Progress and Challenges in Implementing the EAFM in tuna RFMOs

Summary from the FAO tuna RFMOs EAFM WSs

Symposium on applying the Ecosystem Approach to Fisheries Management in ABNJ

Dr. Hilario Murua and many others

ISSF INTERNATIONAL SEAFOOD SUSTAINABILITY FOUNDATION

Food and Agriculture Organization of the United Nations

COMMON OCEANS PROGRAM Tuna project

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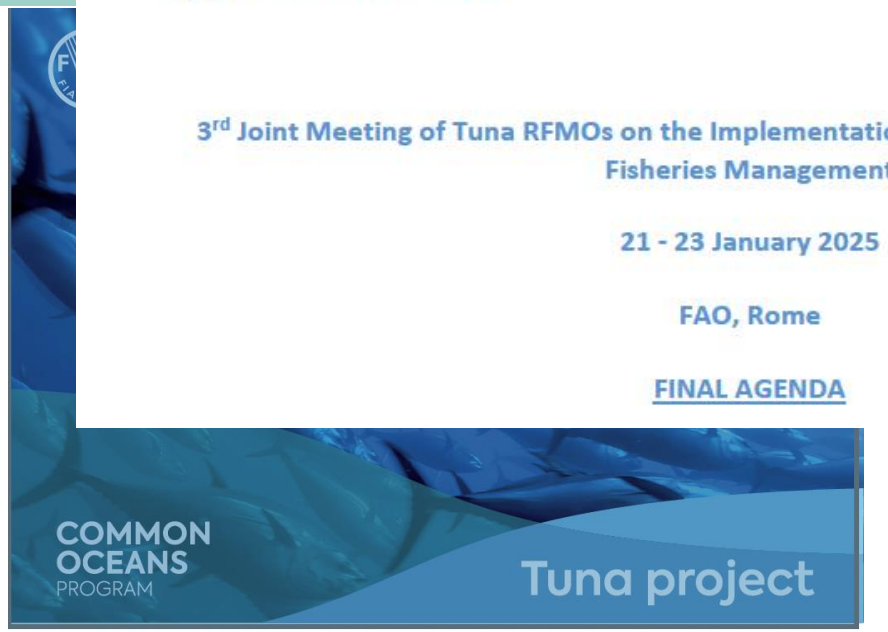
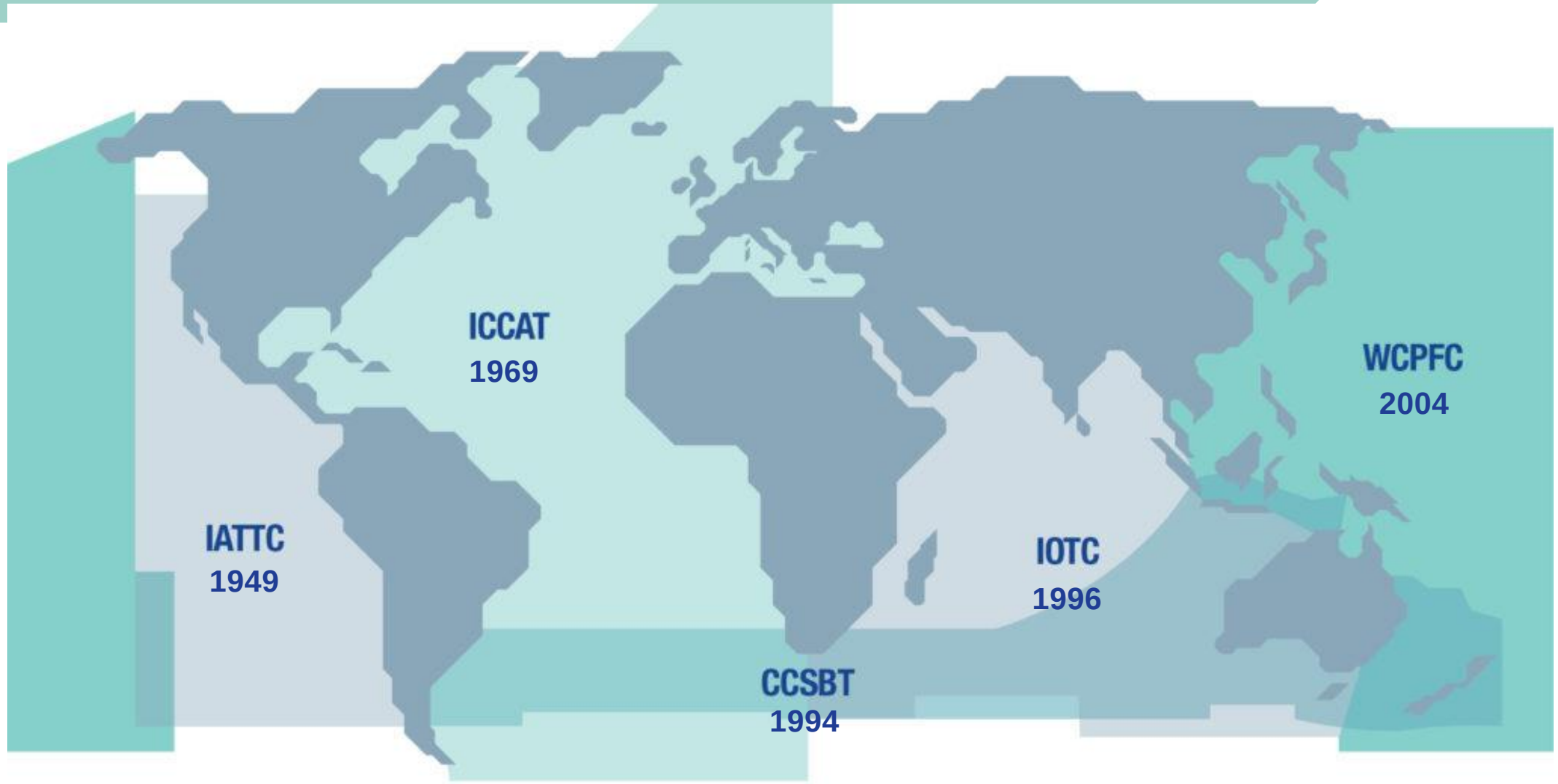
Introduction

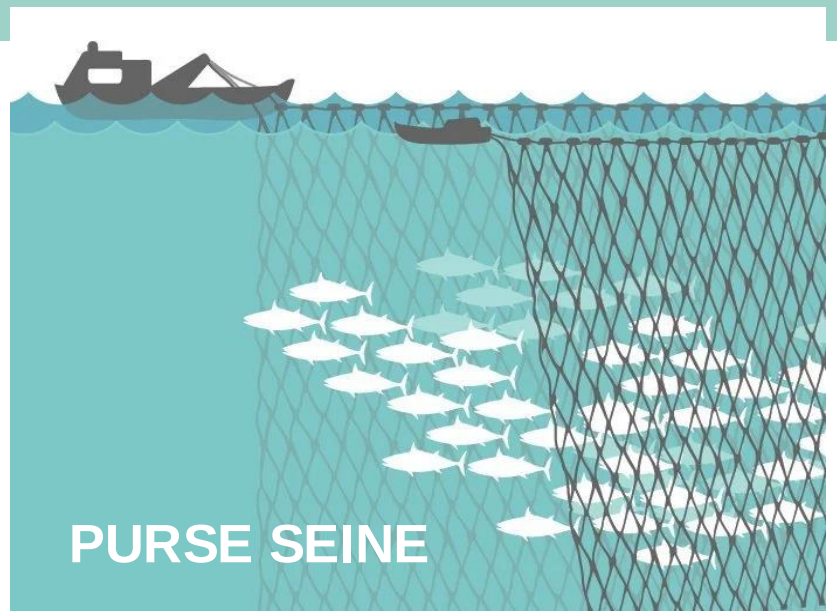
Introduction

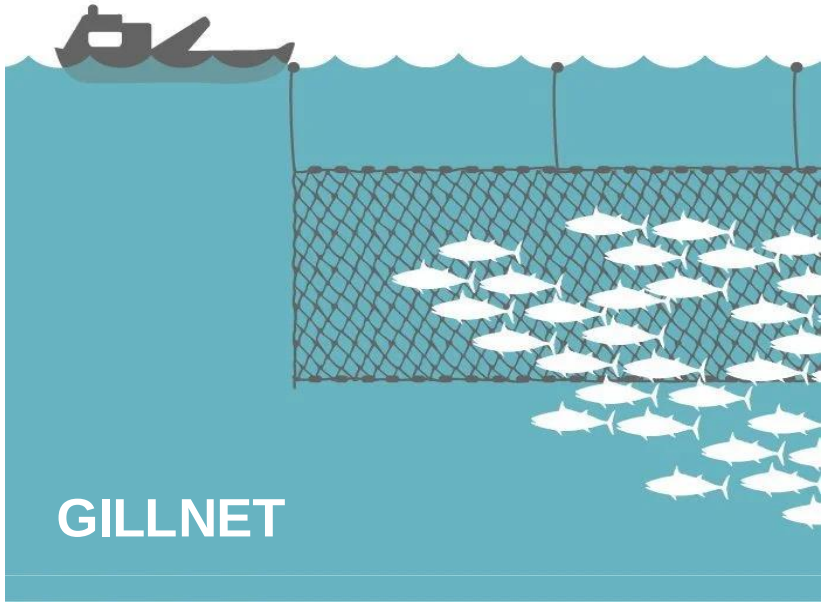


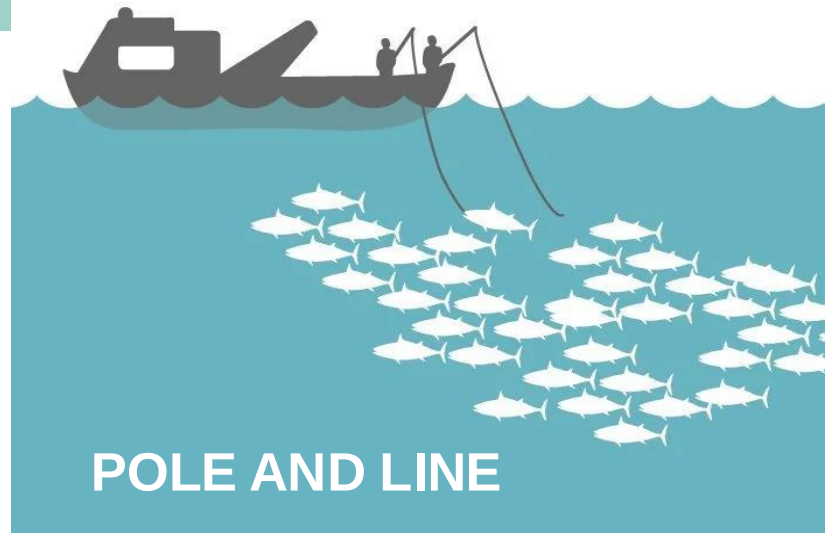
TunaRFMOs

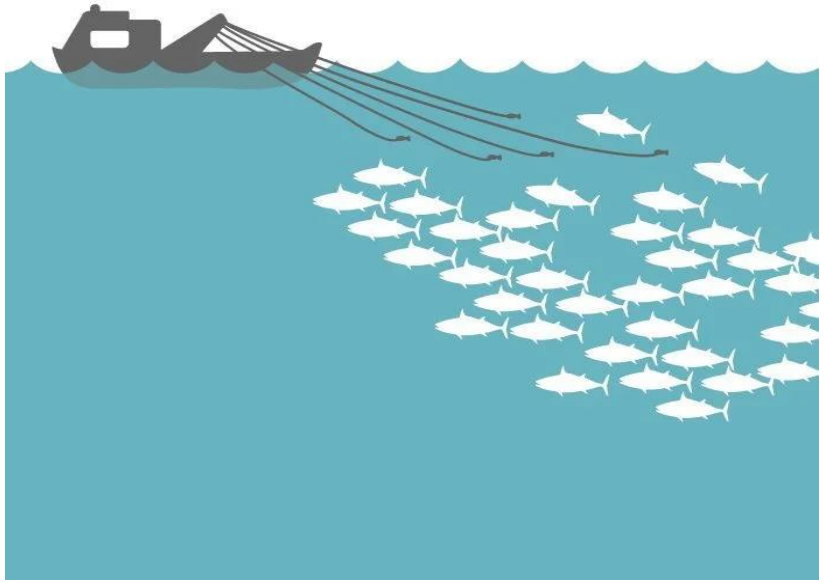


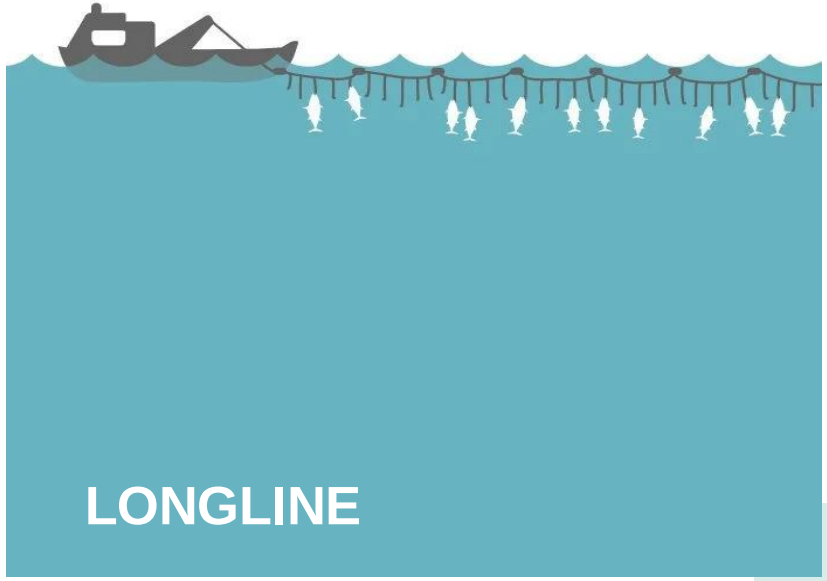
Tuna Fisheries



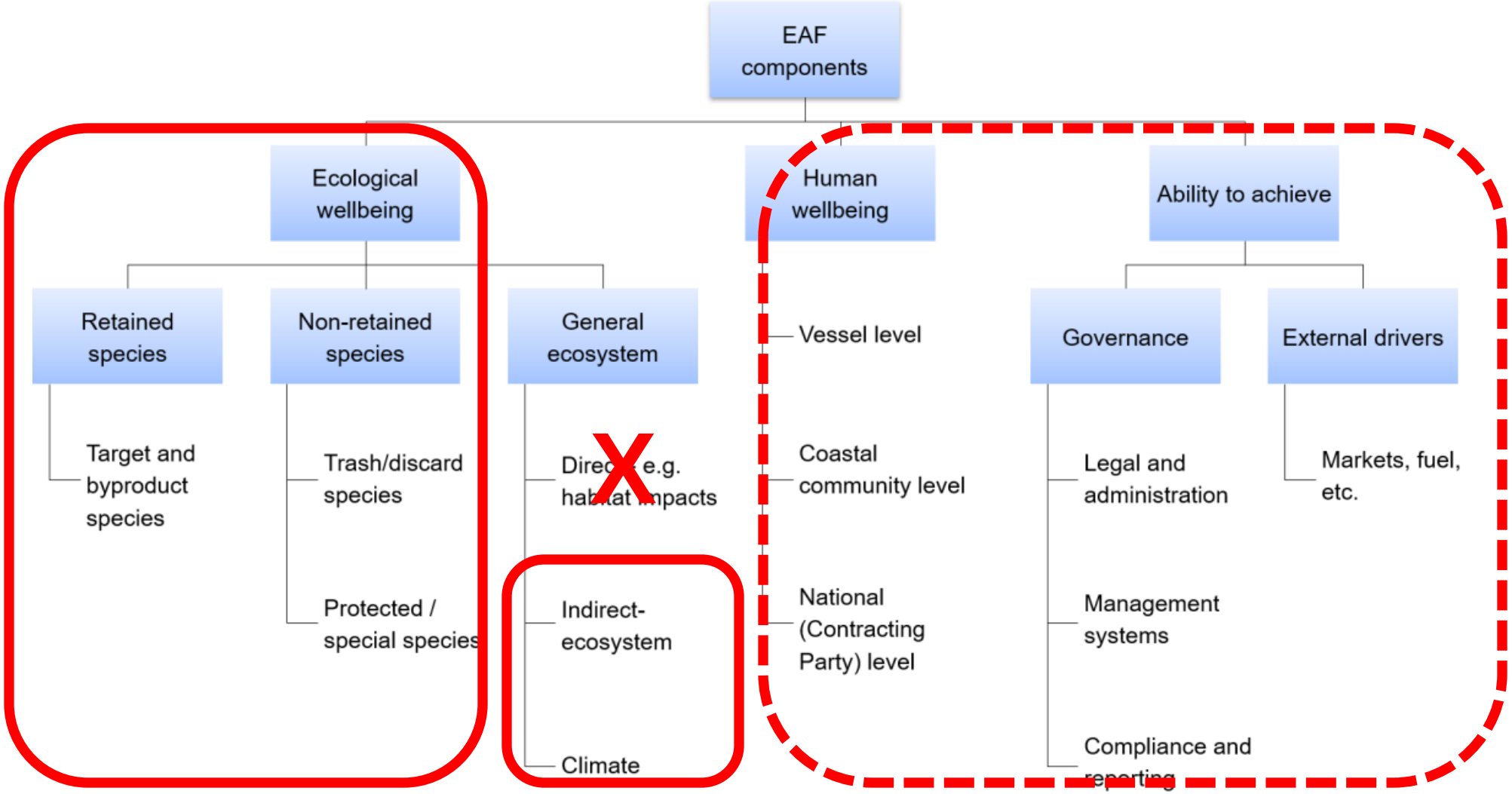








EAFM COMPONENTS for TUNA RFMOs



2019 TUNA EAFM WS OBJECTIVES

Discuss EAFM implementation in the context of tuna RFMOs – progress, challenges and opportunities.

Develop implementation plans to operationalize EAFM in tuna RFMOs.

Develop strategies and pathways to advance EAFM implementation in tuna RFMOs.

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Tuna project

3rd Joint Meeting of Tuna RFMOs on the Implementation of the Ecosystem Approach to Fisheries Management

21 - 23 January 2025

FAO, Rome

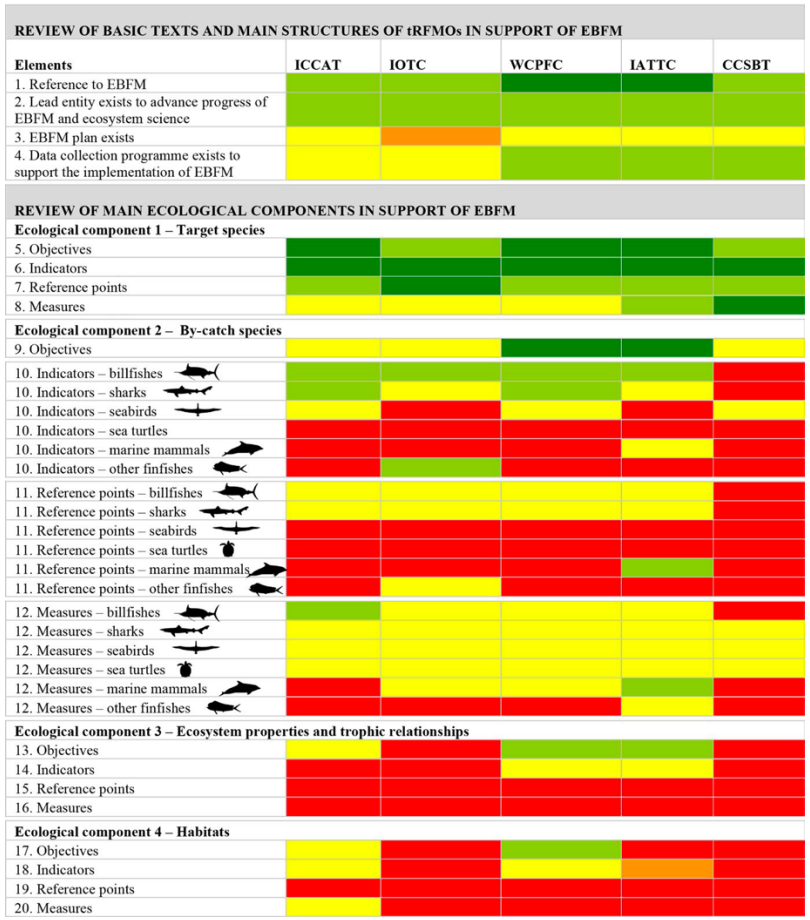
FINAL AGENDA

What is your definition of the EAFM?

Traditionally tuna RFMOs has focused on:

What is your definition of the EAFM?

PROGRESS CATEGORIES	
Full progress by the Commission (best case tRFMO)	FP - by C
Moderate progress by the Commission	MP - by C
Slight progress by the Commission	SP - by C
Full progress only by the Scientific Committee	FP - only by SC
Moderate progress only by the Scientific Committee	MP - only by SC
Slight or no progress only by the Scientific Committee	SP or NP - only by SC



Everything else

Tuna - Target

Juan-Jordá, **Murua**, et al. 2018. Report card on EBFM in tuna RFMOs. Fish and Fisheries. DOI: 10.1111/faf.12256.

What is your definition of the EAFM?

Is “EAF” science translated into management advice?

Tuna - Target

Everything else

WHERE WE ARE NOW?

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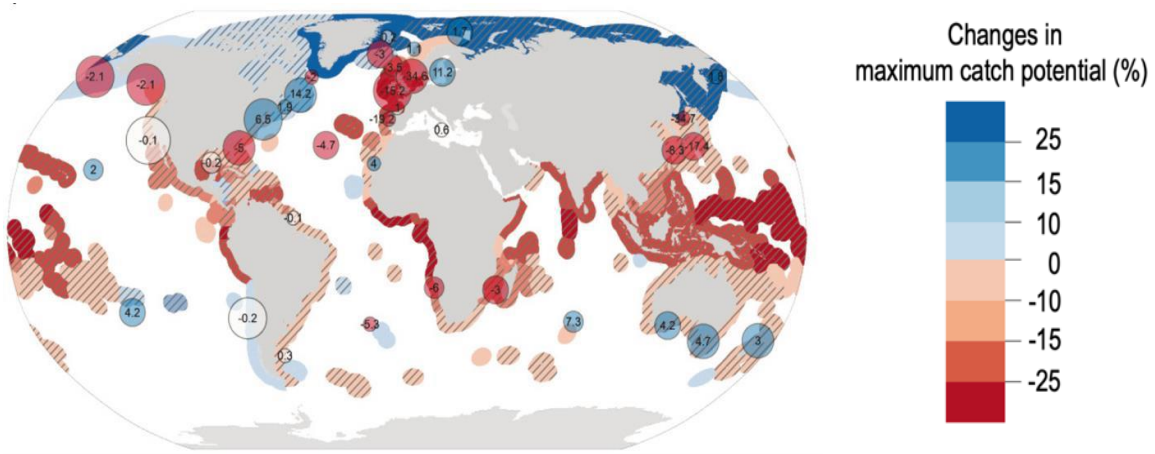
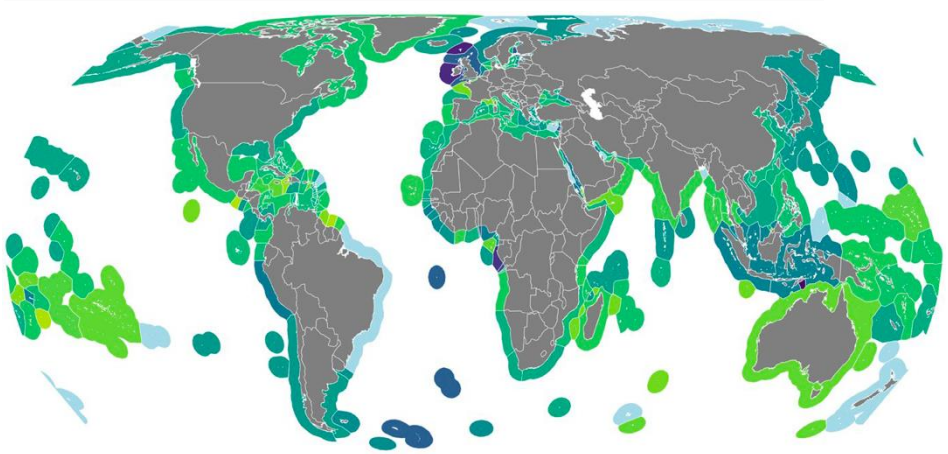
Progress

- Slow progress in the implementation of EAFM across tuna RFMOs,
- Until recently, EAFM or CC “science” was neither embraced nor mandated by the Commissions (with few exceptions but not a priority).
- Things may change with the adoption of
  - WCPFC Resolution 19/01 on Climate Change (not binding)
  - IATTC C-24-10 on Climate Change
  - ICCAT Resolution 22/13 on Climate Change (not binding)
  - IOTC Resolution 22/01 on Climate Change
- Most of the work done at the Scientific Committee and/or secretariat level:
  - CC impact on tuna/bycatch species distribution and abundance/biomass
  - Climate Change scenarios or impacts included in IOTC/ICCAT MSE & planned for WCPFC
  - Ecosystem modeling framework (WCPF-SEAPODYM plan for IOTC/ICCAT in ABNJ II)
  - Development of Ecosystem and Climate indicators at the SC and/or secretariat level
    - ICCAT Ecocard WSs, Eco-region WSs, Sub-Com on Ecosystems and SCRS
    - IOTC Ecoregion WSs, WP on Ecosystem and Bycatch and SC
    - WCPFC CC and Ecosystem Indicators project
    - IATTC roadmaps for developing Ecosystem indicators & Climate resilient fisheries

CC science in tunaRFMOs

PRODUCTIVITY CHANGE





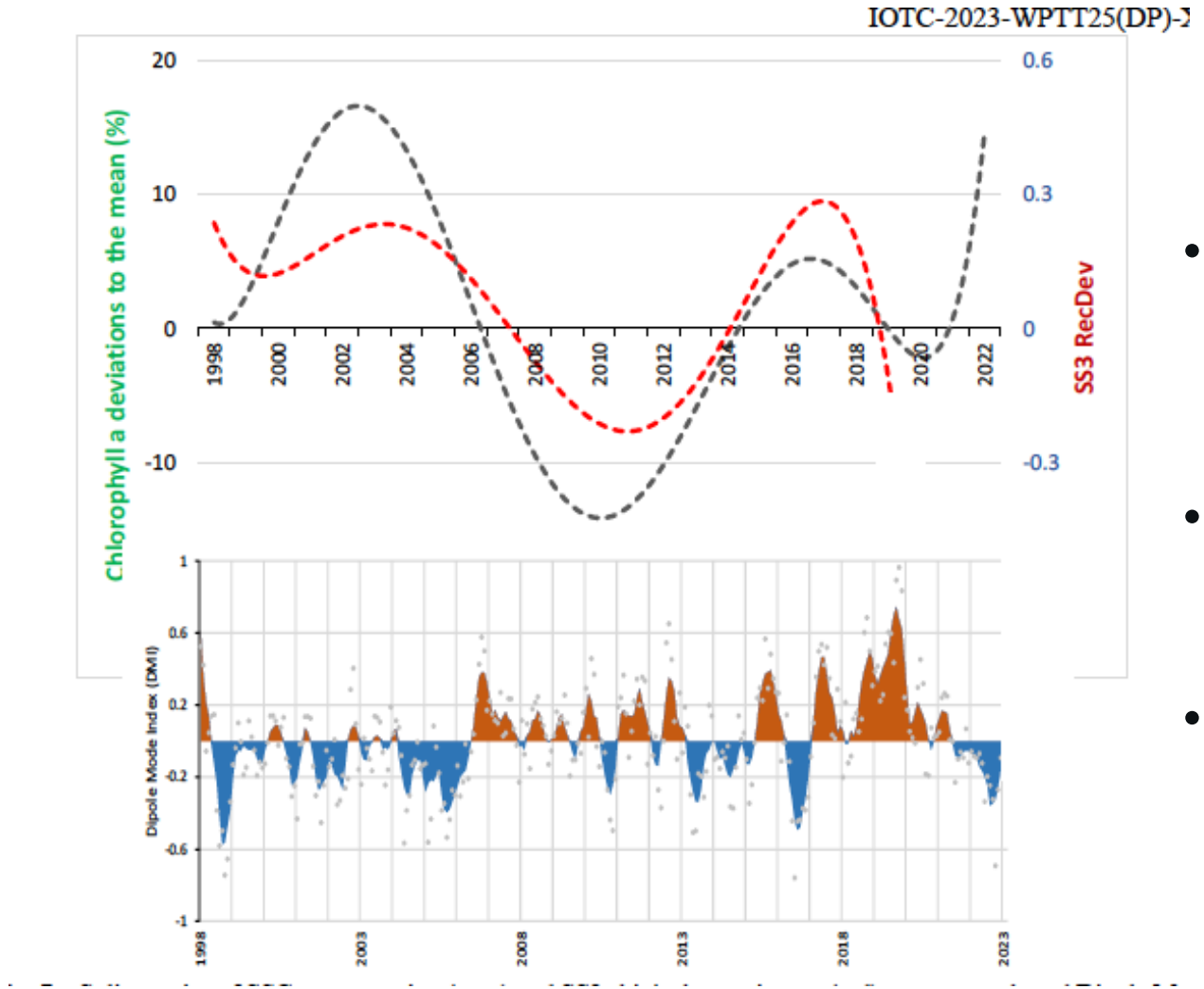
DISTRIBUTIONAL CHANGE

- Changes in productivity and distribution due to Climate Change could be incorporated:
  - using indicator-based approaches to provide qualitative/quantitative context;
  - explicitly including climate change in stock assessments (e.g., recruitment variability due to CC) and using resulting forecasts to derive management advice; and/or
  - explicitly including climate change in Management Strategy Evaluation (MSE) to develop climate-ready management procedures.
- Still a long way to go in tuna RFMOs, but here are some examples…

Climate Indicators

- TunaRFMOs have developed a series of indicators to describe the state of the ecosystem, including climate (e.g., WCPFC Seapodym to characterize tropical tuna habitat use).
- Environmental factors and habitat suitability in CPUE estimations
- IOTC BET/SKJ/SWO and ICCAT SWO
  - Robustness tests: impacts on stock productivity through recruitment failure due to climate change.
  - ICCAT SWO: recruitment status quo, positive trend, negative trend, and increased variability.
- ICCAT ALB
  - The robustness of the MP was evaluated against “expected” changes in productivity and increased recruitment variability driven by Climate Change
- The IOTC/WCPFC/IATTC/ICCAT SC and Sub-Committee on Ecosystems & Bycatch have suggested several climatic/environmental indicators, however, those have not been adopted/used yet.

Climate Indicators



Outline of climate and oceanic conditions in the Indian Ocean: an update to mid-2019

Francis MARSAC[1] & Hervé DEMARCQ[2]
IRD
UMR MARBEC, Station Ifremer
Sète, France

- The Indian Ocean Dipole (IOD) plays a key role in the distribution of ocean properties, affecting the geographical distribution of the SSC.
- Negative DMIs are associated with below-normal sea surface temperatures in the WIO, a shallow thermocline, and high SSC.
- The productive phase in SSC and elevated skipjack recruitment from 2000 to 2005 coincided with years dominated by negative DMIs (i.e., negative dipole).

CC in MSE – ICCAT ALB

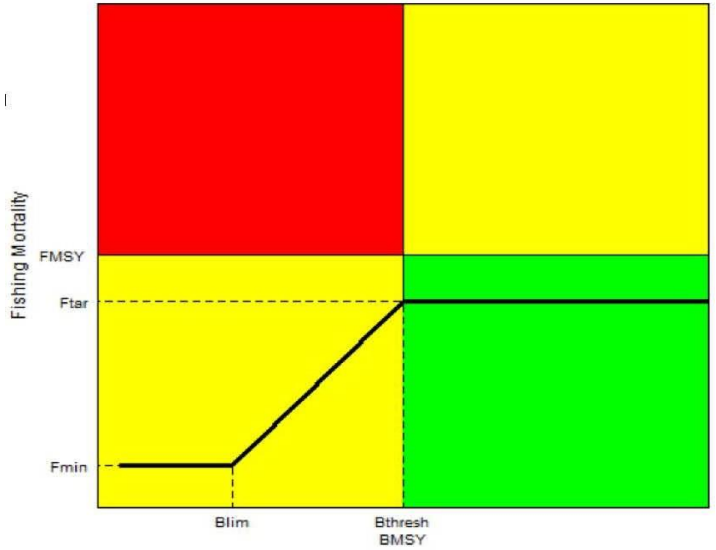
frontiers in Marine Science

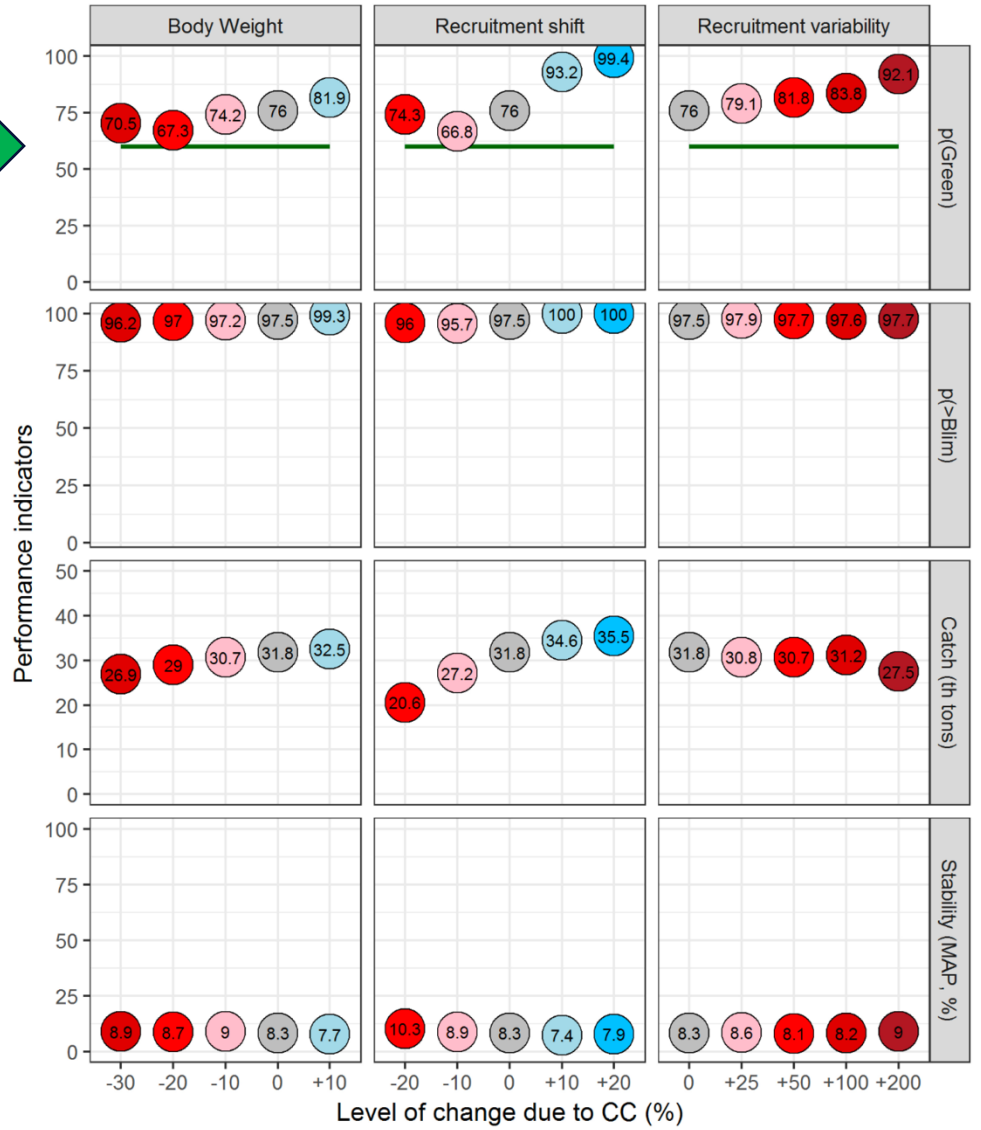
Adaptation of North Atlantic Albacore Fishery to Climate Change: Yet Another Potential Benefit of Harvest Control Rules

Gorka Merino[1], Haritz Arrizabalaga[1], Igor Arregui[1], Josu Santiago[2], Hilario Murua[1,3], Agurtzane Urtizberea[1], Eider Andonegi[2], Paul De Bruyn[4] and Laurence T. Kell[5]*

YES, objective 60%

Is the HCR (21-04) robust to conditions of changing productivity and recruitment variability of Northern Albacore?





CHALLENGES/RECOMMENDATIONS

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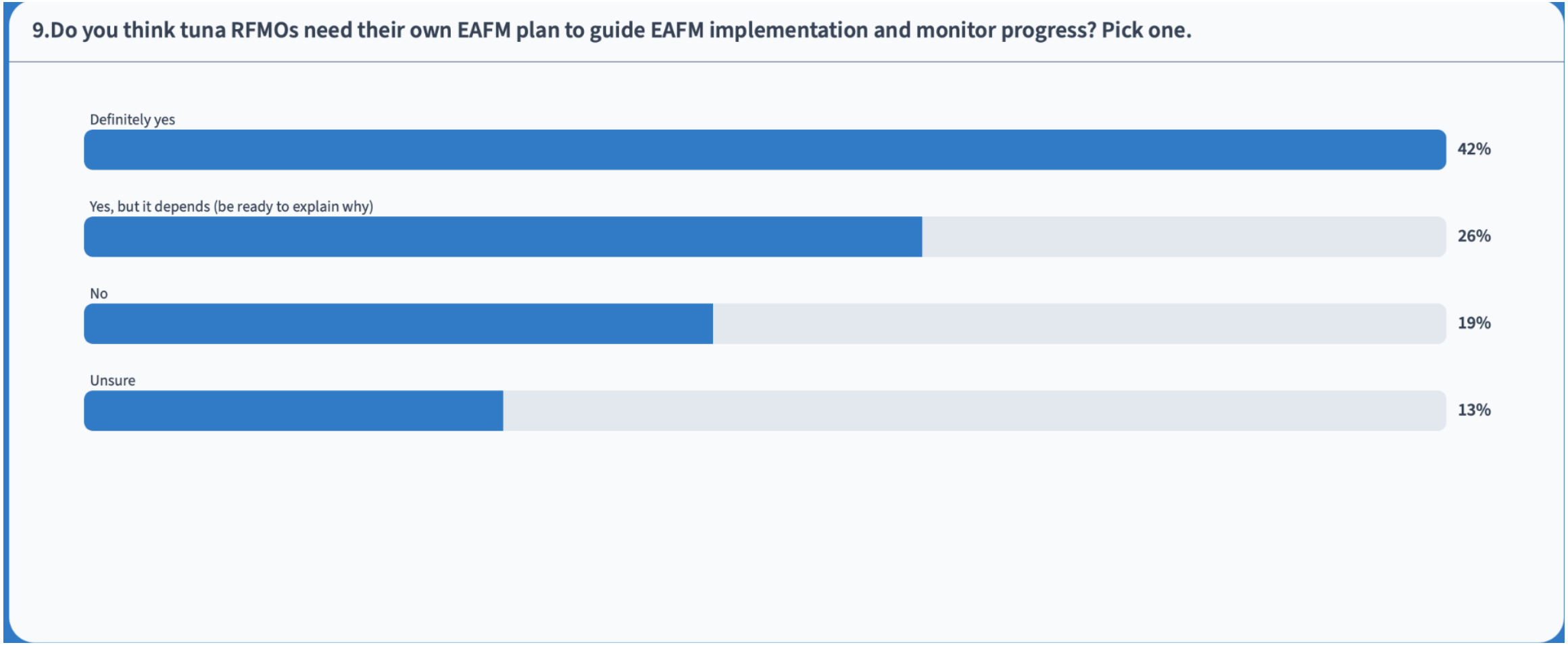
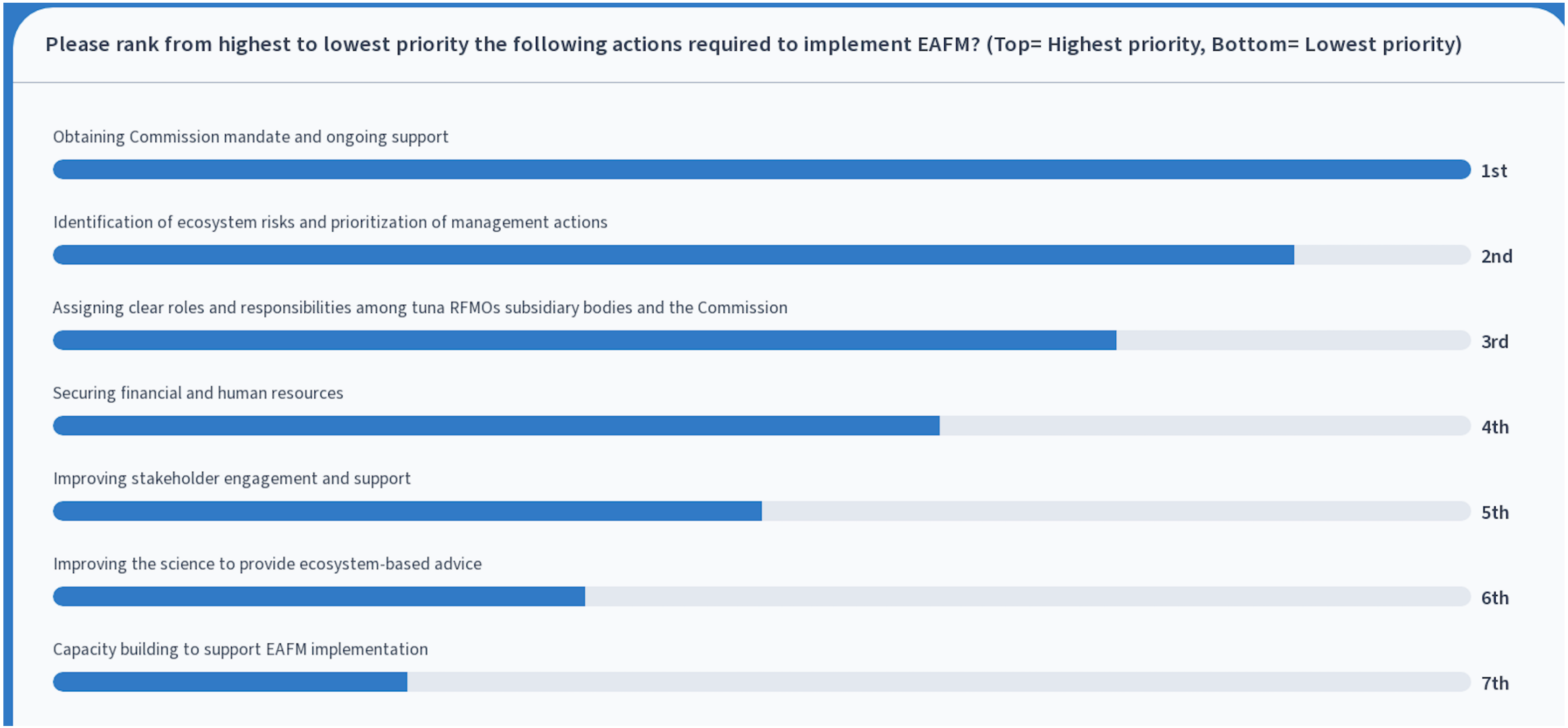
CHALLENGES

- ✓ **Integration**: While elements of EAFM exist within tuna RFMOs, they remain fragmented and lack a unified implementation strategy.
- ✓ **EAFM Implementation**: Political will and priority, clear mandate, stakeholder engagement, data integration, and the complexity of applying EAFM to highly migratory tuna stocks.
- ✓ **Risk-Based Approaches**: EAFM should prioritize risk assessment and trade-off analysis to facilitate decision-making.
- ✓ **Strategic Roadmap**: A structured and incremental approach (practical steps during implementation), with clear objectives, timelines, and stakeholder involvement, is essential for advancing EAFM.
- ✓ **Harmonization & Collaboration**: Greater coordination among tuna RFMOs and alignment with international frameworks (e.g., FAO, BBNJ)
- ✓ **Monitoring and Reporting Must Be Strengthened**: A proposed EAFM implementation status report for each RFMO would help track progress, document best practices, and inform future decision-making.
- ✓ **Capacity-Building and Stakeholder Engagement are Key**: Greater involvement of scientists, policymakers, and industry stakeholders is needed to build consensus and drive EAFM forward.
- ✓ **Enhanced Resources and Capacity**: routine research and more expertise is needed
- ✓ **Communication**: the benefits of the application of EAFM but also the elements that tunaRFMOs are addressing in implementing EAFM

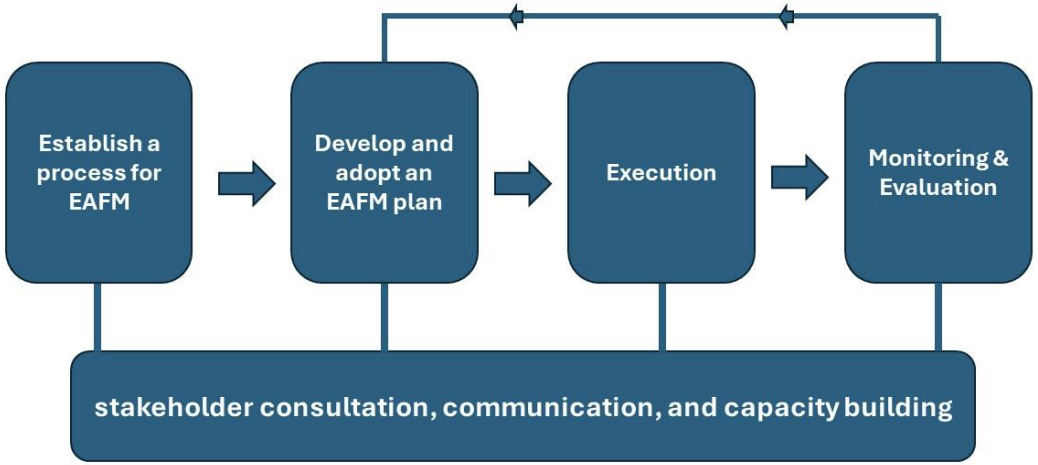
CHALLENGES

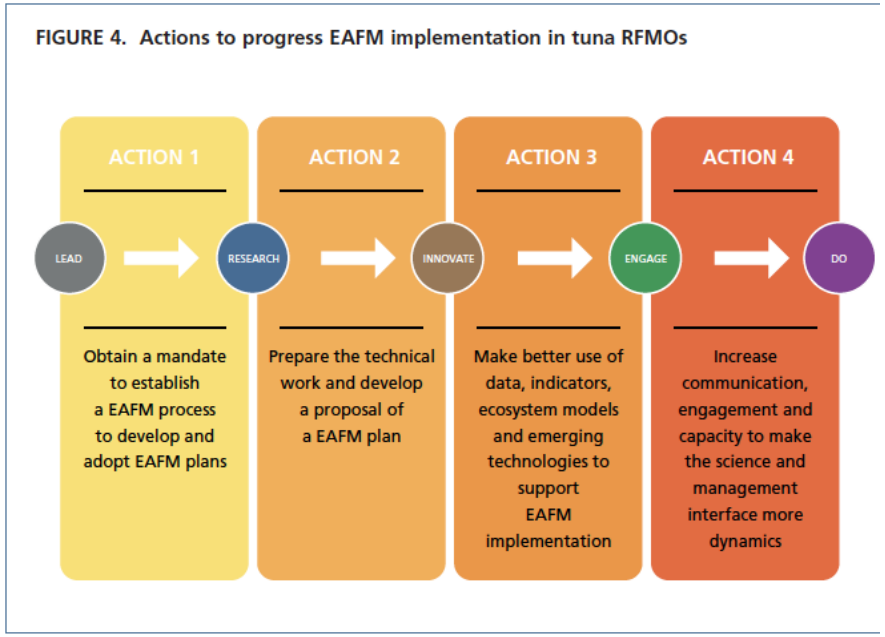

9.Do you think tuna RFMOs need their own EAFM plan to guide EAFM implementation and monitor progress? Pick one.
Definitely yes
42%
Yes, but it depends (be ready to explain why)
26%
No
19%
Unsure
13%

CHALLENGES


Please rank from highest to lowest priority the following actions required to implement EAFM? (Top= Highest priority, Bottom= Lowest priority)
Obtaining Commission mandate and ongoing support
1st
Identification of ecosystem risks and prioritization of management actions
2nd
Assigning clear roles and responsibilities among tuna RFMOs subsidiary bodies and the Commission
3rd
Securing financial and human resources
4th
Improving stakeholder engagement and support
5th
Improving the science to provide ecosystem-based advice
6th
Capacity building to support EAFM implementation
7th

RECOMMENDATIONS

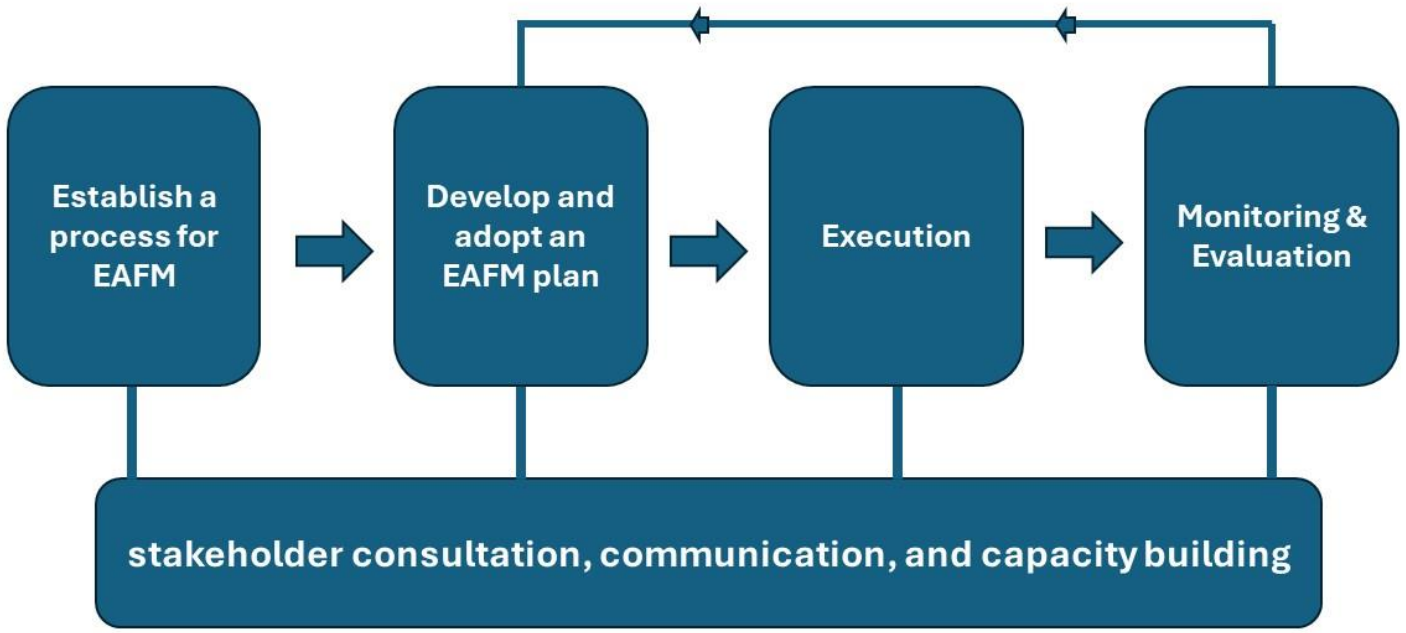




- ✓ Need an explicit commitment, e.g. a resolution to implement it.
- ✓ Publicity of what the tuna RFMOs are doing with respect to EAFM.
- ✓ Cooperate and harmonize in the development and use of ecological, social and economic indicators across tRFMOs.
- ✓ Establish or enhance science-management dialogue processes to support EAFM.
- ✓ Develop an EAFM strategy/plan to create clarity and:
  - ✓ assist acceptance and adoption by Commissions
  - ✓ provide direction for EAFM implementation
  - ✓ support management decisions based on trade-offs
- ✓ Involve relevant stakeholders in the process.

RECOMMENDATIONS

A four-part action plan for advancing EAFM implementation in tuna RFMOs was proposed



1. Obtaining a mandate and adoption of an EAFM process by the Commission,
2. Developing and adopting an EAFM operational plan,
3. Execution of the plan, and
4. Monitoring, evaluation and review (if needed) of the plan.

The four actions are to be supported through a process of stakeholder consultation, communication, and capacity building.

ACTION 1 - Establish a process to develop and adopt EAFM plans

- GET a clear mandate from the Commission to initiate and accelerate the work on EAFM
- OBTAIN a firm commitment to its implementation
- The EAFM Plan should be tailored to each tuna RFMO's specific context, realities, and needs.

An important first step is for each Commission to commit formally to a process for the development of an EAFM plan and task the appropriate subsidiary bodies with the necessary work.

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RESOLUTION 15/10
ON TARGET AND LIMIT REFERENCE POINTS AND A DECISION FRAMEWORK

Keywords: Limit reference points, management strategy evaluation, Kobe plot, maximum sustainable yield.

ACTION 2 – Develop and adopt an EAFM implementation plan

Development of an EAFM implementation plan, containing for example the following components among others:

1. Definition
2. Scope
3. Roles and responsabilities
4. Elements to be included (bycatch, habitat, etc.)
5. Incorporating EAFM into decision making
6. Prioritization
7. Integration of advice

The second action involves developing the EAFM plan itself, including establishing objectives, defining the scope, and identifying how EAFM advice is integrated.

ACTION 2 – Develop and adopt an EAFM implementation plan

SCHEDULE OF WORK FOR THE DEVELOPMENT OF MANAGEMENT PROCEDURES FOR KEY SPECIES IN THE IOTC AREA

A more detailed explanation of the roles of the Working Parties (WPs), Scientific Committee (SC), Technical Committee on Management Procedures (TCMP) and the Commission are provided below

Year	Albacore	Skipjack	Yellowfin	Bigeye	Swordfish
2024	**WPs/SC:** Consider recommendations from the Commission and undertake MSE to provide advice on the performance of candidate MPs.	**WPs/SC:**	**WPs/SC:** Consider recommendations from the Commission and consider outcomes of the 2024 Yellowfin assessment. Discuss and agree on a plan for further development of MSE and candidate MPs.	**WPs/SC:** Run BET MP and Review Exceptional Circumstances and agree in any corrective action, if needed. Provide TAC advice to the TCMP and Commission for 2026-2028.	**WPs/SC:** Run SWO MP and Review Exceptional Circumstances and agree in any corrective action, if needed. Provide TAC advice to the TCMP and Commission for 2026-2028.
2025	**TCMP:** Provide advice to Commission on elements of OMs and, if possible, candidate MPs, , that require a decision by the Commission, including the performance of candidate MPs against Commission objectives.	**TCMP:**	**TCMP:** Provide advice to Commission on elements of OMs and, if possible, candidate MPs, that require a decision by the Commission, including the performance of candidate MPs against Commission objectives.	**TCMP:** Provide advice to the Commission on BET TAC for 2026-2028	**TCMP:** Provide advice to the Commission on SWO TAC for 2026-2028
	Commission: Consider work and advice from subsidiary bodies and provide direction to the WPs/SC on the need to undertake further MSE of candidate or alternative MPs.	**Commission:**	**Commission:** Consider work and advice from subsidiary bodies and provide direction to the WPs/SC on the need to undertake further MSE.	**Commission:** Adopt the TAC f	

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RESOLUTION 22/03
ON A MANAGEMENT PROCEDURE FOR BIGEYE TUNA IN THE IOTC AREA OF COMPETENCE.

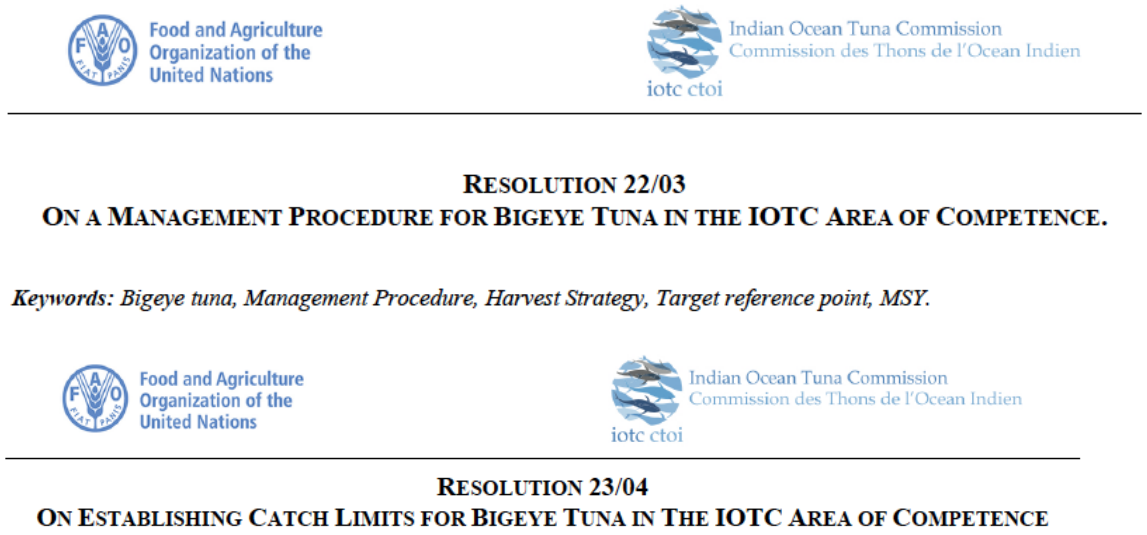
Keywords: Bigeye tuna, Management Procedure, Harvest Strategy, Target reference point, MSY.

ACTION 3 - Execution of the adopted plan

Execution of the adopted plan (Testing use of data, indicators and analyses as tools to support EAFM implementation)

- Substantial involvement of the scientific community.
- An iterative process as knowledge/data improves in a progressive implementation of the plan discussed in the science-management dialogue bodies.
- Existing data collection programs and technical tools, including the development of ecosystem indicators, should be assessed for their ability to provide answers to the key questions identified in the EAFM plan (e.g. Ecosystem indicators, emerging technologies for data collection)

The third action involves the execution of the plan through the development of the technical elements required to provide EAFM advice.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RESOLUTION 22/03
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RESOLUTION 23/04
ON ESTABLISHING CATCH LIMITS FOR BIGEYE TUNA IN THE IOTC AREA OF COMPETENCE

ACTION 4 - Monitor and evaluate

Monitor and evaluate the implementation of the EAFM plan, and take corrective actions as needed

- Implementation of EAFM through a small number of manageable, easily understood and coordinated steps.
- In each of the steps, progress should be evaluated and actions to accelerate or correct implementation should be recommended as needed

ANNEX II

SCHEDULE FOR MP IMPLEMENTATION

IOTC COMMITTEE	2022	2023	2024	2025	2026	2027	2028	2029
Commission (May/June)	**Select and adopt BET MP**	Annual Review of SC advice →						
		Set TAC (2024-2025)		**Set TAC** (2026-2028)			**Set TAC** (2029-2031)	
WPTT and WPM (Oct)	Collate catch data and CPUE series used in MP		Collate data used in MP			Collate data used in MP		
	Consider exceptional circumstances (EC), advise SC		Consider EC			Consider EC		
SC (Dec)	**Run MP**		**Run MP**			**Run MP**		
	Assess* stock status				Assess stock status			Assess stock status
	Annual Review of Exceptional Circumstances →							
	Provide TAC advice to the Commission		Provide TAC advice			Provide TAC advice		

The fourth action involves the routine monitoring and evaluation of the implementation of an EAFM plan through a set of performance indicators to evaluate progress and recommend, any possible, corrective actions.

CROSS-CUTTING: Enhanced communication and stakeholder involvement

Effective communication is essential to successful implementation of an EAFM plan.

- Greater **Dialogue between the Commission and the Scientific Community**, as well as other stakeholders (similar to the dialogue process for Management Strategy Evaluation).
- **Capacity Building**
- **Exchanges across tuna RFMOs**
- Strengthen tuna **RFMOs' collaboration with external organizations**

Improving RFMO channels of communication (scientist-manager dialogue and within scientific groups), capacity building, and fostering greater collaboration with external stakeholders.

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RESOLUTION 16/09
ON ESTABLISHING A TECHNICAL COMMITTEE ON MANAGEMENT PROCEDURES

Q & A

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