INTER-AMERICAN TROPICAL TUNA COMMISSION

EXTERNAL REVIEW OF MODELLING ASPECTS FOR STOCK ASSESSMENTS OF TROPICAL TUNA IN THE EASTERN PACIFIC OCEAN

La Jolla, California (USA)
6-10 November, 2023
(by videoconference)

List of topics:

Comparisons of the assessments for the 3 species

Risk analysis approach and hypotheses for the risk analysis for bigeye tuna

Hypotheses for the risk analysis for yellowfin tuna

Spatial structure (stock structure, areas as fleets – fishery definitions)

Selectivity

Time step of the model, number of age classes

Initial conditions and start year (why we choose a particular start year)

Recruitment

Growth

Natural mortality

Indices of abundance

Data weighting

Model diagnostics

Model weighting

Estimation of management quantities and associated uncertainty

Key references (priority in bold):

- **1st External review of the data used in the assessments**: RVDTT-01

- IATTC approach for stock assessment (Areas as fleets with areas defined using tree analysis, model fit to index obtained using spatiotemporal models, simulation testing): Xu, H. 2023 (presentation recording). Results of the spatial simulation experiment YFT IO (IATTC team). Presentation to the In-person workshop of the Spatial Stock Assessment Simulation Experiment

- **Bigeye tuna benchmark assessment: SAC-11-06**

- **Yellowfin tuna benchmark assessment: SAC-11-07**

- **Risk analysis approach, model weighting and hypotheses for the risk analysis for bigeye tuna: SAC-11 INF-F**

- **Hypotheses for the risk analysis for yellowfin tuna: SAC-11 INF-J**

- **Exploratory stock assessment for bigeye tuna in the EPO: SAC-14-05**

- **Conceptual model and exploratory analysis for yellowfin tuna in the EPO: SAC-14-06**

- Growth bigeye tuna: Aires-da-Silva et al. 2015

- Natural mortality bigeye tuna: WSBET-02-07

- Natural mortality yellowfin tuna: YFT-01-07 and Hoyle et al 2022

- Risk analysis workshop 1 – integrated models diagnostics: WSRSK-01

- Risk analysis workshop 2 – model weighting: WSRSK-02

Previous IATTC external reviews:

Yellowfin 2019: YFT-02

Yellowfin 2012: YFT-01

Bigeye 2019: BET-02

Bigeye 2010: BET-01

Skipjack 2022: SKJ-01

Other relevant documents:

CAPAM Tuna stock assessment good practices workshop

WCPO Yellowfin tuna external review: WCPFC-SC19-2023/WP-01

IOTC Yellowfin tuna external review: (in prep, was forwarded to review panel)

Skipjack interim stock assessment: SAC-13-07

Overall results of the risk analyses and management advice: SAC-11-08 REV

Link to SS3 models:

Bigeye tuna 2020 Benchmark assessment

Yellowfin tuna 2020 Benchmark assessment

Skipjack tuna 2022 Interim assessment

New models (to come)