

What is an MSE-based MP?

October 28, 2024



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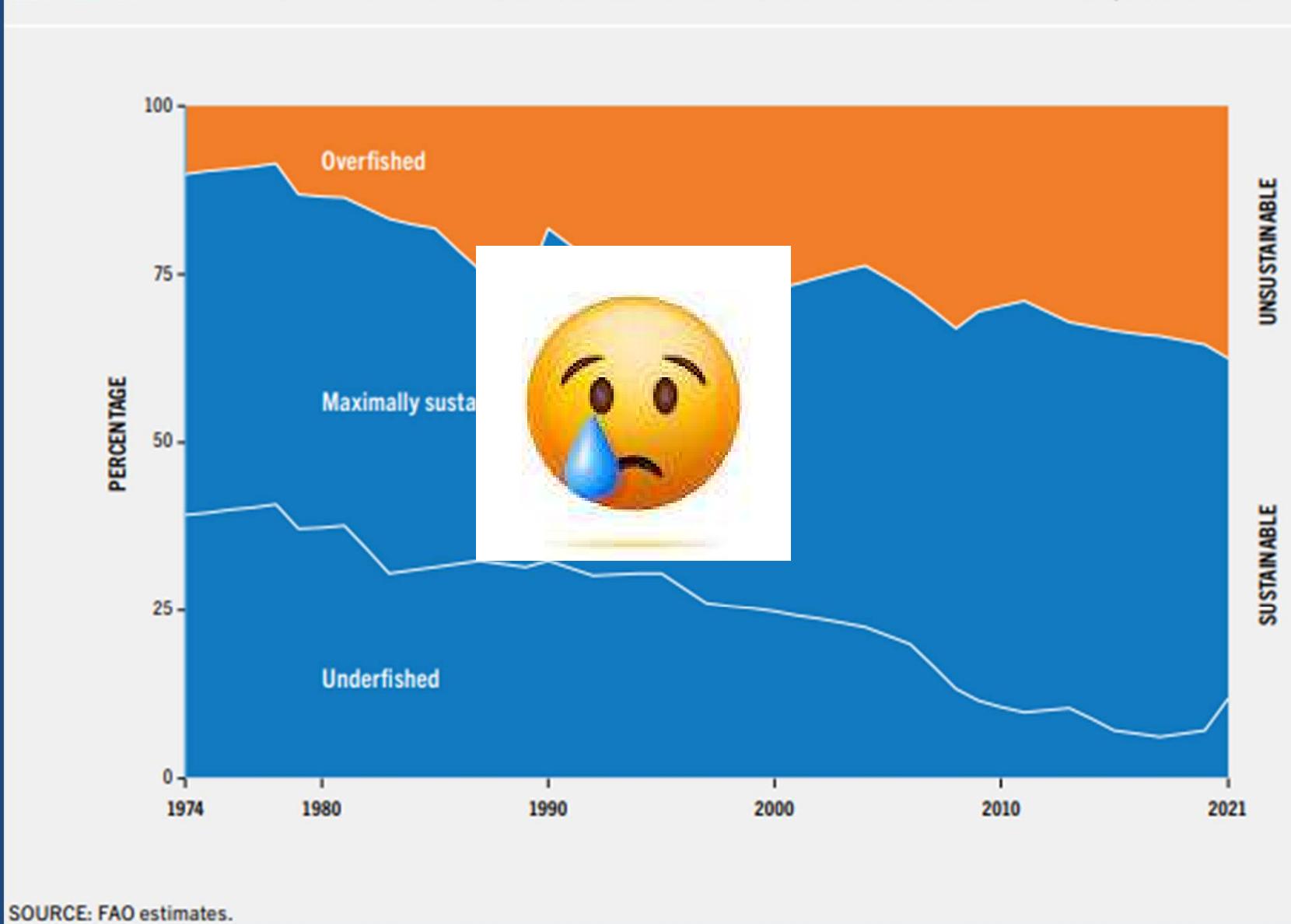
WHAT IS A MANAGEMENT PROCEDURE?

- A pre-agreed framework for making management decisions
 - 1 – Objectives
 - 2 – Monitoring
 - 3 – Assessment
 - 4 – Harvest Control Rule (HCR)
- Evaluated and selected using management strategy evaluation (MSE)
- Also known as a harvest strategy



STATUS OF MARINE FISHERIES

FIGURE 18 GLOBAL TRENDS IN THE STATE OF THE WORLD'S MARINE FISHERY STOCKS, 1974–2021



STATUS OF TUNA FISHERIES

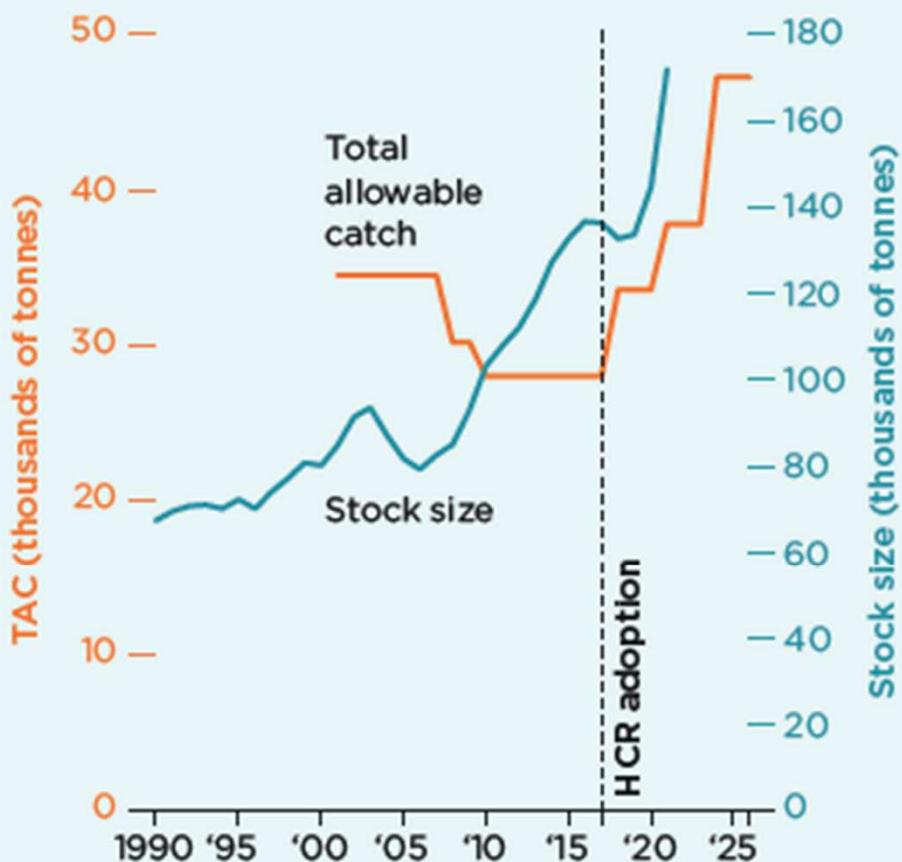
- 66% sustainably fished in 2019
- 87% sustainably fished in 2021



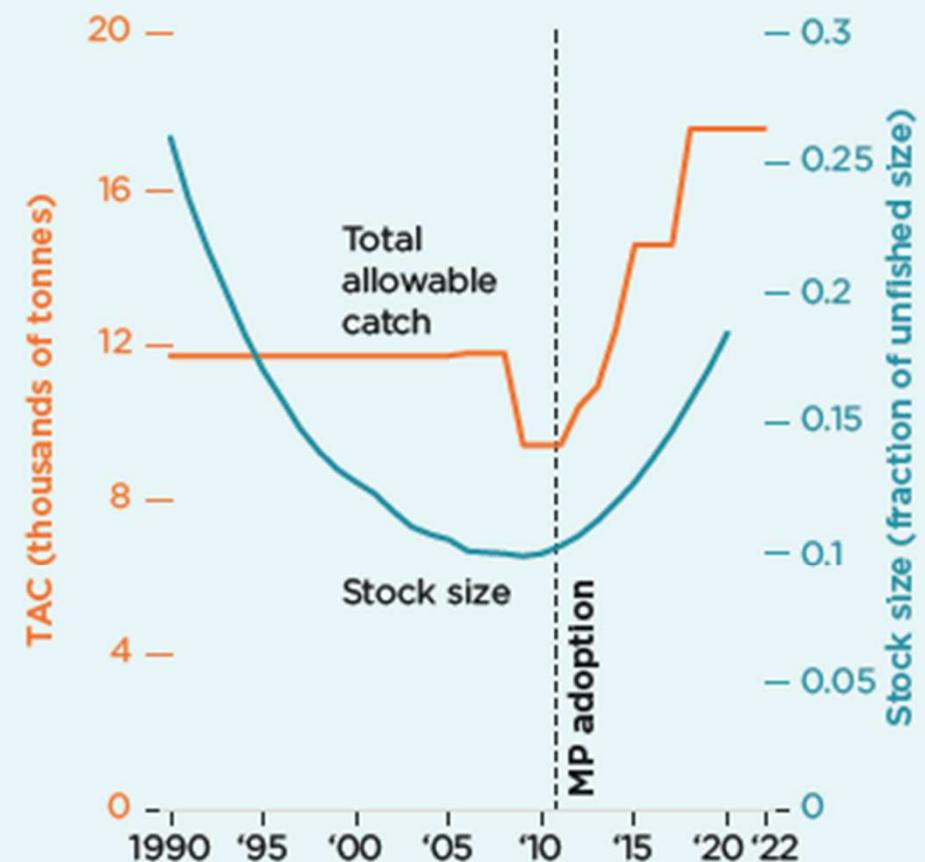
“Globally, the tuna RFMOs have been making a concerted effort to use **management strategy evaluations** to provide advice for rebuilding and keeping stocks at biomass levels above the maximum sustainable yield, with positive results.” FAO, 2024.

MP SUCCESSES

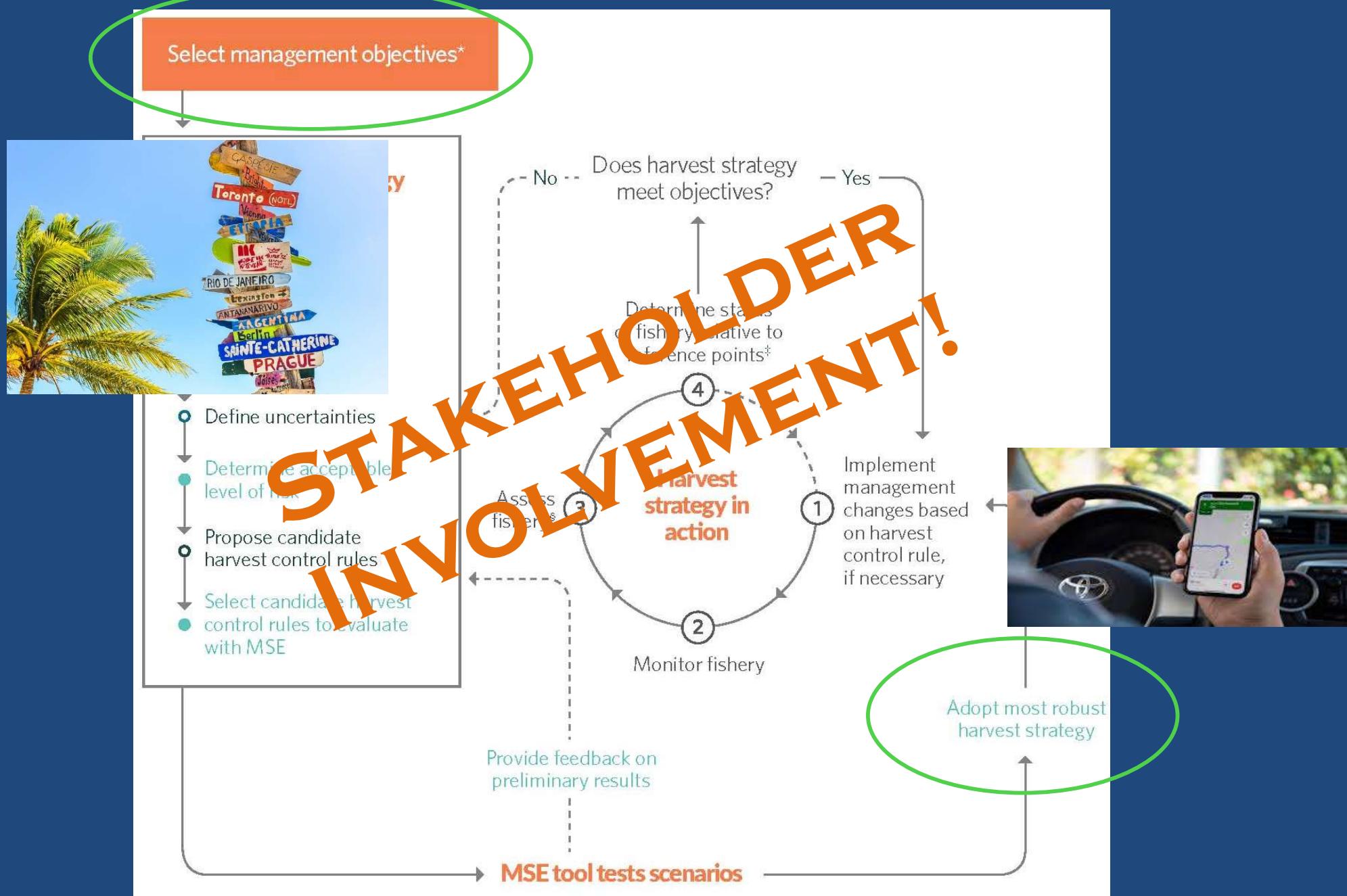
Northern Albacore (ICCAT)



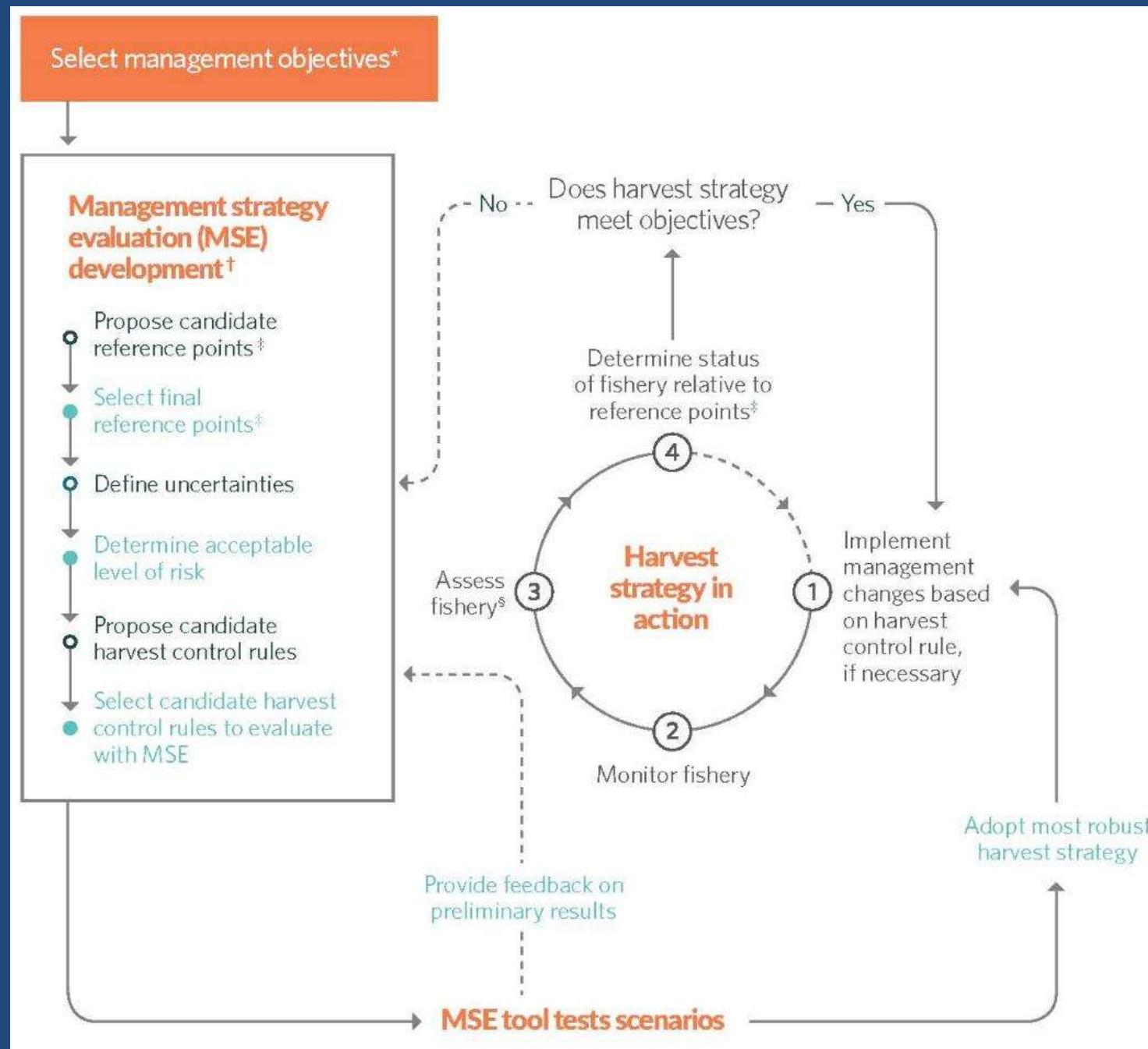
Southern Bluefin tuna (CCSBT)



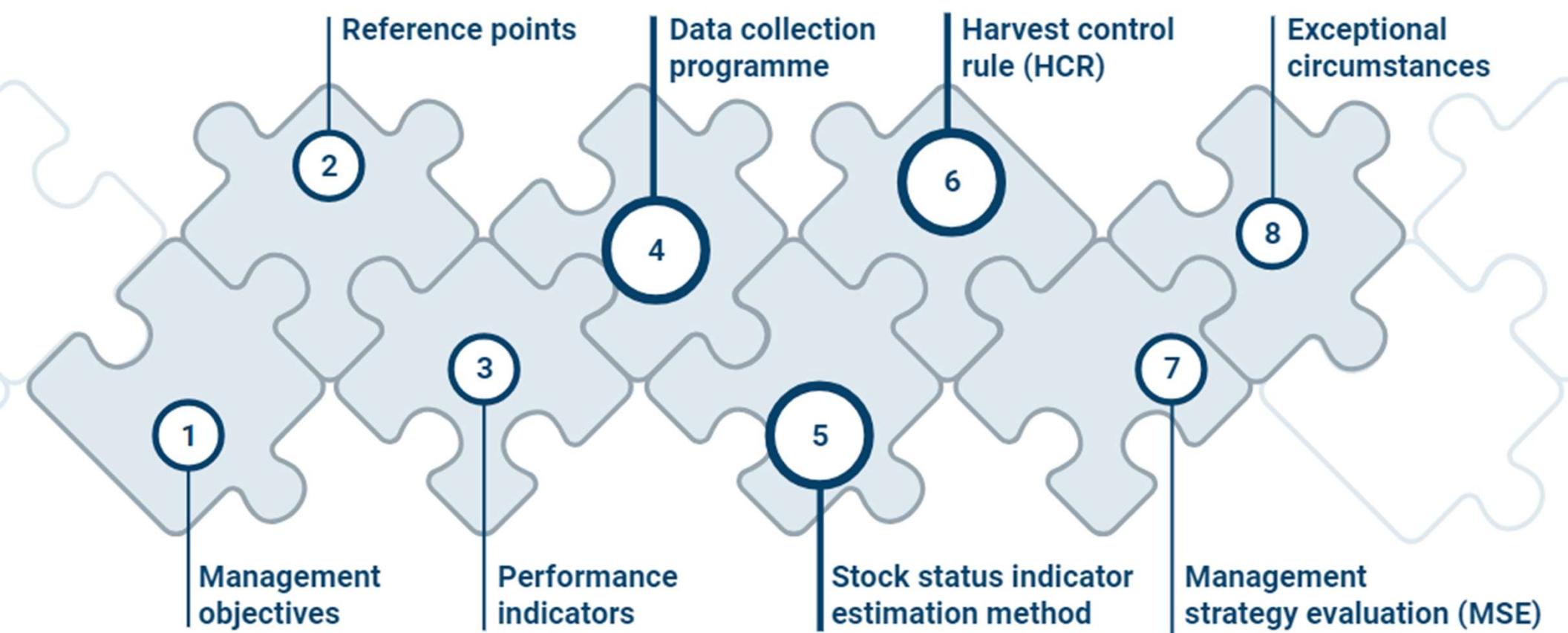
INTEGRATING SCIENCE & MANAGEMENT



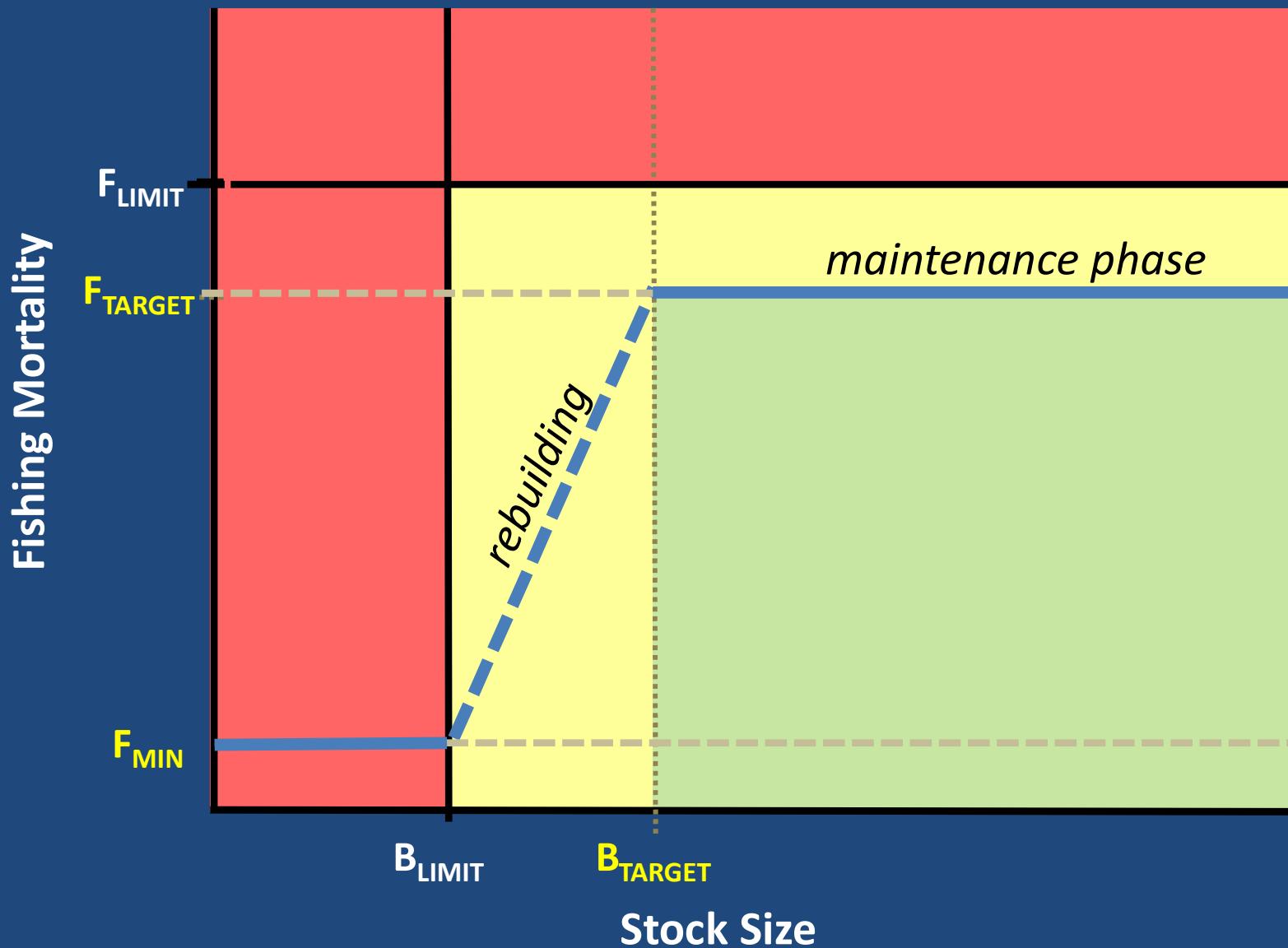
MANAGEMENT PROCEDURE DEVELOPMENT



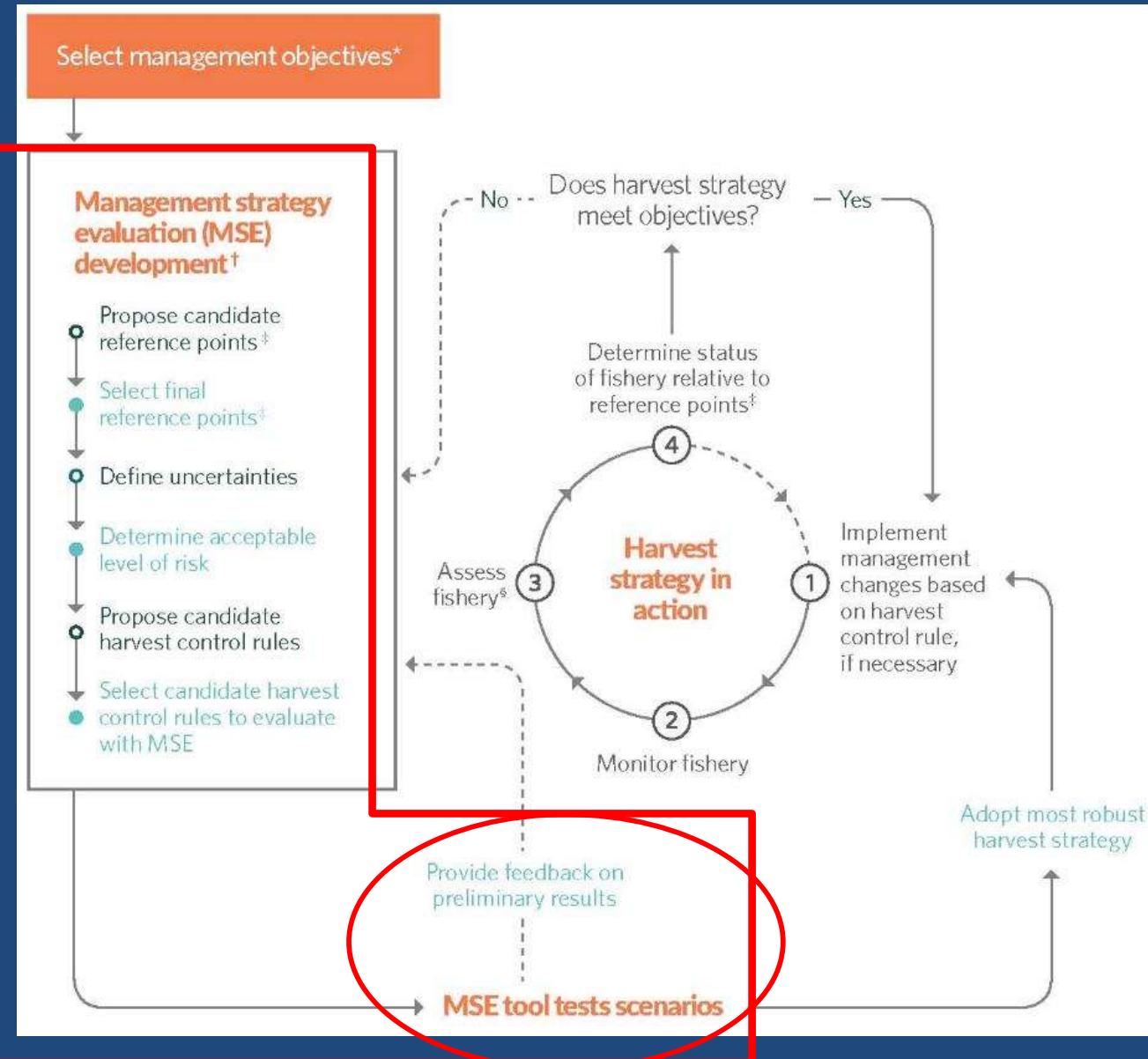
MANAGEMENT PROCEDURE ELEMENTS



HARVEST CONTROL RULE



MANAGEMENT STRATEGY EVALUATION

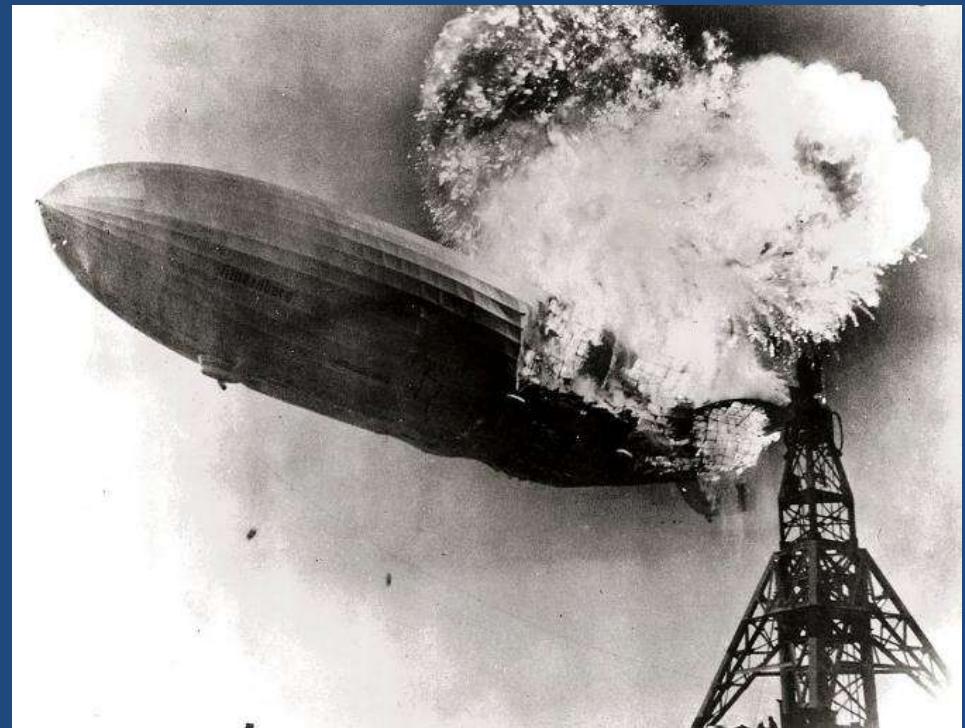


- Uses a simulation tool to measure the performance of MPs given uncertainties



- The process for developing management procedures

WHAT Is MSE?

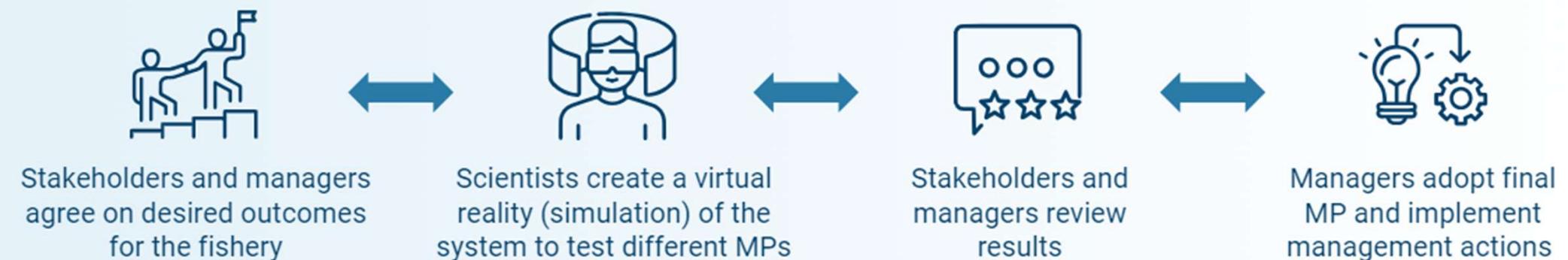


If a management strategy does not perform adequately under simulation, we should not expect it to work in the real world!

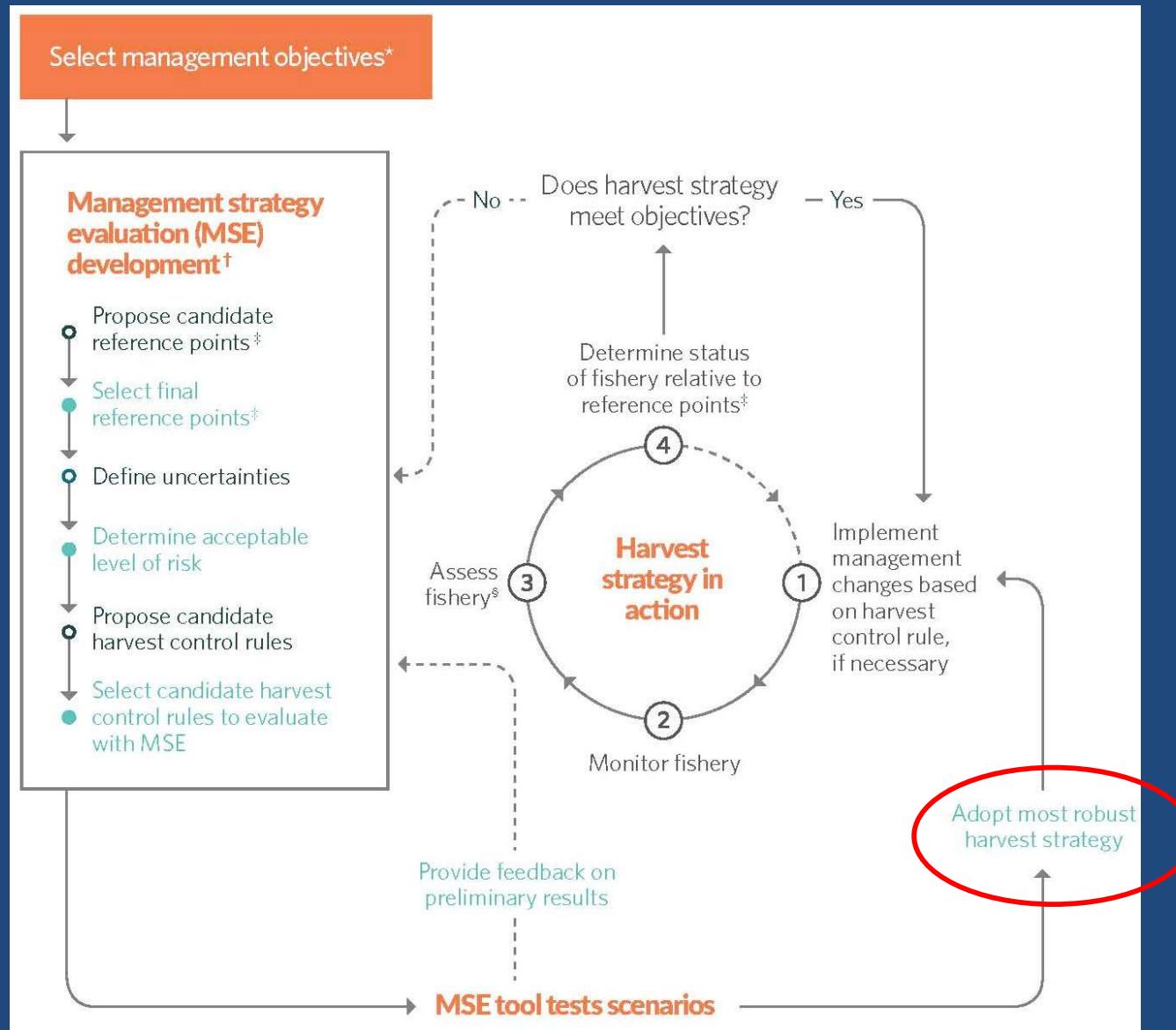
-Andre Punt

WHAT IS MSE?

- Tests MP options under different scenarios to find the one most likely to achieve objectives



ADOPTION!

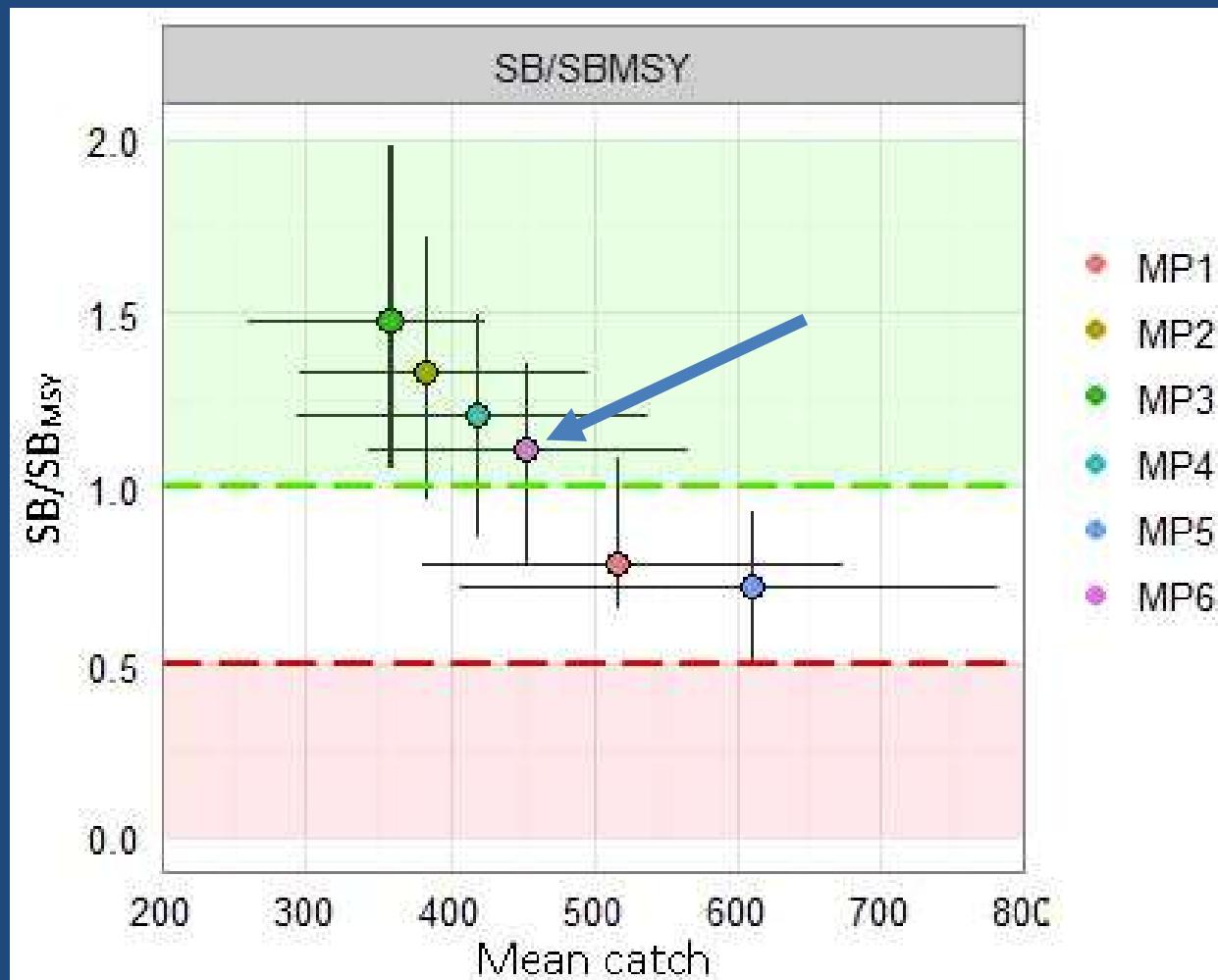


- **Input from science-management dialogue group**
- **MSE results**

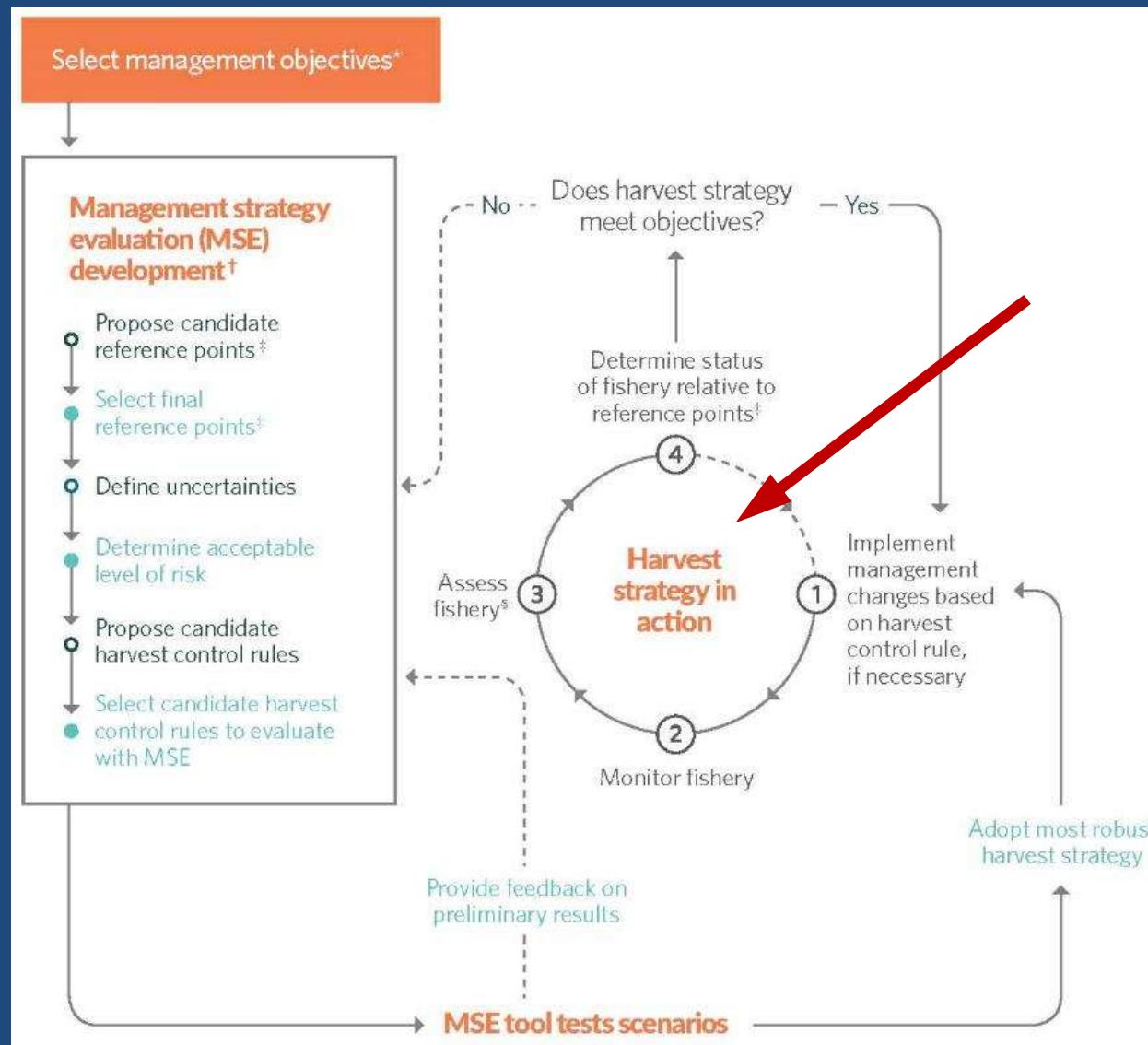


SELECTING THE FINAL MP

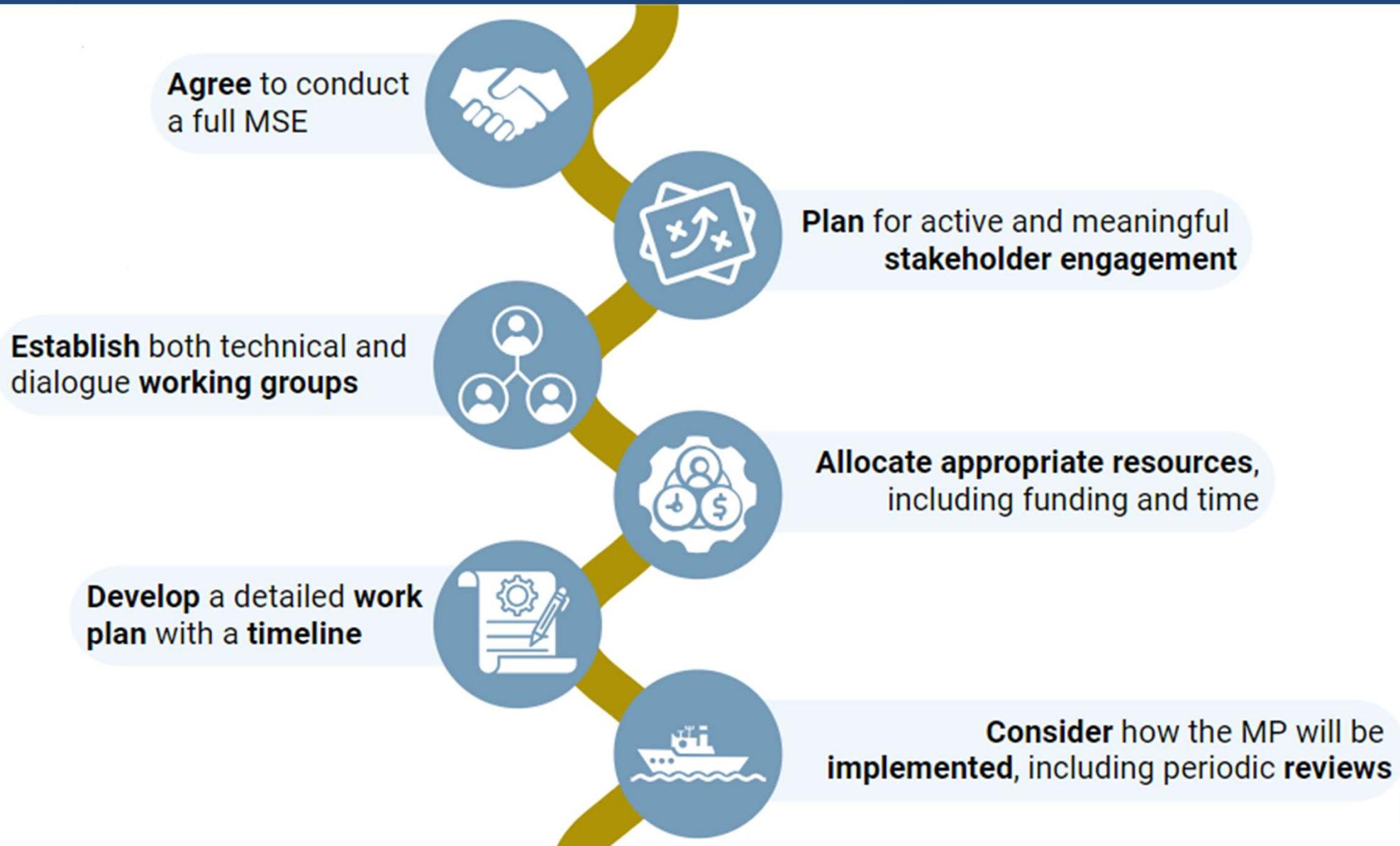
- Balance tradeoffs
- Prioritize management objectives



MP IN ACTION!



STRUCTURING THE PROCESS

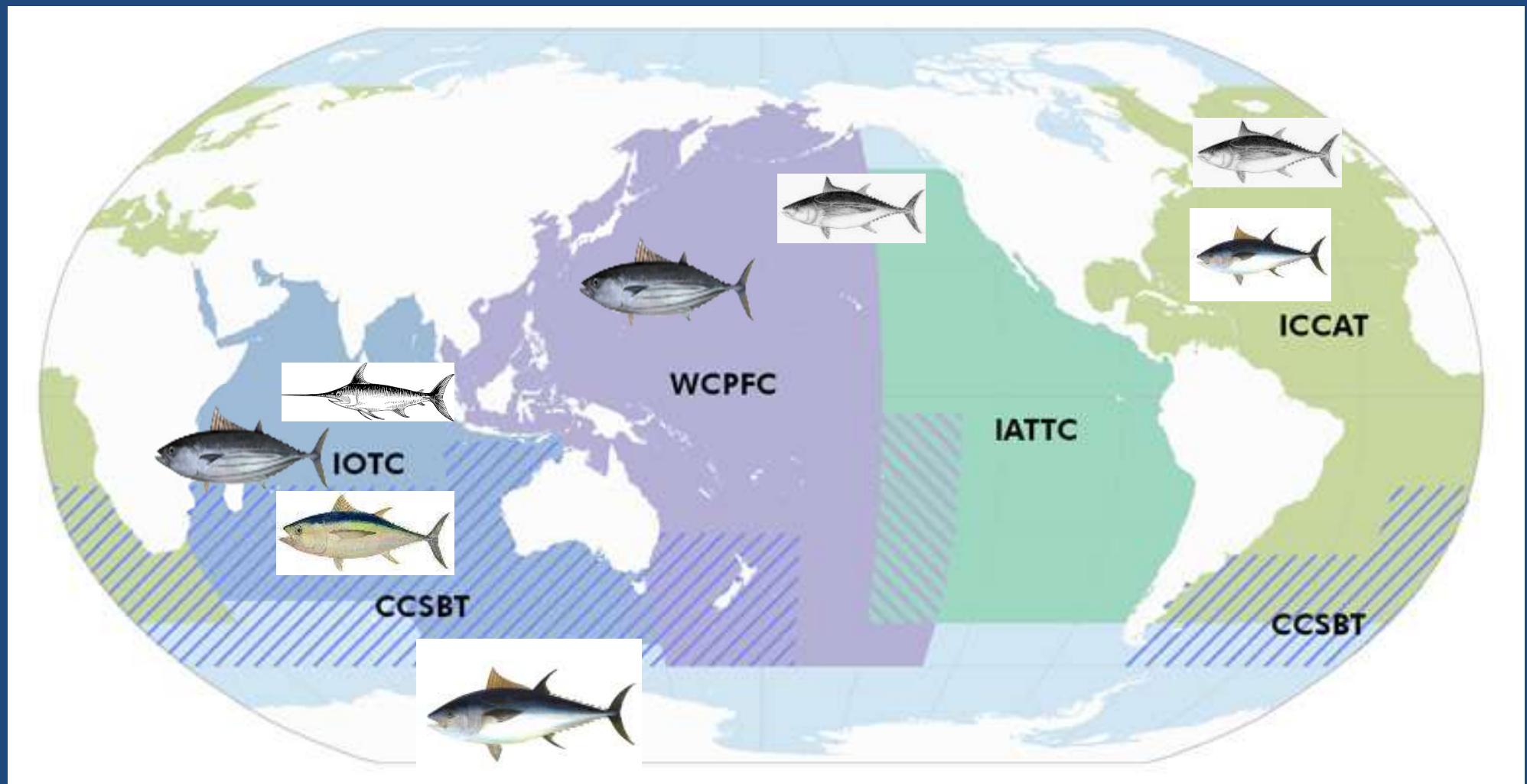


COMMUNICATION IS KEY: DIALOGUE GROUPS & MP DEVELOPMENT

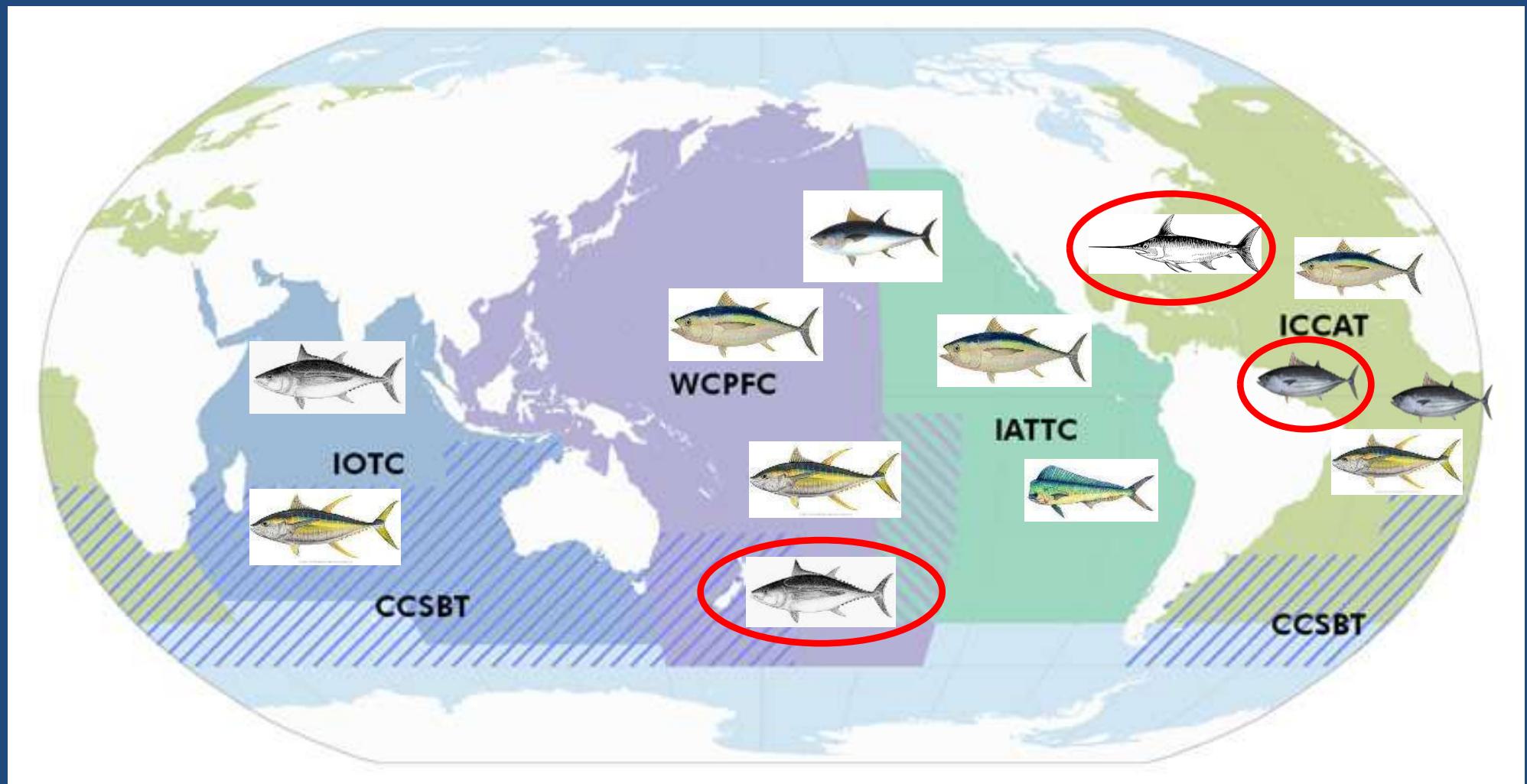
- Hallmarks of MP approach
 - Iterative exchange among managers and scientists
 - Stakeholder involvement throughout
- Dialogue group is forum for that interaction
- All tRFMOs have such groups, either formally or informally
- ICCAT uses the Panels



MANAGEMENT PROCEDURES @ THE TRFMOS: IN PLACE



MANAGEMENT PROCEDURES @ THE TRFMOS: IN DEVELOPMENT



STREAMLINING THE PROCESS

- Default management objectives & performance indicators
- Default uncertainties
- MSE software packages with customizable MP options included
- Standardized presentation format
- 2 rounds of review

STREAMLINING THE PROCESS

Year 1

- Commission adopts conceptual management objectives
- SCRS initiates MSE

Year 2

- Species Working Group provides feedback on MSE framework & preliminary results
- SCRS Plenary provides feedback on MSE framework & preliminary results
- Panel provides feedback on MSE at annual Commission meeting

Year 3

- Species Working Group reviews revised MSE & provides feedback
- Species Working Group approves final MSE and results
- SCRS Plenary endorses final MSE and results
- Ambassador meeting to share final results
- Commission adopts MP, including operational management objectives



The screenshot shows the homepage of Harvest Strategies. At the top, there is a navigation bar with links for HOME, HARVEST STRATEGIES, MSE, HS AROUND THE WORLD, and RESOURCES. Below the navigation is a large banner image showing a person in orange boots standing next to a large catch of fish. Overlaid on the banner is a dark box containing the word 'BLOG' and a title: 'The Harvest Strategy – A Game Changer for Sustainable Fisheries Management'. A 'Learn more ...' link is located at the bottom right of this box. Below the banner, there are four main content blocks: 'What are Harvest Strategies?' (with a 'Learn more ...' link), 'HS Case Studies' (a world map with numbered locations and a 'Learn more ...' link), 'WEBINARS' (with a computer monitor icon), and 'WHAT IS MSE?' (with a circular diagram showing a 'Closed Loop Simulation' with four numbered steps: 1, 2, 3, and 4). At the bottom, there is a 'HS UPDATE' section with a megaphone icon and the text 'New information'.

 HARVESTSTRATEGIES.ORG

HOME HARVEST STRATEGIES MSE HS AROUND THE WORLD RESOURCES

BLOG

The Harvest Strategy – A Game Changer for Sustainable Fisheries Management

[Learn more ...](#)

What are Harvest Strategies?

Harvest strategies are an essential tool in making sustainable fisheries management decisions. Adopt...

[Learn more ...](#)

HS Case Studies

22

17

16

9

3

2

6

13

14

12

4

15

1

[Learn more ...](#)

WEBINARS

WHAT IS MSE?

1

2

3

4

Closed Loop Simulation

HS UPDATE

New information

What problems can MSE be used for?

October 28, 2024



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WHY MANAGEMENT PROCEDURES?

- Offset natural variability and scientific uncertainty
- Account for risk and balance trade-offs
- Increase transparency, predictability and market stability; clarify scientific advice
- Facilitate swift, efficient management to ensure resource health and industry profitability
- Effectively implement the precautionary approach (UNFSA, MSC)

EBFM & CLIMATE IN MSE

Select management objectives

Include ecosystem objectives, such as a bycatch cap, forage/prey fish set aside for predators or habitat protection.

Determine acceptable levels of risk

Apply lower risk tolerance for prey species because of pivotal ecosystem role

Select reference points

Include ecosystem considerations, such as total biomass caught or water temperature



Identify candidate HCRs to test

Include rules for multiple species or other ecosystem considerations

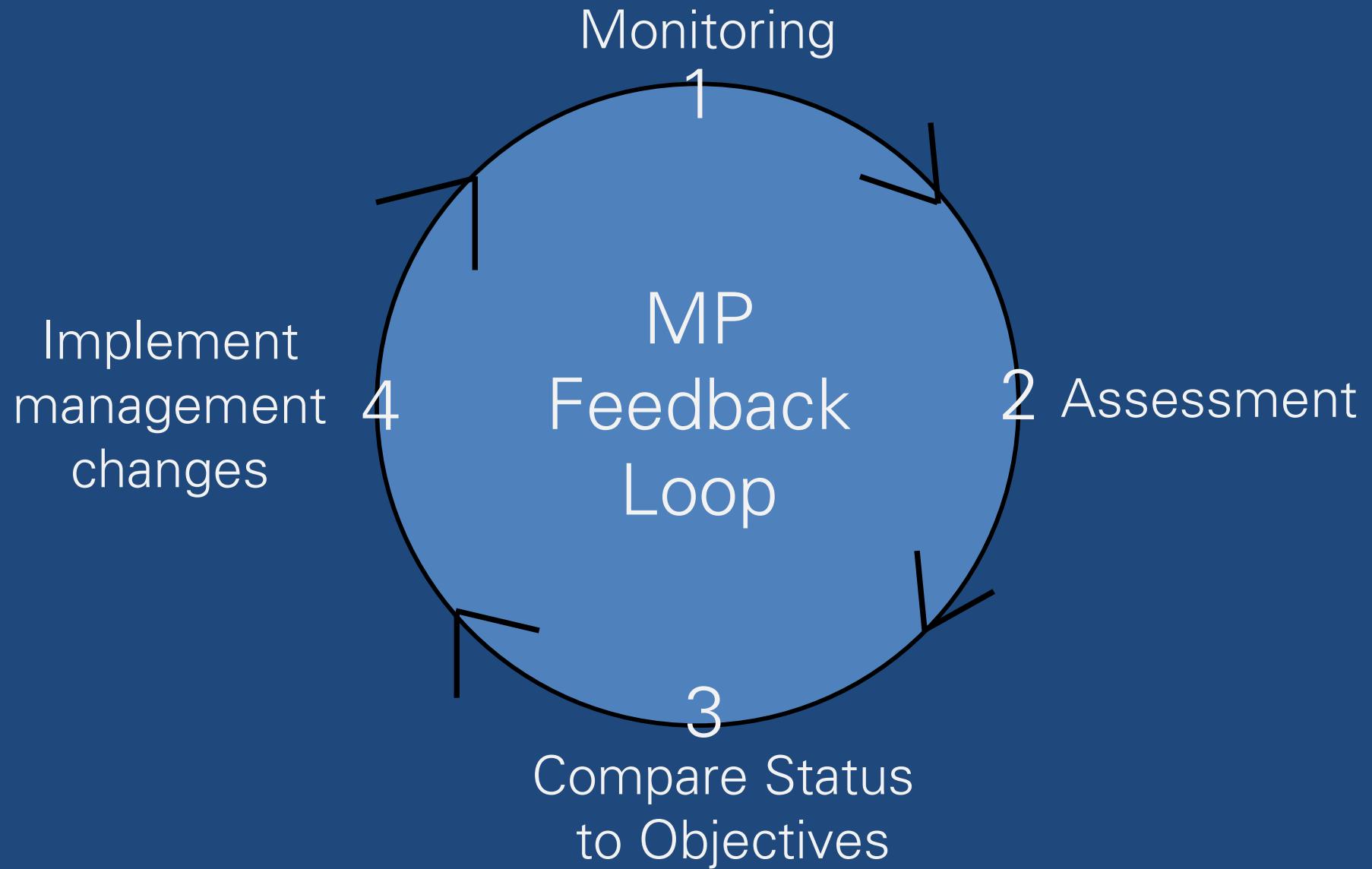
Define uncertainties

Include uncertainties related to climate-driven changes

Adopt most robust harvest strategy

Adopt multi-species harvest strategy to simultaneously manage target and bycatch species.

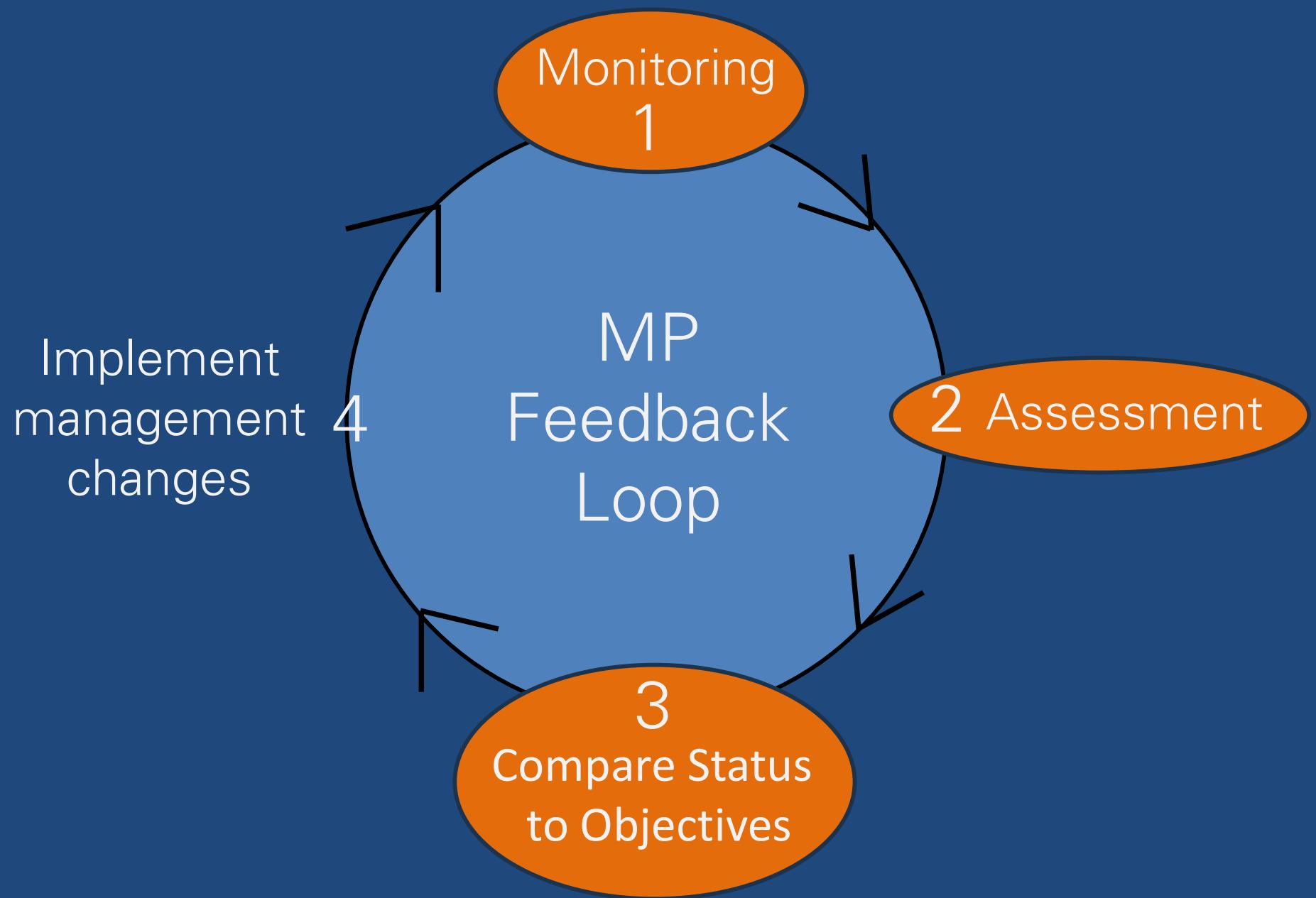
MP AS ADAPTIVE MANAGEMENT



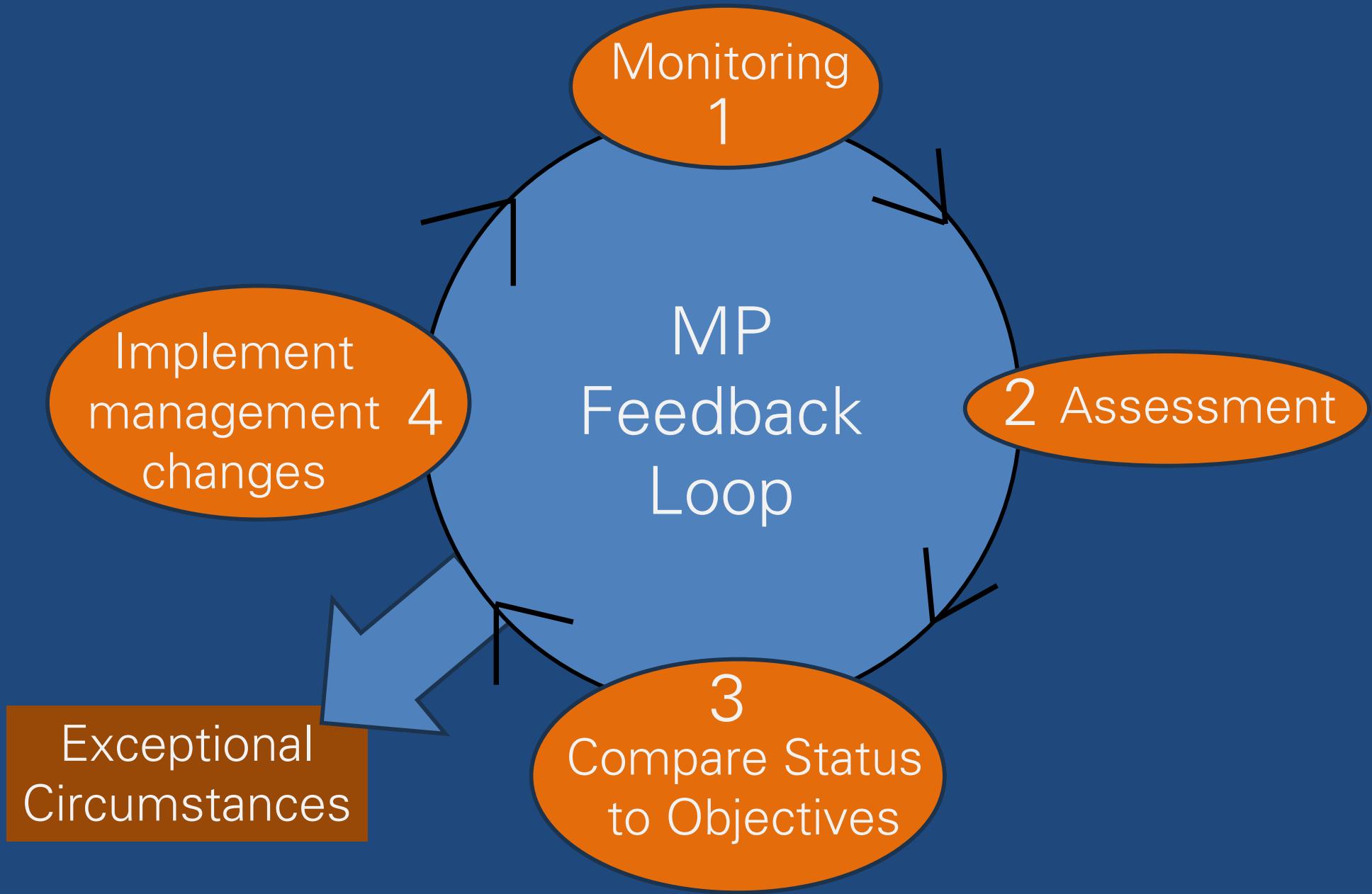
EXCEPTIONAL CIRCUMSTANCES

- Triggered when must abandon the MP because
 - Stock trajectories get outside of the ranges tested by the MSE;
 - Extreme environmental regime shift occurs; or
 - Absence of data makes it impossible to estimate stock status and/or apply the agreed harvest strategy
- Managers must pre-agree what happens if exceptional circumstances are triggered, both for management and future of management procedure

DETECTING CLIMATE IMPACTS

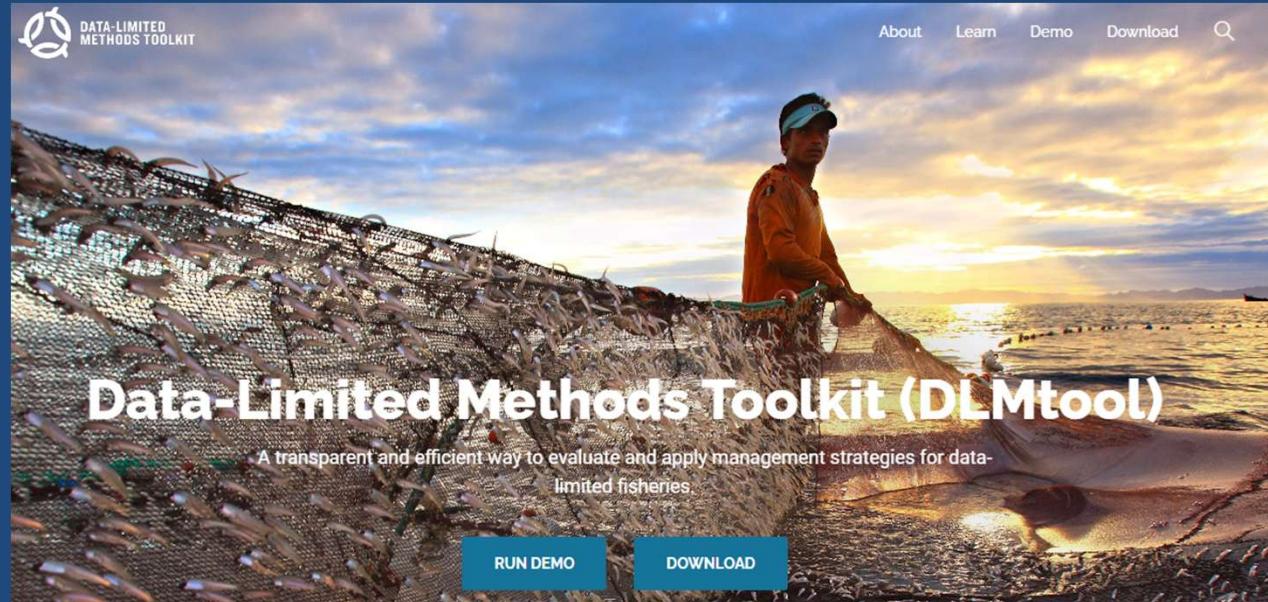


RESPONDING TO CLIMATE IMPACTS



MSE FOR DATA-LIMITED STOCKS

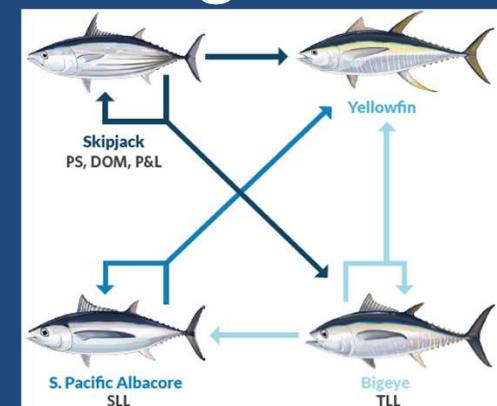
- Structure based on data availability & knowledge (catch, effort, size, life history)
- Account for uncertainty/range of observation error
- Added benefit: learn which data are most important





FINAL CONSIDERATIONS

- Stakeholders: commercial (fishers & markets), recreational, and environmental
 - Manager control at front and back end
- Transparency of timeline, process, and purpose
- Flexibility: there are multiple paths forward
- Stock-based vs. Fishery-based MP/HCR
- Tools exist to make process more efficient
- Pragmatic application of PA & EAFM, including climate change considerations
- **COMMUNICATION!**

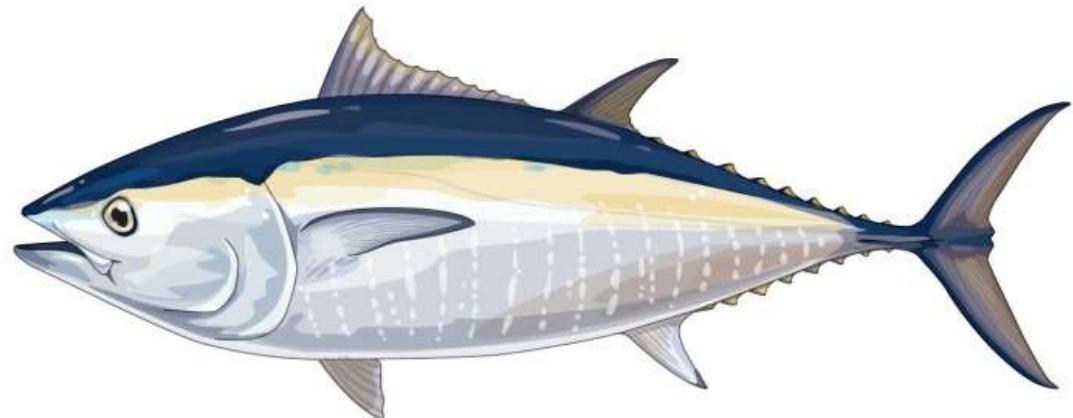
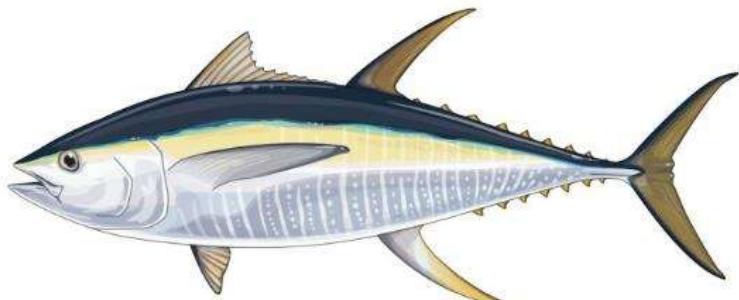




For more information:

www.harveststrategies.org

www.pewtrusts.org/harveststrategies



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