Sustainable Fisheries Management of Tuna: Challenges and Solutions the ICCAT prospective

ICCAT Secretariat

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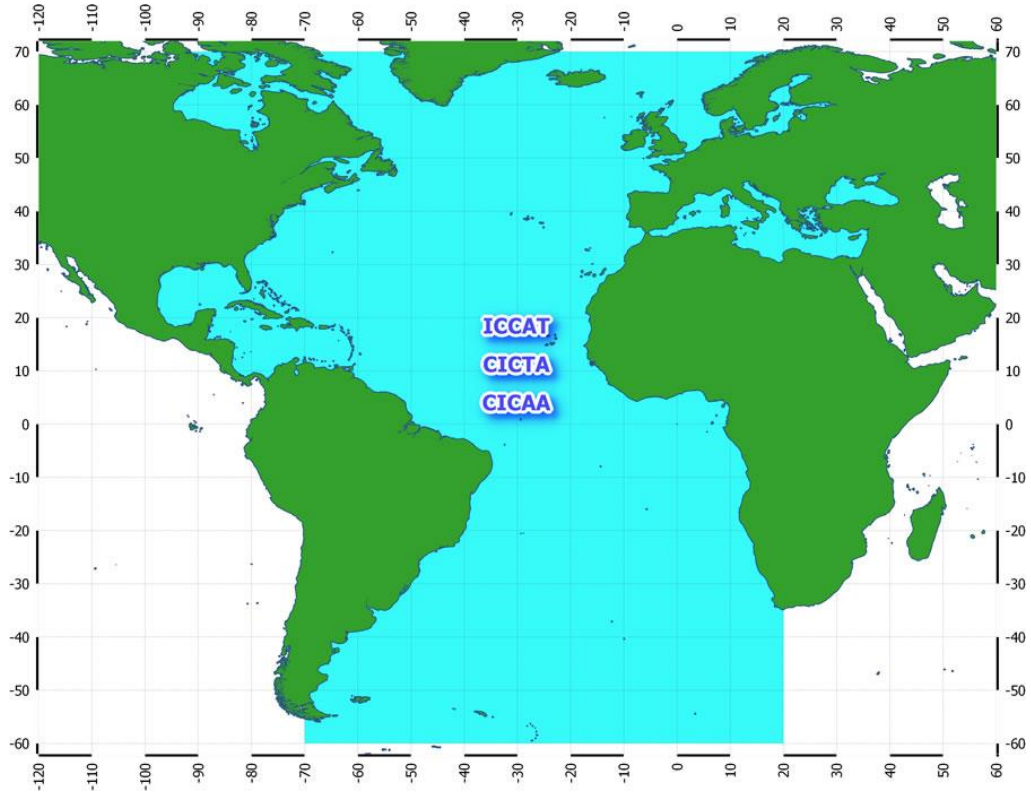
International Commission for the Conservation of Atlantic Tunas ICCAT

ICCAT is an Inter-Governmental Fishery organization responsible for the conservation of tunas and tuna-like species in the Atlantic Ocean and its adjacent seas.

- Convention signed in Río de Janeiro, 1966. Amendment of the Convention signed in 2019.
- 53 Contracting Parties + 6 with cooperating status. Over 75% of ICCAT Contracting Parties are classified as developing countries
- The objective of the Convention is to maintain the populations of tuna and tuna like species at levels which will permit the maximum sustainable catch for food and other purposes



Summary of Atlantic Tunas Stock Status

ICCAT currently manages most of the Atlantic highly migratory stocks based on scientific advice from a single stock assessment approaches.

At the beginning of 2020, 25 stocks units have been evaluated by the ICCAT scientific committee SCRS:

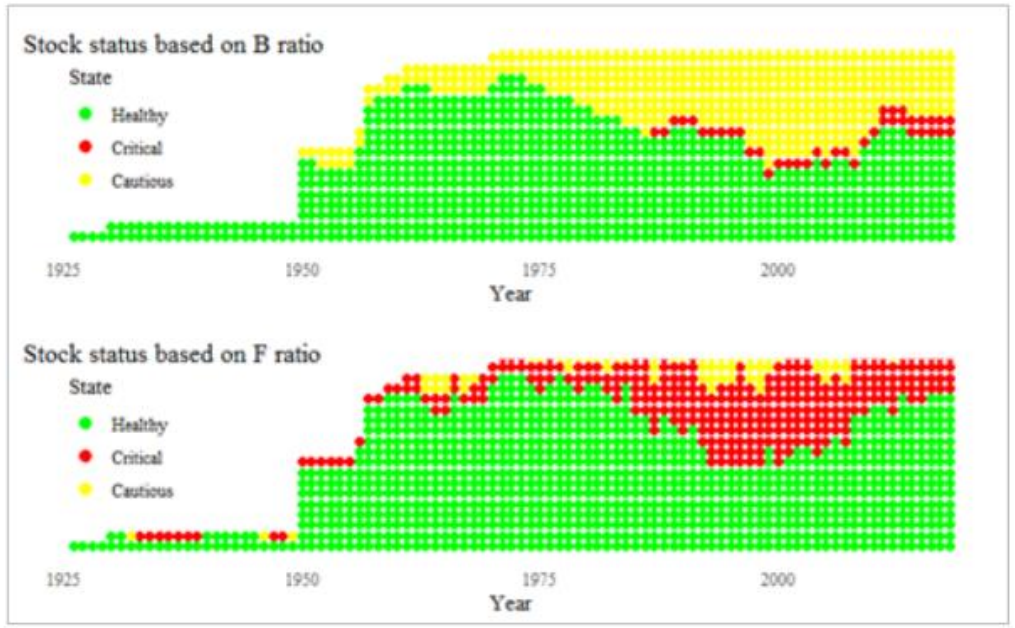
- 11 stocks (44%) are below the biomass that will produce a Maximum Sustainable Yield (e.g. Overfished),
- 5 of these stocks are also experience high rates of fishing mortality (e.g. overfishing).
- And there are 5 stocks for which the uncertainty of the evaluations is very large that precludes to provide a status determination.

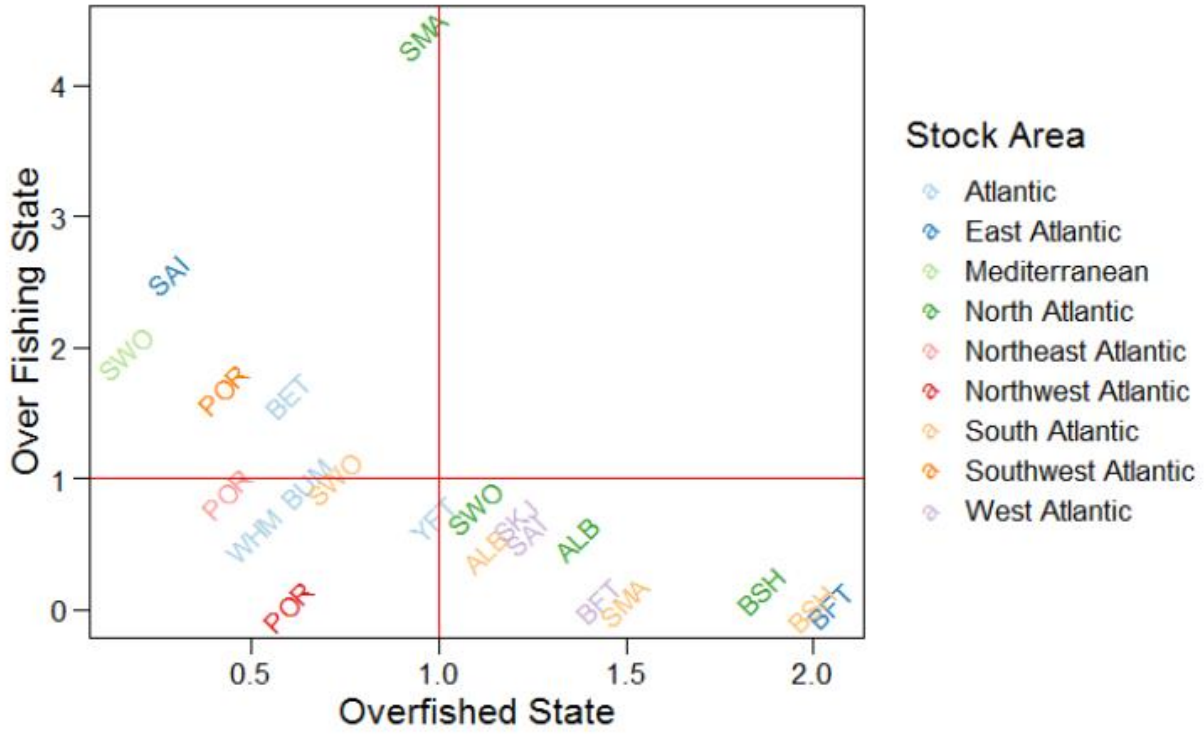
Summary ICCAT 2019 Stock Status – 25 stock management units

Overfishing ($F > F_{MSY}$)			Overfished ($B < B_{MSY}$)		
Yes	No	Unknown	Yes	No	Unknown
5	16	4	11	9	5

ICCAT competence:

… Historical trends and 2019 status of highly migratory species in the Atlantic and adjacent seas.





Moving towards Management Strategy Evaluation (MSE) protocols in ICCAT…

The SCRS and ICCAT has recognized important and large uncertainty in several of these assessments, that in several cases are related to or affected by environmental factors, for example:

- Indicators of a 'regime-shift' in the North-Atlantic that has impacted the recruitment trends of western Atlantic bluefin tuna,
- The impacts on swordfish distribution and availability associated with long-term climate oscillations such ENSO in the north-Atlantic,
- The recent reappearance of bluefin tuna off the coast of Norway and Iceland, as well other "tropical" species being caught in northern latitudes in recent years.

Several of these issues can not be fully address within the single-stock evaluation approach. Thus the SCRS has recommended to move towards more integrated approaches of Stock Status Evaluation that allow considering different and diverse sources of uncertainty and to provide a robust management advice in lieu of these uncertainties.

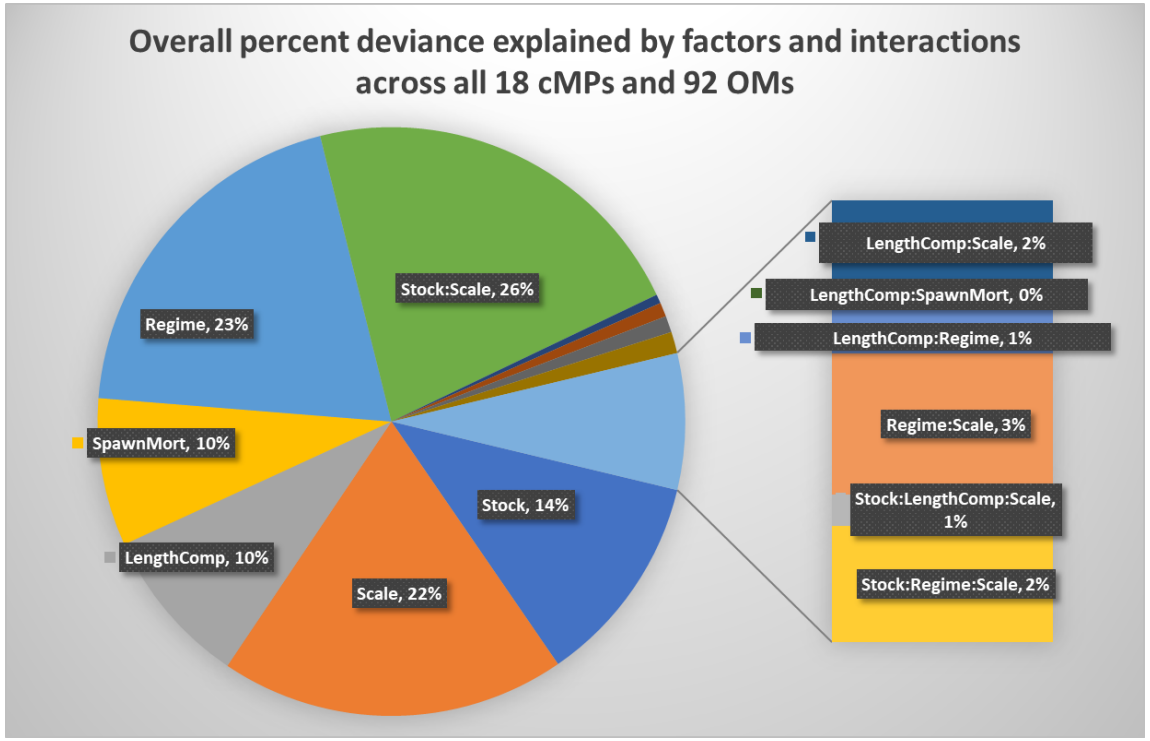
These are basically the premises of the Management Strategy Evaluation approach or MSE that has been recently implemented in different fisheries around the world.

…. Moving towards Management Strategy Evaluation (MSE) protocols in ICCAT

- In response the ICCAT Commission in 2016 approved and started in the process for the implementation and adoption of the Management Strategy Evaluation (MSE) protocols for important stocks such as Atlantic Bluefin tuna, north Atlantic Albacore, north Atlantic swordfish and Atlantic Tropical tunas (Yellowfin, Bigeye and Skipjack tunas).
- In 2016 The ICCAT Commission adopted a "MSE road map" that involves the development, evaluation, stake-holders dialogue and the implementation of the MSE process for these species for the next 5 - 10 years aiming to reach more robust management of these resources while integrating and evaluating various sources of uncertainty on the advice provided.
- At present ICCAT has adopted for N-ALB a Harvest Control Rule, as part of the MSE process and the recommended TAC since 2018 is based on the application of this HCR.
- Both the MSE process for ATL bluefin tuna and N-ATL swordfish are ongoing and they are currently evaluating Management Procedures for discussion with stakeholders, while the MSE tropical tunas is still in initial developments.

MSE provides a framework to evaluate alternative "States of Nature" in virtue of future uncertainty ….

- Within the MSE Operating Models (OM) for Bluefin tuna, albacore, and swordfish, uncertainty from environmental factors has been considered, as main axis of uncertainty.
- Which under a simulation modelling it allows to evaluate different States of Nature, and what type of management procedures will be more robust.



Example of the "influence" of an environmental factor "Regime shift" in the evaluation of alternative MP on Bluefin tuna MSE Operating Models.

What about Ecosystem interactions …

At the same time ICCAT has recognized the importance of the integrated ecosystem management of Fisheries resources in the Atlantic and approved in 2015 a Resolution on "*Concerning the application of An Ecosystem Approach to Fisheries Management*" [Res. 15-11] and inclusion of environmental components in the recent adoption of the ICCAT amended Convention in *Article IV*.

(a) The Commission shall be responsible for the study of the populations of tuna and tuna-like fishes and elasmobranchs that are oceanic, pelagic, and highly migratory, hereinafter referred to as "ICCAT species", and such other species caught while fishing for ICCAT species in the Convention area, taking into account the work of other relevant international fishery-related organizations or arrangements. Such study shall include research on the above-mentioned species, the oceanography of their environment, and the effects of natural and human factors upon their abundance. The Commission may also study species belonging to the same ecosystem or dependent on or associated with ICCAT species.

“Adopted Amendment to the International Convention for the Conservation of Atlantic Tunas.”

Palma de Mallorca, Spain Nov 18, 2019

“Article IV

The Commission and its Members, in conducting work under this Convention, shall act to:

(a) apply the precautionary approach and an ecosystem approach to fisheries management in accordance with relevant internationally agreed standards and, as appropriate, recommended practices and procedures;

(b) use the best scientific evidence available;

(c) protect biodiversity in the marine environment;

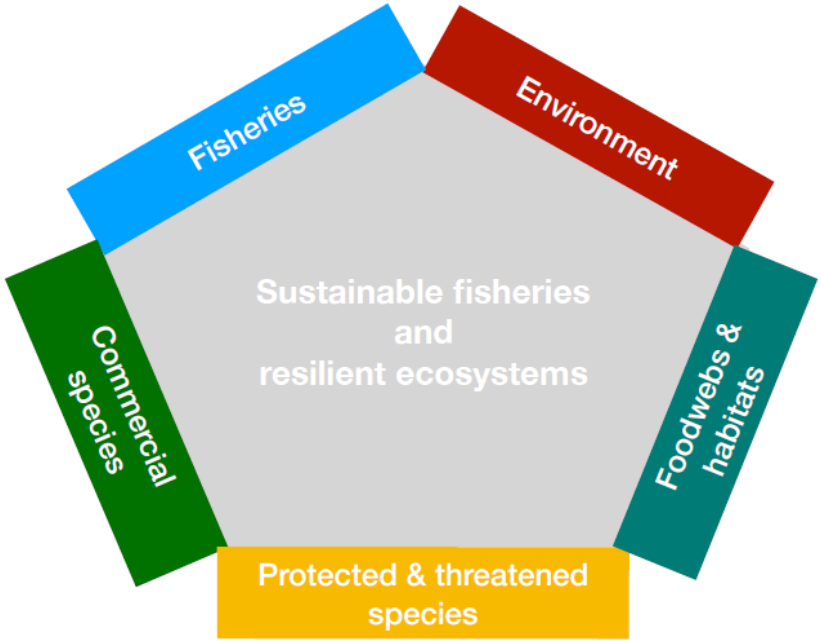
(d) ensure fairness and transparency in decision making processes, including with respect to the allocation of fishing possibilities, and other activities; and

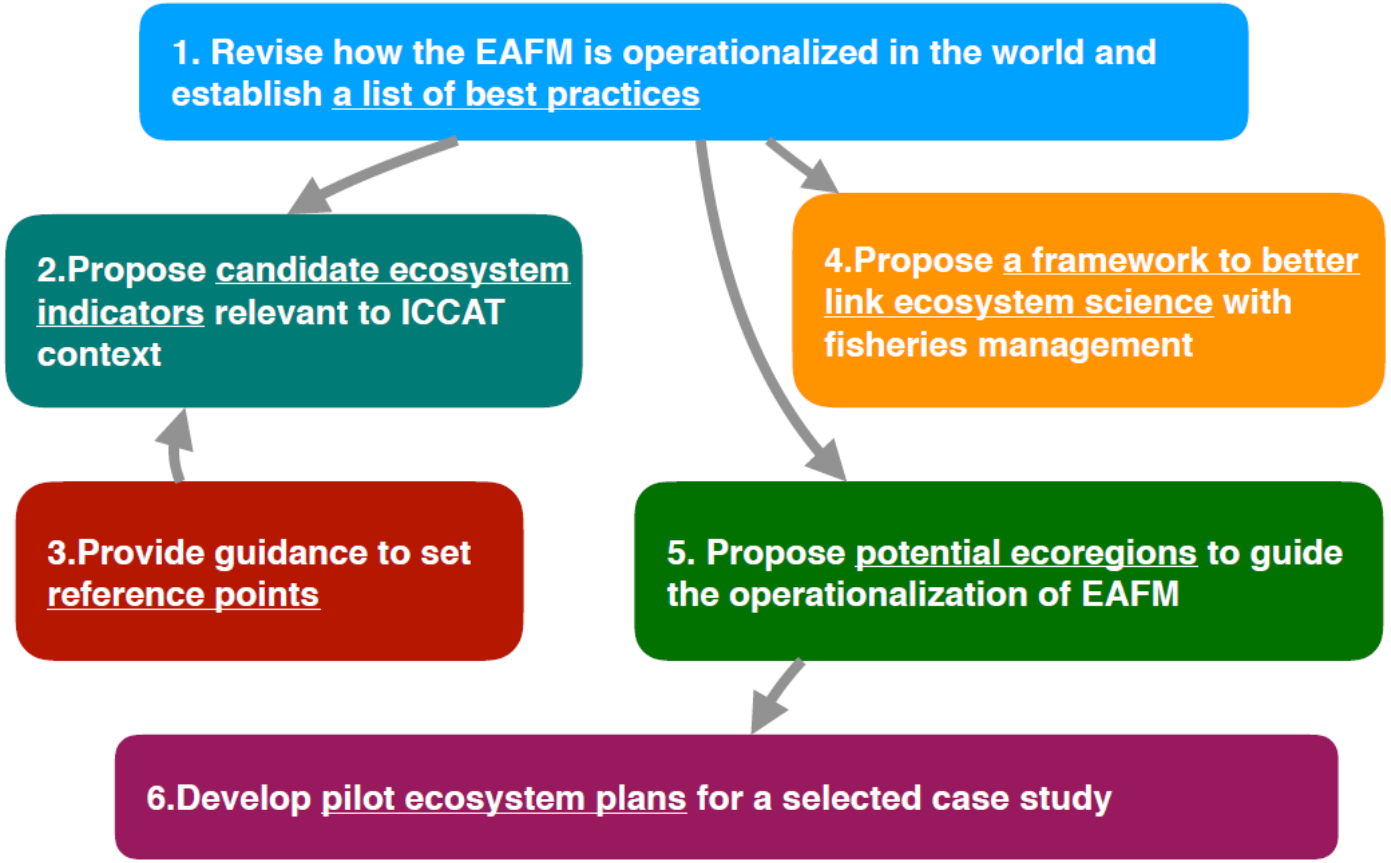
(e) give full recognition to the special requirements of developing Members of the Commission, including the need for their capacity building in accordance with international law, to implement their obligations under this Convention and to develop their fisheries.”

Ecosystem Approach to Fisheries Management

The road for implementation …. just started

The SCRS Subcommittee of Ecosystem and Bycatch



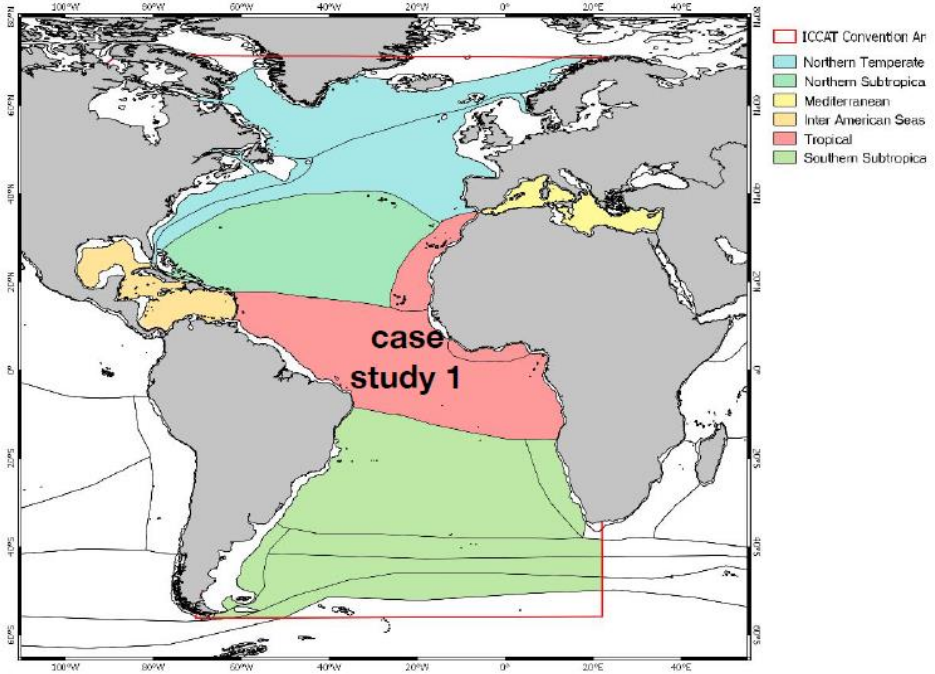


Ecosystem Approach to Fisheries Management

In progress …

- **Identify Atlantic Ecoregions within ICCAT,**
- **defined Ecosystem Indicators,**
- **develop Pilot Ecosystem Plan as a case study,**
- **develop an Ecosystem Report Card ….**

✦ Develop **pilot ecosystem plans** as a case study within the ICCAT convention region



A proposal of ecosystem indicators

Preliminary list of > 200 indicators down to 36 indicators

Queiros et al. criteria for ranking indicators

SELECTION CRITERIA

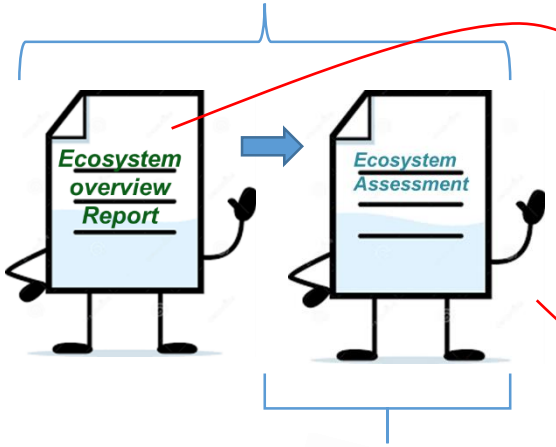
1. Scientific basis
2. Ecosystem relevance
3. Responsiveness to pressure
4. Possibility to set targets
5. Early warning
6. Quality of sampling methods
7. Cost effective
8. Existing datasets

Ranked them to prioritize development efforts

Progress on the Components of the Ecosystem Based Fisheries Management Plan

Developed appropriate conceptual and operational objectives for a management framework consisting of 11 components.
Indicators developed and updated for most components.

Thresholds for indicators and reactions to poor status have not been defined.



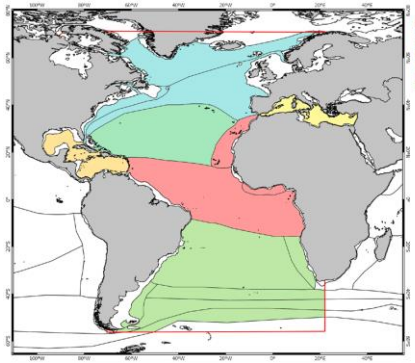
Case studies scheduled to provide regional overviews of known direct/indirect impacts of ICCAT fisheries on the different components of 2 regions (tropical Atlantic, Sargasso Sea) and describe known links between the environment and fisheries productivity.

These studies will provide context and direction for the ecosystem assessments and development of the ecosystem report card.

Currently assessments for the 11 ecosystem components have yielded detailed descriptions for the indicators , their calculation, data sources, factors causing observed trends, their implications and link with fisheries management.

A second annual ecosystem report card (Doc. No. SCI_76 / 2019) has been completed.

Future efforts to focus on finalizing report card indicators.



Potential regions for reporting. Details dependent on the component that is assessed. No single solution.

Sustainable Fisheries Management of Tuna: Challenges and Solutions ICCAT action plan in progress …

- ICCAT has started moving towards integrating Environmental related uncertainty, interactions and potential changes into the Sustainable Management of Atlantic Tuna Fisheries Resources.
- Both in the legal framework of the Convention and the Scientific approach to implement Ecosystem Approach to Fisheries Management.
  - By **Updating the Convention** text to explicitly include Environment and biodiversity issues, and specific management **resolutions** and **recommendations** to address Environmental impacts of Tuna Fisheries.
  - Moving towards **MSE protocols** for management of main tuna fisheries, to account for diverse sources of uncertainty including environmental components and be able to provide a robust and sustainable management advice.
  - Several **management Recommendations** are already in place addressing bycatch spp such as sharks and rays, seabirds, sea turtles and interactions with marine mammals.
  - As well, programs within major tuna fisheries aiming to reduce the impact of fisheries gears, lost gear, reduce bycatch of threaten species, debris and pollution, etc.

… Sustainable Fisheries Management of Tuna: Challenges and Solutions ICCAT action plan in progress

- At the Scientific level, the SCRS has actively been engaged in the review and implementation of the Ecosystem Approach to Fisheries Management through the Subcommittee of Ecosystems and Bycatch.
  - Preliminary definitions of **EcoRegions**, **Ecosystem Indicators**, **Pilot Ecosystem Plans**, and **Ecosystem Report Cards**.
  - Workplan and schedules for Dialogue between Scientist and Managers, Commissioners to define **Ecosystem Management Objectives**.
  - Integrating major **environmental uncertainty** in the MSE protocols for major tuna fisheries.
  - Increasing the number of non-target species assessments (sharks, seabirds), plus an active collaboration with scientific organizations in the region to address main impacts of tuna fisheries on other spp: IWC, Sea Turtles, SeaBirds, Kobe process bycatch, UN Biodiversity programs …

… Sustainable Fisheries Management of Tuna: *Challenges* and Solutions ICCAT action plan in progress

However there have been also important **challenges** in the development and implementation of the Ecosystem Approach to Fisheries Management in particular:

- Limited knowledge of the Ecosystem interactions for high seas and its complexity
- Inadequate or limited data for assessing impacts and monitoring trends
- Insufficient capacity/expertise to identify appropriate causal relationships of environmental drivers of stock dynamics
- Infrequent dialogue with managers that slows development and implementation
- No standard mechanism for Species Groups to explore, exchange, incorporate environmental effects into Stock Assessments.
- Funding limitations


Thank you