CCSBT-EC/2210/10

Total Allowable Catch and its Allocation

PURPOSE

To provide relevant background information to support the Extended Commission's (EC) deliberations on:

1. Attributable SBT Catch;
2. Total Allowable Catch (TAC) Determination, including
   (a) confirming the TAC for 2023,
   (b) determining the TAC for 2024 to 2026;
3. Research Mortality Allowance (RMA), including
   (a) RMA for research projects in 2023,
   (b) RMA to deduct from the TAC for 2024-2026; and
4. Allocation of the TAC.

(1) Attributable SBT Catch

The Attributable SBT Catch is that part of a Member's catch that is counted against its allocation. CCSBT 21 agreed on a common definition for the Attributable SBT Catch as follows:

> *"A Member or CNM's attributable catch against its national allocation is the total Southern Bluefin Tuna mortality resulting from fishing activities within its jurisdiction or control[1] including, inter alia, mortality resulting from:*
> - *commercial fishing operations whether primarily targeting SBT or not;*
> - *releases and/or discards;*
> - *recreational fishing;*
> - *customary and/or traditional fishing; and*
> - *artisanal fishing."*

Since the 2018 quota year, Members have been required to implement this definition of the Attributable SBT Catch. Members are expected to report on the total SBT mortalities counted against their national allowance for each sector[2] in their annual report to the Compliance Committee and the EC. The EC will consider Members' reports and provide any necessary recommendations.

The EC may also wish to consider whether or not depredated SBT should be included in the definition of the Attributable SBT Catch. The 2021 meeting of the Compliance Committee discussed the issue of SBT depredation in relation to the Attributable SBT Catch. It was reported that not all Members estimated predated SBT and that not all Members account for predated SBT within their allocations. The Compliance Committee sought advice from the Extended Scientific Committee (ESC) as to whether predation of SBT on longlines is an

[1] Except where a vessel is chartered to a person or entity of another Member or CNM, and if a catch is attributable to that Member or CNM.
[2] e.g. commercial longline, commercial purse seine, commercial charter fleet, commercial domestic fleet, recreational fishing, customary and/or traditional fishing, and artisanal fishing, including any releases and/or discards

issue that should be considered in relation to the stock assessment and Management Procedure (MP), and if so, what is the ESC's view on how to account for it?

The ESC advised that on the basis of the available information, that it does not consider depredation to be a priority issue. It noted that the sensitivity of the stock assessment and/or TAC advice from the MP could be evaluated through robustness tests and, even in this case, given the scale indicated roughly by the estimates available, this had potentially already been covered by the current UAM scenarios used in MP testing and in the most recent stock assessment. The ESC further advised that in order to estimate predation, a sufficient level of observer coverage that is representative of the fishing activities of each fleet is required. It was suggested that information on the degree of overlap of predators with SBT habitat, which the ERSWG could potentially provide, may assist such estimation.

(2) TAC Determination

There are two decisions to be made by the Extended Commission in relation to TAC Determination: (a) Confirming the TAC for 2023; and (b) Determining the TAC for 2024 to 2026.

(a) Confirming the TAC for 2023

At CCSBT 27, the EC agreed that the global TAC for 2021-2023 would be 17,647 t as calculated by the Management Procedure and recommended by the ESC. This is the same TAC as for 2018 to 2020.

The EC needs to confirm whether there are any exceptional circumstances that should cause the TAC for 2023 to be revised. The "metarule" process[3] agreed for the Management Procedure (MP) specifies that "*The need for invoking exceptional circumstances provisions should only be evaluated at the ESC based on information presented and reviewed at the ESC*".

The evaluation of meta-rules and exceptional circumstances by the Extended Scientific Committee (ESC) is shown at paragraphs 82 to 92 of the Report of the Twenty-Seventh Meeting of the Scientific Committee (SC 27). These paragraphs are reproduced at **Attachment A** for convenience.

The overall conclusion of the ESC in relation to exceptional circumstances is provided in paragraph 92 of the Report of SC 27, which states that:

> *92. Following this review of stock or fishery indicators, the MP input data, population dynamics, fishing or fishing operations and the OMMP advice on the incorporation of the new CPUE series on performance of the CTP, the ESC agreed:*
>
> - *There was no need to modify the TAC for 2023;*
> - *The CTP can be used to recommend the 2024-2026; and*
> - *There is a need to consolidate the future operation of the Indonesian catch and biological monitoring program, resolve the current uncertainty in the length frequency distributions between the CDS and catch monitoring program, and undertake a more detailed assessment of the implications of the shift in fleet operations between Statistical Area 1 and Statistical Area 2 over recent years and its potential implications for stock assessment.*

[3] The Metarules for the Cape Town Procedure can be found in Section 7 of the Specifications of the CCSBT Management Procedure. Members are also encouraged to read the Introduction (Section 1) and the Non-Technical description of the Cape Town Procedure (Section 2) in these specifications.

Paragraph 101 of the SC 27 report states that:

> *101. The ESC recommends that **the global TAC in 2023 should remain at 17,647 t**.*

(b) Determining the TAC for 2024 to 2026

The TACs for 2024 to 2026 inclusive are scheduled to be set in 2022.

Paragraph 2 of the Resolution on the Adoption of a Management Procedure states that "*The MP shall be used to guide the setting of the global total allowable catch (TAC) for 2021 and beyond*". The ESC ran the Cape Town Procedure (CTP) to recommend a TAC for 2024 to 2026. **The CTP recommended TAC for 2024-2026 is 20,647 t**, which is an increase of 3,000 t over the TAC for 2021-2023.

Furthermore, as indicated above in relation to exceptional circumstances, the ESC agreed that the CTP can be used to recommend the 2024-2026.

CCSBT 26 noted that "*The decision on the TAC should also consider other information such as the sustainability of the SBT stock and fisheries as well as the papers and proposals that Australia will provide on SV and Japan will provide on markets.*". Furthermore, at CCSBT 26, "*New Zealand and the EU advised that at CCSBT 27, they would need to see that there had been real and measurable progress towards resolving current farm uncertainties and satisfactory progress on the market study proposal to investigate uncertainties before they could agree to any increased TAC that may be recommended by the MP*". This is the first time that the MP has recommended an increase in the TAC since that discussion. Therefore, Members may wish to consider progress with resolving these uncertainties when they consider the TAC.

(3) Research Mortality Allowance

There are two decisions to be made by the Extended Commission in relation to Research Mortality Allowance (RMA): (a) Whether to approve all or some of the RMA requested for research projects in 2023; and (b) The amount of RMA that is to be deducted from the TAC each year from 2024 to 2026.

(a) RMA for research projects in 2023

CCSBT 27 agreed that an allocation of 6 t per year would be made for Research Mortality Allowance (RMA) within the TAC for 2021 to 2023 calculated by the MP.

The ESC has endorsed the provision of the following amounts of RMA to cover research projects in 2022/2023:

- 1.5 tonnes for the CCSBT Gene Tagging Project;
- 0.1 tonnes by Japan for trolling surveys of age-0 SBT in north West Australia and 0.9 tonnes by Japan for trolling surveys of age-1 SBT in south West Australia;
- 3.0 tonnes by Australia for a project to trial the use of stereo video technology to determine the weight of catch taken in Australia's Southern Bluefin Tuna farming sector; and
- 0.5 t in the event that a small number of popup satellite tags are released in 2022-23 to examine localised GAB movement and behaviour over the summer.

The EC should confirm whether it approves these requests for Research Mortality Allowance, totalling 6.0 t for 2022/2023.

(b) RMA to deduct from the TAC for 2024-2026

The Extended Commission needs to decide on the amount of Research Mortality Allowance (RMA) that is to be deducted from the TAC each year from 2024 to 2026. Background information to consider in making this decision includes:

- CCSBT 20 agreed that an allocation of 10 t per year would be made for RMA within the TAC for 2015 to 2017. CCSBT 23 agreed that a slightly smaller allocation of 6 t per year would be made for RMA within the TAC for 2018 to 2020. CCSBT 27 agreed to continue the 6 t fixed deduction from the TAC for 2021 to 2023.
- The amount of RMA usage sought and approved each year from 2015 to 2017 ranged between 5.7 t and 7.7 t, from 2018 to 2020 it ranged between 3.1 t and 5.2 t, and for 2021 it was 3.0 t.
- The RMA requested for 2022 was 6.75 t, but discussion at SC 26 was able to reduce the requested amount to the limit of 6.0 t without adversely impacting on the respective projects. CCSBT 28 agreed to the 6.0 t endorsed by the ESC.

(4) Allocation of the TAC

There are two decisions to be made by the Extended Commission in relation to allocation of the TAC: (a) Whether to continue Indonesia's special temporary allowance of 80 t for 2023; and (b) Allocation of the TAC to Members for 2024-2026.

(a) Continuation of Indonesia's special temporary allowance of 80 t for 2023

The allocations to Members for 2021 to 2023 were agreed at CCSBT 27 as specified in the table below[4]. The effective catch limits in the table below were also agreed at CCSBT 27.

Member	(1) Nominal Allocation	(2) Nominal Catch Proportion	(3) Effective Catch Limit (for 2021)
Japan	6165.068	0.355643	6197.4[5]
Australia	6165.068	0.355643	6238.4[6]
New Zealand	1088.273	0.062779	1102.5
Korea	1240.631	0.071568	1256.8
Taiwan	1240.631	0.071568	1256.8
Indonesia	1001.705	0.057785	1122.8[7]
European Union	10.883	0.000628	11
South Africa	422.741	0.024387	455.3[8]

The effective catch limit for Indonesia in the above table includes a special temporary allowance of 80 t in 2021. CCSBT 27 agreed that this special temporary allowance may also be provided to Indonesia for 2022 and 2023, based on an annual review, if Indonesia complies with its payback plan starting from 2022 and no further over-catch occurs each year. CCSBT 28 approved continuation of the 80 t special temporary allowance for 2022. CCSBT 27 also noted that this is a temporary arrangement that does not affect the nominal catch level or nominal catch percentage levels within the Annex of the Resolution on the Allocation of the Global Total Allowable Catch.

The EC will decide whether to continue Indonesia's special temporary allowance of 80 t for 2023.

[4] This assumes that there are no exceptional circumstances that cause the TAC to be revised.
[5] Includes a deduction of 21 t for Japan's voluntary transfer to Indonesia and a further 27 t for Japan's voluntary transfer to South Africa.
[6] Includes a deduction of 7 t for Australia's voluntary transfer to Indonesia.
[7] Includes voluntary transfers to Indonesia of 21 t from Japan, 7 t from Australia and a special temporary allowance of 80 t.
[8] Includes a voluntary transfer of 27 t to South Africa from Japan.

(b) Allocation of the TAC for 2024-2026

The allocations of the TAC to Members are set in accordance with the CCSBT's Resolution on Allocation of the Global Total Allowable Catch (Allocation Resolution). If the MP recommended TAC of 20,647 t is agreed and it is also agreed to deduct 6.0 t of RMA from the recommended TAC, then the TAC available for allocation to Members will be 20,641 t. Members' allocations of this available TAC in accordance with the Allocation Resolution is provided in the table below.

Member	Allocation (tonnes)
Japan	7,341
Australia	7,341
New Zealand	1,296
Korea	1,477
Taiwan	1,477
Indonesia	1,193
European Union	13
South Africa	503

Prepared by the Secretariat

Extract of Agenda Item 11.1 from the Report of SC 27

11.1. Evaluation of meta-rules and exceptional circumstances

Development of new CPUE series and impact on CTP performance

82. The OMMP Chair presented the advice of the OMMP and CPUE WG on the development of a new CPUE series for use in the CTP and the OMMP's assessment of exceptional circumstances in relation to the performance of the CTP following incorporation of the new CPUE series. The technical problems encountered with the GLM CPUE index used as one of the inputs for the CTP, and the need to develop a more robust index as a replacement, triggered exceptional circumstances. A new standardisation method was developed based on a GAM and as recommended by the CPUE Working Group and the new GAM CPUE time series was found to be well within the bounds of the CPUE projections conducted using the 2019 OM when the CTP was adopted (Figure 3).

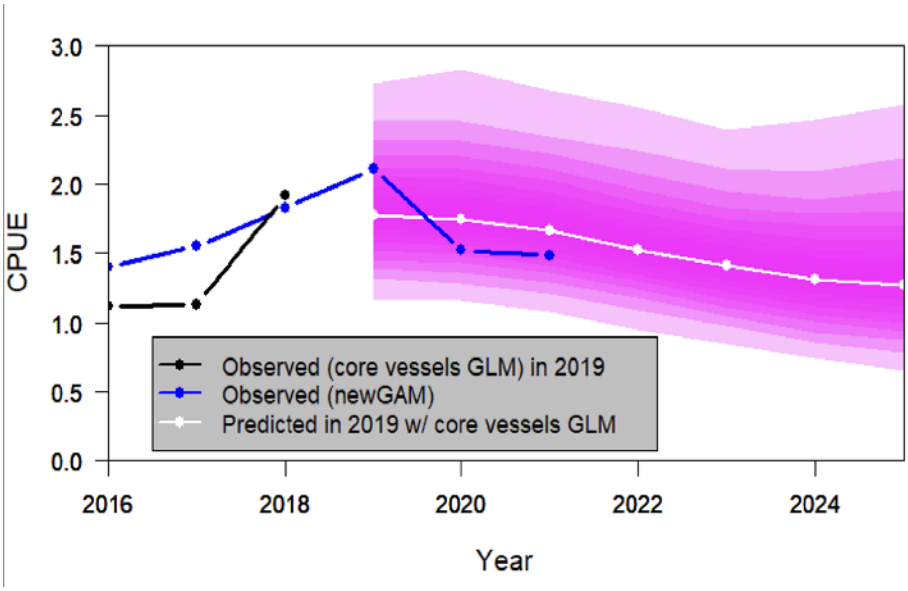

Figure 3: Figure 4 of OMMP 12 report. Comparison of the new GAM CPUE series with the 95% probability intervals of the CPUE values projected in 2019 (using base2018) when the CTP was adopted.

83. Application of the meta-rules process also required an evaluation of the consequences of replacing the CPUE series in terms of CTP performance. To inform this process, OMMP 12 evaluated projections conducted with an OM that was reconditioned using the new CPUE series as well as updated data inputs (catches, length/age compositions, gene tagging and CKMR data). The OM grid was the same one used for the 2020 stock assessment, which had been modified with respect to the original grid used for testing candidate management procedures in 2019. The resulting 80% uncertainty envelopes for projected TRO overlapped substantially with those obtained in 2019, when the CTP was adopted (Figure 4). Furthermore, the probability of meeting the interim rebuilding target agreed in 2011 (0.20 TRO_0 by 2035) was 0.87, exceeding the minimum 0.70 rebuilding probability established by the CCSBT.

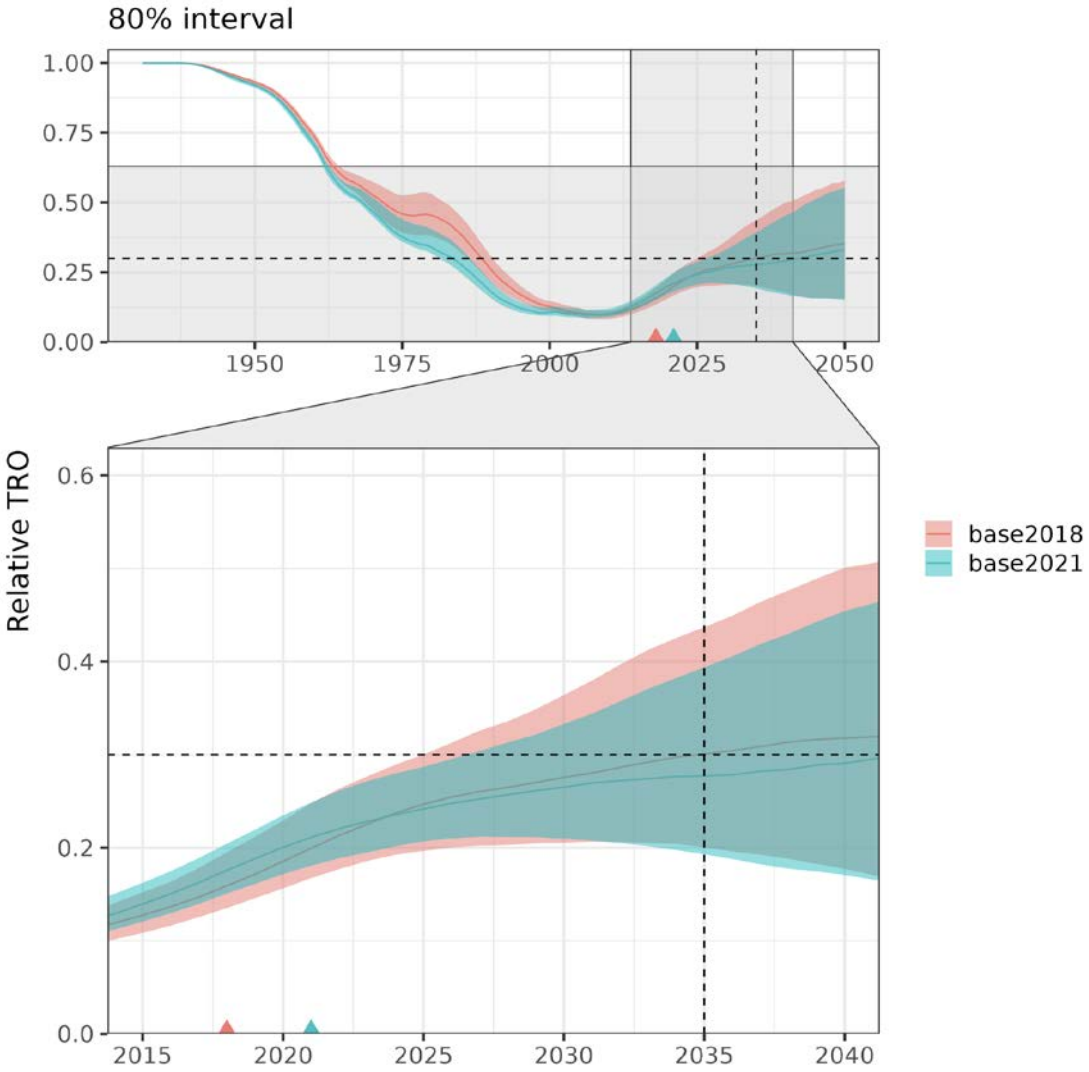

Figure 4: Figure 3 of OMMP 12 report. Projections of relative TRO (medians and 80% probability intervals) calculated using the CTP and the OM developed in 2019 (base 2018) and the updated OM (base2021) conditioned to the new CPUE series. Top figure: full period covered by the OM; Bottom figure: recent period. Small triangles: end of data and start of projections.

84. The ESC thanked the CPUE WG and the OMMP technical group for the development of the new GAM CPUE series and the comprehensive review of the impact on the performance of the CTP.

85. The ESC agreed with the results reviewed by the OMMP technical group, summarised as follows:

- The 80% uncertainty envelopes for the projected TRO overlapped substantially with those obtained in 2019, when the CTP was adopted;
- The probability of meeting the interim rebuilding target (0.20 TRO_0 by 2035) was 0.87, exceeding the minimum 0.70 probability established by CCSBT in 2011;
- The median relative TRO projected for 2035 was 0.28 and the probability of achieving 0.30 TRO_0 (the tuning target) by 2035 was 0.39; and
- While this value is lower than projected in 2019, differences in estimated probabilities that the median TRO meets the tuning target are to be expected as a result of updates in the data and OM, and the fact that the TACs already adopted for 2021-2023 constrain the range of subsequent TACs in projections.

86. The ESC agreed that:

- The impact of changing the CPUE series, together with updating data inputs and modifying the OM grid, was minor;
- The exceptional circumstances triggered by the issues identified with the previous CPUE series have been resolved through the process for action initiated in 2019; and
- On this basis, the ESC recommended that the CTP be applied without modifications, using the new GAM CPUE series as input, to calculate the recommended TAC for 2024-2026.

Annual Review of Exceptional Circumstances

87. Australia presented paper CCSBT-ESC/2208/16. The meta-rules adopted with the CCSBT 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 have been greater than the recommended TAC. If there is evidence for exceptional circumstances, then the process is to determine the severity of these and follow the guidelines for action. The exceptional circumstance identified in 2019 regarding the very high Japanese longline CPUE estimate for 2018 and use of these data in the MP has been resolved through development of a new CPUE series. The impact of the new series on the operation of the MP was evaluated at the OMMP, for presentation to the 2022 ESC, and did not trigger exceptional circumstances. The estimate for the 2020 age 2 cohort from the gene-tagging program is missing because the tagging program was cancelled in 2020 as a result of poor fishing and COVID-19 travel complications. The 2020 ESC noted that the MP is designed to operate even in the case of missing gene-tagging data in the time series used in the MP. Review of other inputs to the MP and indicators of the stock and fishery has not identified any unusual conditions, and no substantial changes in fishing operations had been noted. There is uncertainty in the catch at size data from Indonesia and conflict between data sources that need to be investigated further and resolved, as these data are used in the OMs and in the close-kin mark-recapture program. An estimate of potential Non-Member effort identified an increase in effort in 2020, but there had been no new estimate of Non-Member unaccounted mortality and no evidence provided that would indicate that these catches are being taken at levels above that against which the MP is considered to be robust. This review of evidence for exceptional circumstances has thus not identified any need for changes to the recommended TAC.

88. Japan presented paper CCSBT-ESC/2208/22 that examined observations of input index/data (core vessels longline CPUE, close-kin mark recapture data) for the CTP compared to the 2019 OM predictions. These examinations indicate that all the observations are consistent with the predicted ranges from the 2019 OM. Regarding the input index/data for the CTP, therefore, there is no evidence to support a declaration of exceptional circumstances. As there is no estimate available from gene-tagging in 2022, the age 1 trolling index was checked to inform on recruitment. There is no major recent decline to warrant declaring exceptional circumstances. Accordingly, as regards a decision on implementation of the recommended TAC (17,647 t, calculated by the CTP in 2020 to be applied to the 2021-2023 fishing seasons) for the 2023 season, the conclusion follows that no modification of the value of this TAC is required because: (1) there is no conclusive evidence to support a declaration of exceptional circumstances from the viewpoints of a check of the OM predictions and other relevant factors (the extent by which the total reported global catch exceeds the TAC, unaccounted mortality, results of the stock assessment conducted in 2020 and OM

reconditioning in 2022, potential change in operation pattern of Indonesian longline fleet); and (2) no unexpected change has been detected in the fisheries indicators examined. Additionally, the authors reviewed the metarules process which was done at the OMMP 12 meeting in June 2022 to consider the validity of operation of the CTP using the new CPUE series based on the generalised additive model ("new GAM") regarding a TAC recommendation for the 2024-2026 seasons. This paper confirms the conclusion from the OMMP 12 meeting that, using the new GAM series along with other currently available information as inputs, the CTP can be applied as it was adopted in 2019 to provide TAC advice for the 2024-2026 seasons.

89. While discussing the results of the tests for the occurrence of exceptional circumstances, the meeting noted a difference in the manner in which these tests were conducted for the CPUE compared to the gene tagging and CKMR information. For CPUE, new data were compared with the probability envelope for projections as determined at the time the MP was adopted. In contrast, for the other two types of monitoring data, this comparison is for the most recent year only, and against a projected value (and CI) determined by an updated fit of the OM which is conditioned on all the data up to but not including that most recent year; hence it takes account of data that have become available only after the MP was adopted. Conceivably, the latter process might make the criterion for no occurrence of exceptional circumstances easier to satisfy, as incorporating new data post-MP-adoption in the conditioning of the model used for comparison with the most recent data could moderate any indication of the resource behaving differently from what was assumed at the time of MP adoption. The meeting agreed that this matter merited further consideration over the intersessional period – both as to whether this was a noteworthy concern, and if so, how best to rectify it in the future. It may be considered further at OMMP 13.

90. The ESC noted that there were a number of issues related to the operation of the catch monitoring program in Benoa, Indonesia, and the data series derived from it, that have been identified to have the potential to constitute exceptional circumstances in the future. These include:

- The previously identified uncertainty in the location of catches sampled by the catch monitoring program, i.e., Statistical Area 1 vs Statistical Area 2 (CCSBT-ESC/2208/Info01). It was noted that the substantial shift in the distribution of catch and effort into Area 2, associated with development of targeted fishing for SBT and freezer capacity in Indonesian vessels warrants further consideration.
- The differences in the length frequency distributions between the CDS and catch sampling programs noted by the ESC and CCSBT-ESC/2108/07, and the implications for the length and age compositions used in the stock assessment.
- The interruption of the otolith and tissue sampling, which is directly associated with the catch monitoring program, as a result of the institutional restructure of fisheries science and monitoring capability in Indonesia, and the implications for the close-kin data used in both the stock assessment and CTP.

91. The ESC strongly encouraged continued efforts to resolve the current uncertainties and to secure the future of the catch monitoring and biological sampling program, given the importance of these Indonesian monitoring data to the assessment of the stock and operation of the CTP for recommending the TAC.

92. Following this review of stock or fishery indicators, the MP input data, population dynamics, fishing or fishing operations and the OMMP advice on the incorporation of the new CPUE series on performance of the CTP, the ESC agreed:

- There was no need to modify the TAC for 2023;

- The CTP can be used to recommend the 2024-2026; and

There is a need to consolidate the future operation of the Indonesian catch and biological monitoring program, resolve the current uncertainty in the length frequency distributions between the CDS and catch monitoring program, and undertake a more detailed assessment of the implications of the shift in fleet operations between Statistical Area 1 and Statistical Area 2 over recent years and its potential implications for stock assessment.