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Long Distance Advisory Council

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# MSE FOR TROPICAL TUNAS

29th meeting of LDAC Working Group 1  
Highly Migratory (Tuna and Tuna-like) Stocks and its RFMOs

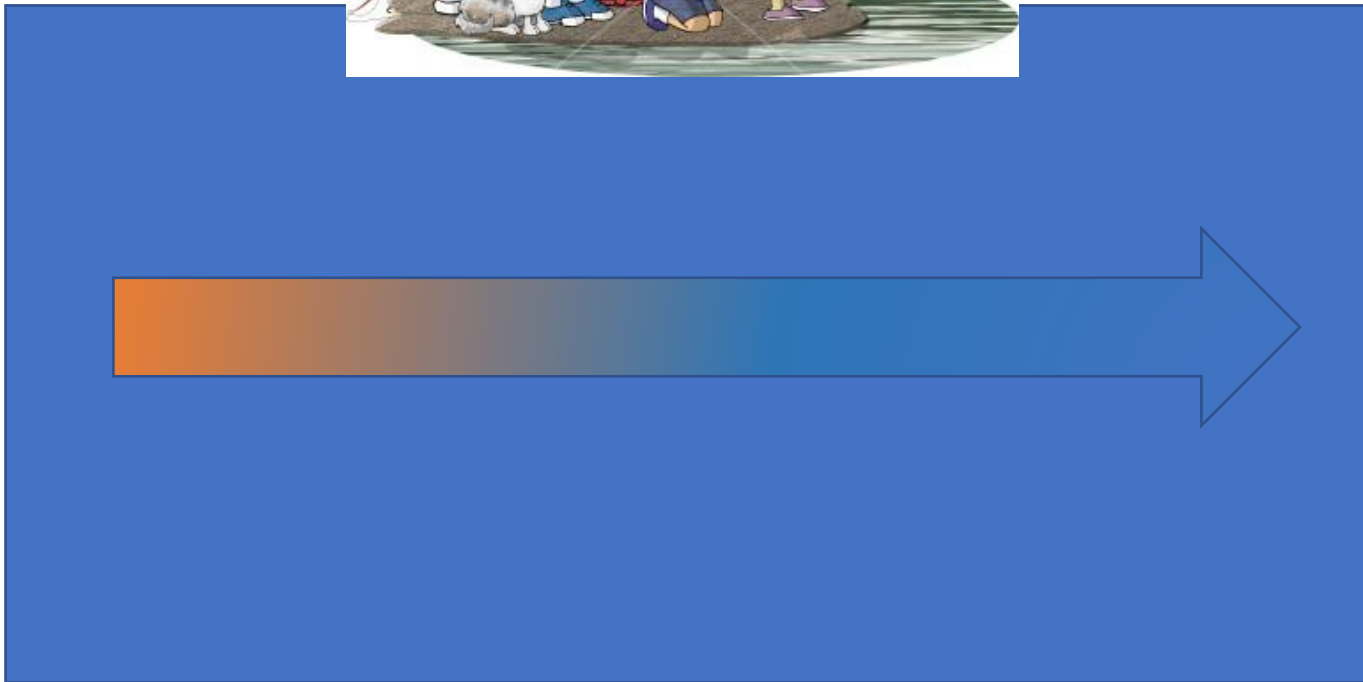
22/03/2022

Gorka Merino - [gmerino@azti.es](mailto:gmerino@azti.es)

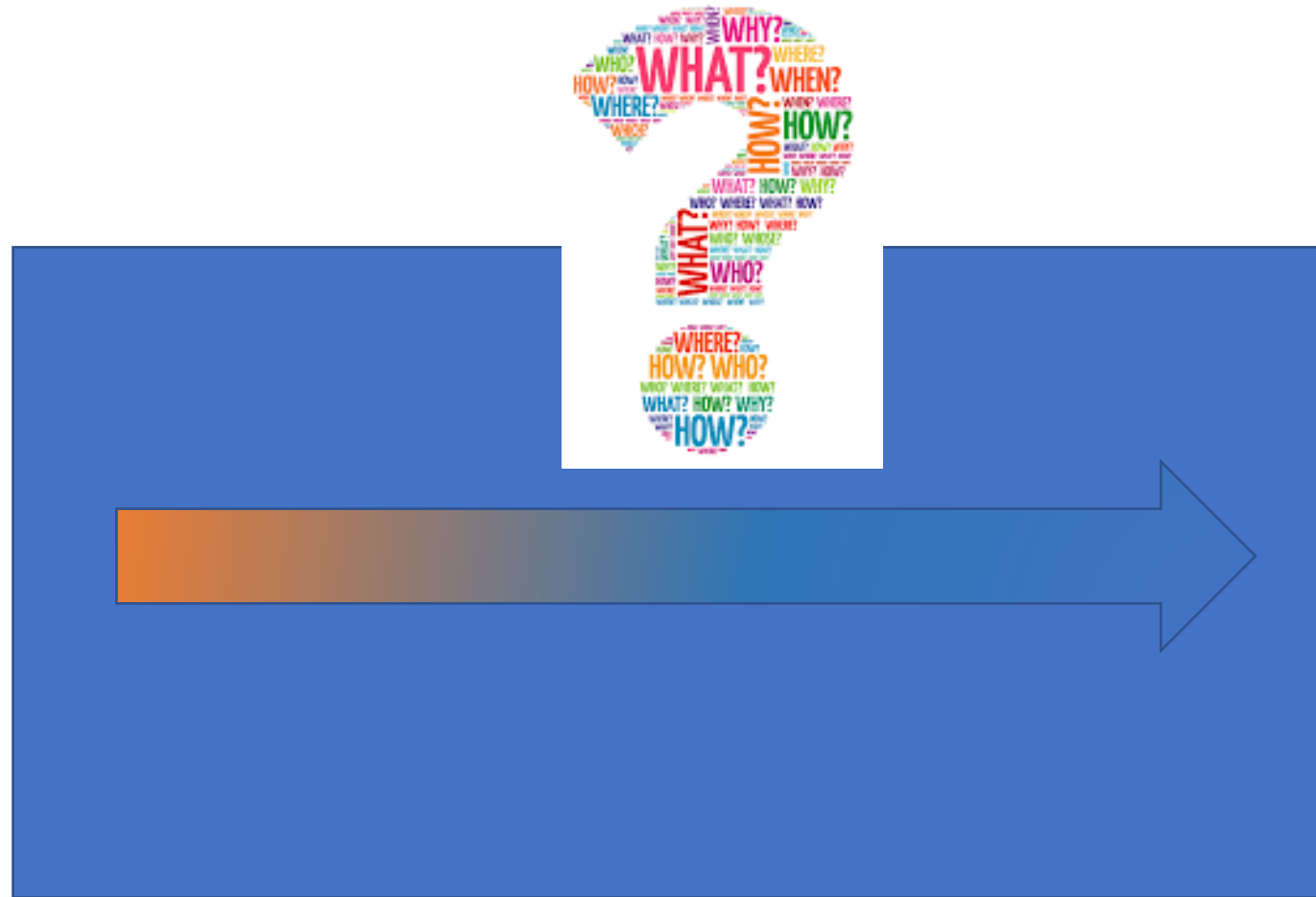
What is MSE? State of stocks -> Management



# Why at RFMOs? Common resource

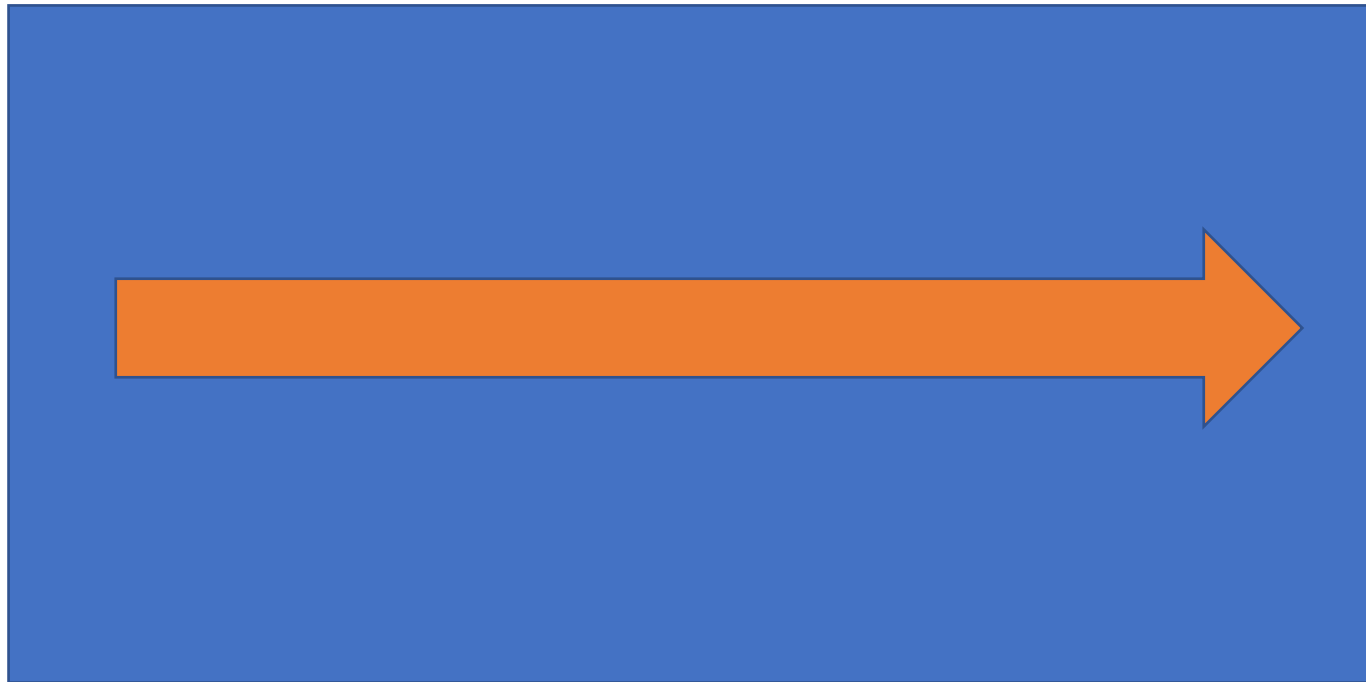


# Why at RFMOs? Science is uncertain



# What is MSE? State of stocks > Management

Feedback and Dialogue



What is MSE? State of stocks > Management



# In other words...

- MSE is a process towards an adaptive automatic management system that avoids delayed/ignored responses to scientific advice.
- MSE is a feedback process between managers and scientists to define the most suitable management system.

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- MSE is a process towards an adaptive automatic management system that avoids delayed/ignored responses to scientific advice.
- MSE is a feedback process between managers and scientists to define the most suitable management system.
  - Managers define management goals for a fishery and potential ways for regulation (catch limits, maximum changes of catch, conditions...)
  - Scientists will evaluate the different paths (Management Procedures) to achieve goals.



# Assessment of processes

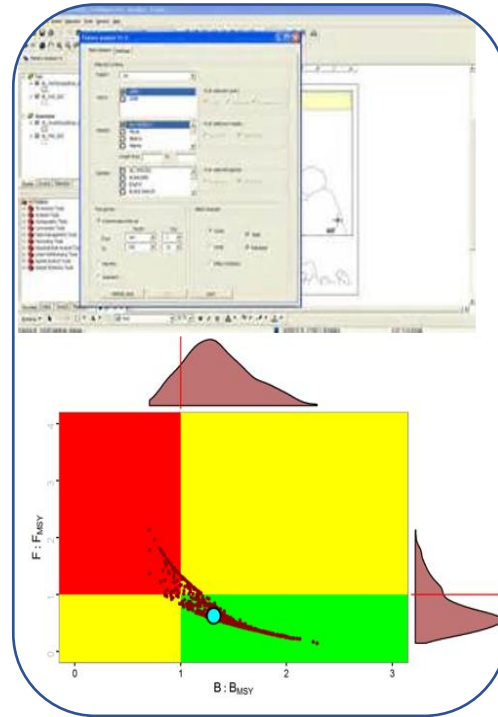
Management Strategy Evaluation (MSE)



# Fisheries management process



Observation  
(Data)



Analysis  
(Estimator)

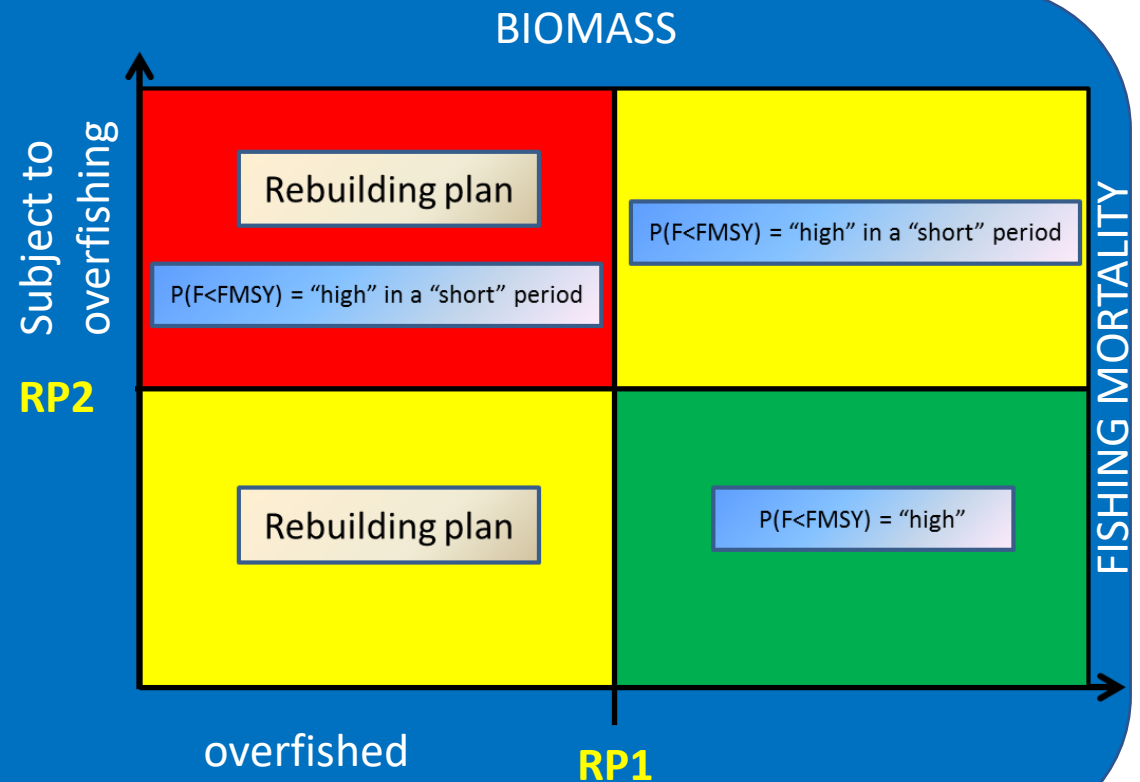


Decision  
(HCR)

# Fisheries management process -> Advice based

## "Genérico" decisión framework:

- If a stock is overfished (biomass) or subject to overfishing (fishing mortality), measures will be taken to allow recovery with high probability in as short time as possible.



Decision

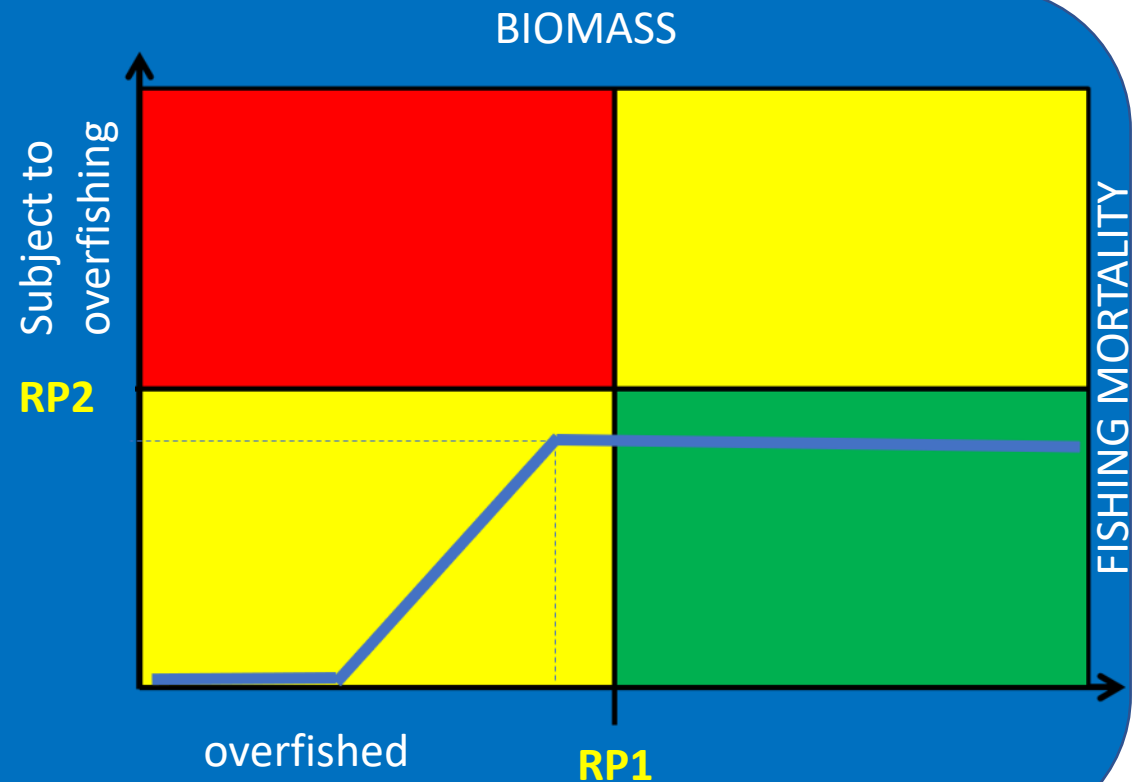


# Fisheries management process -> Automatic

“Specific” decision framework:

- Specific link between the state of the stock (biomass and fishing mortality) and the fishing mortality to be applied in the next management period.

**EVALUATION - AGREEMENT**



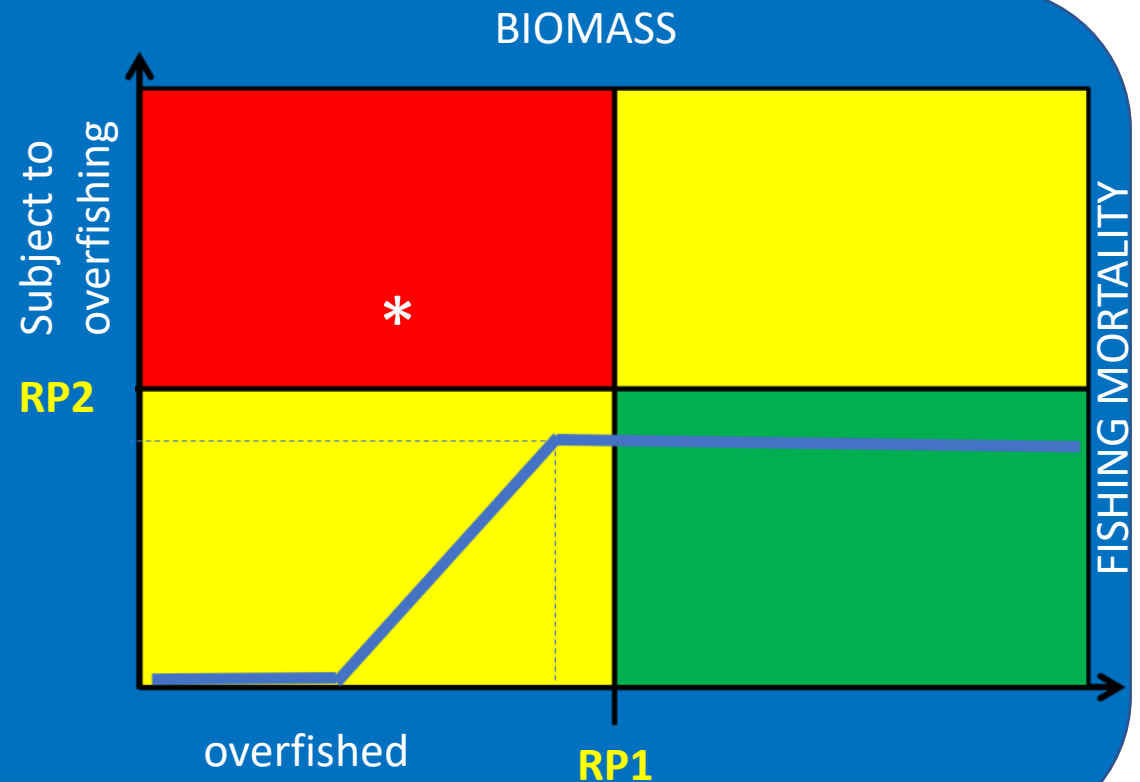
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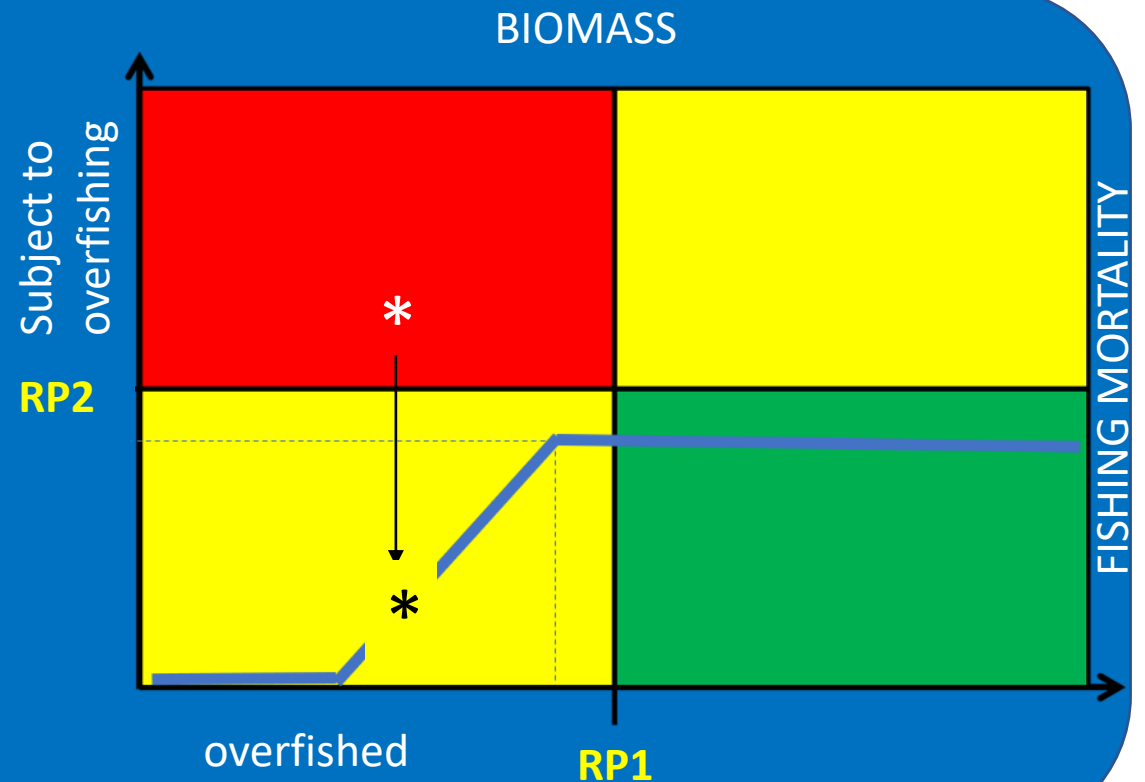
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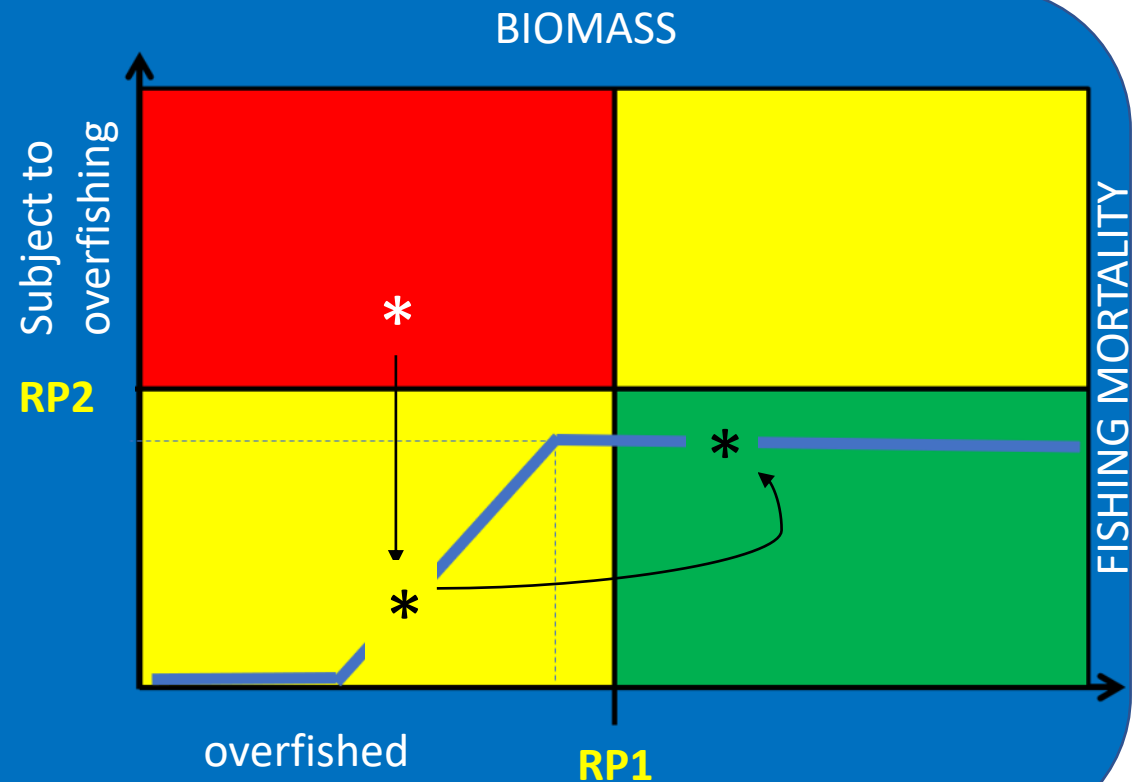
Decision  
(HCR)

# Fisheries management process -> Automatic

“Specific” decision framework:

- With which probability and how long will it take?
- What will be the average catch?
- And the probability of collapse?
- And the variability of catch?

**EVALUATION - AGREEMENT**



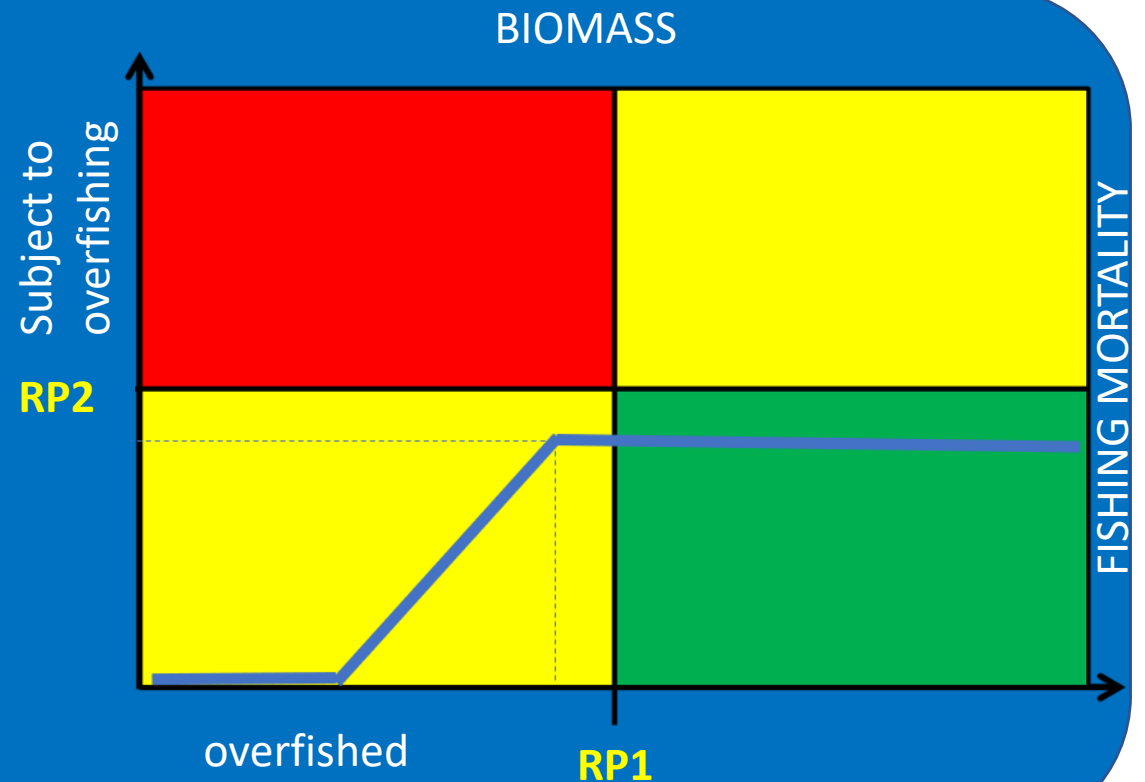
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**EVALUATION - AGREEMENT**



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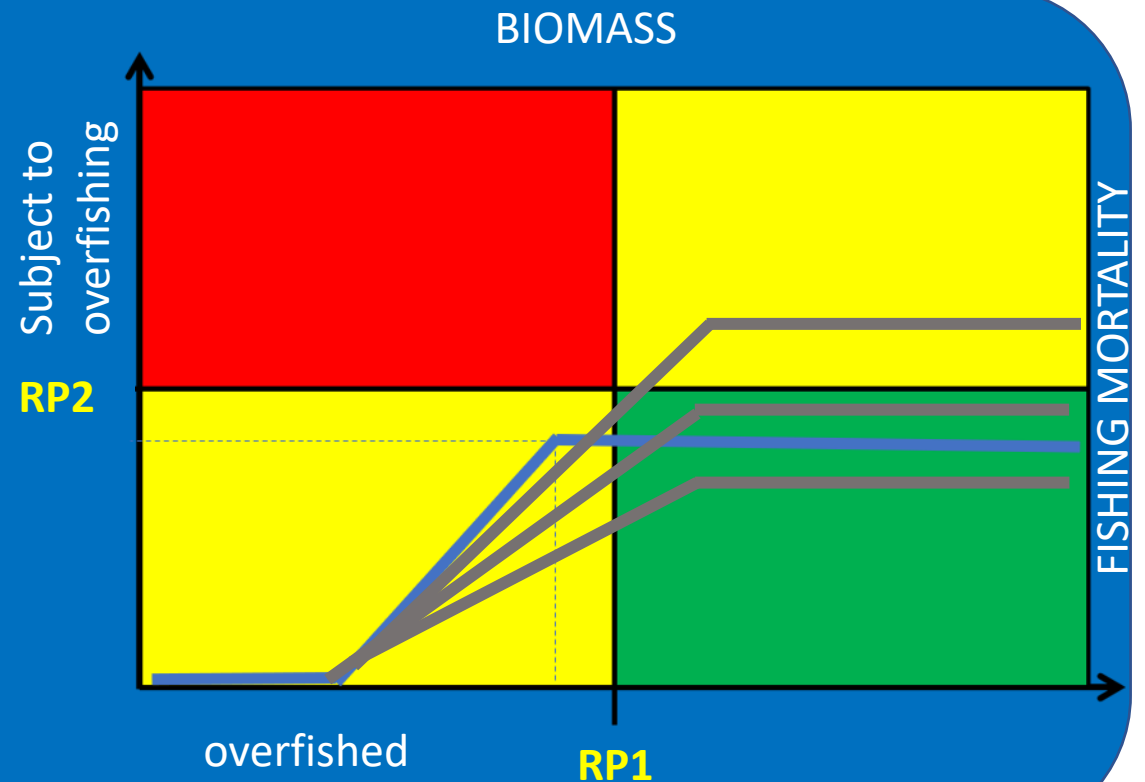


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**EVALUATION - AGREEMENT**



# In other words...



- MSE evaluates each component of the fisheries management process to make it more efficient in achieving management objectives.
- The management of fisheries consists on:
  - Collecting information
  - Analysing the available information to infer stock status and fishery trends.
  - Implementing measures as a response to scientific advice on status and fishery trends.

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  - Implementing measures as a response to scientific advice on status and fishery trends.
- To evaluate this we need maths (MSE = MSE 😊 )

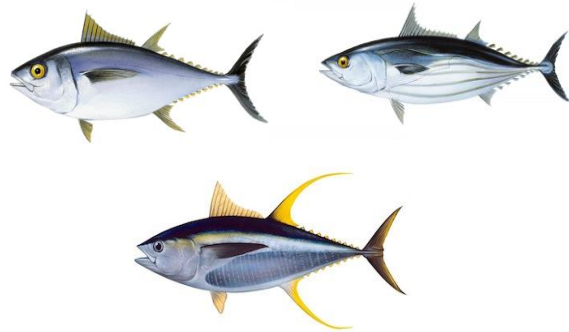


ICCAT CICTA CICAA



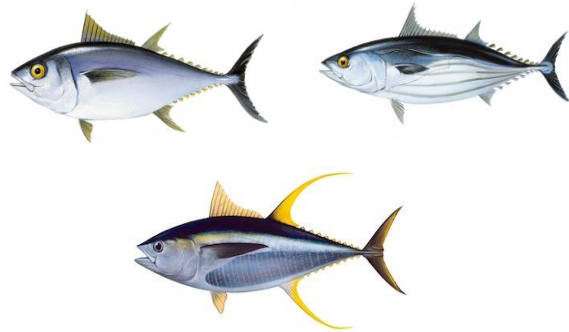
MSE for Atlantic tropical tunas (ICCAT)

# Objective



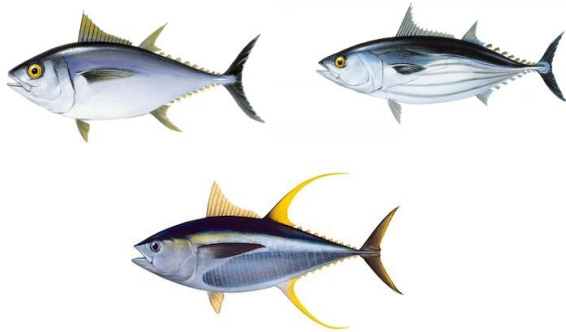
- Support the development of a robust advice framework consistent with the Precautionary Approach for the Atlantic tropical tuna stocks.
- Evaluate candidate management procedures for the common management of the tropical tuna stocks in the Atlantic.

# Background



- The tropical tuna MSE started in 2018 with a design of the steps towards developing the numerical framework and the interaction with the Commission (Phase 1).
- In 2018, the Commission reviewed the schedules for the different MSEs and lowered the priority for this.
- In 2019 and 2020, request for next steps and in 2021, a new project has started.

# Background



- The tropical tuna MSE started in 2018 with a design of the steps towards developing the numerical framework and the interaction with the Commission (Phase 1).
- In 2018, the Commission reviewed the schedules for the different MSEs and lowered the priority for this.
- In 2019 and 2020, request for next steps and in 2021, a new project has started.
- In 2021 a dedicated MSE Technical Group meeting was carried out to:
  - Present updates on the multispecies MSE
  - Axes of uncertainty (review SA across RMFOs)
  - Update the roadmap

# **General strategy** (basic steps of MSE)

1. Identification of management objectives.
2. Identification of uncertainties
3. Development of Operating Models
4. Selection of parameters and quantification of uncertainty
5. Identification of Management Procedures and HCRs (single vs multiple stocks)
6. Simulation
7. Summary and interpretation of performance statistics





# Roadmap in SCRS (Appendix 15, SCRS report 2021)

2022

SCRS to conduct SKJ SA,  
SCRS recondition OMs for ESKJ and WSKJ in light of new assessment  
SCRS initiate development and testing of CMPs for WSKJ  
COMM (SWGSM/PA1) to provide feedback on evaluation criteria for WSKJ.  
Independent review of TT MSE process to be initiated and technical review of WSKJ.

2023

SCRS to conduct YFT SA.  
COMM consider evaluation of CMPs for WSKJ and **adopt interim MP for WSKJ** at annual meeting.  
Independent technical review of multi-stock MSE

2024

SCRS to test final set of CMPs for multistock MSE  
SCRS provide advice on Exceptional Circumstances for the implementation of MPs  
SCRS (Oct-Dec) final delivery of multi-stock MSE including OMs and final MPs  
COMM:  
- Review and endorse guidance for Exceptional Circumstances  
- consider adopting interim MPs for bigeye, yellowfin and skipjack

2025 and beyond

Once MPs are adopted SCRS to conduct periodic assessments to ensure conditions for application of MPs are applicable.  
SCRS to evaluate Exceptional Circumstances  
COMM to continue use of MPs to set management measures.



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Thanks for the attention