Harvest Strategy in development

EPO Bigeye Tuna

Management Authority:
Inter-American Tropical Tuna Commission

Expected Adoption Year:
2024

Management Objectives:
In development and not officially adopted, but often assumed to be $B_{MSY}$ based on Article VII(1)c of the Antigua Convention.

Reference Points:
Reference points being developed as part of current MSE process.
- **Interim Limit Reference Point**: $F_{0.5R^0}$ and $SSB_{0.5R^0}$, where steepness = 0.75 (this is equivalent to 8% $SSB_0$)
- **Interim Target Reference Point**: $F_{MSY}$, $SSB_{MSY}$

* $SSB_0$ = spawning stock size that would exist in the absence of fishing.
* $R^0$ = recruitment (i.e., number of young fish) that would exist in the absence of fishing.
* Steepness = the fraction of virgin recruitment obtained when a stock is 20% of its unfished size. A steepness of 0.75 indicates that a stock is productive enough to still produce 75% of its maximum reproductive output, even when it is depleted to just 20% of its initial population size.

Candidate Harvest Strategies:
Candidate model-based harvest strategies are being developed as part of current MSE process.

Current interim HCR developed without MSE testing:
- $F$ should not exceed $F_{MSY}$
- If $>10\%$ chance that $F>F_{limit}$, reduce $F$ to $F_{MSY}$ with a $50\%$ probability and a $<10\%$ chance of $F>F_{limit}$
- If $>10\%$ chance that $SSB<SSB_{limit}$, take action to get $SSB\geq SS_{SSB_{limit}}$ with a $50\%$ probability and a $<10\%$ chance of $SSB<SS_{SSB_{limit}}$ within 2 generations or 5 years, whichever is greater

Progress Update & Workplan:
- **2020-23**: MSE framework development and refinement; testing of candidate harvest strategies
- **2024**: Finalize MSE; adopt HCR/HS

Link to relevant policy document or update:
- Resolution C-16-02: Harvest Control Rules for Tropical Tunas (Yellowfin, Bigeye, and Skipjack) (https://www.iattc.org/GetAttachment/7917f4b8-abcd-48c4-8f85-c46d0ffe5979/Harvest%20control%20rules)
- Example Toy Management Strategy Evaluation for Bigeye Tuna (https://valeromaspez.shinyapps.io/tunamse_epo_eng/), A shiny app where users can explore the performance of candidate HCRs

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