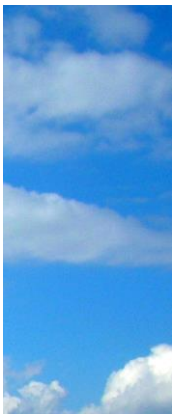
ICCAT
SCRS Report

2016



2016 Report of the SCRS

- Background and Scope
  - Global report card for major tuna stocks
  - Report card for Atlantic stocks
  - SCRS accomplishments and challenges

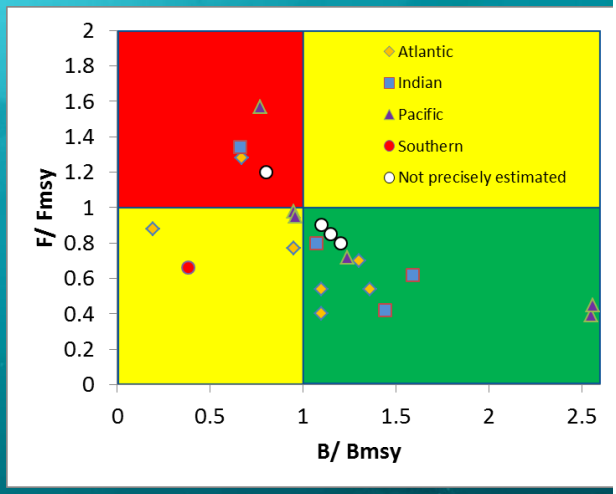
  Activities in 2016
  - Reports of Subcommittees (Methods, Ecosystems, Statistics)
  - Responses to Commission Requests
  - General Recommendations and workplan

Global Report card for major tuna stocks

B > Bmsy and F < Fmsy

B < Bmsy and F < Fmsy or B > Bmsy and F > Fmsy

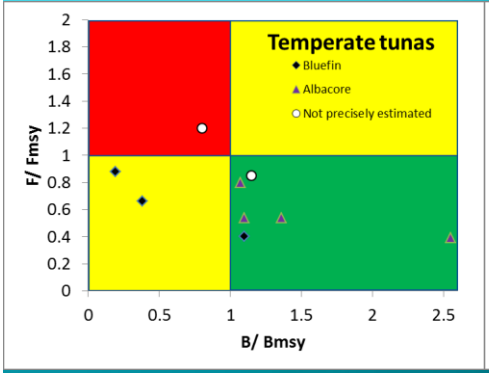
B < Bmsy and F > Fmsy

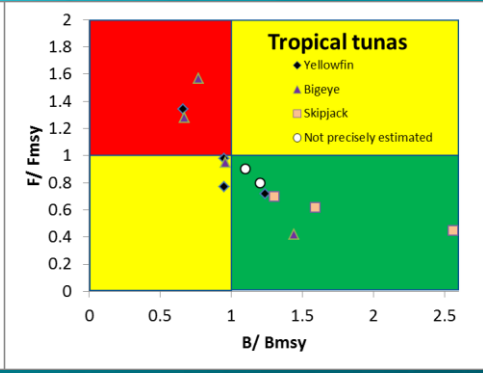


Data from Tuna RFMOs compiled by ISSF and updated for Atlantic by SCRS

ISSF. 2016. ISSF Tuna Stock Status Update, 2016: Status of the world fisheries for tuna. ISSF Technical Report 2016-05A. International Seafood Sustainability Foundation, Washington, D.C., USA.

Global Report card for major tuna stocks temperate tunas vs tropical tunas





B < Bmsy and F > Fmsy

B < Bmsy and F < Fmsy or B > Bmsy and F > Fmsy

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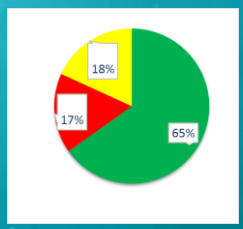
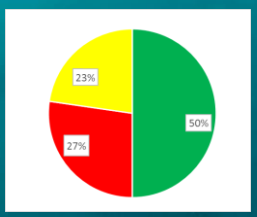
ICCAT Stock Status Report card 2016

Species	Stock	Last SA	Next SA		Most likely	Possibly
YFT		**2016**				
BET		2015	2018			
SKJ	E	2014	2019			
SKJ	W	2014	2019			
ALB	N	**2016**				
ALB	S	**2016**	2020			
ALB	M	2011	**2017**			
BFT	E	2014	**2017**			
BFT	W	2014	**2017**	*		
SWO	N	2013	**2017**			
SWO	S	2013	**2017**			
SWO	M	**2016**	2021			
BUM		2011	2018			
WHM		2012	2019			
SAI	E	**2016**	2020			
SAI	W	**2016**	2020			
BSH	N&S	2015	2021			
SMA	N	2012	**2017**			
SMA	S	2012	**2017**			
POB	NE	2009	2019			
POB	NW	2009	2019			
POB	SW	2009	2019			
Seabirds		2009				
Other sharks		2012				
Sea turtles		2013				



17% of the tuna catches in the ICCAT Convention area in 2014 came from stocks in the "red" zone



Half of the stocks are fished according to the Commission's objective

* WBFT: Equally plausible

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Some recent assessments suggest improvements in stock status

But not for all stocks

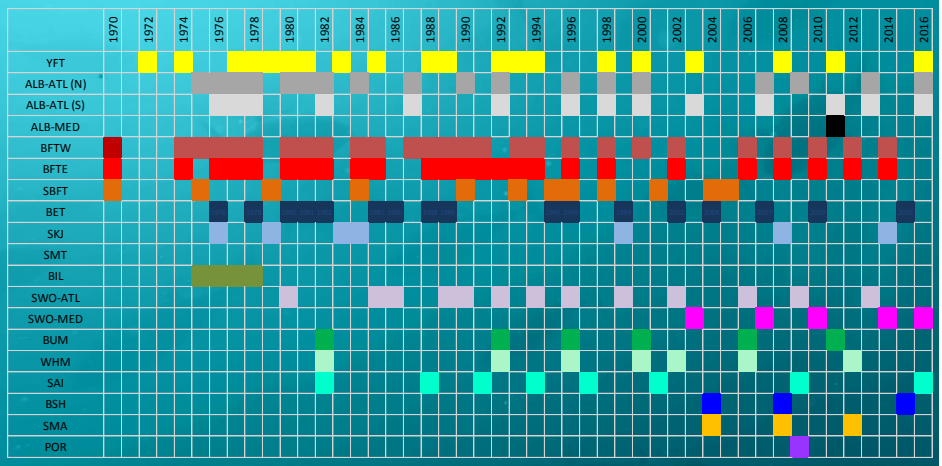
		2008	2009	2010	2011	2012	2013	2014	2015	2016
WG	Stock									
ALB	N									*
	S									*
	Med				*					
BFT	E							*		
	W							*		
TROP	BET								*	
	YFT									*
	SKJ W							*		
	SKJ E							*		
SWO	N						*			
	S						*			
	Med									*
BILL	BUM				*					
	WHM					*				
	SAI W									*
	SAI E									*
SHK	BSH								*	
	SMA					*				
	POB NE		*							
	POB NW		*							
	POB SW		*							

Overfished and Overfishing
Either overfished or Overfishing
Not Overfished no Overfishing
Unknown

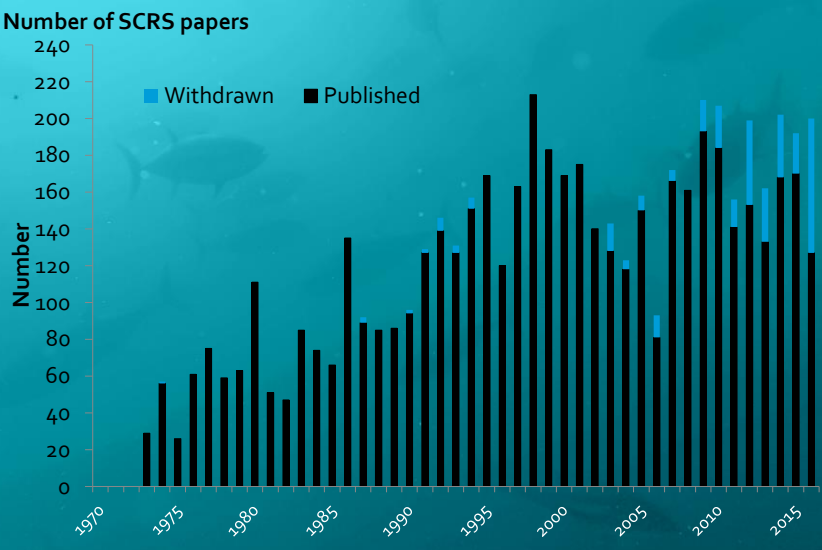
* Latest assessment

6 Nov 2016 ICCAT Commission Vila Moura

Since 1970s the SCRS has multiplied by four the number of stocks assessed… but slowly decreased the frequency of assessment for each stock



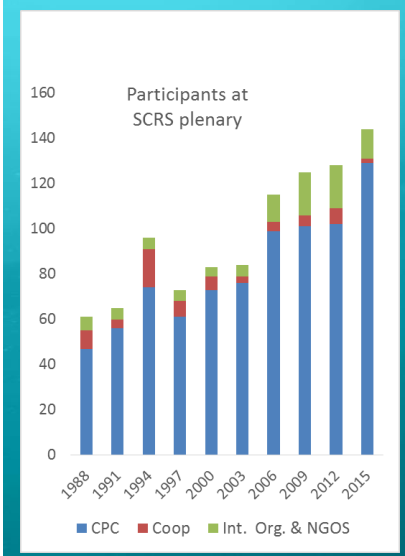
From ~ 40 to the current 200+ SCRS papers/year



Successfully completed/conducting large multi-national research programs

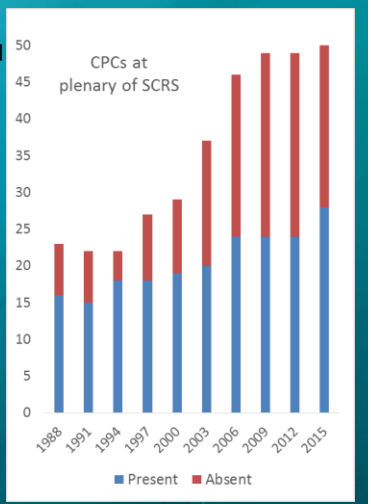
		1979	1982	1985	1988	1991	1994	1997	2000	2003	2006	2009	2012	2015	2018	2021
Atlantic Wide Research Programme for Bluefin tuna	GBYP															
Atlantic Ocean Tropical Tuna Tagging Programme	AOTTP															
Enhanced Program for Billfish Research	EPBR															
Small Tunas Year Program	SMTYP															
Shark Research and Data Collection Programme	SRDCP															
Bluefin Year Program	BYP															
Bigeye Tuna Year Program	BETYP															
Albacore Research Program	ARP															
Yellowfin Year Program	YYP															
International Skipjack Year Program	ISYP															

There are still many challenges for the SCRS



More than doubled the number of participants at the SCRS plenary in the last 25 years…

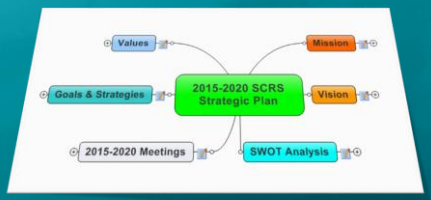
but we need to increase the percentage of CPCs represented by their scientists at the plenary of SCRS



2015-2020 SCRS Science Strategic Plan

GOALS

- DATA COLLECTION
- DIALOG AND COMMUNICATION
- PARTICIPATION AND CAPACITY BUILDING
- RESEARCH
- STOCK ASSESSMENT AND ADVICE



Progress on implementation of Science Strategic Plan

		Not measured		Some progress	
		No progress		Target reached	
DATA COLLECTION			**DIALOGUE AND COMMUNICATION**		
1.1			1.1		
1.2			2.1		
1.3			3.1		
2.1			3.2		
2.2			4.1		**PARTICIPATION AND CAPACITY BUILDING**
2.3			4.2		1.1
3.1			4.3		2.1
3.2			4.4		2.2
			5.1		3.1
STOCK ASSESSMENTS AND ADVICE			6.1		3.2
1.1					3.3
1.2			**RESEARCH PRIORITIES**		
1.3			1.1		
1.4			1.2		
1.5			2.1		
2.1			3.1		
2.2			3.2		
3.1			4.1		
3.2			5.1		
3.3			6.1		
4.1			7.1		
4.2					

The table will be completed to reflect progress by the middle of 2017, the mid-way period of the plan, and reported to the Commission at their 2017 Annual meeting.

- **Subcommittee on Ecosystems**
- **Working Group on Stock Assessment Methods (WGSAM)**
- **Subcommittee on Statistics**

Ecosystem subcommittee is progressing in developing information to help support ecosystem-based fisheries management

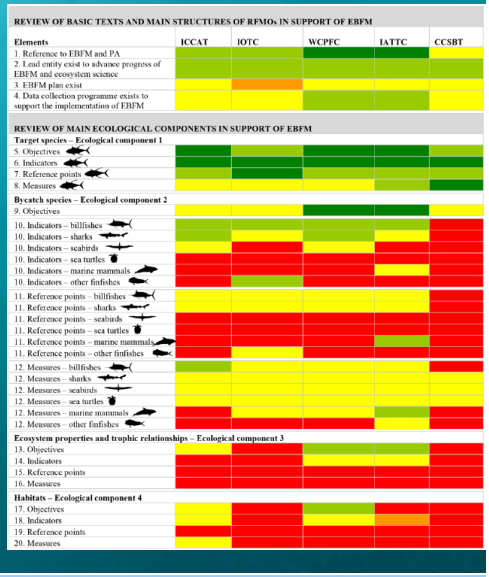
Review of tuna RFMOs EBFM

Many elements necessary for an operational EBFM are already present.

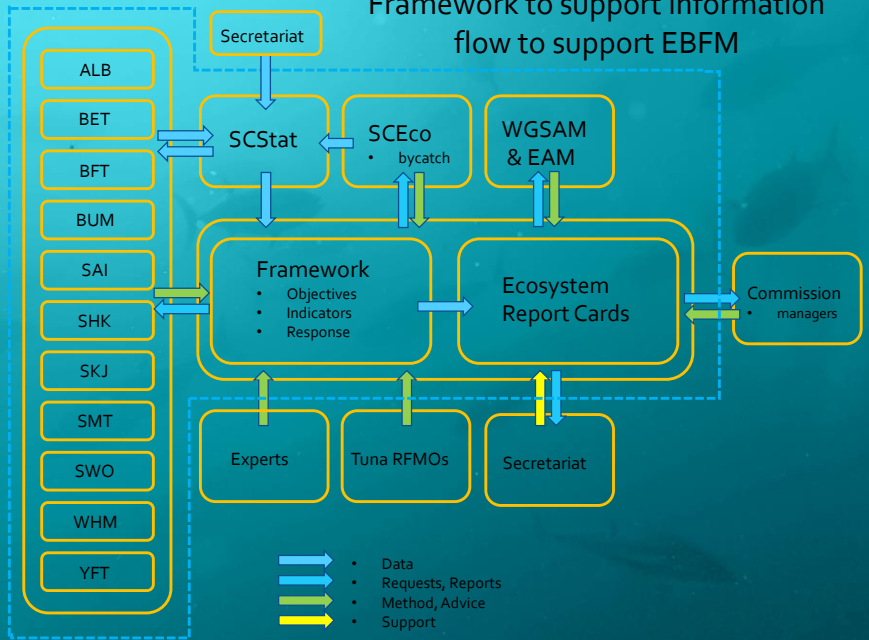
Implementation has been patchy,

t-RFMOs are half way to implementing the ecological component of EBFM

Dec 2016 EBFM meeting of tRFMOs



Framework to support information flow to support EBFM

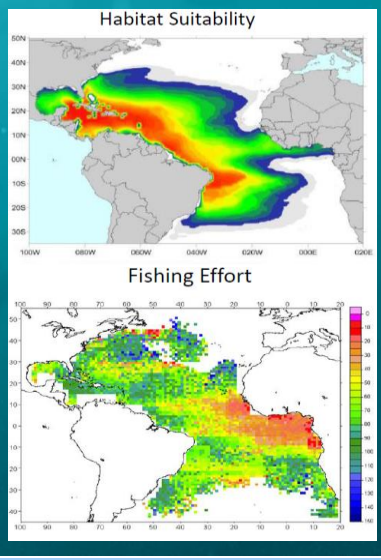


Methods of Incorporating Oceanographic Indicators into Indices of Abundance for Stock Assessment

A method was proposed for accounting for the effect of environmental indicators on CPUE or BPUE

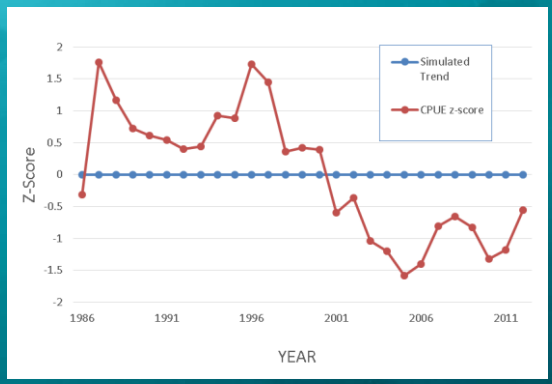
longline simulator and a habitat suitability model to generate simulated catch or bycatch data.

It will allow us to learn how to account for environmentally driven effects on CPUE and explore the relationship between environmental and stock status indicators.



Example simulation

- Simulate a pop with a constant abundance each year
- Calculate a nominal CPUE
- First standardize for gear effects
- Then standardize for ENV effects



Sea Turtles

1st Goal; Estimate total number of interactions by longline

Partially met

$$N_{fleet,\ area,\ season} = E_{fleet,\ area,\ season} * CPUE_{fleet,\ area,\ season}$$

Effort; Estimated by current EFFDIS
CPUE; Published data (now)

Improvements:
Use observer data for cpue and allow it to vary with time
Continue improving EFFDIS

Challenge: $Total\ Bycatch\ Number = Post\ release\ mortality * Live\ release + Dead\ discard$

Sea Birds

Goal ; Evaluate effect of new mitigation measures (July, 2013)

through **Total Bycatch Number & CPUE** before/after 2013

2016 Review:

ONLY FEW CPCs submitted data, CPUE trends, total Bycatch

ST09 Form is quite incomplete, longline effort EFFDIS only recently becoming useful

Needed:

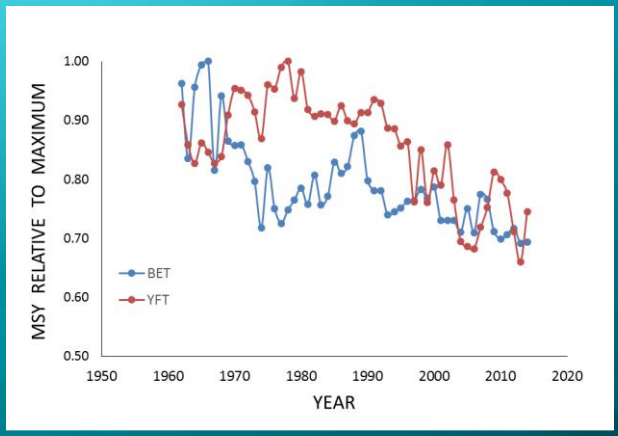
harmonized regulations and data collection across tuna RFMOs

2017 Feb ABNJ meeting South Africa

2018 ABNJ joint tuna style meeting

Working group on stock assessment methods

It is essential to consider the consequences of changes in selectivity for Maximum Sustainable Yield



Maximum sustainable yield can vary with time

- For fisheries that are known to have time varying selectivity (e.g. fisheries where the proportion of catch changes between gear types), when possible, the SCRS will be providing a times series of year specific MSY
- A reference point can be provided: Global MSY
- It should be noted that projections generally assume that future selectivity remains constant at the final years values

Subcommittee of statistics

- The reports a sustained improvement on data reporting obligations
- The Subcommittee requested that CPCs make their utmost effort to report their Task I and II data in advance of the July 31st deadline (when possible).
- The Sub-committee recommends that the Secretariat works intersesionally with the SCRS Chair, Chairs of the 2 subcommittees, and Chairs of all Species Groups to develop a proposal with new guidelines for the sharing and dissemination of SCRS data

Responses to Commission's requests

18.11 Evaluation of data deficiencies pursuant to [Rec. 05-09]

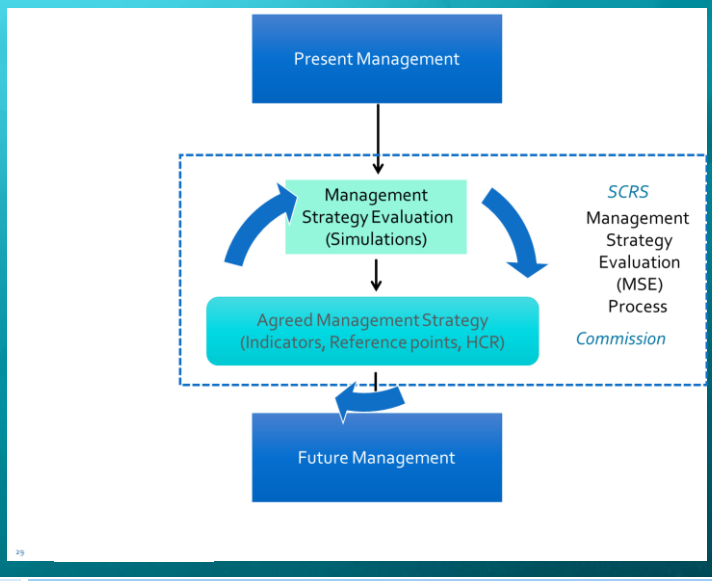
18.12 Provide the Commission with a 5-year schedule for the establishment of species-specific HCRs Rec. [15-07] paragraph 4

Evaluation of data deficiencies [Rec. 05-09]

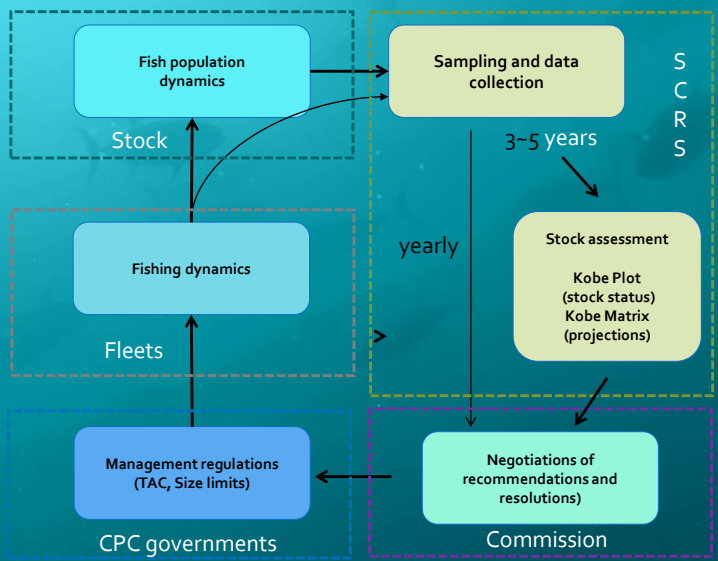
Data deficiencies are present for many of the basic information used to support ICCAT assessments, however, there are clear differences between stocks on how these deficiencies affect the ability of the SCRS to conduct assessments of stock status and to provide management advice. In general, data deficiencies are more common for by-catch species than for target stocks and particularly in evaluating the impact of fishing upon sea turtles and sea birds.

Species	Stock	Last SA	Next SA	Most likely	Possibly
YFT		**2016**			
BET		2015	2018		
SKJ	E	2014	2019		
SKJ	W	2014	2019		
ALB	N	**2016**			
ALB	S	**2016**	2020		
ALB	M	2011	**2017**		
BFT	E	2014	**2017**		
BFT	W	2014	**2017**		
SWO	N	2013	**2017**		
SWO	S	2013	**2017**		
SWO	M	**2016**	2021		
BUM		2011	2018		
WHM		2012	2019		
SAI	E	**2016**	2020		
SAI	W	**2016**	2020		
BSH	N&S	2015	2021		
SMA	N	2012	**2017**		
SMA	S	2012	**2017**		
POB	NE	2009	2019		
POB	NW	2009	2019		
POB	SW	2009	2019		
Seabirds		2009			
Other sharks		2012			
Sea turtles		2013			

Provide the Commission with a 5-year schedule for the establishment of species-specific HCRs Rec. [15-07] paragraph 4

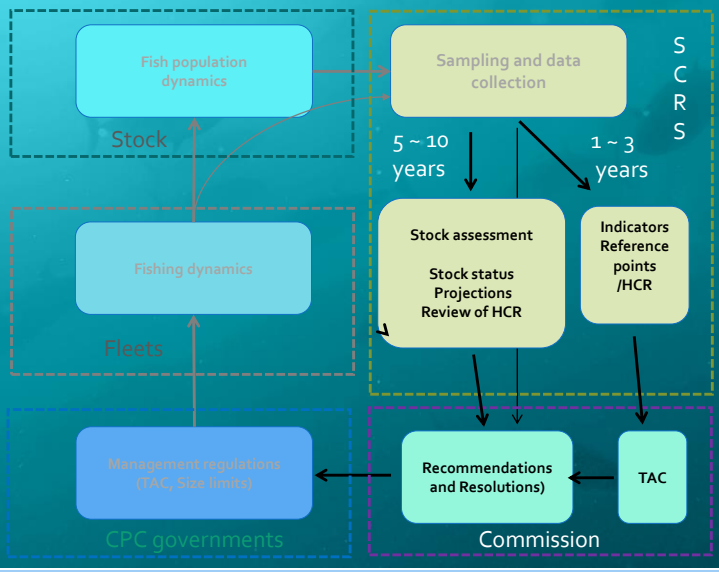


Current ICCAT Management



Future ICCAT Management

Rec 2015-04, 2015-07



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Progress towards MSE: ICCAT Commission

- **Rec 2015-04**

RECOMMENDATION BY ICCAT TO ESTABLISH HARVEST CONTROL RULES FOR THE NORTH ATLANTIC ALBACORE STOCK

- **Rec 2015-07**

RECOMMENDATION BY ICCAT ON THE DEVELOPMENT OF HARVEST CONTROL RULES AND OF MANAGEMENT STRATEGY EVALUATION

- **Panel 2 meeting in Sapporo Jul 2016**

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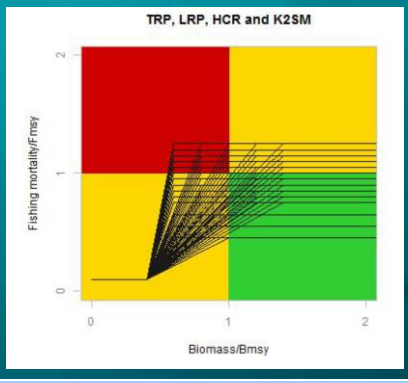
SCRS Progress : N Albacore initial set of HCRs tested

B threshold	F target													
	0.45	0.55	0.65	0.75	0.80	0.85	0.9	0.95	1.0	1.05	1.1	1.15	1.20	1.25
0.6														
0.8														
1.0														
1.2														
1.4														



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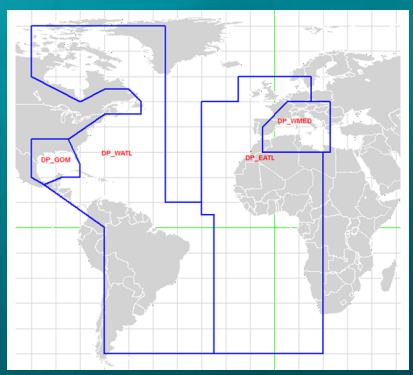
BFT MSE: incorporating hypotheses about mixing dynamics

- Developed a multi-stock, spatial, quarterly, statistical catch-at-length model (M3)

- Move away from catch-at-age data
- Finer spatial resolution
- Run much faster than previous multi-stock Models

After 2017 assessment use framework for full MSE



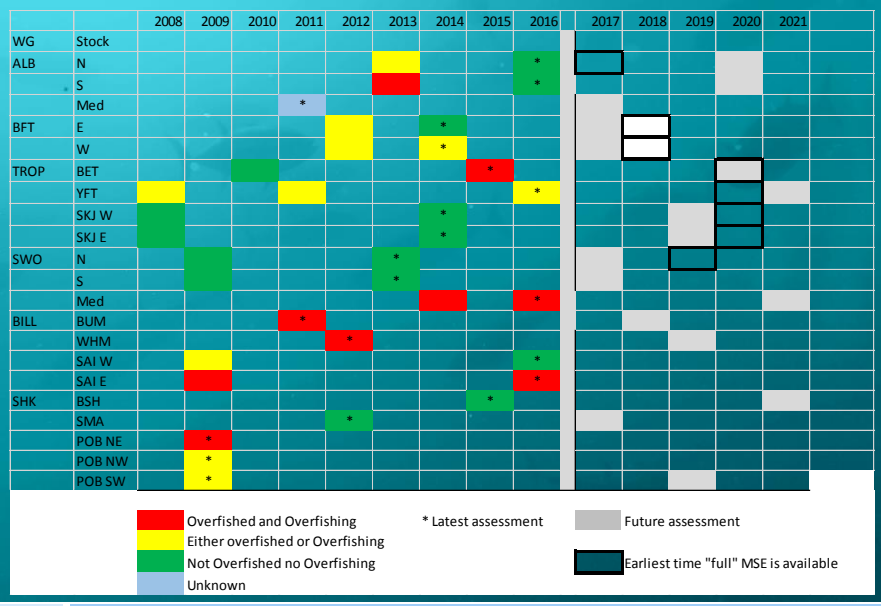
Tropical tunas and N Swordfish MSE

- Some work done in the early 2000s for tropical tunas
- Some recent work on the development of an operating model for N SWO presented at the WGSAM

- Species specific or Multispecies for tropical tunas?
- Resources (people/funds) to do it?
- Timeline of development in relation to assessments
- Platform to develop (new, GBYP…)
- Interactions with panel 1 and 4?

- SCRS will develop a detailed workplan for MSE for both SWO and tropical tunas in 2017

Proposed schedule for earliest "full" MSE



Cross-tRFMO collaboration on MSE

- Nov 1-3 2016 meeting of Joint MSE Technical Working Group was very successful

- Meeting covered five main themes:
  - development of a dialogue between managers and scientists,
  - conditioning of operating models,
  - computational aspect,
  - global the Albacore case study and dissemination
  - dissemination of information on MSE

General recommendations & Work Plans

Assessments in 2017:

- Bluefin tuna (east and west)
- Swordfish (north and south)
- Shortfin mako (north and south)
- Albacore Mediterranean

- Continue MSE implementation and development

- Participate tRFMO working group on FADs

- Review progress towards objectives of strategic plan

- Next Dialog WG meeting to include agenda item on EBFM

Recommendation to implement and fund a Strategic Research Programme to support the Science Strategic Plan

- Will be designed for research that aligns with the Science Strategic Plan, in an effort to secure long-term research for the future. It will not be considered for any other funding recommendations outside of scientific research
- The programme would replace current ICCAT research programs (for billfish, small tunas, sharks and new programs proposed for albacore and swordfish).
- We recommend the Commission includes funds to support the programme in its regular budget starting with the cycle 2018-2019 with an initial annual budget of €600,000.

(*) Section 16 SCRS report

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Acknowledgments

Credit to all SCRS participants, and specially to those that prepared presentations at the SCRS, much of the material I presented here comes from them.

Special thanks to the staff of the ICCAT secretariat for their support of the SCRS

Celebrate the return and hard work conducted by Dr. Miguel Neves dos Santos