

**CURRENT AND FUTURE RESEARCH  
ON MANAGEMENT STRATEGY  
EVALUATION (MSE) FOR TUNAS  
AND RELATED SPECIES IN THE  
EASTERN PACIFIC OCEAN**

# Current IATTC HCR and RPs

- At its 87th meeting in October 2014, the IATTC adopted interim target and limit RPs for two species of tropical tunas, bigeye (*Thunnus obesus*) and yellowfin (*T. albacares*).
- The target reference points are the biomass ( $B$ ) and fishing mortality rate ( $F$ ) corresponding to the maximum sustainable yield
- The limit RPs are those associated with a 50% reduction in recruitment under a conservative assumption ( $h = 0.75$ ) about the relationship between stock size and recruitment, expressed as steepness ( $h$ ; see Maunder and Deriso 2014).
- The IATTC has operated under the informal HCR of fishing at  $F_{MSY}$ , or more accurately, reducing the fishing mortality to  $F_{MSY}$  if fishing mortality on bigeye or yellowfin exceeds  $F_{MSY}$  for that species, as estimated by the base case stock assessments.

# PREVIOUS MSE WORK

- Developed a procedure to conduct management strategy evaluations (MSEs) using the Stock Synthesis and applied to Pacific bluefin tuna as a “toy” example
- Conducted a preliminary MSE on bigeye tuna to investigate the appropriateness of the operational  $F_{MSY}$ -based HCR, given the new interim limit RP
- During 2015 the IATTC staff, in conjunction with FAO and WWF conducted a workshop “to accelerate the development of tuna harvest strategies within the Eastern Pacific Ocean by assisting IATTC Commissioners and technical advisors to become familiar with the MSE process and the way that scientists and decision makers should work together towards selecting and implementing robust [harvest strategies].”
- IATTC staff also participated in the 2015 ISSF [Stock Assessment Workshop](#) on Characterizing Uncertainty in Stock Assessment and Management Advice.
- MSE for dorado

# Proposed work

- Received funding from the European Union to conduct a preliminary MSE on tunas in the EPO
- A Joint MSE Technical Working Group has been established by the tunaRFMOs
- The ISC has a work plan to develop a process for evaluating the performance of alternative management procedures for north Pacific albacore

# Where to start

- The results of MSE will be highly dependent on the choice of operating models used to represent the states of nature.
- Stock assessment must be conducted to develop the operating model.
- Therefore, MSE should not be thought of as a replacement for stock assessment; in fact, it means that additional stock assessment research is needed to ensure that the uncertainty about the assessment is accurately represented, and that arbitrarily-chosen operating models do not influence the results of the MSE.