because there were no allocation rules specific to each fishery. Instead, harvest ratios of each fishery were assumed to be maintained at the average of 1999–2015, according to the agreement at the 3rd ISC NPALB MSE Workshop. Thus, performance relative to management objective #3 does not vary between HCRs.*

Appendix II - Atlantic Bluefin Tuna

ICCAT Resolution 18-03 describes the following candidate management objectives for consideration in the MSE for Eastern and Western Bluefin Tuna.

1. Status: The stock should have greater than [ ]% probability of occurring in the green quadrant of the Kobe matrix
2. Safety: There should be less than [ ]% probability of the stock falling below B_{LIM} (to be defined)
3. Yield: Maximize overall catch levels
4. Stability: Any increase or decrease in TAC between management periods should be less than [ ]%

In 2019, ICCAT's Panel 2 provided guidance[2] on the following initial operational management objectives, to be tested and inform further development and refinement:

Status (of biological stock, East and West)

- There should be a 60% or greater probability of being in the green zone of the Kobe plot.
- The SCRS will present results of the simulation in plots with a trajectory so that managers can evaluate the status of the stock (F relative to F_{MSY} and B relative to B_{MSY}) at intermediate points between zero and 30 years, and at the end of the 30-year period.

Safety (of biological stock, east and west)

- There should be no more than a 15% chance of the stock falling below B_{LIM} at any point during the 30-year evaluation period.
- A definition of B_{LIM} should be recommended by SCRS.

Yield (of catch by area, east and west)

- Evaluate outcomes related to maximizing mean catch levels with respect to each management area over the short, medium, and long-term.

Stability (of catch by area, east and west)

- Evaluate outcomes of 20%, 30%, and 40% as well as no limitation on the change in TAC between management periods.

The following table describes the performance indicators/statistics calculated as part of the MSE outputs for each Operating Model (OM) and Candidate Management Procedure (CMP), organized by management objective. The performance measures in bold text indicate the key 7 statistics.

Indicator	Description	Statistics*
Status		
AvgBr	**Average Br (spawning biomass relative to dynamic SSB_{MSY}) over projection years 11-30**	Median and 5th percentile

[2] https://www.iccat.int/Documents/Meetings/Docs/2019/REPORTS/2019_PA2_ENG.pdf

Br30	**Depletion (spawning biomass relative to dynamic SSB_{MSY}) after projection year 30**	Median and 5th percentile
OFT	**'Overfished Trend': Average trend (in log space) of SSB over projection years 31 - 35 when Br30 < 1.** $OFT = \{0.1\, SSB_{30} \geq dynSSB_{MSY}\, m\left(\log log\, SSB_{31:35}\right)\, SSB_{30} < dynSSB_{MSY}$ **Where $m(\vec{x})$ is the gradient of a line of best fit through the vector $\vec{x}$, found via a least squares**	Median
PGT	'Probability Good Trend', 1 minus probability of negative trend (Br31 – Br35) and Br30 is less than 1. Probability of 1 is biologically better. In cases where all simulations are above Br30, PGT = 1 regardless of trend. This allows further discrimination between CMPs that have comparable fraction of simulations below Br30.	Median
POS	Probability of Overfished status (spawning biomass < SSB_{MSY}) after 30 projected years.	Median
—	Fishing mortality (F) statistic under development - will see at May 9 meeting.	
Safety		
LD	**Lowest depletion (spawning biomass relative to dynamic SSB_{MSY}) over the 30 years for which the CMP is applied.**	Median
LDNC	LD using the MP relative to LD had no catches been taken over the 30 projected years.	Median
D10	Depletion (spawning biomass relative to dynamic SSB_0) after the first 10 projected years	Median
D20	Depletion (spawning biomass relative to dynamic SSB_0) after projection year 20	Median
D30	Depletion (spawning biomass relative to dynamic SSB_0) after projection year 30	Median
DNC	D30 using the MP relative to D30 had no catches been taken over the 30 projected years	Median
Yield		
AvC10	**Mean catches over first 10 projected years. Required to provide short-term vs long-term (AvC30) yield trade-offs.**	Median
AvC30	**Mean catches over first 30 projected years**	Median
C20	Mean catches over projected years 11-20	
C30	Mean catches over projected years 21-30	
Stability		
VarC	**Average annual variation in catches among CMP update times *t* (note that except where the resource is heavily depleted so that catches become limited by maximum allowed fishing mortalities, catches will be identical to TACs) defined by:** $VarC = \frac{1}{nt}\sum_{t=1}^{nt}\frac{\left\|C_t - C_{t-1}\right\|}{C_{t-1}}$ **(13.1)**	Median

** For each of these distributions, 5%-, 50%- and 95%iles are to be reported from 200 replicates. The choice of these percentiles may need further exploration with stakeholders.*

(adapted from Appendix 5 of SPECIFICATIONS FOR MSE TRIALS FOR ATLANTIC BLUEFIN TUNA Version 21-02: July 19, 2021)

Appendix B

Pacific Bluefin Tuna Stakeholder Meeting

April 1, 2022
Virtual

Meeting Outline

- Meeting Logistics
- Background
- Meeting Objectives
- Management Objectives
- Performance Indicators
- Stakeholder Input
- Next Steps

Meeting Logistics

- Please mute when not speaking
- Raise your hand if you would like to speak
- Please state your name and affiliation when speaking
- We will solicit comment after sections, not necessarily only at end
- Jamboard https://jamboard.google.com/d/1-ZZzaxCkWJyMOfJOc0KOj6zMbzBgz2iUGsi0Ph8AX2A/edit?usp=sharing

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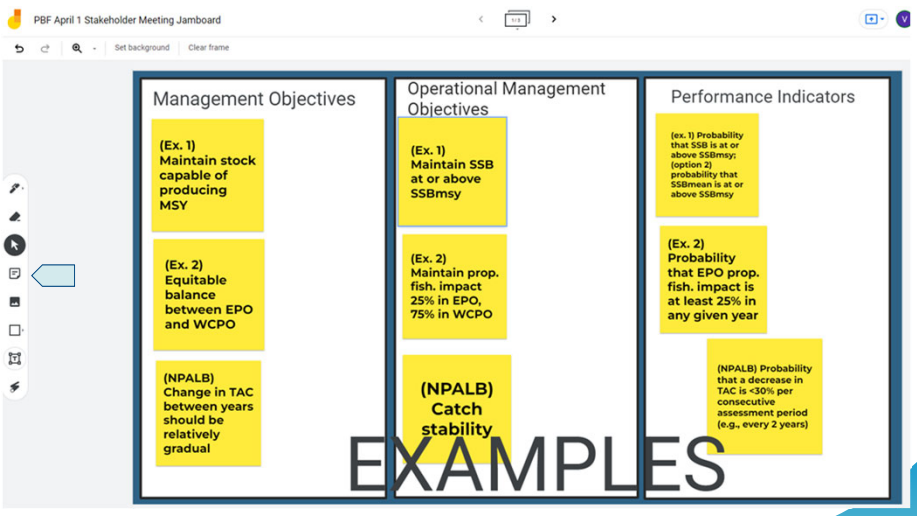
Jamboard



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Background - International Management of PBF

International management of Pacific Bluefin Tuna (PBF) is split between the Inter-American Tropical Tuna Commission (IATTC) and the Western and Central Pacific Fisheries Commission (WCPFC)

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Background - timeline

2014: WCPFC CMM 2014-06 on establishing harvest strategies for key fisheries and stocks

2016: IATTC Resolution C-16-03 to establish informal Joint IATTC-WCPFC NC Working Group to develop long-term harvest strategy and more

Since 2017: WCPFC HS and IATTC long-term resolutions focus on initial and second rebuilding targets

2019: Joint WG identified candidate reference points and harvest control rules

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Background -timeline continued…

2021: ISC recommended JWG develop operational management objectives and performance indicators

&

JWG suggested members solicit input from their stakeholders on the long-term harvest strategy

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Background -Harvest Strategy

WCPFC adopted CMM 2014-06 on establishing a harvest strategy for key fisheries and stocks in the WCPO and tasked development of NP albacore and PBF harvest strategies to the WCPFC NC.

CMM 2014-06 outlines elements of a harvest strategy

- Management Objectives
- Reference Points
- Acceptable Levels of Risk
- Monitoring Strategy
- Harvest Control Rules
- Management Strategy Evaluation

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Background - PBF Harvest Strategy

WCPFC adopted a Harvest Strategy (HS) for PBF Fisheries in 2017, and revised the Harvest Strategy in 2021

- Focused on rebuilding the stock
- Requested the ISC to conduct a management strategy evaluation (MSE) for PBF
  - ISC held two introductory MSE workshops
  - JWG identified and NC15 adopted a list of candidate reference points and harvest control rules

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Background - PBF Harvest Strategy

In 2021, NC17 prioritized development of a long-term Harvest Strategy for PBF fisheries and tasked itself to work through the JWG to identify performance criteria to evaluate candidate reference points and harvest control rules

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Meeting Objectives

Gather U.S. stakeholder input on developing operational management objectives and performance indicators for PBF.

Definitions

Management Objective:

- Goals and objectives of the fishery

Operational Management Objective:

- Stated in a way that is specific and measurable

Performance indicator:

- The quantitative definition of a management objective; the metrics used to determine whether a management objective is met.

Questions - Management Objectives

1. Do you have any suggestions for translating the current management objectives into operational management objectives?

1. Do you have any suggestions for additional management objectives and how to operationalize them?

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WCPFC PBF HS Management Objectives

The management objectives are, first, to support thriving Pacific bluefin tuna fisheries across the Pacific Ocean while recognizing that the management objectives of the WCPFC are to maintain or restore the stock at levels capable of producing maximum sustainable yield, second, to maintain an equitable balance of fishing privileges among CCMs and, third, to seek cooperation with IATTC to find an equitable balance between the fisheries in the western and central Pacific Ocean (WCPO) and those in the eastern Pacific Ocean (EPO).

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Example 1

Objective in WCPFC Harvest Strategy 2021-01 says, with regard to PBF:

"*maintain…the stock at levels capable of producing maximum sustainable yield*"

not specific enough

Based on U.S. position at JWG in 2021:

Maintain the SSB at or above SSB_{MSY}

measurable

Performance Indicator:

The probability that SSB is at or above SSB_{MSY} in any given year.

The probability that average SSB is at or above SSB_{MSY} throughout the simulation period.

We could decide how high the probability should be to consider the objective met.

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Example 2

Objective in WCPFC Harvest Strategy 2021-01 says, with regard to PBF:

"*…an equitable balance between fisheries in the WCPO and EPO.*"

not very specific

Based on U.S. position at JWG in 2021:

Maintain a proportional fishery impact of 25% EPO and 75% WCPO.

measurable

Performance Indicator:

The probability that the EPO proportional fishery impact is at least 25% in any given year.

We could decide how high the probability should be to consider the objective met.

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Developing Operational Management Objectives - Example from ICCAT

General subject/topics for objectives:

1. Status - Probability of not overfished/overfishing
2. Safety - Risk of breaching limit
3. Yield - how much catch
4. Stability - amount of change in catch between management periods

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Questions - Management Objectives

1. Do you have any suggestions for translating the current management objectives into operational management objectives?

1. Do you have any suggestions for additional management objectives and how to operationalize them?

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Questions - Performance Indicators

1. What performance indicators should be prioritized for evaluating the candidate reference points and HCRs for PBF?

1. Any suggestions for developing clear performance indicators for existing or new management objectives?

1. How to translate the proportional fishery impact into a performance indicator?

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Performance Indicators

Some criteria from WCPFC Harvest Strategy to consider in developing performance indicators:

1. *Expected annual yield, by fishery.* (yield)
2. *Expected annual fishing effort, by PBF-directed fishery.* (yield)
3. *Inter-annual variability in yield and fishing effort, by fishery.* (stability)
4. *Probabilities of SSB falling below the B-limit and the historical lowest level.* (safety)
5. *Probability of fishing mortality exceeding FMSY or an appropriate proxy, and other relevant benchmarks.* (safety/status)
6. *Expected proportional fishery impact on SSB, by fishery and by WCPO fisheries and EPO fisheries* (yield)

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Additional Potential Management Objectives and Performance Indicators

Management Objectives	Operational Management Objective	Performance Indicator
(Ex. 1) Maintain stock capable of producing MSY	Maintain SSB at or above SSBmsy	Probability that SSB is at or above SSBmsy; (option 2) probability that SSBmean is at or above SSBmsy
(Ex. 2) Equitable balance between EPO and WCPO	Maintain prop. fish. impact 25% in EPO, 75% in WCPO	Probability that EPO prop. fish. impact is at least 25% in any given year
(NPALB) Change in TAC between years should be relatively gradual	Catch stability	Probability that a decrease in TAC is <30% per consecutive assessment period (e.g., every 2 years)
Maximize Catch?	?	?
Any others?		

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Additional Potential Management Objectives and Performance Indicators - JAMBOARD

https://jamboard.google.com/d/1-ZZzaxCkWJyMOfJOc0KOj6zMbzBgz2iUGsi0Ph8AX2A/edit?usp=sharing

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Next Steps

Solicit Feedback and Advice from

- Domestic PBF Meeting - May 4, 2022
- Pacific Fishery Management Council - June 2022
- PAC Meeting - June 8, 2022
- GAC Meeting - Aug 4-5, 2022

Potentially submit a proposal/white paper to JWG

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Additional Questions

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Thank you!