



REPORT OF THE STANDING COMMITTEE ON RESEARCH AND STATISTICS (SCRS)

Malta 2015



SCRS 2015

2015 Report of the SCRS

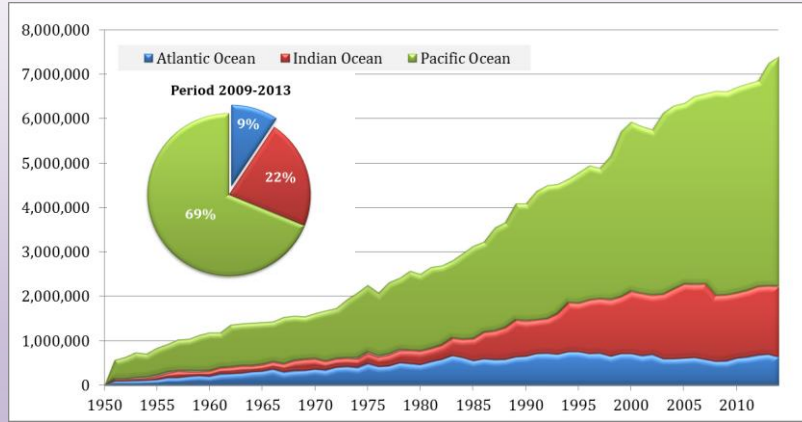
- Background and Scope
 - Atlantic and global production of tuna and tuna-like species
- Activities in 2015 (*)
 - Participation & Scientific products
 - Report card for ICCAT stocks
 - Responses to COMMISSION Requests
 - General Recommendations

(*) SCRS report for 2015 (PLE 104/2015)

Background



**Reported catches (FAO) in the different oceans:
Tuna, bonitos & billfishes** 7.4 million t in 2013 (0.6 in the Atlantic)



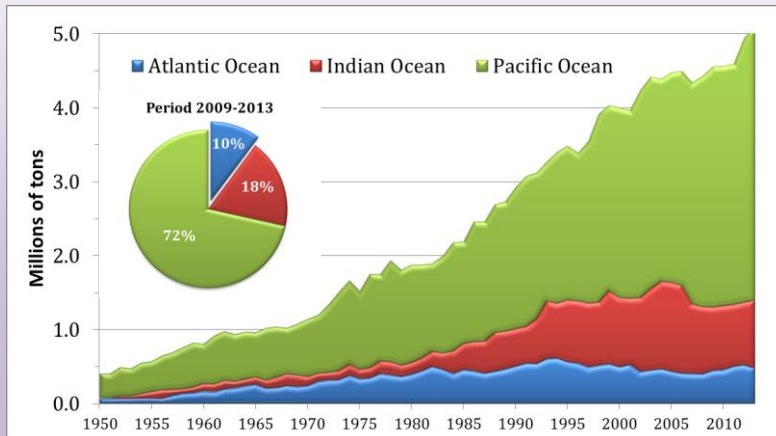
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Background



5 major Tunas: Albacore, Bigeye, Bluefin, Skipjack, Yellowfin
Reported catches (FAO) in the different oceans:

Globally 5.09 million tons in 2013 (0.48 million in the Atlantic)



- ICCAT estimates for the Atlantic in 2014 are 0.46 million

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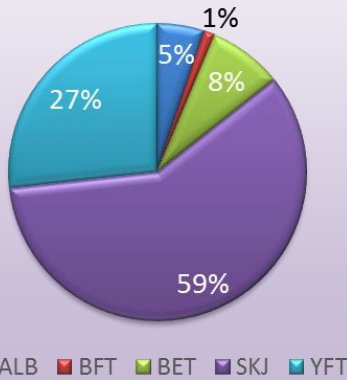
Background

Reported catches in the different oceans:

5 major Tunas

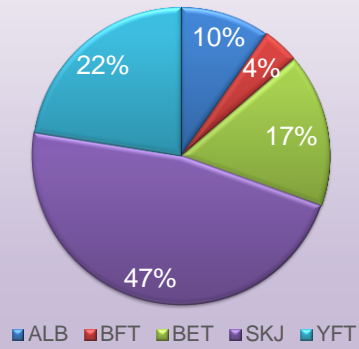
(Average % 2008-2012)

Global 2009-2013



All oceans: 5.09 million t in 2013

Atlantic 2009-2013

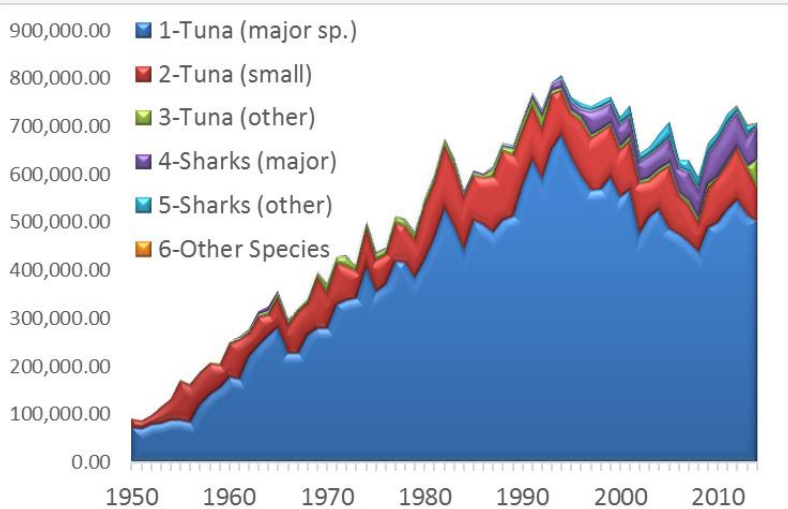


Atlantic: 0.48 million t in 2013

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Background

Reported catches in the ICCAT Convention Area (all species)



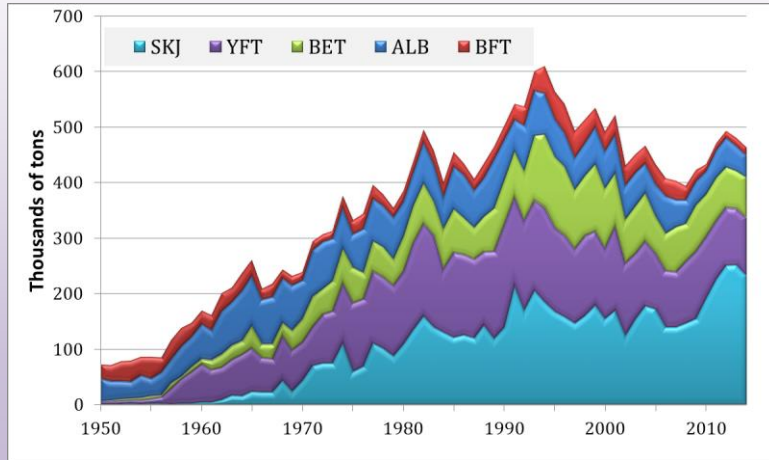
Overall, reported catches in the ICCAT Convention Area peaked in the 1990s and had generally been in decline since 1995, however, catches increased again somewhat since 2009

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Background



Reported catches in the ICCAT Convention Area (major tunas)



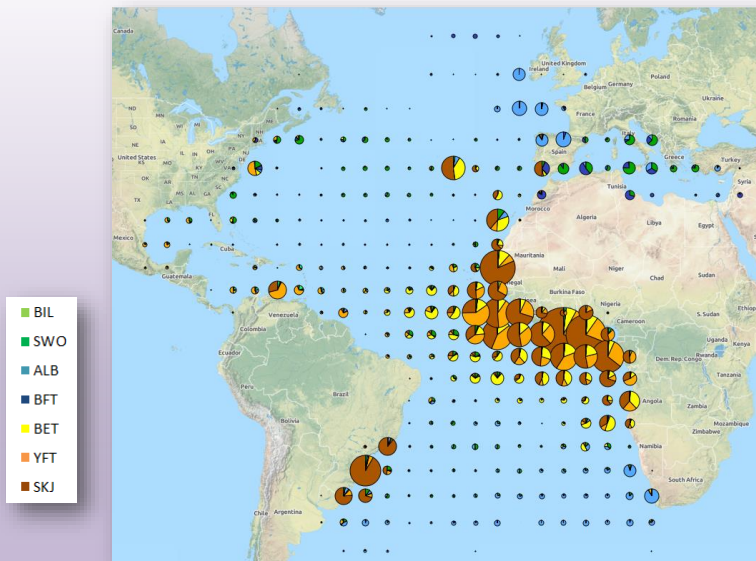
Increases in catches since 2009 are mainly due to increases in SKJ

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Background



Reported catches in the ICCAT Convention Area



2010-2012

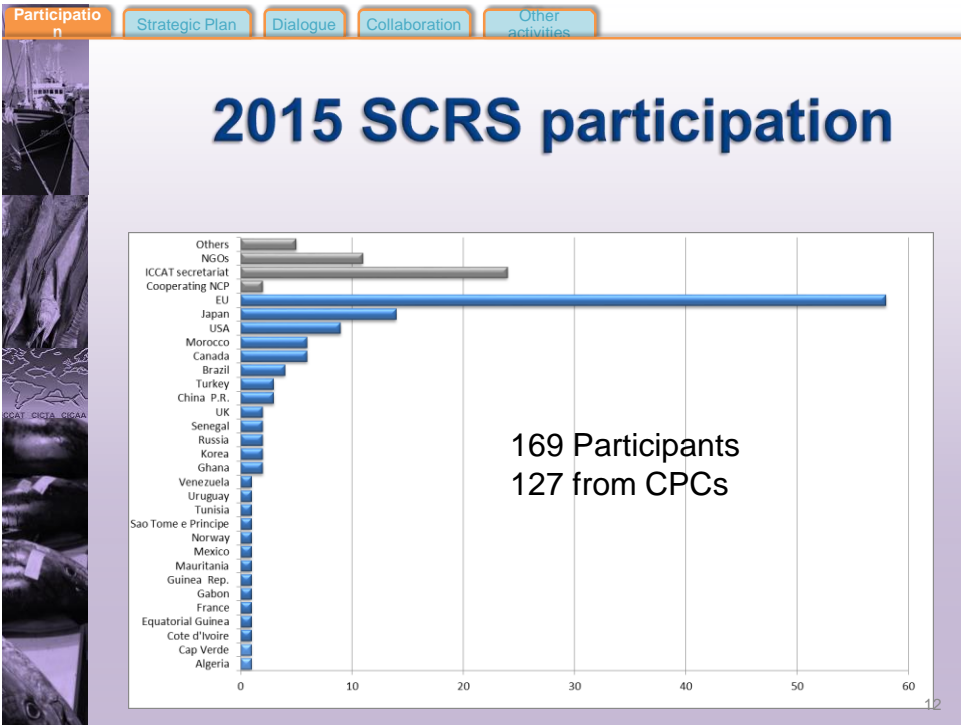
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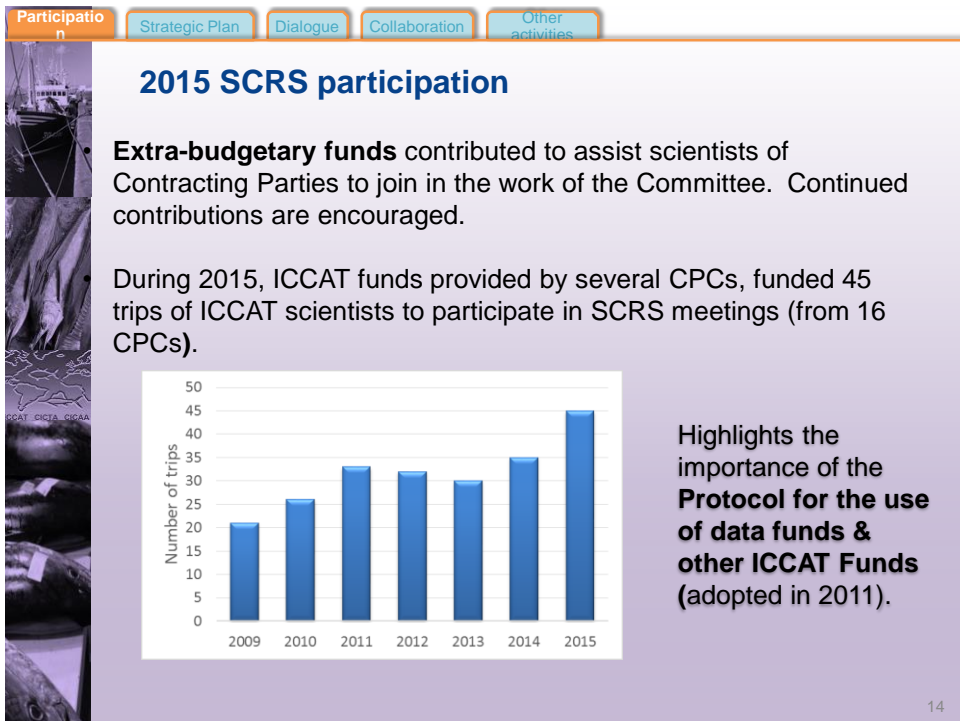
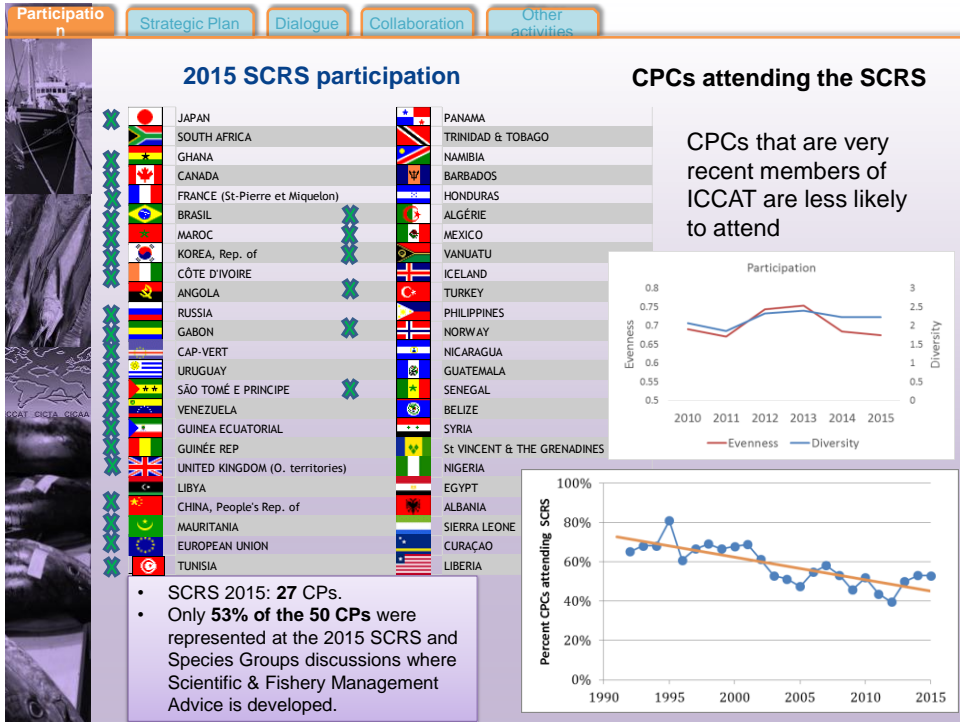


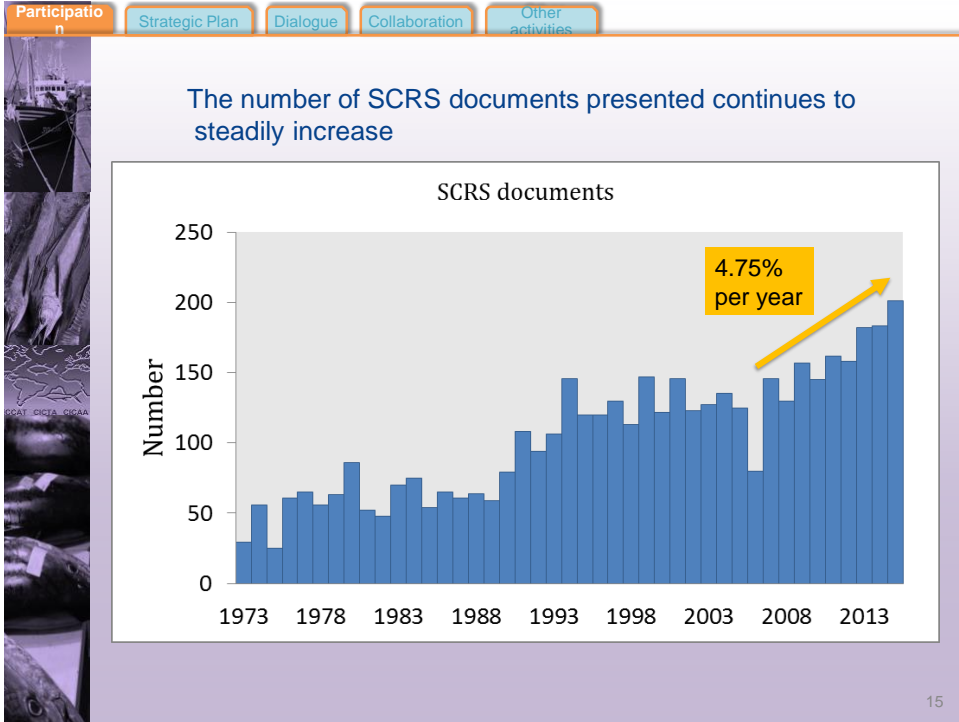
Activities of the SCRS in 2015

SCRS 2014

- 2015 SCRS participation
- SCRS Science Strategic Plan [2015-2020]
- Dialogue with the Commission
- FAD working group
- Collaboration with other international organizations
- Other actions and initiatives
 - Working Group on Stock Assessment Methods
 - Subcommittee on Ecosystems
 - Subcommittee on Statistics







Participation Strategic Plan Dialogue Collaboration Other activities

2015 SCRS activities

Date	SCRS – 2015 Meetings	Location	
Feb 16-20	ICCAT Working Group on Stock Assessment Methods	Miami, USA	PLE
March 2-6	Bluefin data preparatory meeting	Madrid, Spain	P2
March 23-27	Blue shark data preparatory meeting	Tenerife, Spain	P4
May 4-8	Bigeye data preparatory meeting	Madrid, Spain	P1
May 11-12	1st Meeting of the Ad hoc Working Group on FADs	Madrid, Spain	PLE
Jun 8-12	Sub-Committee on Ecosystems intersessional meeting	Madrid, Spain	PLE
June 10-13	Small Tunas species group intersessional meeting	Madrid, Spain	P4
July 13-17	Bigeye stock assessment meeting	Madrid, Spain	P1
July 27-31	Blue shark stock assessment meeting	Lisbon, Portugal	P4
Sep 21-25	SCRS Species Groups meetings	Madrid, Spain	All
Sep 28 – Oct 2	Meeting of the Standing Committee on Research and statistics	Madrid, Spain	All

Other Meetings			
June 22-26	Dialogue between Scientists and Managers Working Group	Bilbao, Spain	PLE
June 25	WG of Fisheries Managers and Scientists in support of the W-BFT stock assessment	Bilbao, Spain	PLE

Meeting Reports Available at: www.iccat.int

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Participation Strategic Plan Dialogue Collaboration Other activities

Workload of the SCRS and the Secretariat

2015

- 16 meetings
- 71 days

Year	Number of days
2005	21
2006	44
2007	51
2008	60
2009	48
2010	39
2011	63
2012	41
2013	74
2014	67
2015	71

Need to limit/stop the increase in meeting days or alternatively increase resources in SCRS and ICCAT secretariat.

- Meetings are set to satisfy the needs of the Commission and to implement the SCRS strategic plan for research.
- As the SCRS increases the use of more complex models in the assessment process the length of assessment meetings potentially increases. This has resulted in the need to have data preparatory and assessment meetings separately.

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Participation Strategic Plan Dialogue Collaboration Other activities

2015-2020 SCRS Science Strategic Plan

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    graph TD
      A[2015-2020 SCRS Strategic Plan] --- B[Values]
      A --- C[Mission]
      A --- D[Vision]
      A --- E[SWOT Analysis]
      A --- F[2015-2020 Meetings]
      A --- G[Goals & Strategies]
  
```

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Participation Strategic Plan Dialogue Collaboration Other activities

2015-2020 SCRS Science Strategic Plan

MISSION

- Provide scientific advice to the ICCAT Commission
- Develop policy procedures for collection, compilation, analyses and dissemination of fishery statistics.
- Coordinate research programs, capacity building activities and stock assessments.
- Advise ICCAT Commission for specific conservation and management measures

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Participation Strategic Plan Dialogue Collaboration Other activities

2015-2020 SCRS Science Strategic Plan

VISION

A Scientific Committee with **broad participation of competent scientists all the CPCs** that fish tuna and tuna-like species in the Atlantic Ocean and adjacent seas, working **cooperatively** in an **effective and transparent** way, with a **solid scientific and technical support of the Secretariat**, to provide **objective, reliable and robust scientific advice** to the Commission in support of the Convention Objectives.

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Participation Strategic Plan Dialogue Collaboration Other activities

2015-2020 SCRS Science Strategic Plan

VALUES

- INTEGRITY
- INDEPENDENCE
- COOPERATION
- COMMITMENT
- ABILITY
- TRANSPARENCY

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Participation Strategic Plan Dialogue Collaboration Other activities

2015-2020 SCRS Science Strategic Plan

GOALS

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

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Participation Strategic Plan Dialogue Collaboration Other activities

2015-2020 SCRS Science Strategic Plan

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
BFT West										
BFT East										
BET										
SKJ East										
SKJ West										
YFT										
ALB North										
ALB South										
ALB Med										
SWO North										
SWO South										
SWO Med										
WHM										
BUM										
SAI West										
SAI East										
BSH South										
BSH North										
SMA North										
SMA South										
POR All										
Other SHK										
Small Tunas										

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Participation Strategic Plan Dialogue Collaboration Other activities

2015-2020 SCRS Science Strategic Plan

Thematic area	Budget 2015-2020
A. DATA COLLECTION	30,000
B. DIALOGUE AND COMMUNICATION	25,000
C. PARTICIPATION AND CAPACITY BUILDING	295,000
D. RESEARCH PRIORITIES	115,000
E. STOCK ASSESSMENTS AND ADVICE	227,000
Total	692,000

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Participation Strategic Plan Dialogue Collaboration Other activities

SCRS scientists participated in:

- Working group on FADs [COM 15: Agenda item 8]
- Meeting of working group on convention amendment [COM 15: Agenda item 9]
- Second Meeting of the Standing Working Group to Enhance Dialogue between Fisheries Scientists and Managers [COM 15: Agenda item 10]
- Third Meeting of the Working Group of Fisheries Managers and Scientists in support of the western Atlantic bluefin tuna stock assessment [COM 15: Agenda item 11]

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Participation Strategic Plan Dialogue Collaboration Other activities

Collaboration with other international organizations

To improve the capacity, information and analysis available for scientific advice.

- **CITES:** Two training courses for Government staff and stakeholders to help implement CITES listings for sharks and rays. Collection of catch and biological data on sharks.
- **GEF ABNJ tuna project.** Organization of tRFMO-MSE workshops and support in the implementation of EBFM
- **ICES:** Research and assessment of selected shark species, ecosystem issues, MSE and stock assessment methods and training in stock assessment
- **OSPAR:** Potential collaboration in the same format as that agreed with CITES

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Participation Strategic Plan Dialogue Collaboration **Other activities**


Other actions and initiatives

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

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Participation Strategic Plan Dialogue Collaboration **Other activities**

Working Group on Stock Assessment Methods (*)

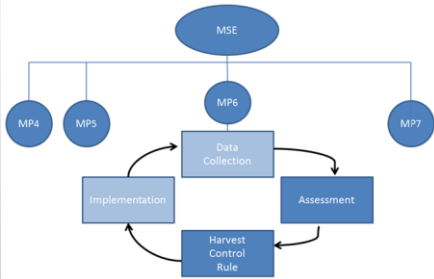


- Limit Reference points and Management Strategy Evaluation (MSE)
- Incorporation of oceanographic and environmental changes into the assessment process (with ecosystems Subcommittee)
- Review EFFDIS method
- Development of a template for unifying the North Atlantic swordfish CPUE data

(*) full report: SCRS/2015/010

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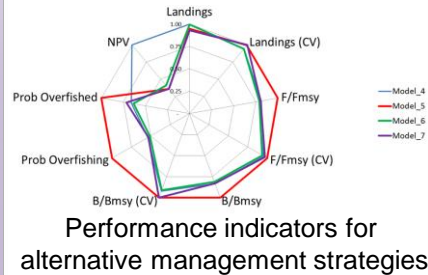
WGSAM Progress on MSE



Limit which uncertainties to consider

Challenge to display and communicate results:

- Northern Swordfish
- Buefin tuna
- Albacore
- Skipjack



PRELIMINARY CONCLUSIONS on MSE

- Consistent two-way communication between the Commission and the SCRS is essential
- Dialog requires using consistent terminology
- MSE progress depends on clear statements of management objectives
- Small, solid steps (agreeing operational management objectives) likely more successful than large steps (wait to agree on all details of framework)

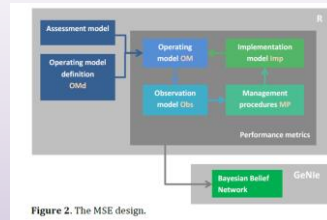
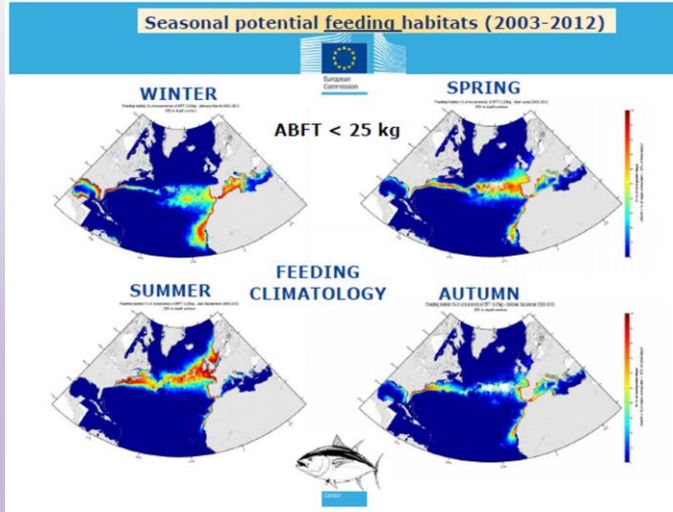


Figure 2. The MSE design.



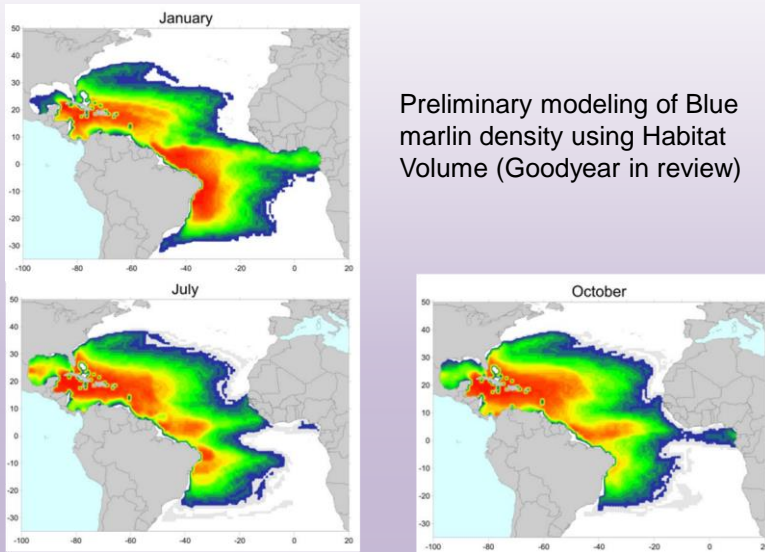
Incorporation of oceanographic and environmental variables into the assessment process

Preferred habitats of the juvenile and adult Atlantic Bluefin Tuna



Incorporation of oceanographic and environmental variables into the assessment process

Preliminary modeling of Blue marlin density using Habitat Volume (Goodyear in review)



Participation
Strategic Plan
Dialogue
Collaboration
Other activities

Subcommittee on Ecosystems (*)

- **Ecosystem**
 - Importance of the Sargasso Sea ecosystem to ICCAT species
 - Implementing ecosystem approaches to enhance stock assessments
 - Develop a list of ecosystem objectives.
 - Request input for the implementation of EBFM

- **By-catch (Panel 4)**

(*) for Full report see Appendix 9 of SCRS report

Ecosystem approaches to enhance stock assessments

The graph plots scaled abundance (y-axis, -1 to 3) against year (x-axis, 1985 to 2010). It includes data for five countries: CAN (red), POR (green), SPA (cyan), JAP (magenta), and USA (blue). Two base models are shown: HDA (solid black line) and HDB (dashed black line). The data shows significant inter-annual variability, with a notable dip around 1995 and a peak around 2005.

multivariate state-space modeling allows for analysis of time series and help understand the influences of environmental factors on stock dynamic (SCRS/2015/122)

Environmental indicators can help explain some of the variation in our data (SCRS/2015/022)

The AMO chart shows the index of the Atlantic Multidecadal Oscillation from 1950 to 2010. The y-axis ranges from -0.8 to 0.8. Red bars indicate positive phases, and blue bars indicate negative phases. A black line shows the smoothed trend, which is positive from approximately 1965 to 2005 and negative from 1950 to 1965 and 2005 to 2010.



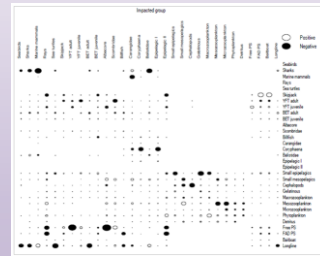
Request input for the implementation of EBFM

Joint meeting Small tuna WG and Ecosystems Sub-Committee

Invited ICES expert: SCRS/P/2015/019
Simple rules for EBFM

- Take less than nature
- Maintain population sizes above half of natural abundance
- Let fish grow and reproduce

ECOPATH model of ecosystem of the Gulf of Guinea (SCRS/2015/120)



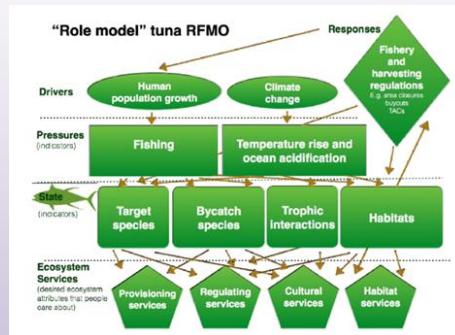
Estimating vulnerability of teleosts caught by the tuna longline fleet
SCRS/2015/013



Request input for the implementation of EBFM

Evaluate the progress of applying EBFM in ICCAT relative to an idealized "role model" RFMO

Element	Progress:
Ecological	
Target sp	good
Bycatch	moderate
Trophic	small
Habitat	small



SCRS/2015/123

- Important constraints are lack of:
- pre-agreed operational objectives
 - Indicators and thresholds

SCRS engaged in dialog as part of SWGSM

A GLOBAL tRFMO DIALOGUE ON EBFM IMPLEMENTATION (FAO)



Subcommittee on Statistics (*)

- Review of:
 - fisheries and biological
 - criteria applied to ICCAT statistics
 - Secretariat yearly-based fishery datasets estimations and dissemination
 - Existing data submission policy
 - Review of ICCAT-DB
- Development of:
 - Web based tutorial for ICCAT data submission
- Evaluation of data deficiencies pursuant to [Rec. 05-09]
 - Current data catalogues of major species by stock
- Coordinate:
 - National and international statistical activities
- Report on:
 - data improvement and data recovery activities



Malta ICCAT 2015

(*) for Full report see Appendix 8 of SCRS report
Plenary

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Participation
Strategic Plan
Dialogue
Collaboration
Other activities

Subcommittee on Statistics

Review of fisheries and biological data (SCI-008)

- **Task I and II**
There are improvements in the reporting but some data deficiencies persist including those related to reports of zero catch
- **Observer data**
Few countries submit the information on National observer programs on the appropriate form (ST09-NatObPrg) which also requires info on bycatch
- **Bycatch data**
Total bycatch estimates need to be submitted in form ST02-T1NC

T1NC report card summary (2014 data)

mt per month

Species: AUL, BEL, BUL, CAN, CHL, DNK, ESP, GBR, GRC, IRL, ITA, JPN, KOR, LUX, MEX, NLD, NOR, PER, POL, RUS, SWE, THA, TUR, USA, VEN, WLS, ZAF

Month: Aug, Sep, Oct, Nov, Dec

Legend: not reported/errors, no data on Species (7), corrected (-0.2), late rep (8), good(1) = '0' catch

T1FC report card summary (2014 data)

mt per month

Species: GBR, IRL, JPN, KOR, LUX, MEX, NLD, NOR, PER, POL, RUS, SWE, THA, TUR, USA, VEN, WLS, ZAF

Month: Aug, Sep, Oct, Nov, Dec

Legend: not reported/errors, No data on fishery (7), corrected (-0.2), late rep (8), good(1) = '0' catch

T1SC report card summary (2014 data)

mt per month

Species: AUL, BEL, BUL, CAN, CHL, DNK, ESP, GBR, GRC, IRL, ITA, JPN, KOR, LUX, MEX, NLD, NOR, PER, POL, RUS, SWE, THA, TUR, USA, VEN, WLS, ZAF

Month: Aug, Sep, Oct, Nov, Dec

Legend: not reported/errors, no data on Species (7), corrected (-0.2), late rep (8), good(1) = '0' catch

T1D2 report card summary (2014 data)

mt per month

Species: AUL, BEL, BUL, CAN, CHL, DNK, ESP, GBR, GRC, IRL, ITA, JPN, KOR, LUX, MEX, NLD, NOR, PER, POL, RUS, SWE, THA, TUR, USA, VEN, WLS, ZAF

Month: Aug, Sep, Oct, Nov, Dec

Legend: not reported/errors, no data on Species (7), corrected (-0.2), late rep (8), good(1) = '0' catch

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Subcommittee on Statistics

New protocol for reporting zero catch (*)

- Around 2004 that SCRS started discussing the need for CPCs to report zero catches in their submission of Task I data.
- The Commission Rec. [11-15] "Recommendation by ICCAT on penalties applicable in case of non fulfillment of reporting obligations" (a.k.a. 'no data – no fish') explicitly requires the submission of zero catches.
- Even though the submission of zero catches has increased, significant confusion still remains on the rules to report zero catches.

New protocol proposes to reduce the confusion and the burden of reporting whilst providing the information required by the SCRS

(*) Annex II of the Appendix 8 of the SCRS report



Subcommittee on Statistics

Review of EFFDIS method and calculation of new EFFDISS

- The current EFFDIS covers estimated total nominal effort for longline for the period 1950-2009.
- Per SCRS recommendation, a contractor was hired to develop a new statistical modeling approach to update the EFFDIS for longline gear for the period 1950-2014.
- WGSAM, Tropical tuna WG, Shark WG and Statistics Subcommittee reviewed progress and provided input
- Contract is to be completed at the end of 2015



Subcommittee on Statistics

Review progress of towards meeting challenges from 2014

- Developing of web based training video Pilot videos
- Increase secretariat staff Temporary staff hired
- ICCAT DB code migration Initiated
- Additional inventories of artisanal fisheries No progress
- Standardize Electronic Monitoring in PS No progress

Malta ICCAT 2015

Plenary

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Responses to Commission's requests

- | | | |
|------|--|------------|
| 19.1 | Evaluate the efficacy of the area/time closure referred to in paragraph 24 for the reduction of catches of juvenile bigeye and yellowfin, [Rec. 14-01] paragraph 26 | P1 |
| 19.2 | Evaluate the potential impact on the level of catches of the detailed capacity management plan submitted by Ghana, [Rec. 14-01] paragraph 2 | P2 |
| 19.3 | The SCRS shall update the Commission annually and prior to the Commission meeting, on any changes of the estimated bluefin catch rates per vessel and gear, [Rec. 14-04] paragraph 43 | P2 |
| 19.4 | Continue to explore operationally viable technologies and methodologies for determining the size and biomass at the points of capture and caging and report to the Commission, [Rec. 14-04] paragraph 82. | P2 |
| 19.5 | Evaluate the results of the 100% coverage programme using stereoscopic cameras systems or alternative techniques that provide the equivalent precision to refine the number and weight of the fish during all caging operations. [Rec. 14-04] paragraph 83 | P2 |
| 19.6 | Evaluate the bluefin tuna national observer programmes conducted by CPCs to report the Commission and to provide advice on future improvements, [Rec. 14-04] paragraph 88 | P2 |
| 19.7 | Evaluation of data deficiencies pursuant to [Rec. 05-09]. | P1,2,4 |
| 19.8 | Continue assessing the ecological importance of the Sargasso Sea to tuna and tuna-like species and ecologically associated species, [Rec. 12-12] paragraph 1 | PLE |



19.8 **Response to Resolution 12-12 regarding the ecological importance of the Sargasso Sea to tuna and tuna-like species and ecologically associated species**

- Advances have been made in understanding of this ecosystem
- Many ICCAT species occur in it in some portion of their life history and some reproduce in it
- Three ICCAT-managed species reproduce seasonally in an area in the Southern Sargasso Sea
- Catches of ICCAT-managed species in the Sargasso Sea are low (<3% of totals for stocks)
- Sargasso sea is important and unique, but other ecosystems in the Atlantic are also important and unique



SCRS/2015/201 has details of assessment of the ecological importance of the Sargasso Sea to tuna and tuna-like species

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General recommendations & Work Plans

- Recommendations that are of a general nature and may carry substantial financial implications for CPCs and Commission
- [Species-specific recommendations which also may carry substantial financial implications for CPCs and Commission will be presented during the appropriate panel discussion]

Recommendations

Work Plan

Recommendations with financial implications


Sub-Committee on Ecosystems

The Sub-committee on Ecosystems requires financial support to invite experts to the intersessional meetings in 2016 and 2017 to advance EBFM work.

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Recommendations

Work Plan


Sub-Committee on Ecosystems

ECOSYSTEM SUB-COMPONENT

- Review the progress that has been made in implementing EBFM
- Review ecosystem indicators for use in stock assessments
- Review ecosystem drivers of abundance and mode of action.
- Through dialogue with the Commission, establish clear EBFM goals and objectives.

BYCATCH SUB-COMPONENT

- Examine the trend of annual by-catch number and by-catch rate of seabirds as a first step in the evaluation of the effect of the new mitigation measures.
- Estimate total number of sea turtles by fishery as a first step in the evaluation of the effect of the new mitigation measures.

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Recommendations

Work Plan

Sub-Committee on Statistics

Long list of specific activities that will have to be prioritized depending on resources available and importance of activity (see Table 2 in Appendix 11 of SCRS report. Some of these activities require funding support from the Commission

Type	Priority order	Major tasks	Current status	Portion (%) implemented	Time to finish (years)
Projects	1	Terminate redesign of T1 database (T1INC & new T1FC modules including history): "stTask1"	Ongoing (frozen 2015)	90%	2 months
	2	Incorporate the "new" catch module into the new Task 1 database (stTask1)	new (?)	0%	3 months
	3	ICCAT-DB documentation (Reference manuals and User guides) - merged with JavaMig project (manuals & javadocs)	Ongoing (partial freeze 2015)	30%	continuous
	4	JavaMig project (migrate 12 VBA applications) to Java technologies	Started Feb/2015 (externalized)	60%	12 months
	5	Redesign T2 databases (TZCE, TZSE, BIT file data module from farmis): "stTask2"	Ongoing (frozen 2015)	40%	3 months
	6	Tune CAS database (storage of 2013 & 2014 estimations) & adapt for yearly Publication (SCRS)	Ongoing (frozen 2015)	50%	1 month
	7	Replace tzce.mdb & tzse.mdb (MS-ACCESS) with a MySQL (publication of databases on the ICCAT cloud)	Ongoing (frozen 2015)	10%	4 months
	8	Redesign update the tagging database (new module for elect. tagging, integration of last 4 years, checks, etc.)	Postponed (3rd year)	0%	6 months
	9	GIS database design (including shapefiles for the new Sampling Areas - to be incorporated in Task 1 / 8 databases)	Postponed	10%	2 months
	10	Implement the client application to handle the Observer (by catch) data (database already made)	new (?)	0%	5 months
	11	New database for stereoscopic data on BIT	new (?)	0%	3
	12	New database for ROE (unlocks) (learning)	Externalized ?	0%	2 months
	13	ICCAT-DB system migration to MS-SQL server 2012 (from MS-SQL server 2008R2)	new (?)	0%	2 months
	14	Unattended statistical data processing framework (aimed to automatically validate/integrate STAT information)	Started (in parallel with JavaMig)	10%	4 months
	15	Project to develop a Web-form prototype to report data (planned to start in 2015)	new (?)	0%	3/4 months
Continuous tasks	16	Task 1 & Task-8 yearly update (includes publication and various outputs)	yearly work	n/a	n/a
	17	Support on ICCAT-DB to other departments (development, training, etc)	yearly work	n/a	n/a
	18	Update of Compliance related databases (includes publication and various outputs)	yearly work	n/a	n/a
	19	Database maintenance (updates, error corrections, backups, code tuning, etc.)	yearly work	n/a	n/a
	20	CATDIS update (1950-2014) - include all revisions made to T1 and new TZCE data	yearly work	n/a	n/a
	21	Capacity building of the Statistical Department personal (programming on current & new technologies)	yearly work	n/a	n/a
	22	Improvements to the ICCAT website	yearly work	n/a	n/a

Recommendations

Work Plan

Working Group on Stock Assessment Methods (WGSAM)

- Progress MSE work within the group and with the Commission through the Dialogue Group
- Conduct simulation study on how to best bring oceanographic and environmental time series into the assessment process
- Continue efforts to unify North Atlantic Swordfish CPUE
- Evaluate new EFFDIS method
- Continue collaboration with other tuna RFMOs and ICES to promote harmonization of methods

Recommendations with financial implications

SCRS plenary

Recommends the development of a single competitive research fund administered by the ICCAT secretariat to support research related to the SCRS (*).

- The fund would be used to support the research activities identified in the strategic plan for research developed by the SCRS.
- The fund would replace current ICCAT research programs (for billfish, small tunas, sharks...).
- Funding decisions would be based on:
 - relevance to the SCRS,
 - alignment with the strategic research plan,
 - level of collaboration between CPCs,
 - level of engagement of G77 economies
 - contributions of the project to capacity building.

(*) 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

a note of encouragement to Dr. Miguel Neves dos Santos for his prompt and complete recovery

