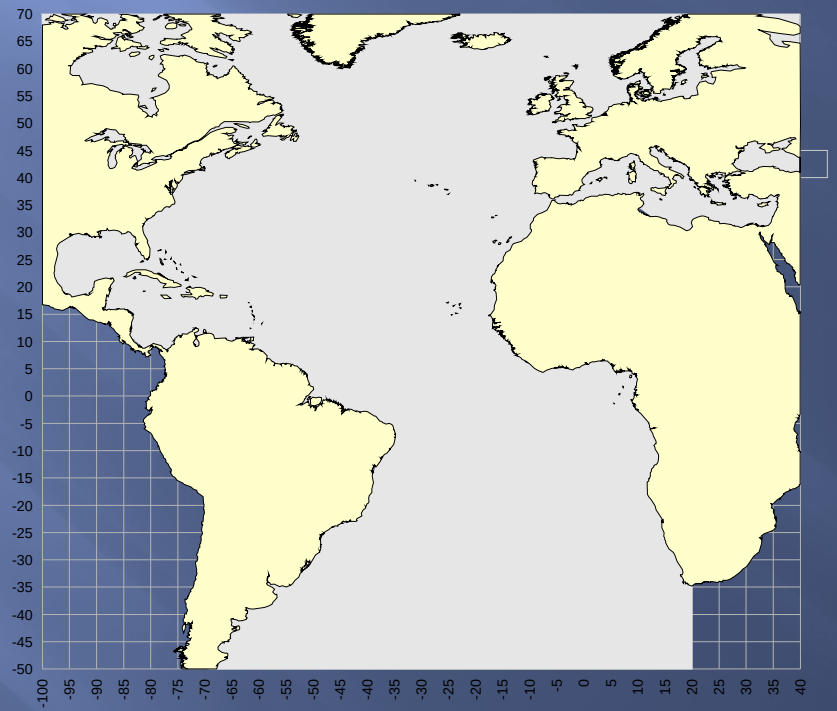
- **COMISION INTERNACIONAL PARA LA CONSERVACION DEL ATUN ATLANTICO**

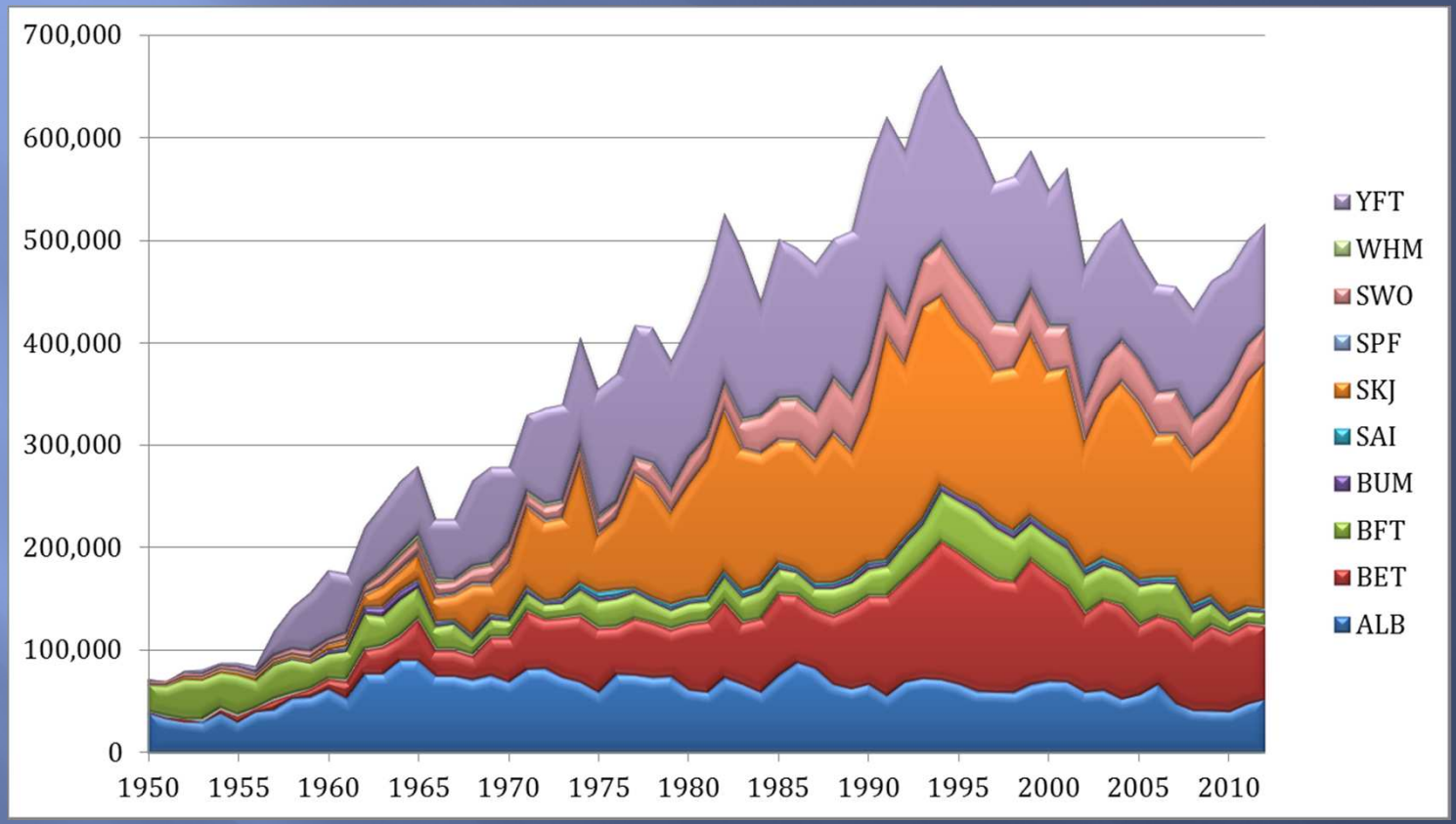
VISION GENERAL DE ICCAT

- **Comisión Internacional para la conservación del atún atlántico:**
  - Convenio firmado en Río de Janeiro, 1966
  - Entra en vigor en 1969
  - Modificado en 1984 y 1992.
- **Objectivo:**
  Mantener las poblaciones a niveles que permitan capturas máximas sostenibles para la alimentación y otros propósitos
- **Competencia:**
  - Túnidos y especies afines (30+)
  - Zona de aplicación del Convenio

Todas las aguas del Océano Atlántico, incluyendo los Mares adyacentes



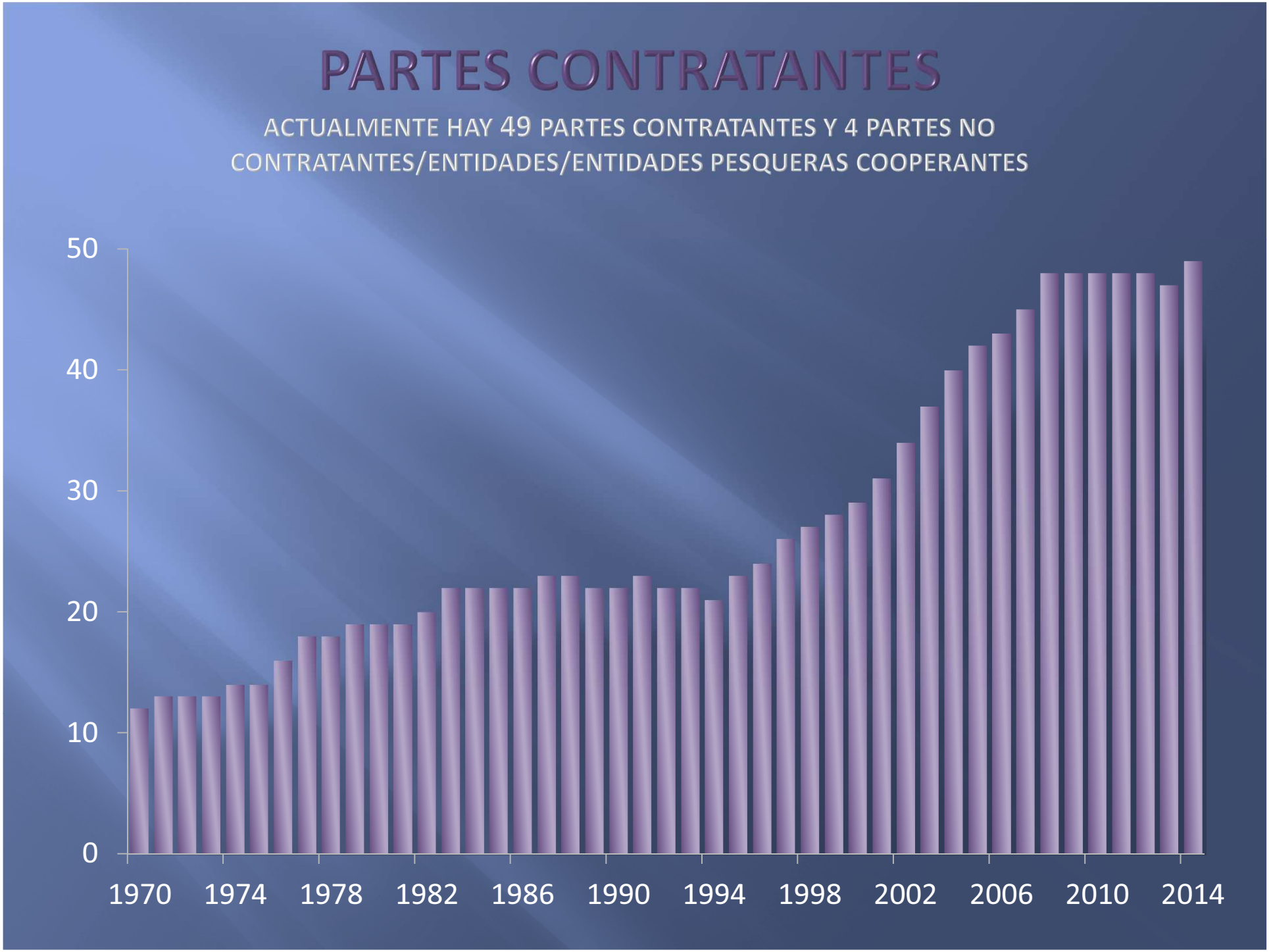
Capturas declaradas, por especies, en el área de ICCAT



- **SKJ** es l causa del incremento total de parturas:
  140,000 a 240,000 de 2008 a 2012

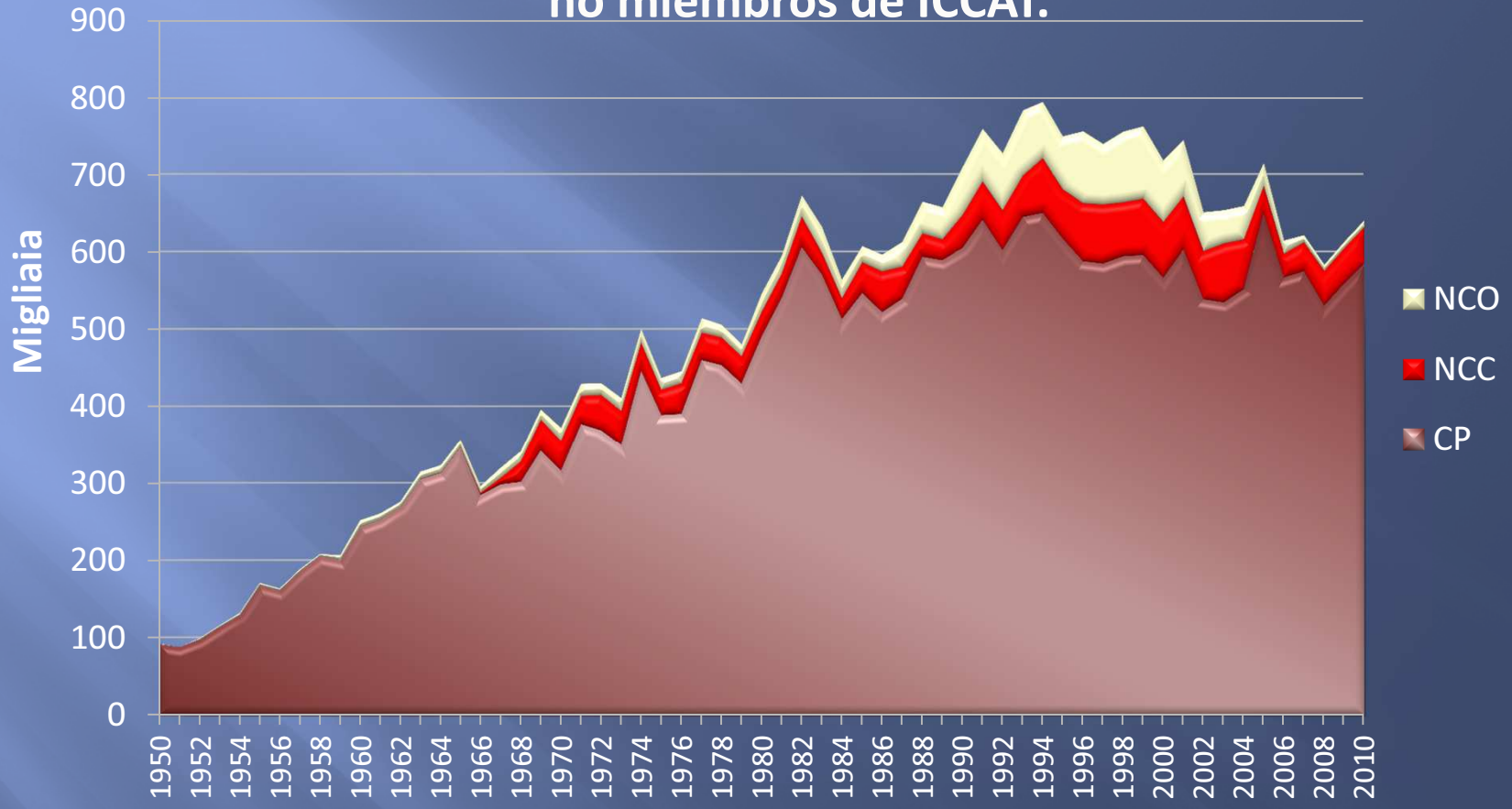
PARTES CONTRATANTES

ACTUALMENTE HAY 49 PARTES CONTRATANTES Y 4 PARTES NO CONTRATANTES/ENTIDADES/ENTIDADES PESQUERAS COOPERANTES



1950-2010

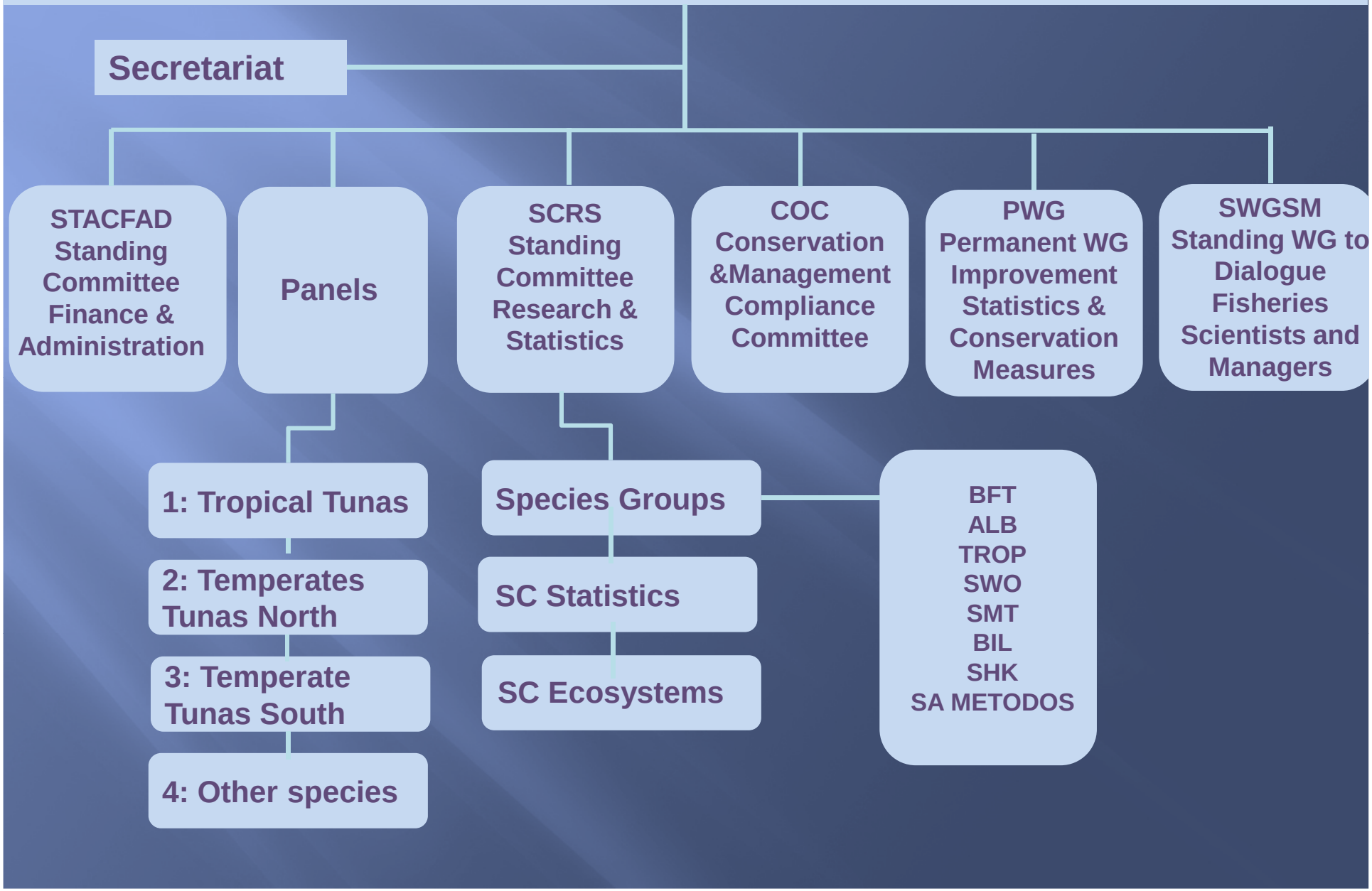
Capturas anuales de los paises miembros, cooperantes y no miembros de ICCAT.



Más del 98,5% de las capturas totales de túnidos y afines proceden de CPCs.

ORGANIGRAMA

INTERNATIONAL COMMISSIION FOR THE CONSERVATION OF ATLANTIC TUNA



CIENCIA Y GESTION

EL SCRS

- REALIZA EVALUACIONES DE LOS STOCKS
- DESARROLLA PROGRAMAS DE INVESTIGACION CON EL OBJETIVO DE MEJORAR LOS DATOS Y PARÁMETROS NECESARIOS PARA LAS EVALUACIONES.
- REALIZA UN SEGUIMIENTO DE LOS TEMAS RELACIONADOS CON EL BY-CATCH Y EL ECOSISTEMA.
- PROPORCIONA ASESORAMIENTO CIENTIFICO A LA COMISION EN DIVERSAS MATERIAS INCLUIDA LA GESTIÓN.
- RESPONDE DIRECTAMENTE A CUESTIONES PLANTEADAS POR LA COMISION.

EVALUACION DEL SCRS SOBRE EL ESTADO DE LOS STOCKS

CARACTERISTICAS PRINCIPALES

- Evaluaciones basadas en datos procedentes de la pesquería. Disponibilidad de datos y calidad de los mismos.
- Transparencia: en participación y acceso; paises miembros y observadores; datos, programas, resultados disponibles en la web; asesoramiento sobre el estado de los stocks y gestión por consenso.

REQUERIMIENTO DE DATOS CIENTÍFICOS

CON OBJETO DE QUE EL SCRS PUEDA DESARROLLAR LAS ACTIVIDADES EN CUYOS RESULTADOS SE BASAN LAS MEDIDAS DE GESTION, LAS PARTES CONTRATANTES ESTAN OBLIGADAS A PROPORCIONAR LOS SIGUIENTES DATOS:

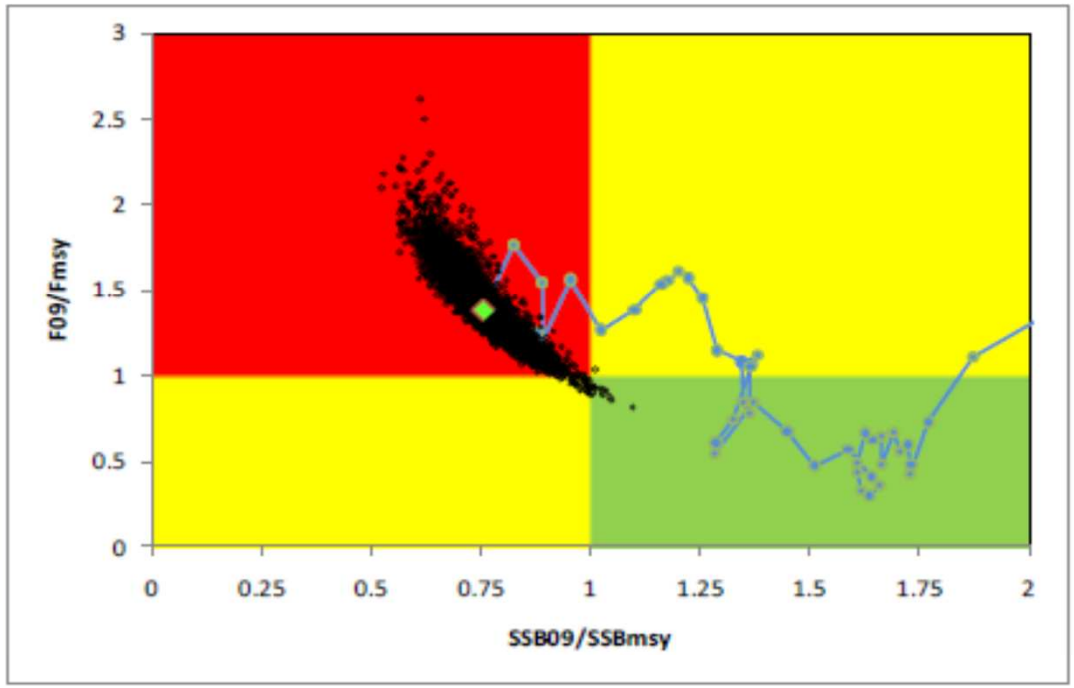
- DATOS DE CAPTURA NOMINAL
- DATOS DE CAPTURA Y ESFUERZO
- MUESTREOS DE TALLAS
- DISTRIBUCION DE TALLAS EN LA CAPTURA
- DATOS DE TAMAÑO DE FLOTA
- DATOS DE MARCADO
- OTROS DATOS BIOLOGICOS NECESARIOS

LOS CINCO PRIMEROS DEBEN PRESENTARSE ANUALMENTE

¿COMO FORMULAR EL ASESORAMIENTO?

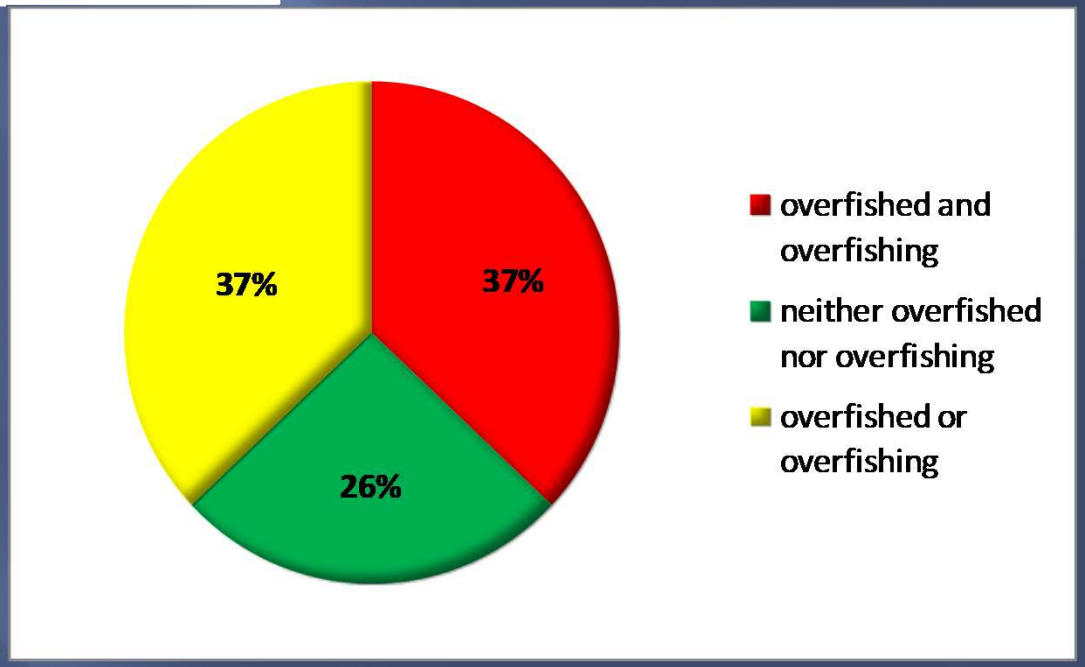
Los principales resultados de las evaluaciones deben referirse a los objetivos del convenio y transmitirse de forma que pueda ser fácilmente utilizado por las personas que toman las decisiones de gestión (Comisión).

Modelo gráfico de presentación del estado de los stocks en base a valores de biomasa y mortalidad por pesca relativos a valores de referencia.



El modelo ha evolucionado para incluir información sobre la incertidumbre asociada a la evaluación y la trayectoria del estado del stock en sucesivas evaluaciones.

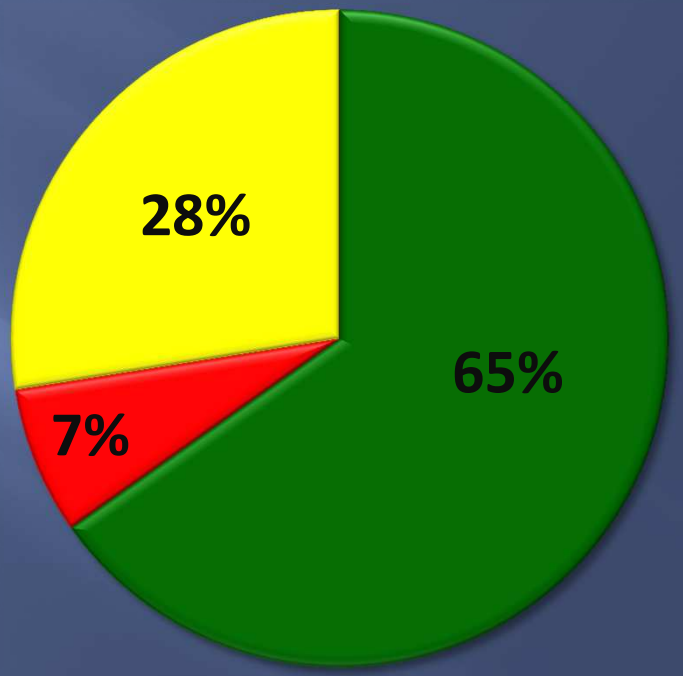
También se ha incorporado información sobre la proporción de resultados en cada unos de los cuadrantes del gráfico.



ICCAT Stock Status Report card

2013

Species	Stock	Last SA	Next SA	Most likely	Possibly
YFT		2011			
BET		2010			
SKJ	E	2008	2014		
SKJ	W	2008	2014		
ALB	N	2013			
ALB	S	2013			
ALB	M	2011			
BFT	E	2012	2014		
BFT	W	2012	2015		
SWO	N	2013			
SWO	S	2013			
SWO	M	2010	2014		
BUM		2011			
WHM		2012			
SAI	E	2009	2015		
SAI	W	2009	2015		
BSH	N&S	2008	2015		
SMA	N	2012			
SMA	S	2012			
POB	NE	2009			
POB	NW	2009			
POB	SW	2009			
Seabirds		2009			
Other sharks		2012			
Sea turtles		2013			



7% of the tuna catches in the ICCAT Convention area in 2012 came from stocks in the “red” zone

Matriz de decisión/Kobe II Strategy Matrix

- Proporciona información a la Comisión sobre los riesgos de sobrepasar ciertos límites
- Especifica los niveles de captura que permitirían alcanzar los objetivos de gestión definidos con distintos niveles de probabilidad y en un período de tiempo definido

KOBE Matrix

Strategy Matrix for Setting Management Measures

Management Target	Time Frame	Probability of Meeting Target			Data Rich/ Data Poor
		A%	B%	C%	
<Fishing Mortality Target>	In x years				
	In y years				
	In z years				

Management Target	Time Frame	Probability of Meeting Target			Data Rich/ Data Poor
		A%	B%	C%	
<Biomass Target>	In x years				
	In y years				
	In z years				

Management Target		Probability of Maintaining Status Quo			Data Rich/ Data Poor
		A%	B%	C%	
<Status Quo>					

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
0	25%	51%	70%	78%	84%	87%	89%	91%	92%	93%
250	24%	48%	66%	76%	81%	85%	87%	89%	90%	92%
500	24%	45%	63%	73%	78%	82%	85%	87%	89%	90%
750	24%	43%	59%	69%	75%	79%	82%	84%	86%	87%
1000	24%	40%	54%	65%	71%	75%	78%	81%	82%	84%
1250	24%	37%	49%	59%	66%	70%	73%	76%	78%	80%
1500	23%	35%	45%	53%	59%	64%	67%	70%	72%	74%
1750	23%	32%	40%	46%	51%	55%	58%	61%	64%	65%
2000	23%	29%	35%	39%	43%	45%	47%	49%	51%	53%
2250	22%	26%	29%	31%	33%	34%	36%	36%	37%	38%
2500	20%	21%	22%	22%	22%	21%	21%	21%	21%	21%

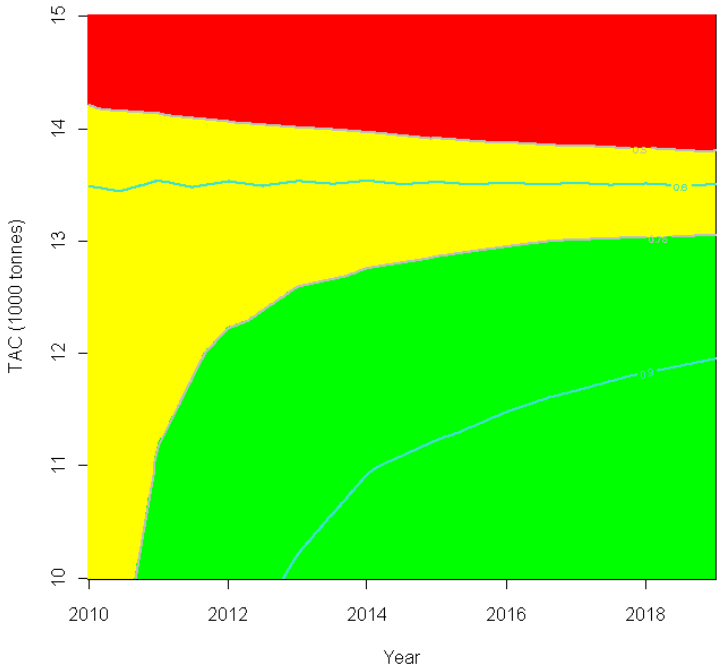
Actualmente el SCRS elabora 3 matrices de decisión para Indicar las probabilidades de que:

B>BMSY
F<FMSY
B>BMSY y F<FMSY.

TAC	2011	2012	2013	2014	2015	2016	2017	2018	2019
0 mt	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
250 mt	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
500 mt	99.8%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
750 mt	96.6%	98.4%	98.6%	98.8%	98.8%	99.2%	99.2%	99.4%	99.6%
1000 mt	75.6%	85.2%	88.8%	91.6%	93.0%	93.4%	95.4%	97.0%	98.6%
1250 mt	40.4%	53.6%	60.0%	67.2%	71.4%	74.6%	80.6%	87.2%	89.8%
1500 mt	13.8%	25.6%	30.6%	38.4%	44.0%	47.6%	53.2%	63.6%	67.6%
1750 mt	4.6%	8.2%	10.4%	14.2%	18.0%	22.2%	26.6%	38.6%	41.0%
2000 mt	1.4%	3.2%	4.2%	4.6%	7.0%	9.0%	12.4%	17.4%	19.6%
2250 mt	0.6%	1.0%	1.2%	2.2%	2.6%	3.2%	5.0%	7.4%	9.4%
2500 mt	0.2%	0.2%	0.2%	0.6%	1.2%	1.4%	1.4%	3.4%	3.8%
2750 mt	0.0%	0.2%	0.2%	0.2%	0.2%	0.2%	0.8%	1.4%	1.4%
3000 mt	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.2%	0.2%	0.2%
3250 mt	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%
3500 mt	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Cuando la Comisión acuerda niveles aceptables de probabilidad, el SCRS utiliza un código de colores que corresponda a los umbrales (ej. Prob >50-60%)

Contornos de probabilidad de B>BMSY o F<FMSY para niveles constantes de captura. Area roja representa probabilidades <50%, amarillo 50-75%, verde >75%.



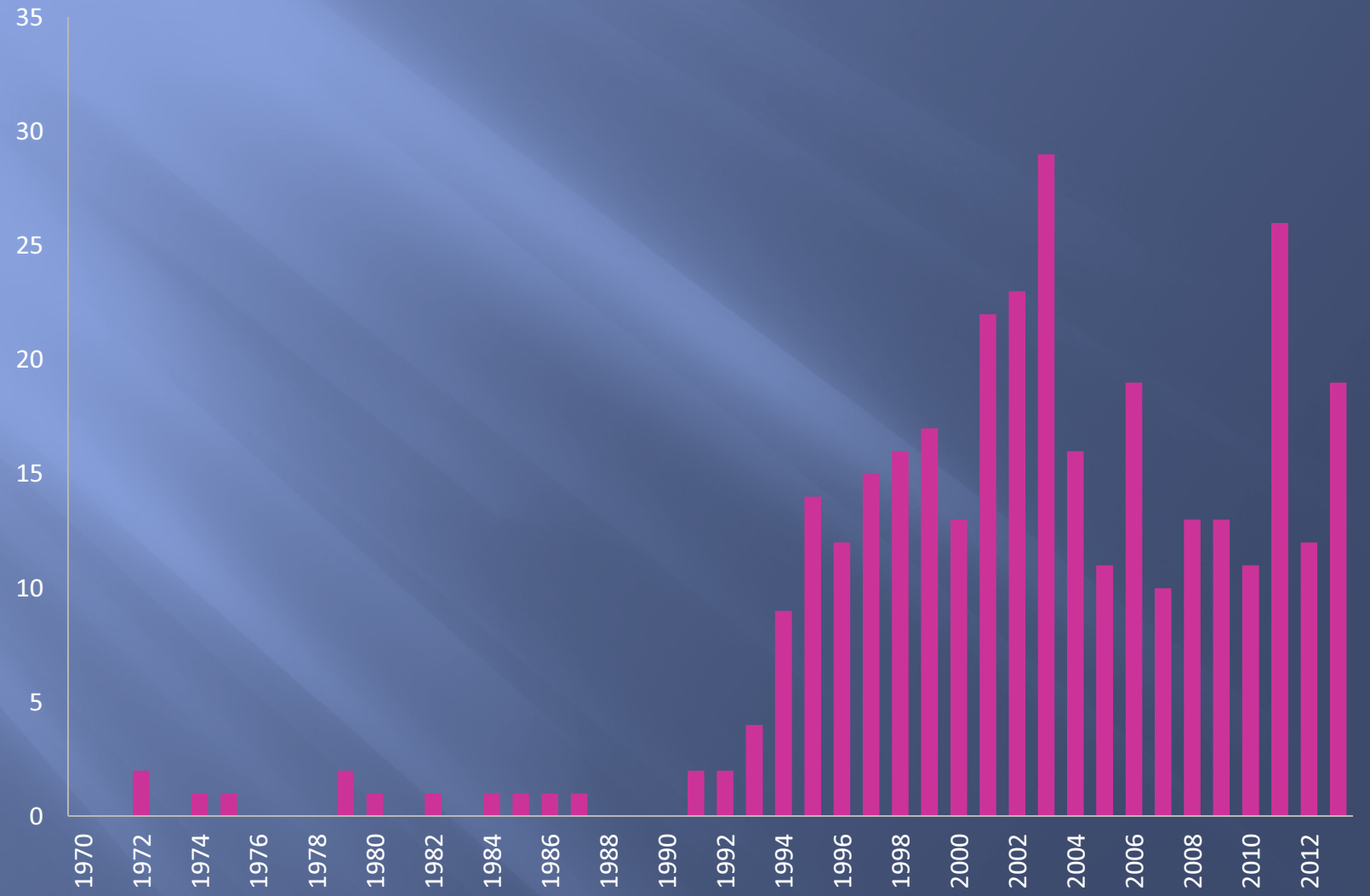
El SCRS también informa sobre la cumplimentación de datos y la calidad de los mismos.

Los modelos estándar de presentación están descritos en la Res. [11-14]. De ICCAT.

MEDIDAS DE GESTION Y CONSERVACION

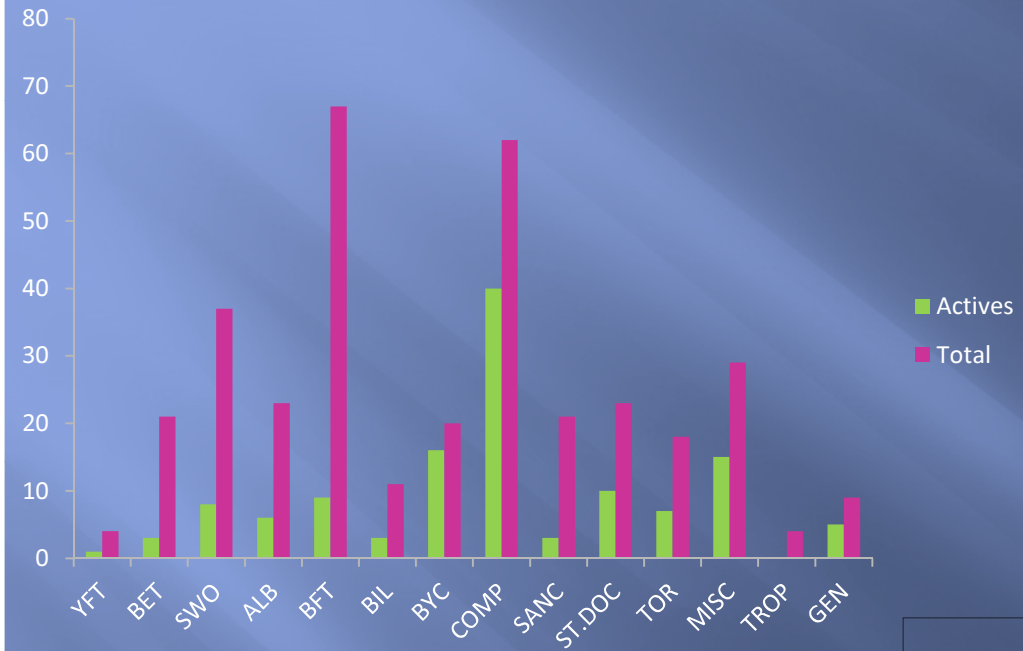
- Adoptadas de acuerdo con los Artículos VIII y IX del Convenio.
- Basadas en argumentos científicos.
- Dirigidas a mantener las poblaciones de túnidos y especies afines explotadas en el área del Convenio a niveles que permitan la captura máxima sostenible.

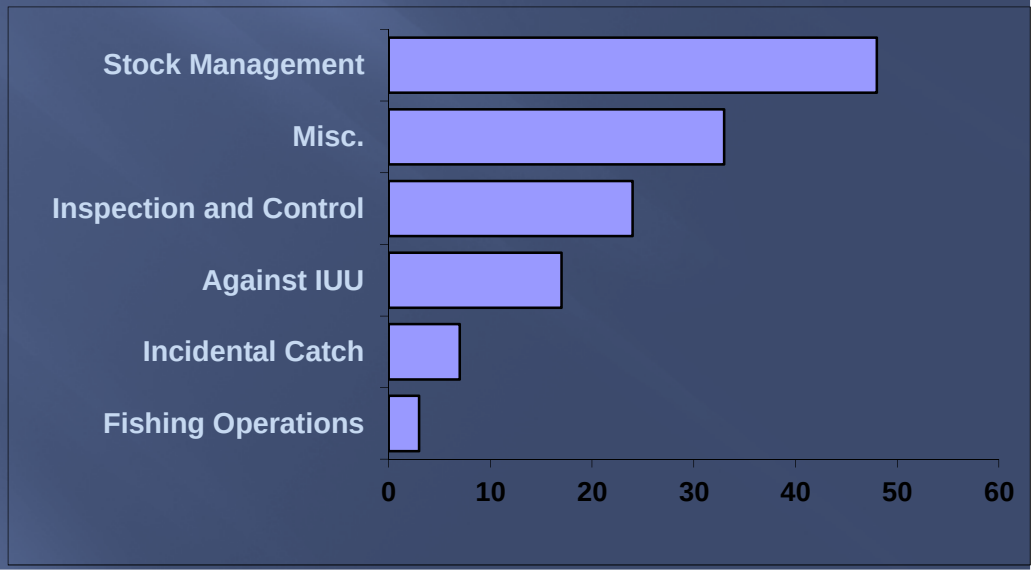
NUMERO DE MEDIDAS DE GESTION Y CONSERVACION ADOPTADAS POR AÑO



(349 medidas, 129 activas)

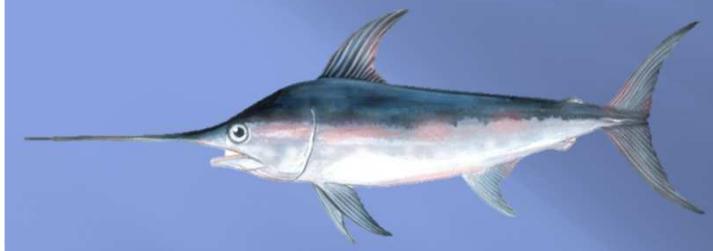
NUMERO DE MEDIDAS DE GESTION Y CONSERVACION ADOPTADAS POR MATERIA

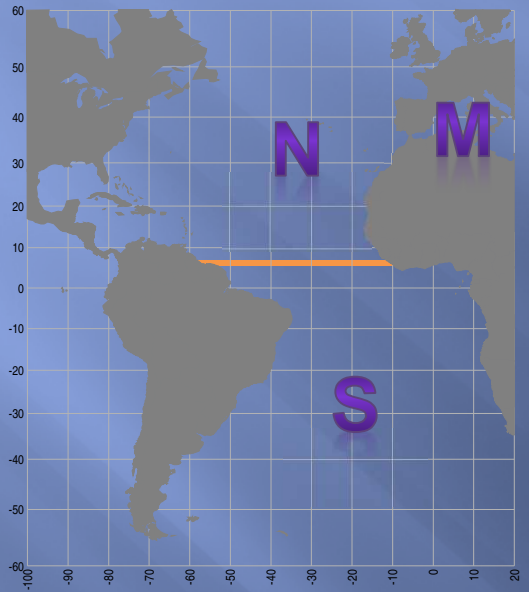




PRIMERA PARTE

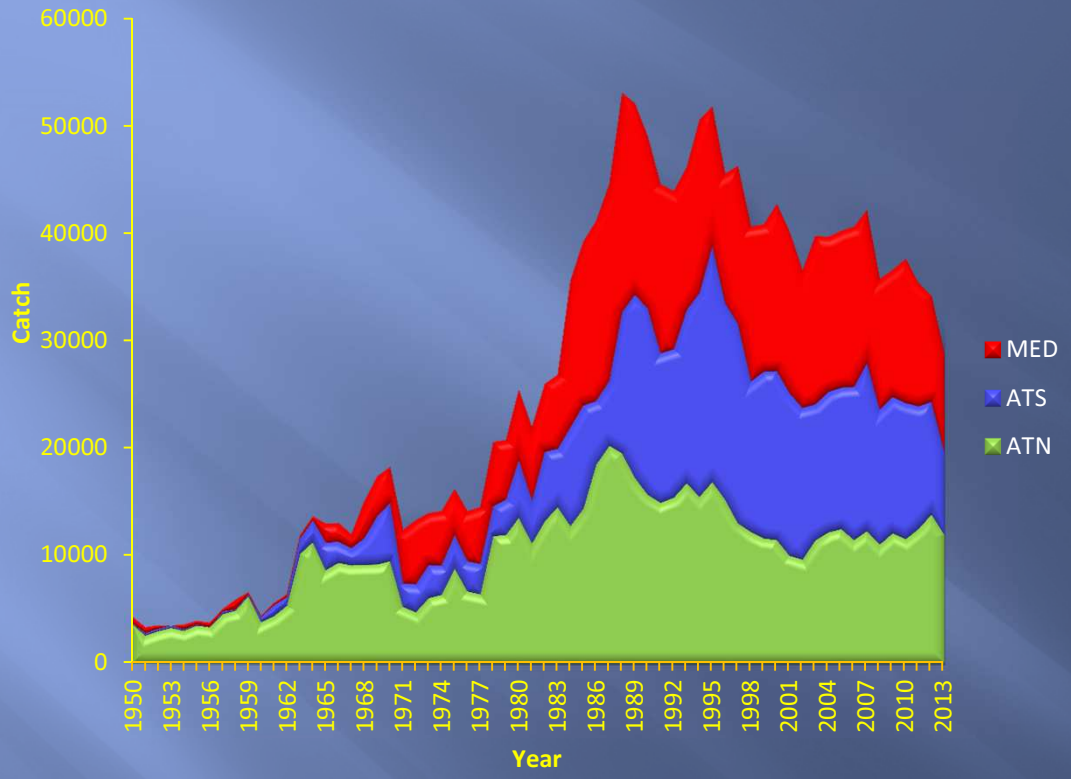
Mediterranean swordfish stock assessment

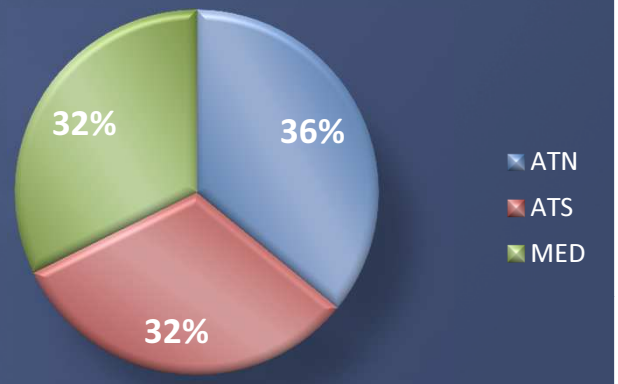




3 management units

Albacore, Atún blanco, Germon	
Scientific name	*Xiphias gladius*
Distribution	Cosmopolitan species found in the tropical and temperate waters of all the oceans, between 45°N and 45°S,including the Mediterranean.
Spawning grounds	In subtropical western areas of both hemispheres and throughout the Mediterranean Sea
Maturity	Atlantic: 156 cm (age 5) / Mediterranean: females 140 cm (age 3.5) First maturity 110 cm (age 2); males 90 cm.
Life span	Atlantic: 15 years / Mediterranean: 10 years
Maximum size	Atlantic: 455 cm (537 kg) / Mediterranean: 230 kg
Natural mortality	Assumed M=0.2

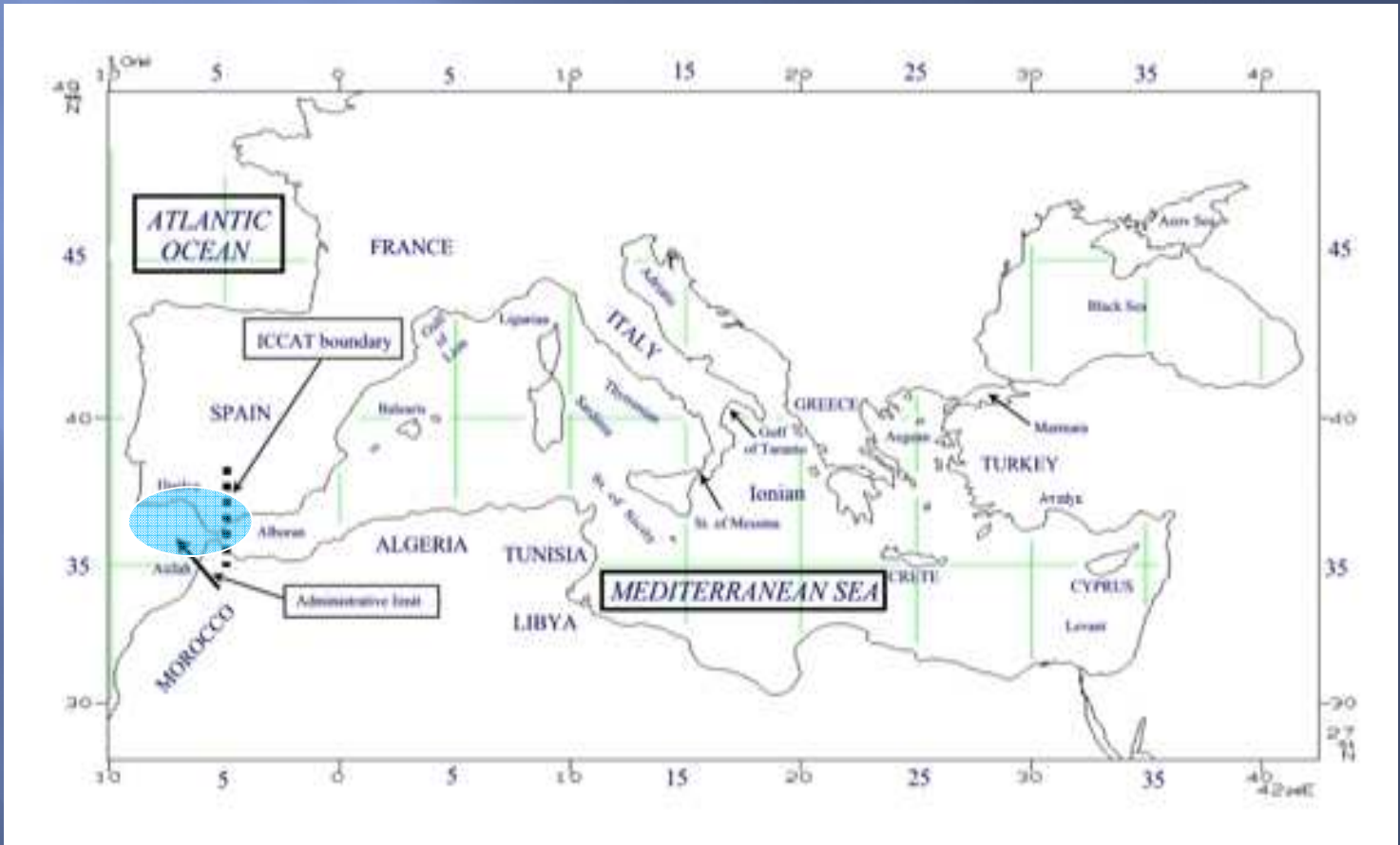




% average catch in 2009-2013

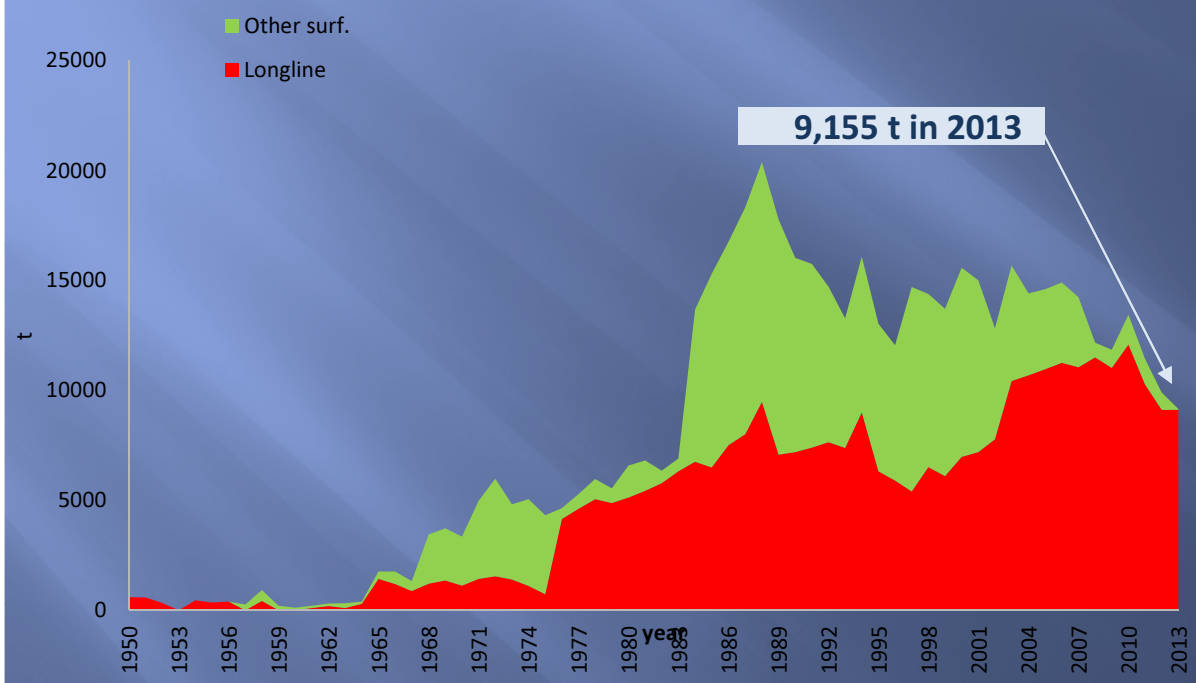
Background

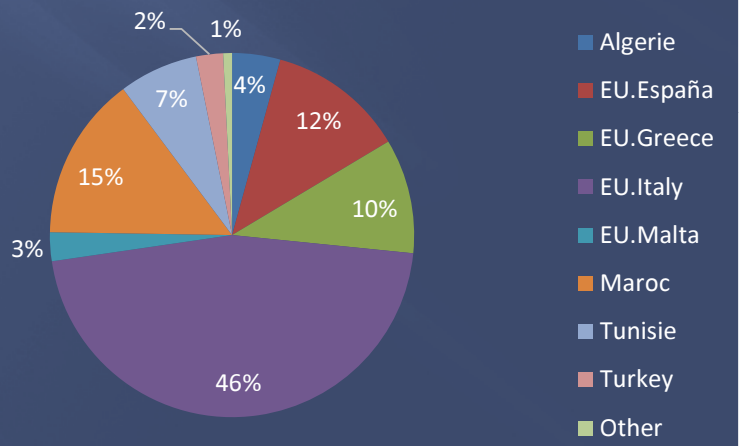
- Unique stock (limited mixing with the N. Atlantic one)
- Previous assessment in 2010



Fisheries indicators

- Main gears: Longlines & Gillnets (no gillnets since 2012)
- Catches around 10000-16000 t in the last 15 years



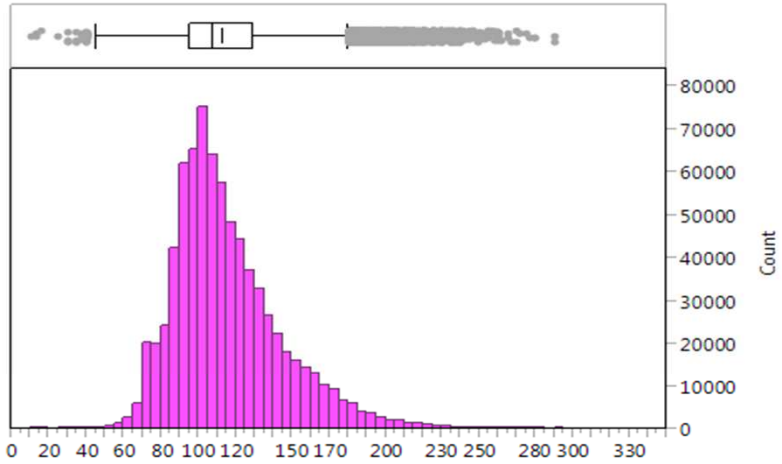


% average catch in 2003-2013

Catch at size

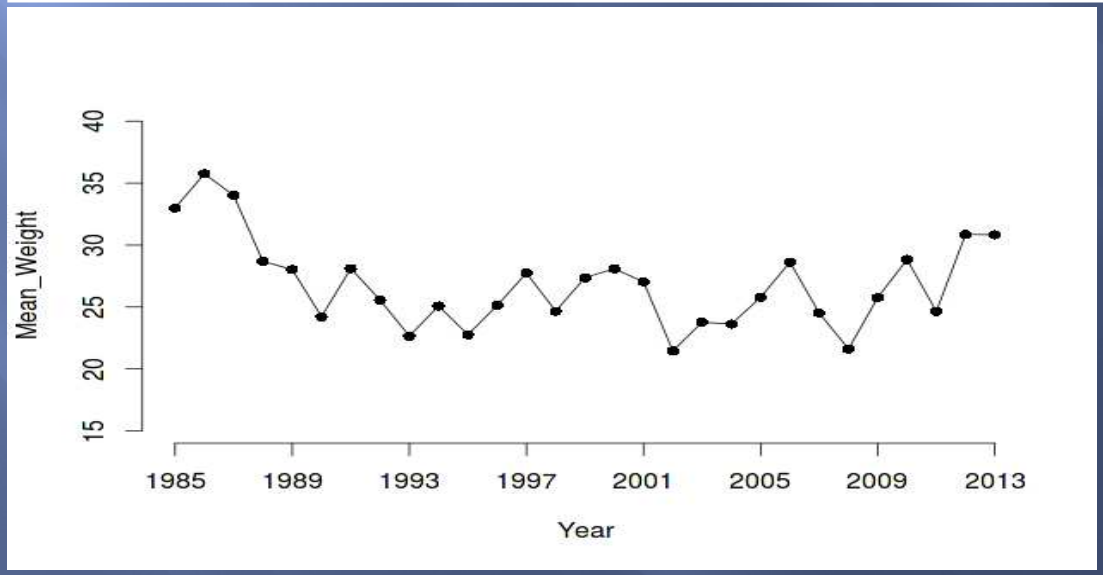
Distributions SizeInfo=Size samples distribution

SizeClass



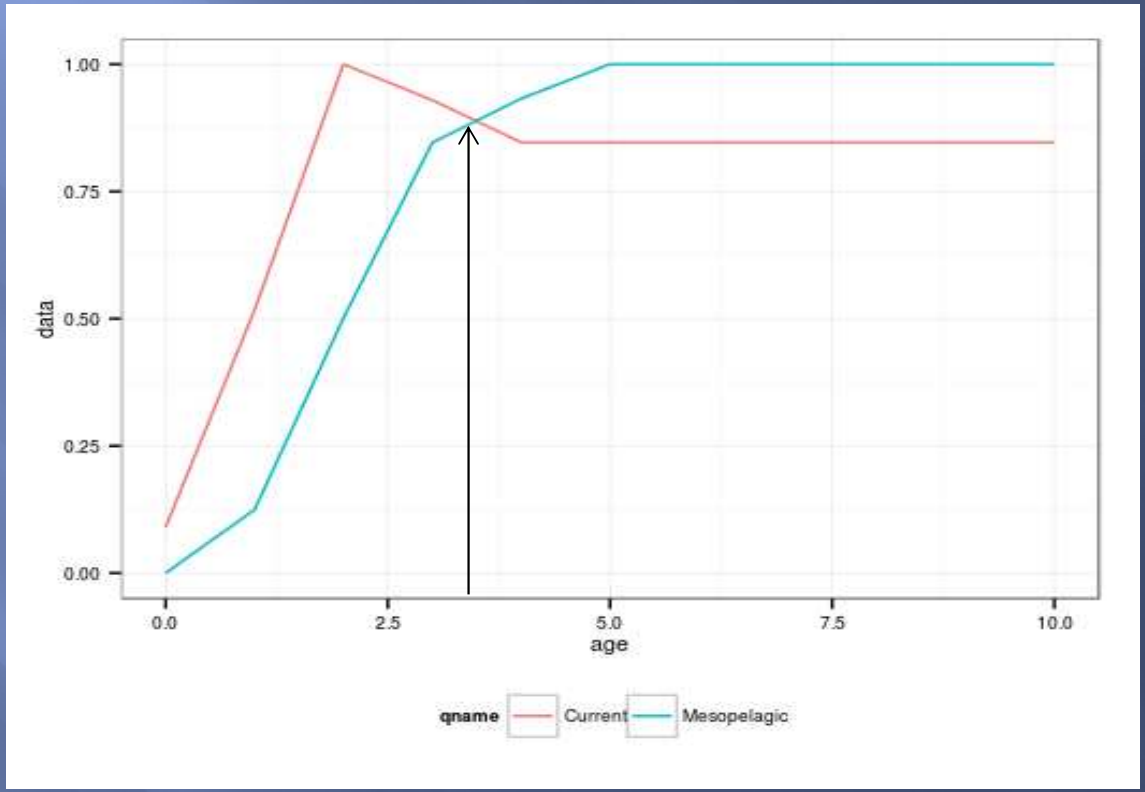
Quantiles		
100.0%	maximum	290
99.5%		208
97.5%		180
90.0%		152
75.0%	quartile	129
50.0%	median	108
25.0%	quartile	95
10.0%		85
2.5%		70
0.5%		65
0.0%	minimum	11

Summary Statistics	
Mean	113.057
Std Dev	27.900763
Std Err Mean	0.032146
Upper 95% Mea	113.12001
Lower 95% Mean	112.99399
N	753318.89



Fisheries description

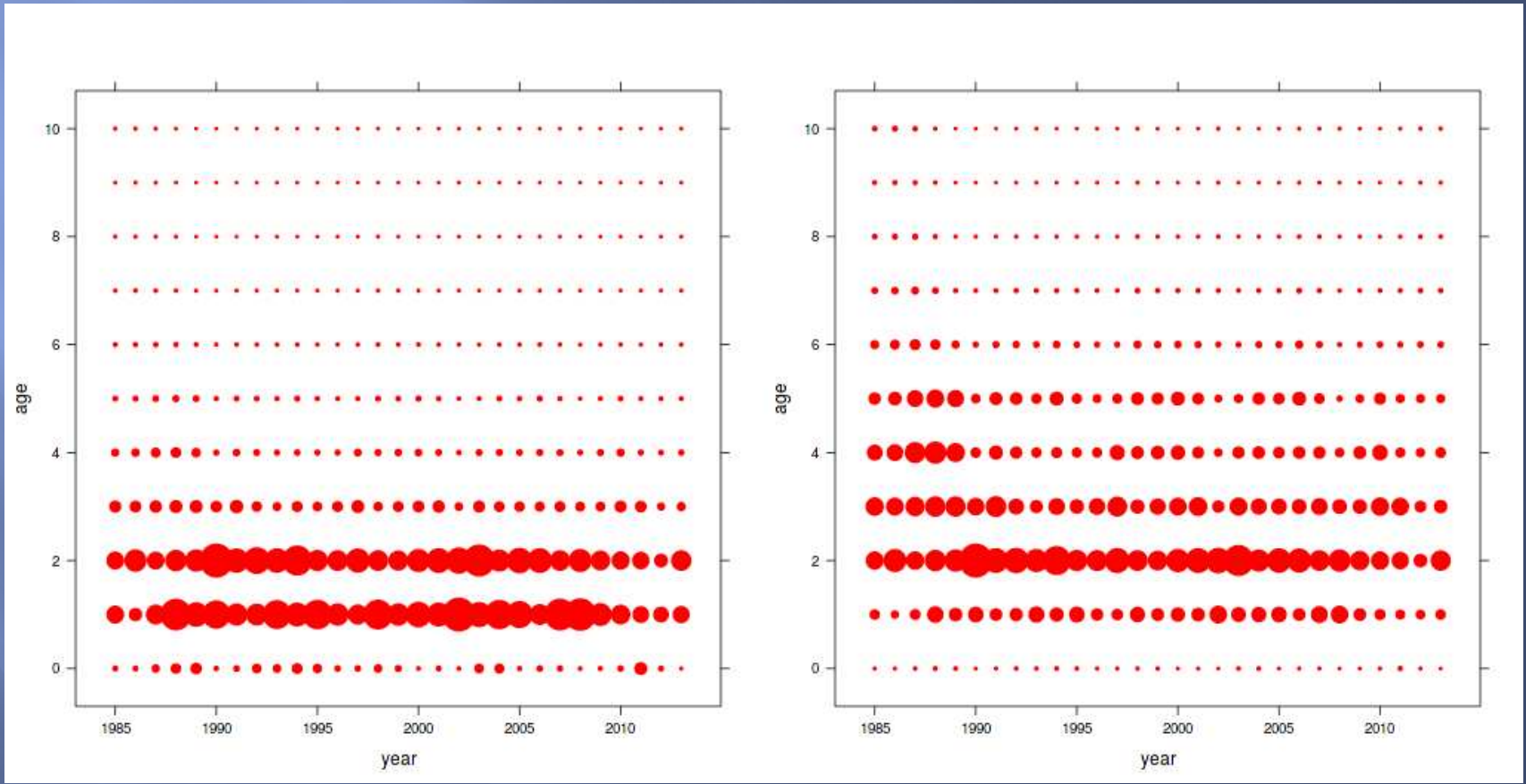
- Progressive adoption of mesopelagic longline gear by the Italian fleets



Maximum yield would be obtained fishing at age 6, while current catches are dominated, in terms of number, by fish less than 4 years old

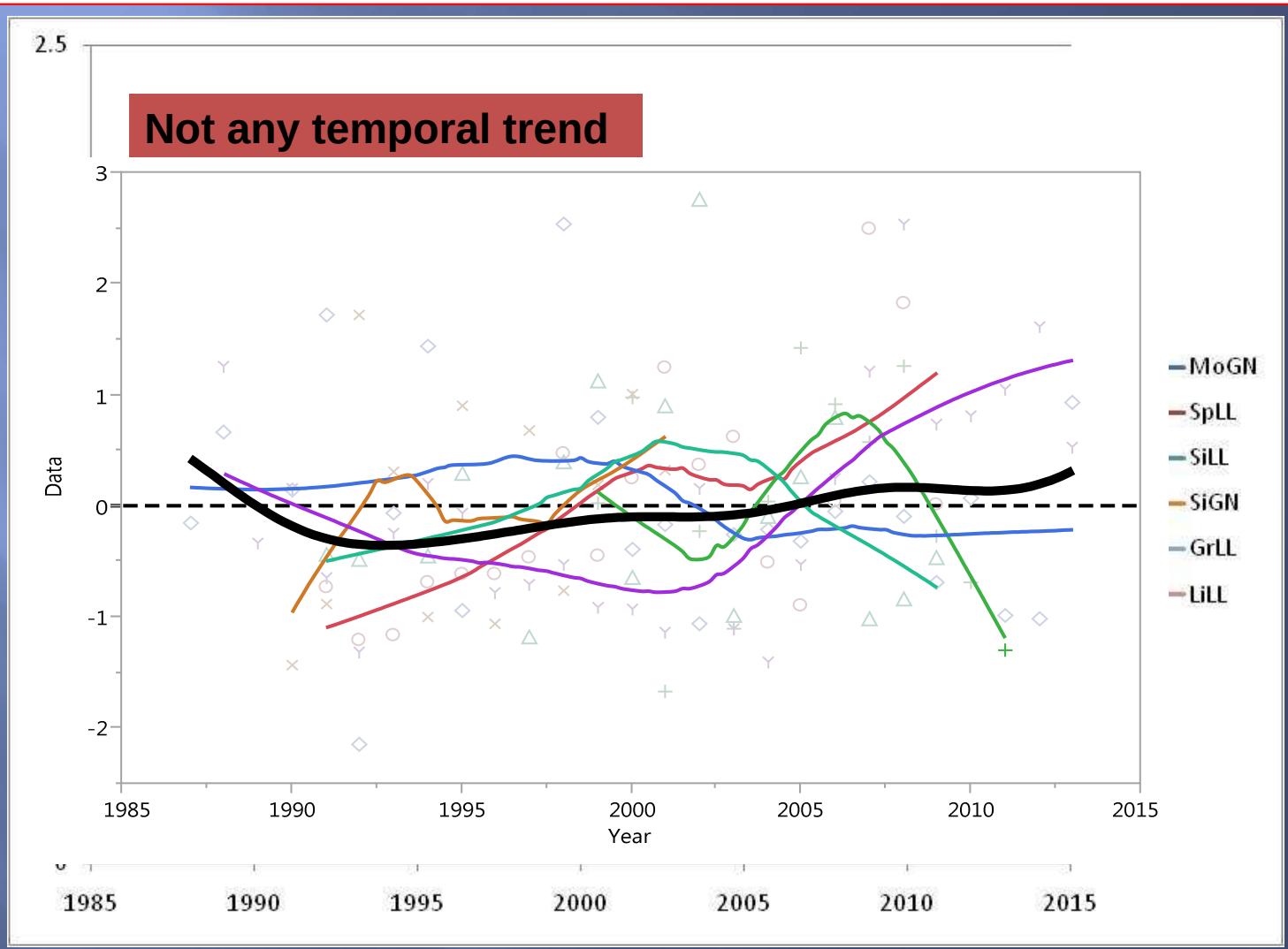
Catch at age

Large catches of juveniles (50-70% in terms of numbers, 20-35% in terms of weight)



Fishery trends - CPUE

Standardized abundance indices from six main fisheries



Stock assessment

Two assessment types

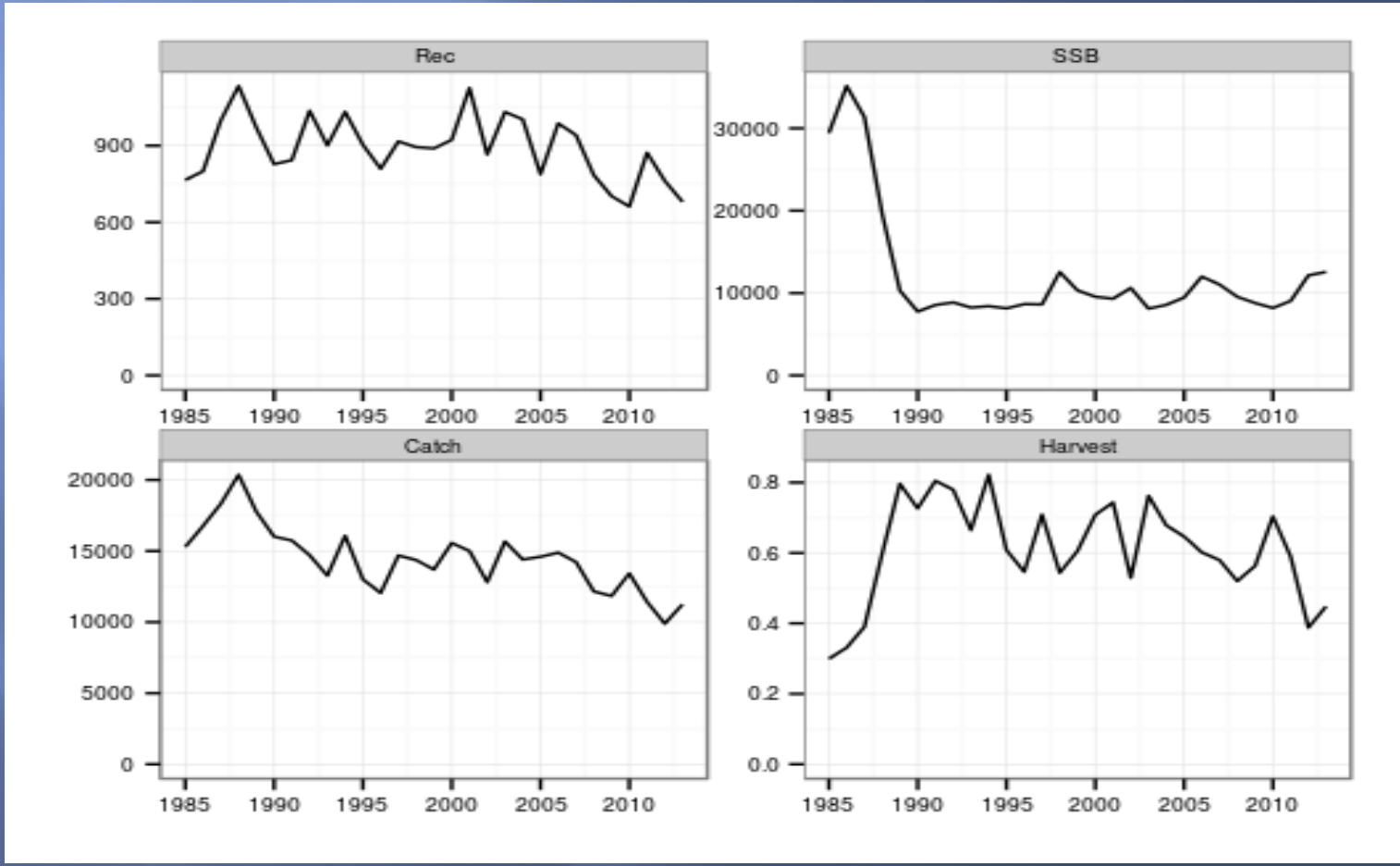
- *Production modeling (ASPIC and BSP)*
- *Age structured (XSA)*

- *All models indicated that current SSB levels are much lower than those in the 80s, although no trend appears since then but the different models gave different estimates of the absolute abundance and consequently very different estimates of stock status*

Given the uncertainty in production modeling estimates due to the lack of trend in the relative abundance, it was considered that the XSA provides a more reliable assessment of stock status than the production models. This is also in line with the previous assessments that provided advice based on XSA results.

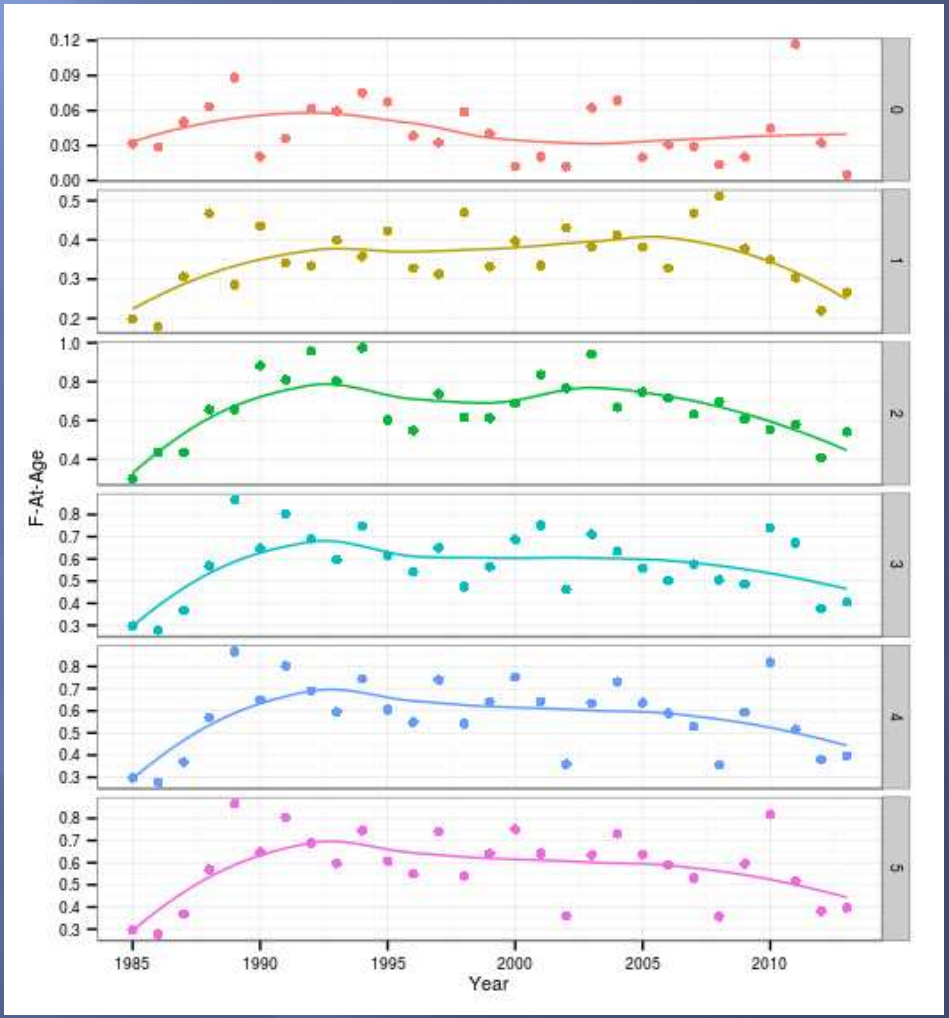
XSA

- *Relatively stable biomass from the 90s onwards*



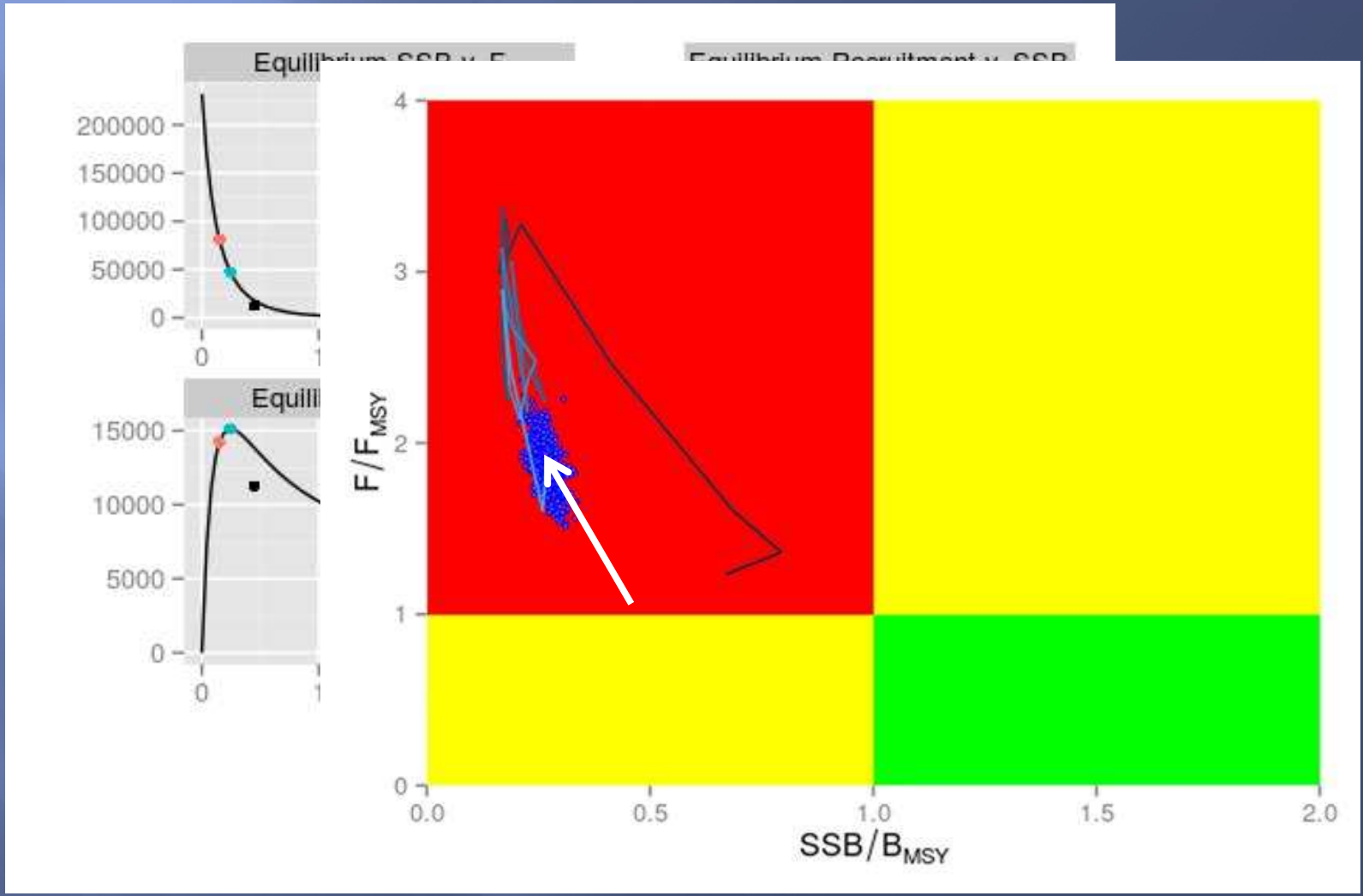
XSA

Recent F declines (mainly for ages 1 and 2)



Stock status (based on XSA)

- *Stock is overfished and subject to overfishing*



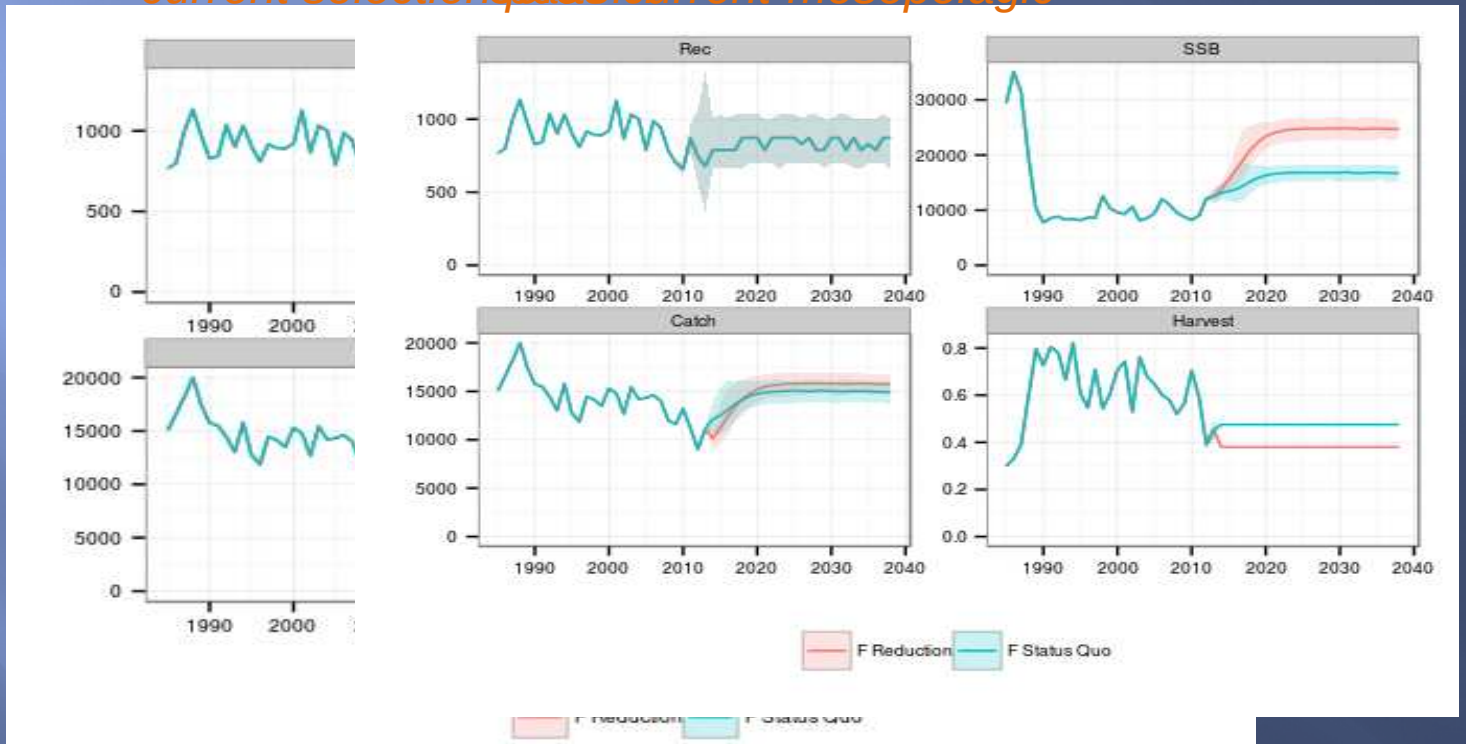
Stock status (summary)

- The stock is far below the level which can support MSY (current SSB is ~30% of B_{MSY})
- Current fishing mortality is about double of F_{MSY}
- Biomass and recruitment levels stable over the last 20 years
- High uncertainty (not clear signal in the data, lack of historical series)

Outlook: Projections (based on XSA)

- *Assuming F reduction by 20% and two different selectivity patterns*

current selection pattern *50:50 current-mesopelagic*



Important note: *Catch of 2013 was overestimated during the assessment; thus SSB projections may be pessimistic*

Effect of current recommendations

ICCAT Recommendation 13-04 establishes management measures for Mediterranean swordfish, including two time-area closures in fall and late winter, minimum landing size (90 cm/10 kg) regulations, a fishing license control system and specifications on the technical characteristics of the longline gear.

Several countries have also adopted additional fishery restrictions at the national level. The EU introduced a driftnet ban in 2002 and in 2003 ICCAT adopted a recommendation for a general ban of this gear in the Mediterranean [Rec. 03-04]. Rec. 04-12 forbids the use of various types of nets and longlines for sport and recreational fishing for tuna and tuna-like species in the Mediterranean.

After the adoption of the aforementioned Recommendations, reported catches have decreased significantly from the 2000s´ level, being the catches in 2012 and 2013 the minimum values of the last three decades. In addition, reported catches of juvenile swordfish of less than 90 cm has also decreased on average 54% in the last two years compared with the levels of the decade of 2000s.

Management recommendations

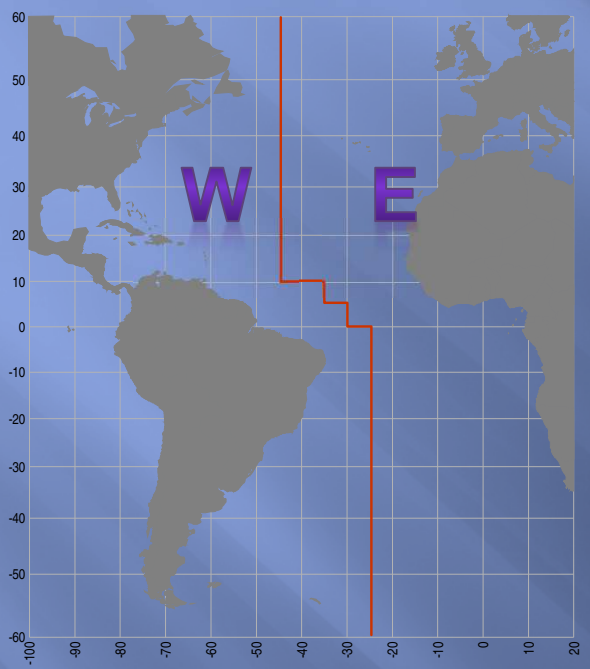
- Measures introduced through [Rec 13-04] seem to favour F declines and given the uncertainty about the stock status, it is recommended to maintain them until further research increases our confidence on their effect on the stock.
- Discards should be closely monitored after the application of MLS regulations
- Potential fleet overcapacity should be considered (number of active vessels is smaller than that authorized)

Summary table

Maximum Sustainable Yield	15,100
Current (2013) Yield	9,155 t
Current (2013) Replacement Yield	~9,540 t
Relative Biomass (B_{2013}/B_{MSY})	0.27
Relative Fishing Mortality	
F_{2013}/F_{MSY}	1.82
F_{2013}/F_{MAX}	1.82
$F_{2013}/F_{0.1}$	2.97
$F_{2013}/F_{30\%SPR}$	2.55
Management measures in effect	Driftnet ban [Rec. 03-04] Three month fishery closure, gear specifications (number and size of hooks and length of gear), MLS regulations, and a license registry month fishery closure [Rec. 13-04]

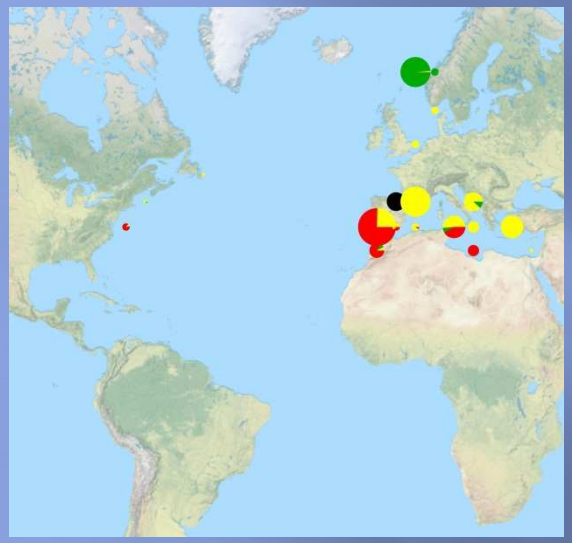

Thanks for your attention

Atún rojo

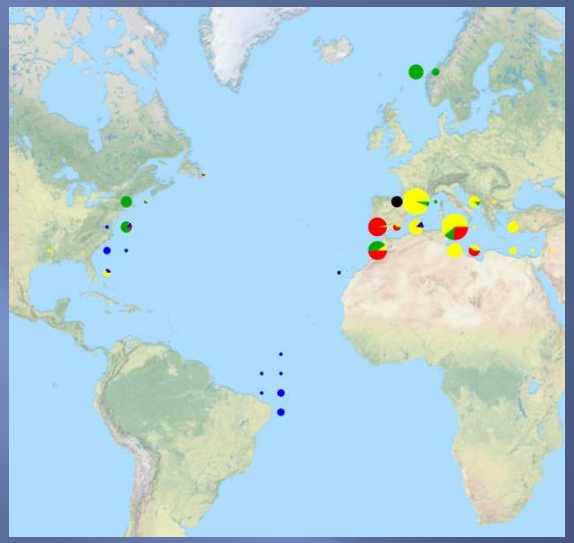


2 management units

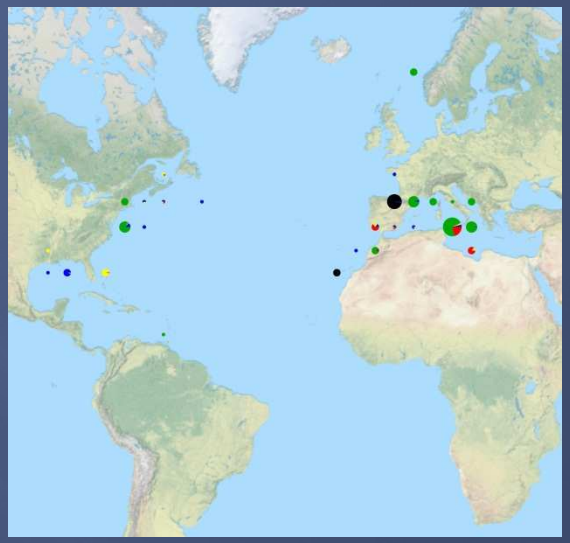
Bluefin tuna, Atún rojo, Thon rouge	
Scientific name	*Thunnus thynnus*
Distribution	Pelagic ecosystem of the Atlantic and its adjacent seas, primarily the Mediterranean Sea.
Population structure	Several hypotheses: from 2 sub-populations with mixing to several sub-populations (metapopulation)
Spawning grounds	Warm waters (> 24°C) of specific and restricted locations: around the Balearic islands, Sicily, Malta, Cyprus and some areas of the Gulf of Mexico. (May-June)
Maturity	East: 25 kg (age 4) / West: 145 kg (age 9)
Life span	40 years
Maximum size	726 kg - 330 cm (maximum observed length)
Natural mortality	East: [0.49, 0.24, 0.24, 0.24, 0.24, 0.20, 0.175, 0.15, 0.125, 0.10] West: 0.14



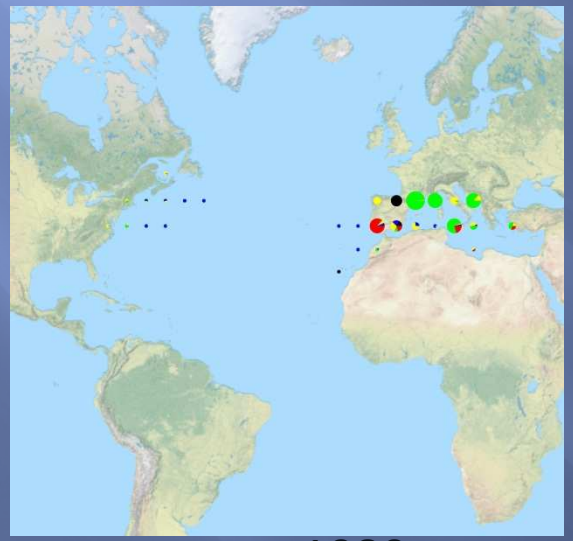
1950



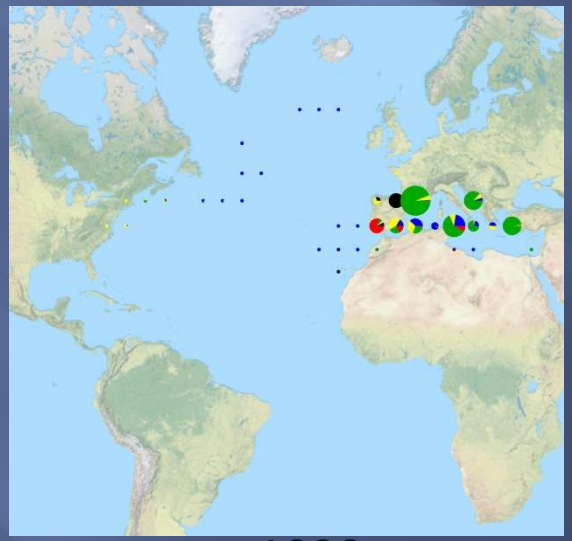
1960



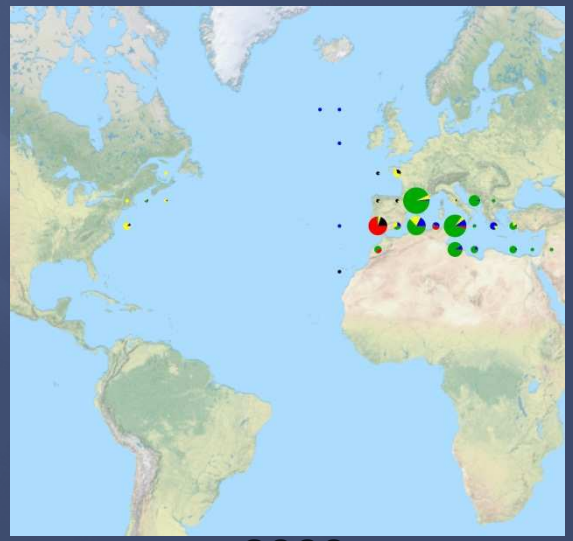
1970



1980



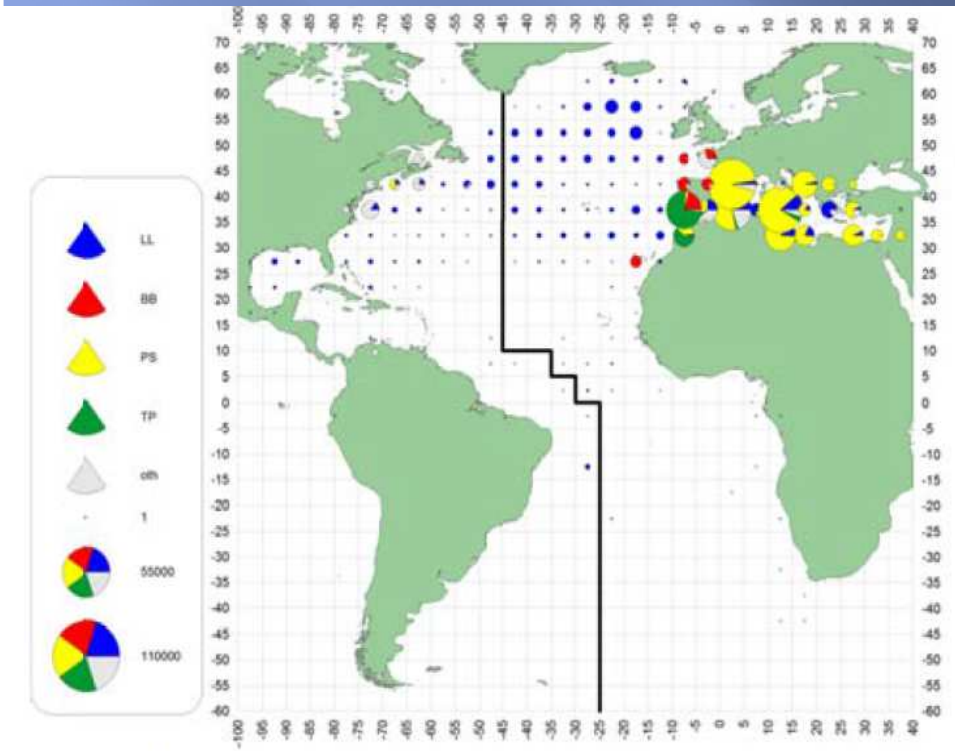
1990



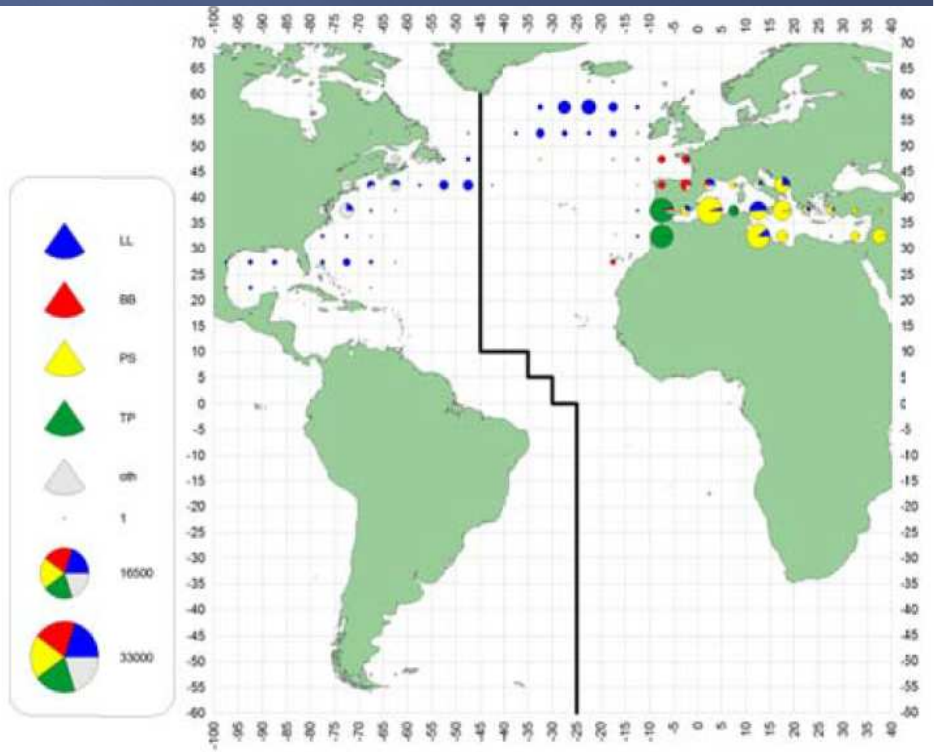
2000

Purse seine Trap Longline Baitboat Others

Fishery Indicators

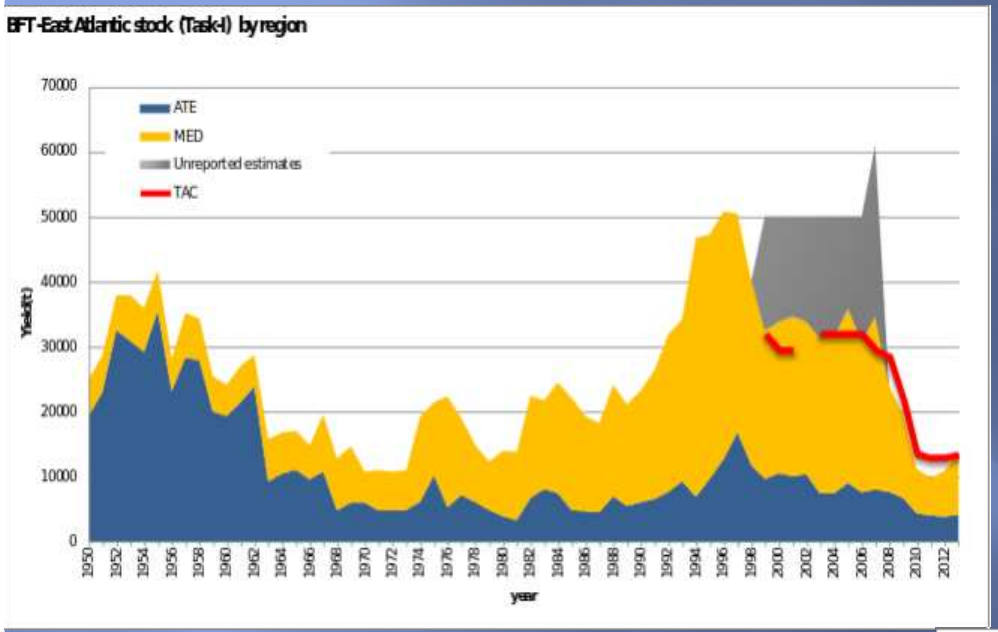


e. BFT (2000-09)



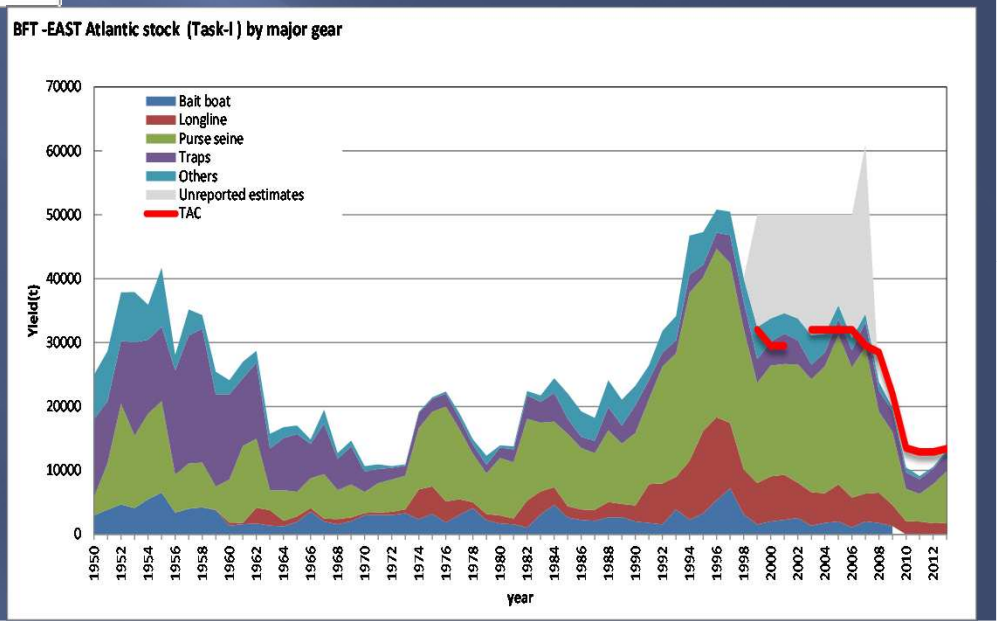
f. BFT (2010-12)

Fishery Indicators



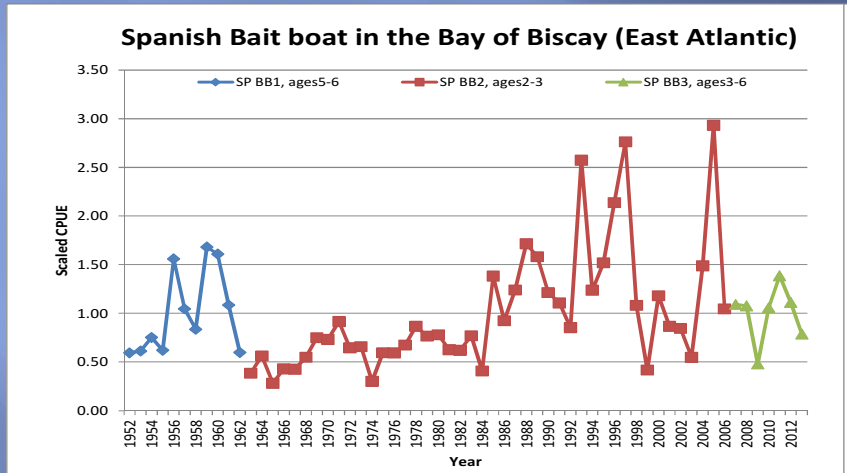
Decrease in catch mostly in the Mediterranean, probably in response to the rebuilding plan and control enforcement

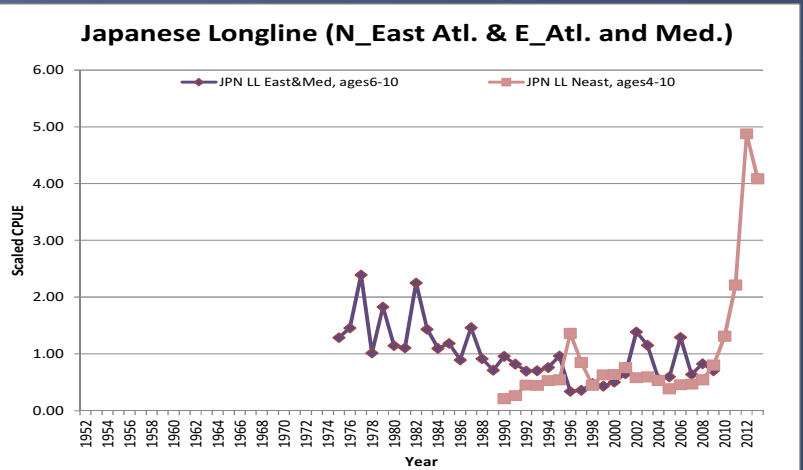
- **2011: 9,774 t (lowest since 1950)**
- **2012: 11,473 t**
- **2013: 13,333 t**

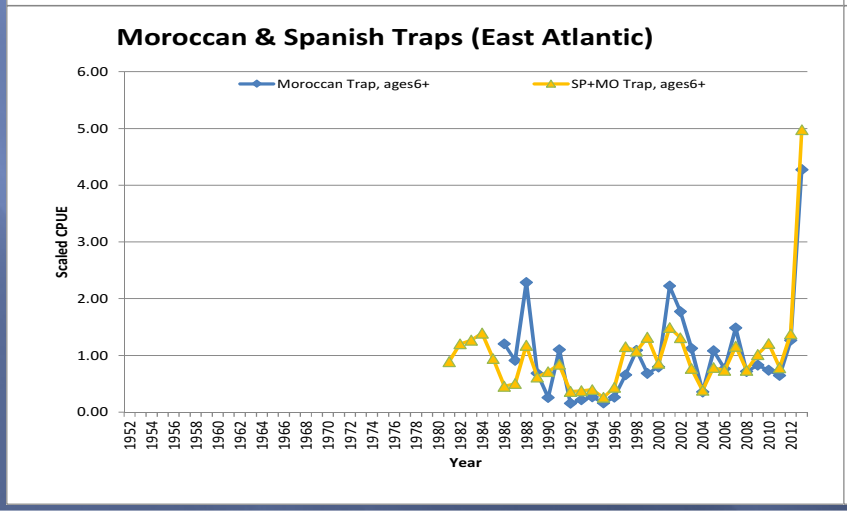


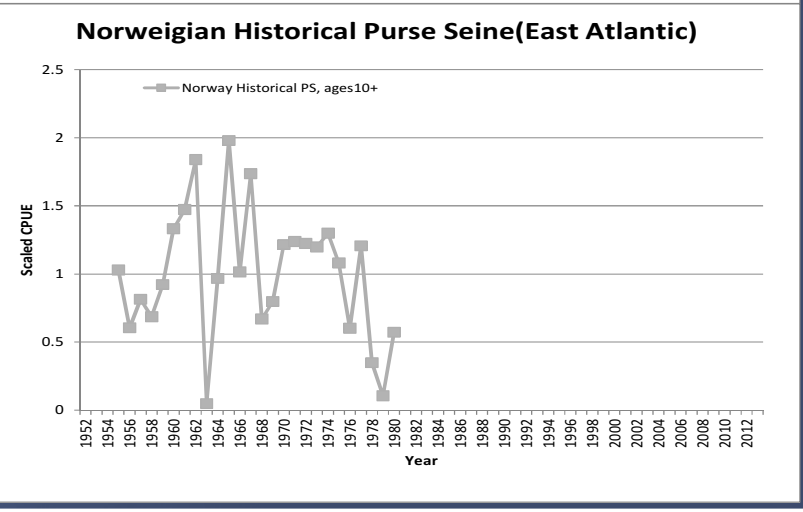
Fishery Indicators

Catch Per Unit of Effort









Stock Status

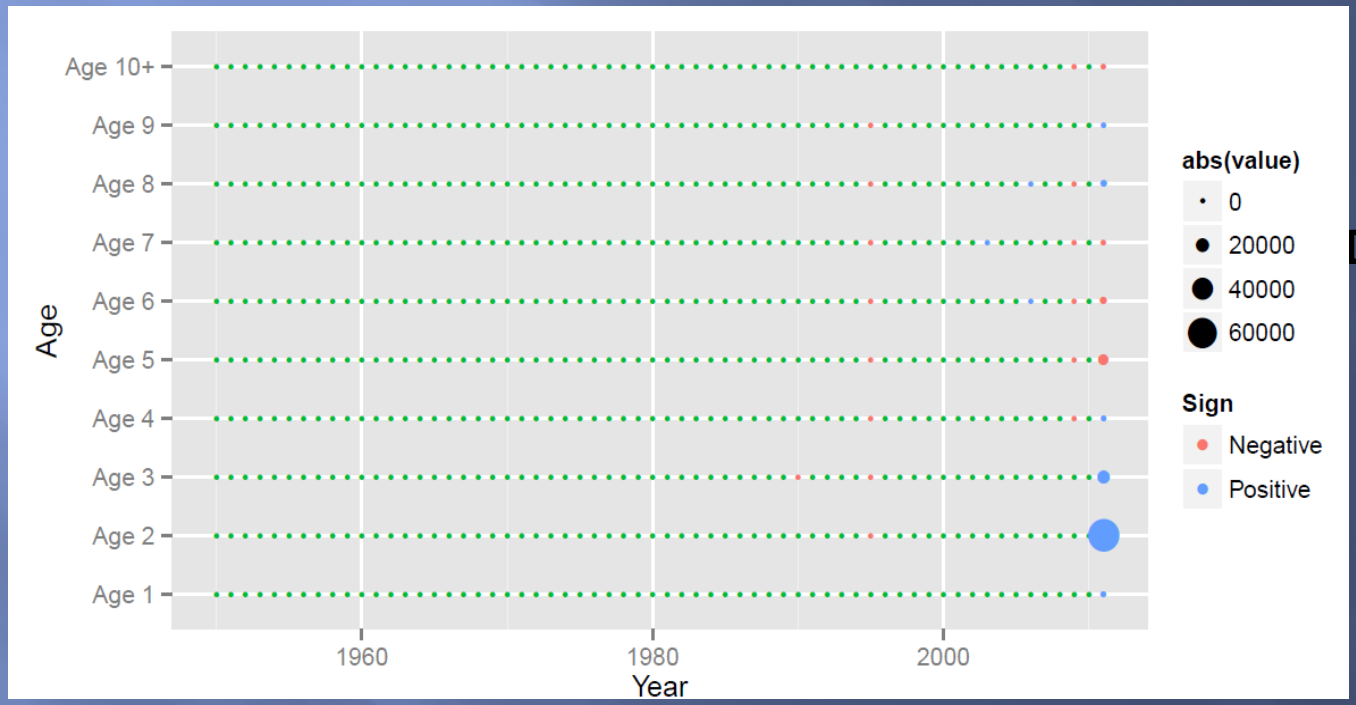
First step: ensure that the Continuity run is a Continuity

	SSB
SSB in 2011 (2012 stock assessment)	289, 953 t
SSB in 2011 (2014 update assessment)	504,446 t
Difference	**214,493 t**

→ **74% increase**

Stock Status

Why this difference?



Difference in CAA between 2012 and update

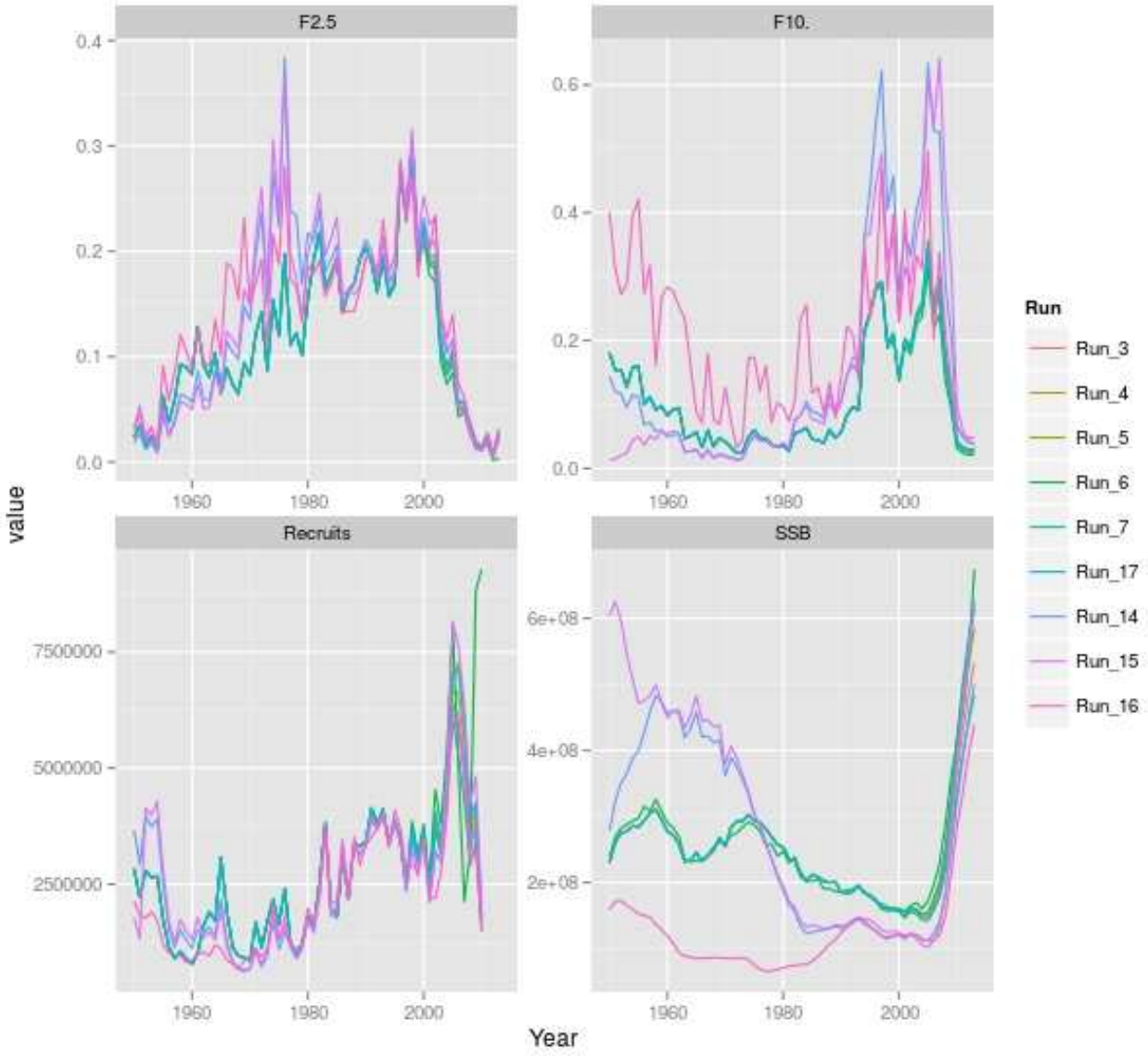
	Year	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	Age 7	Age 8	Age 9	Age 10+
2012 SA	2011	21	2677	3326	16304	39531	14863	10393	4366	6697	17433
2014 update	2011	1287	68174	21397	17206	26735	10930	10119	7243	7044	17003
Difference		**1266**	**65497**	**18071**	**902**	**-12796**	**-3933**	**-274**	**2877**	**347**	**-430**

What does it tell us? Stock assessment model is very unstable

Stock Status

F_{10+} & F_{2-5} strongly declined in recent years in all scenarios

SSB clear increase in the most recent period in all scenarios



Stock Status

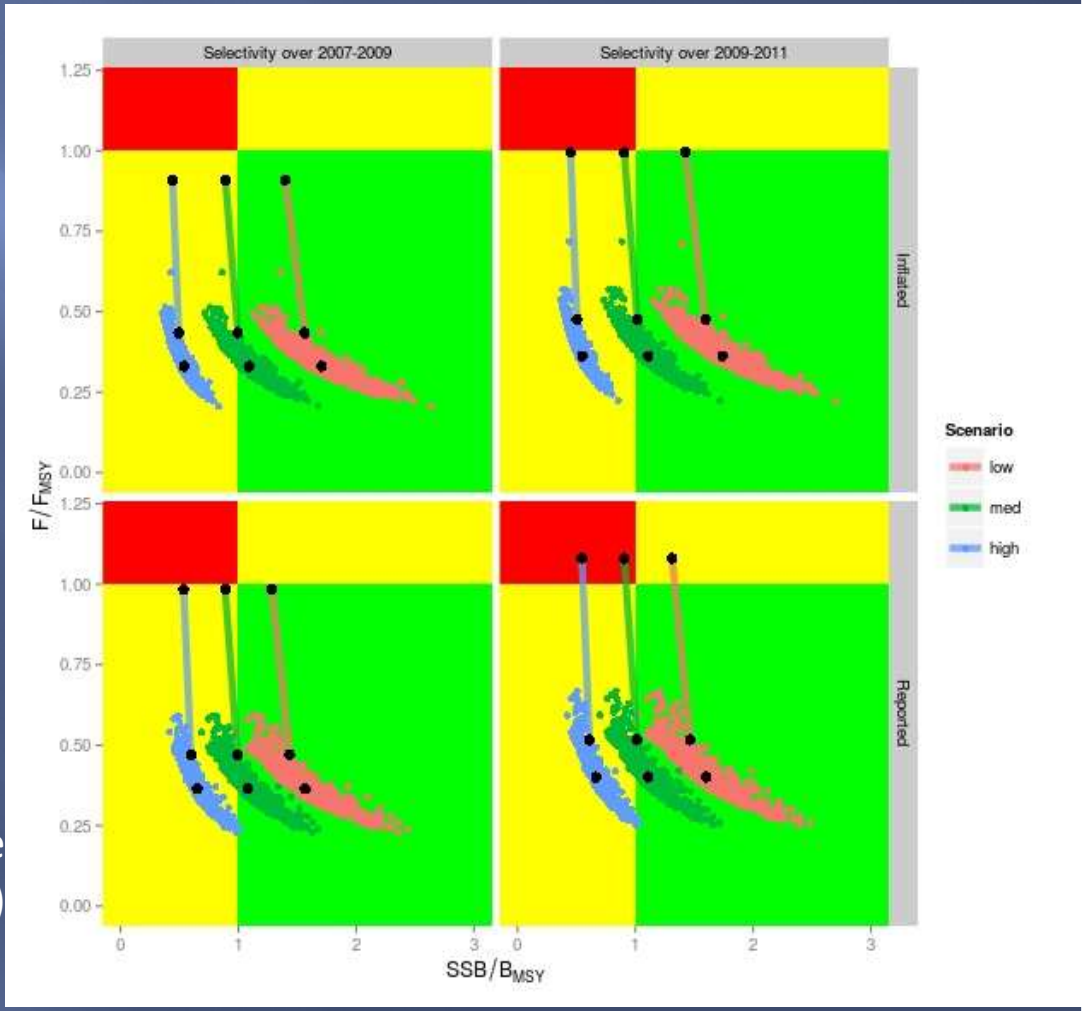
The stock status has significantly improved since 2012, as $F_{2013} < F_{0.1}$

- $F_{2013}/F_{0.1}$ = 0.40 (reported)
- $F_{2013}/F_{0.1}$ = 0.36 (inflated)

and SSB is most likely above the level expected at $F_{0.1}$

- $SSB_{2013}/SSB_{F0.1}$ = 1.10 (reported)
- $SSB_{2013}/SSB_{F0.1}$ = 1.11 (inflated)

Those ratios depend on:
(*i*) the selectivity patterns,
(*ii*) total catch,
(*iii*) mean recruitment levels (more pessimistic for high recruitment (0.55) than low recruitment (1.74)



Outlook

Results integrated over the 3 recruitment scenarios (low, medium and high), the 2 catch scenarios (reported and inflated) and with the estimated selectivity pattern over 2009-2011 (as in 2012)

TAC	2014	2015	2016	2017	2018	2019	2020	2021	2022
0	63	67	72	79	88	94	97	99	100
2000	63	67	72	79	87	93	97	99	100
4000	63	67	72	78	86	92	97	99	100
6000	63	67	72	78	86	92	96	98	99
8000	63	67	71	78	85	91	96	98	99
10000	63	67	71	77	85	91	95	98	99
12000	63	67	71	77	84	90	94	97	99
13500	63	67	71	77	83	90	94	97	99
14000	63	67	71	77	83	90	94	97	99
15000	63	67	71	76	83	89	94	97	98
16000	63	67	70	76	83	89	93	96	98
18000	63	66	70	76	82	88	93	96	98
20000	63	66	70	75	81	87	92	95	98
22000	63	66	70	75	81	87	91	94	97
24000	63	66	70	75	80	86	90	94	96
26000	63	66	69	74	79	85	90	93	96
28000	63	66	69	74	79	84	89	93	95
30000	63	66	69	73	78	83	88	91	94

According to the 2014 VPA results and above specifications:

- F would remain below $F_{0.1}$ in the 10 coming years with at least 60% of probabilities for all catch levels investigated
- The rebuilding of eastern bluefin tuna at $SSB_{F0.1}$ level with a probability of at least 60% could be achieved before 2022 with the different TACs examined

Outlook

The Group has, however, **little confidence in the projection outputs and thus in the Kobe matrices** because of various and significant sources of **unquantified uncertainties**:

• Poor quality of the catch statistics

•VPA outputs are highly sensitive to technical specifications (F-ratios, Plus Group, selectivity, recruitment and catch levels…)

•Increasing difficulties to track changes in abundance through fisheries dependent information (need for fisheries-independent information)

•Lack of scientific information about main Mediterranean fisheries

•Projections calculated only with Continuity run

Effect of current regulations

Past TACs

2006	2007	2008	2009	2010	2011	2012	2013	2014
32,000 t	29,500 t	29,500 t	22,000 t	13,500 t	12,900 t	12,900 t	13,500 t	13,500 t

- Based on fishing capacity, potential important under-reporting in the past
- Important changes in selectivity patterns (min. size regulations)
- Strongly affect the CPUE indices
- Needs to continue effort through national programs and GBYP to improve the quality of the currently used indices and obtain fisheries-independent indices

Management Recommendations

[Rec. 09-06] = provide the scientific basis for the Commission to establish a recovery plan with the goal of achieving B_{MSY} through 2022 with at least 60% of probability

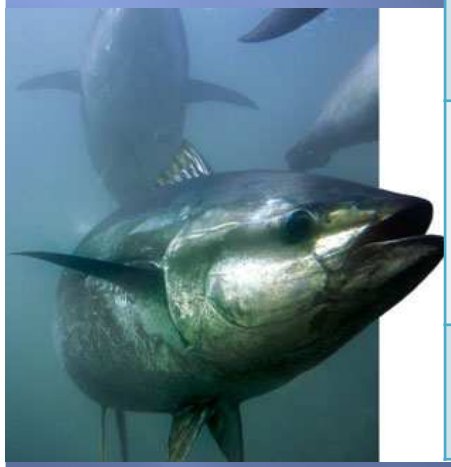
Recent regulation has clearly resulted in reductions in catch and fishing mortality rates, and in a substantial increase in SSB (in agreement with CPUEs)

Maintaining or increasing moderately and gradually in TAC, in applying the precautionary approach, should not undermine the success of the management plan and should be consistent with the Commission goal

Committee was not able to give a robust advice on an upper bound for the TAC

Continuation of incremental increases should be reviewed annually by the Commission on the advice of SCRS

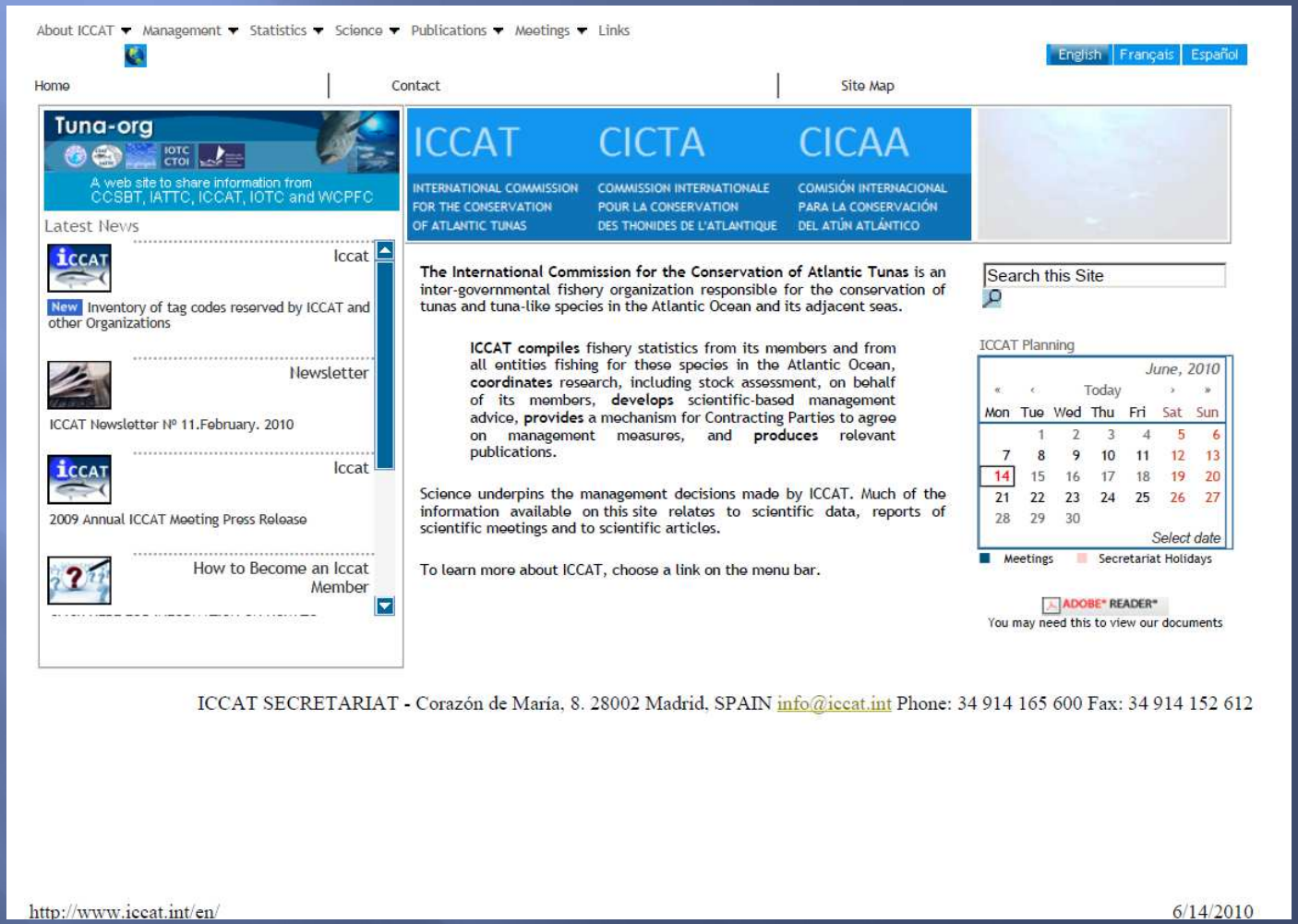
In view of positive signs of the success of rebuilding plan: **ANTICIPATE for a new phase of the recovery plan**



EAST ATLANTIC AND MEDITERRANEAN BLUEFIN TUNA SUMMARY		
Current reported yield (2013)	13,333 t	
	Reported catch	Inflated catch
Maximum Sustainable Yield[1]		
Low recruitment scenario (1970s)	23,256 t	23,473 t
Medium recruitment scenario (1950-2006)	33,662 t	36,835 t
High recruitment scenario (1990s)	55,860 t	74,248 t
$F_{0.1}$ [2,3]	0.07yr^{-1}	0.07 yr^{-1}
$F_{2013}/F_{0.1}$	0.40	0.36
$SSB_{F0.1}$		
Low recruitment scenario (1970s)	351,500 t	354,600 t
Medium recruitment scenario (1950-2006)	508,700 t	556,600 t
High recruitment scenario (1990s)	843,800 t	1,121,000 t
$SSB_{2013}/SSB_{F0.1}$		
Low recruitment scenario (1970s)	1.60	1.74
Medium recruitment scenario (1950-2006)	1.10	1.11
High recruitment scenario (1990s)	0.67	0.55
TAC (2010 - 2014)	**13,500 t - 12,900 t - 12, 900 t - 13,500 t – 13,500 t**	

ICCAT WEB SITE **WWW.ICCAT.INT**

Contiene bases de datos, informes, publicaciones, medidas de gestión ….



http://www.iccat.int/en/ 6/14/2010


GRACIAS
THANKS
MERCI