



Evaluation of exceptional circumstances – SBT 2023

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Contents

Abstract.....	2
1 Introduction	3
2 Examining evidence for the existence of exceptional circumstances in 2023	4
2.1 Stock and fishery indicators	4
2.2 MP input data.....	4
2.3 Population dynamics	6
2.4 Fishery or fishing operations.....	6
2.5 Catch relative to TAC	6
3 Conclusion	7
References.....	8

Abstract

The meta-rules adopted with the CCSBT Management Procedure (MP) provide a process to determine whether exceptional circumstances exist and a process and guidelines for action to address issues when identified. The aim is to identify exceptional circumstances where stock or fishery indicators, the MP input data, population dynamics, fishing or fishing operations are substantially different from the conditions under which the MP was tested or if catches are greater than the recommended Total Allowable Catch (TAC). If there is evidence for exceptional circumstances, then the next step in the process is to determine the potential severity of the 'exception' and follow the guidelines for action.

The inputs to the MP, the gene-tagging estimate of abundance, the close-kin data and CPUE index are within the expected range of values. Review of the population dynamics, other indicators of the stock and fishery, and fishery operations, did not identify any unusual conditions. The CCSBT's total reported catches are below the TAC. The updated estimates of potential non-member unaccounted mortality are smaller than in previous years and the MP has been tested to be robust these levels. There is no evidence for exceptional circumstances, and the MP recommended TAC for 2024-2026 should therefore remain unchanged.

The issues that remain of concern, but do not currently trigger exceptional circumstances, are:

1. Absence of close-kin tissue sample collection in Indonesia for 21/22 and 22/23 seasons and the potential loss of this essential dataset for use in the MP in future.
2. The high 2022 CPUE point in the new GAM index, and impact of contraction in the areas of operation of Japanese longline fishery on the standardisation.
3. Changes in the Indonesian spawning ground fishery, uncertainty in the length/age frequency, and potential loss of otolith collection from the catch monitoring program.

1 Introduction

The SBT MP meta-rules' schedule of activities includes an annual process for identifying exceptional circumstances (Anon 2020). Exceptional circumstances are events, or observations, that are outside the range for which the CCSBT MP was tested and, therefore, indicate that application of the total allowable catch (TAC) generated by the management procedure (MP) may be highly risky, or highly inappropriate.

The exceptional circumstances process under the meta-rules involves the following three steps:

1. Determining whether exceptional circumstances exist, by examining whether there were any substantial changes in stock and fishery indicators, inputs to the MP, population dynamics or fishery or fishing operations, and if recent catches and other removals have been greater than the MP's recommended TACs.
2. A "process for action" that examines the severity (and implications) of the exceptional circumstances for the operation of the MP, and the types of actions that may be considered.
3. "Guidelines for action" that determine how recommendations from the MP might be altered, if at all, based on the most recent reconditioning of the Operating Model (OM).

The meta-rules schedule of activities for implementation of the MP specifies frequency of TAC setting using the MP, that the stock assessment is offset by 1 year from MP TAC decisions, timing of an MP review and the consideration of exceptional circumstances. The meta-rules provide a safety-net around the implementation of the MP and TAC recommendations, and transparency in decision making by the Commission.

The meta-rules were revised in 2020 as part of the full specification of the Cape Town Procedure (Attachment 8, Anon 2020).

This year we are using the meta-rules process to review the recommended TAC for 2024-2026 that came from running the MP in 2022.

2 Examining evidence for the existence of exceptional circumstances in 2023

The meta-rules specify the information that should be checked for evidence of exceptional circumstances. The following have been examined:

2.1 Stock and fishery indicators

The indicators papers (Takahashi and Itoh, 2023a; Patterson, 2023) and national reports in 2023 do not identify any unusual or recent changes in characteristics of the stock or fishery. The grid type trolling index (juveniles) is low in recent years (Itoh, 2023a). Age specific CPUE signals were above the low levels observed in the early 2000s (Takahashi and Itoh, 2023a).

2.2 MP input data

The specified data used in the MP are the Close-kin Parent-offspring Pairs (POPs) and half-sibling Pairs (HSP), gene-tagging and Japanese longline CPUE index of abundance.

2.2.1 Close-kin data

The Close-kin data were updated in 2023 (Farley et al., 2023a). The observed data (number of POPS and number of HSPs) fall within the range of expected numbers from the reference set of assessment models (Figure 1) (Hillary et al., 2023). We note that the tissue sample and otolith collection activities in Indonesia have been disrupted in recent years (Farley et al, 2023a; 2023b), with very few samples collected. This does not trigger exceptional circumstances this year but will do so if these data are not collected in future, because these data are essential for operation of the MP. The Close-kin data are also a key data set in the stock assessment because these data provide information on adult abundance, mortality and productivity.

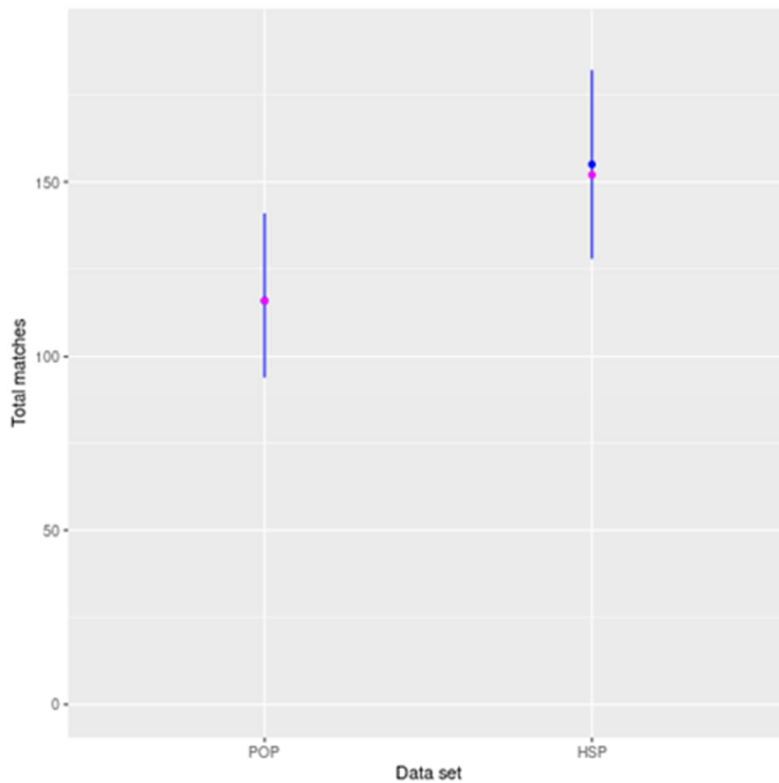


Figure 1 The expected number of POPs and HSPs from the reconditioned OMs in 2023 (blue dot and confidence interval), and the available observed data through to 2022 (magenta dot).

2.2.2 Gene-tagging data

The gene-tagging program was developed and adopted as a recruitment monitoring program that provides absolute abundance of 2-year-old fish in the year of tagging for use in the MP. In 2023 the data for the 2021 cohort were provided to CCSBT (Preece and Bradford, 2023). The comparison of the gene-tagging data with expected number of matches from the operating models used for Management Strategy Evaluation (MSE) in 2019 indicates that the gene-tagging data are well within expected range (see Figure 2 in Takahashi and Itoh, 2023b).

2.2.3 CPUE series

A new standardised Japanese longline CPUE series (GAM model) was adopted in 2022 (Anon., 2022). The new GAM model resolved exceptional circumstances identified in 2019, however, the most recent CPUE point, for 2022, has also raised concerns about the impact of unfished squares on the standardisation (Anon., 2023a). The Japanese longline fishery has been contracting over time with fewer strata fished and fewer sets within strata (Itoh, 2023b; Hoyle, 2023). Takahashi and Itoh (2023b) have compared the 2023 CPUE series with projected CPUE values from operating models used in the MSE in 2019 and note that the 2022 point is within the 95% confidence interval, and therefore this high point does not trigger exceptional circumstances (see Figure 1 in Takahashi and Itoh, 2023b).

2.3 Population dynamics

There are no substantial changes in our knowledge or understanding of the SBT population dynamics compared to the OM conditioning used to test and tune the Cape Town Procedure in 2019. The grid of operating models and data for this year's assessment (Anon., 2023a; Hillary et al, 2023) has been updated. The 2023 assessment indicates that the probability of rebuilding to the target level of relative Total Reproductive Output (TRO) is slightly better than the target (51% compared to target of 50%). The estimated TRO in 2035 is on the target at 0.3TRO_0 . The median current level of depletion is 0.23 which is above the initial rebuilding target of 20% of initial TRO. Fishing mortality (F) is less than half the F_{MSY} . The rate of stock size increase is well within the range explored in the robustness testing of the MP.

2.4 Fishery or fishing operations

There were no major changes in most fisheries and fishing operations in 2022 reported in national reports and fishing operation papers (Itoh, 2022b), apart from further spatial and temporal range contraction of the Japanese long line fishery (discussed in the CPUE section above), and shift in areas fished by the Indonesian longline fishery from Area 1 to Area 2 (Setyadjia et al 2022, Sadiyah et al 2023).

The Indonesian fishery has reported a large increase in catch from area 2 and corresponding decrease in catch from the spawning ground (area 1). These changes may require review of the fishery definitions in the operating models in future. While these changes do not trigger exceptional circumstances, there remains uncertainty in the length composition of SBT landed by the Indonesian longline fishery from statistical area 1 (spawning ground area), which is important for monitoring changes in the spawning population. Farley et al (2021) noted that that the size data from the two sources available (catch monitoring and CDS) provided different age composition results for the five years compared and recommended further work to examine the uncertainties identified and to refine and improve the quality control of the catch monitoring program. Davies et al (2023) provides an updated description of the current issues and Indonesia has developed an SRP proposal to be considered by ESC28 (Davies et al 2023).

2.5 Catch relative to TAC

Reported catches for the 2022 fishing season are below the current TAC (Anon., 2023b). The recent estimates of potential Un-Accounted Mortality (UAM) from Non-Cooperating Non-Members (NCNM) (Edwards and Hoyle, 2023) are within the range that the Cape Town Procedure has been designed to be robust to (Anon., 2019).

3 Conclusion

In considering the potential for exceptional circumstances, we have examined whether: 1) the inputs to the MP are affected, 2) the population dynamics are potentially significantly different from those for which the MP was tested (as defined by the 2019 Reference set of OMs), 3) the fishery or fishing operations have changed substantially, 4) available fishery indicators have concerning trends, 5) total removals are greater than the MP's recommended TACs and UAM accounted for in MP testing, and 6) if there are likely to be impacts on the performance of the SBT rebuilding plan as a result. It is possible that additional exceptional circumstances may be identified at the ESC's annual review of stock and fishery indicators.

Based on this review no exceptional circumstances have been identified and, therefore, the recommended TAC for 2024-2026 (from running the MP in 2022) should remain unchanged.

There are several potential current risks that may need further evaluation in 2024. Fully reinstating the close-kin sample collection project in Indonesia is essential to ensure these data are available in future for the CTP, there is some uncertainty in the recent high point in the 2022 CPUE index and the effects on the index from the increasing number of unfished areas, and there is a need to reduce uncertainties in the spawning ground catch monitoring program and length/age frequency.

The meta-rules process provides a schedule of activities for the implementation and review of performance of the MP. The thorough and systematic annual examination of exceptional circumstances assists the ESC to provide transparent and clearly reasoned TAC recommendations to the Commission in the context of the objectives of the MP and the conditions under which it was tested.

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