



Consideration of Exceptional Circumstances for the Bigeye Tuna MP 2023

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Abstract

The IOTC adopted the bigeye tuna management procedure (MP) in 2022, which is used to recommend the Total Allowable Catch (TAC). As part of the MP schedule, the Commission has adopted an annual review of evidence for exceptional circumstances, to check for conditions that could make the implementation of the TAC advice risky to the stock or fishery.

The Exceptional Circumstances Guidelines specify a three-stage process: (i) examining evidence for exceptional circumstances, (ii) determining severity and impact, and (iii) recommending any management or research action that should be taken. A wide range of information is reviewed to examine if there is evidence for exceptional circumstances, e.g., changes in the knowledge of stock or fishery uncertainties against which the MP was tested. The Exceptional Circumstances Guidelines (IOTC–2021–SC24 Appendix 6A) provide a scientific process for developing appropriate management responses to exceptional circumstances and, hence, provide transparency in TAC decision-making by the Commission.

The MP was run in 2022. Changes in the data used in the CPUE standardisation, a new growth curve and an alternative natural mortality scenario used in the 2022 stock assessment models were items identified as potential exceptional circumstances in 2022. Severity and impact were considered low for these items and no actions were recommended. No new exceptional circumstances were detected in 2023, and therefore, no research or management actions are recommended.

1 Introduction

The IOTC adopted the bigeye tuna management procedure (MP) in 2022 (Res 22/03), which is used to recommend the Total Allowable Catch (TAC). As part of the MP schedule, the Commission has adopted an annual review of evidence of exceptional circumstances, to check for conditions that could make implementing the MP TAC advice risky. Exceptional circumstances are conditions or data that fall outside the range of uncertainties that the MP was tested against, i.e., the reference set of operating models used for Management Strategy Evaluation (MSE), and the robustness tests. The Exceptional Circumstances Guidelines (IOTC–2021–SC24 Appendix 6A) provide a scientific process for examining evidence for exceptional circumstances, evaluating potential impacts, and developing appropriate management responses if necessary. This process of examining evidence for exceptional circumstances provides a safety-net around the MP TAC advice and transparency in TAC decision making by the Commission.

The exceptional circumstances review process has three stages:

- 1) determine whether any exceptional circumstances exist,
- 2) determine the severity and impact of the exceptional circumstances on achieving the objectives of the MP, and
- 3) if necessary, identify the research or management actions that could be taken by the IOTC.

The MP was run in 2022, exceptional circumstances were reviewed, and the recommended TAC for 2024 and 2025 was adopted by the Commission (Res 23/04). The review of exceptional circumstances in 2022 did not recommend any research or action to change the TAC (Preece and Williams 2022). This report provides advice on evidence of exceptional circumstances in 2023.

2 Examining evidence for the existence of exceptional circumstances in 2023

The information that should be checked for evidence of exceptional circumstances is specified in the Guidelines. The range of uncertainties and conditions that the MP was tested against are the MSE operating models used for the final tuning of the MP (Hillary et al., 2022; Kolody & Jumppanen, 2021), and a set of robustness tests. The data input specification of CPUE is in Williams et al. (2022) and Kitikado et al. (2022). Catch data preparation is specified in IOTC (2022a) and IOTC (2023a).

The following items, specified in the Exceptional Circumstances Guidelines, have been examined:

- New knowledge about the stock, population dynamics or biology,
- Changes in fisheries or fishing operations,
- Changes to input data to the MP, or missing data, or
- Inconsistent implementation of the MP advice (e.g., total catch is greater than, or less than, the TAC).

2.1 New knowledge - Stock, population dynamics or biology

2.1.1 Stock status

The 2022 stock assessment (Fu et al., 2022) estimated that the stock is overfished and subject to overfishing. The 2022 stock assessment estimates of depletion were shown to be within the 90% probability interval of the projections of the operating models used to test the performance and tune the MP, and therefore were not exceptional circumstances. There is no new information in 2023 on the status of the stock. The next assessment is scheduled for 2025.

2.1.2 Population dynamics

The 2022 review of exceptional circumstances identified that there was new information on growth (Farley et al, 2021) and natural mortality parameters that were included in the 2022 assessment models (Fu et al., 2022), that had not been included in the MSE operating models. The SSB depletion time-series from the 2022 assessment was shown to be within the range of the operating models and projections, and indicated that the population dynamics are reasonably stable. There were no exceptional circumstances noted in relation to the population dynamics in 2022, and there is no new information in 2023, and therefore no exceptional circumstances in relation to population dynamic.

2.1.3 Biology

There is no new information on biological parameters presented in 2023. The new growth information and alternative natural mortality scenarios used in the assessment in 2022 do not affect any inputs or parameters in the MP, and therefore there are no exceptional circumstances associated with this biological information.

2.2 Fishery or fishing operations

There were no major changes in fisheries or fishing operations identified in the data reported to IOTC (IOTC, 2023b), and no substantial changes in data reporting or quality.

2.3 MP input data

2.3.1 Catch data

The MP is not run in 2023 and therefore MP input data are not updated. The MP is scheduled to be run in 2024 to recommend the TAC for 2026-2028.

The WPTT(DP) has reviewed recent nominal catches, fishery features, quality and representativeness of catch data relative to previous years and have noted similar or slightly improved reporting (IOTC, 2023b). There do not appear to be any new issues or evidence for exceptional circumstances in relation to the catch data in 2023. Recent catches up to 2021 (IOTC 2023b) are higher than the TAC for 2024 and 2025, indicating that catches will need to be constrained to meet the adopted TAC.

2.3.2 CPUE data

The CPUE data used in 2022 in the MP (Kitikado et al. 2022, Williams et al. 2022) were reviewed in 2022 and a potential exceptional circumstance was noted because of the lack of access to 1x1 data for the specified standardisation. The general trend in the 2022 series fell within the 90% probability interval of the projections of the operating models and therefore no action on TAC was recommended. The CPUE standardisation will need to be updated again in 2024 for the next scheduled running of the MP in 2024 (a shortened interval, to allow for an offset between running the MP and running the stock assessment).

2.4 Catch relative to TAC

The 2022 bigeye tuna MP was used to calculate the TAC advice adopted for 2024 and 2025, and therefore an exceptional circumstance for catch relative to TAC cannot exist. The TAC for 2024 and 2025 is 80,583t per year. Reported recent catches (IOTC, 2023b) are currently above the MP-calculated TAC and therefore catch will need to be reduced by approximately 15% (IOTC, 2022d).

3 Discussion and Conclusion

The Exceptional Circumstances Guidelines make it clear that identifying exceptional circumstances does not necessarily result in changes to the recommended TAC. In fact, changes to the recommended TAC should be avoided except in situations where the TAC advice would pose a risk to the stock or the fishery if implemented. The alternatives are to collect more information, or do research, to inform the review of evidence of exceptional circumstances in the next year or years. Another alternative is to proceed with the TAC advice (or precautionary advice) and trigger a review of the MP earlier than planned. Recommending a change to the TAC is appropriate if there is a high risk to the stock. If the TAC is to be adjusted, further evaluation of the scale and severity of the exceptional circumstance provides guidance (% change) on how to calculate an adjustment to the TAC.

A wide range of items are reviewed to examine if there is evidence for exceptional circumstances, i.e., the data inputs to the MP, the range of uncertainties against which the MP was tested, and implementation of MP TAC advice. This review is conducted annually to provide advice to the SC on any risks with the operation of the MP and TAC advice.

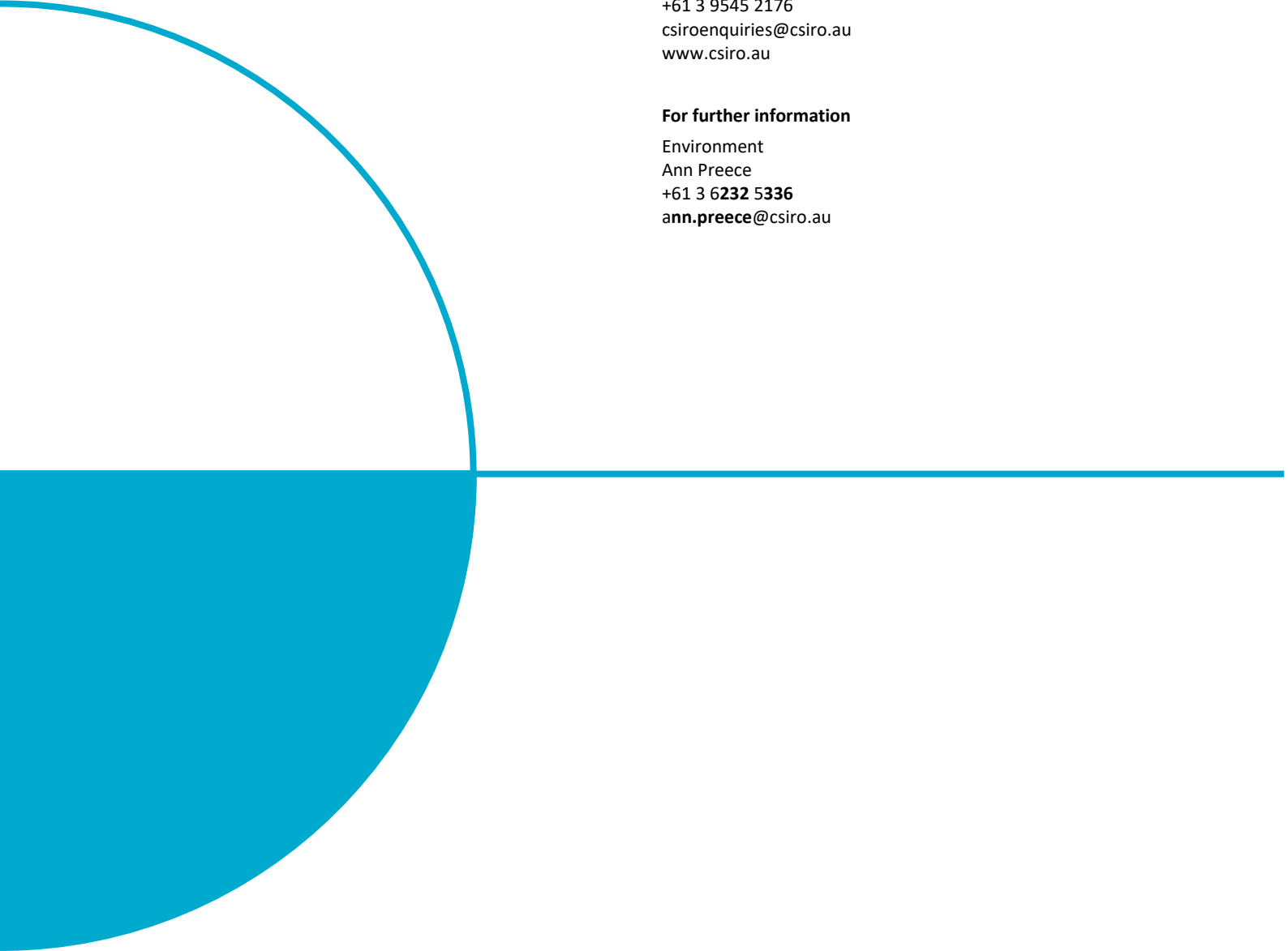
The annual review of exceptional circumstances is an important component of providing management advice using an adopted management procedure. It is the safety net process that evaluates the extent to which the MP is operating as expected (from the MP testing) and identifies any risks associated with implementing the MP TAC advice. The review requires consideration of evidence for exceptional circumstances. It provides a scientific process for developing appropriate management responses if any exceptional circumstances are identified and, hence, provides transparency in TAC decision making by the Commission.

From the evidence presented and discussed here, there does not appear to be any need to adjust the TAC for bigeye tuna for 2024 and 2025, as calculated from running the MP in 2022.

The MP is scheduled to be run again in 2024 to recommend the TAC for 2026-2028, and therefore CPUE and catch data will need to be updated in 2024 for running the MP. Members will need to reduce bigeye tuna catch in 2024, relative to current reported catches, to remain at or below agreed TAC. The stock is currently estimated to be overfished and subject to overfishing. The review of exceptional circumstances is an annual process and will be reevaluated in 2024.

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