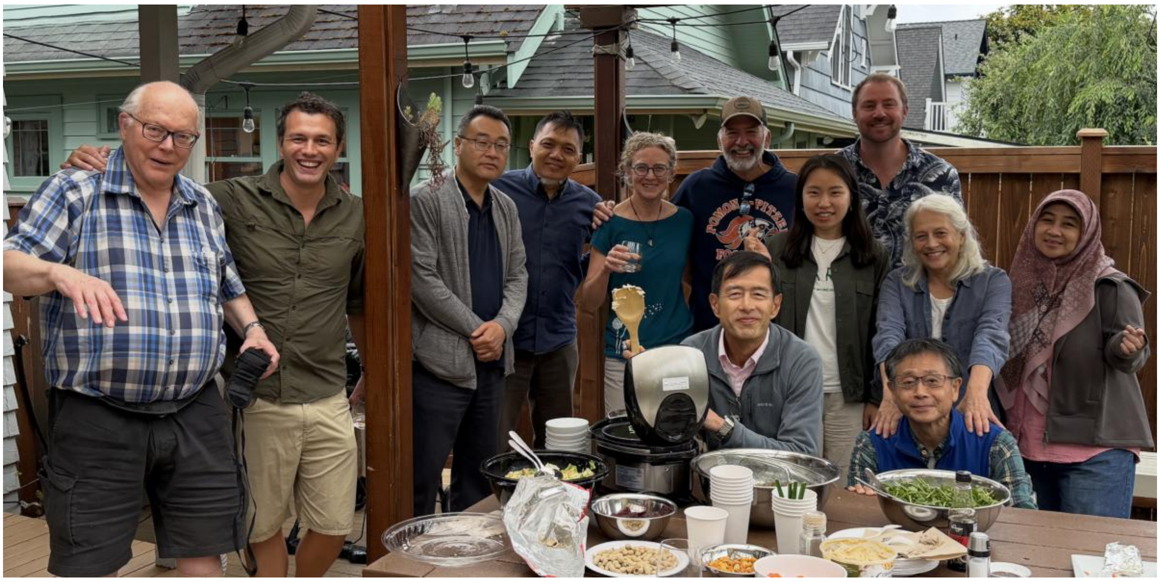
Commission for the Conservation of
Southern Bluefin Tuna

みなみまぐろ保存委員会

Report of the Sixteenth Operating Model and Management Procedure Technical Meeting



22 – 26 June 2026
Seattle, USA

Report of the Sixteenth Operating Model and Management Procedure Technical Meeting

22 – 26 June 2026

Seattle, USA

Opening of the meeting

1. The Chair of the Sixteenth Operating Model and Management Procedure Technical Meeting (OMMP 16), Dr Ana Parma, opened the meeting and welcomed participants (**Attachment 1**). The Chair also noted that the terms of reference for the meeting are to review data inputs and prepare for the full stock assessment of Southern Bluefin Tuna (SBT) to be presented at the Extended Scientific Committee of the Thirty-First meeting of the Scientific Committee of the CCSBT (ESC 31), and to continue training Members in the use of the new SBT software developed by Dr Darcy Webber using RTMB.
2. The draft agenda was discussed and amended, and the adopted agenda is shown in **Attachment 2**.
3. The list of documents for the meeting is shown in **Attachment 3**.
4. Rapporteurs were appointed and agreed to co-ordinate the preparation of the report along with the consultant and the Advisory Panel members. Subsequent report sections are based on the adopted agenda.

Agenda Item 1. Review of stock assessment data inputs

5. Ms Paige Eveson presented paper CCSBT-OMMP/2606/09 “Review of data inputs and preliminary work for the 2026 SBT stock assessment”. In preparation for the 2026 full stock assessment, data for use in the new assessment model software were collated prior to the OMMP meeting. Three additional years of data were included since the last assessment in 2023. This paper provides details on collation of the data inputs and issues to consider at the OMMP meeting, a preliminary run of the reference set of models used in 2023, and examination of fits to the data. There appears to be an issue with natural mortality in the model or code that will need to be resolved at the OMMP meeting.

1.1. Gene tagging

6. The most recent gene-tagging estimate of absolute age-2 abundance in 2024 is large, and the CV of 0.3 is high due to the low number of matches (the CV is outside the precision range for which the design study had aimed). The meeting discussed this high CV and agreed it is not a concern since this is expected with higher age-2 abundance and would become smaller if recruitment were to decline (assuming similar sample sizes).

1.2 Close-kin data: POPs and half-sibling pairs

7. Following a change made in the likelihood formulation for the Close-kin Mark Recapture (CKMR) data, the POP[1] data has been partitioned into two groups; 1) adults for which the age is known (from otolith ageing) and, 2) those for which only length is available. Correspondingly, the likelihood for the POP data now accounts for uncertainty in age for comparisons where the adult has a length measurement only.

1.3 CPUE

8. CCSBT-OMMP/2606/05 was presented on possible change in operational pattern of the Japanese SBT longliners in the 2025 fishing season compared to the past 10 years. The paper noted that no major change was evident in the 2025 operational pattern in terms of the amount of catch, the number of vessels, time and area operated, proportion by area, length frequency, release and discard, and spatial concentration of operations. It also noted that the increase in catch quotas over the last decade has had the greatest impact on the increase in CPUE[2], with the expansion of operating space-time and the increase in the number of operations to a lesser extent. The paper concluded that the Japanese longline CPUE in 2025 is related to SBT stock abundance in a manner that is consistent with the patterns shown in previous years.
9. The meeting endorsed this paper’s conclusion.
10. CCSBT-OMMP/2606/06, which provided an update of the CPUE abundance index, standardised using a generalised additive model (GAM) developed for SBT, including data up to 2025, was presented. The CPUE abundance index, referred to as GAM22, applies a GAM in the two-step delta log-normal approach with area weighting. The paper presented the base case results as well as various sensitivity tests. The abundance index increased in 2025 compared to 2024, and had reached the highest value on record since 1969. This feature was robust to a variety of sensitivity analyses, including model selection, retrospective analysis, and age range changes.
11. The meeting endorsed this paper’s conclusion.
12. CCSBT-OMMP/2606/07 was presented, proposing a new method for diagnosing problems in CPUE abundance indices, including GAM22. This method involves calculating relative values against the mean predicted CPUE across all strata—specifically relative to the mean predicted CPUE in strata where actual fishing operations took place—and then using graphs to visualise and check whether extremely high predicted CPUE values occur in strata without actual operations. It also visualises the impact of removing records with extremely high predicted values based on specific thresholds. The paper noted that this approach is more objective and effective for the future diagnosis of stock abundance indices, including GAM22.
13. Dr Junghyun Lim presented paper CCSBT-OMMP/2606/08 on data exploration and CPUE Standardisation for the Korean Southern Bluefin Tuna Longline Fishery (1996-2025). In this study, Korea provided an update of the standardised

---

[1] Parent-Offspring Pair
[2] Catch per Unit Effort

SBT CPUE from Korean tuna longline fisheries (1996-2025) using Generalised Linear Models (GLM) with set by set (operational) data. Korea explored CPUE by area and identified two separate areas (CCSBT statistical area 8 and 9) where Korean vessels have mainly targeted SBT. Korea applied two alternative approaches, data selection and cluster analysis, to address concerns about changes in targeting over time that can affect CPUE indices. Explanatory variables for the GLM analyses were year, month, vessel identifier, location (5° cells), number of hooks, and targeting (HBF and cluster). GLM results for each area suggested that year, month, location, and targeting effects were the principal factors affecting the nominal CPUE. The standardised CPUEs for both areas decreased up to the mid-2000s and have shown an increasing trend since.

14. The meeting requested that a comparison of the Japanese and Korean indices for areas 8 and 9 be conducted for discussion at the ESC. The comparisons should be made using all ages, as currently the Korean CPUE uses all ages while the Japanese CPUE is based on ages 4+. The meeting also suggested to take account of the number of release/discarded fish.

15. The meeting recommended that Korean CPUE be included as a separate index in future assessments. This will require including the size-frequency data associated with the index, similarly to what has been done to the Japanese CPUE.

1.4 Size/age composition of catches and size composition of CPUE index

16. Indonesian proportions at age: Paper CCSBT-OMMP/2606/09 noted that there is no updated data for the catch at age for the Indonesian fishery. The catch monitoring otolith sampling program was interrupted in recent years (since 2022/23, see Farley et al., 2025) and has only resumed recently (2024/25). Otoliths from the most recent year have not yet been aged. A suggestion in the paper was to use an age-length key (ALK) from previous years along with the newest length data to provide updated proportions at age for the assessment; this was discussed at the meeting but was not considered a robust approach since the ALK may not be suitable for the recent years. A better approach would be to model proportions at length for the years without age information, but the current model code cannot accommodate this. For now, it was decided to model selectivity for the Indonesian age composition data as a 5-year block for 2021-2025 (with 2021 being the last year with age data).

17. Korea and New Zealand have not provided fully raised catch at length data, which may affect the proportions at length data for LL1. This was discussed at the meeting and the meeting agreed to request more information from the Secretariat. This issue may not be resolved in time for revised data to be included in the 2026 assessment. Korea has submitted the raw size data but is willing to provide the raised length data through further cooperation with the Secretariat.

18. In 2025, the technical meeting agreed to include a new fishery that represents the selectivity of the Japanese CPUE data (this is fishery 7 in the new software). The data for this “fishery” were collated at the 2025 meeting up to 2022. For the preliminary investigations done in paper CCSBT-OMMP/2606/09, 3 years of data were added to the data file which were simply a copy of the 2022 data. These data were updated during the meeting for inclusion in the 2026 assessment (see Agenda item 1.4).

19. Dr Jim Ianelli presented a working paper explaining the calculation needed to derive the CPUE length-frequency data, which was first done in 2024, and updated in 2025. (See the length-frequency processing notes on the SBT 2026 site.)

20. The meeting recommended that in the future, when the CPUE length-frequency data are updated, it becomes a routine part of the data exchange. The link to methods for computation is here (including html and pdf formats).

1.5 Unaccounted sources of mortality

21. Paper CCSBT-OMMP/2606/04 on Estimates of unreported SBT catch by CCSBT non-cooperating non-member states between 2007 and 2023 was tabled but discussion on it was postponed to the ESC because the authors were unavailable for the OMMP meeting.

22. The estimates of unaccounted mortality from non-Members to be used in the stock assessment model were taken from Table 2 in Edwards and Hoyle (2026). The scenario used in the updated data files for the stock assessment is "Adj(JP)". The Catch and Effort data underlying the models were revised for all years for which they were available, so that estimates for all years have been updated through to 2023. For the last 2 years (2024 and 2025) the values for 2023 have been used.

Agenda Item 2. Review of changes to the operating model specification and software upgrade

23. Australia presented the section of paper CCSBT-OMMP/2606/09 which presents results from running the reference set grid of models from the 2023 assessment using the new RTMB model and the updated data inputs. In these results, the highest value of M10 included in the grid (0.105) is being sampled almost exclusively, which is a notable change from the 2023 assessment.

24. The meeting systematically outlined all changes to the assessment model since 2023 which could have had an impact on the estimate of M10, including: changes to the age and length composition likelihoods, addition of the CPUE length composition likelihood, accounting for age uncertainty in the POP likelihood, changing the way incomplete mixing is dealt with in the conventional tag likelihood, changes to the selectivity models, direct removals of LL4 catches, inadvertent inclusion of the troll index in the runs done in CCSBT-OMMP/2606/09, and updates to the data inputs (including the new CPUE "fleet").

25. After conducting several investigative runs, the meeting determined that the changes to the selectivity models (to use a 2D-AR1 formulation) had the biggest impact on the relative weighting of the M10 and M0 parameters, as further discussed in Agenda Item 3.

Agenda Item 3. Conditioning model runs: diagnostics, likelihood weights

26. A sensitivity run was conducted by replacing the new 2D-AR1 formulation used to model the selectivities with the penalty-based formulation used in ADMB,

using data up to 2022 (see the OMMP16 model notes). In this run, M0 and M10 were estimated using a fixed mid-grid value of steepness (h=0.72) and ψ = 1.75. The results indicated that:

- The change in the selectivity formulation explained the shift in M10 estimates towards higher values in the new RTMB model (M10 estimate > 0.10), relative to the ADMB formulation (M10 estimate of 0.074). The meeting concluded that the main effect was related to the impact on the Indonesian selectivity (see the Indonesian selectivity figures in the OMMP16 model notes), due to the anticipated confounding between the shape of this selectivity (degree of dome-shapedness) and M10.
- The uncertainty around the M10 estimate using the new selectivity formulation, approximated from the Hessian at the mode, showed a much tighter distribution around the mode than using the previous penalty-based formulation (see Figure 11 in "M10" section of SBT-2026: Data weighting notes).
- Examination of the selectivities indicated that the initial choice of 2D-AR parameters (standard deviations and correlations across ages and years) led to more flexible selectivities than those estimated using the ADMB formulation.
- The standardised normalised residual (SDNR) for the Indonesian age-composition data was 0.68, indicating some overfitting.

27. The sensitivity of the M10 estimates to the 2-AR1 selectivity parameters was further evaluated. When the standard deviation parameter was decreased and the correlations across both ages and years were increased, the estimated selectivity for the Indonesian fishery became smoother and M10 decreased from 0.1121 to 0.1000 when ψ = 1.25, but increased slightly (from 0.100 to 0.106) when ψ = 1.75.

28. The meeting spent a full day considering how to weight the different data and likelihood components. Several new diagnostic plots were created and they emphasised the benefit of computing "one-step-ahead" (OSA) residuals. This guided developing an objective rationale for data weighting priorities.

29. To support the data-weighting evaluation, the meeting examined a candidate model run as the basis for proceeding: Dirichlet distributions for the age- and size-composition data, ψ = 1.75, h = 0.72, and the 2D-AR1 selectivity parameters shown in **Table 1**.

Table 1. 2D-AR1 selectivity parameters (correlations across ages and years, and the standard deviation) used in the candidate data-weighting run. The Indonesian fishery hyper-parameters were estimated by treating selectivity latent-variables as random-effects, assuming multinomial likelihoods for all age and size compositions.

Fishery	ρ (age)	ρ (year)	σ
LL1	0.9	0.7	0.31
LL2	0.9	0.7	0.25
LL3	0.5	0.5	0.75
Indonesia	0.999	0.956	0.173
Surface	0.5	0.5	1.13
CPUE	0.9	0.7	0.31

30. The run with these specifications resulted in an estimate of M10 = 0.1218 and a substantial underestimation of the total number of HSPs[3] (the observed total was higher than the upper confidence bound). This indicated tension between the HSP data and the size- and age-composition data. The alpha self-scaling parameters estimated for the Dirichlet distribution were 2.85 and 2.95 for the age compositions of the Australian and Indonesian fisheries, and 5.79, 13.1, 4.74 and 6.13 for the length compositions of the LL1, LL2, LL3 and CPUE fisheries. These parameters gave more weight to the age- and size-composition data than the original sample sizes used under the multinomial assumptions.

31. When a lower value of ψ = 1.2 was explored, M10 = 0.116 and the total number of HSPs was still underestimated in aggregate.

32. Hyperparameters of the random effects were estimated for the selectivities of the Indonesian fishery and LL1. The estimated hyperparameters led to a less flexible selectivity for Indonesia, a somewhat lower value of M10, and a better fit to the HSP and POP data.

33. The exploratory OSA residual analyses of the age composition data in the model suggested that increasing the weighting on these data sets was statistically warranted. However, when using the self-scaling Dirichlet distribution option for the likelihood to achieve this on a mid-cell grid element, the model also estimated a higher value of M_{10} (*ca.* 0.12 *vs.* just less than 0.1). This resulted in a clear lack of fit to the overall number of HSPs – specifically an under-estimation of HSPs with no overlap between the approximate confidence interval and the observed total number of HSPs.

34. There is no statistically defensible way to increase the weight to the HSP data, and an *ad hoc* approach is inadvisable because it is unlikely to solve the underlying apparent data conflict issue. In Francis (2013), one of the key data weighting papers in the field of integrated stock assessment, a key conclusion was that one should not prioritise the weighting of compositional data (*e.g.* age or length) above fitting to the abundance data. While the HSP data are not exclusively an abundance data set, they do provide very clear absolute abundance information (as well as mortality information – this is the source of the data conflict). Furthermore, the age frequency data for the Indonesian fishery in recent years are highly uncertain / of poor quality. So, following the overarching principles of

[3] Half Sibling Pairs

Francis (2013), the meeting concluded not to increase the weight given to the compositional data (which displayed no obvious patterns in their respective OSA residuals) at the expense of a clear lack of fit to the overall HSP numbers.

35. The meeting agreed that exploring the weighting for all the assessment data sets was the best process to follow, even if for the compositional data a pragmatic compromise had been agreed upon when a data conflict issue arose with the HSP data. While not directly related to the stock assessment, the meeting agreed that it is particularly important to ensure the objectivity and robustness of the data weighting properties of the MP input data (Japanese longline CPUE, gene tagging data, CKMR data – both POPs and HSPs). The reason is that the stock assessment will form the basis for the conditioning of future OMs and the MSE[4] work will simulate the key MP data from these OMs. One would therefore want the most robust estimates of the observation and process error properties of these data, and arguably the most important factor is the data weighting parameters and settings in the OM.

36. OSA residuals and SDNRs were explored for the different data components (see the data-weighting diagnostics and the OSA residual plots in the OMMP16 model notes).

37. A run using the new CPUE length frequencies discussed in Agenda 1.4 was conducted and estimated selectivities for the "CPUE fleet" were examined. The length-frequency data for the CPUE fleet were truncated to exclude fish younger than age 4 by cohort slicing, similar to what is done to calculate the CPUE index. This resulted in a high value for estimated selectivity at age 4. The meeting concluded that this was not unexpected given that predicted proportions for age 4 would need to accommodate age-3 fish larger than the cut-off length used in the cohort slicing to select age-4+ fish. A sensitivity run was added to the list of sensitivities discussed under Agenda item 7 to evaluate the impact of adding the "CPUE fleet" length-frequency data instead of predicting CPUE using the same selectivity as estimated for the LL1 fleet, which includes all ages and other fleets in addition to the Japanese LL1.

38. The meeting agreed on model specifications for the coming assessment to follow from Table 1 above (wrt selectivity specifications) plus:

- The same CPUE CVs used in the past (constant 20% by year)
    - The meeting requested that annually varying CVs from the GAM22 be produced and evaluated if possible (scaled to maintain an average CV of 20% across years).
- Multinomial likelihoods for size and age compositions.
- The same fleet-specific input sample sizes as used in the 2023 assessment for the different composition data sources.
- Include the age 4+ CPUE fleet and concomitant size compositions (weighted by stratum-specific CPUE).

[4] Management Strategy Evaluation

Agenda Item 4. MCMC performance and structure of MCMC grid

4.1. Choice of steepness values and evaluation of estimability of ψ

39. Twelve MCMC[5] runs were completed, conditioned on all combinations of four fixed values of steepness (0.55, 0.63, 0.72 and 0.80) and three values of *ψ* (1.5, 1.75 and 2). Completing these runs took approximately 11 hours. A likelihood profile across log(B0) for h = 0.55 indicated that the MLE outputs were close to values that would cause the population to crash. Changes in some settings for the MCMC runs were suggested by Dr Cole Monnahan but they could not be completed during the meeting. A final decision on the steepness values to use will be made after the MCMC runs are completed.

4.2. MCMC diagnostics

40. Diagnostics on the MCMC outputs were examined:

- The worst-performing parameters, in terms of effective sample size and the Rhat statistic, were some of the Indonesian selectivity parameters associated with h = 0.55. This was caused by a non-invertible Hessian.
- It was recommended that the MCMC runs be repeated using num_warmup = 150 and num_samples = 500.

4.3. Method used to combine MCMC runs

41. Based on model evaluations, the meeting agreed that:

- A grid of three steepness values (0.6, 0.7 and 0.8) and three values of *ψ* (1.5, 1.75 and 2) would likely be sufficient to cover the assessment uncertainty. This would be confirmed after the MCMC runs are completed.
- Posterior draws from each of the 3 × 3 MCMCs will be "stacked" (giving equal weight to each cell) to produce a sample of 2000 draws from the overall posterior.

Agenda Item 5. Evaluation of uncertainty calculated from the MCMC grid compared to results obtained by sampling the old reference set of models

42. In order to compare the uncertainty estimated via MCMC with that approximated by sampling from a discrete reference set of models (as in the 108-cell grid used in the 2023 assessment) a grid of parameter values (M10 and M0) that is consistent with the marginal posterior distributions estimated by the MCMC needs to be selected. Parameter values for the discrete grid will be selected intersessionally once the grid of 9 MCMCs is completed (or, alternatively, a grid of 3 MCMCs if ψ is also estimated in the MCMC runs).

[5] Malkov Chain Monte Carlo

Agenda Item 6. Projections using Cape Town Procedure

43. The meeting discussed the specifications to be used for model projections under the Cape Town Procedure. Because catch allocations among the four fleets had not yet been decided, the meeting agreed that two allocation scenarios should be explored: one based on nominal fleet allocations, and one in which a 3,000 t increase in TAC is assigned to the Indonesian fishery.

a. *Simulation of selectivities*

44. For projected selectivities, the meeting agreed to use the average selectivity over the most recent 10 years as a simple initial assumption.

b. *Simulation of recruitment deviates*

45. The projection code includes alternative options for generating future recruitment deviates for each MCMC sample, including AR(1) and ARIMA approaches. The meeting agreed that simulations should initially use the deviate from year Y-4 as the starting deviate, where year Y relates to the final estimated recruitment deviate (2026 in the current assessment). This approach overwrites the four most recent recruitment deviates, which are not informed by data.

c. *Simulation of GTs, HSPs, and POPs*

46. The data-generation components for projections will otherwise remain the same as in the previous implementation, except for a minor change to the generation of gene-tagging data. In the previous code, 5,000 recoveries were added to the initial sample size whenever fewer than five matches were found. This adjustment will be removed from the projection model.

d. *Schedule of projected TAC changes and lags in data availability.*

Schedule of TAC changes			**Year of data availability** (at TAC setting)			
TAC Year	TAC change?	TAC was calculated	Catch data	CPUE data	Gene tagging (age 2)	POPs and HSPs
2026	hardwired	2022				
2027	hardwired	2025	2024	2024	2023	2019
2028	hardwired		2025	2025	2024	2020
2029	hardwired		2026	2026	2025	2021
2030	Yes	2028	2027	2027	2026	2022
2031	No		2028	2028	2027	2023
2032	No		2029	2029	2028	2024
2033	Yes	2031	2030	2030	2029	2025
…						

Agenda Item 7. Specification of sensitivity runs to be presented to the ESC 31

47. The meeting discussed and listed the sensitivity runs to be presented at ESC31:

Test name	Code	Conditioning and projection notes	Grid	Priority
No UAM	noUAM	Remove NCNM catches from conditioning and projections.	Mid-cell	**H**
CPUE_Drop5	Drop_5yrs	Eliminate the last 5 years of CPUE Series	Mid-cell	**H**
Omega75	cpueom75	Power function for biomass-CPUE relationship with power = 0.75	Mid-cell	**H**
Upq2008	Cpueupq	Estimate CPUE 2008 change in q for LL1 fleet	Mid-cell	**H**
LL1_sel	LL1_sel	Allow the terminal 3-years to be flexibly estimated to evaluate impact on year-class uncertainty and magnitude	Mid-cell	**M**
Indo_sel	Indo_sel	Restore bi-modality in Indonesian selectivity, more flexibility	Mid-cell	**H**
NoPOP&HSP	NoPOPHSP	Exclude both close-kin data (Parent-Offspring and Half-Sibling Pairs)	Mid-cell	**H**
No HSP	NoHSP	Exclude half-sibling-pair close-kin data	Mid-cell	**H**
GTI	Troll	Includes the grid-type trolling index as additional recruitment index. Increase CV of aerial survey to preclude aerial survey dominating the fit, given apparent conflicts in the data	Mid-cell	**H**
Projections	Alloc	Alternative allocations	Full grid	**H**
OldGrid	Og	E.g., 108 (or other) dimension MLE with updated data and values for M0 and M10 (and maybe psi)	Full grid	**H**
CPUE_fleet	U_Fleet	Evaluate impact relative to assuming LL1 selectivity for CPUE predictions (as in previous approach)	Mid-cell	**H**

(Note that some sensitivities may be done over the "Full" (MCMC) grid where time allows)

Agenda Item 8. Model and software documentation

48. The main repository containing the SBT R package (and the actual model) was updated throughout the week. This included updating the documentation of the model as some new features were required (e.g., specification of minimum truncated size distributions needed for the CPUE fleet). Additionally, a working repository for the meeting was developed here. This was used for several purposes including model-run demonstrations, exploratory sensitivities, introduction of new diagnostics, and how length-composition data were derived for the "CPUE fleet".

Agenda Item 9. Workplan

49. The meeting agreed that the workplan for completing the 2026 assessment, associated diagnostics, MCMC grid, sensitivity analyses and projections should include the following tasks.

50. Assessment inputs and selectivity specification:

- Review all selectivity blocks, including the Indonesian selectivity specification, with particular attention to dropping the 1976 block and revising the 2022-2025 block to be a 2021-2025 block since 2021 is the last year with age information.

51. Diagnostics, residuals, and data weighting:

- Add priors for the selectivity hyperparameters, including logit(rho) ~ N(0, 2), and review whether the correlation parameters need to be represented on the logit scale. The prior treatment for the selectivity standard-deviation hyperparameter should also be specified.
- Calculate SDNR confidence intervals using Cole Monnahan's code and report the range of OSA residual summaries, together with other diagnostics as appropriate, including MAR, Francis and Ianelli-McAllister statistics.
- Tidy and document the LF/AF OSA residual and SDNR code, including diagnostic plots, and review LL2 autocorrelation by age to determine whether the assumed autocorrelation needs to be reduced.
- Estimate the AF/LF hyperparameters using random effects, first one fishery at a time and then with all fisheries together, before fixing the selected hyperparameter values for final runs.

52. Likelihoods, MLE grid, and MCMC grid:

- Make a minor revision to the tag-recapture likelihood so that it is compatible with calculating OSA residuals.
- Set the M10 range for the grid and complete the grid of MLEs.
- Complete the grid of MCMC runs, develop code for sampling from the MCMC grid, and compare results from the MLE and MCMC grids.

53. Sensitivity analyses

- Add the capability to estimate more than one CPUE q for defined years, including a potential change in q from 2008 onwards.

54. Projection model and risk summaries

- Allow gene-tagging years to be skipped in projections, and use the projection framework to explore short- and long-term risks.
- Add the ability to shift projected selectivity, including scenarios representing recruitment failure or movement of selectivity toward smaller sizes, noting that such changes may not be detected by the CPUE index.
- Split the TAC among fleets using allocation proportions, allow a four-year fixed-catch projection before transitioning to the MP, set 2022 as the first projection year for recruitment deviates, and use the mean selectivity over the most recent 10 years for projected selectivity.

Adoption of meeting report and close of meeting

55. The meeting closed at 5:10 pm in Seattle time on 26 June 2026. Final edits to the report were completed after the meeting.

List of Attachments

Attachments

1 List of Participants
2 Agenda
3 List of Documents

Attachment 1

List of Participants

The Sixteenth Operating Model and Management Procedure Technical Meeting

First name	Last name	Title	Position	Organisation	Postal address	Email
CHAIR						
Ana	PARMA	Dr		Centro Nacional Patagonico	Pueto Madryn, Chubut Argentina	anaparma@gmail.com
SCIENTIFIC ADVISORY PANEL						
James	IANELLI	Dr			7600 Sand Pt Way NE Seattle, WA 98115 USA	jim.ianelli@noaa.gov
Sean	COX	Dr	Professor and Director	School of Resource and Environmental Management, Simon Fraser University	8888 University Drive Burnaby, B.C. V5A 1S6, Canada	spcox@sfu.ca
CONSULTANT						
Darcy	WEBBER	Dr	Fisheries Scientist	Quantifish	72 Haukore Street, Hairini, Tauranga 3112, New Zealand	darcy@quantifish.co.nz
MEMBERS						
AUSTRALIA						
Ann	PREECE	Ms	Research Scientist	CSIRO	GPO Box 1538, Hobart, TAS 7001 Australia	ann.preece@csiro.au
Rich	HILLARY	Dr	Research Scientist	CSIRO	GPO Box 1538, Hobart, TAS 7001 Australia	rich.hillary@csiro.au
Paige	EVESON	Ms	Research Scientist	CSIRO	GPO Box 1538, Hobart, TAS 7001 Australia	paige.eveson@csiro.au
FISHING ENTITY OF TAIWAN						
Ching-Ping	LU	Dr.	Assistant Professor	National Taiwan Ocean University	No. 2, Beining Rd., Zhongzheng Dist., Keelung City 202301, Taiwan	cplu@mail.ntou.edu.tw michellecplu@gmail.com
INDONESIA						
Fayakun	SATRIA	Dr.	Principal Researcher	National Research and Innovation Agency of the Republic of Indonesia	Cibinong Science Center, Jalan Raya Bogor KM. 46 Cibinong, Kecamatan Nanggewer Mekar. Kabupaten Bogor	fsatria70@gmail.com

Lilis	SADIYAH	Dr.	Principal Researcher	National Research and Innovation Agency of the Republic of Indonesia	Cibinong Science Center, Jalan Raya Bogor KM. 46 Cibinong, Kecamatan Nanggewer Mekar. Kabupaten Bogor	sadiyah.lilis2@gmail.com
JAPAN						
Tomoyuki	ITOH	Dr	Chief Scientist	Fisheries Resources Institute, Japan Fisheries Research and Education Agency	2-12-4 Fukuura, Yokohama, Kanagawa 236-8648, Japan	ito_tomoyuki81@fra.go.jp
Norio	TAKAHASHI	Dr	Senior Scientist	Fisheries Resources Institute, Japan Fisheries Research and Education Agency	2-12-4 Fukuura, Yokohama, Kanagawa 236-8648, Japan	takahashi_norio91@fra.go.jp
Doug	BUTTERWORTH	Dr	Professor	Dept of Maths & Applied Maths, University of Cape Town	Rondebosch 7701, South Africa	Doug.Butterworth@uct.ac.za
Hiromu	FUKUDA	Dr	Chief Scientist	Fisheries Resources Institute, Japan Fisheries Research and Education Agency	2-12-4 Fukuura, Yokohama, Kanagawa 236-8648, Japan	fukuda_hiromu57@fra.go.jp
Takahiro	IRIE	Dr	Assistant researcher	Fisheries Resources Institute, Japan Fisheries Research and Education Agency	2-12-4 Fukuura, Yokohama, Kanagawa 236-8648, Japan	irie_takahiro99@fra.go.jp
Taisuke	IWANO	Mr	Assistant Director	Fisheries Agency of JAPAN	1-2-1 Kasumigaseki, Chiyoda-ku, Tokyo 100-8907 Japan	taisuke_iwano460@maff.go.jp
Fumiya	TAKAHASHI	Mr	Section Chief	Fisheries Agency of JAPAN	1-2-1 Kasumigaseki, Chiyoda-ku, Tokyo 100-8907 Japan	fumiya_takahashi070@maff.go.jp
Yuji	UOZUMI	Dr	Adviser	Japan Tuna Fisheries Co-perative Association	31-1 Eitai 2-Chome, Koto-ku, Tokyo Japan	uozumi@japantuna.or.jp
Nozomu	MIURA	Mr	Deputy Director	Japan Tuna Fisheries Co-operative Association	31-1, Eitai 2-chome, Koto-ku Tokyo 135-0034 Japan	miura@japantuna.or.jp

Daisaku	NAGAI	Mr	Assistant Director	Japan Tuna Fisheries Co-operative Association	31-1, Eitai 2-chome, Koto-ku Tokyo 135-0034 Japan	nagai@japantuna.or.jp
REPUBLIC OF KOREA						
Jeong-Ho	PARK	Dr.	Senior Scientist	National Institute of Fisheries Science	216 Gijanghaean-ro, Gijang-eup, Gijang-gun, Busan 46083, Republic of Korea	marinebio@korea.kr
Junghyun	LIM	Dr.	Scientist	National Institute of Fisheries Science	216 Gijanghaean-ro, Gijang-eup, Gijang-gun, Busan 46083, Republic of Korea	jhlim1@korea.kr
CCSBT SECRETARIAT						
Dominic	VALLIERES	Mr	Executive Secretary		PO Box 37, Deakin West ACT 2600 AUSTRALIA	dvallieres@ccsbt.org
Akira	SOMA	Mr	Deputy Executive Secretary			asoma@ccsbt.org
Colin	MILLAR	Mr	Database Manager			cmillar@ccsbt.org

<u>Attachment 2</u>

Agenda

Sixteenth Operating Model and Management Procedure Technical Meeting
Seattle, USA, 22-26 June 2026

<u>Terms of Reference</u>

- Review data inputs and prepare for the full SBT stock assessment to be presented at ESC31.
- Continue training members in the use of the new SBT software developed by Dr. Darcy Webber using RTMB.

<u>Agenda</u>

1. **Review of stock assessment data inputs**
   1.1 Gene tagging
   1.2 Close-kin data: POPs and half-sibling pairs
   1.3 CPUE
   1.4 Size composition of catches and size composition of CPUE index
   1.5 Unaccounted sources of mortality

2. **Review of changes to the operating model specification and software upgrade**

3. **Conditioning model runs: diagnostics, likelihood weights**

4. **MCMC performance and structure of MCMC grid**
   4.1. Choice of steepness values and evaluation of estimability of ψ.
   4.2 MCMC diagnostics
   4.3 Method used to combine MCMC runs

5. **Evaluation of uncertainty calculated from the MCMC grid compared to results obtained by sampling the old reference set of models**

6. **Projections using Cape Town Procedure**
   6.1. Simulation of selectivities
   6.2. Simulation of recruitment deviates
   6.3. Simulation of GTs, HSPs, and POPs.
   6.4. Projection results: impacts of model changes and use of MCMC on estimated stock risks.

7. **Specification of sensitivity runs to be presented to the ESC31**

8. **Initial discussion about evaluation of impacts of reduced Gene tagging programs**

9. Model and software documentation

10. Workplan

Attachment 3

List of Documents
The Sixteenth Operating Model and Management Procedure Technical Meeting

(CCSBT-OMMP/2606/)

1. Provisional Agenda
2. List of Participants
3. List of Documents
4. (CCSBT) Estimates of unreported SBT catch by CCSBT non-cooperating non-member states between 2007 and 2023 (OMMP Agenda item 1.5)
5. (Japan) Change in operation pattern of Japanese southern bluefin tuna longliners in the 2025 fishing season (OMMP Agenda item 1.3)
6. (Japan) Update of CPUE abundance index using GAM for southern bluefin tuna in CCSBT (GAM22) up to the 2025 data (OMMP Agenda item 1.3)
7. (Japan) Proposal of a method for checking abundance indices obtained from CPUE (OMMP Agenda item 1.3)
8. (Korea) Data Exploration and CPUE Standardization for the Korean Southern Bluefin Tuna Longline Fishery (1996-2025) (OMMP Agenda item 1.3)
9. (Australia) Review of data inputs and preliminary work for the full SBT stock assessment 2026 (OMMP Agenda item 1)

(CCSBT-OMMP/2606/Rep)

1. Report of the Thirty-Second Annual Meeting of the Commission (October 2025)
2. Report of the Thirtieth Meeting of the Scientific Committee (September 2025)
3. Report of the Fifteenth Operating Model and Management Procedure Technical Meeting (July 2025)
4. Report of the Twenty-Ninth Meeting of the Scientific Committee (September 2024)
5. Report of the Fourteenth Operating Model and Management Procedure Technical Meeting (June 2024)
6. Report of the Twenty-Eighth Meeting of the Scientific Committee (August/September 2023)
7. Report of the Thirteenth Operating Model and Management Procedure Technical Meeting (June 2023)