NPFC-2021-TWG CMSA04-WP12 (Rev. 2)

**TWG CMSA Work Plan, 2021-2025**

The TWG CMSA04 meeting revised and updated the TWG CMSA work plan for 2020-2025 adopted at the meeting in November 2020. The Work Plan will be submitted to the SC for consideration.

**FIVE-YEAR WORK PLAN**

**Technical Working Group on Chub Mackerel Stock Assessment (TWG CMSA)**

Priority list:

1. Data preparation and review of biological information
2. Develop an operating model
3. Test stock assessment models (VPA, ASAP, KAFKA, SAM, state-space production model)
4. Conduct stock assessment of chub mackerel
5. Set biological reference points
6. Provide scientific advice on the management of chub mackerel stock to the Commission
7. Regularly update and refine inputs
8. Conduct MSE for chub mackerel

| **ITEM** | **2021 summer** | **2022 spring** | **2022** | **2023** | **2024** | **2025** |
| --- | --- | --- | --- | --- | --- | --- |
| **Regular update of inputs** |  |  |  |  |  |  |
| Research survey indices | * Standardize survey data (intersessional)
* Review the data used for the stock assessment
 | Review the data used for the stock assessment | Finalize the data used for the stock assessment  | Update | Update | Update |
| CPUE indices | * Standardize CPUE (intersessional)
* Review the data used for the stock assessment
 | Review standardized CPUE indices for stock assessment | Finalized CPUE standardization | Update | Update | Update |
| Catch data/catch composition | Review the data used for the stock assessment | Review the data used for the stock assessment | Finalize the data used for the stock assessment  | Update | Update | Update |
| Biological parameters (maturity, M, weight) | Review biological parameters | * Review biological parameters
* Determine the range of assumption for preliminary stock assessment
 | Finalize assumptions for the stock assessment | Review biological parameters | Review biological parameters | Review biological parameters |
| **Operating model (OM)** |  |  |  |  |  |  |
| Development of operating model | * Agree on the rules for prioritization of the performance measures
* Generate pseudo data to be fitted to the stock assessment models (intersessional)
 |  |  |  |  |  |
| Testing stock assessment models | Members fit models to pseudo-data and send estimates to the Secretariat (intersessional) | * Consultant drafts a report about the performance of the candidate stock assessment models (intersessional)
* Choose the best SA model(s)
 |  |  |  |  |
| **Stock assessment** |  |  |  |  |  |  |
| Benchmark stock assessment |  | Discuss future projection methods | * Determine the method for future projection
* Conduct preliminary stock assessment
 | Complete stock assessment with the selected SA model(s)  | Update SA model | Update SA model |
| Improvement and further investigation of the selected model |  |  |  |  | Review and improve, if needed, the SA model | Review and improve, if needed, the SA model |
| **Toward development of reference points** |  |  |  |  |  |  |
| Set biological reference points (limit and target) |  | * Review RPs report
* List candidate reference points
 | * Compare robustness of reference points
* Choose reference points
 |  | Review reference points |  |
| **Toward development of MSE\*** |  |  |  |  |  |  |
| Development of management objectives |  | Liaise with the Commission and TCC to set management objectives | Finalize management objectives  |  |  |  |
| Definition of performance measures |  | List of performance measures | Review performance measures | Select performance measure |  | Review performance measures |
| Construction of OMs | Continue | Discuss MSE approaches and frameworks for chub mackerel  | Discuss ranges of uncertainties |  |  |  |
| Development of candidate MPs |  | Suggest preliminary list of MPs | Review the list of MPs |  |  | Review the performance of MP |
| Simulation performance tests |  |  | Conduct preliminary MSE | Conduct MSE |  |  |
| Comparison of MPs and finalize advice  |  |  |  | Select MP and suggest HCR to SC | Review MP and HCR | Continue |

*\* Work plan for the development of MSE will be reviewed and revised by the TWG CMSA in the future.*

Flowchart for the development of operating models and testing stock assessment models

