Panel 4: Other species

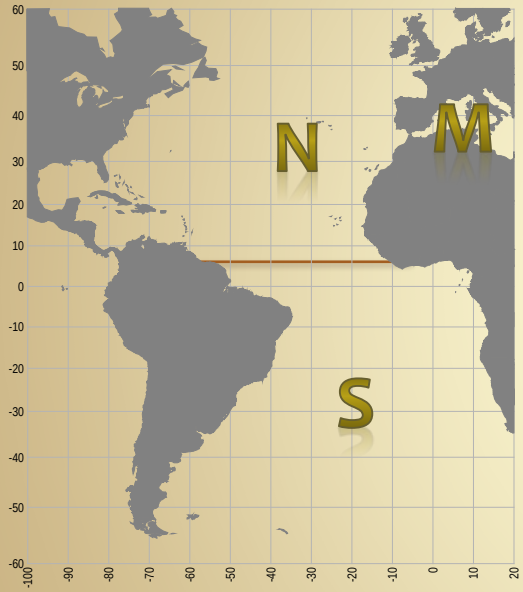
SWO Swordfish
BUM WHM Marlins
SAI Sailfish
SMT Small tunas
SHK Sharks
Other spp.

Panel 4: Items to be discussed

- **Swordfish**
  - **North Atlantic (assessed in 2013)**
  - **South Atlantic (assessed in 2013)**
  - Mediterranean (assessed in 2010)
- **Marlins**
  - BUM - Blue marlin (assessed in 2011)
  - WHM – White marlin (assessed in 2012)
- **Sailfish** (assessed in 2009)
- **Sharks**
  - Ecological Risk Assessment (2012)
  - Blue shark (assessed in 2008)
  - Shortfin mako (assessed in 2012)
  - Porbeagle (assessed in 2009)
- Responses to Commission's requests
- Research and Statistics: Recommendations & Work Plans

Swordfish

- **[SCI-033]** Report of the 2013 Atlantic Swordfish Data Preparatory Meeting.
- **[SCI-036]** Report of the 2013 Atlantic Swordfish Stock Assessment Session.

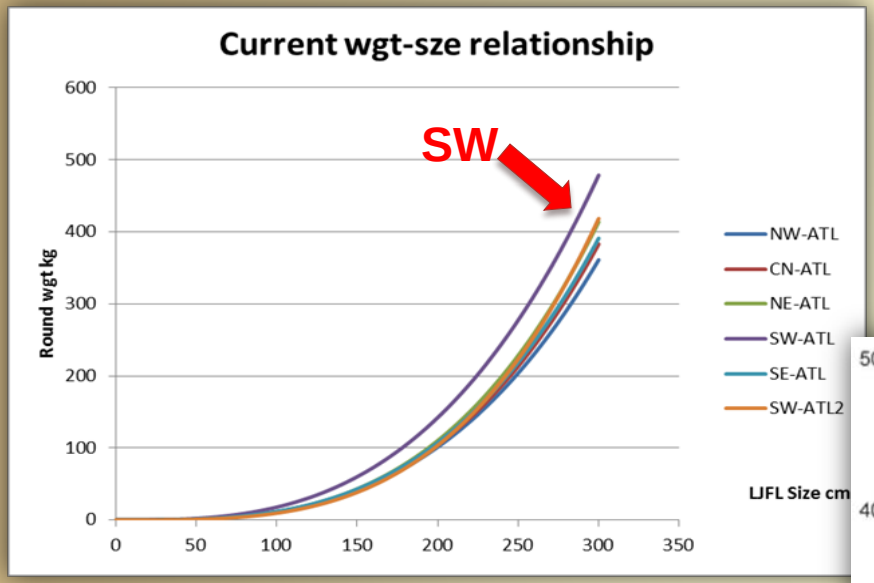


3 management units

Swordfish, Pez espada, Espadon	
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: 180 cm (♀, age 5) / Mediterr.: 140 cm (age 3.5)
Life span	Atlantic: 15 years / Mediterranean: 10 years
Maximum size	Atlantic: 455 cm (537 kg) / Mediterranean: 230 kg
Natural mortality	Assumed M=0.2

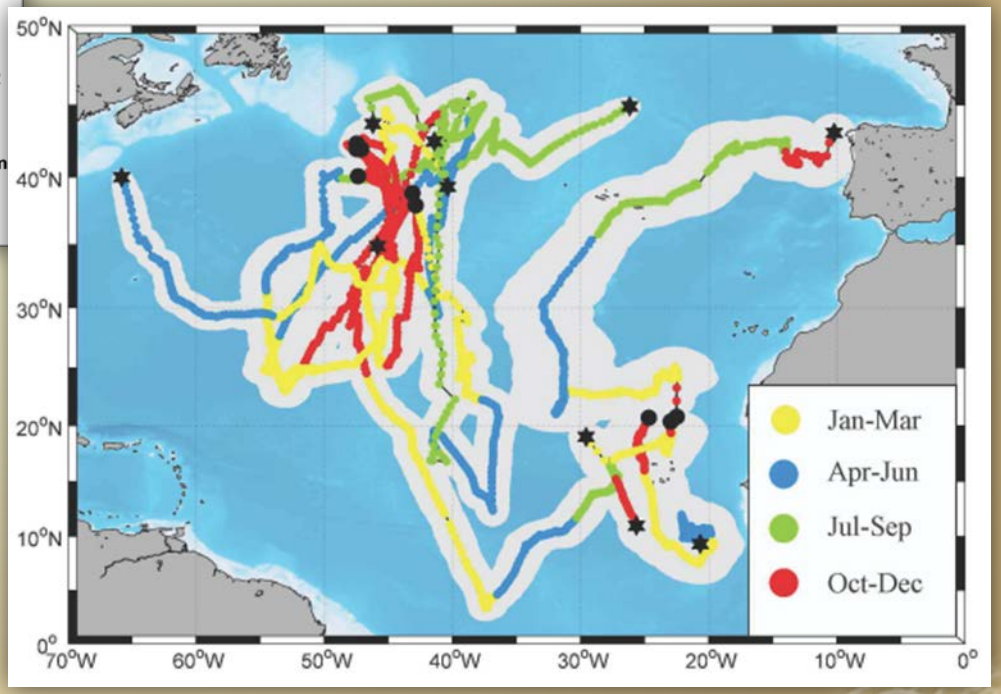
New information on SWO biology

Revised length-weight relationships for N & S



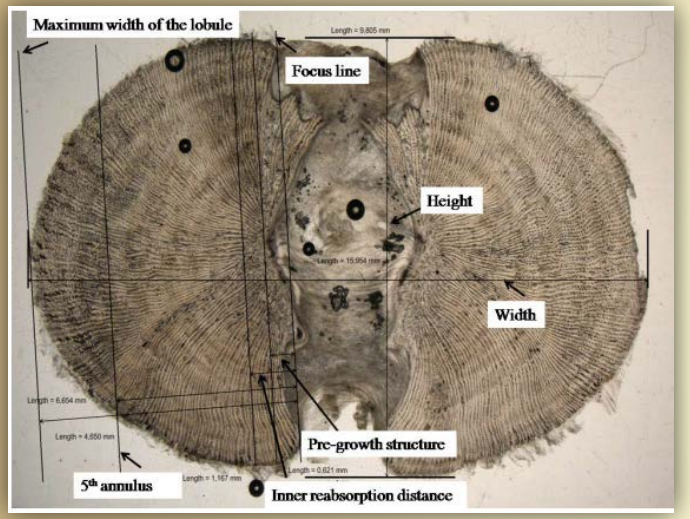
SCRS/2013/151; Horizontal tracking of 21 SWO tagged with **pop-up satellite tags** in the central and eastern North Atlantic

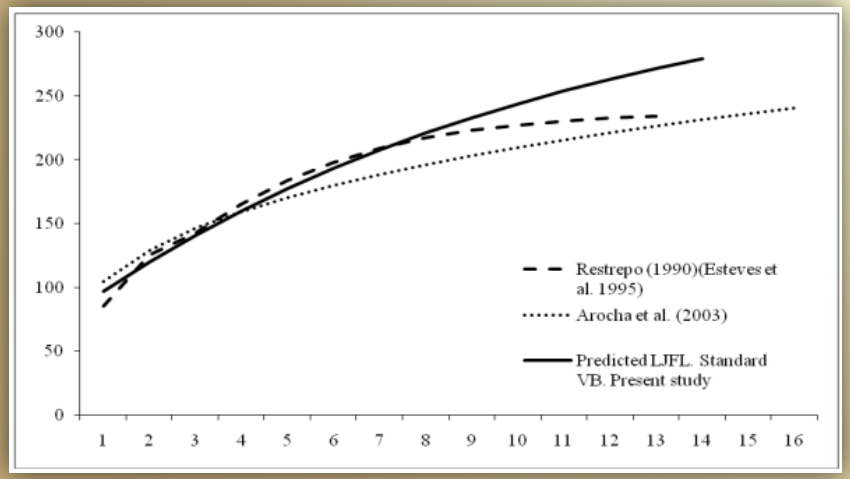
Horizontal movements evidenced seasonal patterns with fish generally moving south in winter, returning to temperate foraging grounds in spring.



New information on SWO biology

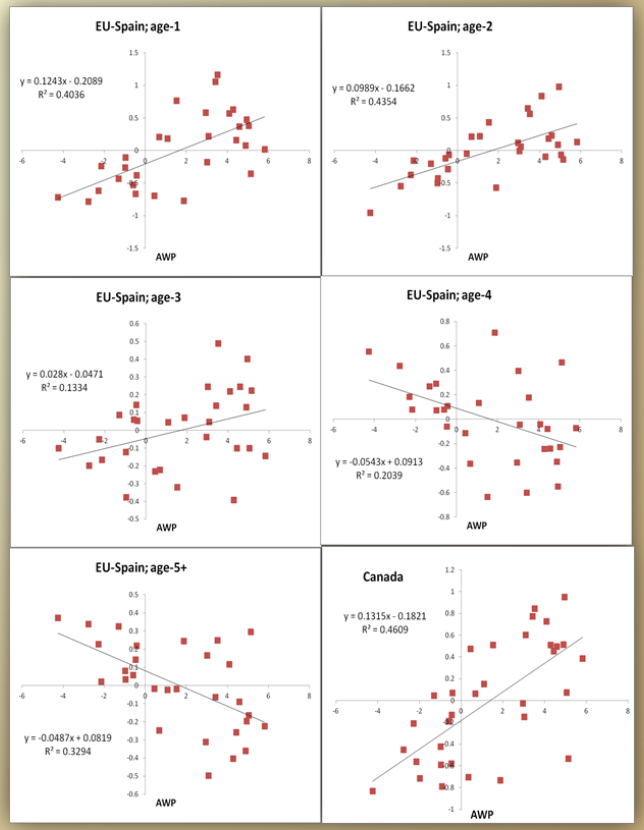
SCRS/2013/153 presented preliminary results of the **first study on age and growth of the Southern Atlantic** SWO

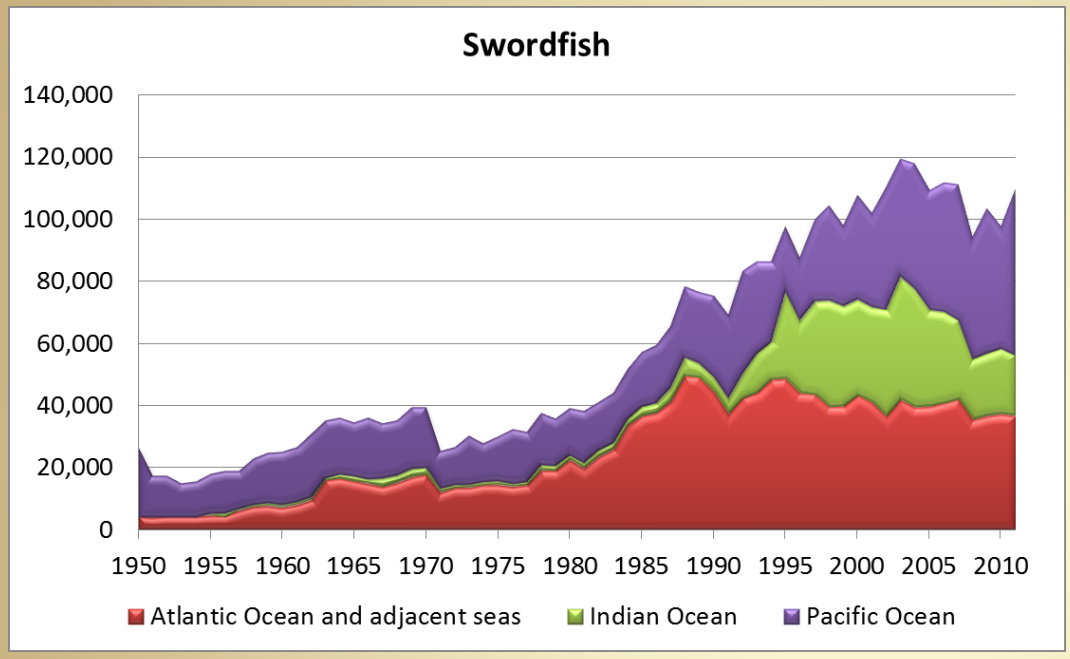


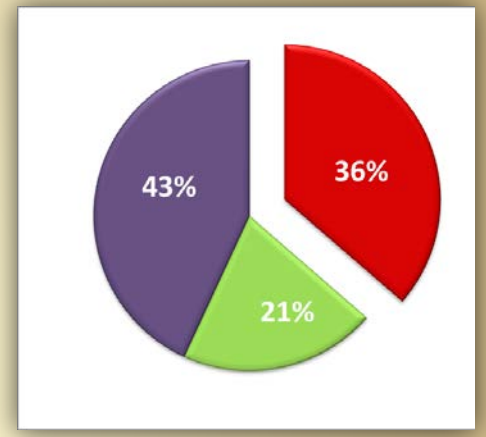


SCRS/2013/161 presented possible recent poleward shift of SWO in the North Atlantic.

The observed changes in the direction of the abundance indices correspond with changes in trends in the size of the Atlantic Warm Pool (AWP) and other climatic indicators.

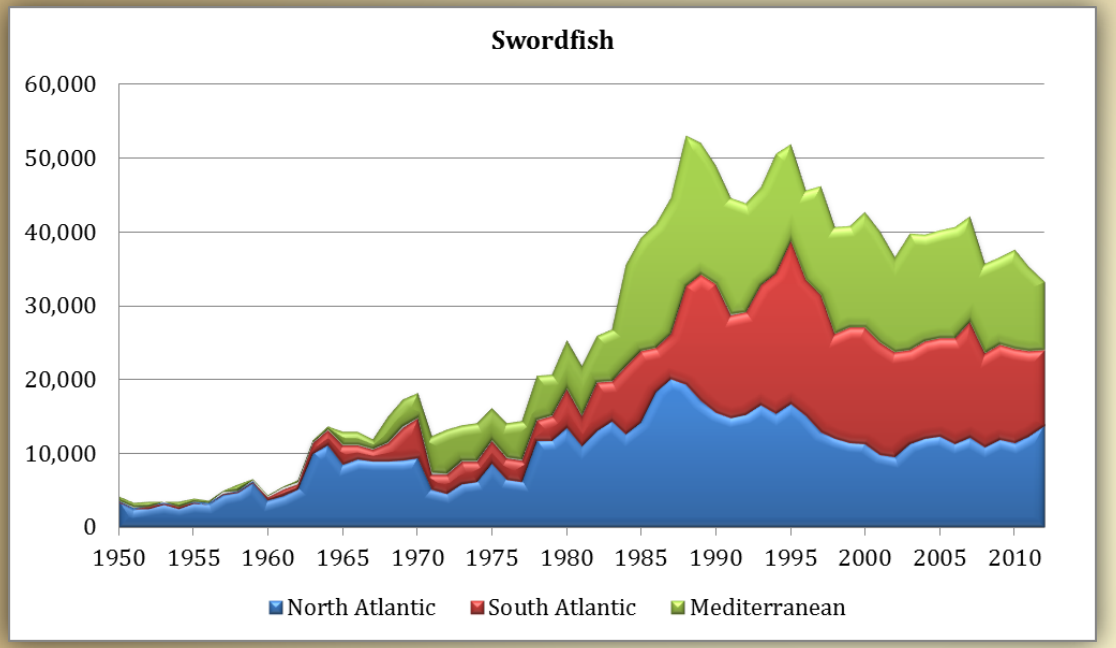


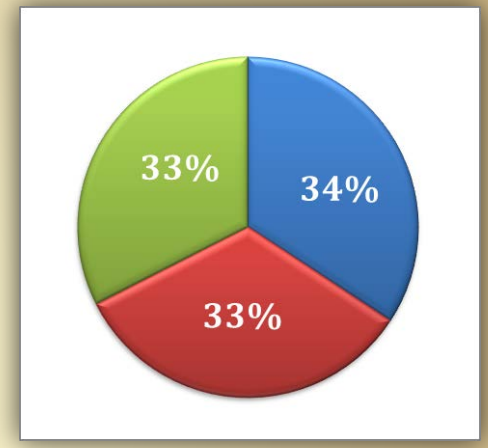




% average catch in 2007-2011

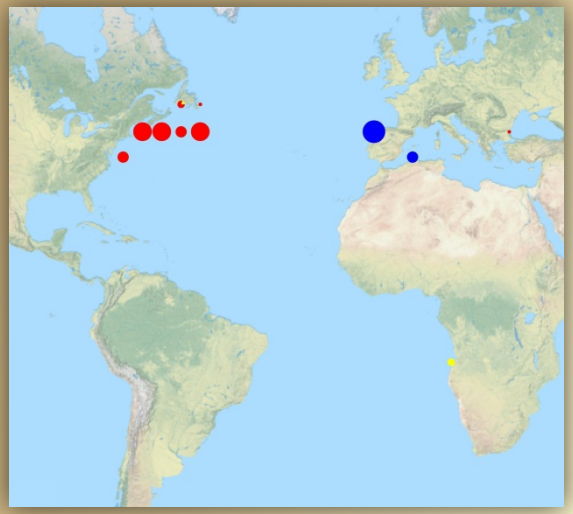
- **Atlantic** and Mediterranean SWO represents **36% of the world production** (average 2007-2011).



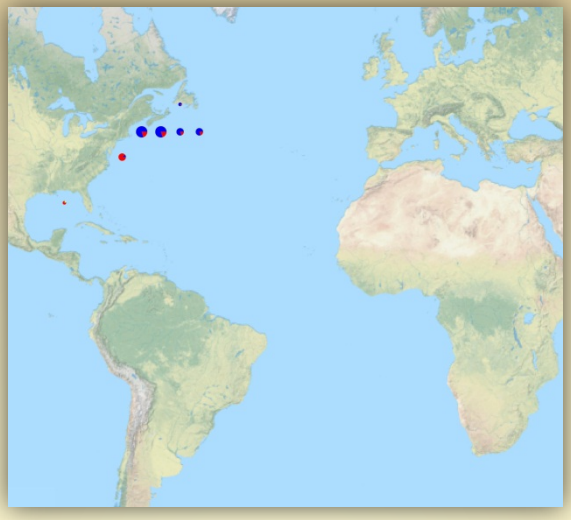


% average catch in 2008-2012

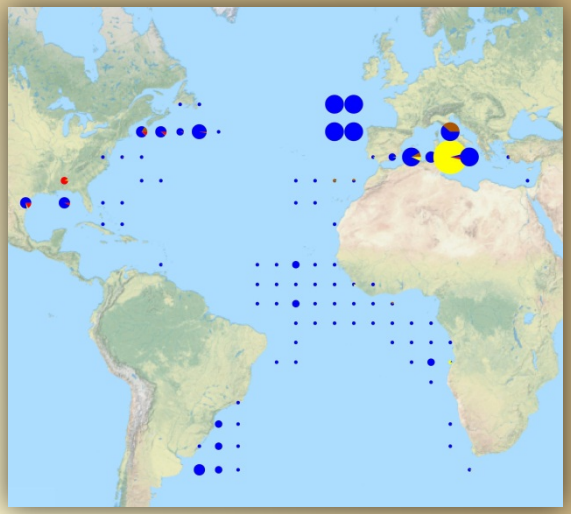
- In the ICCAT Convention area SWO catches are almost **equally distributed** among the 3 management units (average 2008-2012).



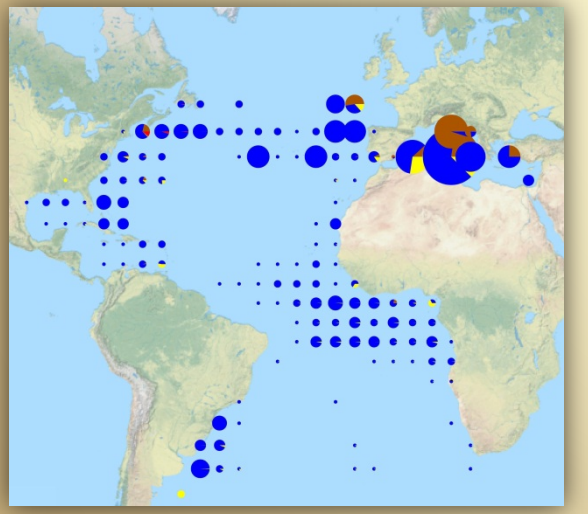
1950



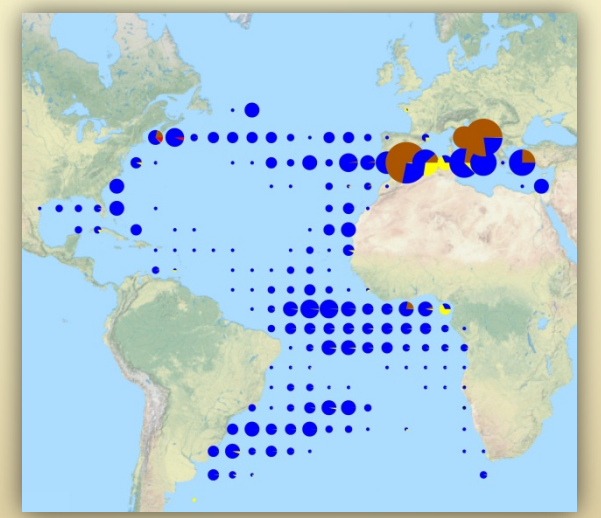
1960



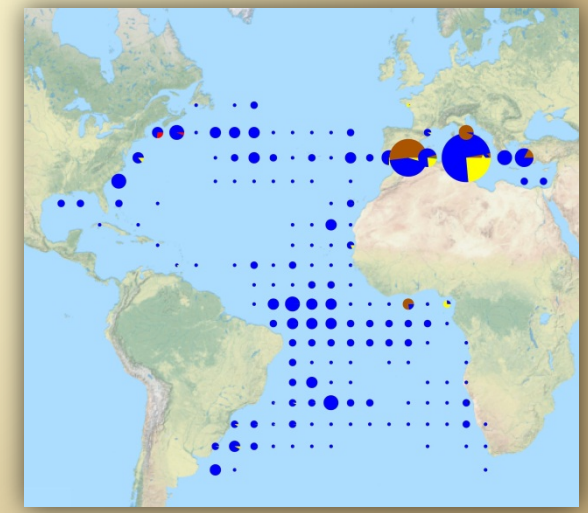
1970



1980

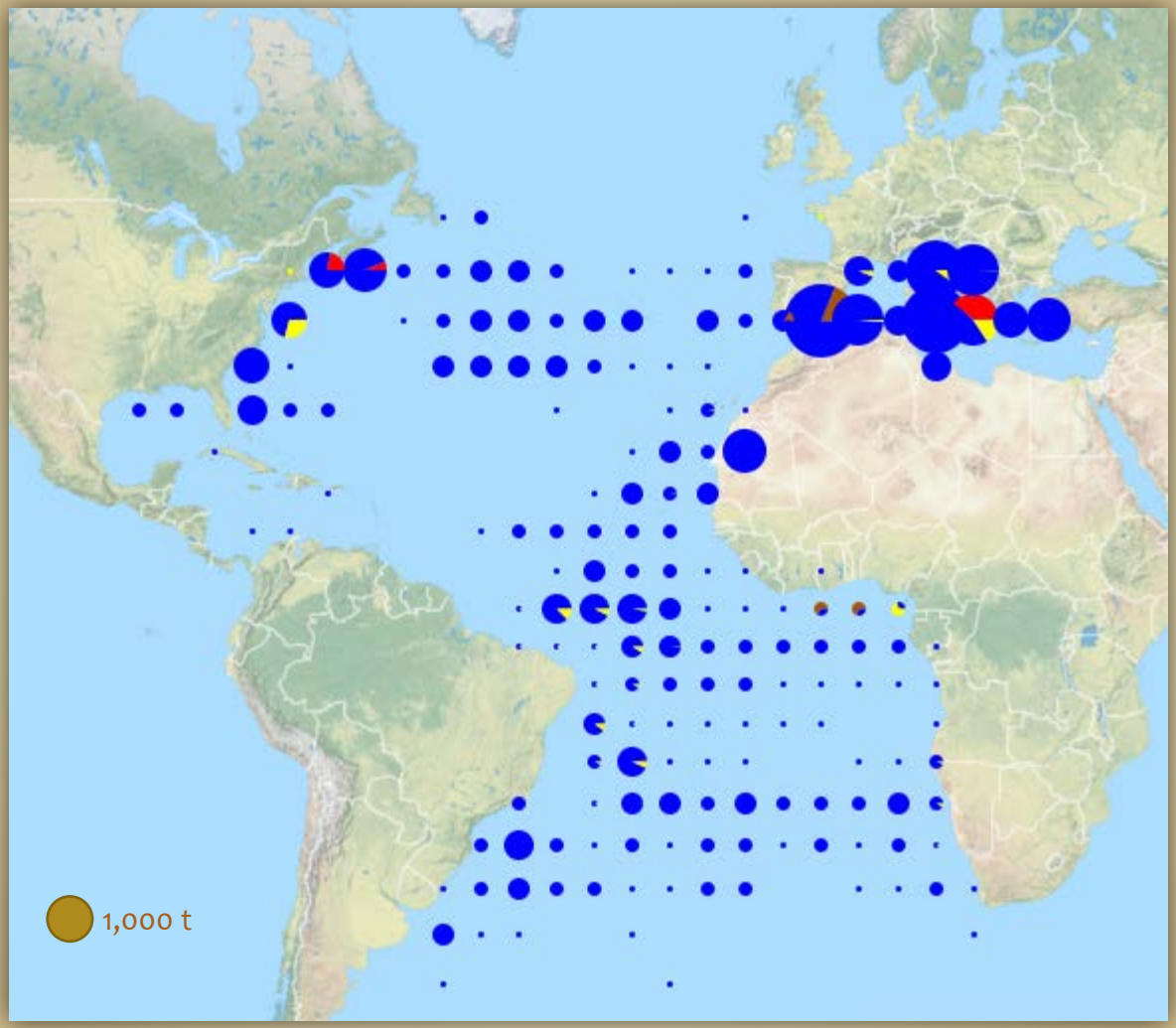


1990



2000

Longline Others Gillnet Harpoon



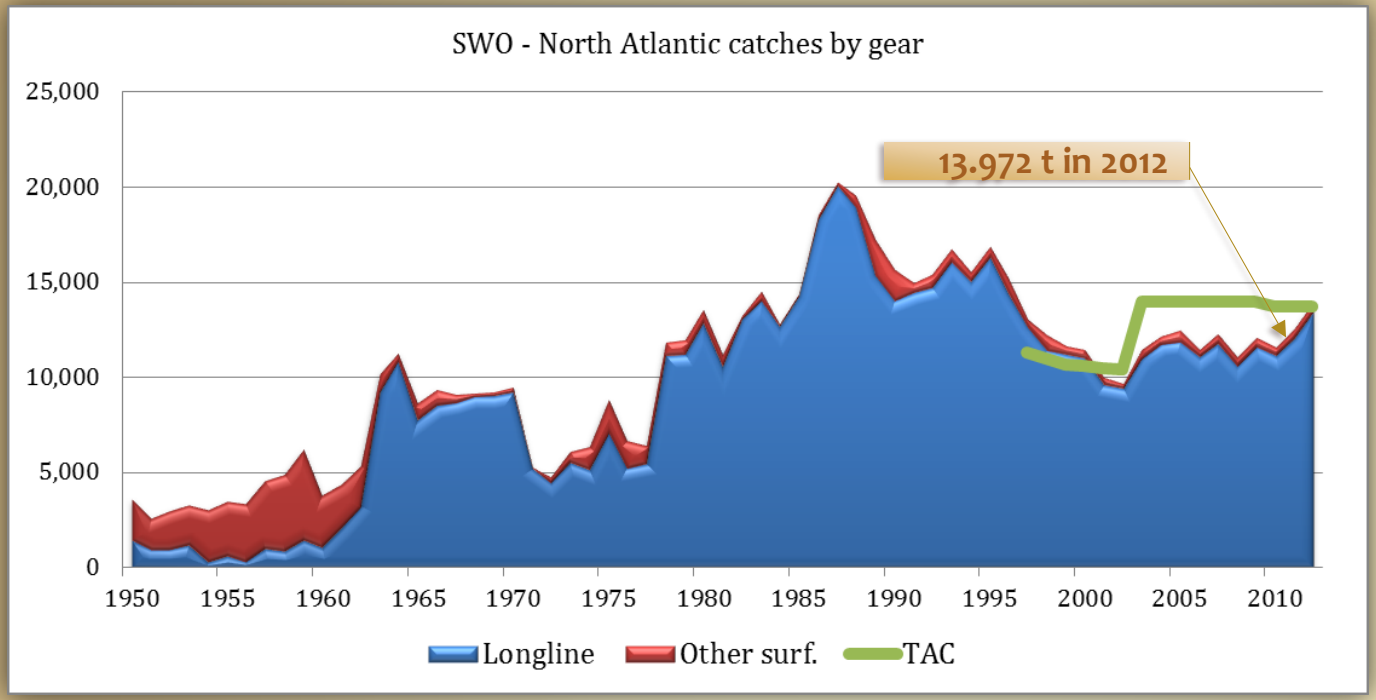
2010-2011

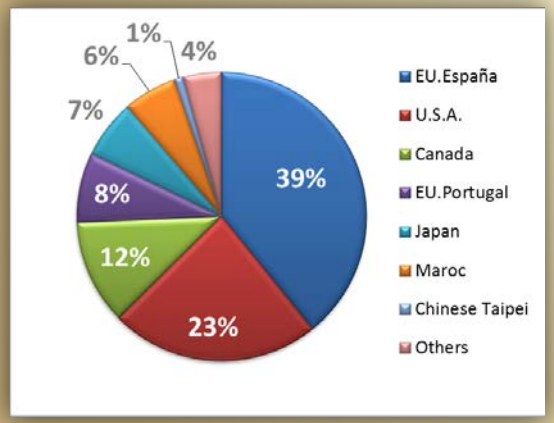
Longline Others Gillnet Harpoon

North Atlantic swordfish

Assessed in 2013

N-SWO Catches by main CPC and gear type

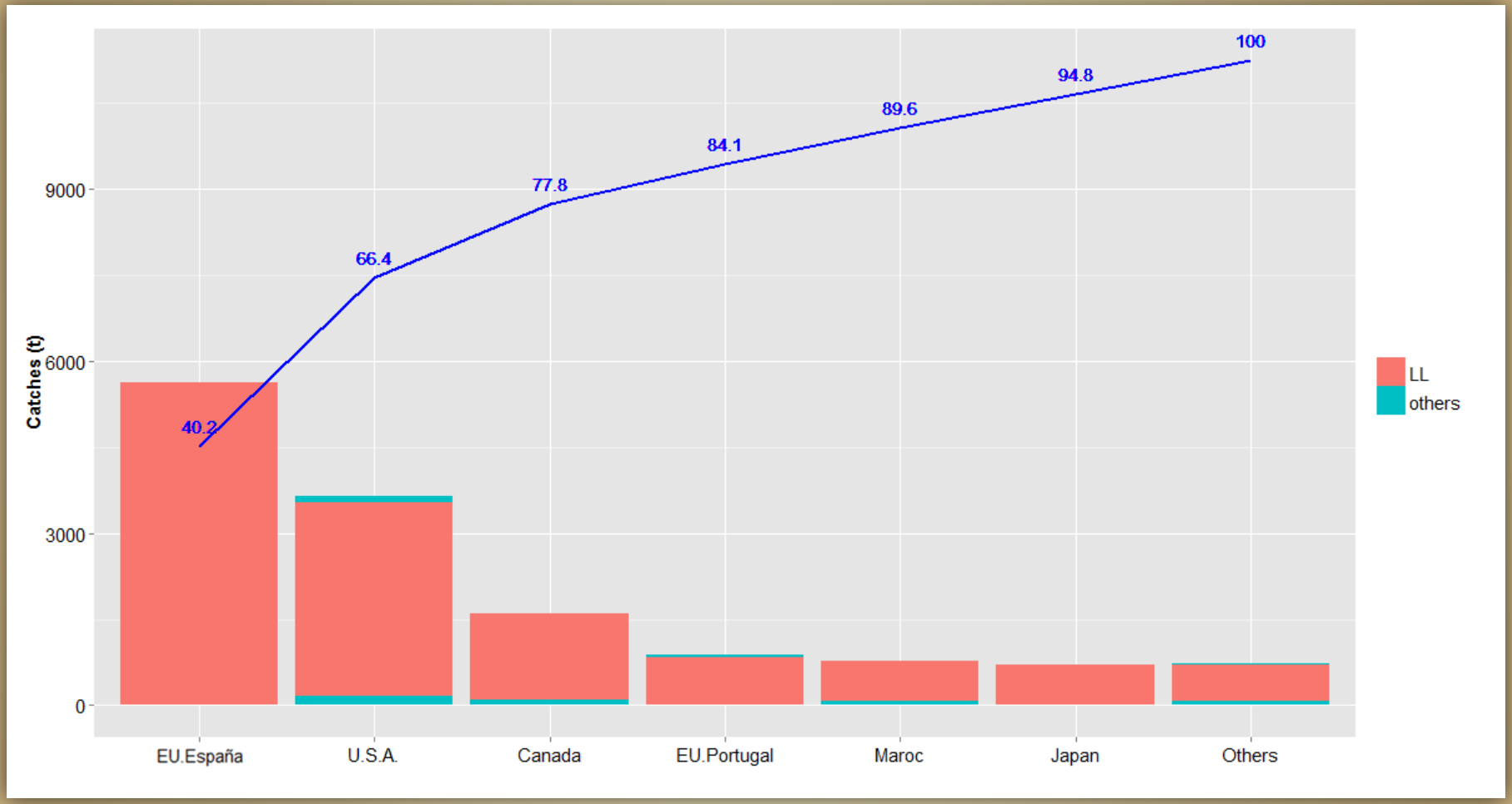




% average catch in 2008-2012

- Recent catches have been below the TAC. However…
- For the first time since 2002 the reported catches in 2012 (13,972 t) exceeded the TAC of 13,700 t.
- The catch in 2012 represents a 31 % decrease since the 1987 peak in North Atlantic landings (20,236 t).

SWO-N Catches by main CPC and gear type in 2012



13,972 t in 2012

SCRS catalogue on SWO-N statistics (Task-I and Task-II)

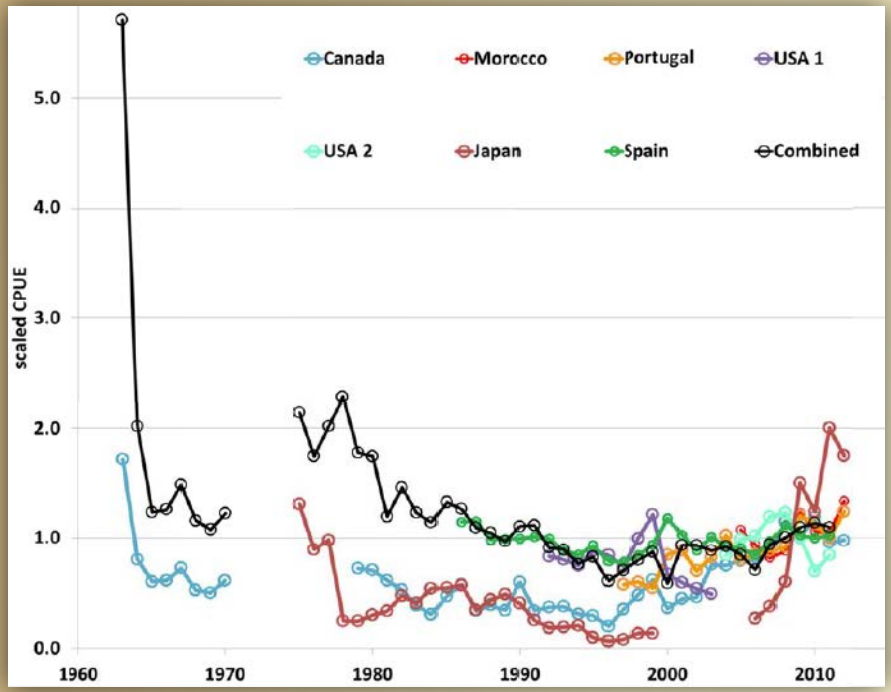
Species	Stock	Status	FlagName	GearGrp	Value	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Rank	Σ(1995-12)	%	%cum
SWO	ATN	CP	EU.España	LL	t1	6948	5519	5133	4079	3993	4581	3967	3954	4585	5373	5511	5446	5564	4366	4949	4147	4885	5620	1	88618	40.07%	40%
SWO	ATN	CP	EU.España	LL	t2	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	1			
SWO	ATN	CP	U.S.A.	LL	t1	4452	4015	3399	3433	3364	3316	2498	2598	2757	2591	2273	1961	2474	2405	2691	2204	2572	3384	2	52386	23.69%	64%
SWO	ATN	CP	U.S.A.	LL	t2	ab	ab	ab	ab	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	2			
SWO	ATN	CP	Canada	LL	t1	1421	646	1005	927	1136	923	984	954	1216	1161	1470	1238	1142	1115	1061	1182	1351	1502	3	20432	9.24%	73%
SWO	ATN	CP	Canada	LL	t2	ab	ab	ab	ab	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	3			
SWO	ATN	CP	EU.Portugal	LL	t1	1593	1702	902	772	776	731	731	765	1032	1319	900	949	778	747	898	1054	1202	841	4	17694	8.00%	81%
SWO	ATN	CP	EU.Portugal	LL	t2	ab	ab	ab	ab	ab	abc	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	4			
SWO	ATN	CP	Japan	LL	t1	1043	1494	1218	1391	1089	759	567	319	263	575	705	656	889	935	778	1062	523	715	5	14982	6.78%	88%
SWO	ATN	CP	Japan	LL	t2	abc	abc	abc	abc	abc	abc	bc	bc	bc	abc	abc	abc	abc	abc	abc	abc	abc	abc	5			
SWO	ATN	CP	Maroc	LL	t1	28	35	239		35	38	264	154	223	255	325	333	229	428	720	963	700	700	6	5669	2.56%	90%
SWO	ATN	CP	Maroc	LL	t2	-1	-1	-1		-1	-1	-1	-1	bc	abc	abc	abc	abc	abc	bc	abc	a	ab	6			
SWO	ATN	NCC	Chinese Taipei	LL	t1	489	521	509	286	285	347	299	310	257	30	140	172	103	82	89	88	192	166	7	4365	1.97%	92%
SWO	ATN	NCC	Chinese Taipei	LL	t2	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	ab	ab	ab	ab	ab	ab	ab	ab	7			
SWO	ATN	CP	Canada	HP	t1	189	93	89	240	18	95	121	38	147	87	193	203	267	258	248	176	208	97	8	2767	1.25%	94%
SWO	ATN	CP	Canada	HP	t2	ab	ab	ab	ab	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	8			
SWO	ATN	CP	China P.R.	LL	t1	104	132	40	337	304	22	102	90	316	56	108	72	85	92	92	73	75	59	9	2158	0.98%	95%
SWO	ATN	CP	China P.R.	LL	t2	-1	-1	-1	a	a	a	a	a	a	a	a	ab	a	ab	ab	ab	ab	ab	9			
SWO	ATN	CP	Trinidad and Tobago	LL	t1	150	158	110	130	138	41	75	92	78	83	91	19	29	48	30	21	16	14	10	1321	0.60%	95%
SWO	ATN	CP	Trinidad and Tobago	LL	t2	-1	-1	-1	-1	-1	-1	-1	-1	a	a	a	a	a	a	a	a	a	a	10			
SWO	ATN	CP	Maroc	GN	t1	32	322	13	179	60	51	243	64	98	76	9						80		11	1227	0.55%	96%
SWO	ATN	CP	Maroc	GN	t2	-1	-1	-1	c	ac	ac	ac	-1	b	b	b						-1		11			
SWO	ATN	CP	U.S.A.	HL	t1		0	1		5	9	9	12	21	23	35	33	125	94	125	129	121	158	12	899	0.41%	96%
SWO	ATN	CP	U.S.A.	HL	t2		-1	b	b	c	bc	bc	c	bc	bc	bc	bc	bc	bc	bc	bc	bc	bc	12			
SWO	ATN	CP	Korea Rep.	LL	t1	16	19	15								51	65	175	157	3		170	46	13	717	0.32%	96%
SWO	ATN	CP	Korea Rep.	LL	t2	a	a	a				a				a	a	a	a	a		-1	-1	13			
SWO	ATN	CP	EU.France	UN	t1	38	97	164						32	102	178	0	46	14	3	1	0	1	14	674	0.30%	97%
SWO	ATN	CP	EU.France	UN	t2	-1	-1	-1						-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	14			
SWO	ATN	CP	U.S.A.	RR	t1		6	11	5	21	16	2	22	6	25	61	53	68	76	32	49	54	71	15	576	0.26%	97%
SWO	ATN	CP	U.S.A.	RR	t2	a	a	ab	ab	ab	ab	ab	ab	ab	a	a	a	a	ab	ab	abc	bc	bc	15			
SWO	ATN	CP	Belize	LL	t1													9	1	112	106	184	141	16	553	0.25%	97%
SWO	ATN	CP	Belize	LL	t2													a	a	ab	ab	ab	ab	16			
SWO	ATN	CP	Mexico	LL	t1		22	14	28	24	37	27	34	32	44	41	31	35	34	32	35	38	41	17	549	0.25%	97%
SWO	ATN	CP	Mexico	LL	t2		a	a	a	a	a	c	-1	a	a	a	a	a	a	a	a	a	a	17			

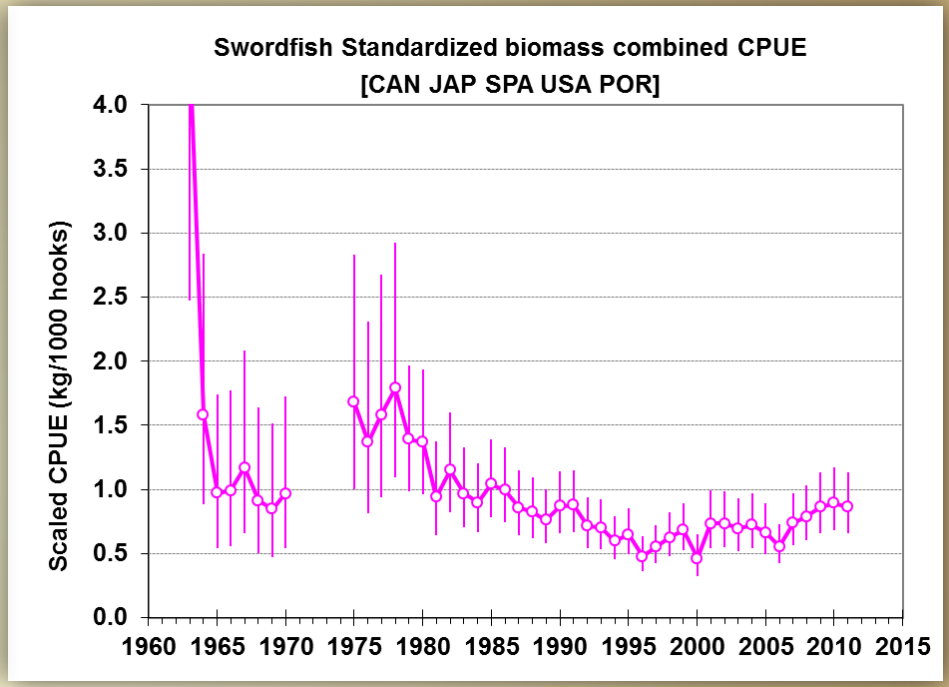
North - data series almost complete in the last twenty years

"Data rich" stock

-1	no T2 data
a	t2ce only
b	t2sz only
c	cas only
bc	t2sz +cas
ab	t2ce + t2sz
ac	t2ce + cas
abc	all

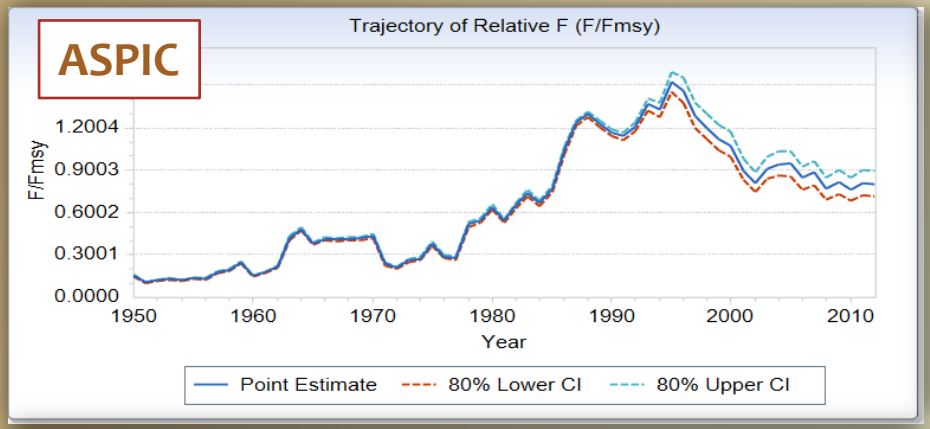
CPUE trends

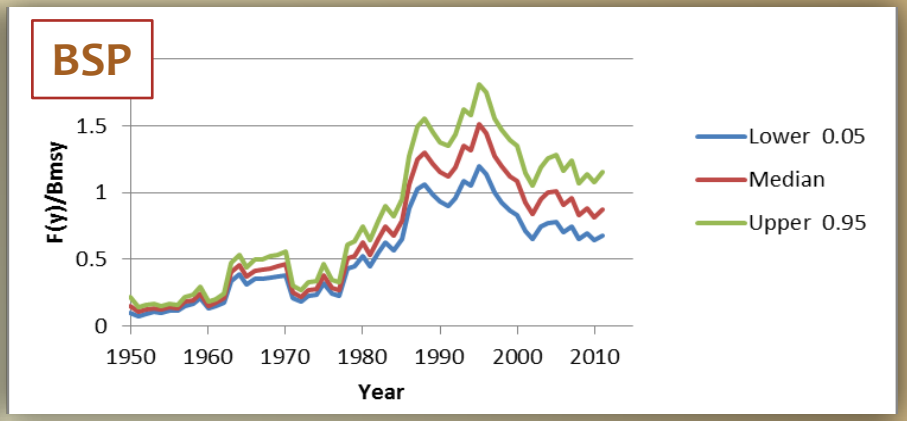


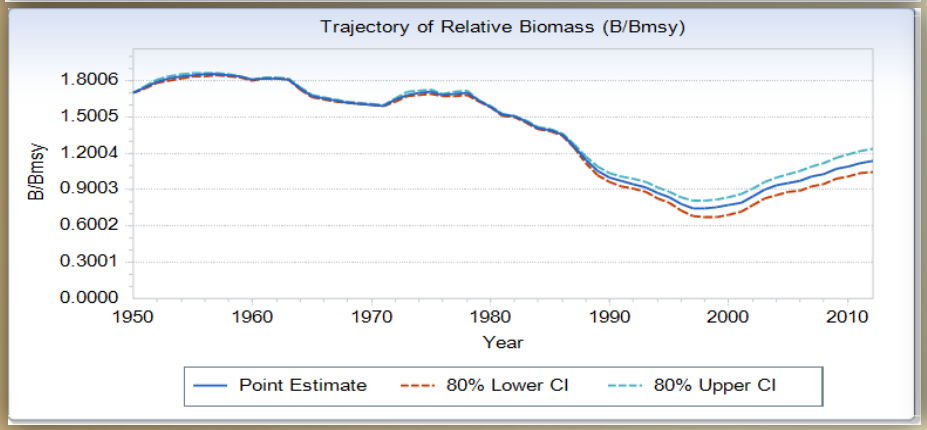


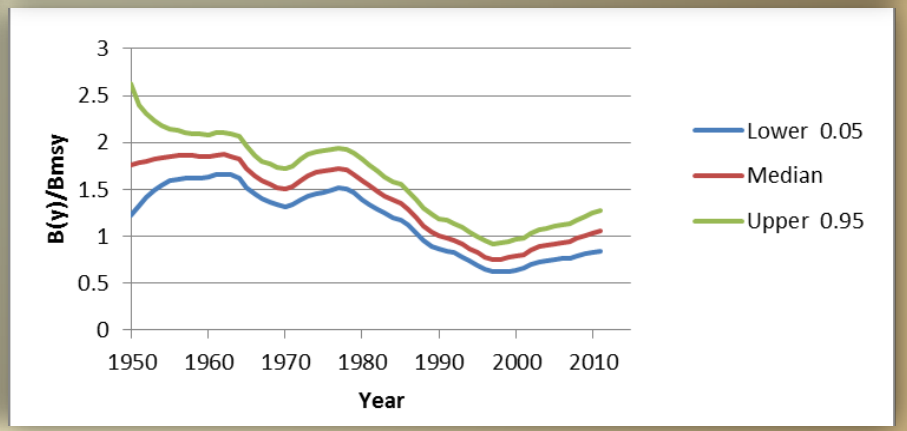
- Six nations contribute catch rates that are used in the production model.
- Most of the series have an increasing trend since the late 1990s, but the USA catch rates remained relatively flat.

Stock status



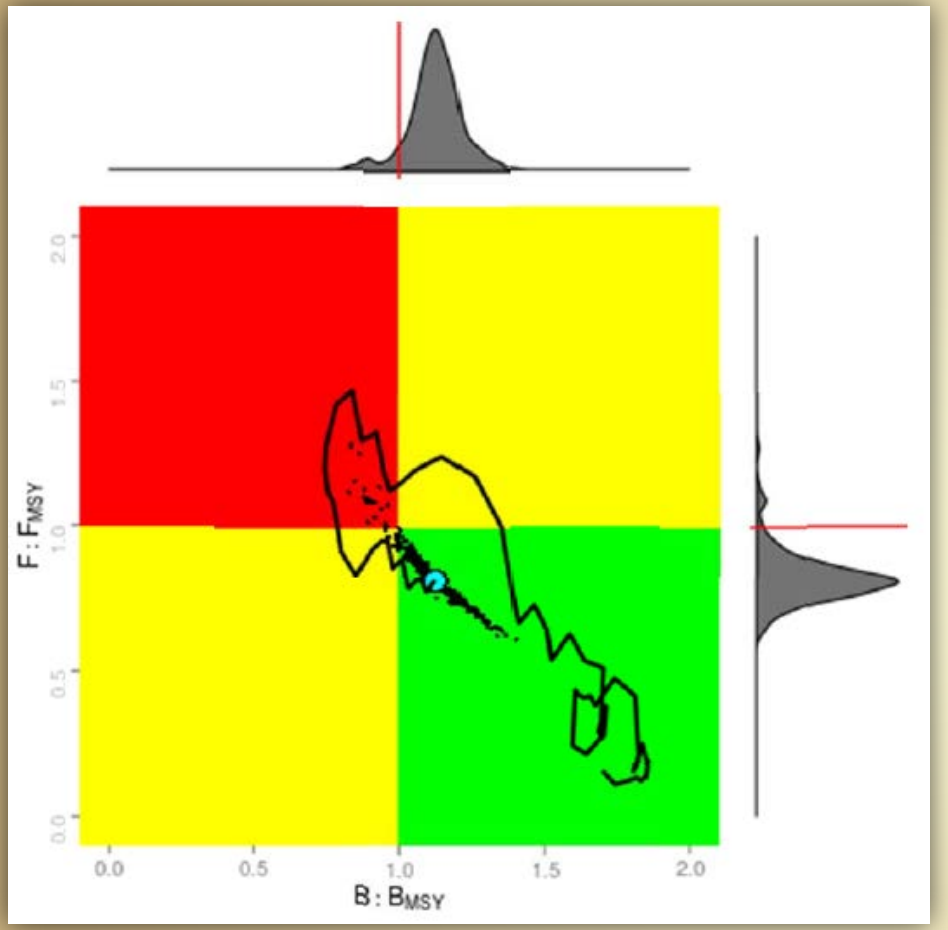


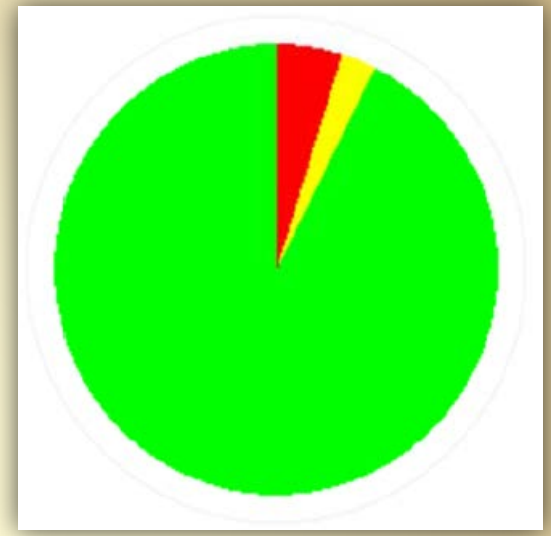




- The estimate of stock status in 2011 is relatively similar to the estimated status in the 2009 Assessment.
- Results indicate that the stock is **above B_{MSY}** and fishing mortality **below F_{MSY}**
- BSP: Similar results to ASPIC but scenario less optimistic

Stock status





- Results from the 2013 assessment indicated that there is **greater than 90% probability** that the northern swordfish stock has rebuilt to or above $\mathbf{B_{MSY}}$.

Outlook

TAC	2014	2015	2016	2017	2018	2019	2020	2021
13000	88	91	92	92	92	92	93	93
13200	88	91	91	92	92	91	91	91
13400	88	90	90	89	89	89	89	89
13600	88	88	88	88	87	87	86	85
13700	88	88	88	87	85	84	84	83
13800	88	87	86	85	83	82	82	81
13900	88	86	84	83	82	80	79	77
14000	88	84	82	80	79	77	75	74
14100	88	82	80	78	76	74	72	69
14200	88	81	79	76	73	71	67	63
14300	88	80	76	73	70	65	61	56
14400	88	78	74	71	65	60	54	47
14600	88	74	69	63	56	47	40	33
14800	88	70	62	51	43	34	29	22
15000	88	64	55	42	32	25	17	13

Current TAC

- **TACs above 15,000 t** are projected to result in **50% or lower probabilities** of the stock biomass remaining above B_{MSY} over the next decade.
- A **TAC of 13,700 t** would have an **83% probability** of maintaining the stock and fishing mortality at a level consistent with the Convention objective over the next decade.
- ASPIC and BSP provide very consistent advice that TAC levels of 13,700 t would maintain the stock at a level consistent with the Convention Objectives over the next decade.

Effects of current regulations

- **Catch limits**
  - TAC [2007-2009] = 14,000 t with a average reported catch of 11,969 t and did not exceed the TAC in any year.
  - TAC [2010-2013] = 13,700 t, compared with 2012 catches (provisional) of 13,972 t.

- **Minimum size limits**
  - Two options: 125 cm LJFL (15% tolerance) or 119 cm LJFL (0 tolerance and evaluation of the discards).
  - For the 2006-2008 period, the estimate of the percentage of swordfish reported landed < 125 cm LJFL was about **28%** (in number) in the North.

Management recommendations

- The **current TAC of 13,700 t** has an **83% probability** of maintaining the North Atlantic swordfish stock in a rebuilt condition by 2021 while maintaining nearly level biomass. This TAC would be in accordance with [Rec. 11-13]

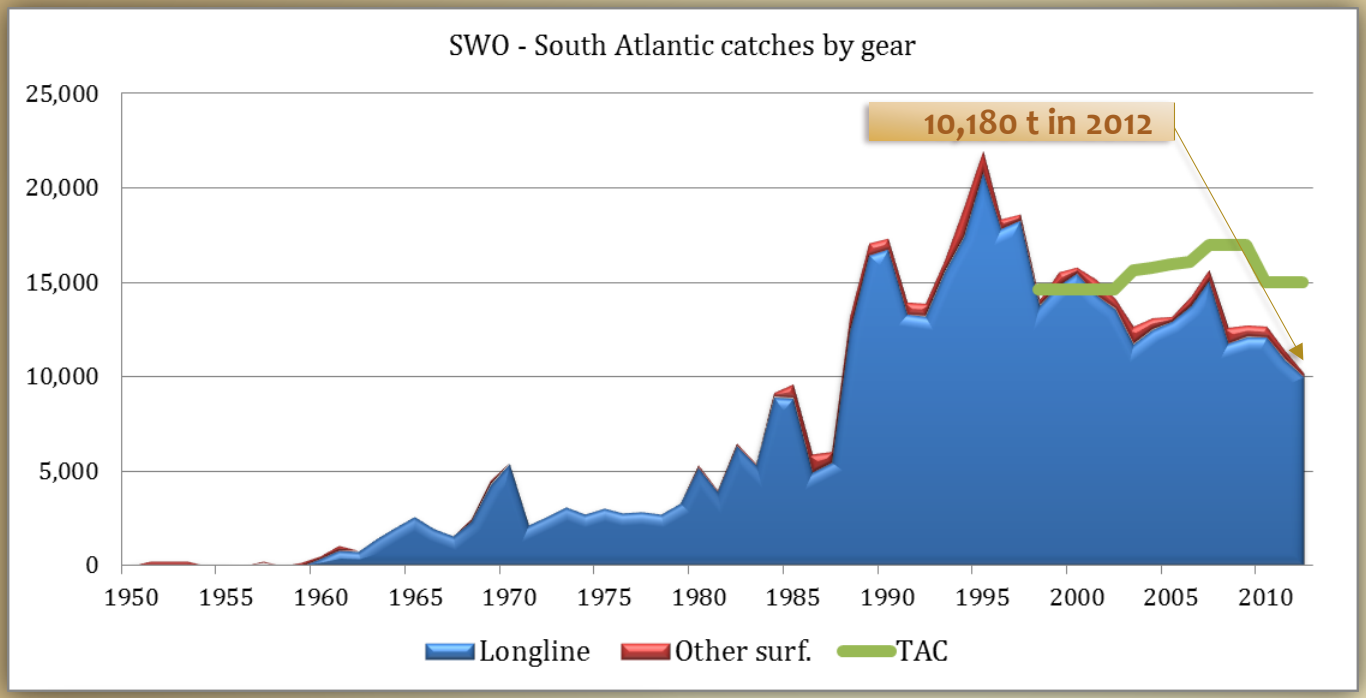
> *'For stocks that are not overfished and not subject to overfishing (i.e., stocks in the green quadrant of the Kobe plot), management measures shall be designed to result in a high probability of maintaining the stock within this quadrant'.*

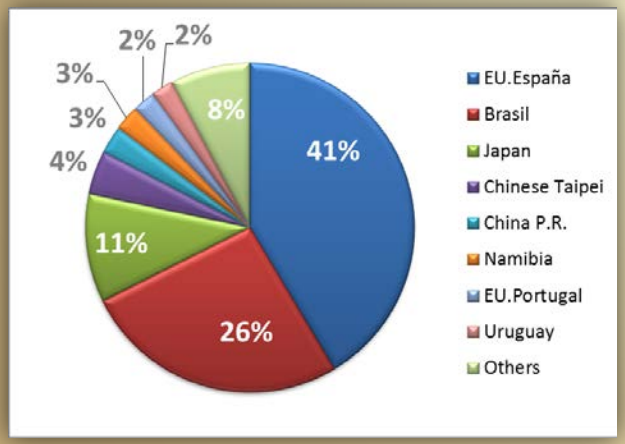
- However, the Committee acknowledges that without better direction from the Commission with regard to **what constitutes a 'high probability'**, it cannot provide more specific advice.

- **TACs up to 14,300 t** would still have a **higher than 50% probability** of maintaining the stock in a rebuilt condition by 2021 but would be expected to lead to greater biomass declines.

South Atlantic swordfish

Assessed in 2013

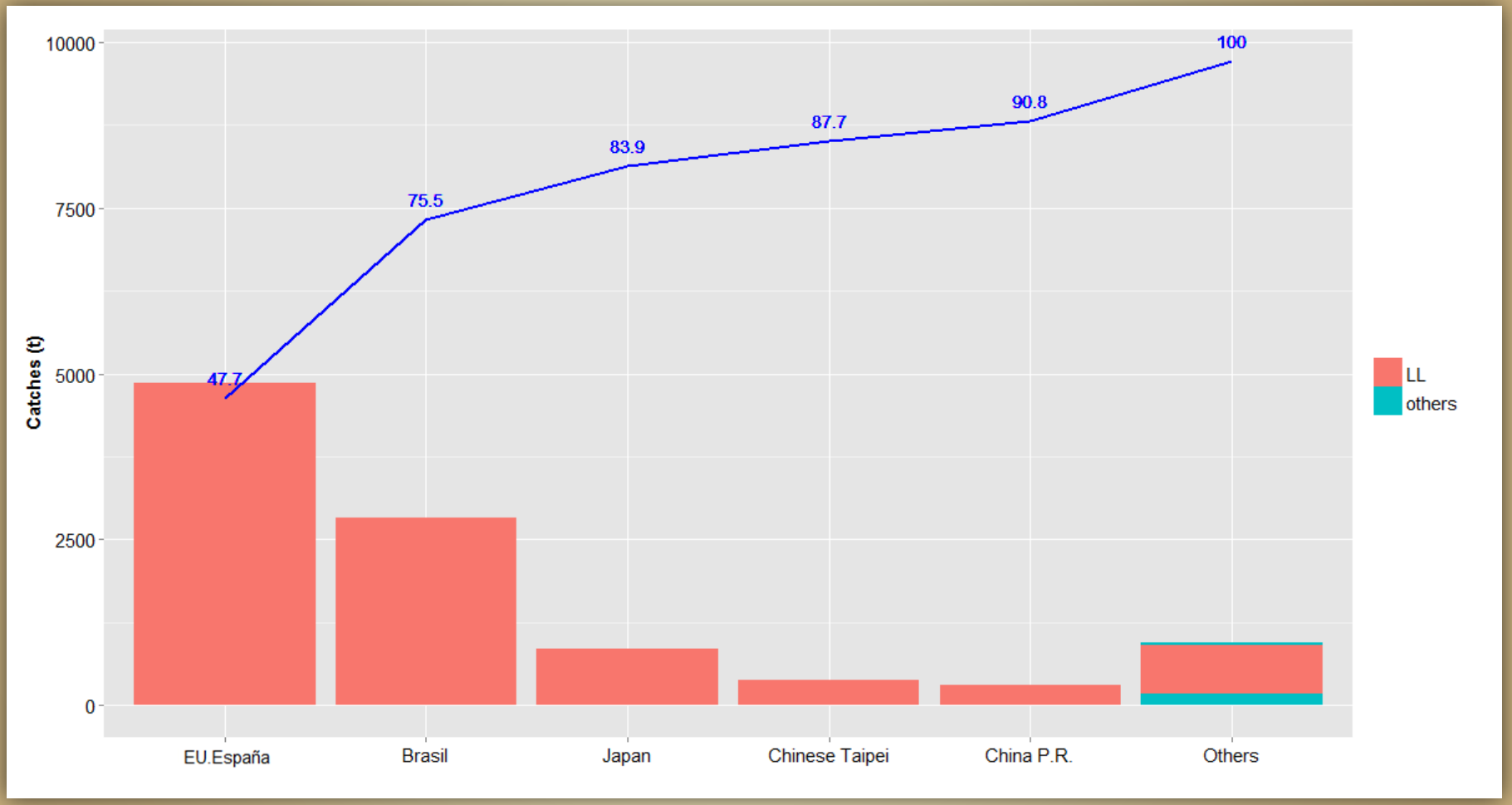




% average catch in 2008-2012

Recent catches have been below the TAC

SWO-S Catches by main CPC and gear type in 2012



10,180 t in 2012

SCRS catalogue on SWO-S statistics (Task-I and Task-II)

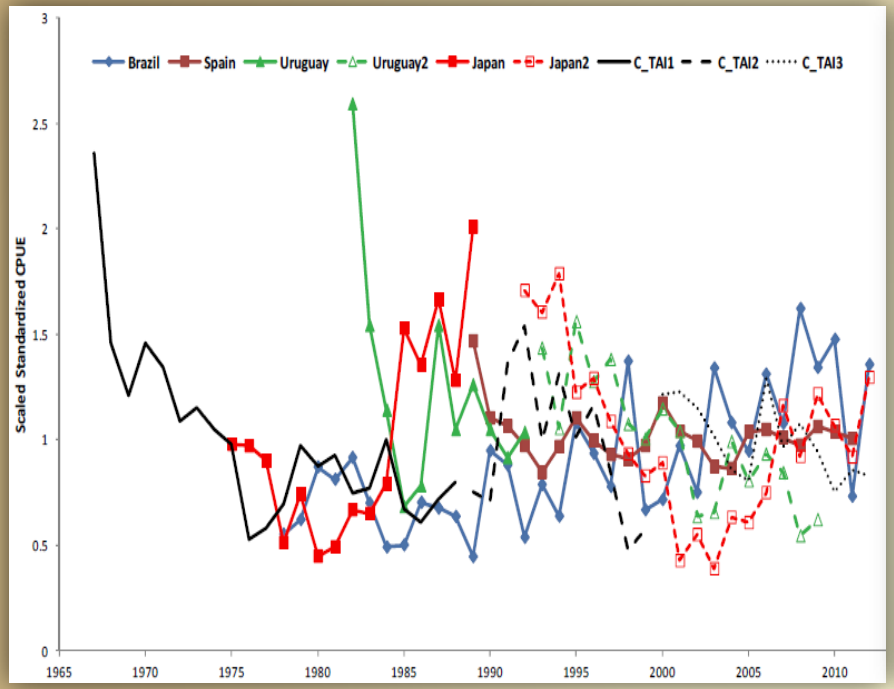
Species	Stock	Status	FlagName	GearGrp	Value	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Rank	Σ(1995-12)	%	%cum
SWO	ATS	CP	EU.España	LL	t1	11290	9622	8461	5832	5758	6388	5789	5741	4527	5483	5402	5300	5283	4073	5183	5801	4700	4852	1	109484	41.88%	42%
SWO	ATS	CP	EU.España	LL	t2	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	-1	1			
SWO	ATS	CP	Brasil	LL	t1	1970	1892	4100	3844	4721	4579	4075	2903	2917	2914	3780	4120	3892	3152	3132	2657	2800	2831	2	60280	23.06%	65%
SWO	ATS	CP	Brasil	LL	t2	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	2			
SWO	ATS	CP	Japan	LL	t1	3619	2197	1494	1186	775	790	685	833	924	686	480	1090	2155	1600	1340	1314	1233	862	3	23260	8.90%	74%
SWO	ATS	CP	Japan	LL	t2	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	3			
SWO	ATS	NCC	Chinese Taipei	LL	t1	2876	2873	2562	1147	1168	1303	1149	1164	1254	745	744	377	671	727	612	410	424	379	4	20585	7.87%	82%
SWO	ATS	NCC	Chinese Taipei	LL	t2	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	ab	ab	ab	ab	ab	ab	ab	ab	4			
SWO	ATS	CP	Uruguay	LL	t1	499	644	760	889	650	713	789	768	850	1105	843	620	464	370	501	222	179	40	5	10906	4.17%	86%
SWO	ATS	CP	Uruguay	LL	t2	a	a	a	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	5			
SWO	ATS	CP	Namibia	LL	t1					374	452	607	504	187	549	832	1118	1038	518	25	408	366	22	6	6998	2.68%	89%
SWO	ATS	CP	Namibia	LL	t2					a	-1	ab	a	-1	a	ab	ab	ab	ab	ab	ab	ab	a	6			
SWO	ATS	CP	EU.Portugal	LL	t1	380	389	441	384	381	392	393	380	354	345	493	440	428	271	367	232	263	170	7	6501	2.49%	91%
SWO	ATS	CP	EU.Portugal	LL	t2	a	a	ab	ab	ab	ab	ab	ab	a	ab	ab	ab	ab	ab	ab	ab	ab	ab	7			
SWO	ATS	CP	China P.R.	LL	t1				29	534	344	200	423	353	278	91	300	473	470	291	296	248	316	8	4645	1.78%	93%
SWO	ATS	CP	China P.R.	LL	t2				a	a	a	a	a	a	a	a	a	a	ab	ab	ab	ab	ab	8			
SWO	ATS	CP	South Africa	LL	t1	1			240	143	327	547	649	293	295	199	186	207	142	170	145	97	50	9	3690	1.41%	94%
SWO	ATS	CP	South Africa	LL	t2	-1			ab	ab	ab	ac	abc	ab	ab	ab	ab	ab	ab	ab	ab	a	a	9			
SWO	ATS	CP	Ghana	GN	t1	103	140	44	106	121	117	531	372	734	343	55	32	65	177	132	116	60	54	10	3300	1.26%	95%
SWO	ATS	CP	Ghana	GN	t2	-1	ab	b	ab	b	ab	ab	ab	ab	ab	ab	ab	ab	a	ab	a	a	a	10			
SWO	ATS	CP	Brasil	UN	t1				3			7					310	351	260	253	269	184	0	11	1637	0.63%	96%
SWO	ATS	CP	Brasil	UN	t2				-1			-1					b	-1	-1	a	-1	-1	-1	11			
SWO	ATS	CP	U.S.A.	LL	t1		172	417	170	185	144	43	200	21	16						0			12	1368	0.52%	97%
SWO	ATS	CP	U.S.A.	LL	t2		a	a	ab	abc	abc	abc	abc	abc	abc						bc			12			
SWO	ATS	CP	S. Tomé e Príncipe	UN	t1	178	166	148	135	129	120	120	120	120	126									13	1360	0.52%	97%
SWO	ATS	CP	S. Tomé e Príncipe	UN	t2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1									13			
SWO	ATS	CP	Korea Rep.	LL	t1	164	7	18	7	5	10	0	2	24	70	36	94	176	223	10	147	70	65	14	1128	0.43%	98%
SWO	ATS	CP	Korea Rep.	LL	t2	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	-1	-1	-1	14			

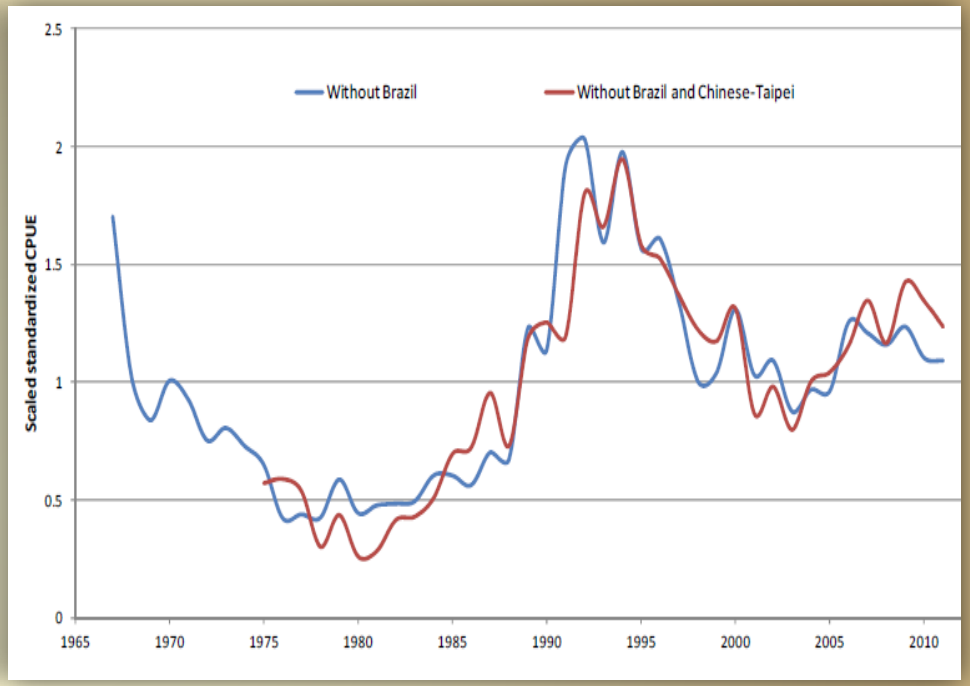
South - data series are not as complete as the northern stock

"Data medium" stock

-1	no T2 data
a	t2ce only
b	t2sz only
c	cas only
bc	t2sz +cas
ab	t2ce + t2sz
ac	t2ce + cas
abc	all

CPUE trends

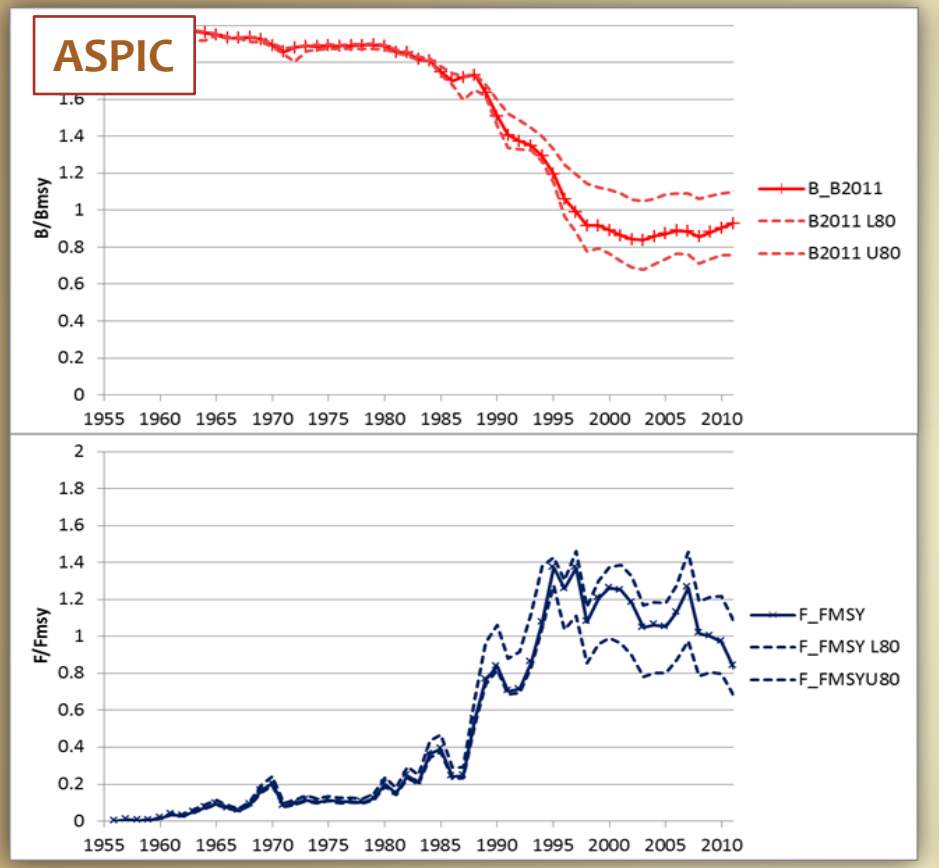




- The 6 standardized CPUE series available show **different trends** and **high variability** which indicates that at least some are not depicting trends in the abundances of the stock.
- Substantial **conflict between the landings history and the indices.**
- Two combined indices were produced.

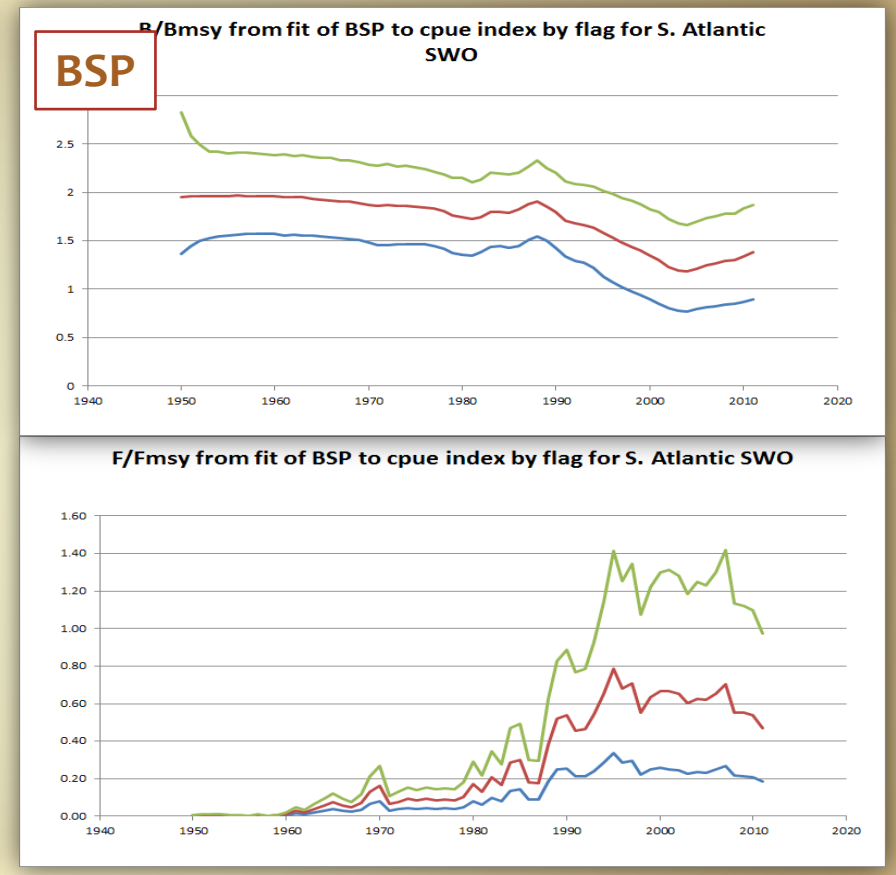
Stock status

ASPIC



- Not undergoing overfishing: $F < F_{MSY}$
- The stock is slightly overfished: $B < B_{MSY}$

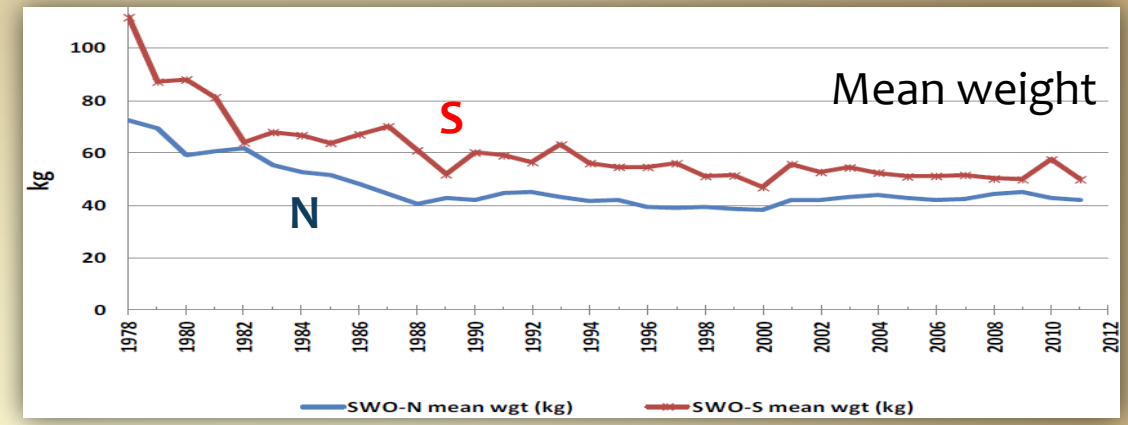
BSP



- Not undergoing overfishing: $F <<< F_{MSY}$
- The stock is not overfished: $B >>> B_{MSY}$

Stock status

Ancillary information:



- **Mean weight** for the South is larger than for the North.
- **Total removals** (1950-2011) for the South Atlantic stock have been only 73% of the total removals for the North Atlantic stock for the same time period.

Assuming similar production dynamics, both indicators would suggest a lower exploitation rate for the South stock than for the North. Hence, while the Group does not believe it can estimate the absolute productivity of the stock without improved scientific information, **the SCRS believes that the stock is not overfished**.

Outlook

- ASPIC and BSP estimated **benchmarks were unreliable** due to the conflicting signal between the catch data and the CPUE time series available.

- Hence**, it is unknown whether it is possible to obtain substantially higher yields** from the stock as BSP suggests or whether the stock is fully exploited as suggested by ASPIC.

- Until **improved scientific information** is available in the form of more consistent indices, tagging studies to estimate fishing mortality or abundance or other improved information, this uncertainty may remain.

Effects of current regulations

- **Catch limits**
  - TAC [2007-2009] = 17,000 t with a average reported catch of 13,482 t and did not exceed the TAC in any year.
  - TAC [2010-2013] = 15,000 t, compared with 2012 catches (provisional) of 10.180 t.

- **Minimum size limits**
  - Two options: 125 cm LJFL (15% tolerance) or 119 cm LJFL (0 tolerance and evaluation of the discards).
  - For the 2006-2008 period, the estimate of the percentage of swordfish reported landed < 125 cm LJFL was about **20%** (in number) in the South.

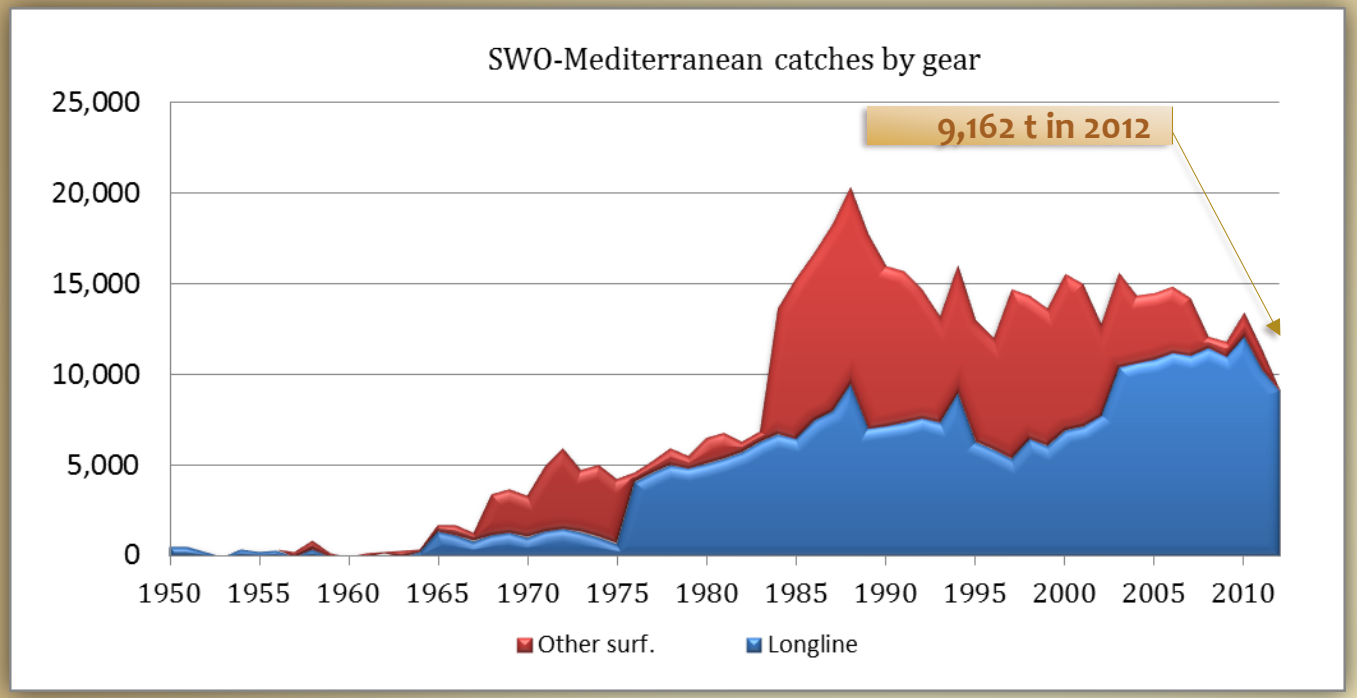
Management recommendations

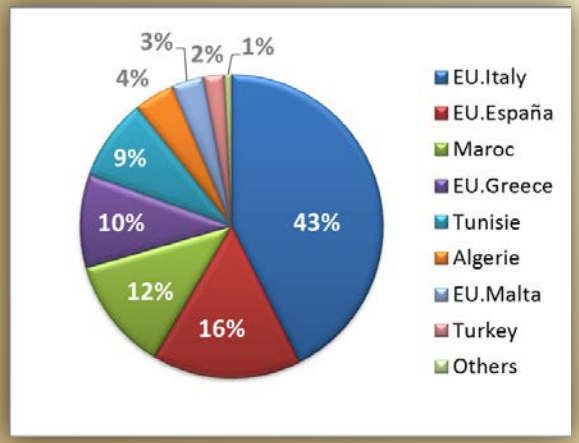
Considering the **unquantified uncertainties** and the **lack of signal in the data** for the southern Atlantic swordfish stock, and until sufficiently more research has been conducted to reduce the high uncertainty in stock status,

the Committee did not have sufficient confidence in the assessment results to change the previous recommendation **to limit catches to no more than 15,000 t.**

Mediterranean swordfish

Last assessment: 2010

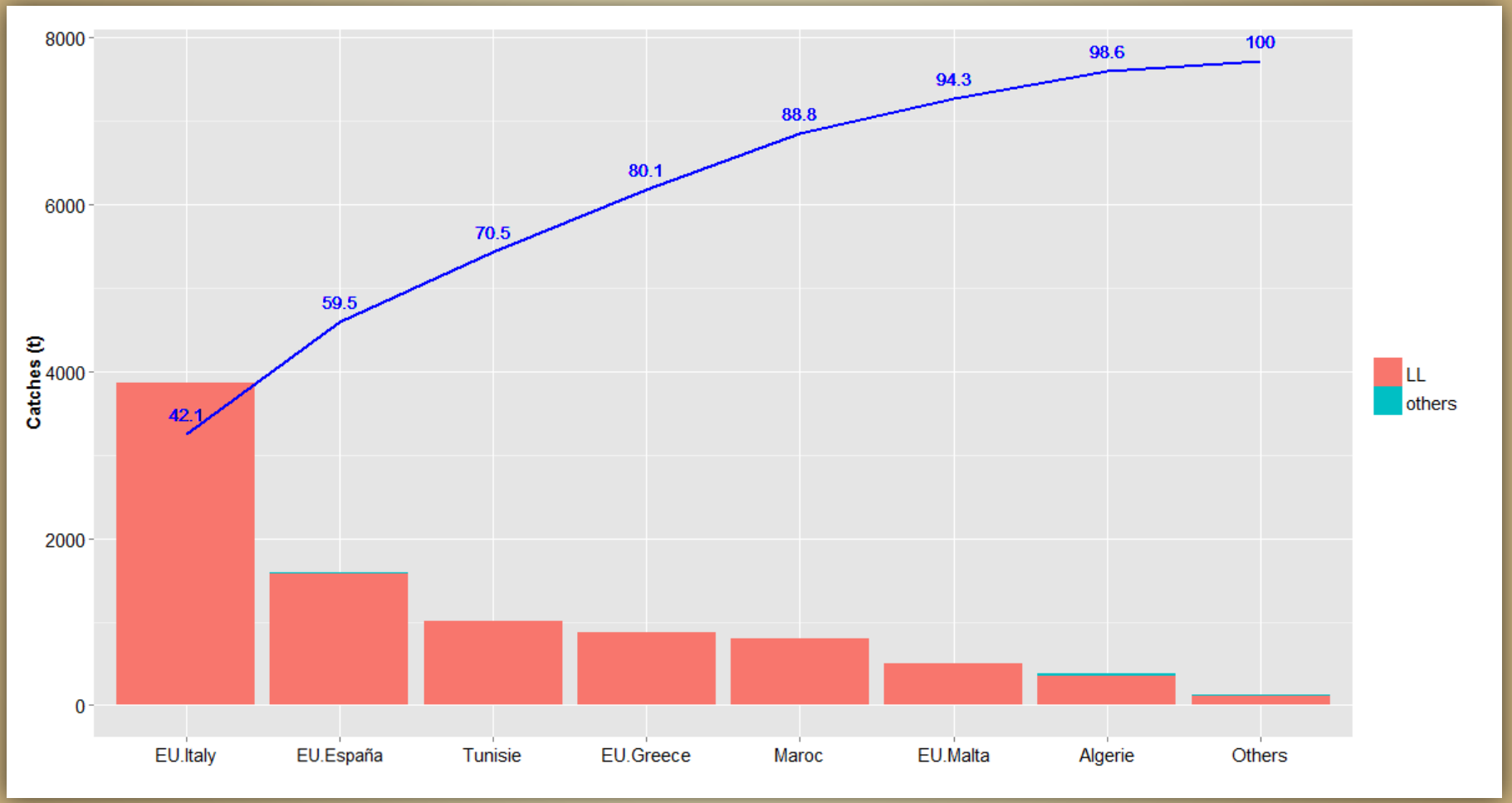




% average catch in 2008-2012

- Main gears: Historically longlines and gillnets; nowadays only **longlines**
- Catches around **12,000-16,000 t in the last 25 years**
- **9,162 t in 2012** (the lowest in the last 15 years)

SWO-M Catches by main CPC and gear type in 2012



9,162 t in 2012

SCRS catalogue on SWO-Med statistics (Task-I and Task-II)

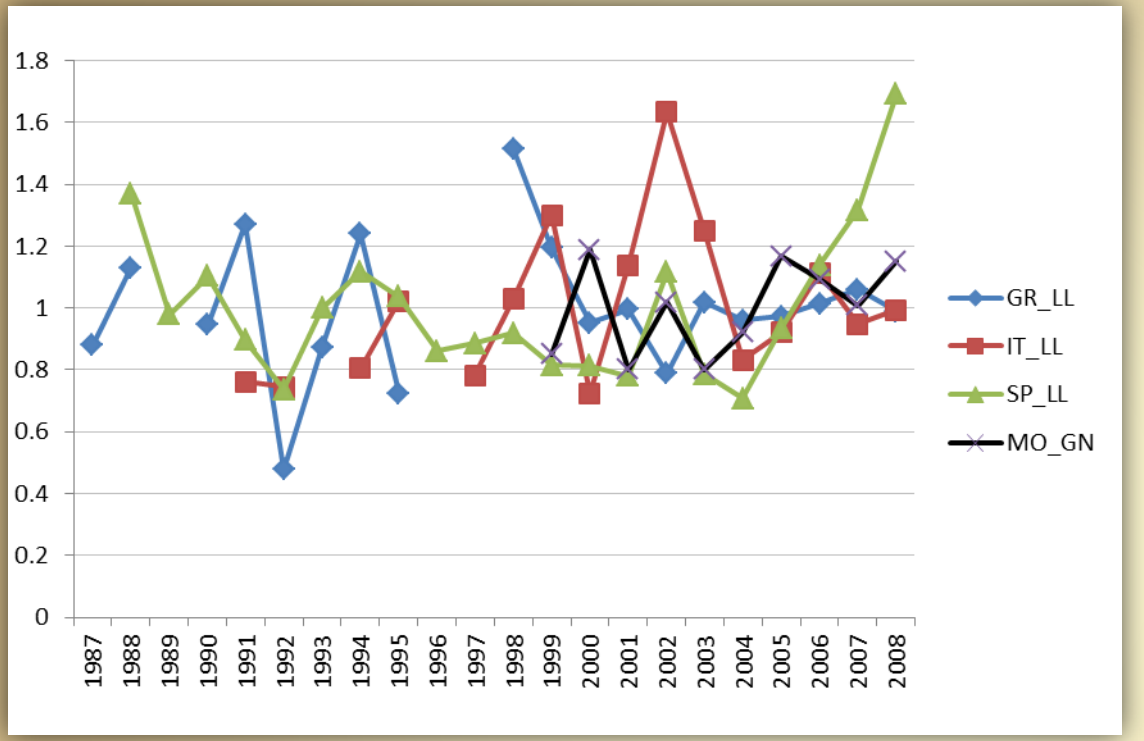
Species	Stock	Status	FlagName	GearGrp	DSet	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Rank	Σ(1995-12)	%	%cum
SWO	MED	CP	EU.Italy	LL	t1	3035	2617	2458	2458	2680	2639	2236	1841	5844	5452	5560	5253	4564	4521	4687	5101	4579	3856	1	69381	28.77%	29%
SWO	MED	CP	EU.Italy	LL	t2	b	b	b	ab	b	ab	b	b	b	b	b	b	b	bc	abc	abc	abc	abc	1			
SWO	MED	CP	Maroc	GN	t1	1518	2461	4653	2905	2979	2503	2266	2230	1629	1299	722	603	615	587	477	410	387		2	28244	11.71%	40%
SWO	MED	CP	Maroc	GN	t2	-1	-1	-1	c	bc	abc	abc	b	b	b	b	b	b	abc	-1	abc	abc		2			
SWO	MED	CP	EU.Italy	GN	t1	4264	2657	3632	3632	3632	4863						2342	1948						3	26970	11.18%	52%
SWO	MED	CP	EU.Italy	GN	t2	b	b	b	b	b	ab	b		b	b	b	b	-1						3			
SWO	MED	CP	EU.España	LL	t1	1351	1040	1184	1409	867	1396	1402	1421	1165	930	860	1405	1648	2063	1994	1785	1730	1580	4	25230	10.46%	62%
SWO	MED	CP	EU.España	LL	t2	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	-1	4			
SWO	MED	CP	EU.Greece	LL	t1	974	1237	750	1650	1520	1960	1730	1680	1230	1129	1424	1374	1907	989	1132	1494	1306	877	5	24363	10.10%	72%
SWO	MED	CP	EU.Greece	LL	t2	ab	-1	-1	ab	ab	ab	ab	b	a	a	ab	ab	ab	ab	ab	ab	ab	ab	5			
SWO	MED	CP	Maroc	LL	t1	169	273	245	323	259	205	754	1149	1670	1954	1801	1455	1107	1370	1110	1200	640		6	15684	6.50%	79%
SWO	MED	CP	Maroc	LL	t2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1		6			
SWO	MED	CP	EU.Italy	UN	t1	11					3	4152	1698	2540	1483	1891			5	329		694		7	12806	5.31%	84%
SWO	MED	CP	EU.Italy	UN	t2	-1					-1	-1	-1	b	-1	b	b		-1	-1		-1		7			
SWO	MED	CP	Tunisie	LL	t1	378	352	346	414	468	483	567	1138	285	791	791	949	1024	1011	1012	1016	1013		8	12038	4.99%	89%
SWO	MED	CP	Tunisie	LL	t2	-1	-1	-1	-1	a	a	a	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1		8			
SWO	MED	CP	Turkey	GN	t1	306	320	350	450	230	370	360	300	350	386	425	410	423						9	4680	1.94%	91%
SWO	MED	CP	Turkey	GN	t2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1						9			
SWO	MED	CP	Algerie	LL	t1	247	247	247				133	99		52	93	496	492	802	468	624	192	356	10	4548	1.89%	93%
SWO	MED	CP	Algerie	LL	t2	-1	-1	-1				-1	-1		-1	-1	-1	a	a	-1	-1	ab	ab	10			
SWO	MED	CP	EU.Malta	LL	t1	72	72	100	153	187	175	102	257	163	195	362	239	213	260	266	423	532	503	11	4274	1.77%	95%
SWO	MED	CP	EU.Malta	LL	t2	-1	-1	-1	-1	ac	ac	ac	-1	-1	-1	abc	bc	ab	abc	ab	ab	ab	abc	11			
SWO	MED	CP	Algerie	GN	t1				590	531	599	642	467		233	311	87	108						12	3568	1.48%	96%
SWO	MED	CP	Algerie	GN	t2				-1	-1	-1	-1	-1		-1	-1	-1	-1						12			
SWO	MED	CP	Algerie	UN	t1	560	560	560	178	126	166	306	248	665	122									13	3491	1.45%	98%
SWO	MED	CP	Algerie	UN	t2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1									13			
SWO	MED	CP	Turkey	LL	t1								70						386	301	334	190	58	14	1339	0.56%	98%
SWO	MED	CP	Turkey	LL	t2								-1						-1	-1	-1	b	-1	14			

Mediterranean – very little quantitative information is available

"Data poor" stock

-1	no T2 data
a	t2ce only
b	t2sz only
c	cas only
bc	t2sz +cas
ab	t2ce + t2sz
ac	t2ce + cas
abc	all

CPUE trends

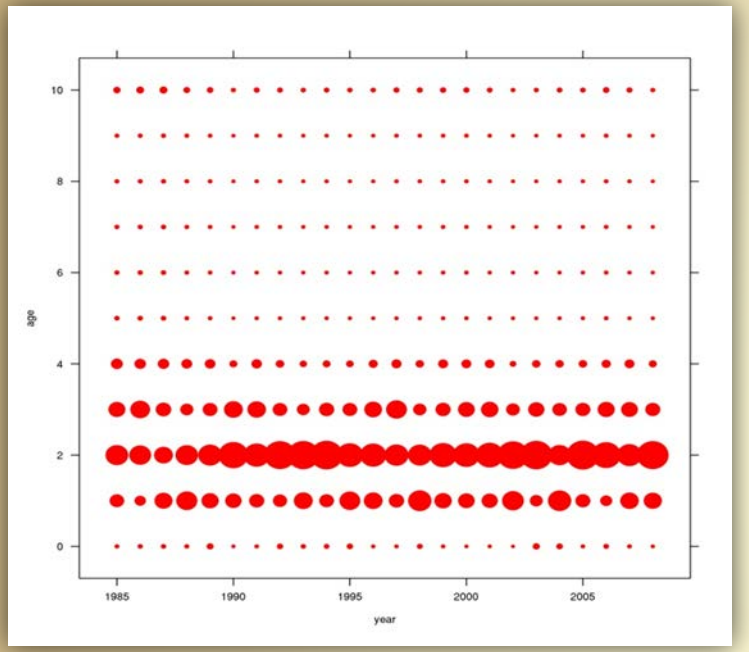


- Standardised CPUE series from the main LL and GN fisheries targeting SWO, which were presented during the 2010 stock assessment session, **did not reveal any trend over time.**

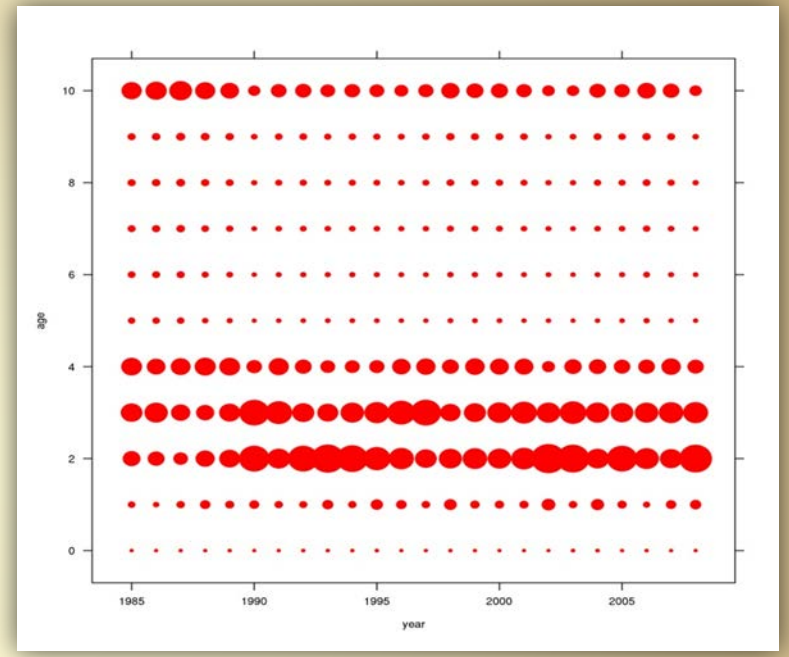
- CPUE series, however, **covered only the last 10-20 years** and not the full time period of reported landings.

Proportion of catch numbers (left) and catch weight (right) at age by year

Number

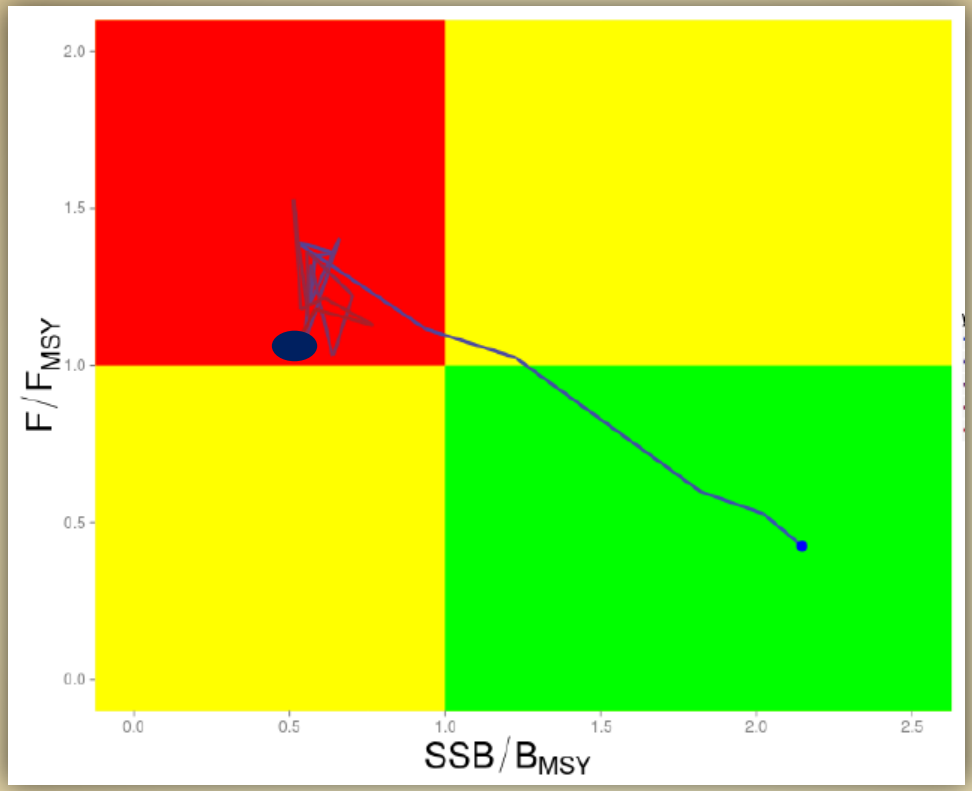


Weight



- **Juveniles dominate the catches** (50-70% in terms of numbers, 20-35% in terms of weight)
- A reduction of the volume of juvenile catches would improve yield per recruit and spawning biomass per recruit levels.

Stock status (Mediterranean): XSA



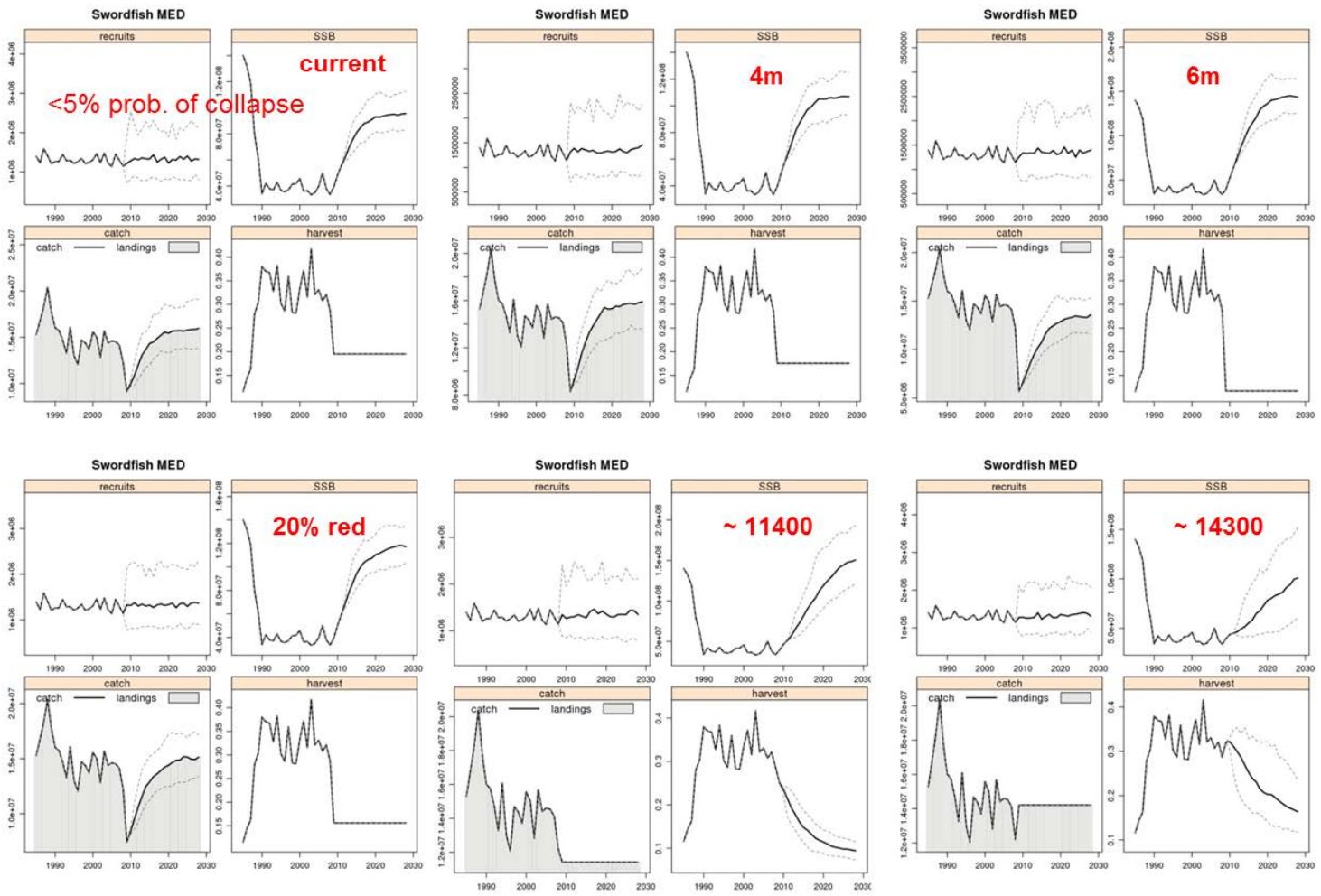
- SSB is well below the level which can support MSY
- Current (2008) fishing mortality slightly exceeds F_{MSY}
- The level of uncertainty of the estimates is unknown
- Biomass and recruitment levels appear stable over the last 15 years

Outlook scenarios

- ✓ Seasonal closures of different durations
  - current (two-month)
  - four-months
  - six-months
- ✓ Capacity reduction 20%
- ✓ Catch quota
  - mean of last decade catch
  - 80% of the mean of the last decade catch

Considered:
- Uncertainty about recruitment (B/H relationship or stable)
- Risk of stock decline (i.e. SSB reductions of 10 or 20% from the current levels)

Outlook scenarios: results



Outlook scenarios: conclusions

- Stock rebuilding to the middle 80's SSB levels can only be achieved in the case of **drastic seasonal closures** (up to 6 months) or relatively **low quotas.**

- SSB increases up to that corresponding to maximizing yield per recruit could be achieved **within 2-3 generations (8-12 years) even under the current management status, if F is kept at the 2008 levels.** A small probability (<5%) of stock collapse still exists in this case.

- Long seasonal closures would result in significant catch reductions within the first few years after their application.

- Capacity reductions of 20% (assuming no compensation in effort) could rebuild the stock to optimum SSB levels.

Effects of current regulations

- The recently adopted [**Rec. 11-03**] establishes additional measures that will facilitate bringing the stock back to levels that are consistent with the ICCAT Convention objective.

- The real effect of the previously established closures was not evaluated during the 2010 assessment session due to lack of sufficient data

- It is expected that the impact of this closure, as well as, the additional measures imposed through [Rec. 11-03] will be evaluated during the next assessment session.

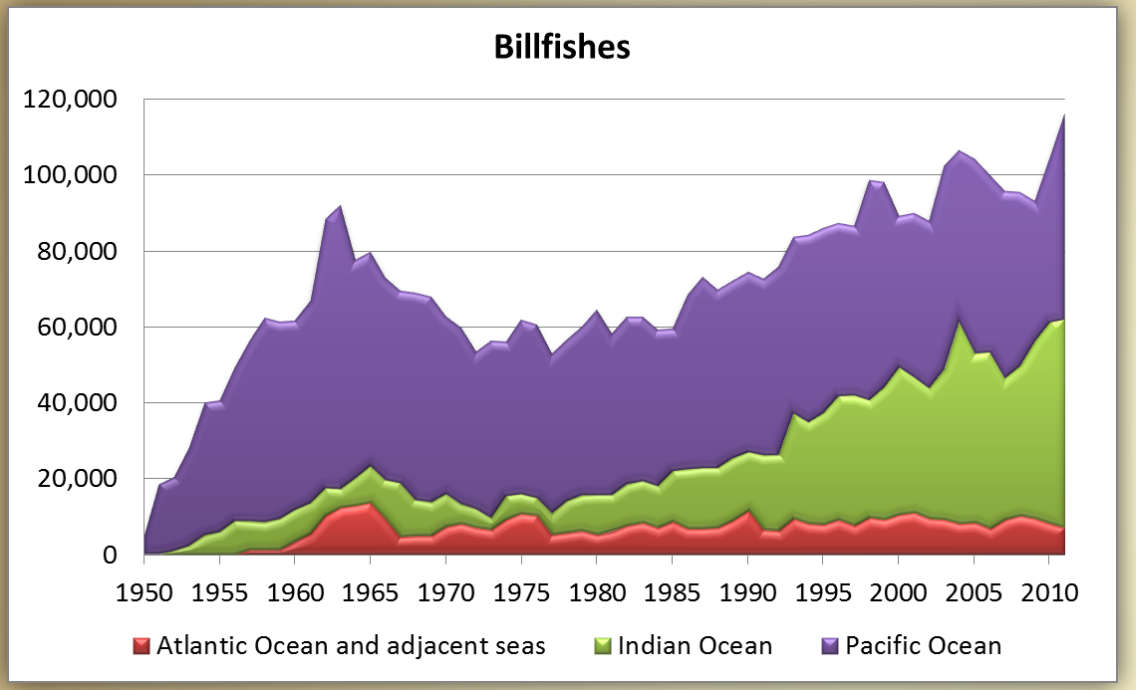
Management recommendations

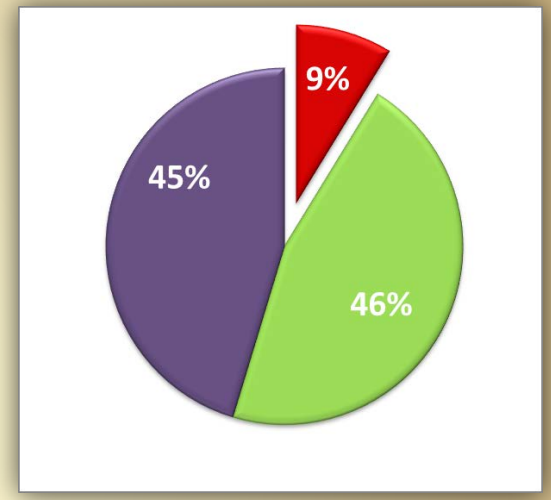
- **Capacity reductions should also be considered** as part of a Mediterranean swordfish management plan, building upon the current recommendation 11-03.

Small **changes to [Rec. 11-03]** are needed to reproduce correctly the weight conversion factors adopted in ICCAT:

the phrase defining the minimum landing sizes in terms of weight should be modified as follows: "*....weighing less than 10 kg of round weight or 9 kg of gilled and gutted weight, or 7.5 kg of dressed weight (gilled, gutted, fins off, part of head off)*".

Billfishes





% average catch in 2007-2011

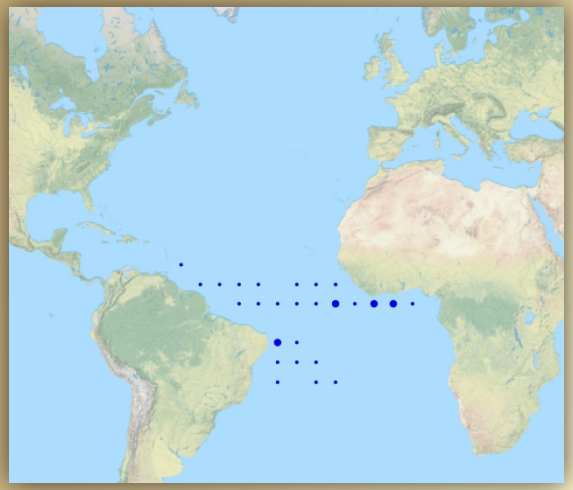
- **Atlantic istiophoridae** represents **9% of the world production** (average 2007-2011).

Blue marlin

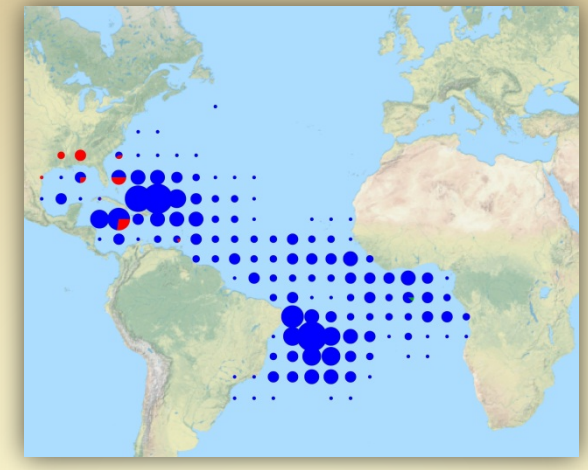
Last assessment: 2011

1 management unit

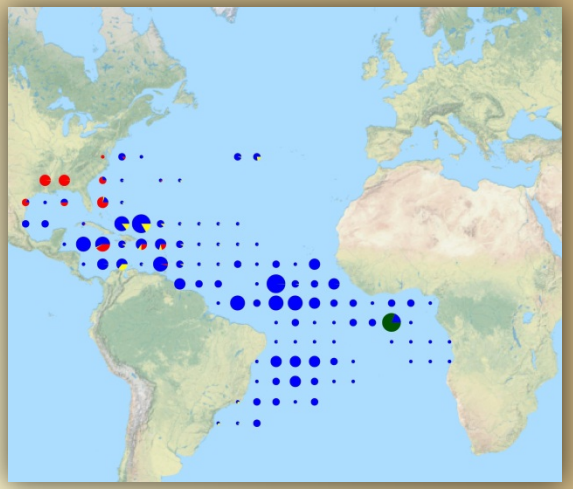
Blue marlin, Makaire bleu, aguja azul	
Scientific name	*Makaira nigricans*
Distribution	Widely distributed in subtropical and tropical waters of the Atlantic Ocean, and occasionally in temperate waters. From 50°N to 45°S, but they are less abundant in waters of the eastern central and the south central Atlantic
Spawning grounds	Mainly found in the tropical western areas of both hemispheres
Maturity	256 cm (females)
Life span	27 years (females), 18 years (males) in the Pacific; 11 years (tagging, longest time–at large in the Atlantic)
Maximum size	450 cm (910 kg); common sizes in the northwestern Atlantic are 180-300 cm LJFL
Natural mortality	Assumed M=0.139



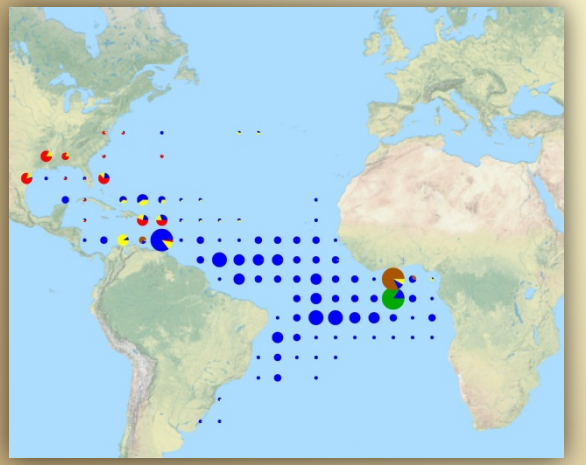
1950



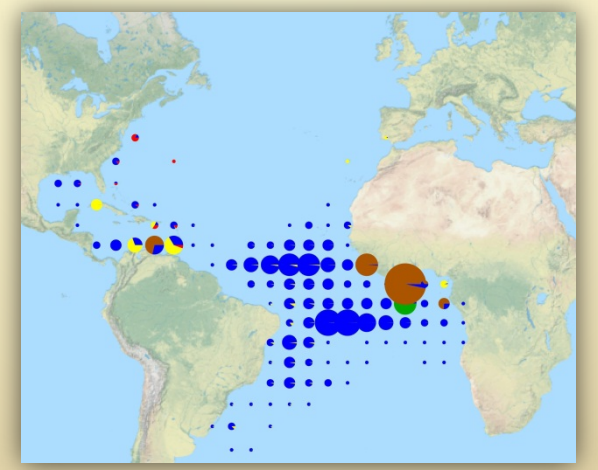
1960



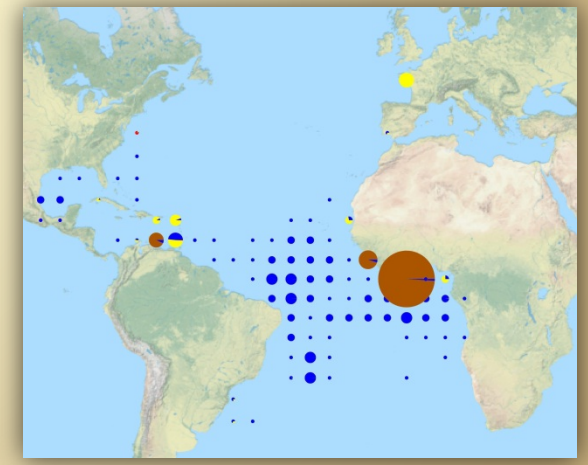
1970



1980

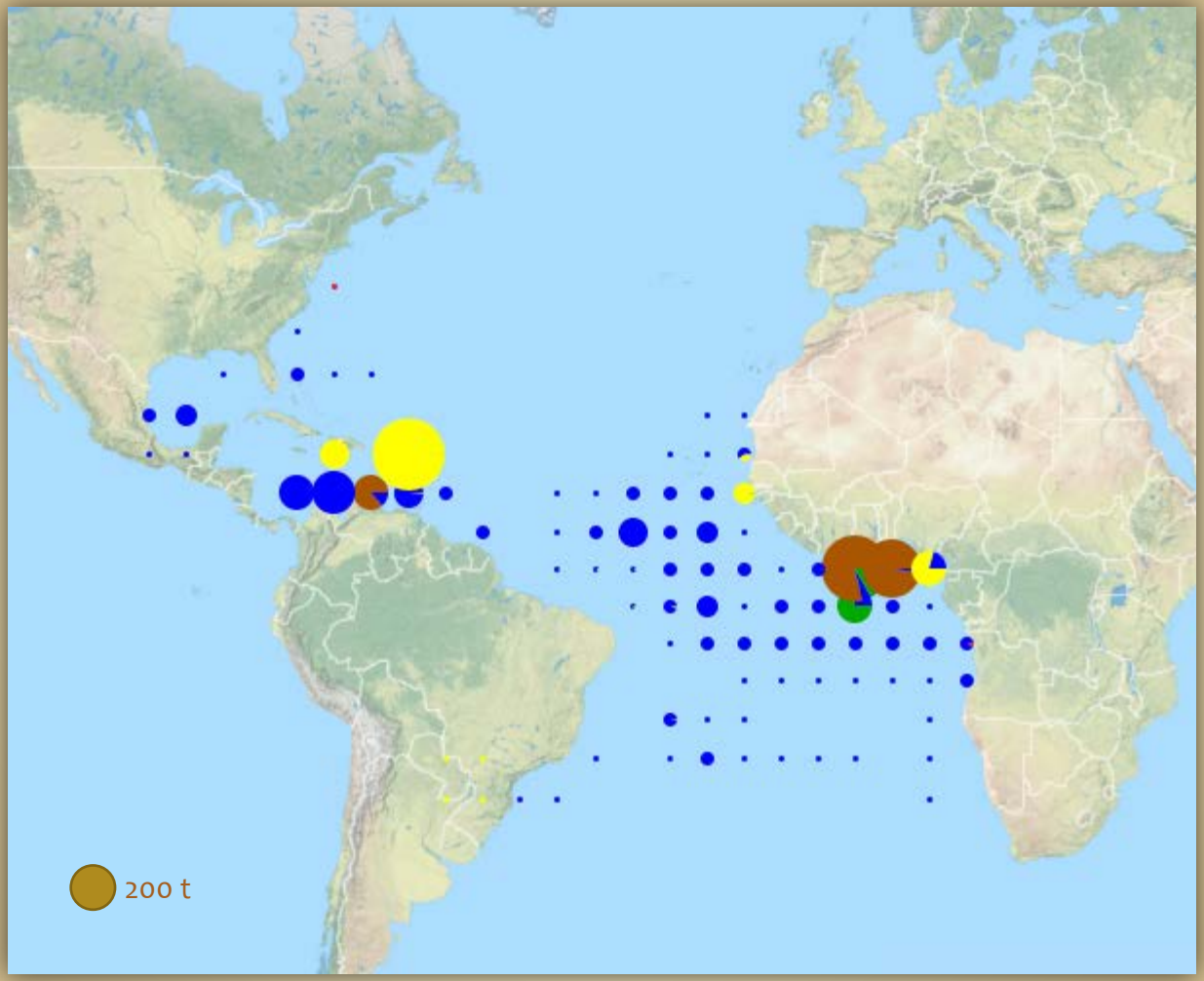


1990



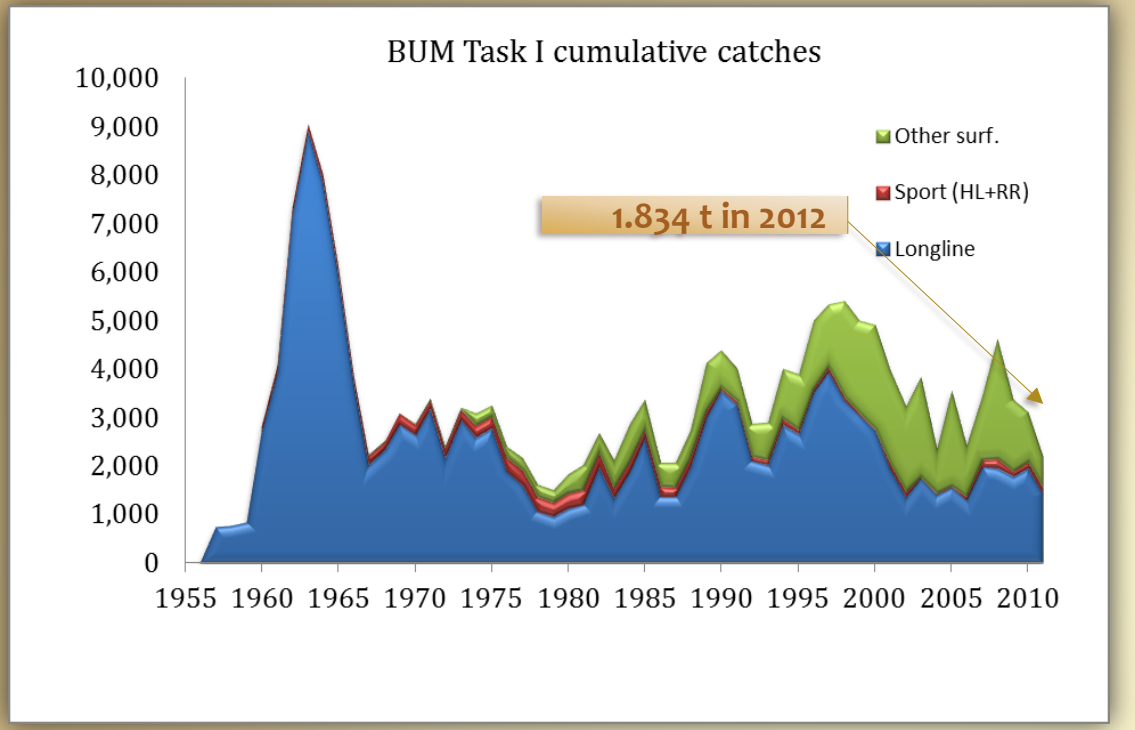
2000

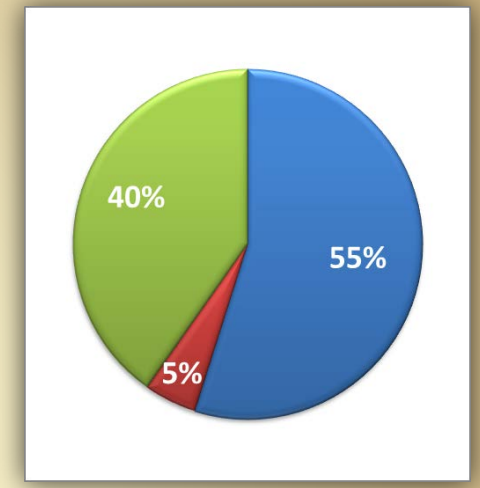
Purse seine **Longline** **Others** **Gillnet** **Rod & Reel**



2010-2011

Purse seine Longline Others Gillnet Rod & Reel

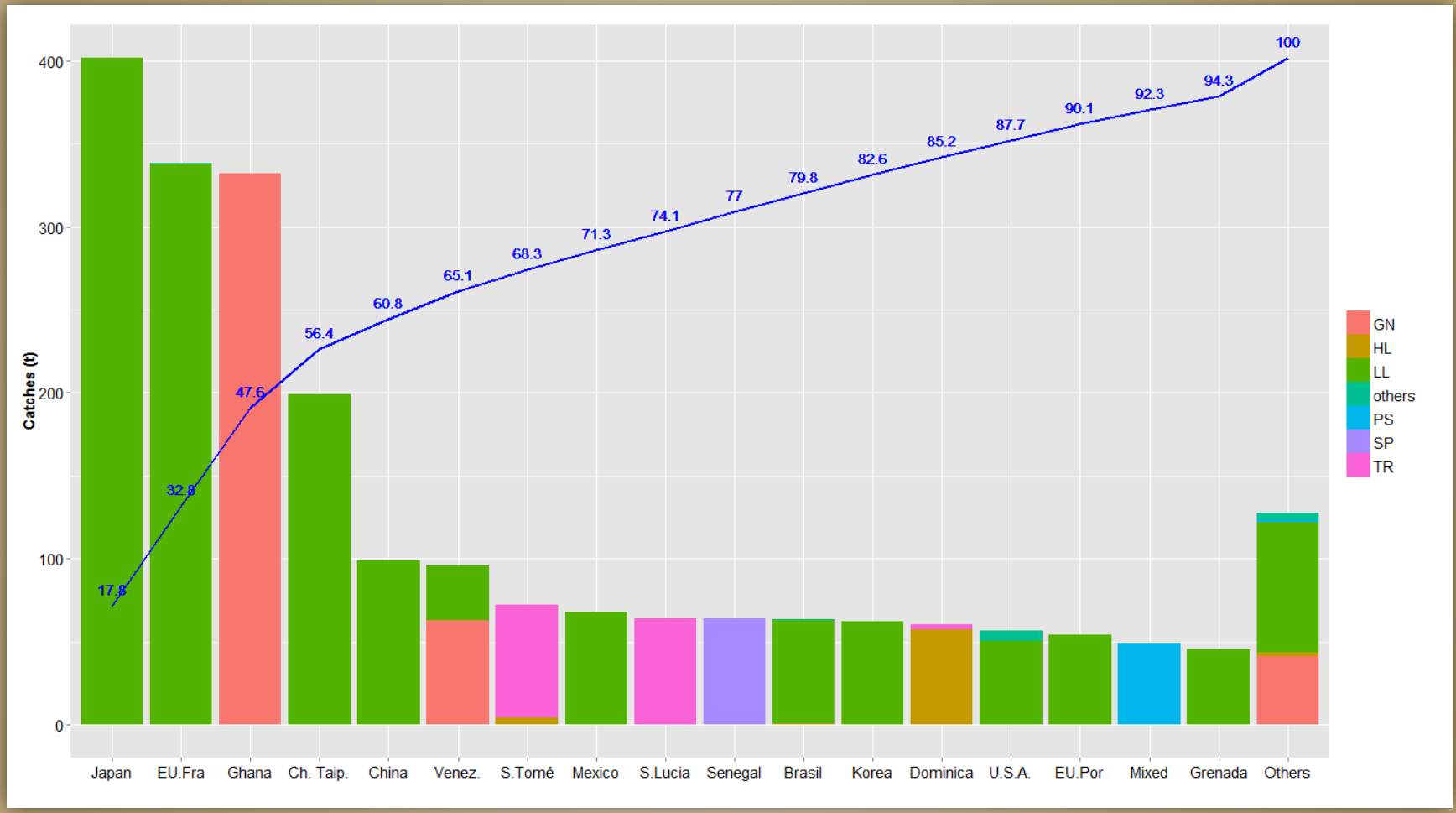




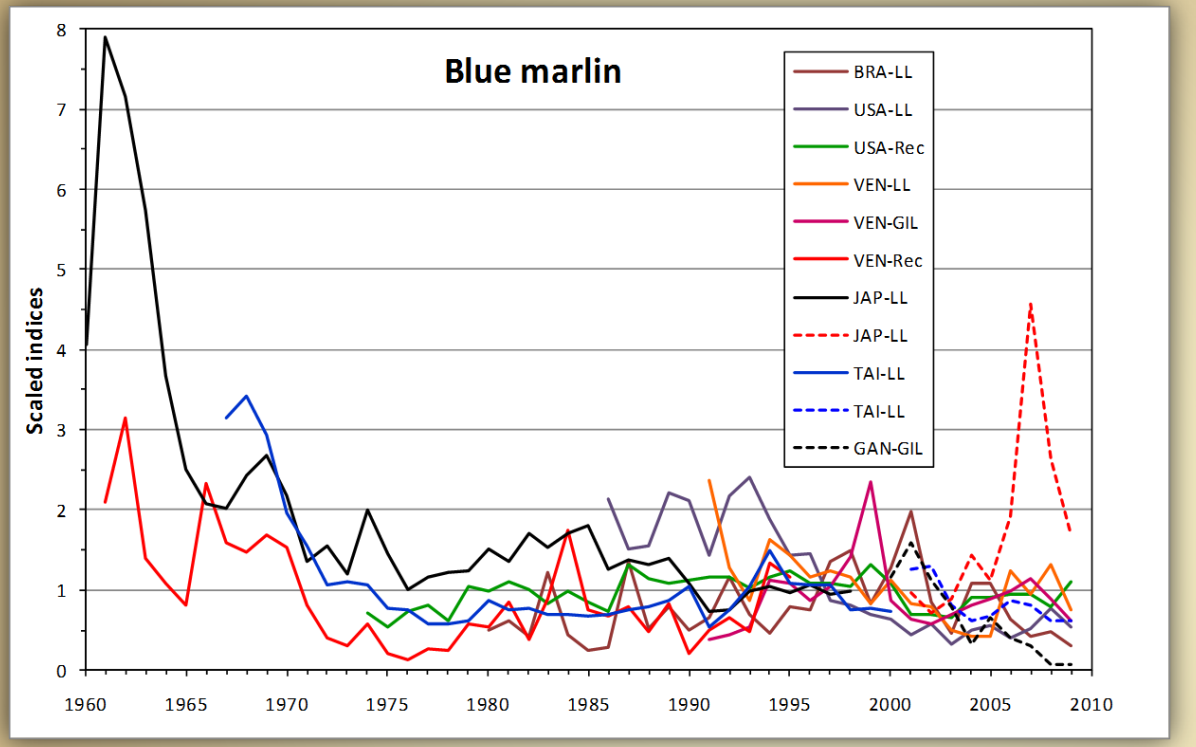
% average catch in 2007-2012

- Task I catches of BUM in 2012 were – 1,834 t (provisional); 2,252 t in 2011.
- Due to the work conducted by the Committee and improved reporting by CPCs the amount of unclassified billfish in the Task I table has been minimized.

BUM Catches by main CPC and gear type in 2011



2,252 t in 2011



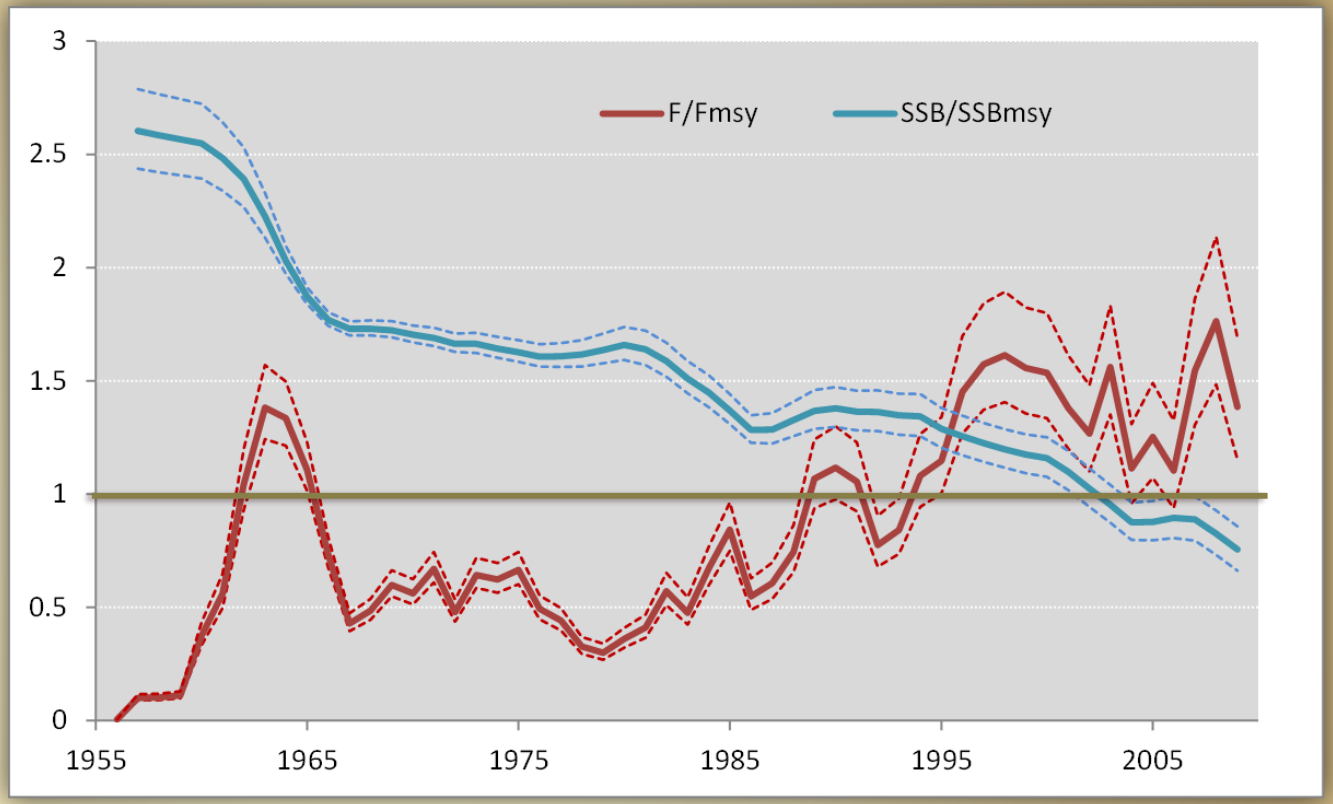
9 CPUE indices were used in the assessment (11 series):

Brazilian LL; USA LL, Rec; Venezuelan LL, GIL, REC; Japanese LL (1960-1998;2001-2009); Chinese-Taipei LL (1968-2000; 2001-2009); Ghana GIL.

Stock status

SS3

Fully integrated stock synthesis model



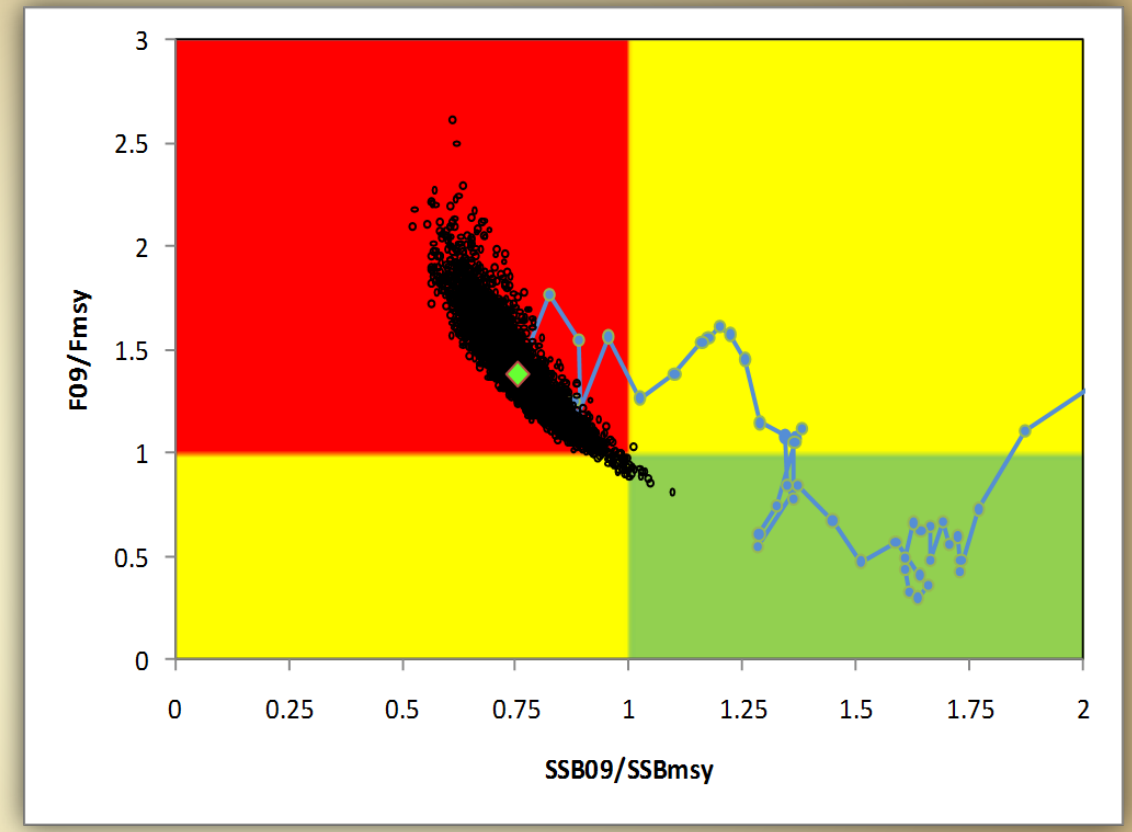
Results Base Case:

- Overfished (B/B_{MSY}=0.67)
- Under going overfishing (F/F_{MSY}=1.63)
- MSY=2,837 t

Stock status

SS3

Fully integrated stock synthesis model



- The results of the 2011 assessment indicated that the stock **remains overfished and undergoing overfishing.**

Outlook

K2SM [$P(F \leq F_{MSY})$ & $P(SSB \geq SSB_{MSY})$]

TAC	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
0	0%	2%	9%	19%	33%	49%	63%	74%	81%	87%	92%	94%	96%	97%	98%
500	0%	2%	6%	13%	23%	35%	47%	58%	67%	74%	80%	84%	88%	91%	93%
1,000	0%	1%	4%	9%	15%	22%	31%	40%	49%	56%	63%	68%	73%	77%	81%
1,500	0%	1%	3%	6%	9%	13%	18%	24%	30%	36%	41%	46%	50%	55%	59%
2,000	0%	1%	2%	3%	5%	7%	10%	12%	16%	18%	21%	24%	27%	29%	32%
2,500	0%	1%	1%	2%	3%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%
3,000	0%	0%	1%	1%	1%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%
3,500	0%	0%	0%	0%	0%	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%
4,000	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

- The results of the 2011 stock assessment indicated that **if the recent catch levels of blue marlin (3,240 t in 2009) are not substantially reduced, the stock will continue to decline further.**

- The **current management plan does not have the potential of recovering** the blue marlin stock to the B_{MSY} level

Effects of current regulations

- [**Rec. 06-09**]: landing **< 33%** for WHT and **50%** for BUM [1996 or 1999 landing levels].
- [**Rec. 12-04**]: TAC $_{[2013,2014,2015]}$ =**2,000 t** and placed additional catch and commerce restrictions in recreational fisheries and requested methods for estimating live and dead discards.
- Concern with the significant increase in the contribution from **non-industrial fisheries** to the total BUM harvest [these fisheries are not fully accounted for in the current ICCAT data-base].
- Some fisheries/fleets are using **circle hooks,** which can minimize deep hooking and increase the survival of marlins hooked on LL and recreational gear.
- There is **not enough information on the proportion of fish being released alive for all fleets,** to evaluate the effectiveness of the ICCAT recommendation relating to the live release of marlins.

Management recommendations

- **[Rec. 12-04]** intends to reduce the total harvest to **2,000 t** in 2013, 2014, and 2015. The Committee expressed its concern on the effectiveness of such measure in light of **severe under reporting** currently occurring. Therefore, the Committee alerts the Commission that unless such non-compliance issues are properly addressed the adoption of additional measures might be rendered ineffective.

- The Commission may consider the **adoption of measures such as**, but not limited to the mandated use of **non-offset circle hooks**.

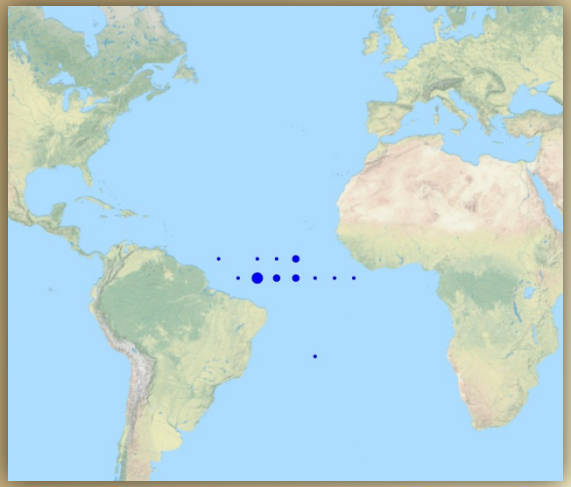
  - ✓ The Committee considers that this approach may be more efficient and enforceable than time-area closures.
  - ✓ Currently, 3 ICCAT member nations (Brazil, Canada, and the U.S.) already mandate or encourage the use of circle hooks on their pelagic longline fleets.
  - ✓ In addition, reducing fishing mortality of blue marlin from non-industrial fisheries should be considered.

White marlin

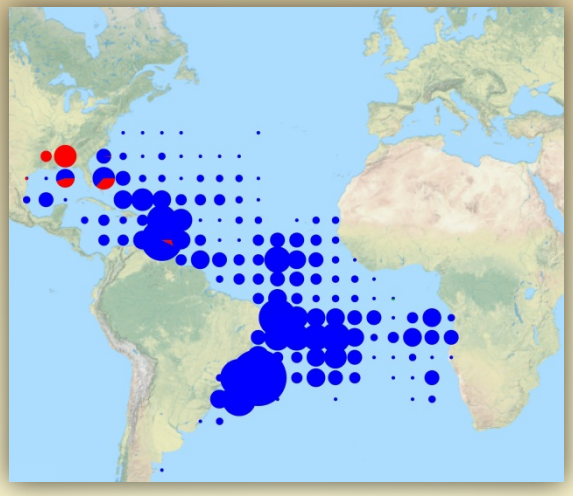
Last assessment: 2012

1 management unit

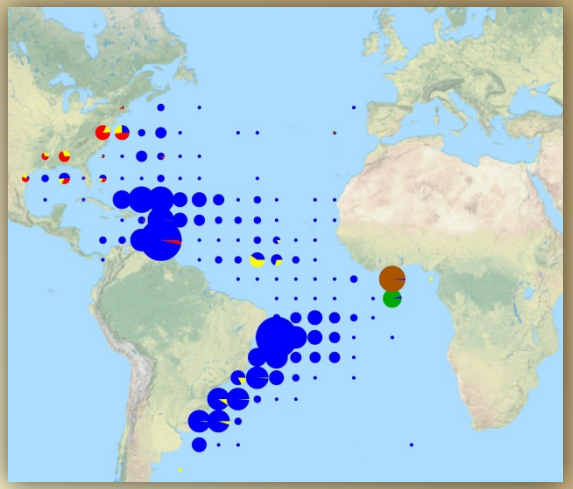
White marlin, Makaire blanc, aguja blanca	
Scientific name	*Tetrapturus albidus*
Distribution	Widely distributed in subtropical and tropical waters of the Atlantic Ocean, and occasionally in temperate waters and in the Mediterranean Sea. From 55°N to 45°S, but they are less abundant in waters of the eastern central south central Atlantic.
Spawning grounds	Mainly found in the tropical western areas of both hemispheres
Maturity	149-160 cm (females) / 139 cm (males)
Life span	15 years (tagging, longest time–at large in the Atlantic)
Maximum size	280 cm (82 kg); common sizes are 150-180 cm LJFL
Natural mortality	Range from 0.15 to 0.30



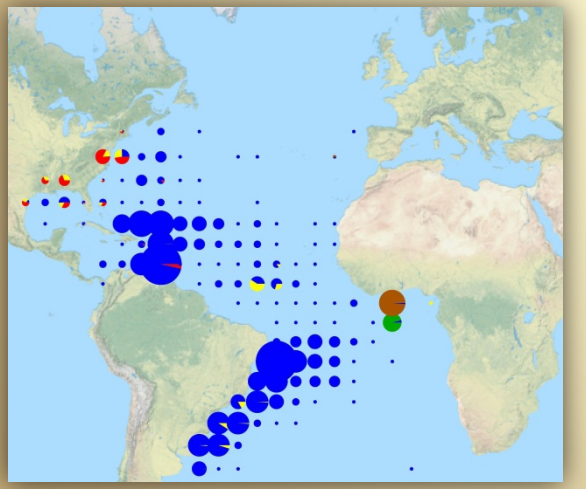
1950



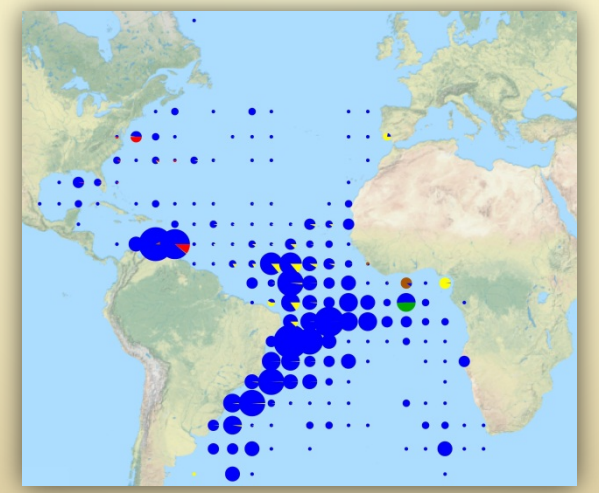
1960



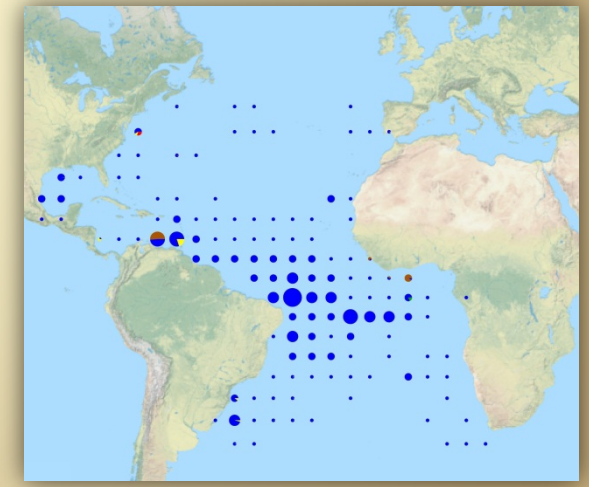
1970



1980

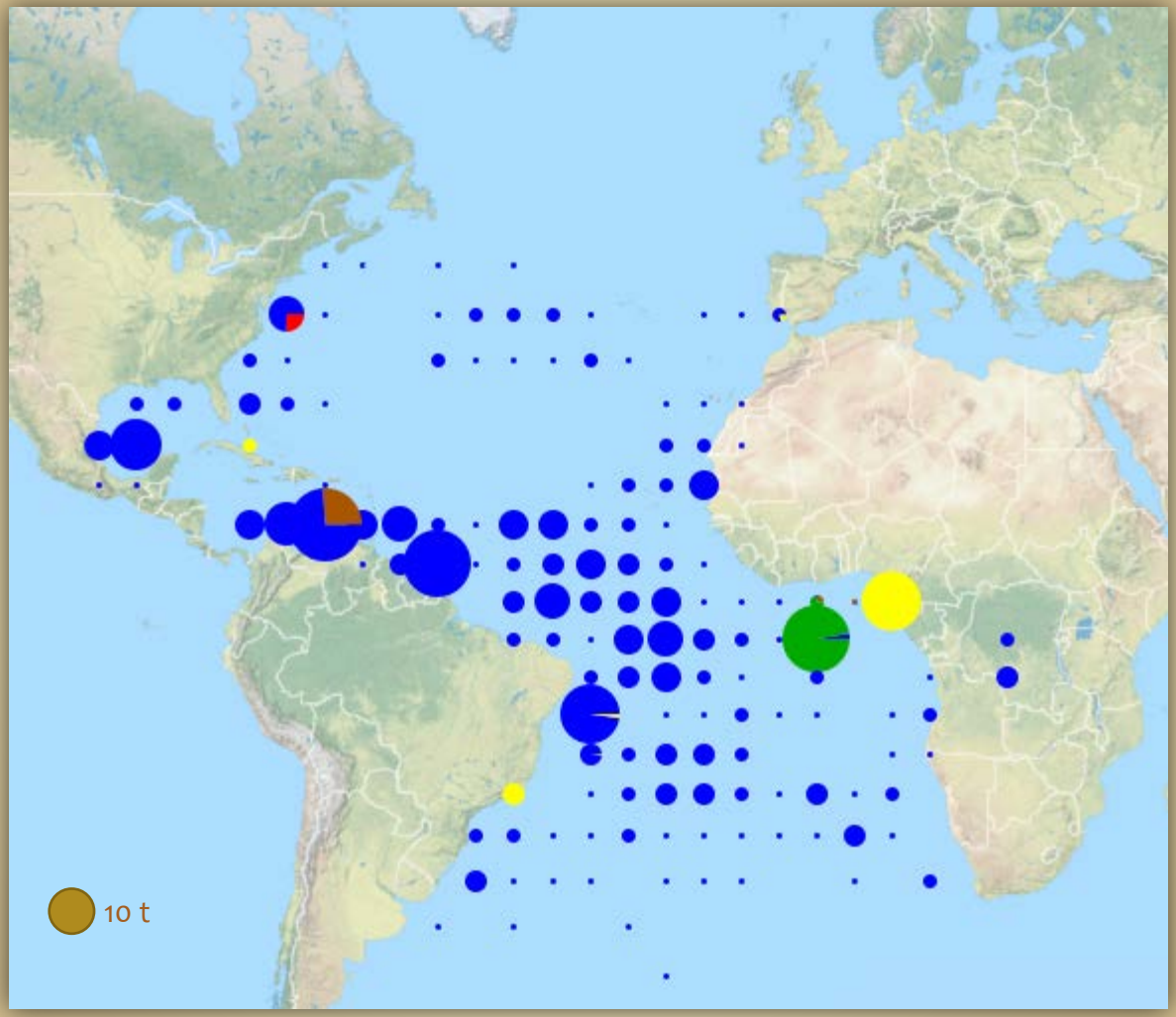


1990



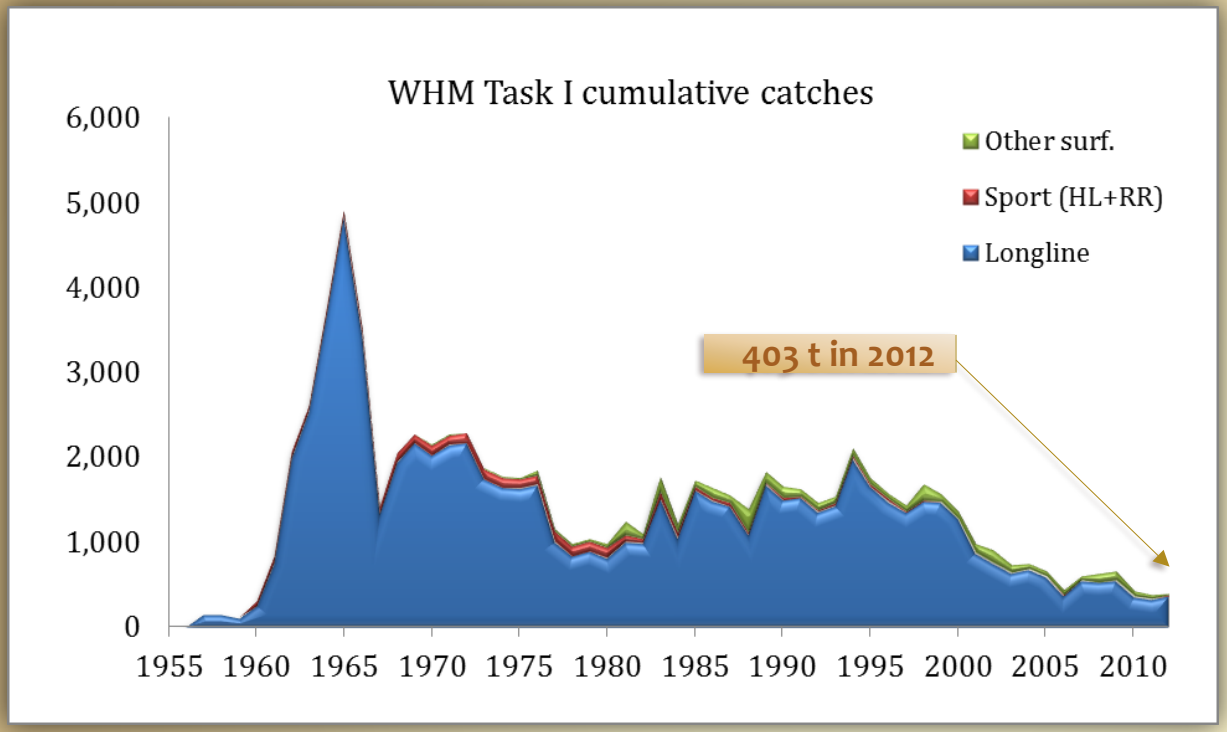
2000

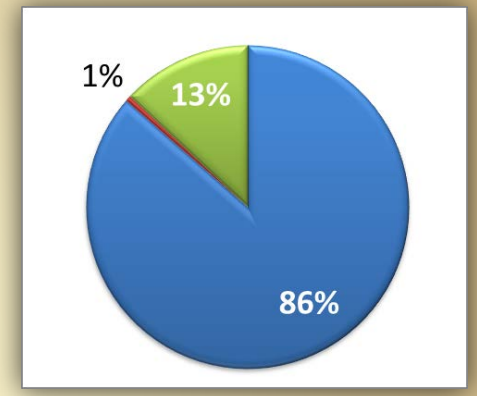
Purse seine **Longline** **Others** **Gillnet** **Rod & Reel**



2010-2011

Purse seine Longline Others Gillnet Rod & Reel

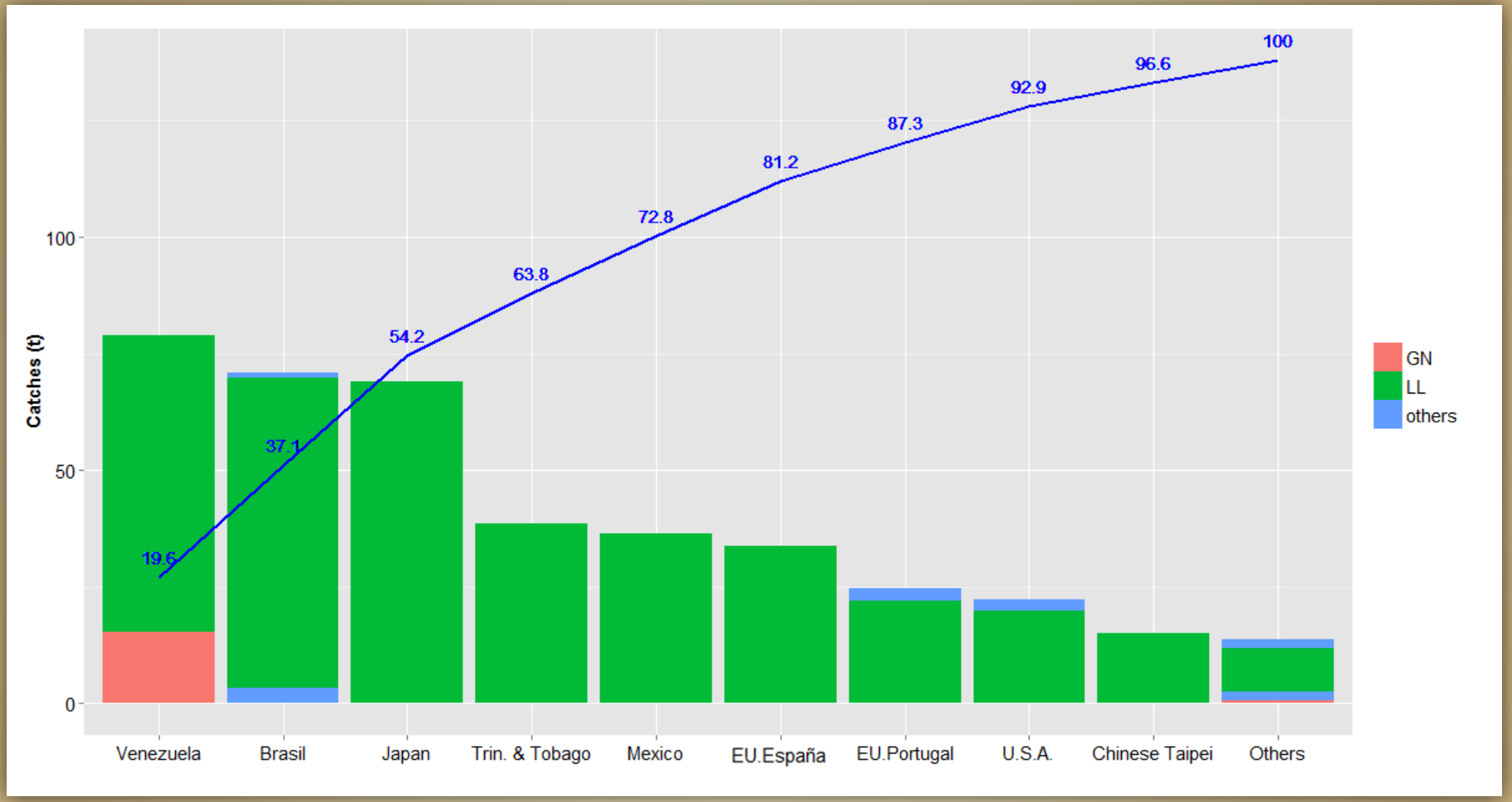




% average catch in 2008-2012

- Task I catches of WHM in 2011 and 2012 were 384 t and **403 t,** respectively.
- Due to the work conducted by the Committee and improved reporting by CPCs the amount of unclassified billfish in the Task I table has been minimized.

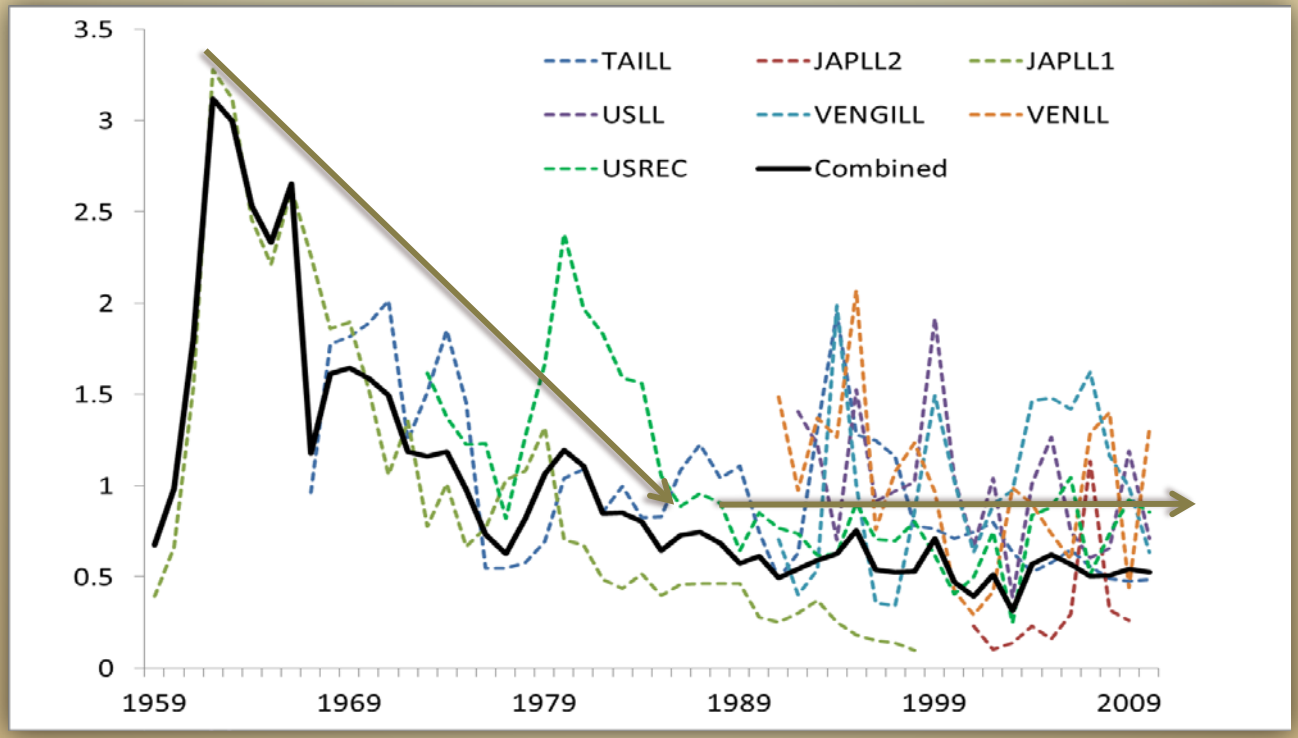
WHM Catches by main CPC and gear type in 2012



403 t in 2012

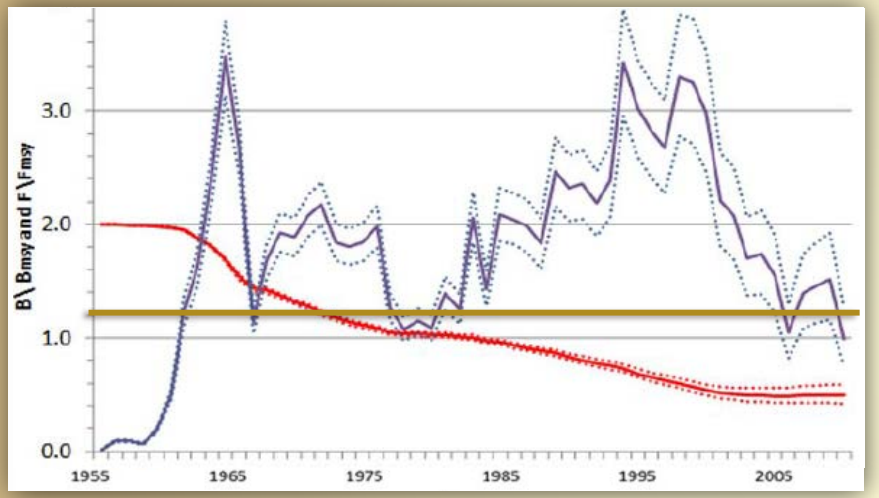
Indices of abundance of WHM

- **7 CPUE series** were selected for their inclusion in the assessment models.
- No discerning trend during the latter part of the time series.
- A combined CPUE index showed a **sharp decline during the period 1960-1991**, and a relatively **stable trend thereafter**

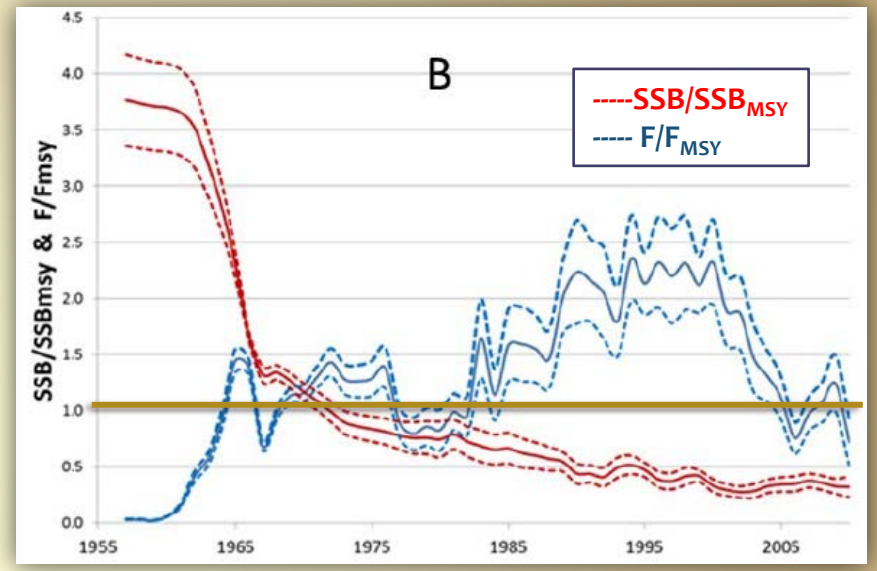


Stock status

ASPIC

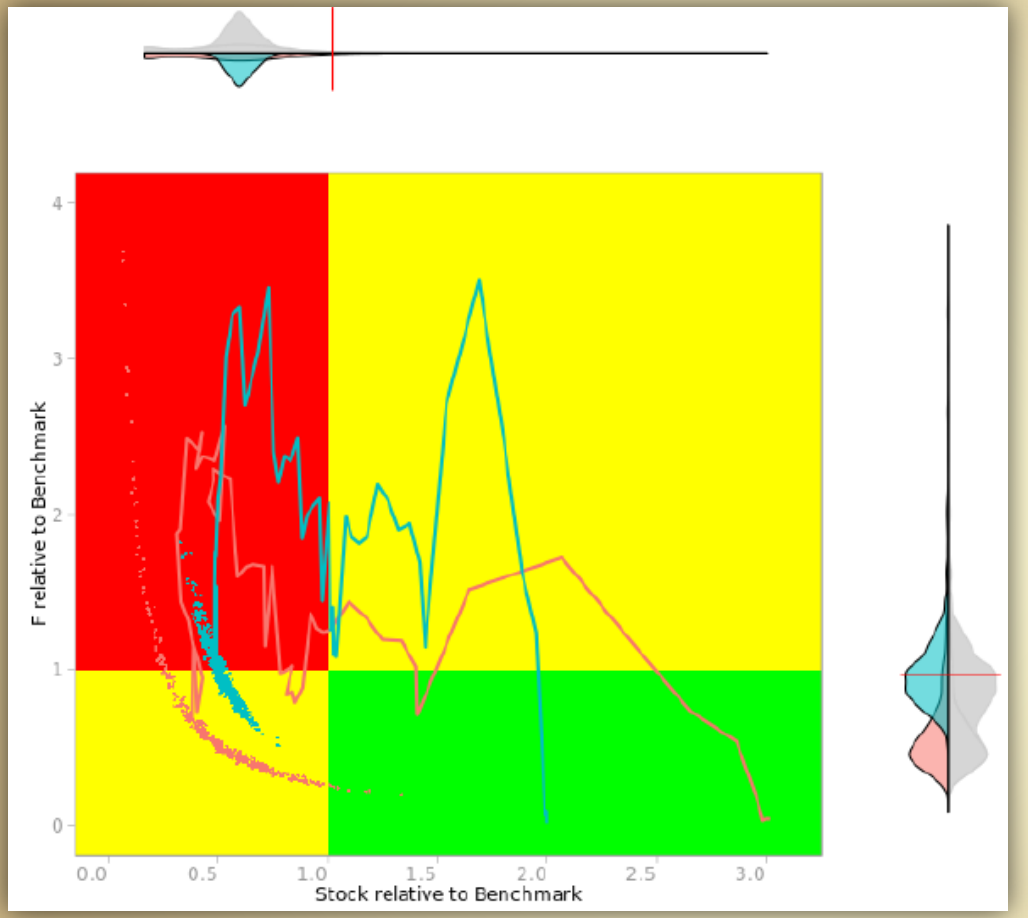


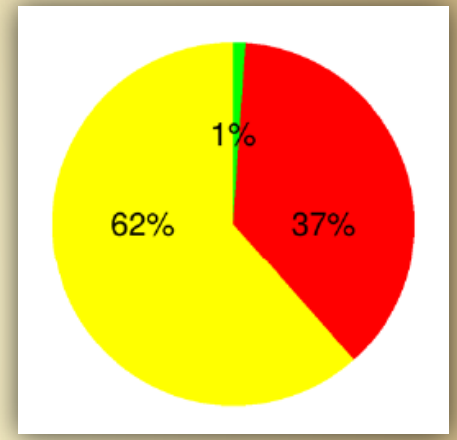
SS3



- The results of the 2012 assessment indicated that the stock remains **overfished** but **most likely not undergoing overfishing**

Stock status





- The results of the 2012 assessment indicated that the stock remains **overfished** but **most likely not undergoing overfishing**

Outlook

$P(F \leq F_{MSY})$

TAC	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
0	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
200	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
400	73%	74%	75%	77%	79%	79%	81%	82%	84%	85%
600	9%	11%	12%	12%	13%	14%	16%	16%	17%	19%
800	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
1,000	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

$P(SSB \geq SSB_{MSY})$

TAC	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
0	0%	0%	0%	0%	0%	0%	0%	1%	1%	2%
200	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%
400	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
600	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
800	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1,000	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

- The outlook for this stock remains **uncertain** (reported catches & productivity).
- At current catches of about **400 t** the stock will likely increase in size, but is very unlikely to rebuild to B_{MSY} in the next ten year period.
- Fishing mortality is highly likely to remain **below F_{MSY}**.
- The speed at which the stock biomass may increase and the time necessary to rebuild the stock to B_{MSY} remains **highly uncertain**.

Effects of current regulations

- [**Rec. 06-09**]: landing **< 33%** for WHT and **50%** for BUM [1996 or 1999 landing levels].
- [**Rec. 12-04**]: TAC $_{[2013,2014,2015]}$ =**400 t** and placed additional catch and commerce restrictions in recreational fisheries and requested methods for estimating live and dead discards.
- Concern with the significant increase in the contribution from **non-industrial fisheries** to the total WHM harvest [these fisheries are not fully accounted for in the current ICCAT data-base].
- Concern of the status of WHM due to the **misidentification of spearfishes** in the white marlin catches. This situation adds uncertainty to the stock assessment results.
- There is **not enough information** on the **proportion of fish being released alive** to evaluate the effectiveness of the ICCAT recommendation, relating to the live release of WHM.

Management recommendations

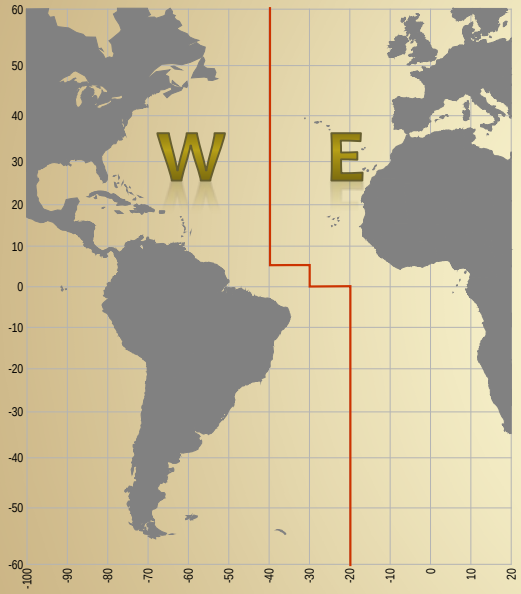
- **[Rec. 12-04]** intends to reduce the total harvest to **400 t** in 2013, 2014, and 2015. The Committee expressed its concern on the effectiveness of such measure in light of the **misidentification of spearfishes** in the WHM catches, which causes uncertainty in stock assessment results and enforcement related problems.

- One approach to reduce fishing mortality could be the use of **non-offset circle hooks** as terminal gear.

  - ✓ The Committee considers that this approach may be more efficient and enforceable than time-area closures.
  - ✓ Currently, 3 ICCAT member nations (Brazil, Canada, and the U.S.) already mandate or encourage the use of circle hooks on their pelagic longline fleets.
  - ✓ In addition, reducing fishing mortality of WHM from non-industrial fisheries should be considered.

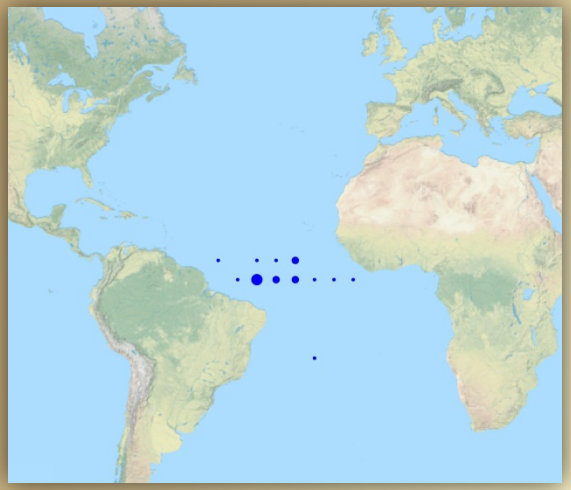
Sailfish

Last assessment: 2009

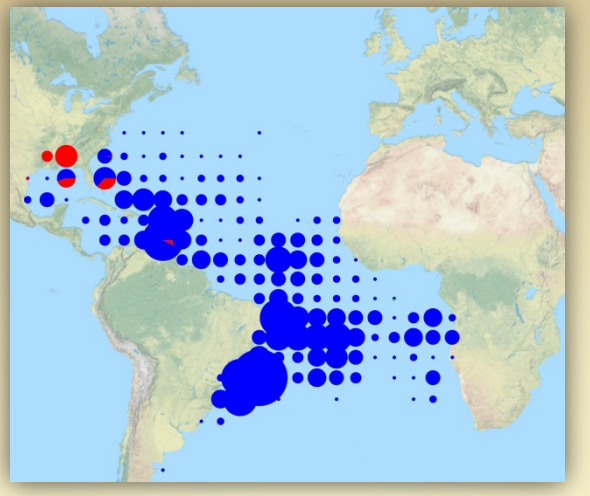


2 management units

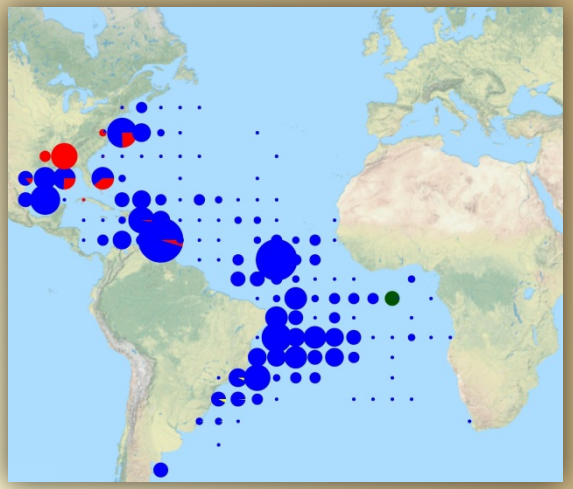
Sailfish, Voiliere, Pez Vela	
Scientific name	*Istiophorus albicans*
Distribution	Widely distributed in subtropical and tropical waters of the Atlantic , and occasionally in temperate waters and in the Mediterranean Sea. It is the least oceanic of the Atlantic billfishes; shows a strong tendency to approach continental coasts, islands and reefs.
Spawning grounds	Tropical areas of both hemispheres (almost year round)
Maturity	147-160|180 cm LJFL (females) / 135.7 cm LJFL cm (males)
Life span	13-15 years
Maximum size	up to 230 cm LJFL
Natural mortality	Range from 0.15 to 0.30



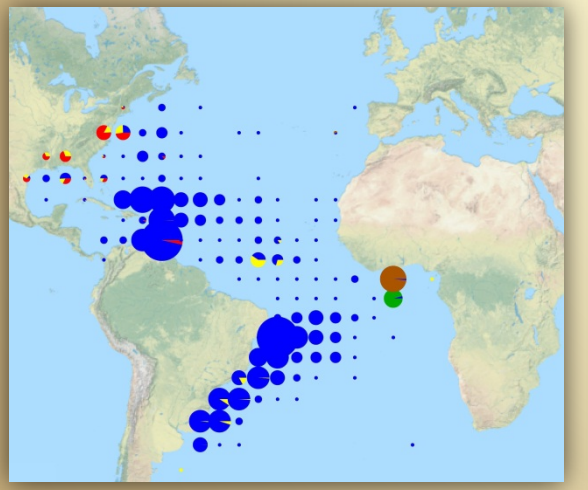
1950



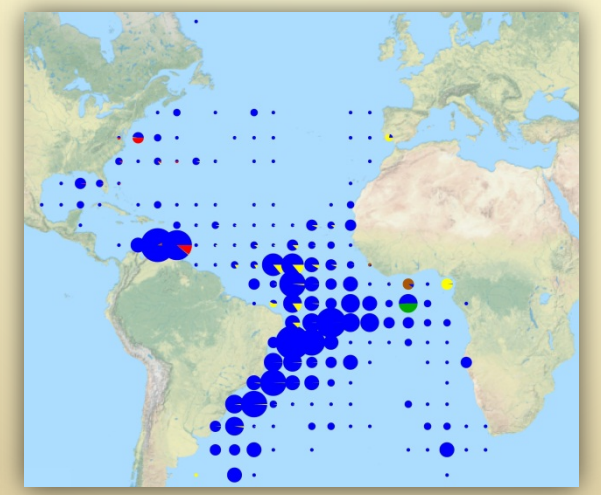
1960



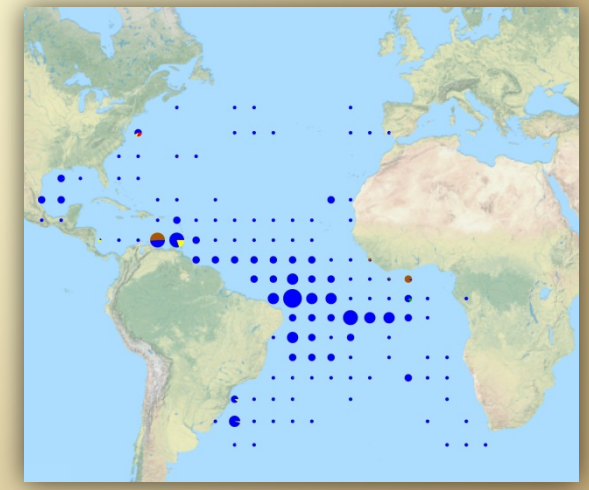
1970



1980

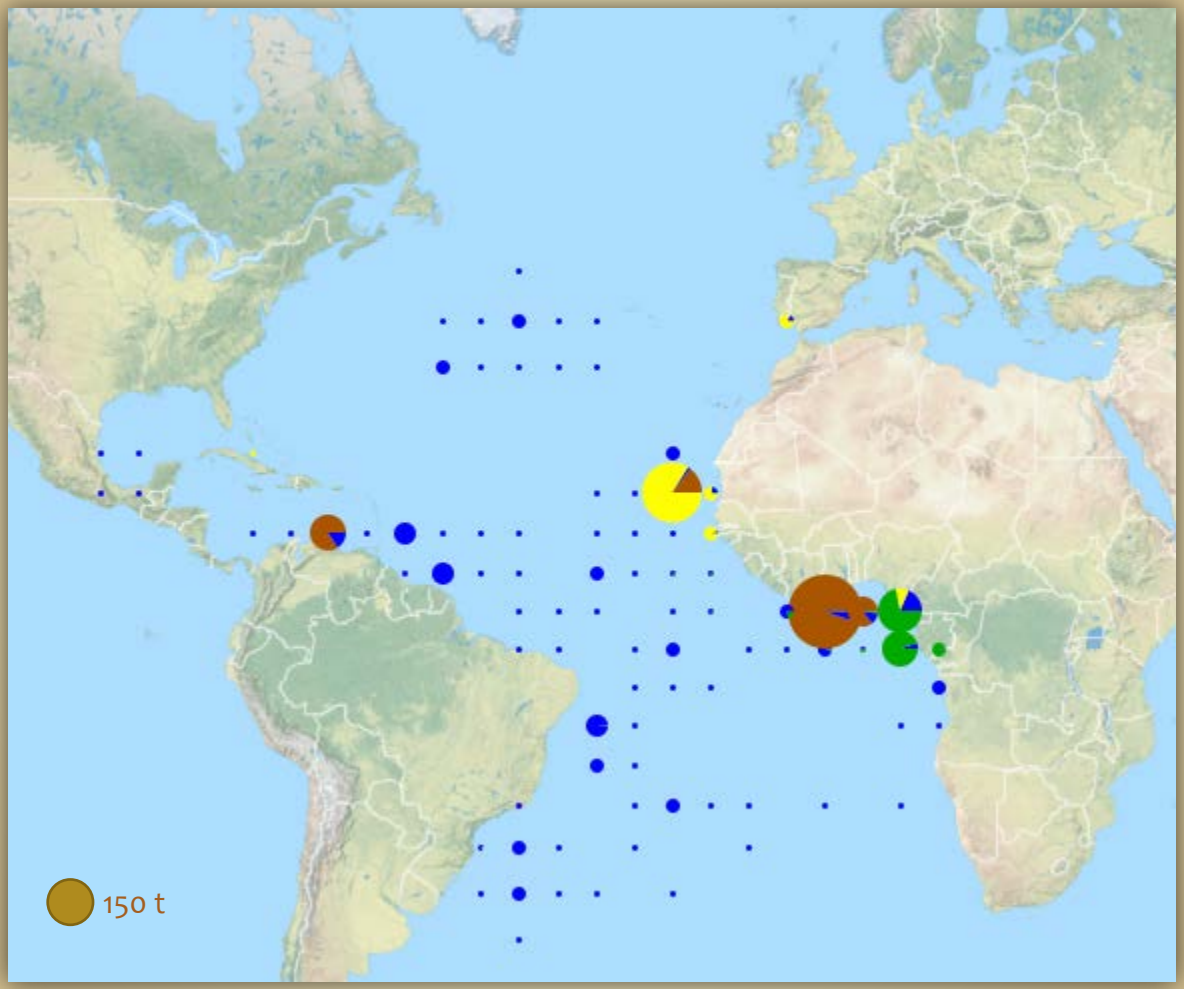


1990



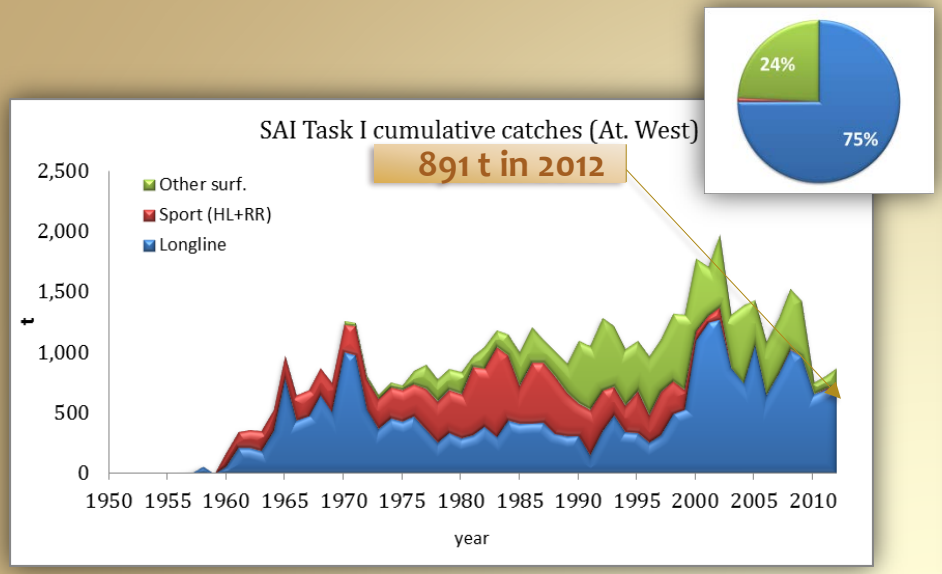
2000

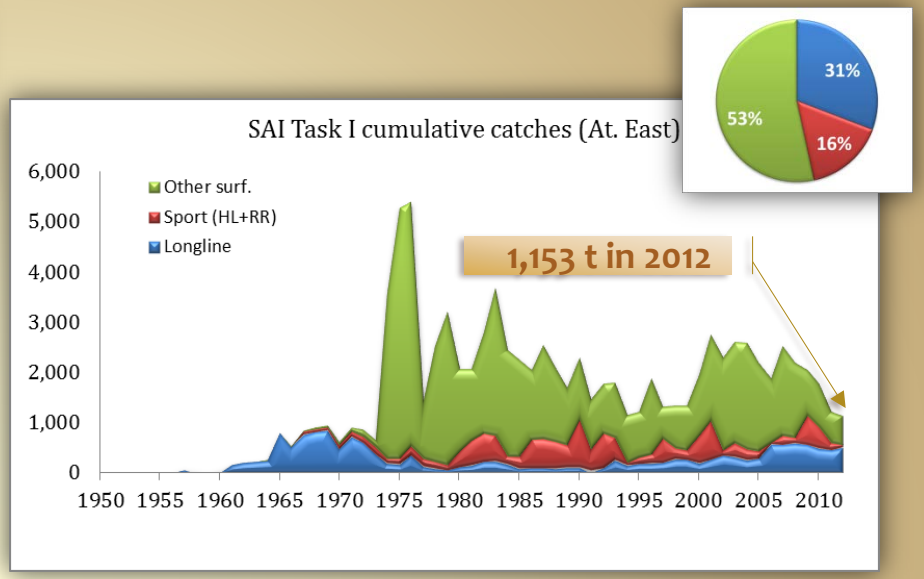
Purse seine Longline Others Gillnet Rod & Reel



2010-2011

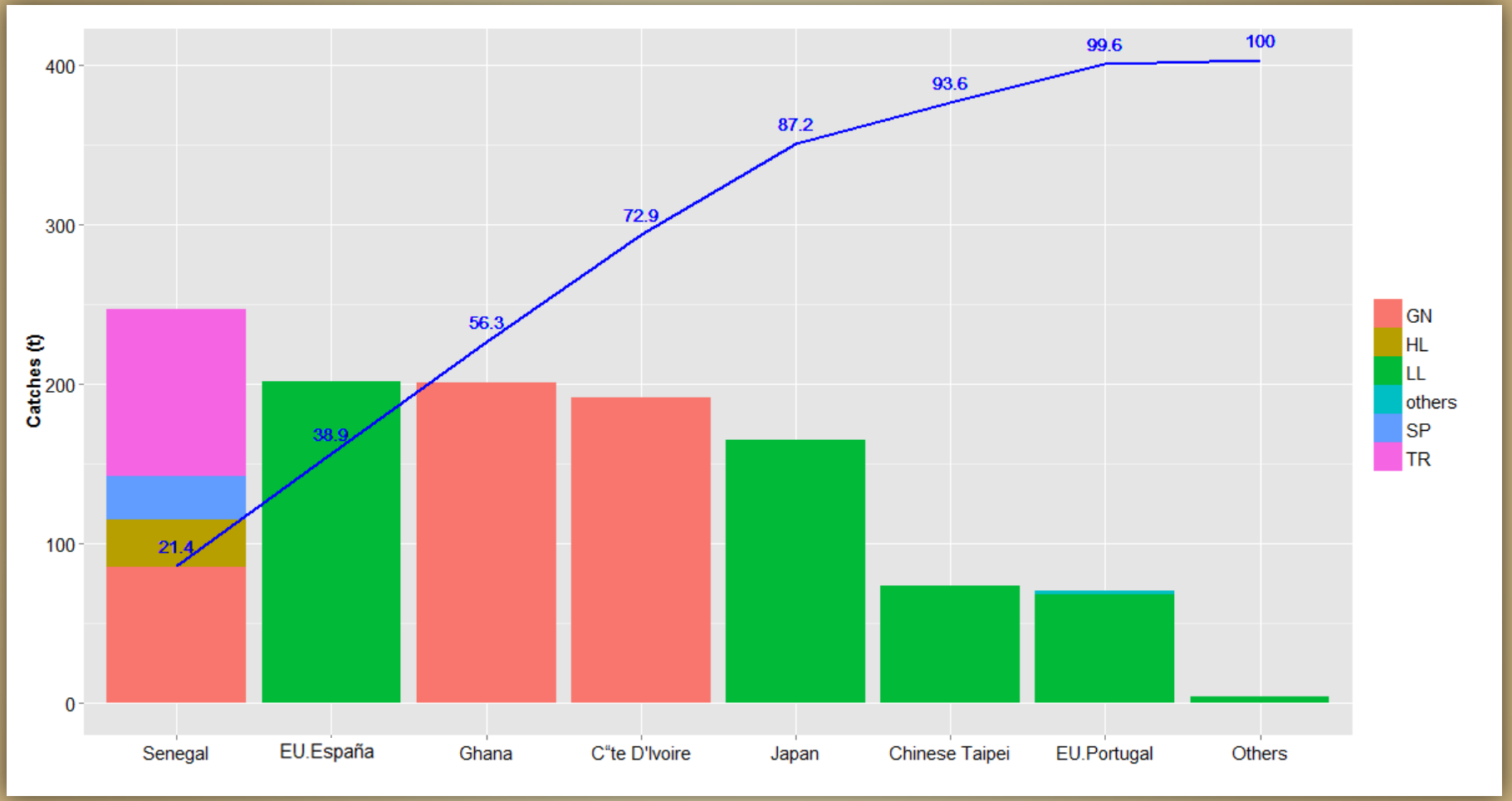
Purse seine Longline Others Gillnet Rod & Reel





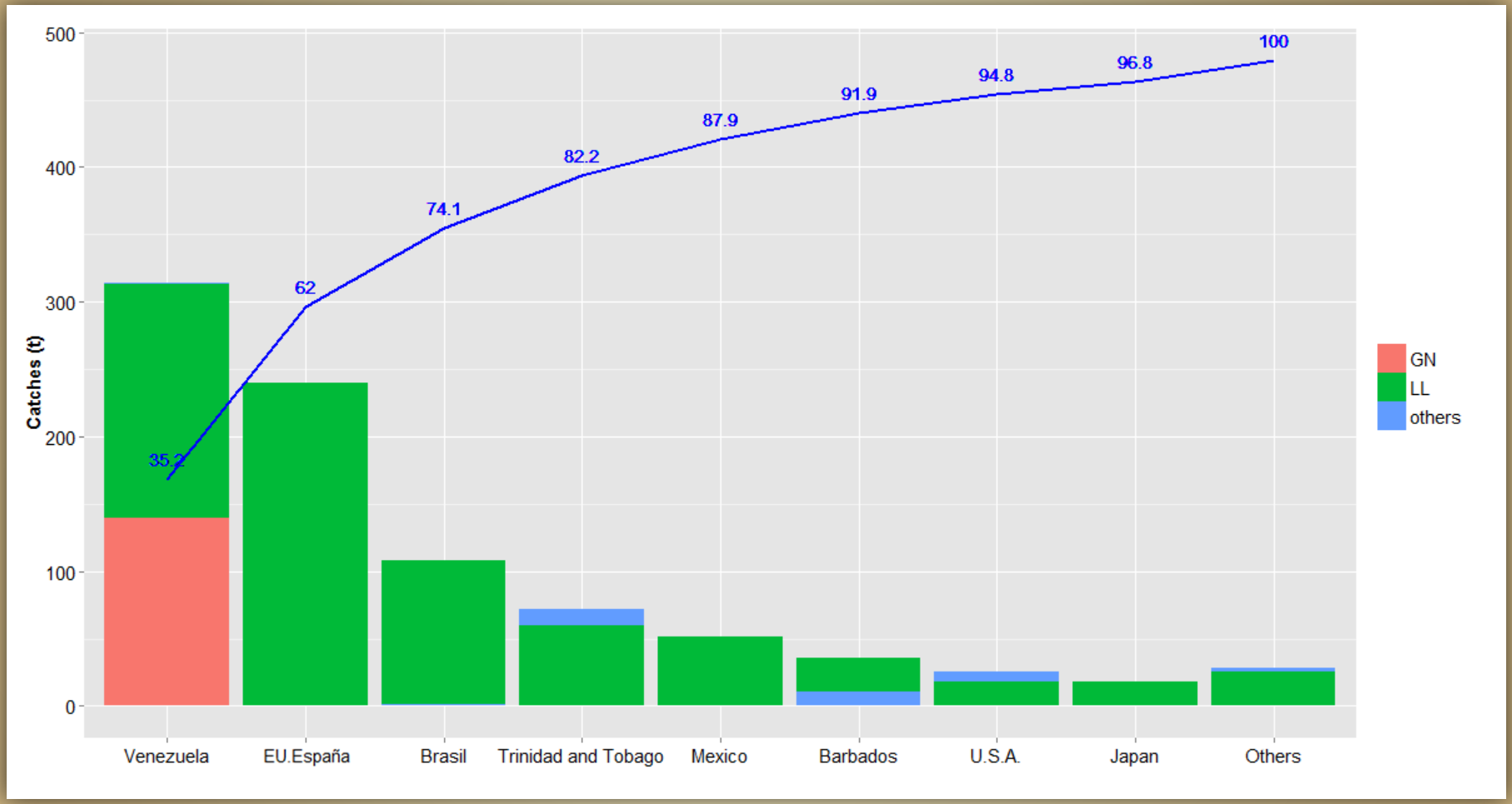
- SAI are targeted by coastal artisanal and recreational fleets and are caught as by-catch in LL and PS.
- Historically, catches of SAI were reported together with spearfish by many LL fleets, making the estimation of SAI catch difficult.
- Incomplete reporting of sailfish catches, particularly for the most recent years.

SAI-E Catches by main CPC and gear type in 2012



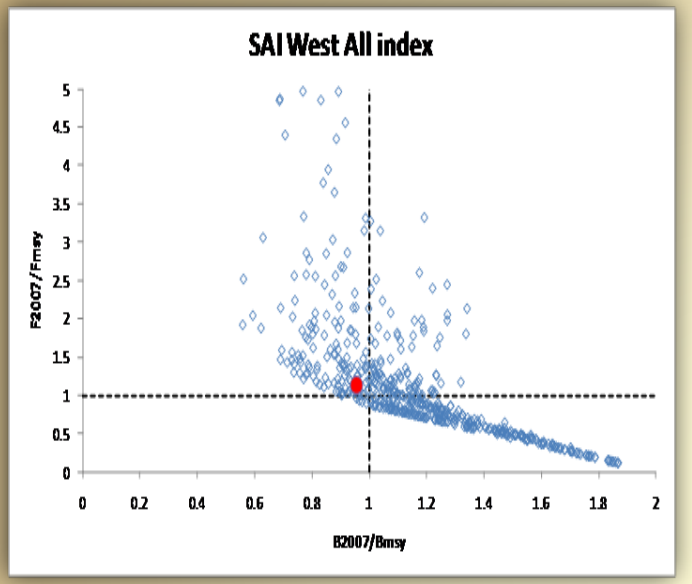
1,153 t in 2012

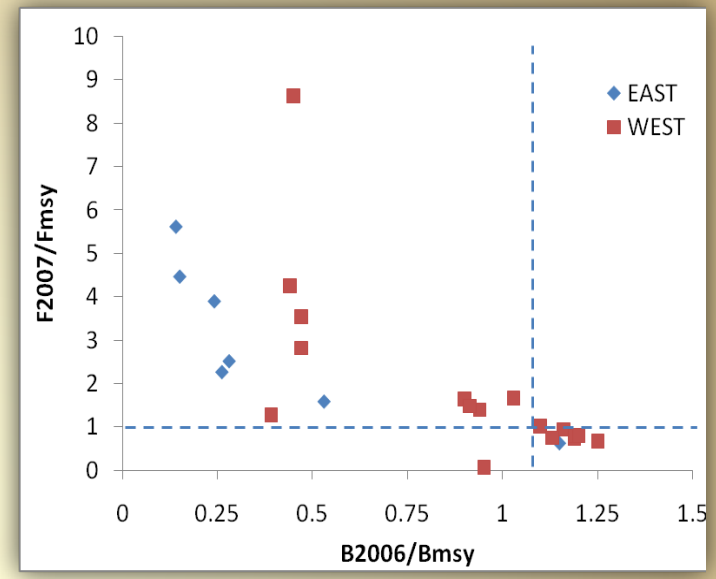
SAI-W Catches by main CPC and gear type in 2012



891 t in 2012

Stock status





SAI Summary	West Atlantic	East Atlantic
MSY	600-1,100 t	1,250-1,950 t
2011 catches (prov.)	**566 t**	**1,067 t**
B_{2007}/B_{MSY}	Possibly <1.0	Likely <1.0
F_{2007}/F_{MSY}	Possibly <1.0	Likely <1.0
2008 Replacement Yield	Not estimated	Not estimated
Management measures in effect	None	None

Outlook

- Both the eastern and western stocks of sailfish may have been reduced to stock sizes **below B_{MSY}**.
- There is considerable **uncertainty** on the level of reduction, **particularly for the west,** as various production model fits indicated the biomass ratio B_{2007}/B_{MSY} both above and below 1.0.
- The results for the **eastern stock** were **more pessimistic** than those for the western stock in that more of the results indicated recent stock biomass below B_{MSY}.
- Therefore there is **particular concern over the outlook for the eastern stock.**

Effects of current regulations

- **No ICCAT regulations** for sailfish are in effect. However, some countries have established **domestic regulations** to limit the catch of sailfish.

- Among these regulations are, requirement of releasing all billfish from longline vessels, minimum size restrictions, use of cricle hooks and catch and release strategies in sport fisheries.

Management recommendations

- **Catches for the eastern stock** should be **reduced** from current levels.
- **Catches of the western stock should not exceed current levels,** but reduction in catch in the West Atlantic is likely to help stock growth and reduce the likelihood that the stock is overfished.
- Concern was expressed about the **incomplete reporting of SAI catches,** particularly for the most recent years, because it increases uncertainty in stock status determination.
- One approach to reduce fishing mortality could be the use of non-offset circle hooks as terminal gear.
- The Committee recommends all countries landing or having dead discards of SAI, **report** these data.

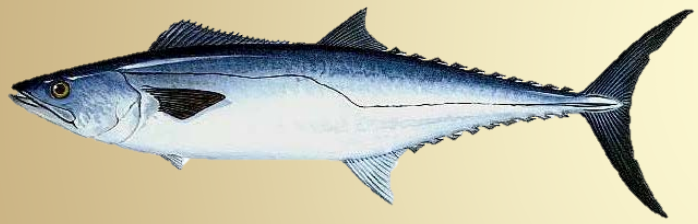
Small tunas

- Atlantic bonito (Sarda sarda) – BON
- Little tunny (Euthynnus alletteratus) – LTA
- Frigate tuna (Auxis thazard) – FRI
- Bullet tuna (Auxis rochei) – BLT
- Plain bonito (Orcynopsis unicolor) – BOP
- Blackfin tuna (Thunnus atlanticus) – BLF
- King mackerel (Scomberomorus cavalla) – KGM
- Atlantic Spanish mackerel (Scomberomorus maculatus) – SSM
- Serra Spanish mackerel (Scomberomorus brasiliensis) – BRS
- Wahoo (Acanthocybium solandri) – WAH
- West African Spanish mackerel (Scomberomorus tritor) – MAW
- Cero (Scomberomorus regalis) – CER
- Scomberomorus unclassified (Scomberomorus spp.) – KGX
- Dolphinfish (Coryphaena hippurus)

Most dominant species in the catches (5 species, more than 80% in weight)

Atlantic bonito *(Sarda sarda)*

Frigate tuna (*Auxis thazard*)



King mackerel (*Scomberomorus cavalla*)

Little tunny (*Euthynnus alletteratus*)

Atlantic Spanish mackerel (*Scomberomorus maculatus*)

- New information & data submitted in 2013: **9 new SCRS documents presented !!**
- **Knowledge on the biology and fisheries of SMT is very fragmented** in several areas because :

✓many of these species are often perceived to have little economic importance;

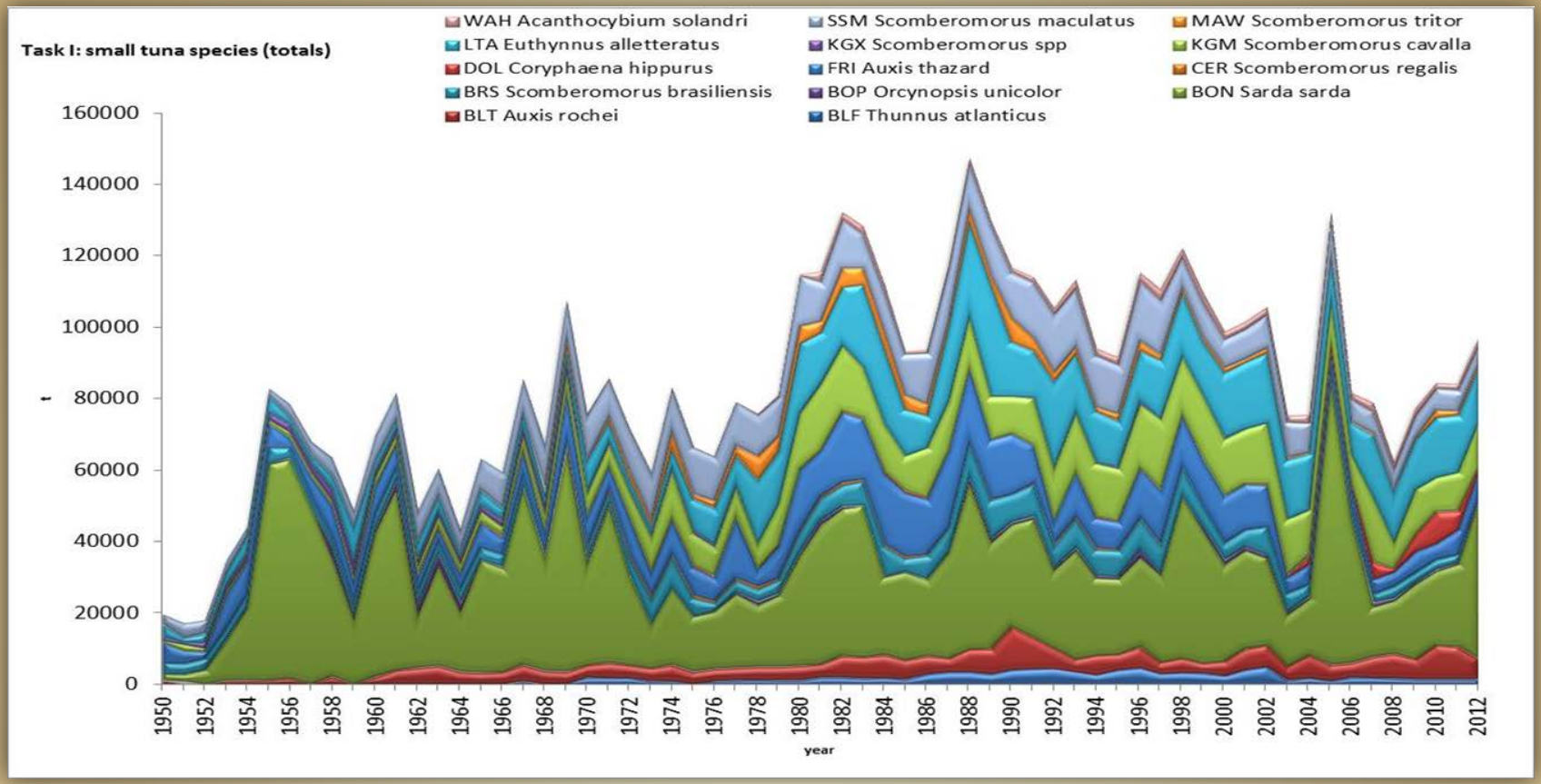
✓Caught by various fisheries (small-scale/artisanal, industrial, recreational, & sport);

✓ difficulties in conducting sampling of the landings from artisanal fisheries (high proportion of the fisheries);

✓ large industrial fleets often discard small tuna catches at sea or sell them on local markets mixed with other by-catches;

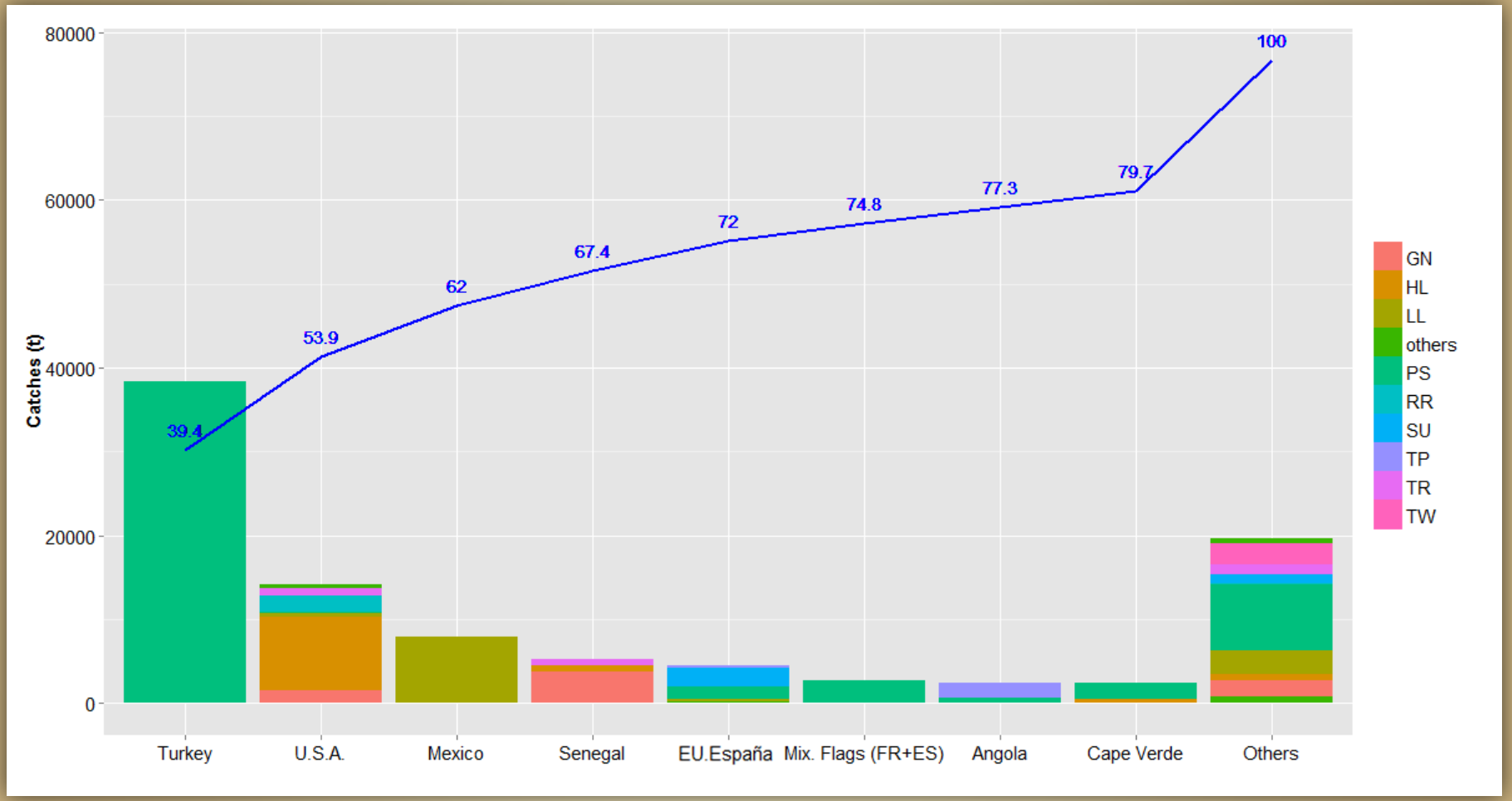
✓Misidentification of species.

Scientific collaboration between ICCAT, Regional Bodies and countries in the various regions is **imperative** to advance understanding of the distribution, biology and fisheries of these species



- Small tuna species have a very **high relevance from a socio-economic point of view,** because they are important for many coastal communities in all areas and are a main source of food.
- Small tunas are exploited mainly by **small-scale/artisanal fisheries,** although substantial catches are also made as target species and as by-catch by purse seine, mid-water trawlers (i.e., pelagic fisheries of West Africa Mauritania), handline and small scale gillnets.

SMT Catches by main CPC and gear type in 2012



97,274 t in 2012

STOCK STATUS

- The stocks' structures are not well known, because there is a little information available.
- The small amount of information available does not allow to carry out an assessment of stock status of the majority of the species.
- If data availability improves with the same trend of the latest years, it will be possible to do some analyses in the future.

CURRENT REGULATIONS

- No ICCAT regulations are in effect for SMT species.
- Few regional and national regulations are in place.
- in the absence of any stock assessment for SMT, no ICCAT management recommendation have been made so far.

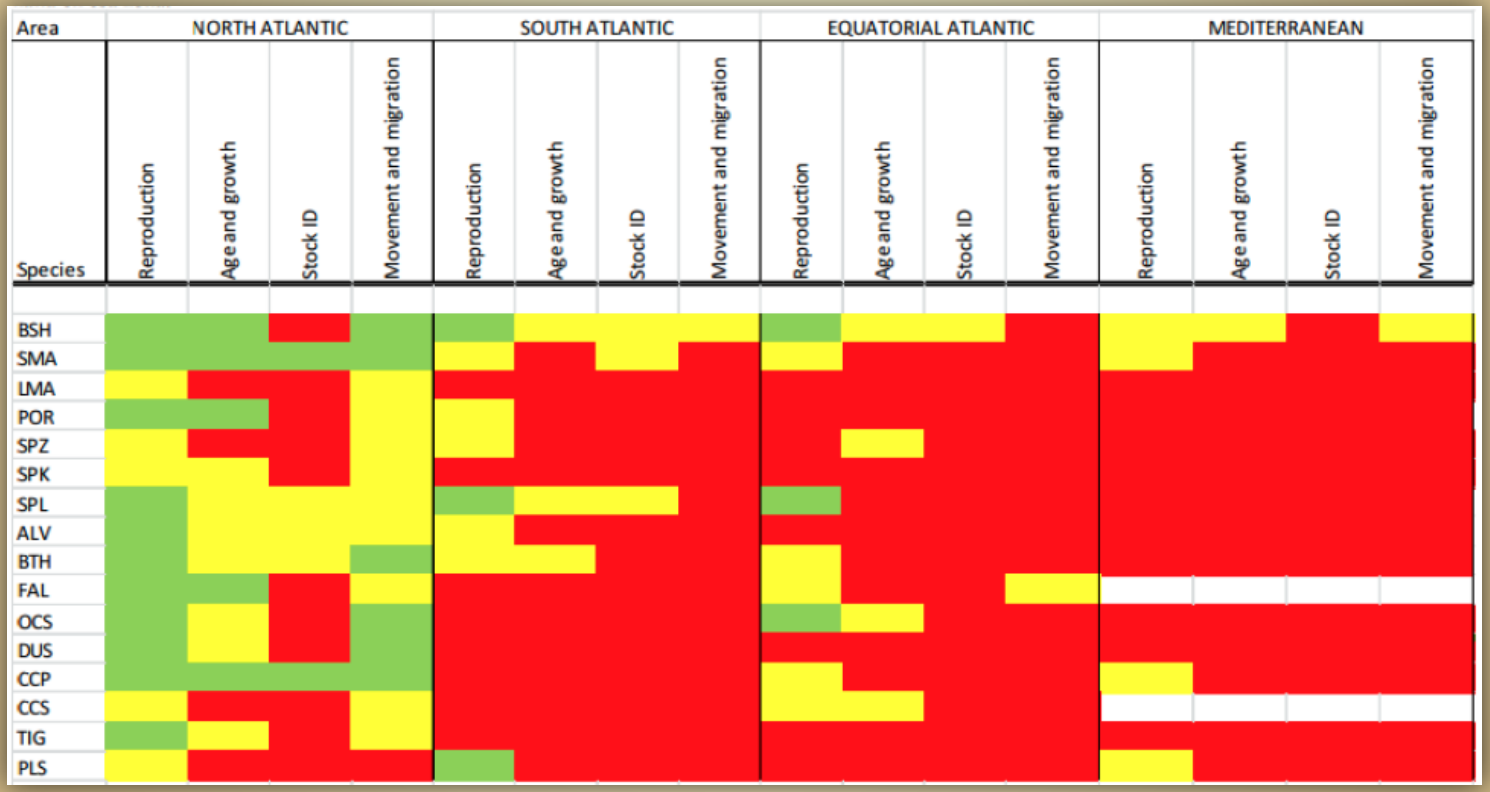
Sharks

2012	ERA - 16 shark species (20 stocks)
2012	Shortfin mako
2009	Porbeagle (Lamna nasus)
2008	Blue shark (Prionace glauca)

2013 Special Research Programme on sharks, as recommended at the 2012 shortfin mako assessment meeting.

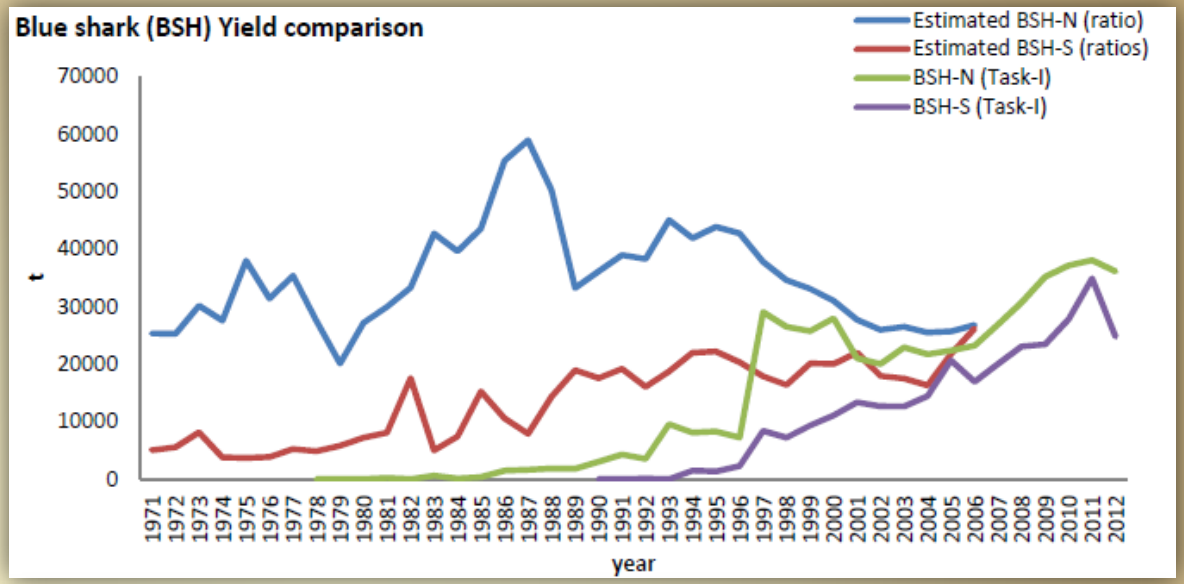
Biology

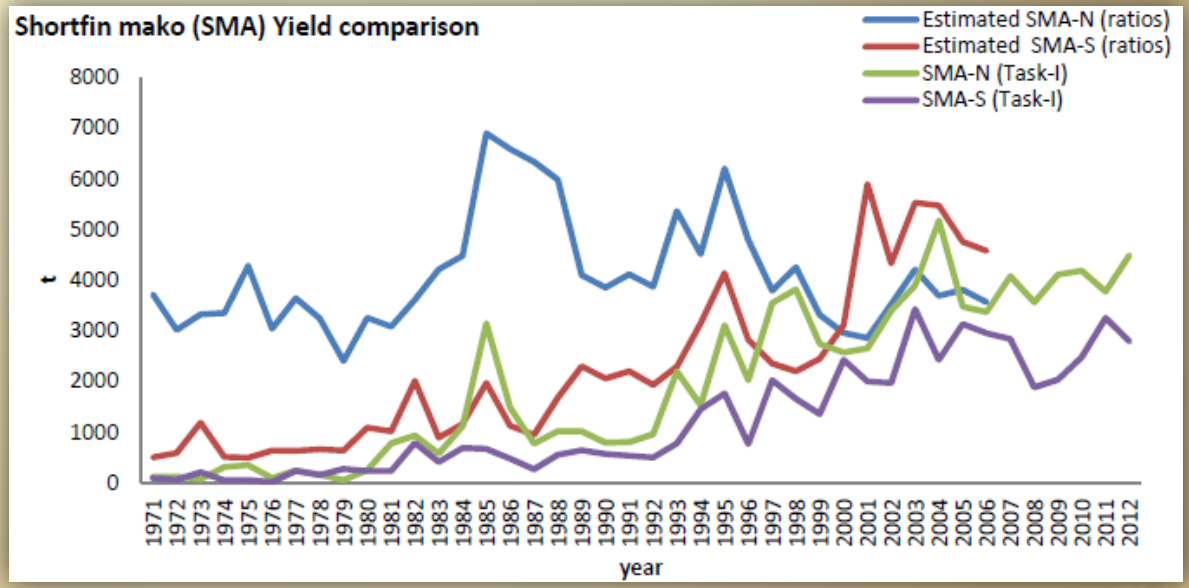
Numerous aspects of the biology of these species are still **poorly understood or completely unknown,** particularly for some regions, which contributes to increased uncertainty in quantitative and qualitative assessments.



Fishery indicators

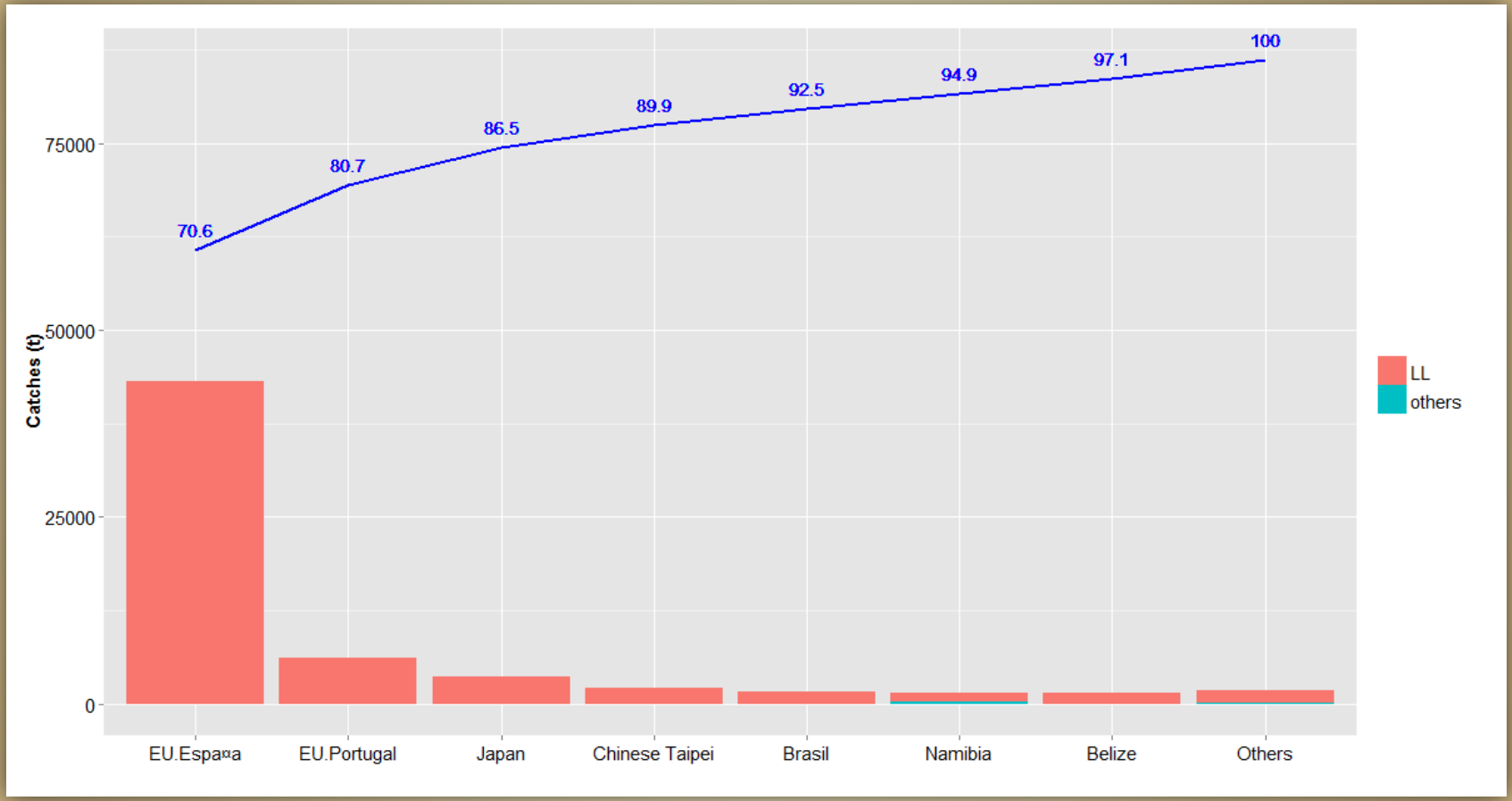
Though **global statistics on SHK catches** included in the ICCAT database have **improved**, they are **still insufficient** to allow the SCRS to provide quantitative advice on stock status with sufficient precision to guide fishery management toward optimal harvest levels.





Reported Catches by main CPC and gear type in 2012

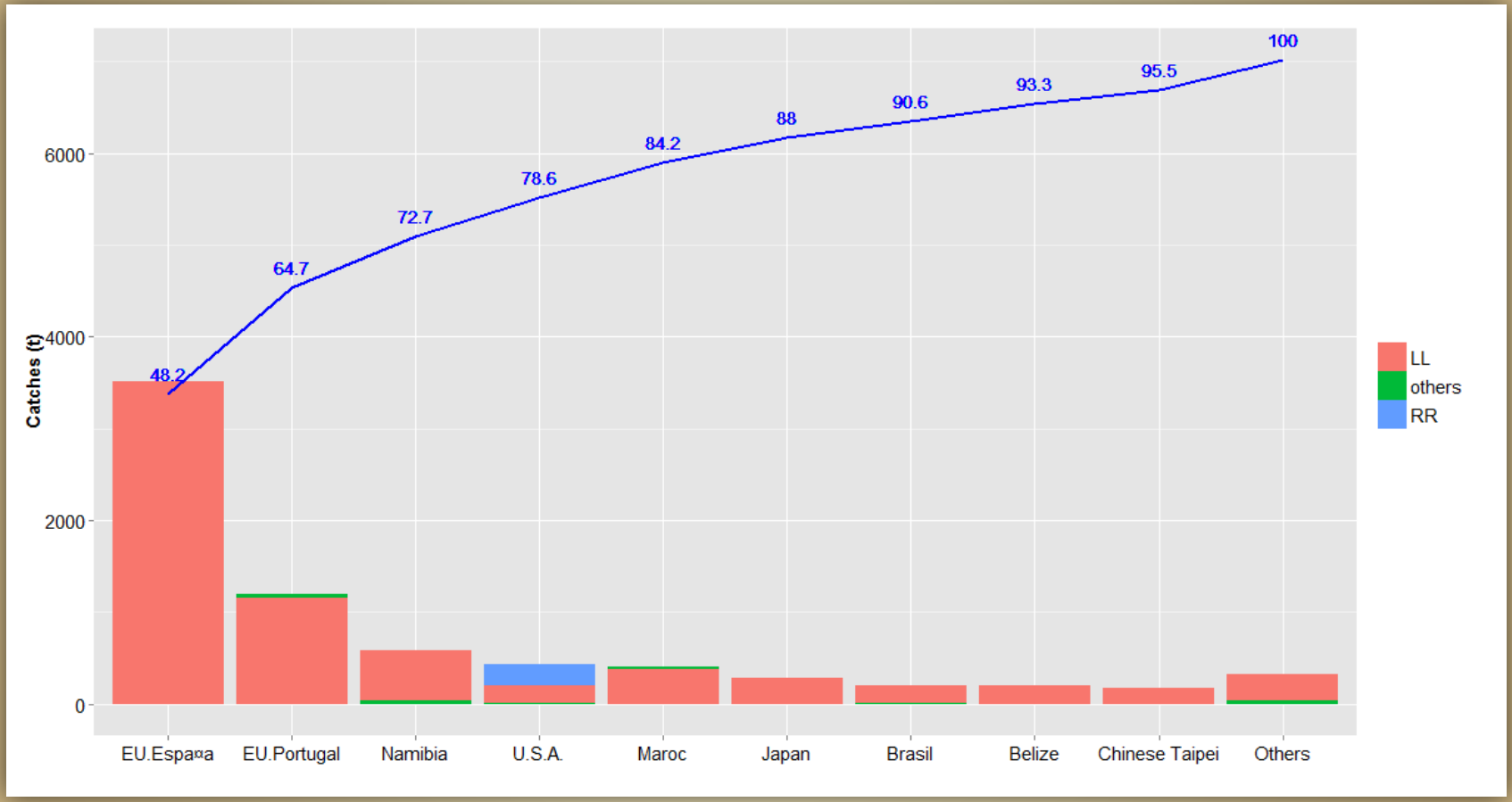
BLUE SHARK



60,953 t in 2012

Reported Catches by main CPC and gear type in 2012

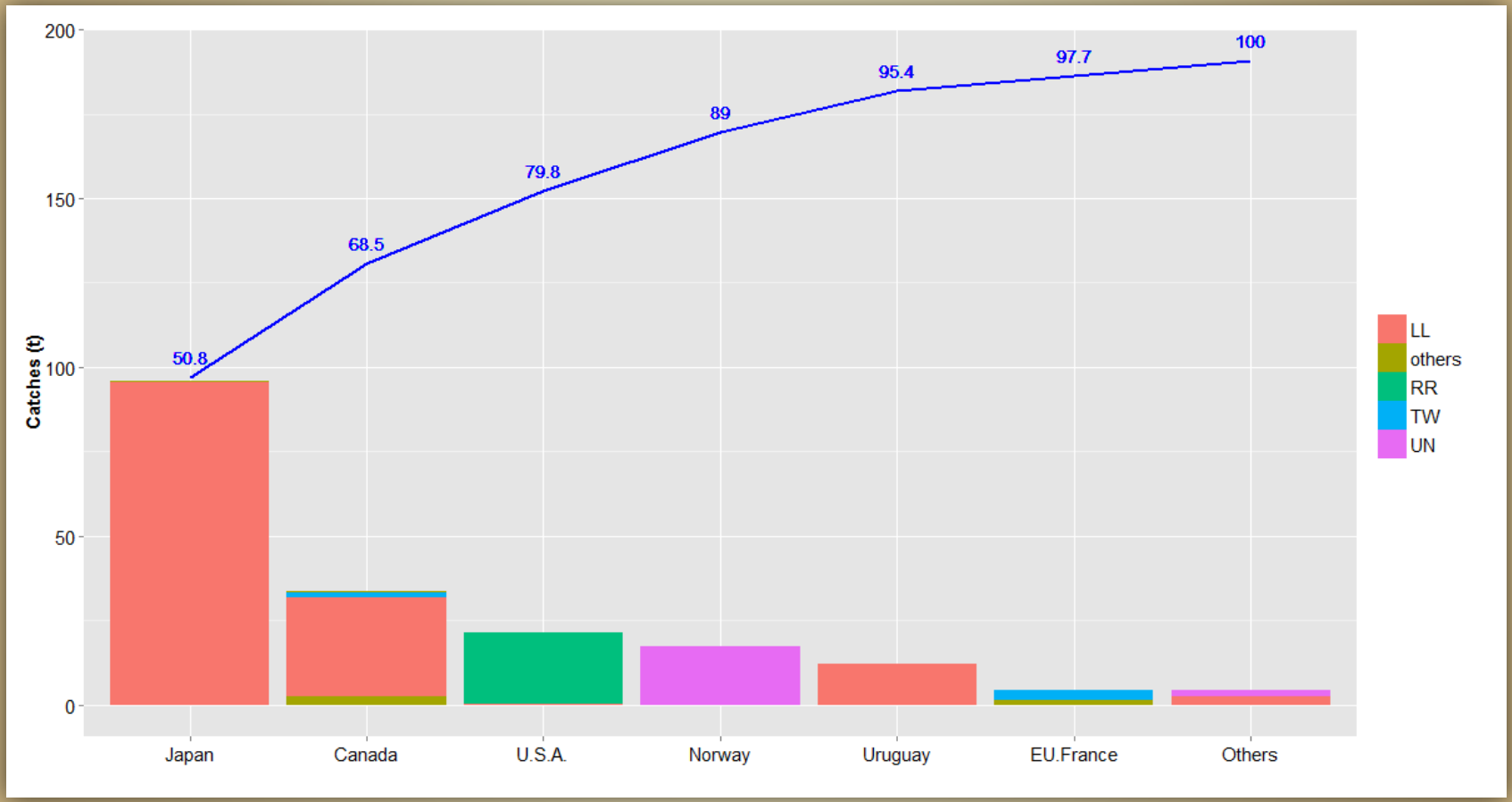
SHORTFIN MAKO



7,277 t in 2012

Reported Catches by main CPC and gear type in 2012

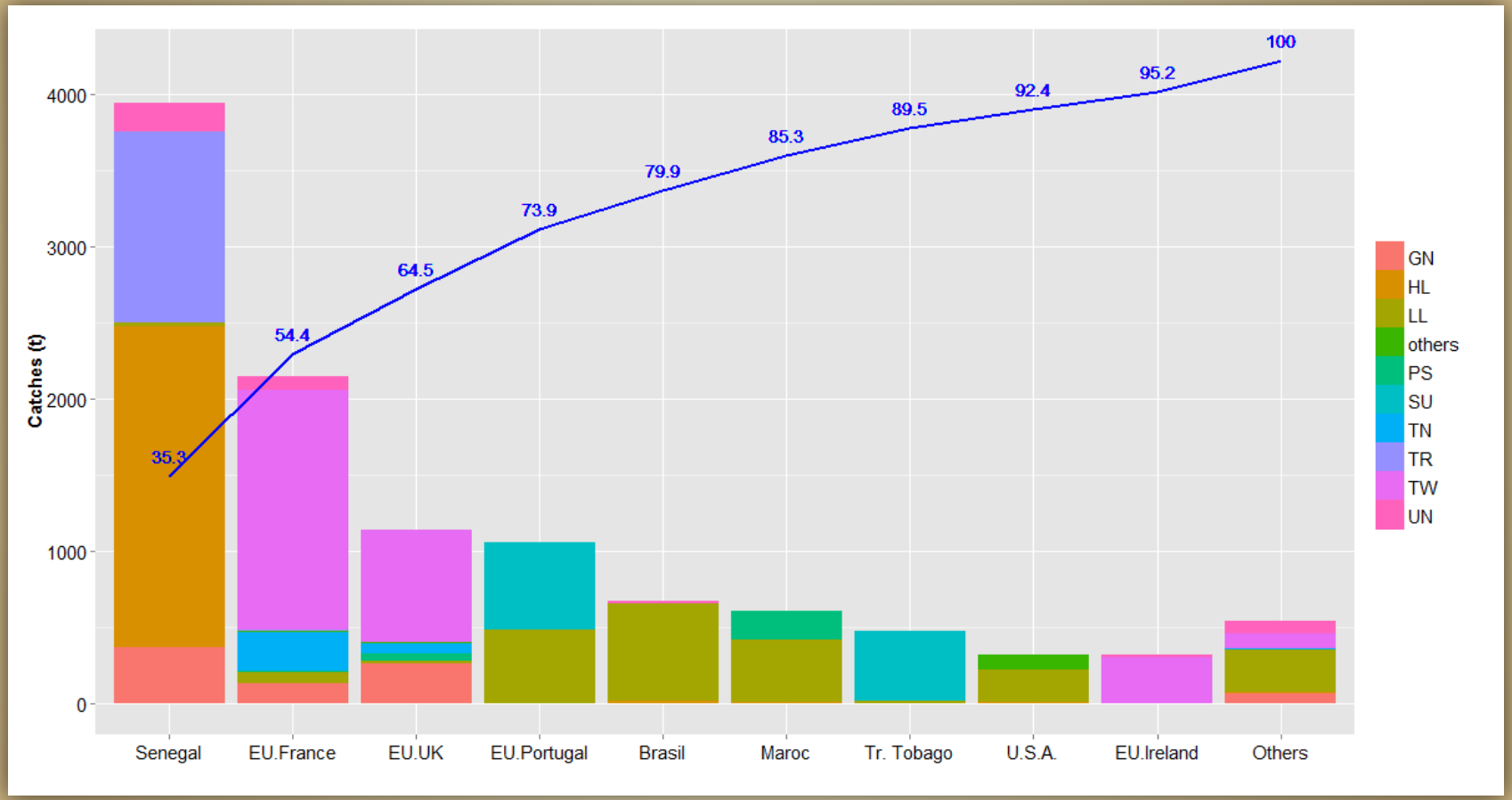
PORBEAGLE



188 t in 2012

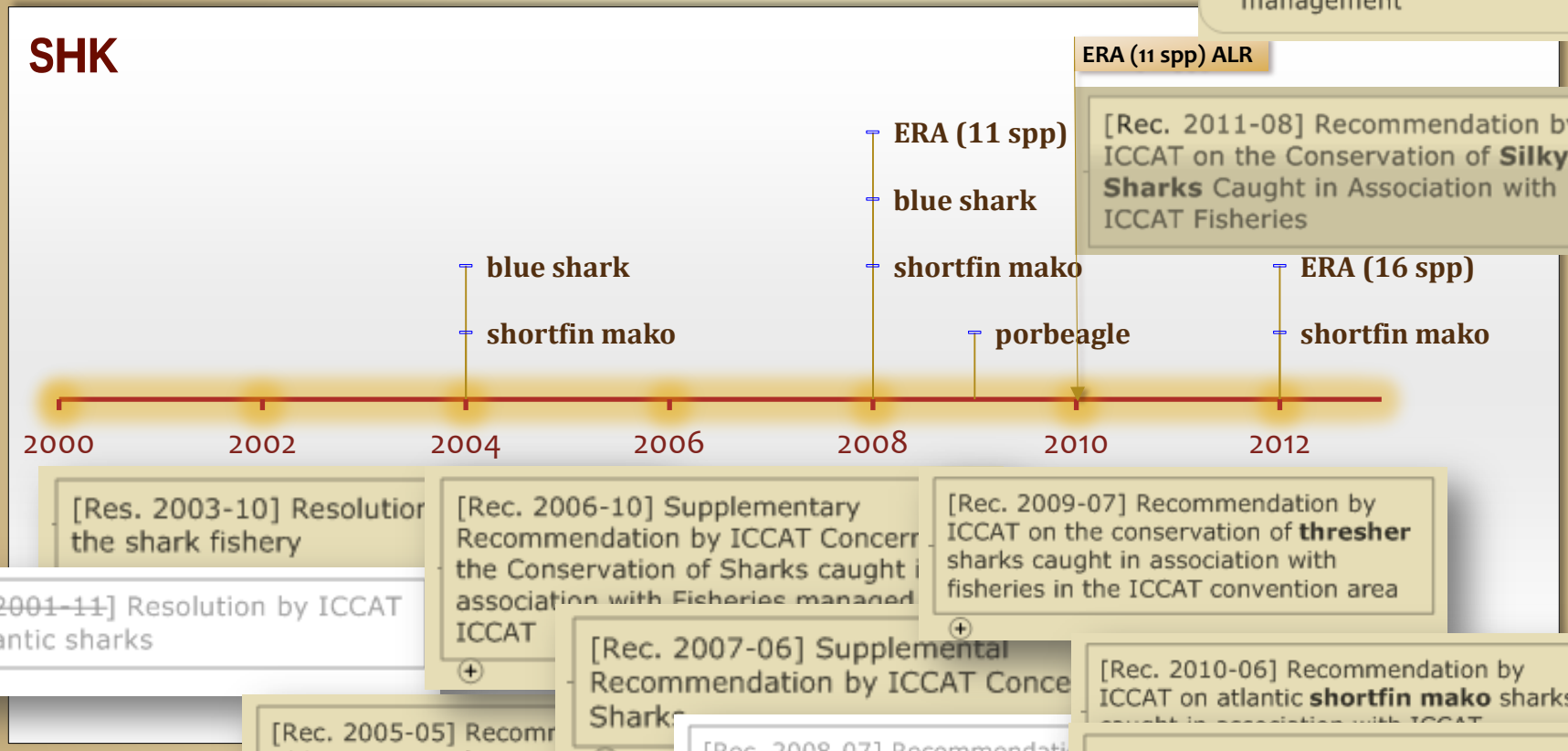
Reported Catches by main CPC and gear type in 2012

Other SHK



11,180 t in 2012

Timeline of SHK Stock Assessments & Management recommendations



[Rec. 2012-05] Recommendation ICCAT on **compliance** with existin measures on SHK conservation an management

ERA (11 spp) ALR

[Rec. 2011-08] Recommendation by ICCAT on the Conservation of **Silky Sharks** Caught in Association with ICCAT Fisheries

[Res. 2003-10] Resolution the shark fishery

[Rec. 2006-10] Supplementary Recommendation by ICCAT Concern the Conservation of Sharks caught i association with Fisheries managed ICCAT

[Rec. 2009-07] Recommendation by ICCAT on the conservation of **thresher** sharks caught in association with fisheries in the ICCAT convention area

~~[Res. 2001-11]~~ Resolution by ICCAT on Atlantic sharks

[Rec. 2007-06] Supplemental Recommendation by ICCAT Conce Sharks

[Rec. 2010-06] Recommendation by ICCAT on atlantic **shortfin mako** sharks

[Rec. 2005-05] Recomm ICCAT to Amend Recom 04-10 Concerning the Conservati Sharks Caught in Association wit Fisheries Managed by ICCAT

~~[Rec. 2008-07]~~ Recommendati ICCAT on the Conservation of Thresher Sharks (Alopias super caught in Association with Fish Managed by ICCAT

[Rec. 2010-07] Recommendation by ICCAT on the conservation of oceanic **whitetip** shark caught in association

[Rec. 2010-08]Recommendation by ICCAT on **hammerhead sharks** (family Sphyrnidae) caught in association with fisheries managed by ICCAT

[Rec. 2004-10] Recommendation by ICCAT concerning the conservation sharks caught in association with fisheries managed by ICCAT

[Res. 2008-08] Resolution by I **Porbeagle** Shark (Lamna nasu

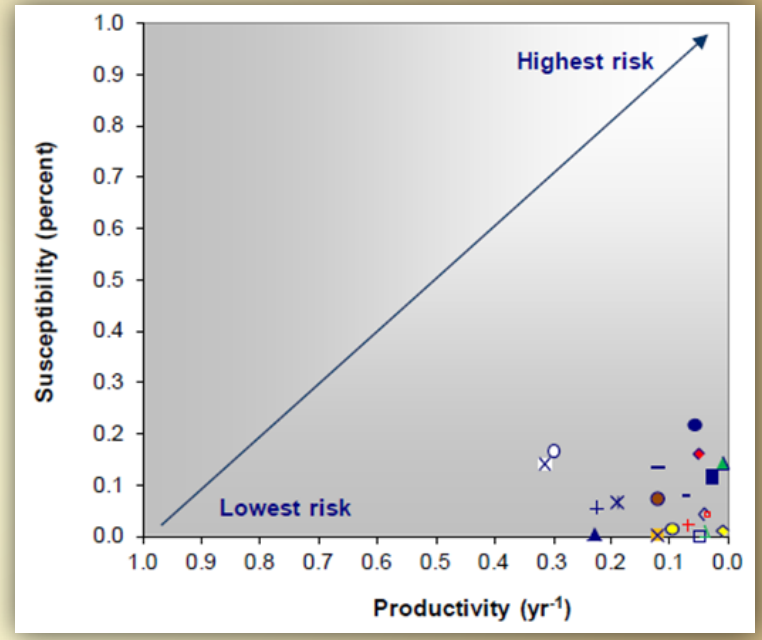
Ecological Risk Assessment (ERA)

Score Productivities

- Life history features: age at maturity, maximum age, age-specific fecundity, age-specific survival

Score Susceptibilities

- Availability
- Encounterability
- Selectivity
- Post-capture mortality



- **Availability;** the fished proportion of the area occupied by the species.
- **Encounterability;** the likelihood of encountering gear if it is fished in the occupied area
- **Selectivity;** the likelihood of capture if the gear is encountered
- **Post-capture mortality;** the likelihood of death after capture and discarding.

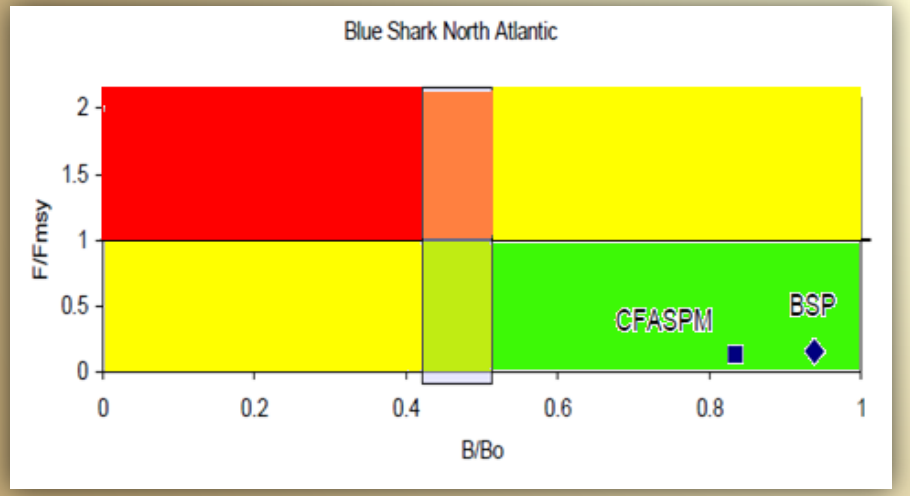
ERA 2012

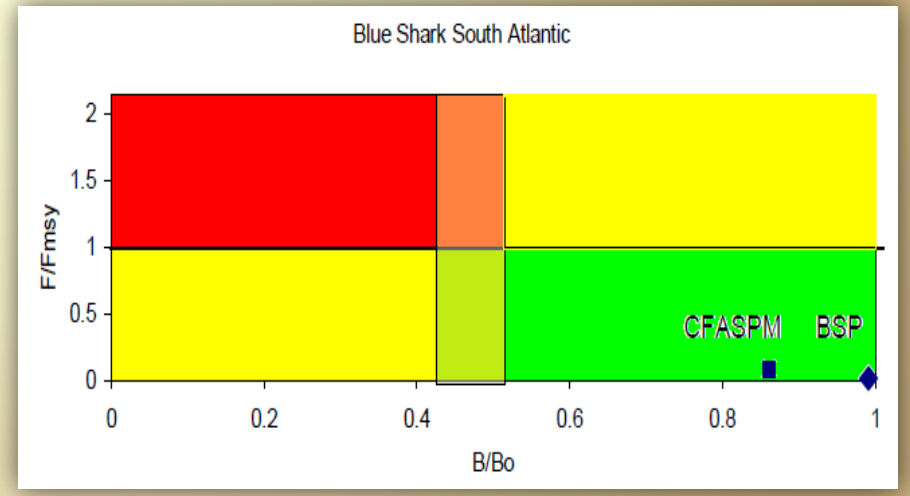
Species	Species (Eng)	Species (Spa)	Species (sci)	2012	2010	2008
BTH	Bigeye thresher	Zorro ojón	*Alopias superciliosus*	1	4	1
LMA	Longfin mako	Marrajo carite	*Isurus paucus*	2	6	6
SMA	Shortfin mako	Marrajo dientuso	*Isurus oxyrinchus*	3	2	2
POR	Porbeagle	Marrajo sardinero	*Lamna nasus*	4	10	7
FAL SA	Silky shark	Tiburón jaquetón	*Carcharhinus falciformis*	5	1	5
CCS	Night shark	Tiburón de noche	*Carcharhinus signatus*	6		
CCP	Sandbar shark	Tiburón trozo	*Carcharhinus plumbeus*	7		
OCS	Oceanic whitetip	Tiburón oceánico	*Carcharhinus longimanus*	8	5	4
FAL NA	Silky shark	Tiburón jaquetón	*Carcharhinus falciformis*	9	1	5
ALV	Common thresher	Zorro común	*Alopias vulpinus*	10	12	11
BSH NA	Blue shark	Tiburón azul - Tintorera	*Prionace glauca*	11	7	10
DUS	Dusky shark	Tiburón arenero	*Carcharhinus obscurus*	12		
SPK	Great hammerhead	Cornuda gigante	*Sphyrna mokarran*	13		
BSH SA	Blue shark	Tiburón azul - Tintorera	*Prionace glauca*	14	7	10
PST SA	Pelagic stingray	Raya	*Pteroplatytrygon violacea*	15	11	12
TIG	Tiger shark	Tintorera tigre	*Galeocerdo cuvier*	16		
SPL NA	Scalloped hammerhead	Cornuda común	*Sphyrna lewini*	17	9	9
SPZ	Smooth hammerhead	Cornuda cruz	*Sphyrna zygaena*	18	8	8
SPL SA	Scalloped hammerhead	Cornuda común	*Sphyrna lewini*	19	9	9
PST NA	Pelagic stingray	Raya	*Pteroplatytrygon violacea*	20	11	12

Vulnerability rank estimated for 16 species (20 stocks) of pelagic elasmobranchs.

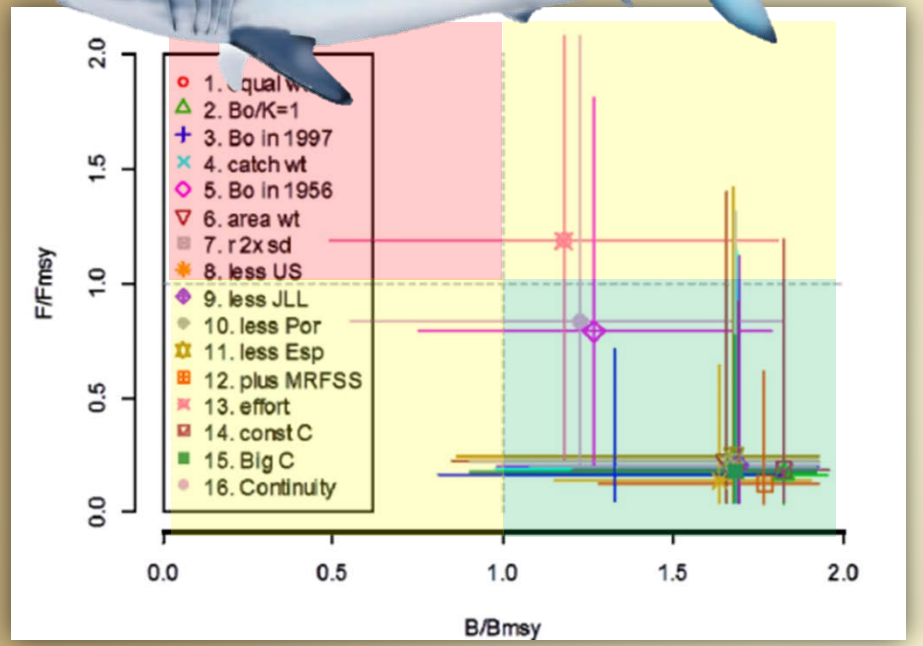
BSH: Blue shark

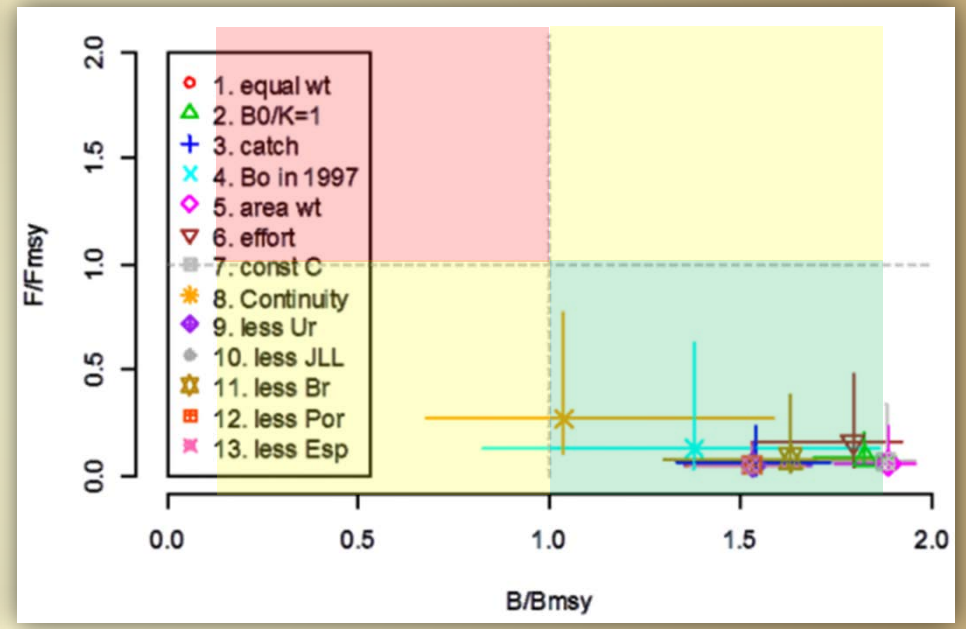
Blue shark		North	South
2007 Yield		61,845	37,075
Provisional Yield (2010)		37,238	27,729
Relative Biomass	B_{2007}/B_{MSY}	1.87-2.74	1.95-2.80
	B_{2007}/B_0	0.67-0.93	0.86-0.98
Relative Fishing mortality	F_{MSY}	0.15	0.15-0.20
	F_{2007}/F_{MSY}	0.13-0.17	0.04-0.09



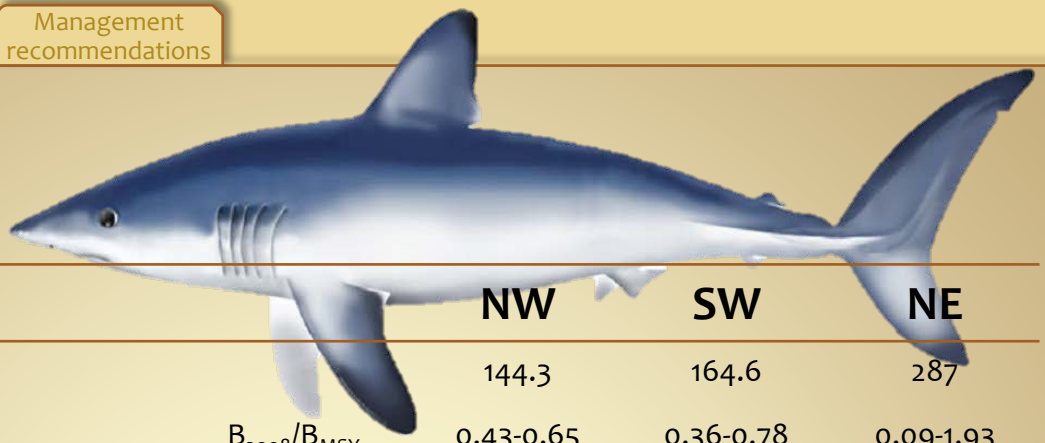


SMA: Short fin mako shark

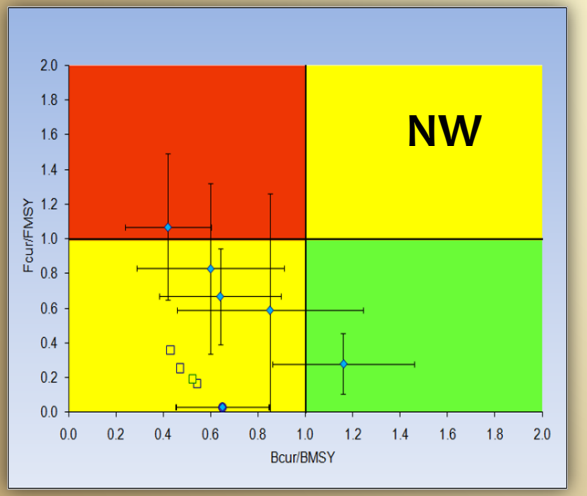


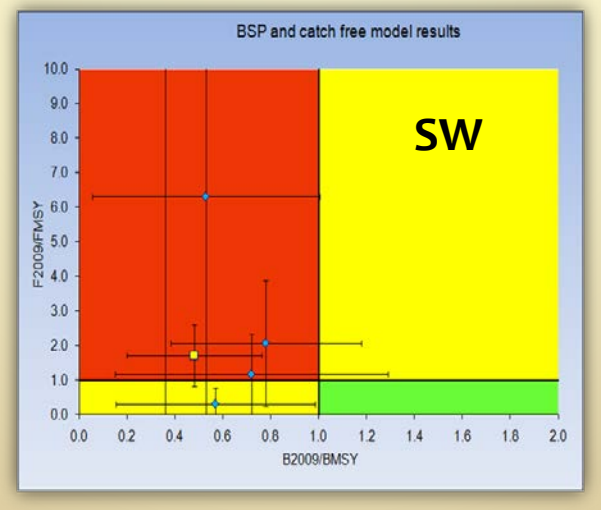


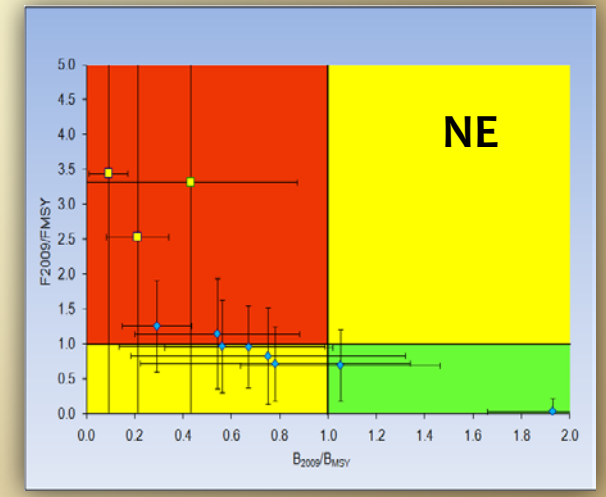
- Both the North and South Atlantic stocks are **healthy** and the **probability of overfishing is low.**
- **Inconsistencies** between estimated biomass trajectories and input CPUE trends, which resulted in wide confidence intervals.
- The **high uncertainty in past catch estimates** and **deficiency of some important biological parameters,** particularly for the southern stock, are still obstacles for obtaining reliable estimates of current status of the stocks.



Porbeagle		NW	SW	NE
2008 Yield		144.3	164.6	287
Relative Biomass	B_{2008}/B_{MSY}	0.43-0.65	0.36-0.78	0.09-1.93
Relative Fishing mortality	F_{MSY}	0.025-0.075	0.025-0.033	0.02-0.03
	F_{2008}/F_{MSY}	0.03-0.36	0.31-10.78	0.04-3.45
Management measures in effect		TAC 185, 11.3	None	FL > 210cm







Management recommendations

- **Precautionary management measures** should be considered for stocks where there is the **greatest biological vulnerability** and conservation concern, and for which there are **very few data.**

- Management measures should ideally be **species-specific** whenever possible.

- The **SCRS welcomed the measures adopted by the COM** in the past three years regarding the species ranked as the most vulnerable in the ERA and for which almost no data have been submitted (bigeye thresher, oceanic whitetip shark, hammerhead shark and silky shark).

Management recommendations

- CPCs provide the corresponding statistics of **all ICCAT and non-ICCAT fisheries capturing SHK**, including recreational and artisanal fisheries.

- **Joint work with the ICES Working Group on Elasmobranch Fishes** should be continued.

- Scientific observers be allowed to **collect biological samples** (vertebrae, tissues, reproductive tracts, stomachs) **from species whose retention is prohibited** by current regulations.

- CPCs explore methods to estimate catches of sharks in **purse seine and artisanal fisheries**.
  - Management measures should be applied to these sectors where catches of shark species are determined to be significant.
  - Methods for mitigating shark by-catch by these fisheries also need to be investigated and applied.

Management recommendations (Porbeagle)

- Porbeagle stocks in the NW and NE Atlantic are overfished, with the NE stock being more depleted. However, the main source of current fishing mortality is from **non-ICCAT, directed Porbeagle fisheries** that are being managed by most of the relevant Contracting Parties through quotas and other measures.

- The Commission should work with countries catching Porbeagle, particularly those with targeted fisheries, and relevant RFMOs to ensure recovery of North Atlantic Porbeagle stocks and prevent overexploitation of South Atlantic stocks.

- Porbeagle **catches should not exceed current levels**. New targeted porbeagle fisheries should be prevented, porbeagles retrieved alive should be **released alive**, and all catches should be **reported**.

- Management measures and data collection should be **harmonized among all relevant RFMOs**, and ICCAT should facilitate appropriate communication.

Management recommendations (Shortfin mako)

- Taking into consideration the continued high vulnerability ranking in the ERA, results from the modeling approaches used in the assessment, the associated uncertainty, and the relatively low productivity of shortfin mako sharks, the Committee recommends, as a precautionary approach, that **the fishing mortality of shortfin mako sharks should not be increased** until more reliable stock assessment results are available for both the northern and southern stocks.

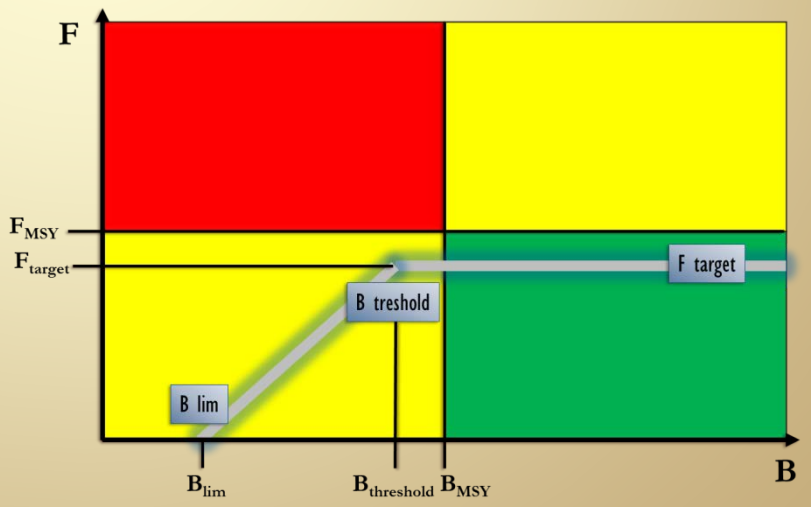
Responses to Commission's requests

16.9	Develop **Limit Reference Point for Swordfish**, Rec. [11-02], paragraph 4.
16.10	Evaluate the number of discards and releases of **silky sharks** with indication of status (dead or alive) provided by CPCs and report on the sources of silky shark mortality in ICCAT fisheries, including silky shark discard mortality rates, and provide an analysis and advice regarding the benefits of a range of specific silky shark management options, Rec. [11-08], paragraph 9.
16.11	Analyze the potential benefits and applicability of the use of **time/area closures** as a tool for **marlin conservation** Rec. [11-07], par. 4.
16.12	Review the methods used for **estimating live and dead discards** of blue marlin and white **marlin/spearfish** and provide advice on any improvements needed, Rec. [12-04], par. 8.
16.13	Review existing **regional or individual CPC data collection programs**, including capacity building programs, for **artisanal fisheries** and provide a plan to work with relevant regional and sub-regional international organizations and CPCs to expand such programs or implement them in new areas to **improve data on billfish catches** in these fisheries, Rec. [12-04], par. 9.
16.16	Evaluation of **data deficiencies** pursuant to Rec. [05-09].
16.17	Response to the Commission regarding Rec. 10-09 on the **bycatch of sea turtles** in ICCAT Fisheries [Rec. 10-09]

16.9 Develop **Limit Reference Point for Swordfish**, Rec. [11-02], paragraph 4.

- Should the Commission wish to implement an **interim limit reference point for the North Atlantic Swordfish**, then **0.4*B_{MSY}** will be consistent with the interim proposed for the North Atlantic Albacore and other tuna stocks.

- The current TAC of 13,700 t would translate to a target fishing mortality rate of 0.90*F_{MSY}. Given that the stock is above B_{MSY}, most biomass thresholds under consideration in a harvest control would have little impact upon management advice in the short term and therefore the Committee will develop **a more thorough evaluation** of HCR before providing a more complete response.



16.9 Develop **Limit Reference Point for Swordfish**, Rec. [11-02], paragraph 4.

Bthreshold	Ftarget	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	Average catch over 3 years	Cumulative catch over: 5 years	10 years	15 years
.6Bmsy	0.75Fmsy	88	92	95	96	99	99	99	99	100	100	100	100	100	100	100	11.740	59.787	122.391	185.947
	0.80Fmsy	88	92	95	96	97	99	99	99	99	100	100	100	100	100	100	12.402	62.678	127.161	192.322
	0.85Fmsy	88	92	94	95	96	97	99	99	99	99	99	100	100	100	100	13.050	65.448	131.556	198.016
	0.90Fmsy	88	92	94	95	96	96	96	99	99	99	99	99	99	99	100	13.683	68.099	135.588	203.049
	0.95Fmsy	88	92	93	94	95	95	96	96	96	97	99	99	99	99	99	14.302	70.633	139.269	207.438
.8Bmsy	0.75Fmsy	88	92	95	96	99	99	99	99	100	100	100	100	100	100	100	11.740	59.787	122.391	185.947
	0.80Fmsy	88	92	95	96	97	99	99	99	99	100	100	100	100	100	100	12.402	62.678	127.161	192.322
	0.85Fmsy	88	92	94	95	96	97	99	99	99	99	99	100	100	100	100	13.050	65.448	131.556	198.016
	0.90Fmsy	88	92	94	95	96	96	96	99	99	99	99	99	99	99	100	13.683	68.099	135.588	203.049
	0.95Fmsy	88	92	93	94	95	95	96	96	96	97	99	99	99	99	99	14.302	70.633	139.269	207.438
Bmsy	0.75Fmsy	88	92	95	97	99	99	100	100	100	100	100	100	100	100	100	11.665	59.581	122.256	185.849
	0.80Fmsy	88	92	95	97	99	99	100	100	100	100	100	100	100	100	100	12.323	62.457	127.019	192.227
	0.85Fmsy	88	92	95	96	99	99	99	100	100	100	100	100	100	100	100	12.966	65.209	131.407	197.924
	0.90Fmsy	88	92	94	96	99	99	99	100	100	100	100	100	100	100	100	13.596	67.841	135.430	202.961
	0.95Fmsy	88	92	93	95	98	99	99	99	100	100	100	100	100	100	100	14.211	70.354	139.099	207.356

Kobe II Strategy matrix, showing joint probabilities of B > B_{MSY} and F < F_{MSY} for HCR with diferent $B_{Tresholds}$ by $F_{Targets}$, constant F and constant catch projections [SCRS/2013/188]

16.10 Evaluate the number of **discards and releases of silky sharks** with indication of status (dead or alive) provided by CPCs and report on the sources of silky shark mortality in ICCAT fisheries, including silky shark discard mortality rates, and provide an analysis and advice regarding the benefits of a range of specific silky shark management options, Rec. [11-08], paragraph 9.

LL

- At-vessel mortality: EU-Portugal (55%), USA (56%), Venezuela (38%).
- Total mortality ranged between 84 and 100% of the silky sharks caught.

PS

Total bycatch of SHK ≈ 0.9 t per 1,000 t of target species (Amande et al., 2010; SCRS/2010/141)

Mortality of silky sharks:

- At-vessel mortality (IO): EU-France (67%)
- Total mortality (IO): EU-France (81%) [post-release mortality of 58%] (SCI 034)
- Unobserved mortality of silky sharks entangled in FADs has been estimated to be significant in the IO (Filmater et al., 2013)
- A 'best practices' manual for EU fishers has been prepared that aims to increase survival rates of sharks caught by PS.

16.10 Evaluate the number of **discards and releases of silky sharks** with indication of status (dead or alive) provided by CPCs and report on the sources of silky shark mortality in ICCAT fisheries, including silky shark discard mortality rates, and provide an analysis and advice regarding the benefits of a range of specific silky shark management options, Rec. [11-08], paragraph 9.

- **IOTC Resolution 13-08** calls upon CPCs with vessels fishing on FADs to submit management plans that include, inter alia, initiatives or surveys to investigate and if possible minimise catches of non-target species, and to design and deploy **FADs following guidelines aimed at reducing entanglement** of sharks, marine turtles, and other species.

- At its annual meeting in 2013, ICCAT could consider adopting similar measures to require the use of **non-entangling FADs**, as well as more complete reporting on FAD designs and deployment (as was recommended by the 2013 meeting of the Working Group on IMM).

- The **Shark Research and Data Collection Programme** (SRDCP) that is currently under development should address this issue more comprehensively in the future.

16.11 Analyze the potential benefits and applicability of the use of time/area closures as a tool for marlin conservation Rec. [11-07], par. 4.

- The SCRS discussed the issue and concluded that the time available was not sufficient to carry-out a proper analysis of the potential benefits and applicability of the use of time/area closures as a tool for marlin conservation.

- Accordingly the SCRS decided to hold an **inter-sessional meeting** to revise all data available on billfish and to prepare a response to the Commission on this particular issue.

16.12 Review the methods used for estimating live and dead discards of blue marlin and white marlin/spearfish and provide advice on any improvements needed, Rec. [12-04], par. 8.

The Working Group could not assess the methods used for estimating live and dead discards of blue marlin and white marlin/spearfish because CPCs did not report on the methodology.

16.13 Review existing regional or individual CPC data collection programs, including capacity building programs, for artisanal fisheries and provide a plan to work with relevant regional and sub-regional international organizations and CPCs to expand such programs or implement them in new areas to improve data on billfish catches in these fisheries, Rec. [12-04], par. 9.

- **Several CPCs reported on data collection initiatives** for their artisanal fisheries, several of which were dependent upon strategic investments from outside sources, including from data and capacity building funds from ICCAT.
- The case studies presented to the Committee (**see Sub-Committee on Statistics Report**) show the complexities of collecting artisanal data.
- The Committee was made aware if several **other projects, beyond the scope of ICCAT**, that are also seeking to improve artisanal fishery data collection.
- The Committee recommended that **interactions with these other projects** be started after first conducting an inventory of such initiatives and then by engaging in dialogue with the concerned CPCs, sub-regional international organizations, and funding sources, as appropriate. [e.g., COMHAFAT]

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

SWO data deficiencies

- **Data catalogues** (shown in previous slides)

- Other gaps and inadequacies:

  - Uncertainty of **stock structure** near the boundaries of the stocks.
  - Information on the numbers of **discarded dead and released alive**, and limited information on mortality of SWO discarded alive.
  - **Unreported catches**.
  - **CPUE**: problems with targeting and changes in main target species
  - South Atlantic: long term plan for an enhanced program of research
  - South Atlantic: attempt use SA **methods** that can reconcile the contradictory trends of CPUEs.

16.17 Response to the Commission regarding Rec. 10-09 on the bycatch of sea turtles in ICCAT Fisheries [Rec. 10-09]

In [Rec. 10-09] the Commission recommended that:

- *SCRS **initiate an assessment** of the impact of the incidental catch of sea turtles resulting from ICCAT fisheries as soon as possible and **no later than 2013**.*
- *After the initial assessment is complete and the results presented to the Commission, SCRS shall advise the Commission on the **timing of future assessments**.*
- *The SCRS shall also provide advice on **approaches for mitigating** sea turtle by-catch in ICCAT fisheries, including reducing the number of interactions and/or the mortality associated with those interactions.*

16.17 Response to the Commission regarding Rec. 10-09 on the bycatch of sea turtles in ICCAT Fisheries [Rec. 10-09]

APPROACHES FOR MITIGATION

The SCRS **reiterates the previous Commission recommendations** [10-09] that:

a) **PS avoid encircling sea turtles** to the extent practicable, **release encircled or entangled** sea turtles, including on FADs, when feasible, and **report interactions** between PS and/or FADs and sea turtles.

b) **LL vessels carry on board** safe-handling, disentanglement and release equipment capable of releasing sea turtles in a manner that maximizes their survival.

c) Fishermen on LL vessels **use the equipment** specified in item b (above) to maximize the probability of sea turtle survival and are **trained** in safe-handling and release techniques.

d) CPCs include in their Annual Reports **other relevant actions** taken to implement FAO's Guidelines to Reduce Sea Turtle Mortality in Fishing Operations with respect to ICCAT fisheries

16.17 Response to the Commission regarding Rec. 10-09 on the bycatch of sea turtles in ICCAT Fisheries [Rec. 10-09]

APPROACHES FOR MITIGATION

Furthermore, the SCRS specifically recommends that:

a) Regarding **safe-handling** practices:

i) Use of basket lift or dip-net to bring aboard sea turtles
ii) Assess their condition prior to release.
iii) Turtles be handled in a manner consistent with the FAO's Guidelines to Reduce Sea Turtle Mortality in Fishing Operations.

b) Regarding the use of **line cutters**:

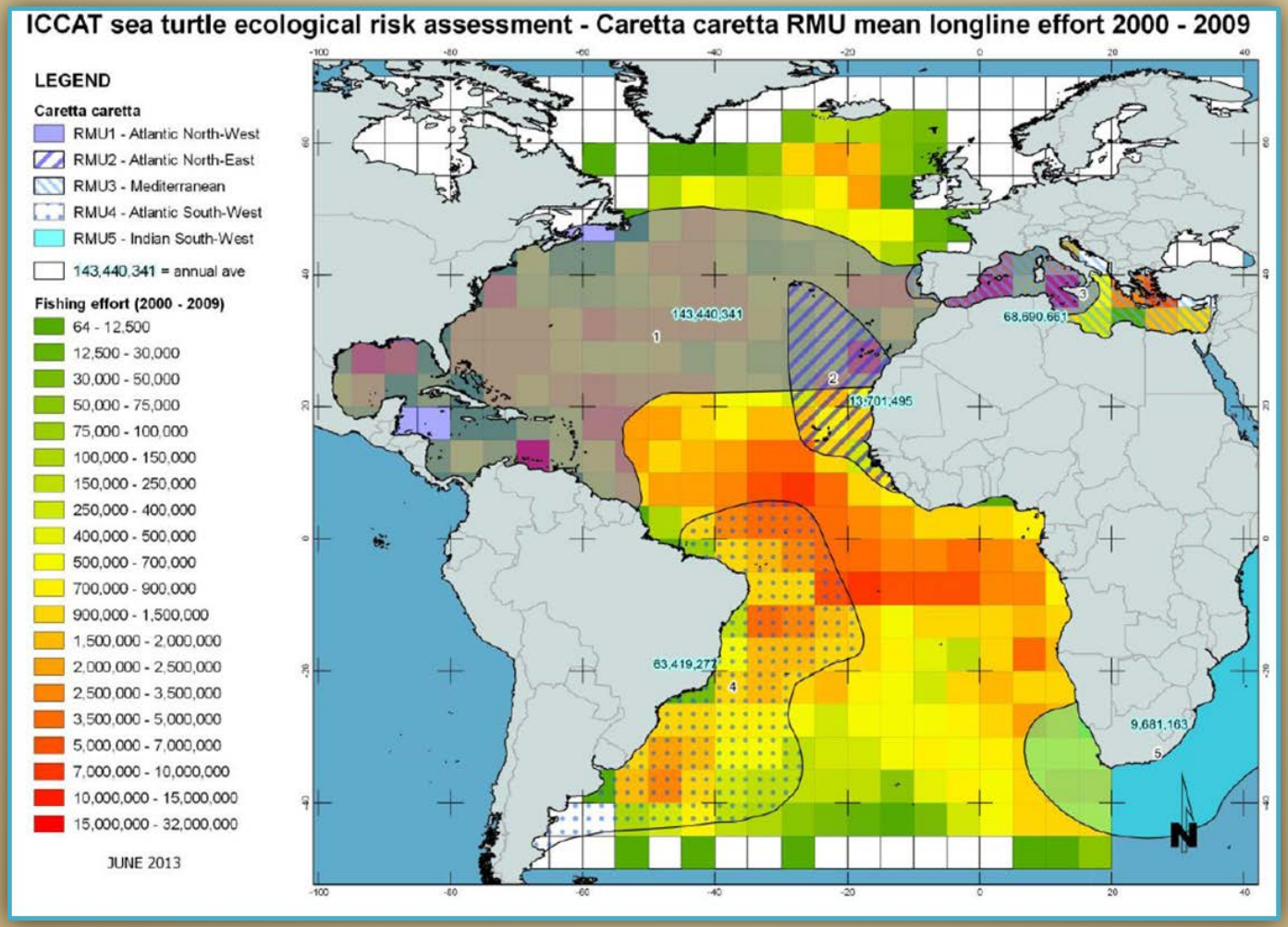
i) LL vessels carry on board line-cutters (use when safe de-hooking is not possible).
ii) Other vessels that use gear that may entangle sea turtles should carry on board line-cutters to safely remove gear, and release sea turtles.

c) Regarding the use of **de-hooking devices**:

i) LL vessels carry on board de-hooking devices to effectively and safely remove hooks from sea turtles. The Sub-Committee also recommends that when a hook is swallowed, no attempt be made to remove the hook. Instead, the line should be cut as close to the hook as possible.

16.17 Response to the Commission regarding Rec. 10-09 on the bycatch of sea turtles in ICCAT Fisheries [Rec. 10-09]

ASSESSMENT OF THE IMPACT



16.17 Response to the Commission regarding Rec. 10-09 on the bycatch of sea turtles in ICCAT Fisheries [Rec. 10-09]

ASSESSMENT OF THE IMPACT

The SCRS has initiated an **Ecological Risk Assessment** (ERA) for sea turtles in 2013. Progress to date includes:

- In 2013 ICCAT provided a **short-term contract** that supported the development of a preliminary ERA for sea turtles species encountered by ICCAT fisheries. The ERA used data provided to the Secretariat by CPCs in 2011 and 2012, and as collated under a short-term contract funded by ICCAT in 2012 and other data sources compiled by the contractor.

- At its **inter-sessional meeting in 2013**, the Sub-Committee on Ecosystems reviewed the ERA progress to date and made important **recommendations to improve the assessment** over the short (before 10/2013), medium (2014-2015) and long-term (2015+), including a request for updated/additional data from the CPCs.

- The **SCRS will continue to improve the ERA** and will advise the Commission on its plan for future sea turtle impact analyses at the 2014 meeting.

P4 Research and Statistics

ICCAT Enhanced Research Program for Billfish

Activities carried out in 2013:

- Update of species composition and size data from small-scale and LL fleets SCRS 2013/204 Cabo Frio (Brazil)
- Research on reproduction and spawning [SCRS 2013/206] Southern Brazil
- Identification of Tetrapterus species
  - Identification by observers based on morphometrics [SCRS 2013/205] Southern Brazil
  - Identification from genetic samples: distribution of 500 genetic sample kits to observers
- Estimates of apparent survival for billfish from tagging data [SCRS 2013/032] Venezuelan recaptured fish

See details of the Plans in Apendix 6 of the 2013 SCRS Report

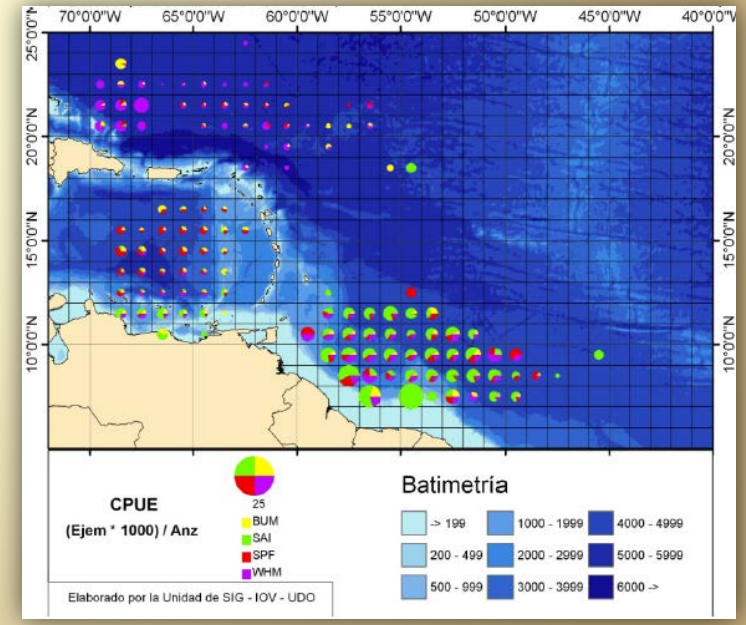
ICCAT Enhanced Research Program for Billfish

Summary budget for 2013 (as of 24-9-2013)

Source	Euros (€)
Balance transferred from 2012	21,552.83
Income (ICCAT Regular Budget and others)	39,212.00
Expenditures and obligations (see Table 2)	-47,754.11
Estimated BALANCE at the end of 2013	13,010.72
Total	**26,021.44**

Summary budget for 2014

Source	Euros (€)
Balance at start of FiscalYear 2014 (estimated)	13,010.72
Income (requested from ICCAT Regular Budget)	31,212.00
Other contributions	8,000.00
Expenditures (see Table 4)	50,800.00
BALANCE	1,422.72
Total	**104,445.44**



See details of the Plans in Apendix 6 of the 2013 SCRS Report

ICCAT Small Tunas Year Program (SMTYP)

Phase 1 : Data recovery plan (2013)

- Recovery of historical Task I and Task II data:
  1- Mediterranean and black seas;
  2- Western Africa;
  3 - Carribeen & South west Atlantic

- **Activities carried out in 2013**

CPCs	Species	Type data	Time series
Senegal	Little tunny, Atlantic bonito, West African Spanish mackerel, Frigate tuna	Task II: C/E, Sampling size	1990-2012
Ivory coast	Little tunny, Atlantic bonito, West African Spanish mackerel, Frigate tuna, Wahoo	Task I Task II: C/E, Sampling size	1990-2011
Morocco	Little tunny, Atlantic bonito, Frigate tuna, Plain bonito	Task II: C/E	1984-2011

See details of the Plans in Apendix 7 of the 2013 SCRS Report

ICCAT Small Tunas Year Program (SMTYP)

Planned activities for 2014

- Continue the collection of SMT historical Task I and Task II in other areas: Mediterranean and South West Atlantic.
- Support biological sampling of SMT in the main landing ports and sites of these species in West Africa: Senegal, Ivory coast and Morocco.
- Analyze the historical data collected under this program in 2013 and present the results to the 2014 SCRS meeting.

See details of the Plans in Apendix 7 of the 2013 SCRS Report

ICCAT Small Tunas Year Program (SMTYP)

Preliminary estimated budget for 2014

Planned activities	Estimated costs (€)
Recovery Task 1 and Task II data in the Mediterranean and the west Atlantic:	
❑ Eastern Mediterranean: Turkey, Greece	15,000 €
❑ Central Mediterranean: Tunisia, Italy	15,000 €
❑ Western Mediterranean: Spain	7,500 €
❑ South west Atlantic & Caribbean sea : Venezuela & Brazil	15,000 €
Supporting biological sampling in the north west Atlantic: size and biological data:	
❑ Senegal	7,500 €
❑ Ivory coast	7,500 €
❑ Morocco	7,500 €
Total	**75,000 €**

See details of the Plans in Apendix 7 of the 2013 SCRS Report

SWO General recommendations to the Commission that have financial implications

Support **external expertise** to assist the Group with its modelling work during the Mediterranean swordfish stock assessment.

Other recommendations

- **Impact of management on CPUE series:** It is essential to maintain the integrity of CPUE time series . To this end and, to the extent possible, any **management action that may affect catchability** should either:
  a) be **phased in over a series of years** so that there is overlap, allowing the effect of the action to be estimated; or
  b) have the **effect of the action be assessed experimentally,** e.g., testing the effects of a new hook type.

- It is essential that CPCs involved in the **Mediterranean SWO** fisheries make the necessary arrangements to ensure the **presence of their national scientists** at the assessment meeting.

BIL General recommendations to the Commission that have financial implications

The Committee recommends that the Commission and all CPCs concerned reaffirm their commitments to **Enhanced Billfish Research Program** by funding the 2014 budget in full.

Other recommendations

One of the main problems with the assessment of WHM was that the Task I catches were incomplete. This situation resulted in recreational and artisanal fisheries being poorly sampled, a problem that is exacerbated in the billfish catches coming from the Caribbean Sea.

The solution to this persistent problem must start with the Committee being **more involved with the regional management bodies** and local government entities that exist in the area.

SMT General recommendations to the Commission that have financial implications

Reconduct the ICCAT annual **SMT Research Programme** for 2014 to further improve statistical and biological data related to these species.

Other recommendations

- The CPCs should make the necessary arrangement to ensure a large **participation** of their national scientists at the ICCAT Small Tunas Species Group meeting.
- All countries should **report SMT Task I and Task II data**.
- National scientists should review their small tuna catches and **try to classify** them by species using ICCAT SMT identification sheets. CPCs should report catches of frigate tuna (FRI) in the Mediterranean as bullet tuna (BLT).

SHK General recommendations to the Commission that have financial implications

The Committee recommends a meeting of a **small group of SCRS scientists be held in 2014** to define the operative aspects of the Program on the Collection of Data and Research on Sharks.

Other recommendations

- Adopt measures to **enable scientific observers to collect biological samples** from the shark species that are currently prohibited which are dead in the set, provided that such samples are for a research project approved by the SCRS.

- Considering the need to improve the stock assessments of pelagic sharks affected by the ICCAT fisheries, the Committee recommends that the CPCs provide **data** corresponding to all the **ICCAT and non-ICCAT fisheries** that catch these species, which also includes the artisanal and recreational fisheries.

SHK General recommendations to the Commission that have financial implications

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- Considering the need to improve the stock assessments of pelagic sharks affected by the ICCAT fisheries, the Committee recommends that the CPCs provide **data** corresponding to all the **ICCAT and non-ICCAT fisheries** that catch these species, which also includes the artisanal and recreational fisheries.

SWO

- **Atlantic N & S: SA is proposed for 2016.** The 2014 Plan focus on the priorities recommended in the Report of the 2013 ICCAT Atlantic Swordfish Stock Assessment Session (SCRS/2013/019).
- **Mediterranean: SA is proposed for 2014.** The 2014 Plan identifies tasks, responsabilities and timeframes to conduct the SA.

BIL

- **Intersessional meeting** for the purpose of analyzing existing billfish data to identify gaps and uncertainties in the data. Develop a strategy to obtain the information required for assessment.
- **Sailfish SA in 2015**

SHK

- **Intersessional meeting** for the purpose of analyzing existing shark data to identify gaps and uncertainties in the data. Develop a strategy to obtain the information required for assessment and finalize the SHK Research Plan.
- **Blue shark** data preparatory meeting and **SA in 2015**

See details of the Plans in Apendix 4 of the 2013 SCRS Report

SMT

- Continue **improving statistical and biological data** as well as the structure of small tuna populations.

SCECO

- Coordinated group of scientists from the CPCs and the bycatch coordinator will continue with the assessment of the impact of ICCAT fisheries on sea turtles as initiated in 2012 .
- An **updated ERA on sea turtles** will be presented to the Sub-Committee on Ecosystems meeting 2014.

SCSTAT

- Develop an **inventory** of the recent and on-going **initiatives to improve artisanal fishery data collection** activities amongst the CPCs. [short contract needed]

See details of the Plans in Apendix 4 of the 2013 SCRS Report