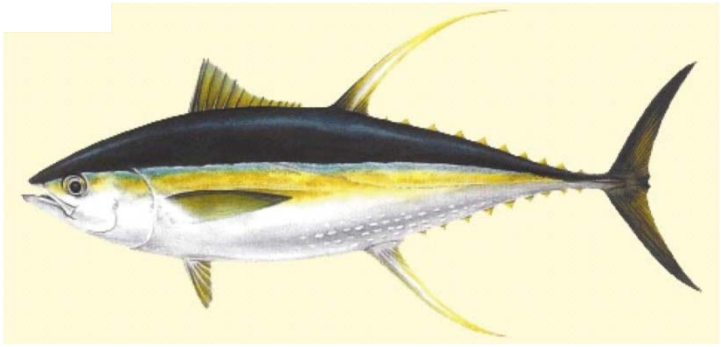
NOAA FISHERIES

Southeast
Fisheries
Science Center

Presentation of 2015 SCRS Meeting Results and Advice

2015 Fall Meeting of the
Advisory Committee to the U.S. Section to the
International Commission for the Conservation of Atlantic Tunas
October 8th–9th, 2015 Silver Spring, MD

Bigeye, Albacore, Yellowfin and Skipjack (BAYS) Tunas



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Yellowfin Tuna

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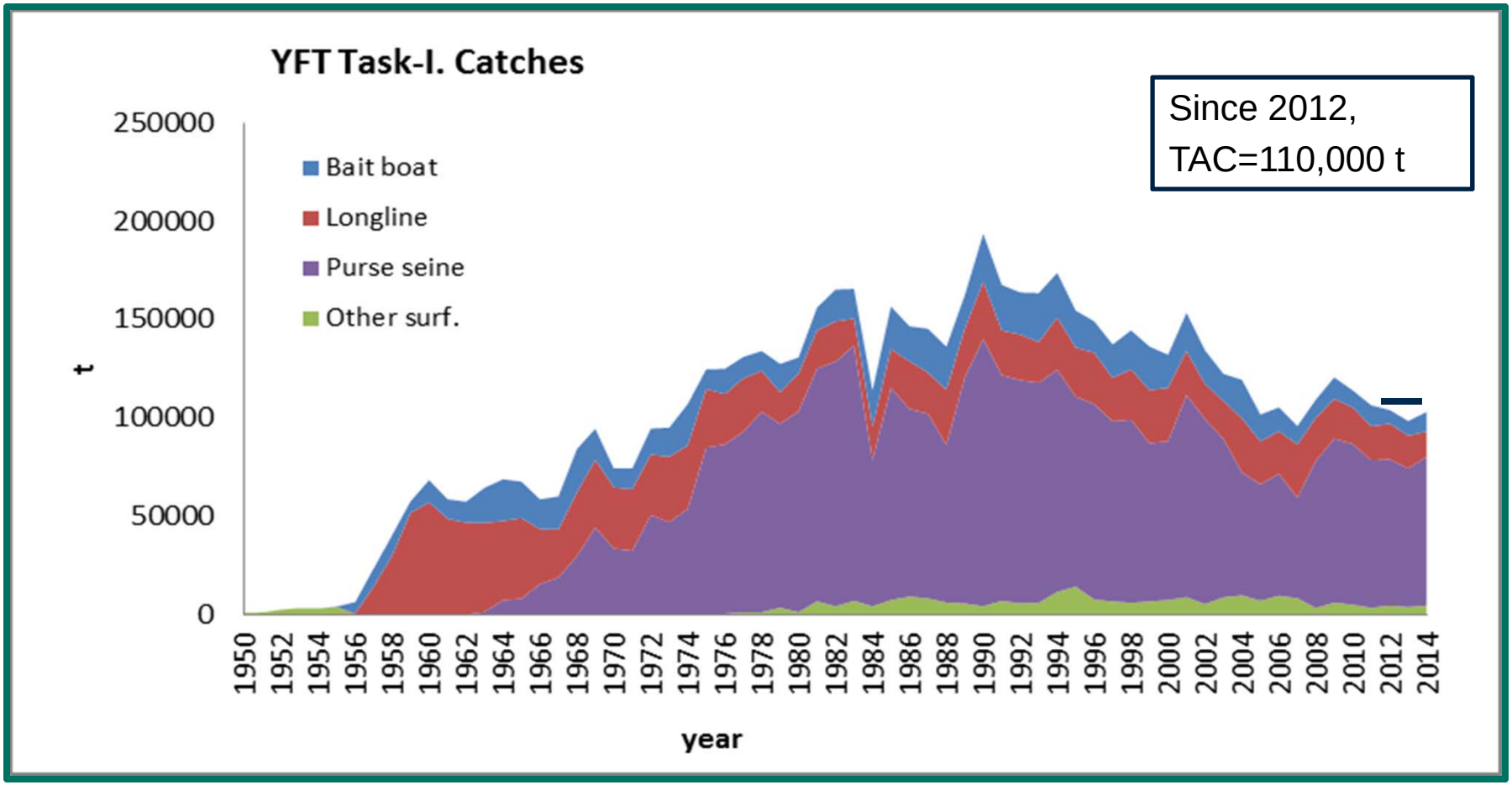
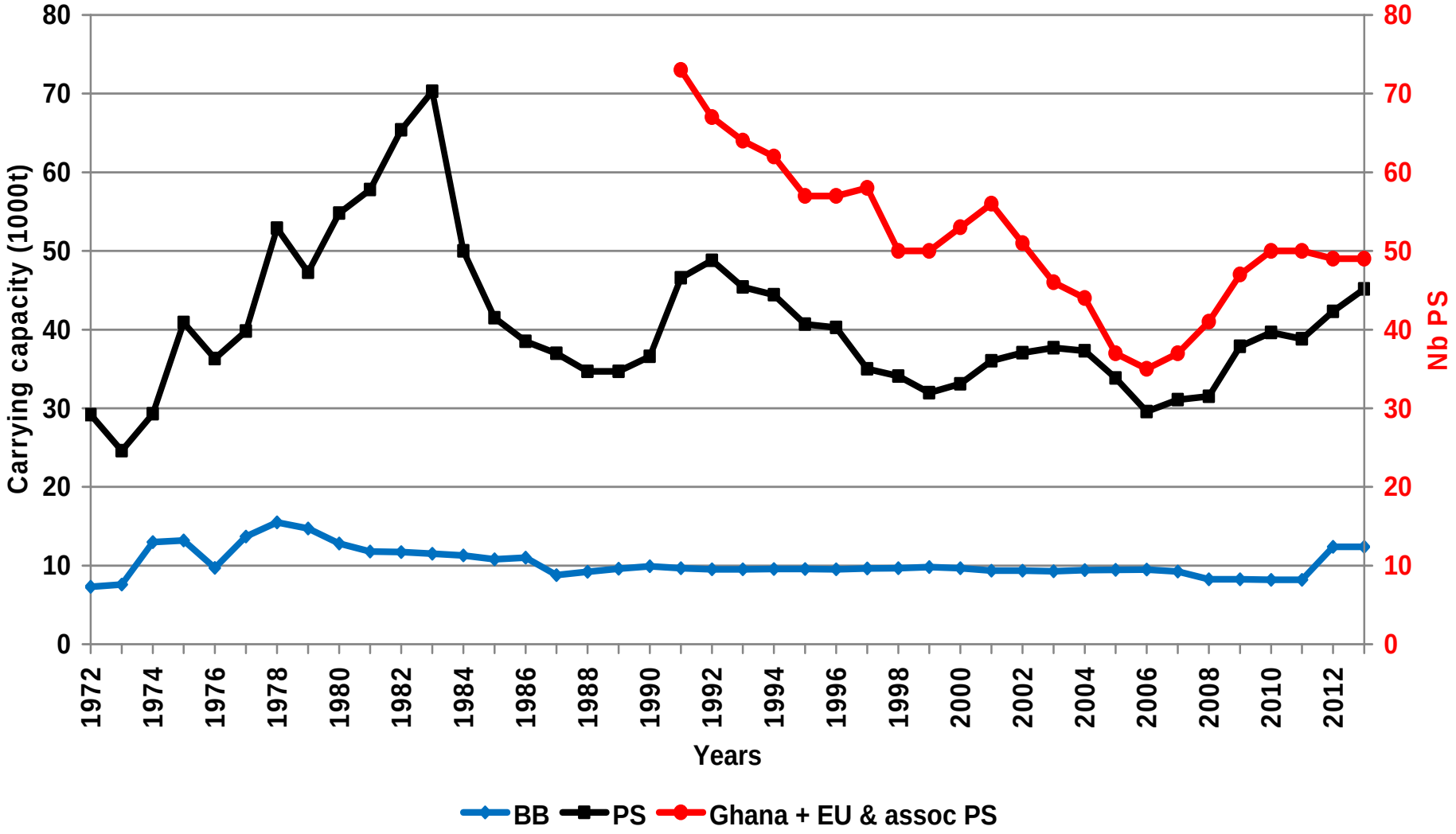
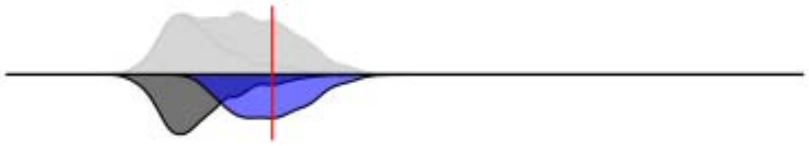
Yellowfin Tuna

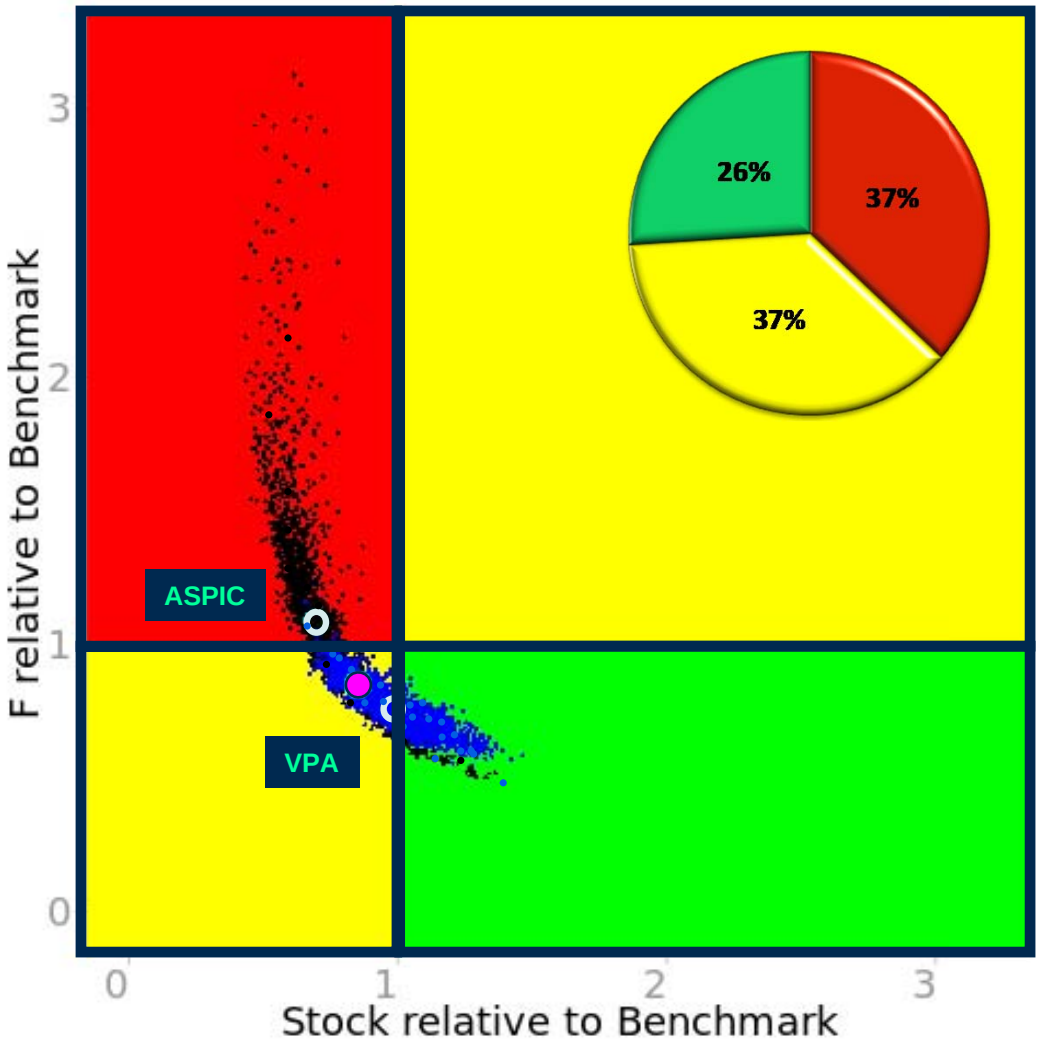


Impacts of Increased PS effort



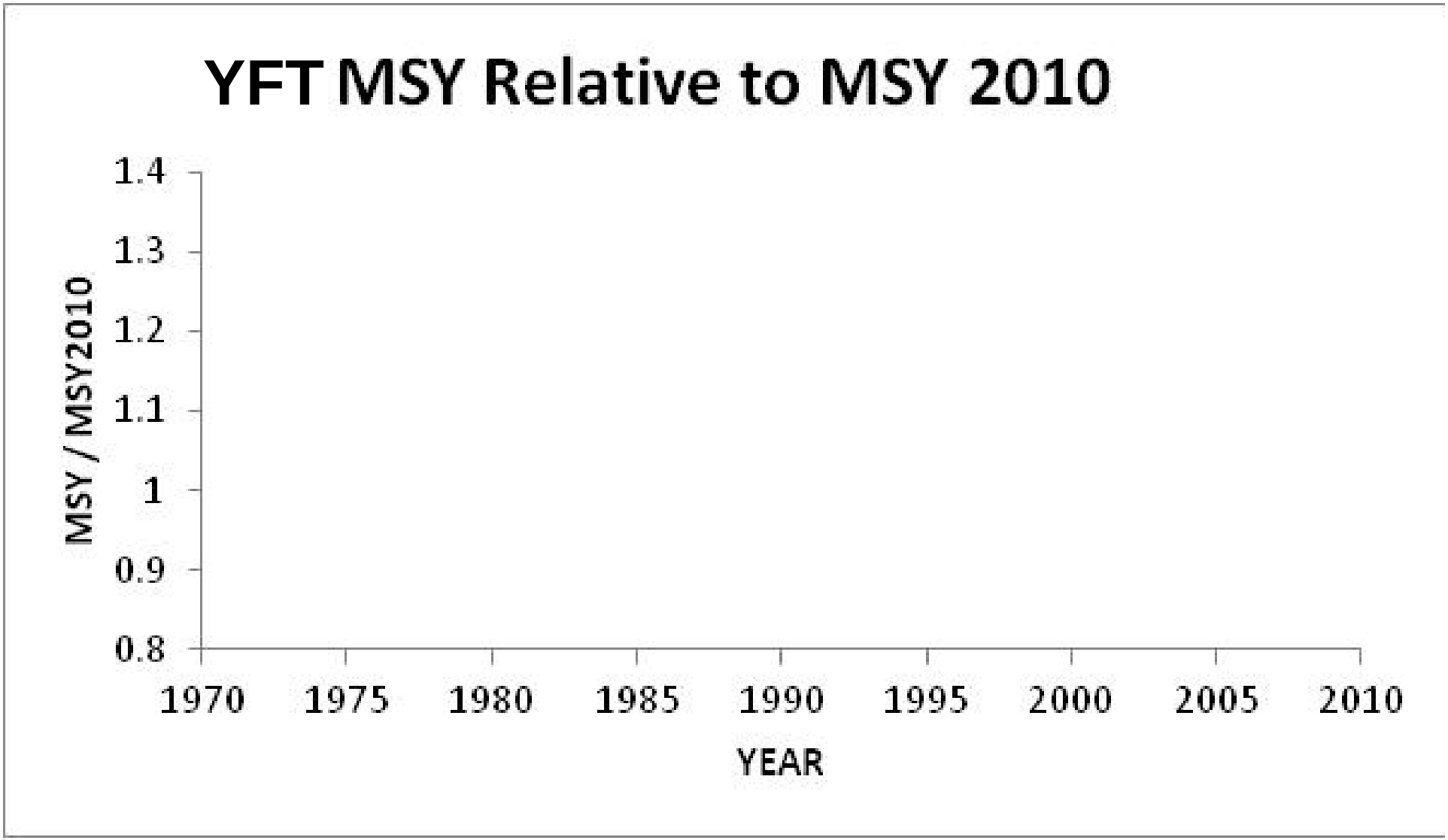
Stock Status estimated for 2010 (2011 Assessment)





Estimates of MSY are calculated assuming recent selectivity

(i.e. the current mix of gears and fishing strategies,
and the probability of catching particular sizes/ages)



ATLANTIC YELLOWFIN TUNA SUMMARY

Maximum Sustainable Yield (MSY)		144,600[1] (114,200 - 155,100)
2014 Yield		103,443 t
Relative Biomass	B_{2010}/ B_{MSY}	0.85 (0.61-1.12)[2]
Relative Fishing Mortality: $F_{current\ (2010)}/F_{MSY}$		0.87 (0.68-1.40)[2]

Management measures in effect:
[Rec. 11-01 as revised in 14-01]):

- Time-area closure for FAD
- TAC of 1
- Spec for tropical tunas for vessels 20 meters or greater.
- Spec its of number of longline and/or purse seine boats for a number of fleets

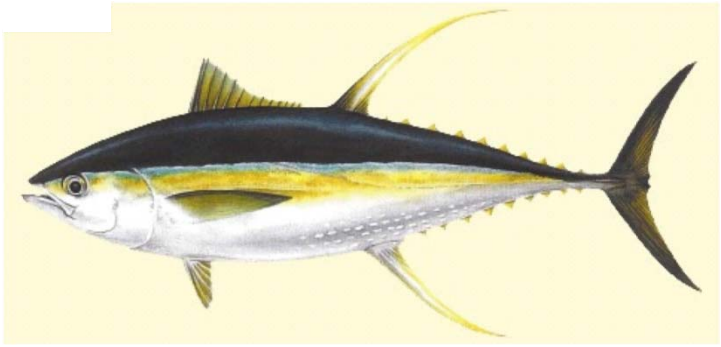
Scheduled for assessment in 2016

NOTE: $F_{current(2010)}$ refers to F_{2010} in the case of ASPIC, and the geometric mean of F across 2007-2010 in the case of VPA. As a result of the constant trend in recruitment estimated by the VPA model, F_{MAX} is used as a proxy for F_{MSY} for VPA results. Relative biomass is calculated in terms of spawning stock biomass in the case of VPA and in fishable biomass in the case of ASPIC.

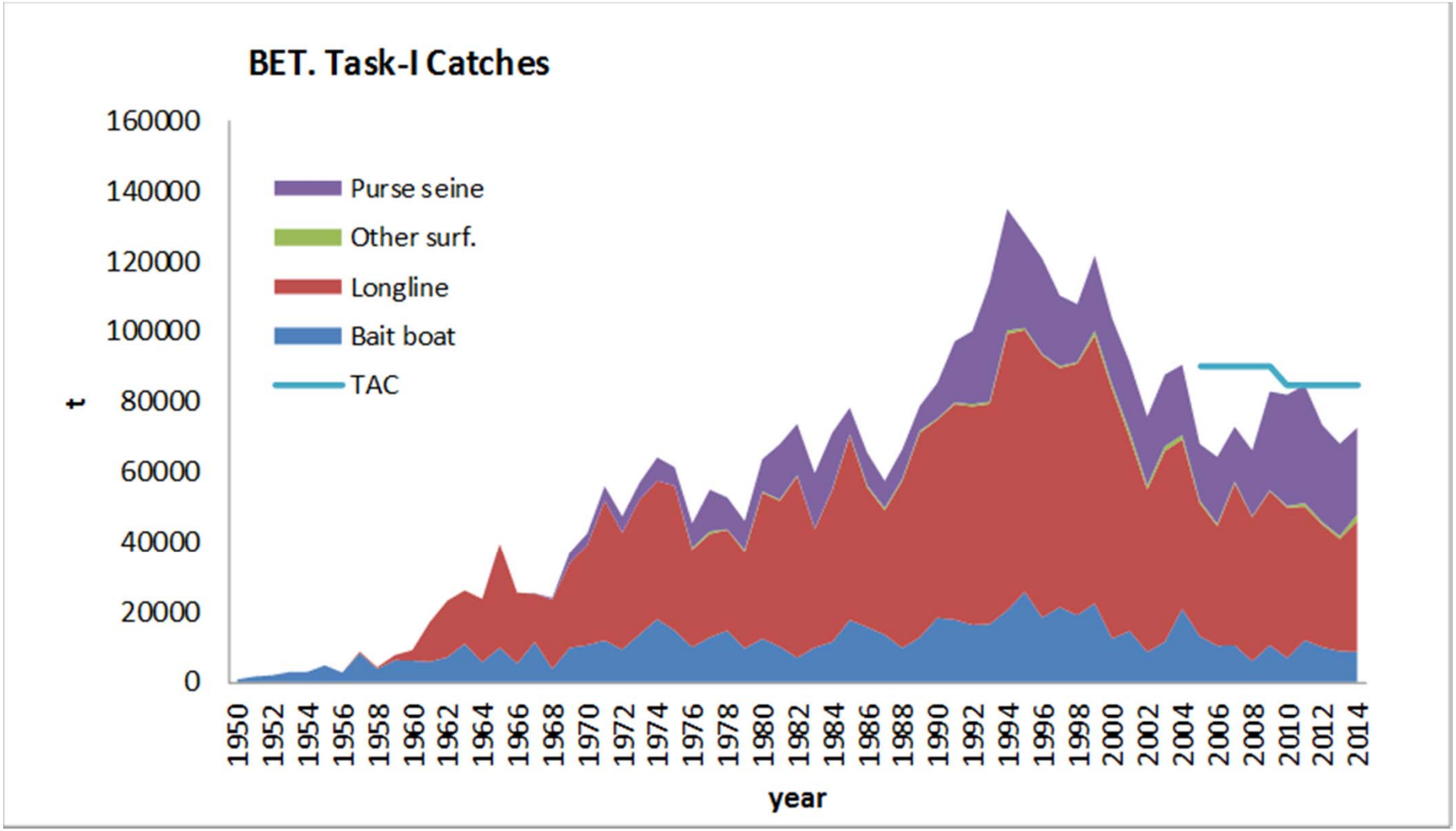
[1] Estimates (with 80% confidence limits) based upon results of both the non-equilibrium production model (ASPIC) and the age-structured model (VPA).

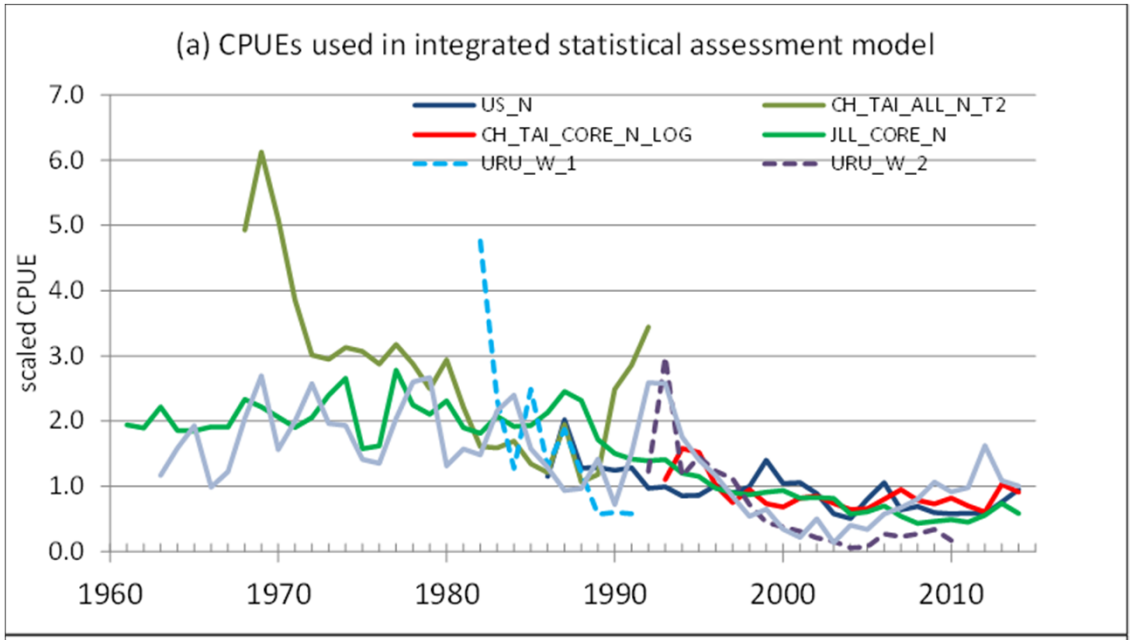
[2] Median (10^{th}-90^{th} percentiles) from joint distribution of age-structured and production model bootstrap outcomes considered.

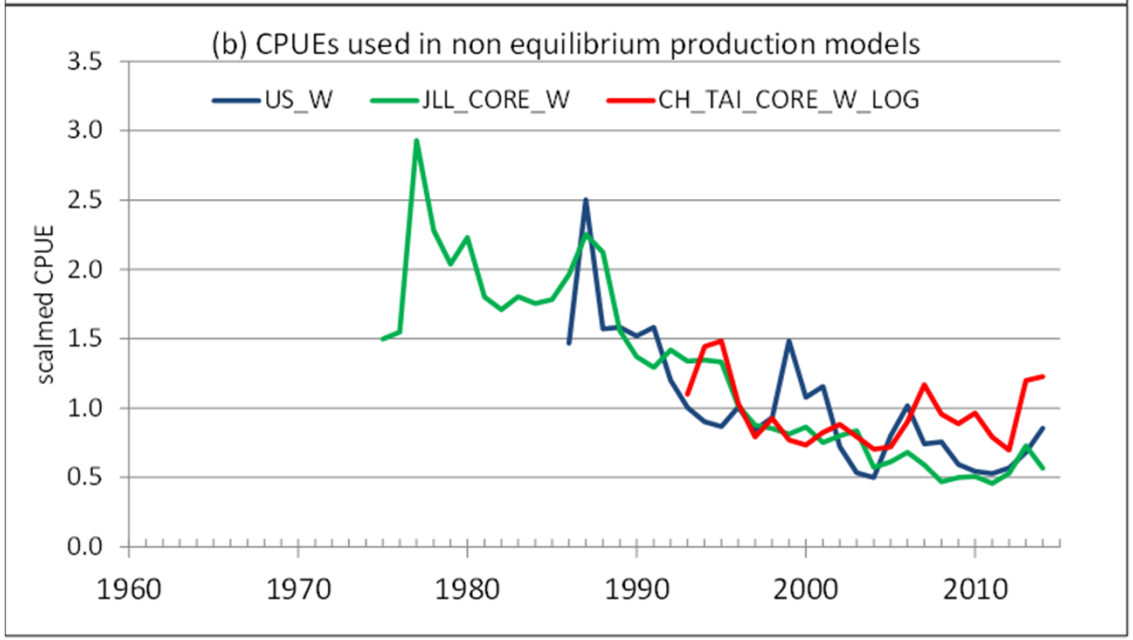
Bigeye, Albacore, Yellowfin and Skipjack (BAYS) Tunas



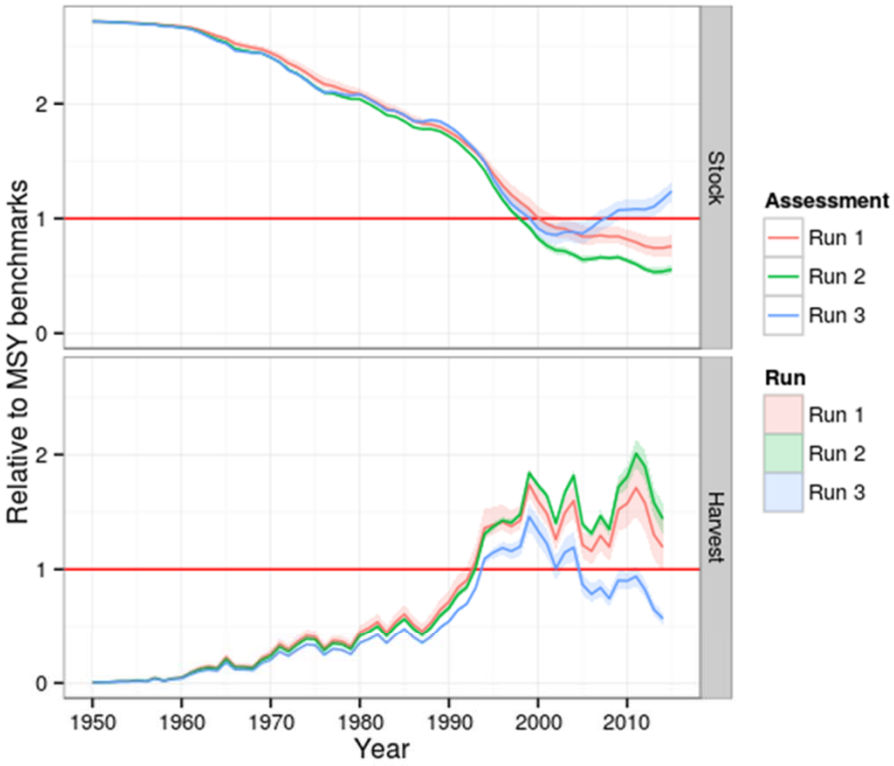
Bigeye tuna assessed in 2015 (last assessment 2010)



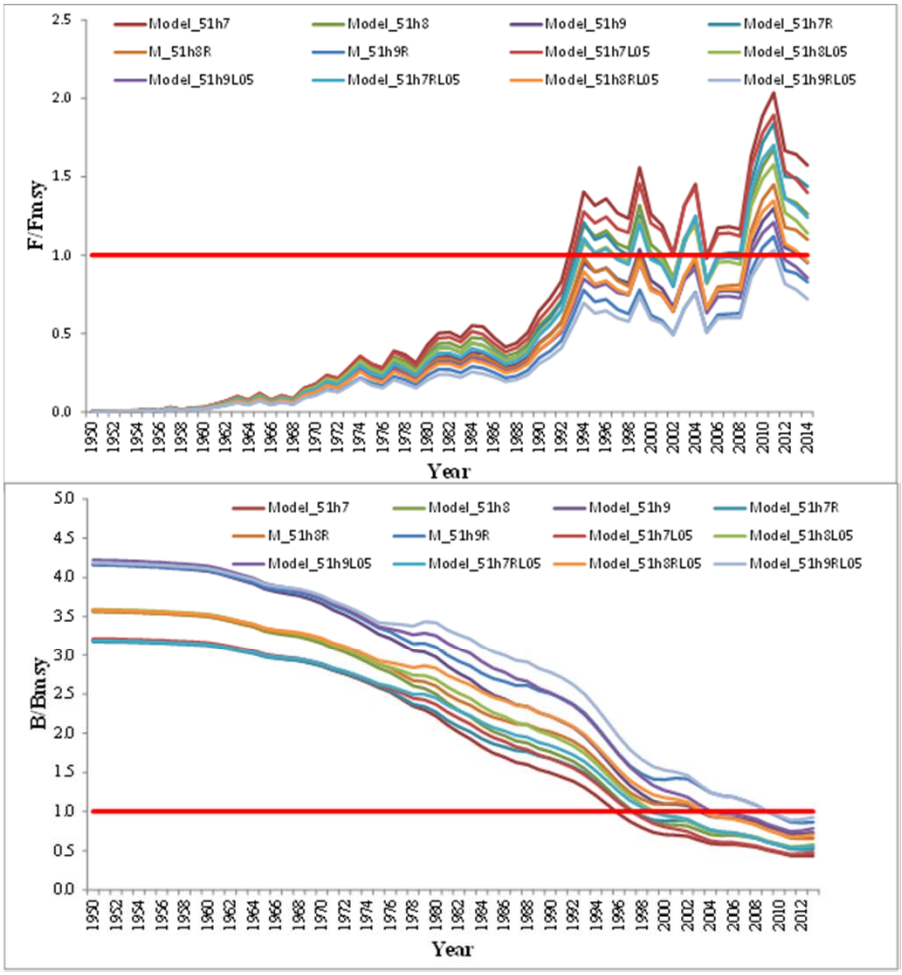

(a) CPUEs used in integrated statistical assessment model
scaled CPUE
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1960
1970
1980
1990
2000
2010
US_N
CH_TAI_ALL_N_T2
CH_TAI_CORE_N_LOG
JLL_CORE_N
URU_W_1
URU_W_2


(b) CPUEs used in non equilibrium production models
scalmed CPUE
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1960
1970
1980
1990
2000
2010
US_W
JLL_CORE_W
CH_TAI_CORE_W_LOG

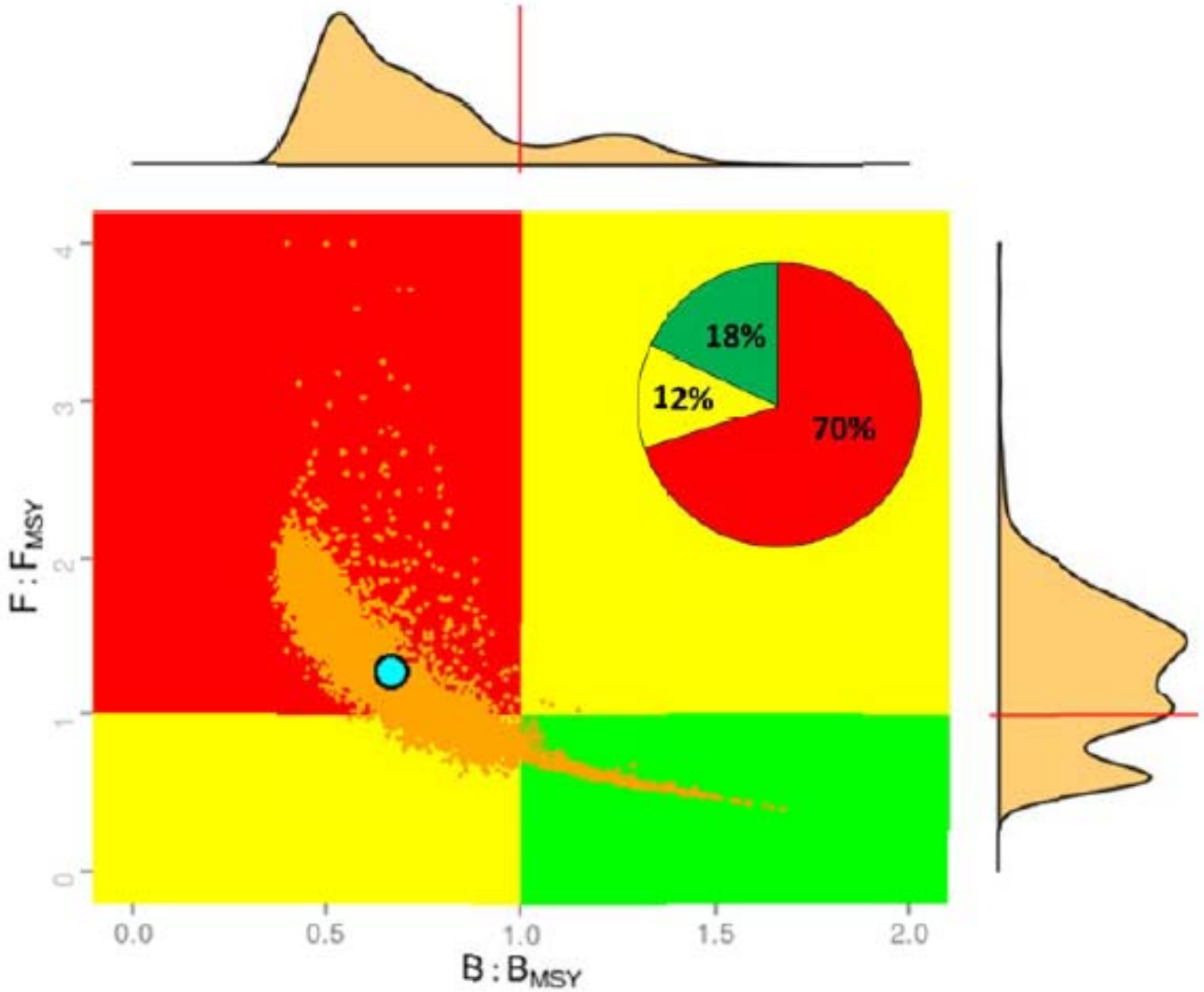
Production Model (ASPIC)



Integrated Model (Stock Synthesis)



2014 Bigeye Tuna Stock Status (both models, all runs, combined)



Orange dots are individual estimates of stock status from bootstrap runs (ASPIC) or random draws from the error distribution (SS)

ATLANTIC BIGEYE TUNA SUMMARY

Maximum Sustainable Yield	78,824 t (67,725-85,009 t)
Current (2014) Yield	72,585 t [2]
Relative Biomass (B_{2014}/B_{MSY})	0.67 (0.48-1.20)[1]
Relative Fishing Mortality F_{2014}/F_{MSY}	1.28 (0.62-1.85)[1)]
Overfished	Yes
Overfishing	Yes

Conservation & management measures in effect: [Rec. 14-01]

- Total allowable catch for 2012-2015 is set at 85,000 t for Contracting Parties and Cooperating non-Contracting Parties, Entities or Fishing Entities.
- Be restricted to the number of their vessels notified to ICCAT in 2005 as fishing for bigeye tuna.
- Specific limits of number of longline boats; China (45), Chinese Taipei (75), Philippines (11), Korea (14), EU (269) and Japan (245).
- Specific limits of number of purse seine boats; Panama (3), EU (34) and Ghana (13).
- No fishing with natural or artificial floating objects during January or February in the area encompassed by the African coast, 10° S, 5°E and 5°W.

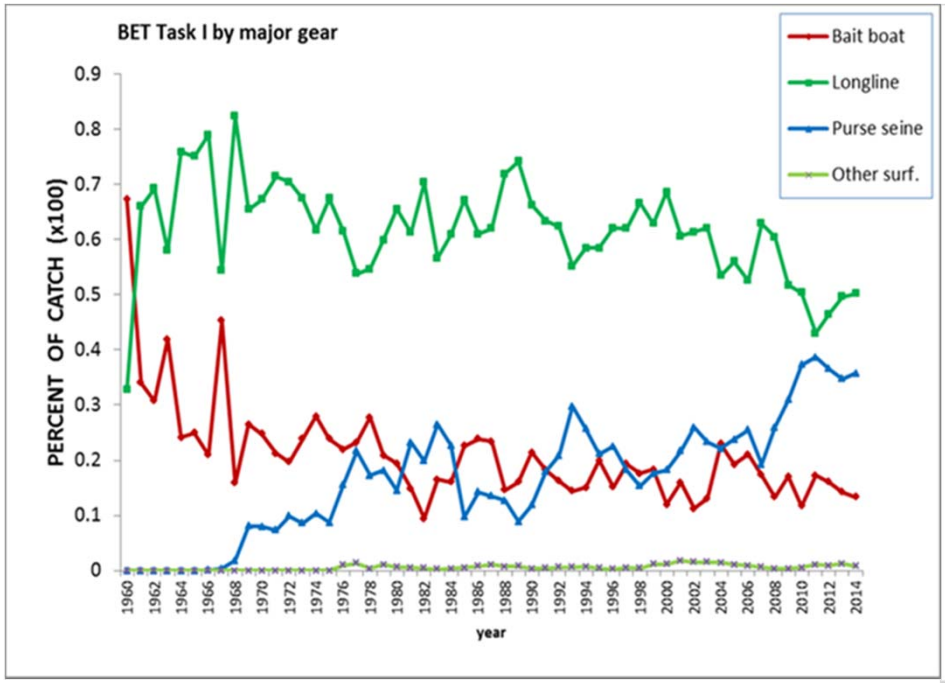
[1] Combined results of non-equilibrium production model and statistical integrated assessment models. Median and 10 and 90 % percentile in brackets.

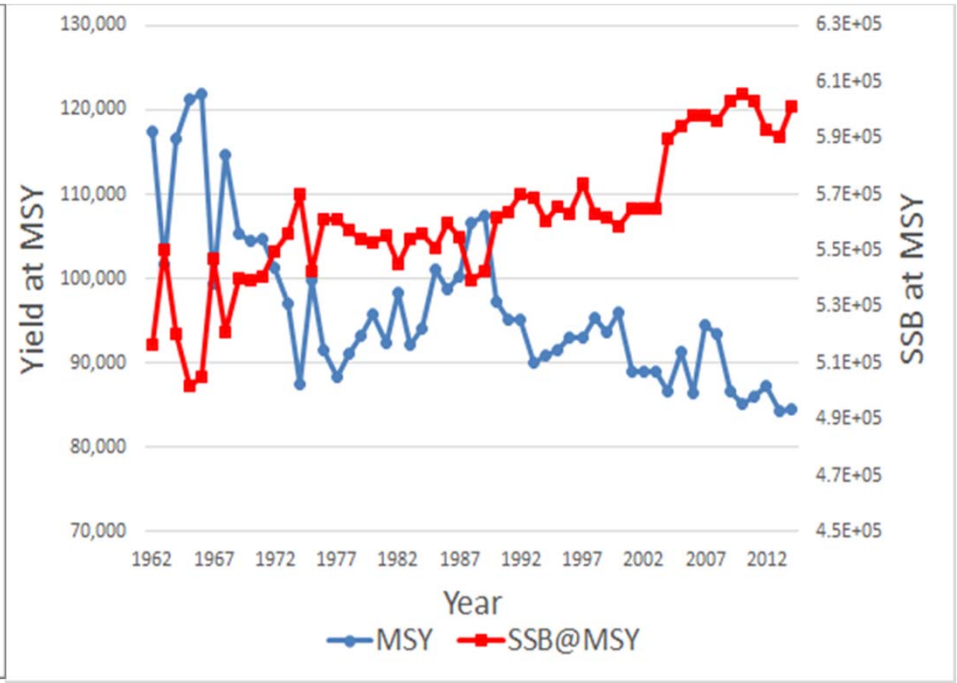
[2] Reports for 2014 reflect most recent data but should be considered provisional.

Probability of being in the green zone (B>Bmsy and F<Fmsy)

Catch (000 t)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
0	17	17	21	33	57	74	85	92	95	97	98	98	99	99
40	17	17	18	22	31	40	51	60	67	73	78	81	84	87
45	17	17	18	21	29	37	45	53	60	66	71	76	79	81
50	17	17	18	20	27	34	41	48	53	59	64	69	72	76
55	17	17	18	20	25	31	37	42	47	51	56	60	64	68
60	17	17	17	19	23	28	33	37	40	44	48	52	55	58
65	17	17	17	18	22	26	30	33	36	39	42	44	46	49
70	17	17	17	18	21	24	26	30	31	34	36	38	39	41
75	17	17	17	18	19	22	24	26	27	29	31	32	33	35
80	17	16	16	16	18	19	21	22	23	25	26	27	28	29
85	17	16	16	16	18	18	20	21	21	22	25	24	26	29
90	17	15	15	15	16	16	17	19	19	19	19	18	18	19
95	17	14	14	13	13	12	12	12	12	11	10	10	10	8
100	17	12	11	10	8	7	6	6	5	4	6	5	4	3

Moving the goal posts:
Changing benchmarks with changes in selectivity





The proportion of landings coming from purse seines (primarily ages 0 &1) is increasing.

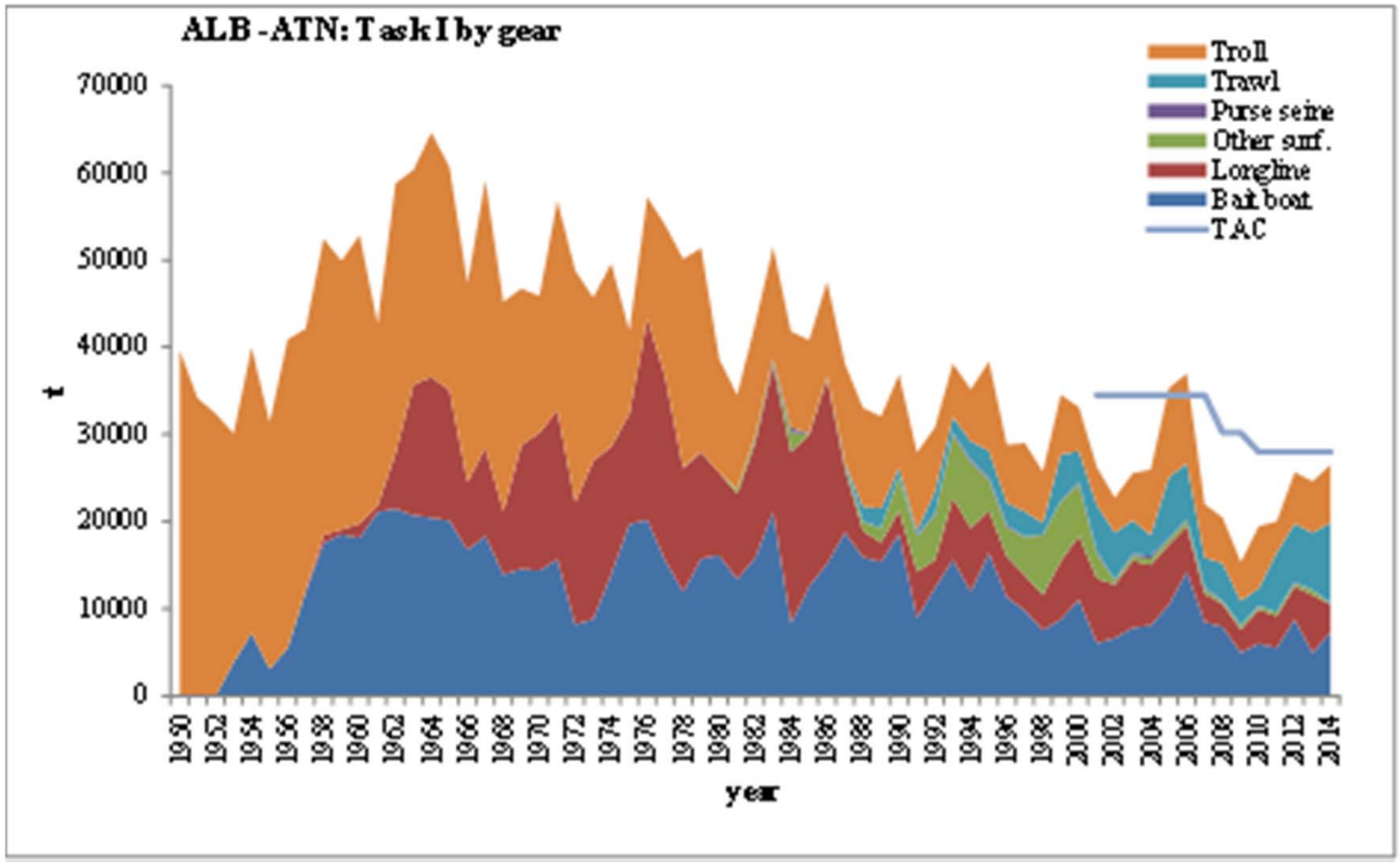
Consequently, MSY is decreasing while the SSB required to achieve MSY is increasing


ALBACORE!

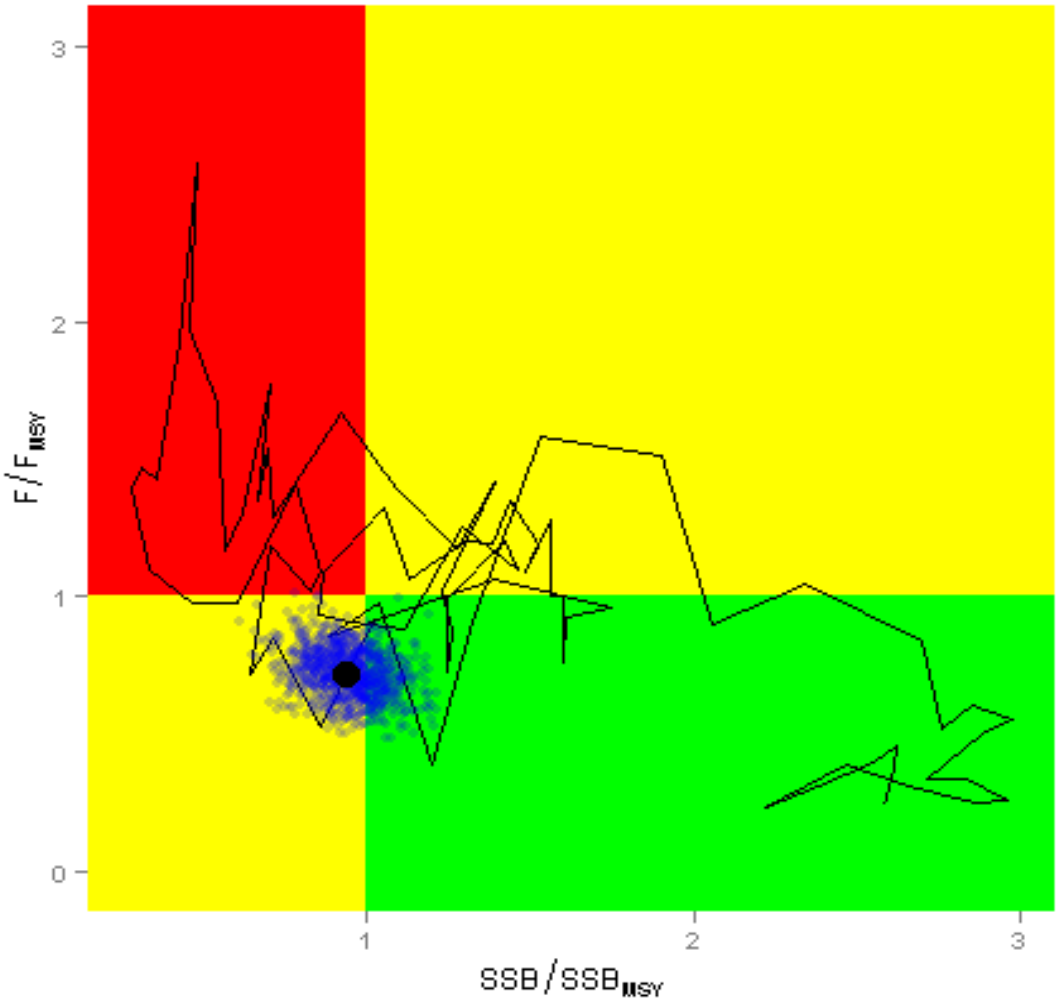
North Atlantic Albacore

Catch (mt) by Gear Type:

2006-2014 Catches below TAC



North Atlantic Albacore 2013 Assessment Stock Status (and historical trend)



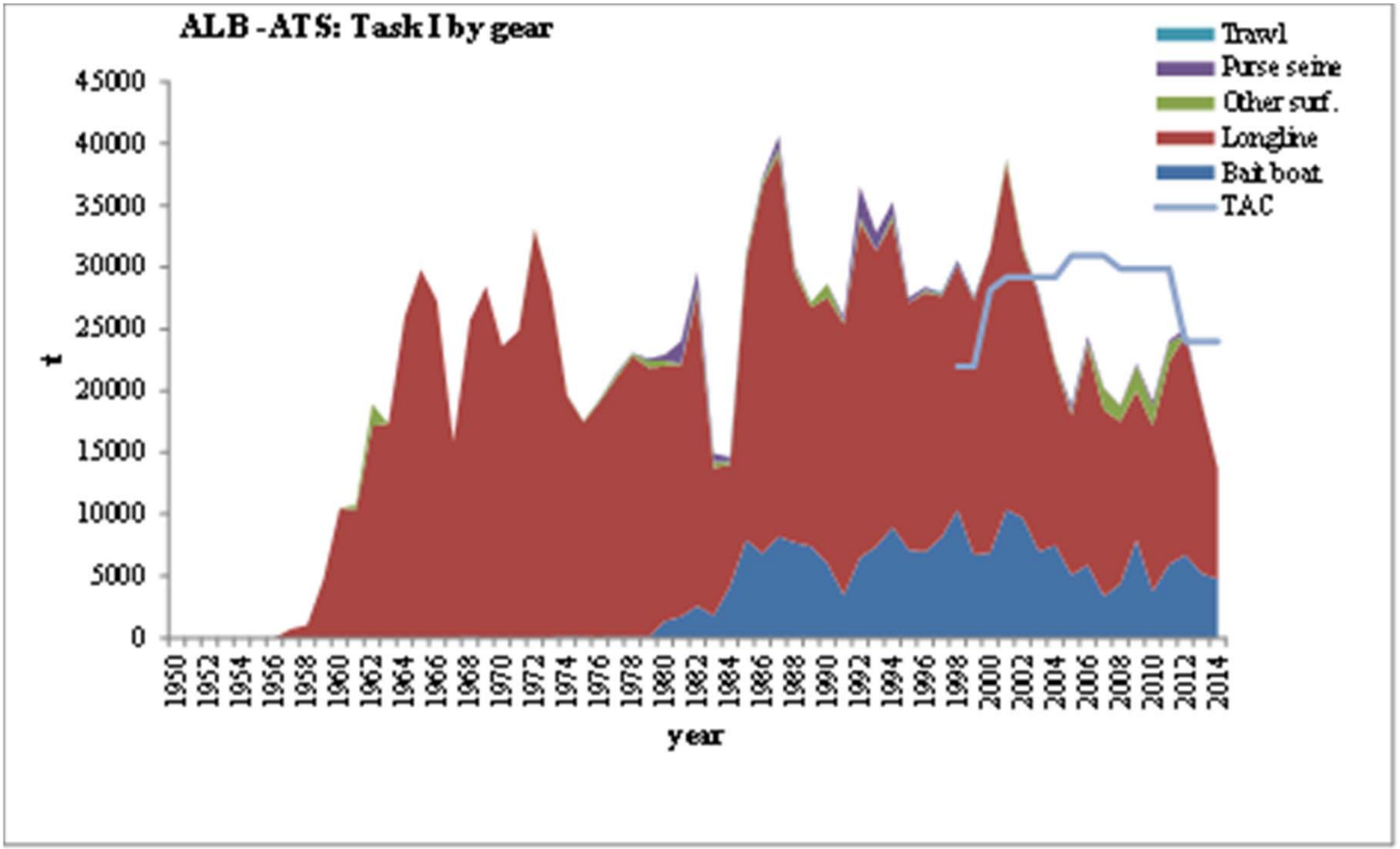
Slightly overfished: SSB/SSBMSY=0.94

No longer overfishing: F/FMSY=0.72

South Atlantic Albacore

Catch (mt) by Gear:

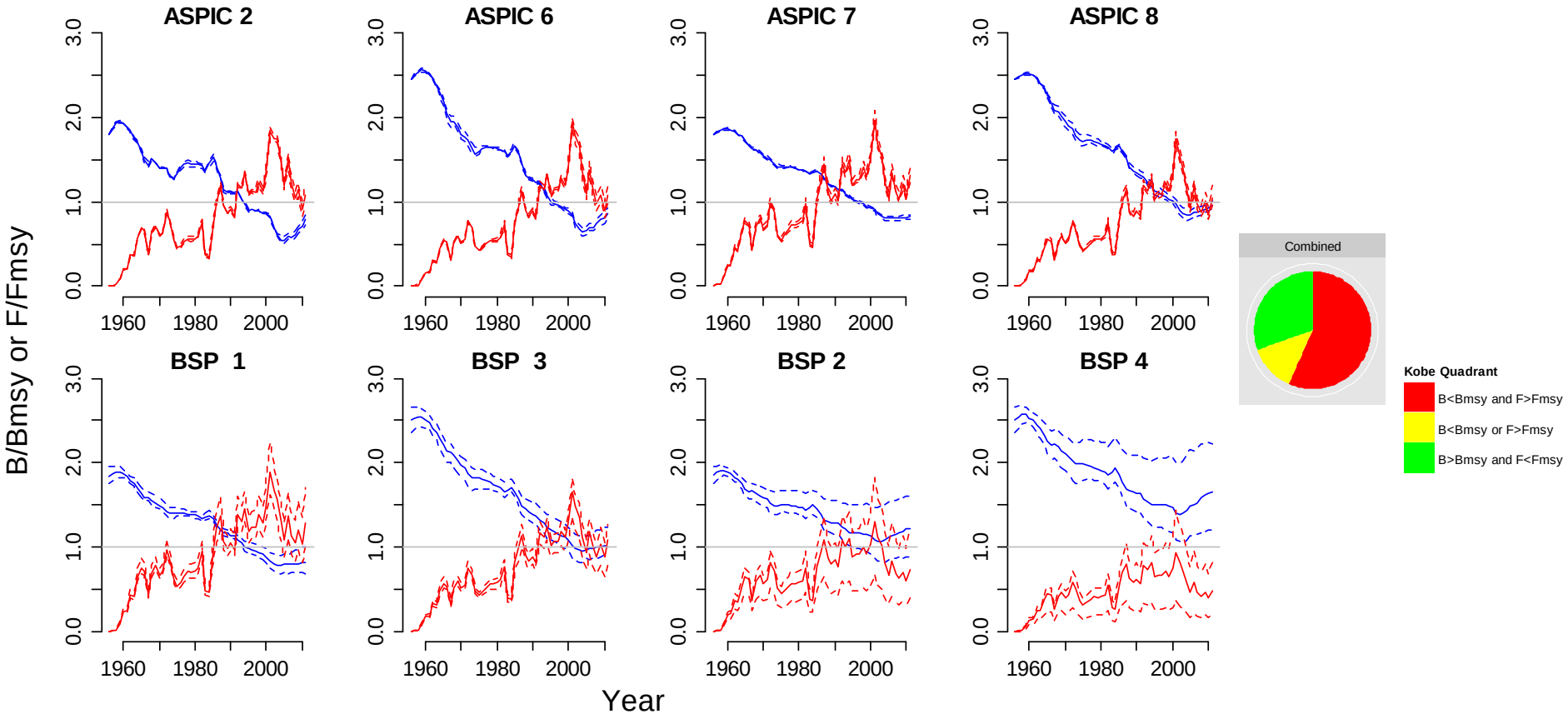
Near TAC in recent years



South Atlantic Albacore

Stock Status (2013 Assessment):

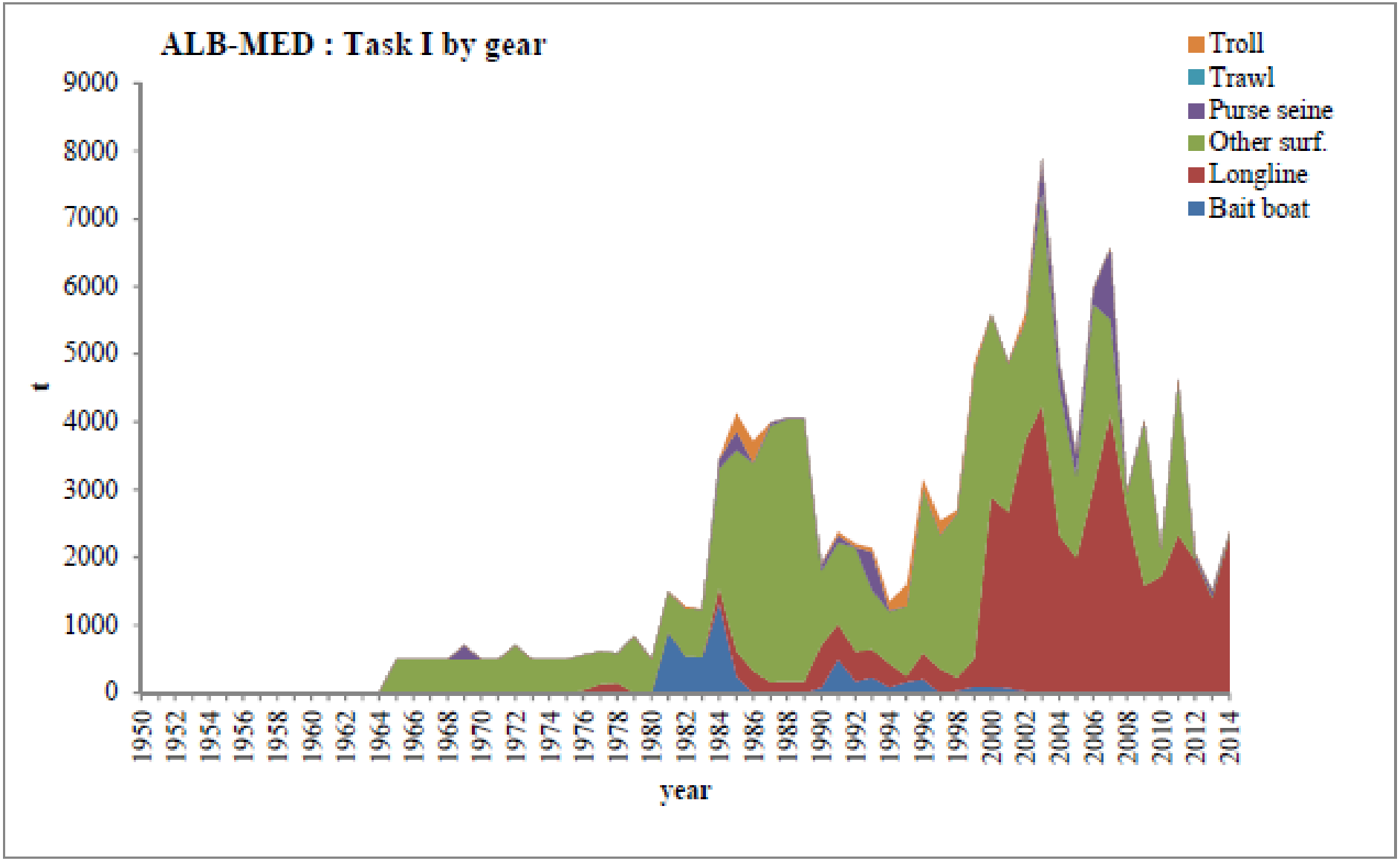
Overfished and Undergoing Overfishing



SSB_{2012}/SSB_{MSY}

$F_{current}/F_{MSY}$

Mediterranean Albacore
Catches (mt) by Gear



Mediterranean Albacore Assessment Summary

- very little quantitative information was available to SCRS for use in conducting a robust quantitative characterization on biomass status relative to Convention Objectives

- recent fishing mortality appears to have been reduced compared to the early 2000's , a period where the stock was likely overfished

Albacore
Assessment Summary

ATLANTIC AND MEDITERRANEAN ALBACORE SUMMARY			
	North Atlantic	South Atlantic	Mediterranean
Maximum Sustainable Yield	31,680 t	25,228 t (19,109-28,360)[1]	Unknown
Current (2014) TAC	28,000 t	24,000 t	None
Current (2013) Yield	20,948 t	19,148 t	
Yield in last year of assessment (2011)	20,044 t	24,117 t	
Yield in last year of assessment (2010)			2,124 t
SSB_{MSY}		216,807 t (88,380-595,953) [1]	
	0.1486	0.176 (0.063-0,481) [1]	
SSB_{cur}/SSB_{MSY} [2]	0.94 (0.74-1.14) [2]		Not estimated
$SSB_{cur}/Blim$	2.4[3]		
B_{2012}/B_{MSY} [1]		0.92 (0.71-1.26)[1]	
F_{cur}/F_{MSY} [2]	0.72 (0.55-0.89) [2]		<=1 [4]
F_{2011}/F_{MSY} [1]		1.04 (0.38-1.32)[1]	
Stock Status	Overfished: YES	Overfished: YES	?
	Overfishing: NO	Overfishing: YES	NO
Management measures in effect:	[Rec. 98-08]: Limit number of vessels to 1993-1995 average. [Rec. 13-05] TAC of 28,000 t for 2014-2016.	[Rec. 13-06]: TAC of 24,000 t for 2014-2016	None

Scheduled for (update) assessment in 2016

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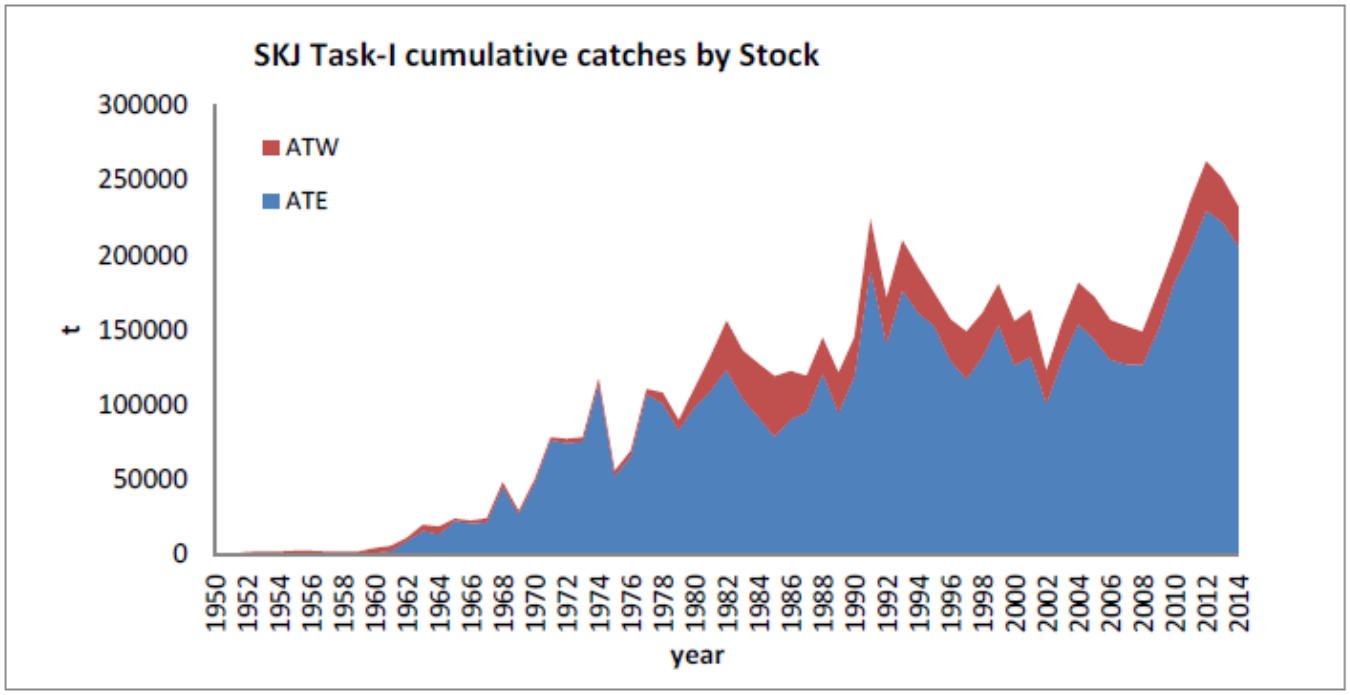
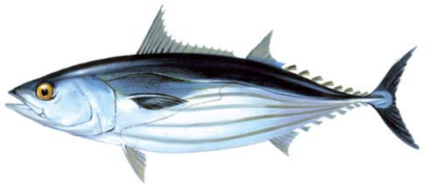
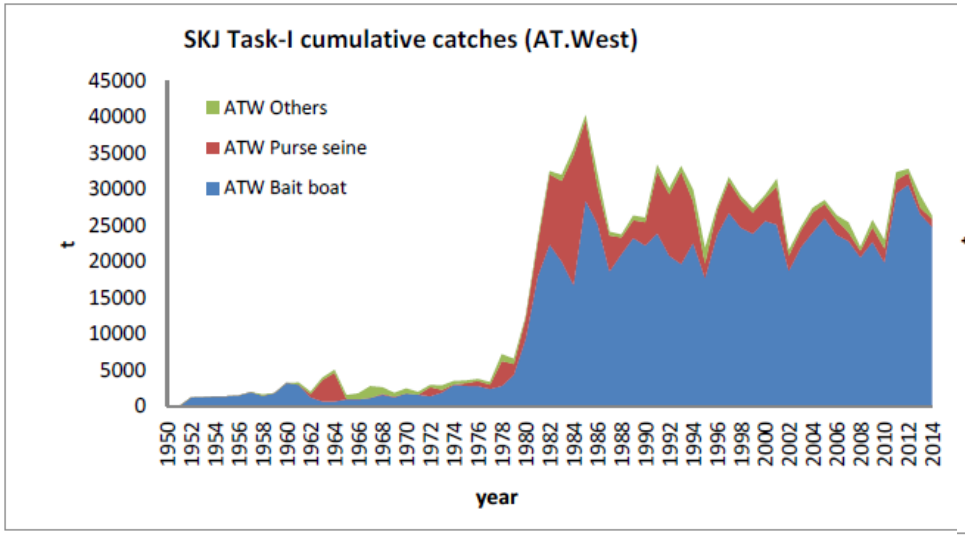
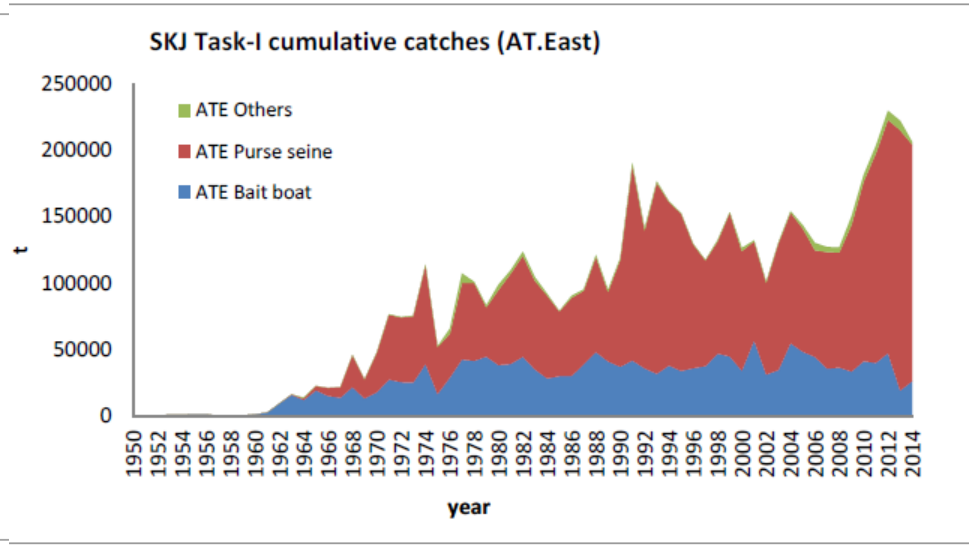
Skipjack Tuna


SKJ Task-I cumulative catches by Stock
ATW
ATE
t
year




SKJ Task-I cumulative catches (AT.West)
ATW Others
ATW Purse seine
ATW Bait boat
t
year


SKJ Task-I cumulative catches (AT.East)
ATE Others
ATE Purse seine
ATE Bait boat
t
year

Model type	MSY
Catch only model	29,000 t – 31,000 t
ASPIC (Schaefer form)	29,960 t – 32,630 t
BSP (Schaefer form)	?

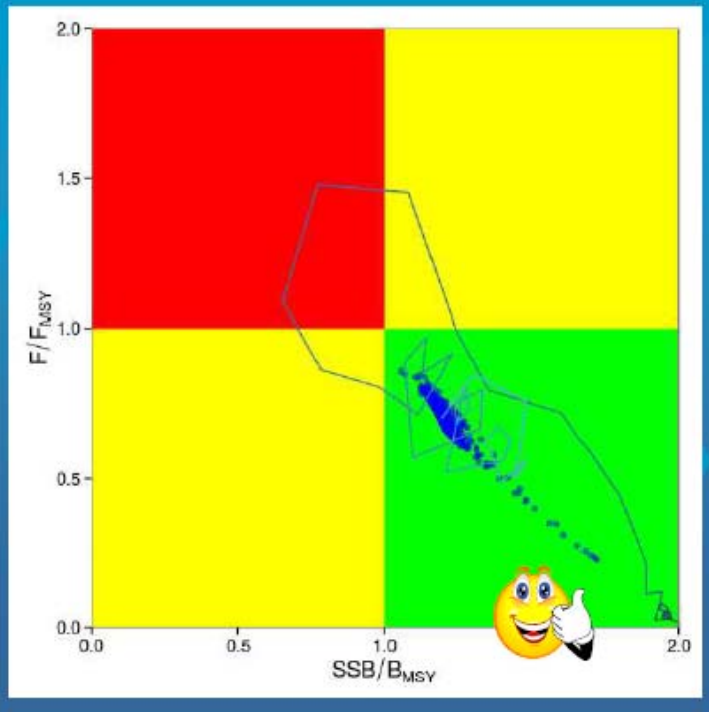
Current Catch (2013)	18,000 t
Average recent catches (5 years)	27,200 t

State of the Western Atlantic SKJ

From ASPIC

$B_{2013} / B_{MSY} = 1.28$ (1.21-1.33)

$F_{2013} / F_{MSY} = 0.69$ (0.64-0.76)



ATLANTIC SKIPJACK SUMMARY TABLE

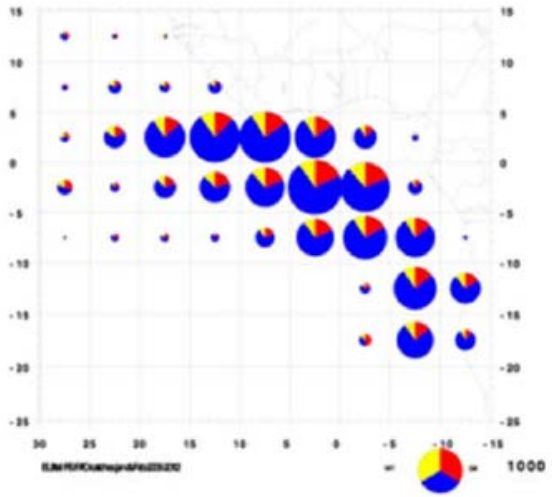
	East Atlantic	West Atlantic
Maximum Sustainable Yield (MSY)	Probably higher than previous estimates (143,000-170,000)	Around 30,000-32,000 t
Current yield (2014[1])	206,234 t	26,317 t
Current Replacement Yield	Unknown	Somewhat below 32,000 t
Relative Biomass (B_{2013}/B_{MSY})	Likely >1	Probably close to 1.3
Mortality due to fishing (F_{2013}/F_{MSY})	Likely <1	Probably close to 0.7
Management measures in force	Rec. 14-01[(2)]	None

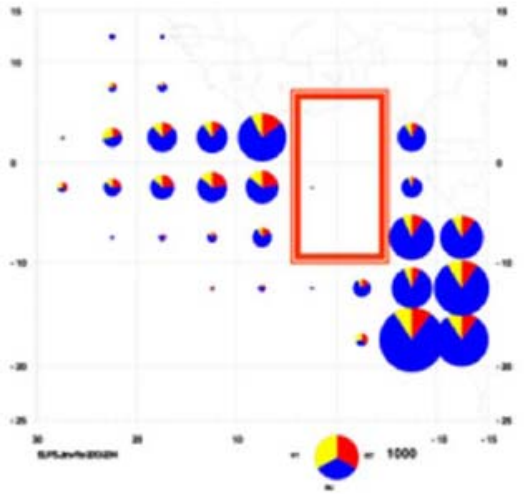
[1] Reports of catches for 2014 should be considered provisional, particularly for the West Atlantic.
[2] This moratorium on FADs entered into force in January 2013 and replaces Rec. 11-01.

Evaluation of the Efficacy of Jan&Feb FAD closure [Rec. 14-01]

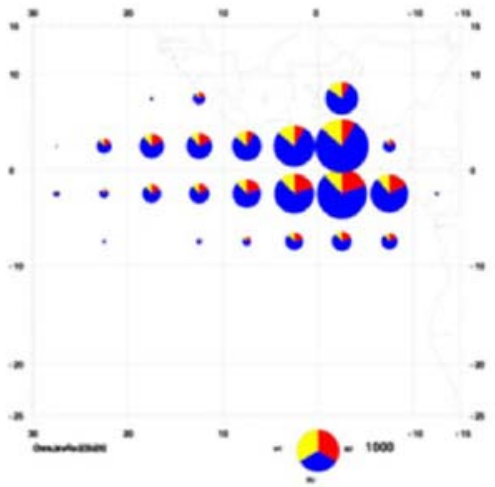
- Moratorium was respected by the fleets examined

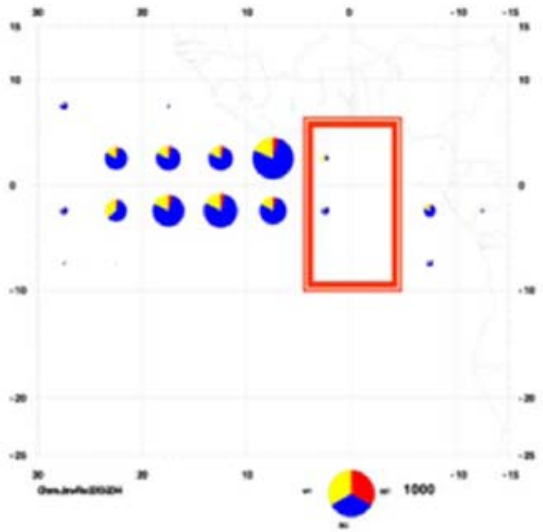
EU & Associated PS-FAD Fleets





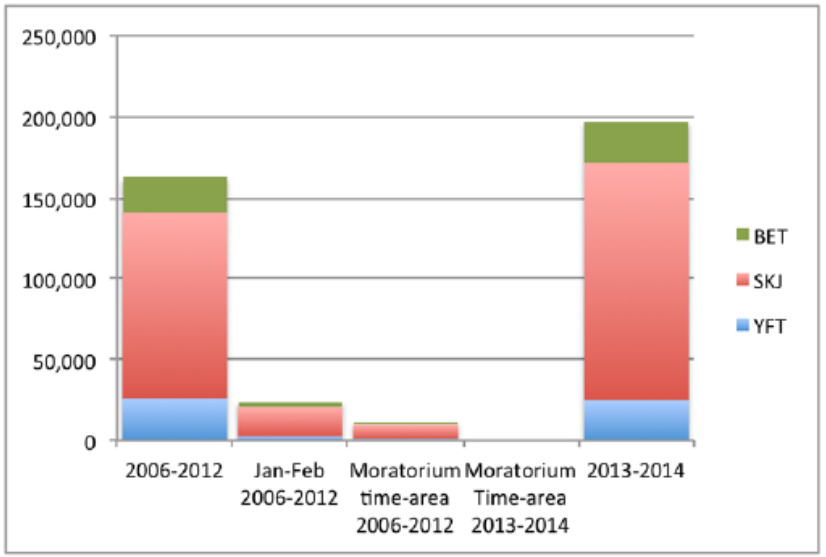
Ghanaian PS & BB

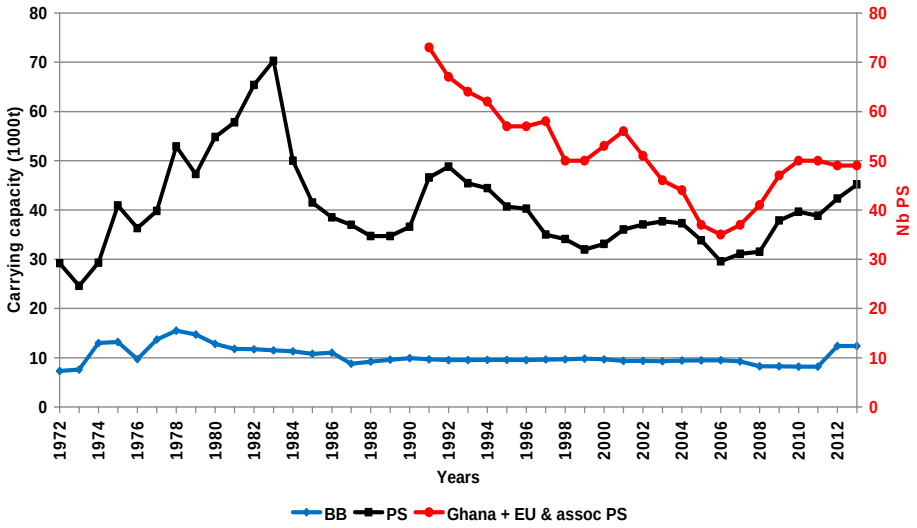




Evaluate Efficacy of Jan&Feb FAD closure [Rec. 14-01]

- However, catches of the tropical tuna species by relevant fleets increased by ~20% compared to 2006-2012.
- Concurrently, tropical tuna PS fishing capacity and the number of PS vessels increased by 40-50%.
- The deployment of FADs is high and increasing and should be monitored by the Ad hoc Working Group on FADs.
- It is unclear that solely implementing seasonal closures over selected areas will provide sufficient control to reduce the catch of juvenile bigeye.





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Western Bluefin Tuna

Western Bluefin Highlights

- Latest stock assessment : 2014
- Catch in 2014 was 1,626 t (including discards)
- TAC was revised to 2,000 t for 2015 and 2016 [Rec 14-05] from 1,750 t
- Two abundance indices were updated in 2015
- Several new abundance indices were developed
- Ongoing project to develop new abundance indices combining several nations' catch and effort data
- New analyses on recruitment hypothesis

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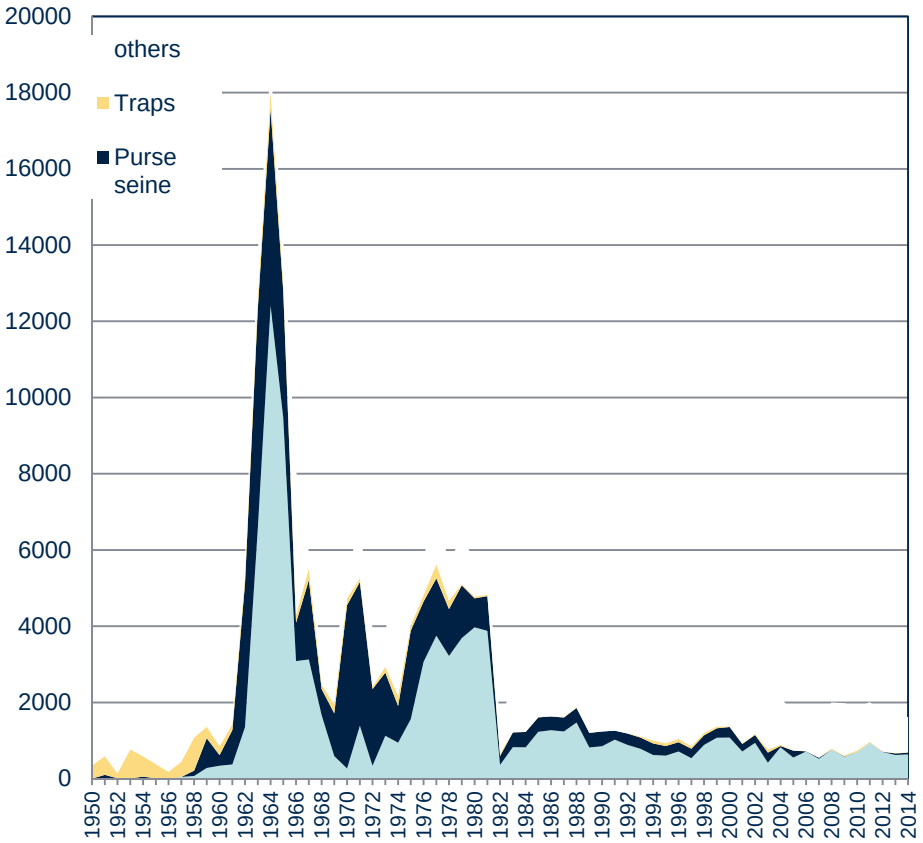
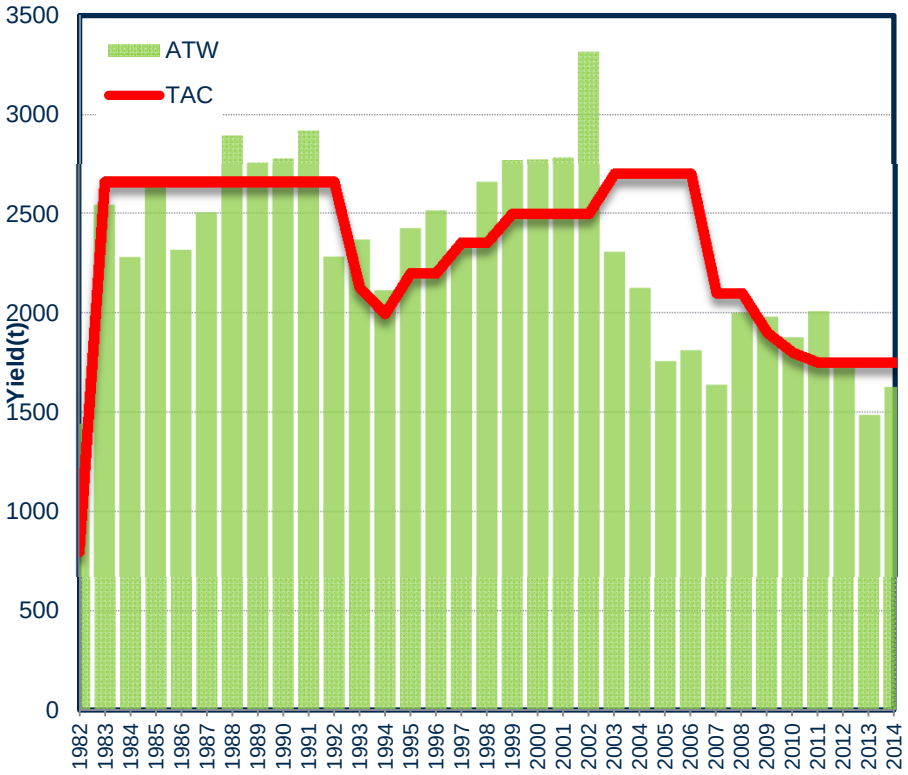
Fishery indicators (catch)

BFT-WEST Atlantic stock (Task-I) by major gear

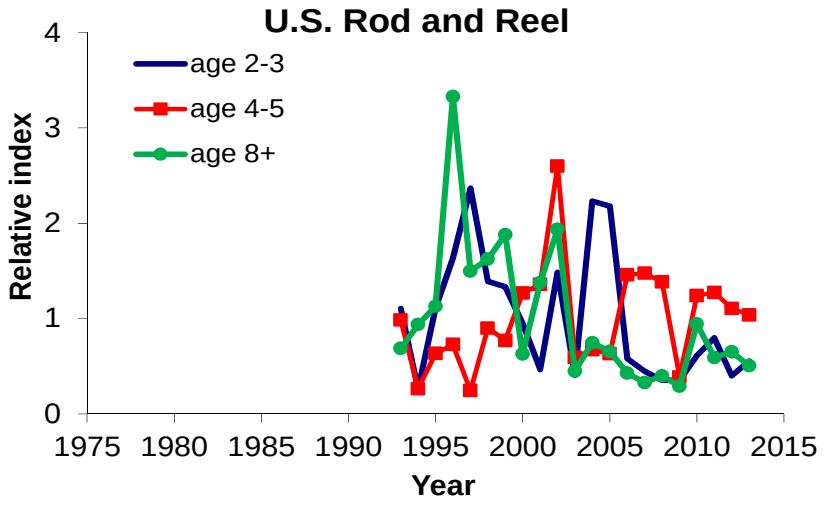


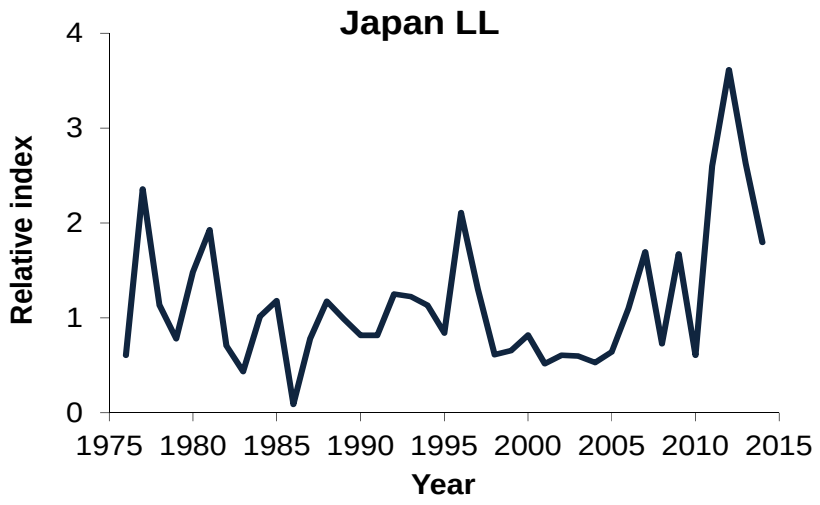


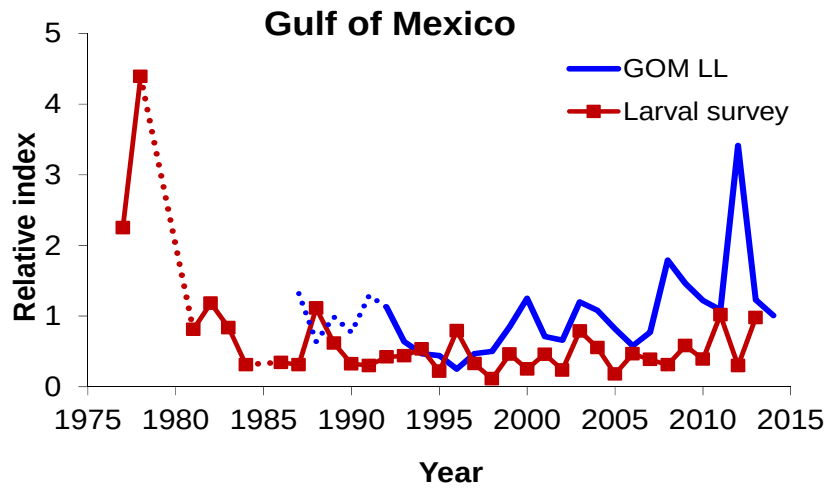
BFT-WEST Atlantic stock (Task-I) total catch & TAC's

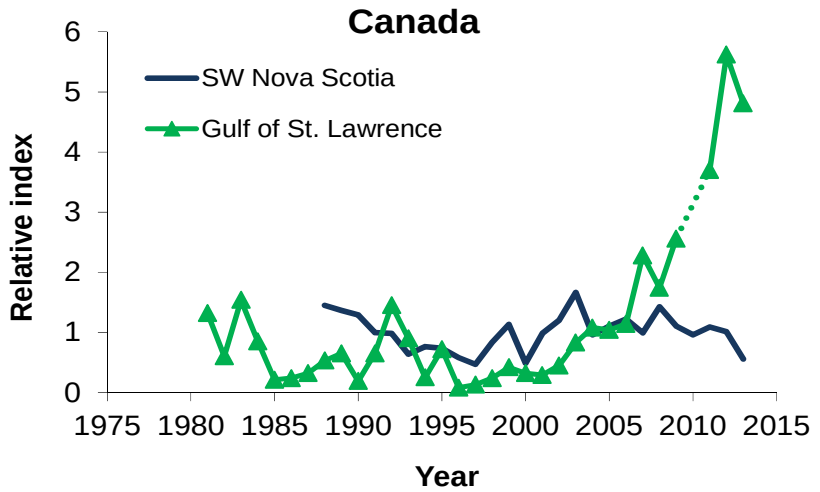
Fishery indicators (abundance indices)

Updated abundance indices show declines from recent levels.









Fishing indicators (Development of new abundance indices)

- Two new collaborative indices were constructed during a joint U.S.-Canada data workshop.
  - a combined U.S.-Canada pelagic longline observer index for the Northwest Atlantic.
  - A combined Canada-U.S. rod and reel, handline, and harpoon index
- a fishery independent index based on a herring acoustic survey in the Gulf of St. Lawrence that showed consistent trends with fishery dependent indices in the region.

These indices are being further developed for the 2016 data preparatory meeting.

Outlook (future recruitment and stock status uncertainty)

The SCRS is not in the position to favor either one of the two scenarios (high or low recruitment potential).

The SCRS considers that a more fruitful course may be to move away from the current high/low recruitment dichotomy and focus instead on adopting certain biological reference points and developing management procedures that are robust to these recruitment and other sources of uncertainty.

Outlook and management recommendations (2015)

The SCRS noted that the available information from the updated abundance indices remains consistent with the estimated rebuilding from the 2014 stock assessment.

The SCRS considered that the new information received this year did not necessitate any change to the advice given last year regarding the implications of various catch levels

WEST ATLANTIC BLUEFIN TUNA SUMMARY
(Catches and Biomass in t)

Current (2014) Catch (including discards)	1,626 t	
Assumed recruitment	Low potential	High potential
Maximum Sustainable Yield (MSY)	3,050 (2807-3307)[1]	5,316 (4,442-5863)[1]
SSB_{MSY}	13,226 (12,969-13,645)[1]	63,102 (50,096-72,921)
SSB_{2013}/SSB_{MSY}	2.25 (1.92-2.68)[1]	0.48 (0.35-0.72)[1]
F_{MSY}	0.20 (0.17-0.24)[1]	0.08 (0.07-0.10)[1]
$F_{0.1}$	0.12 (0.11-0.13)[1]	0.12 (0.11-0.13)[1]
$F_{2010-2012}/F_{MSY}$[2]	0.36 (0.28-0.43)[1]	0.88(0.64-1.08)[1]
$F_{2010-2012}/F_{0.1}$	0.60 (0.50-0.72)[1]	0.60 (0.50-0.72)[1]
Stock status	Overfished: NO	Overfished: YES
	Overfishing: NO	Overfishing: NO
Management Measures:	[Rec. 08-04] TAC of 1,900 t in 2009 and 1,800 t in 2010, including dead discards.	
	[Rec. 10-03, 12-02, 13-09] TAC of 1,750 t in 2011-2014, including dead discards.	
	[Rec. 14-05] TAC of 2,000 t in 2015-2016, including dead discards.	

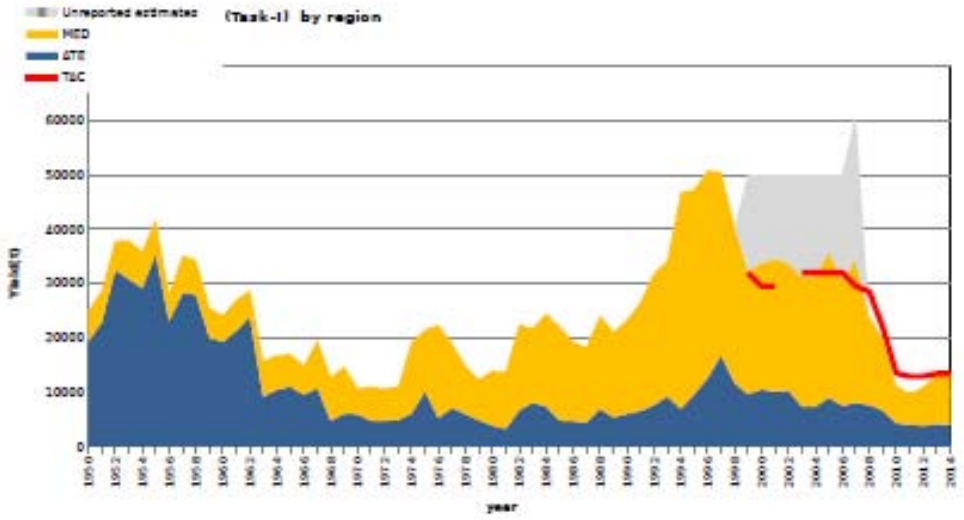
[1] Median and approximate 80% confidence interval from bootstrapping from the assessment.
[2] $F_{2010-2012}$ refers to the geometric mean of the estimates for 2010-2012 (a proxy for recent F levels).

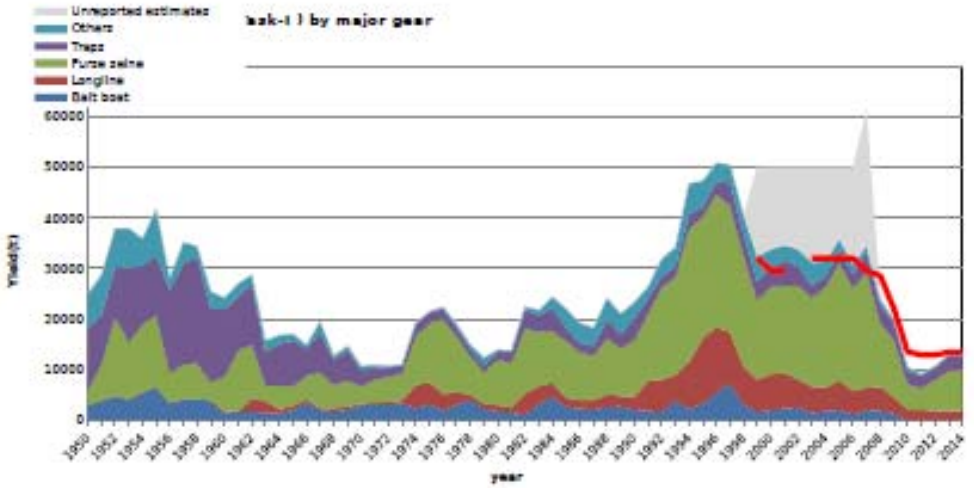

Eastern Atlantic Bluefin Tuna

Fishery Trends and Indicators

How much is caught and by who?

- Decrease in catch mostly in the Mediterranean, probably in **response to the rebuilding plan and control enforcement**
- No detection of under-reporting since 2008 when confronting reported catch with fishing capacity information, but the approach has some limits (not assessed since 2010)
- **2011: 9,774 t (lowest since 1950)**
- **2012: 10,934 t**
- **2013: 13,244 t**
- **2014: 13,243 t (as for now)**
- **TAC last 3 years:**
  13,400 t, 13,400 t, 16,142 t
  up to 23,155 t in 2017

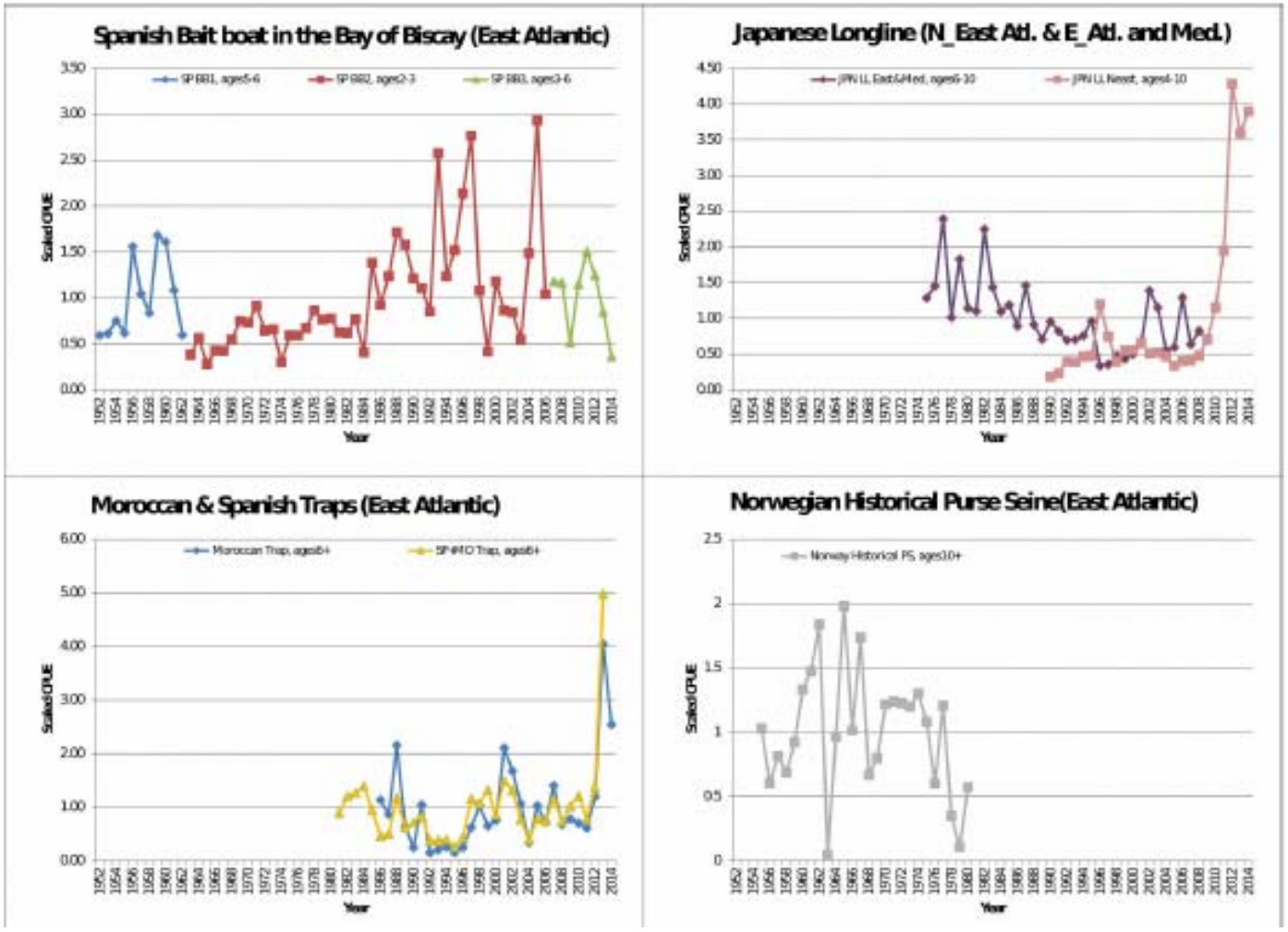


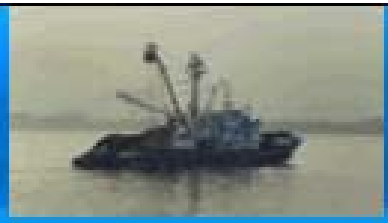


ICCAT CICTA CICAA

Fishery Trends and Indicators

Updated Catch Per Unit of Effort




State of the stock

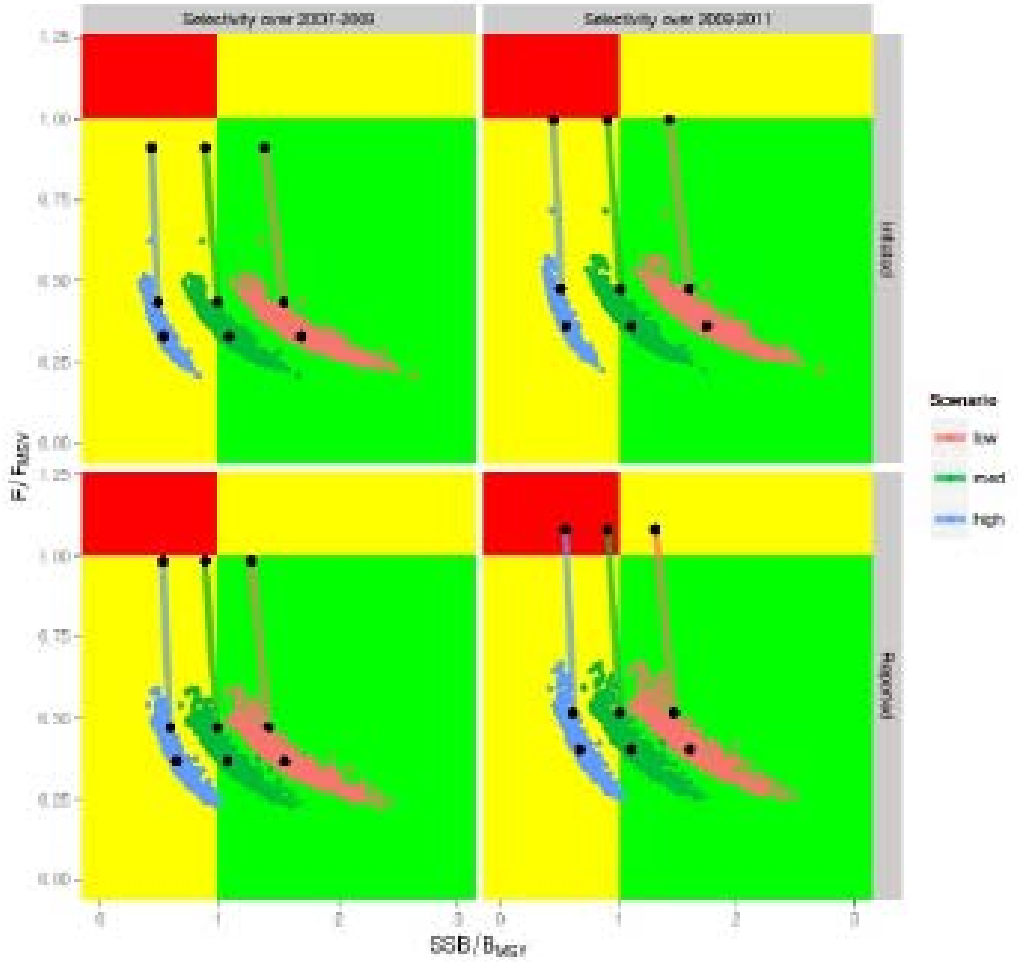
The stock status has significantly improved since 2012, as $F_{2013} < F_{0.1}$

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

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

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

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



JWI1

EAST ATLANTIC AND MEDITERRANEAN BLUEFIN TUNA SUMMARY

Current reported yield (2014)	13,243 t*	
Maximum Sustainable Yield[1]		
Low recruitment scenario (1970s)	351,500 t	354,600 t
Medium recruitment scenario (1950-2006)	508,700 t	556,600 t
High recruitment scenario (1990s)	843,800 t	1,121,000 t
$SSB_{2013}/SSB_{F0.1}$		
Low recruitment scenario (1970s)	1.60	1.74
Medium recruitment scenario (1950-2006)	1.10	1.11
High recruitment scenario (1990s)	0.67	0.55

The work required in advance of the next assessment (e.g. data collection and analyses, model development) is progressing more slowly than anticipated, and therefore the Committee considers that the next assessment should not take place until 2017.

The Committee plans to conduct new projections (new Kobe 2 Strategy matrix) in 2016 considering actual levels of catches since the last assessment

computed using the selectivity pattern over 2009-2011 and can substantially change according to different selectivity patterns.

[2] The Committee decided, on the basis of current published literature, to adopt $F_{0.1}$ as the proxy for F_{MSY}. $F_{0.1}$ has been indeed shown to be more robust to uncertainty about the true dynamics of the stock and observation errors than F_{MAX}. Values are given for both reported and inflated catch scenarios, respectively. $F_{0.1}$ have been also computed using the 2012 selectivity pattern and can thus substantially change according to different selectivity patterns.

[3] The recruitment levels do not impact $F_{0.1}$.

* As of 25 September 2015.

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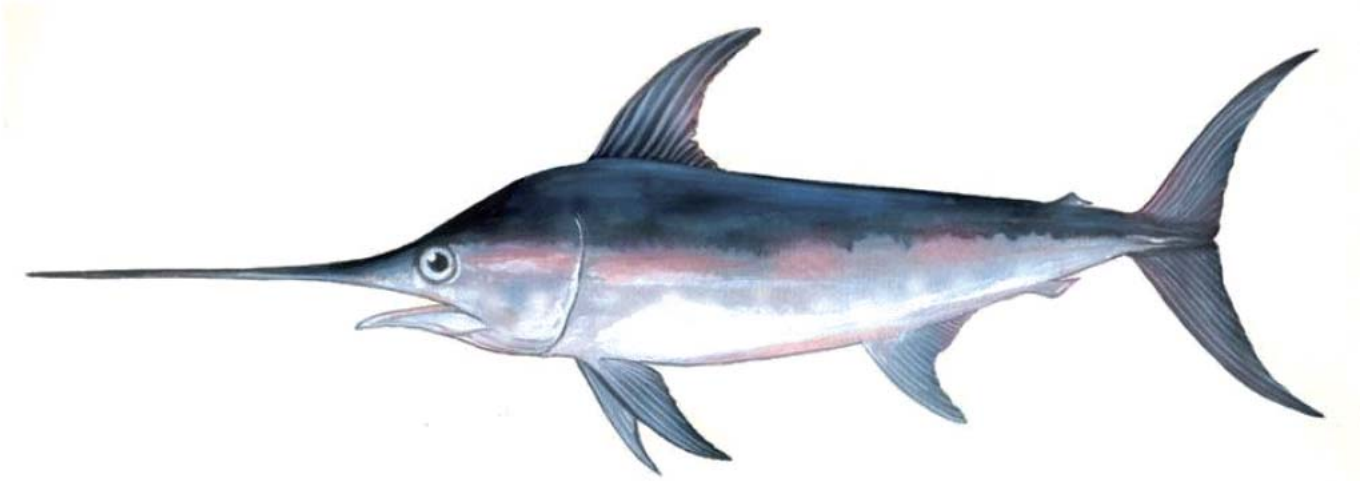
JWI1 Need to get final

John Walter III, 10/3/2015

NOAA FISHERIES SERVICE

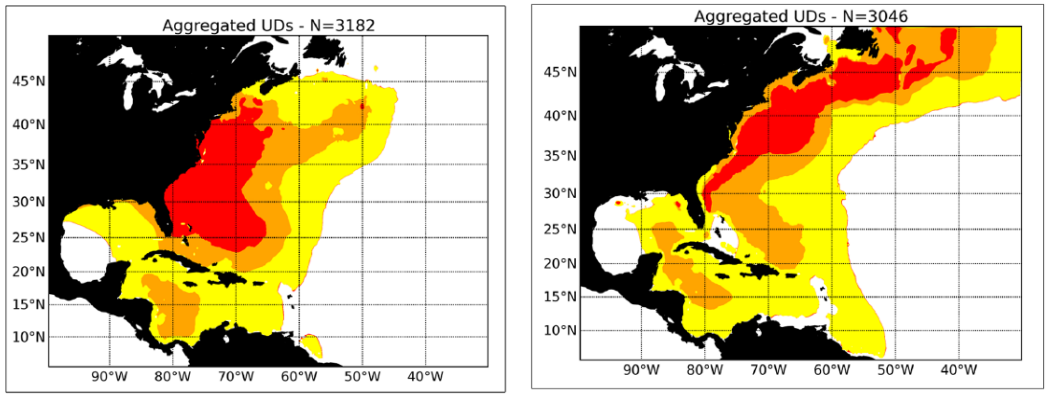
Swordfish



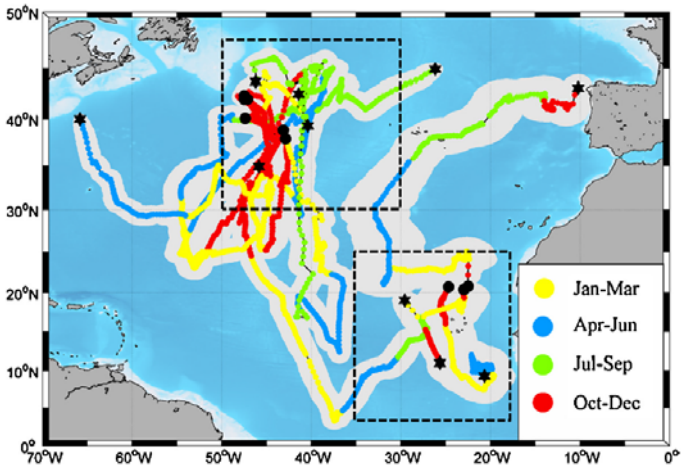
swordfish drawing by Wendy Williams

Discussion on new genetics/tagging info

• The Group discussed some new information on genetics and tagging that was published recently.

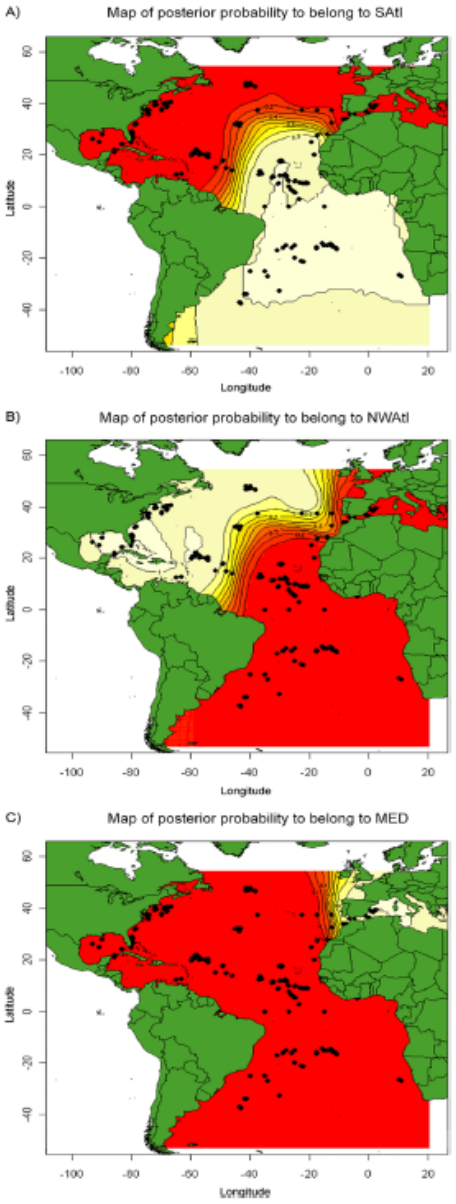


Distribution of juvenile (left) and adult (right) SWO well defined in the NW Atl from satellite tagging (Neilson et al., 2014).

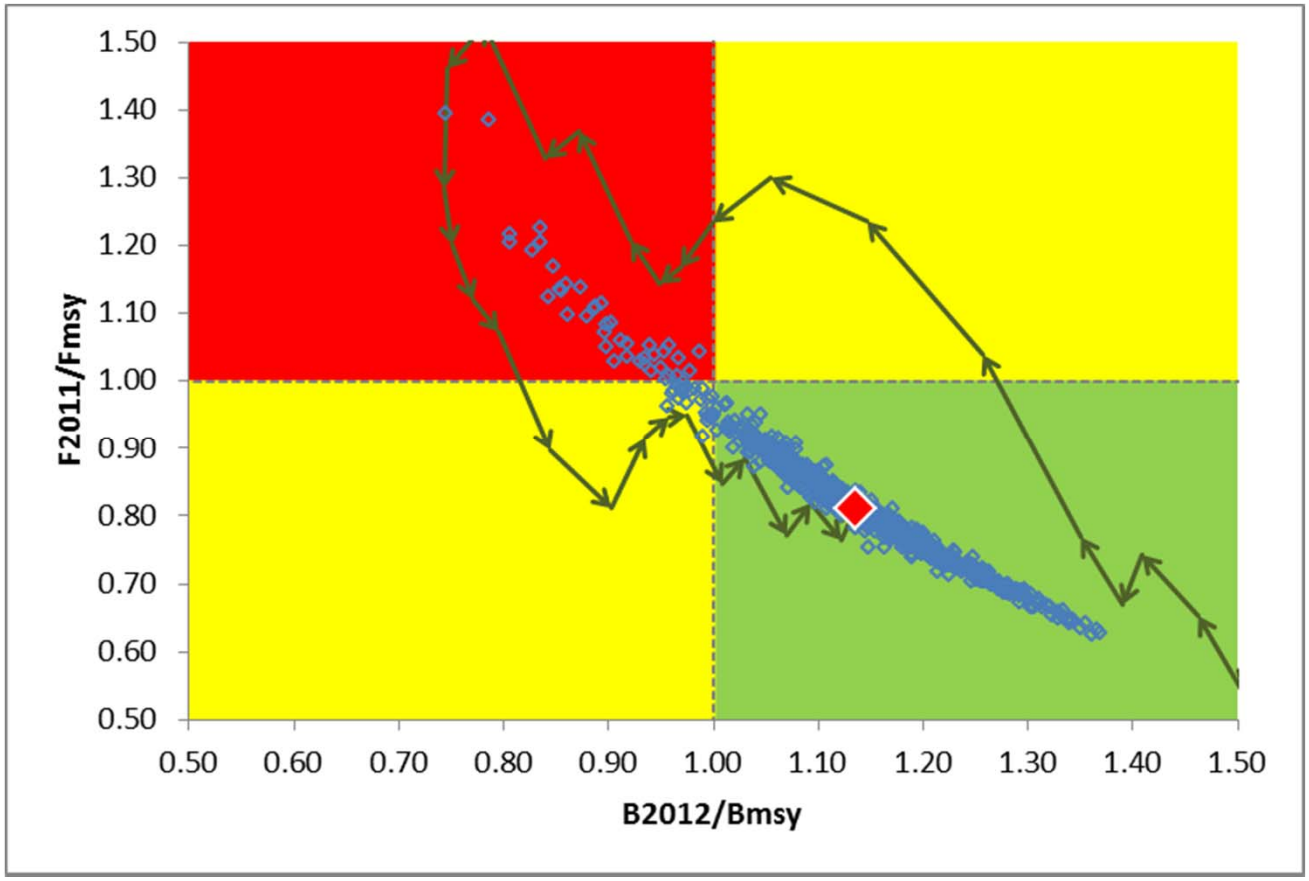


Satellite tagging of SWO in the north Atlantic showing seasonal north/south movements (Abascal et al., 2015)

Genetics well defined in the NW and South; uncertainty in the boundaries between NE, Mediterranean and South (Smith et al., 2015)



Stock status (ASPIC), North



- Stock status in 2011 is relatively similar to the estimated status in 2009 assessment.
- There is greater than 90% probability that the stock is at or above B_{MSY}, and thus the Commission's rebuilding objective [99-2] has been achieved.

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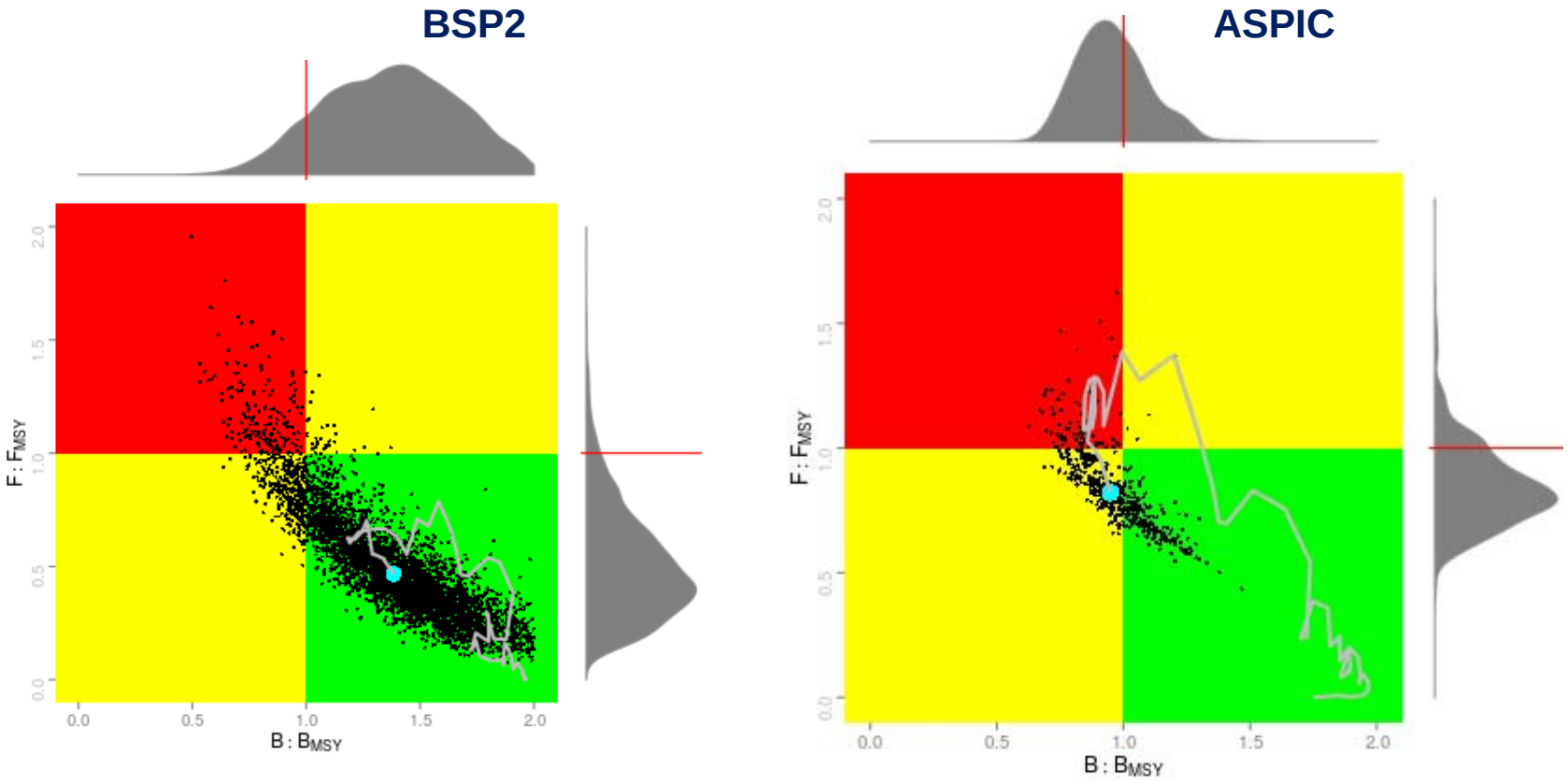
Stock status (BSP2 and ASPIC), South



- Stock status based on a **combination of model output and ancillary information**: total removals (1950-2011) for the South have been lower than in the North; mean SWO weight is larger in the South.
- Assuming similar production dynamics, both indicators suggest a lower exploitation rate for the South, and hence the Committee believes that the stock is not overfished

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ATLANTIC SWORDFISH SUMMARY

	North Atlantic	*South Atlantic*
Maximum Sustainable Yield[1]	13,660 t (13,250-14,080)[3]	Unknown
Current (2014) TAC	13,700 t	15,000 t
Current (2014) Yield[2]	10,801 t	9,885 t
Yield in last year used in assessment (2011)	12,834 t[4]	11,055 t[4]
B_{MSY}	65,060 (54,450-76,700)	Unknown
F_{MSY}	0.21 (0.17-0.26)	Unknown
Relative Biomass (B_{2011}/B_{MSY})	1.14 (1.05-1.24)	Unknown, but likely above 1[5]
Relative Fishing Mortality (F_{2011}/F_{MSY}[1])	0.82 (0.73-0.91)	Unknown, but likely below 1[5]
Stock Status	Overfished: NO Overfishing: NO	Overfished: NO[5] Overfishing: NO
Management Measures in Effect	Country-specific TACs [Rec. 13-02]; 125/119 cm LJFL minimum size	Country-specific TACs [Rec. 13-03]; 125/119 cm LJFL minimum size

[1] Base Case production model (Logistic) results based on catch data 1950-2011.
[2] Provisional and subject to revision.
[3] Point estimate, 80% bias corrected confidence intervals are shown.
[4] As of 5 September 2013.
[5] This determination is based on the models and the ancillary information (e.g. catch trends, mean weight trends).

Med Swordfish stock status (summary)

MEDITERRANEAN SWORDFISH SUMMARY

Maximum Sustainable Yield	~15,000 [1]
Current (2014) Yield	9,737 t [2]
Current (2013) Replacement Yield	9,540 t [1]
B_{MSY}	47,600 t [1]
F_{MSY}	0.24 [1]
Relative Biomass (B_{2013}/B_{MSY})	0.27 [1]
Relative Fishing Mortality	
F_{2013}/F_{MSY}	1.82 [1]
$F_{2013}/F_{0.1}$	2.97 [1]
Overfished 2013 (Y/N)	Y [1]
Overfishing 2013 (Y/N)	Y [1]
Management Measures in Effect:	Driftnet ban [Rec. 03-04] Three month fishery closure, gear specifications (number and size of hooks and length of gear), MLS regulations, and a license registry [Rec. 13-04]. [3]

*Overfished

*Overfishing

[1] Estimates based on the XSA and equilibrium analyses (see text for details).
[2] As of September 2015.
[3] Certain additional fishery restrictions are implemented at the national level.

- High uncertainty (no clear signals, lack of historical series)
- Request for a stock assessment in 2016

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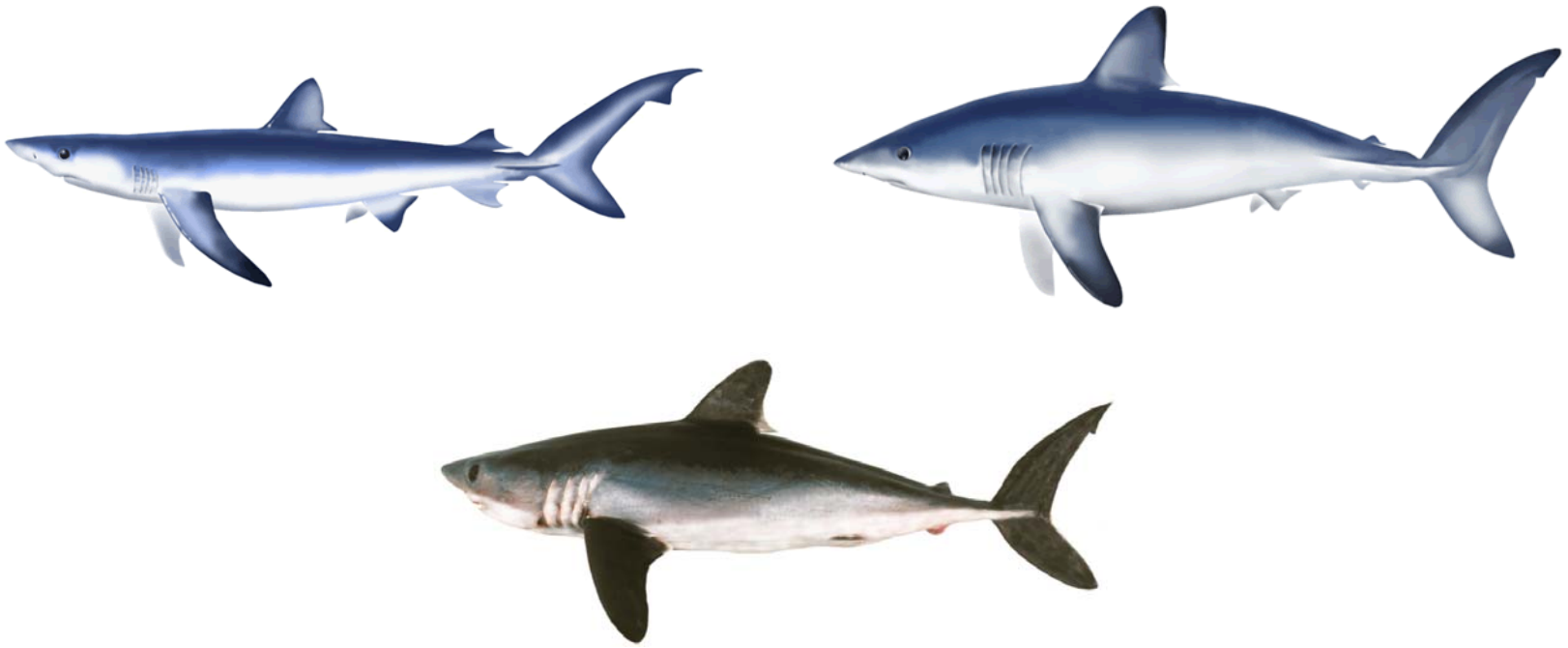
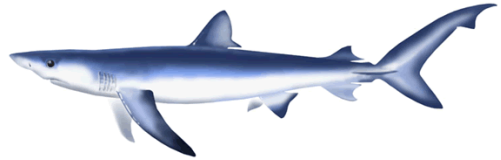
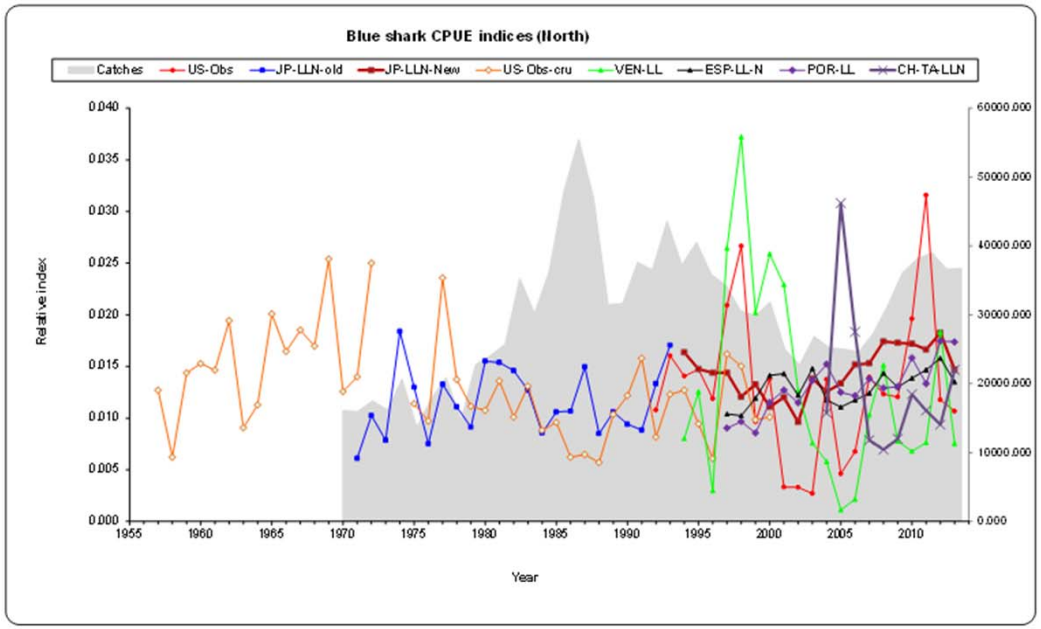
Sharks

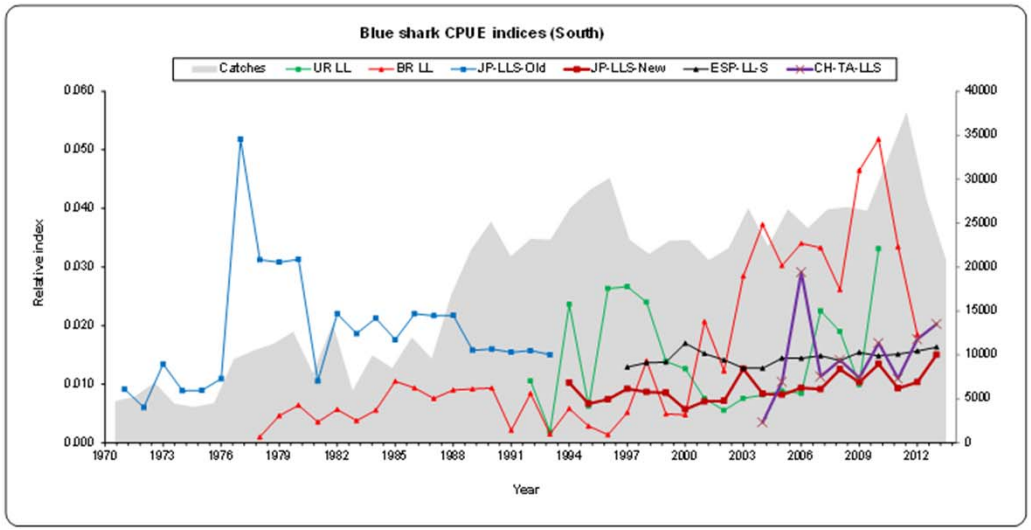


Blue shark: catches and CPUE



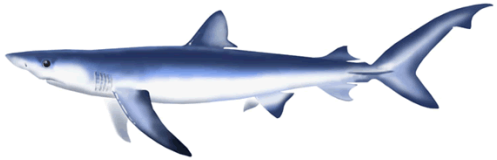


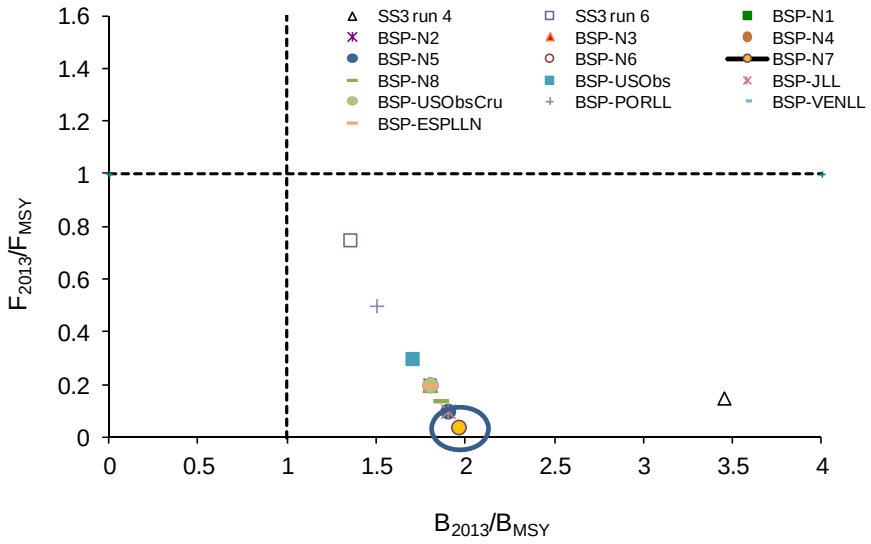
North Atlantic



South Atlantic

Blue shark: stock status

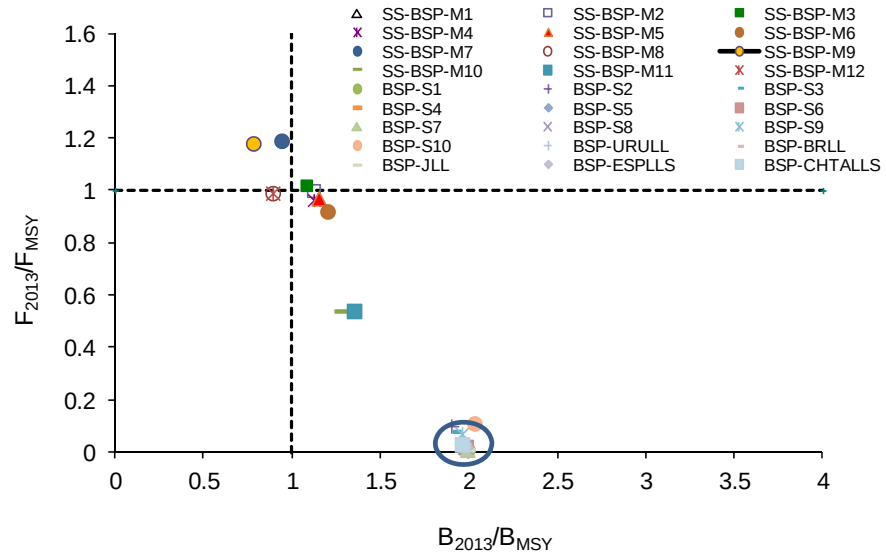




North Atlantic

Overfished: Not likely

Overfishing: Not likely

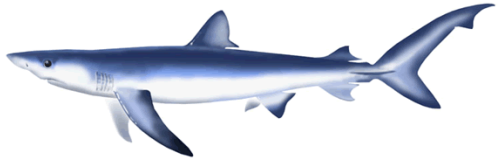


South Atlantic

Overfished: Unknown

Overfishing: Unknown

Summary of the Blue Shark stock assessment



- **Considerable progress was made on the integration of new data sources (e.g. size) and modeling approaches (e.g., use of an integrated stock assessment model – SS3) during the 2015 assessment.**

- **However, great uncertainty still remains in data inputs and model configuration.**

Therefore results were very uncertain and conclusive stock status determination could not be reached

New (2015) Shark Management Recommendations

BLUE SHARK:

For the North Atlantic stock. . .

. . .the Committee could not reach a consensus on a specif
recommendation due to the current level
model structural assumpti

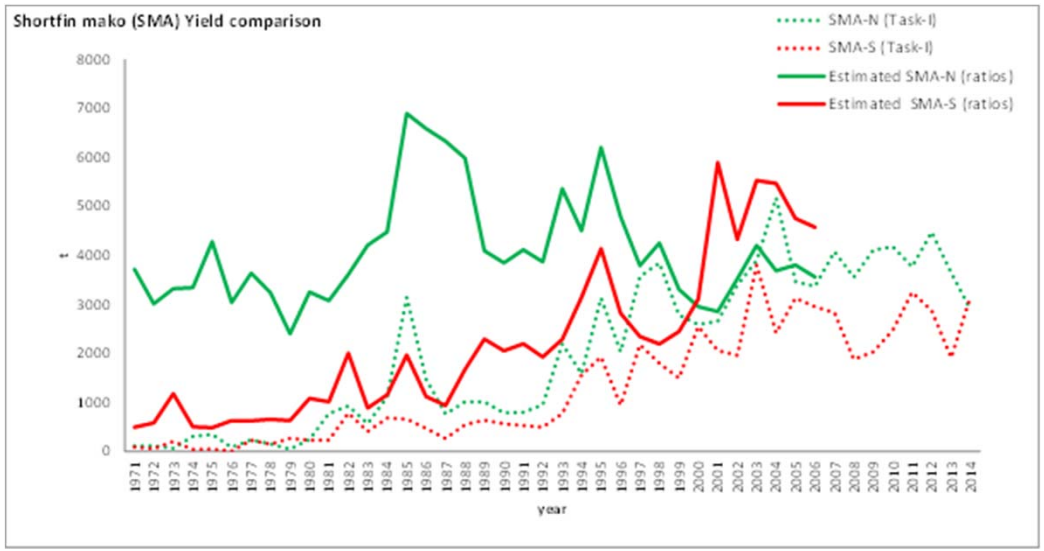
F

. .

ittee recommends that
ears, 2009-2013) not be increased.

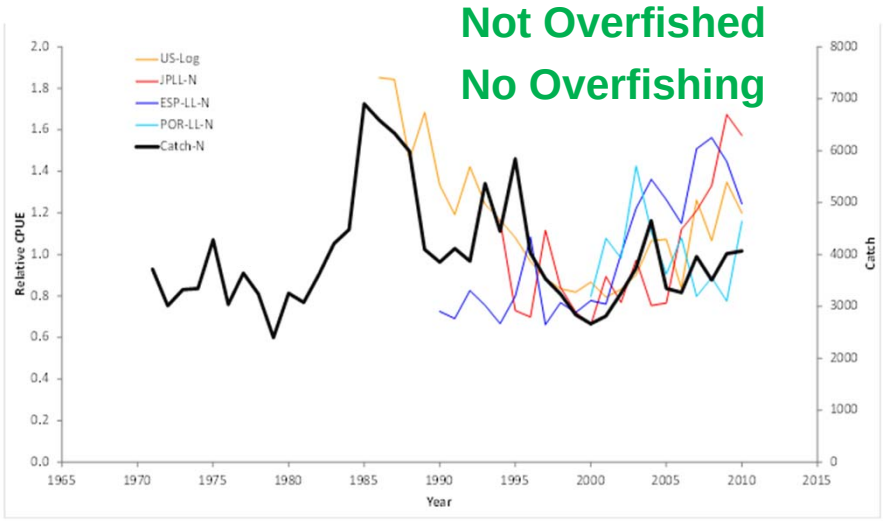
A request by the Commission to perform a shortfin mako assessment in 2016 – this was postponed until 2017 as the shark catch database needs to be reviewed first, and this would not be completed by 2016.

Shortfin mako: catches and CPUE



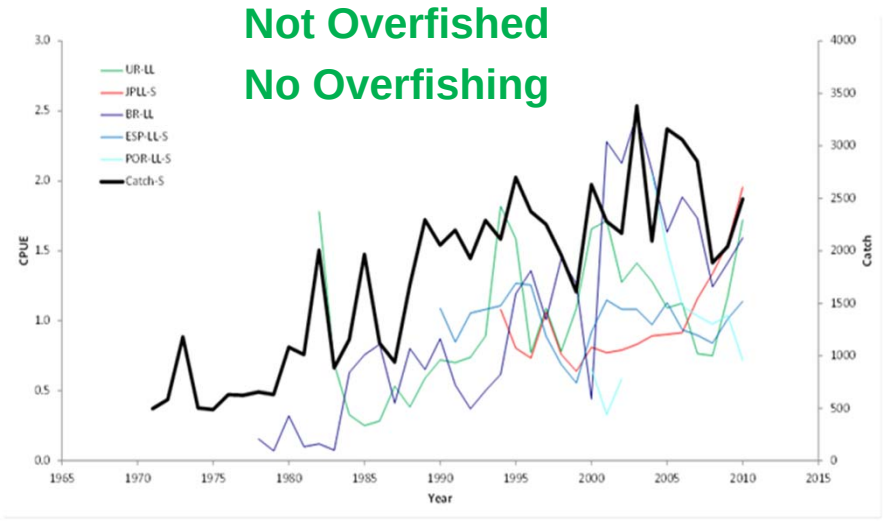
Catches

CPUEs



Not Overfished
No Overfishing

North Atlantic

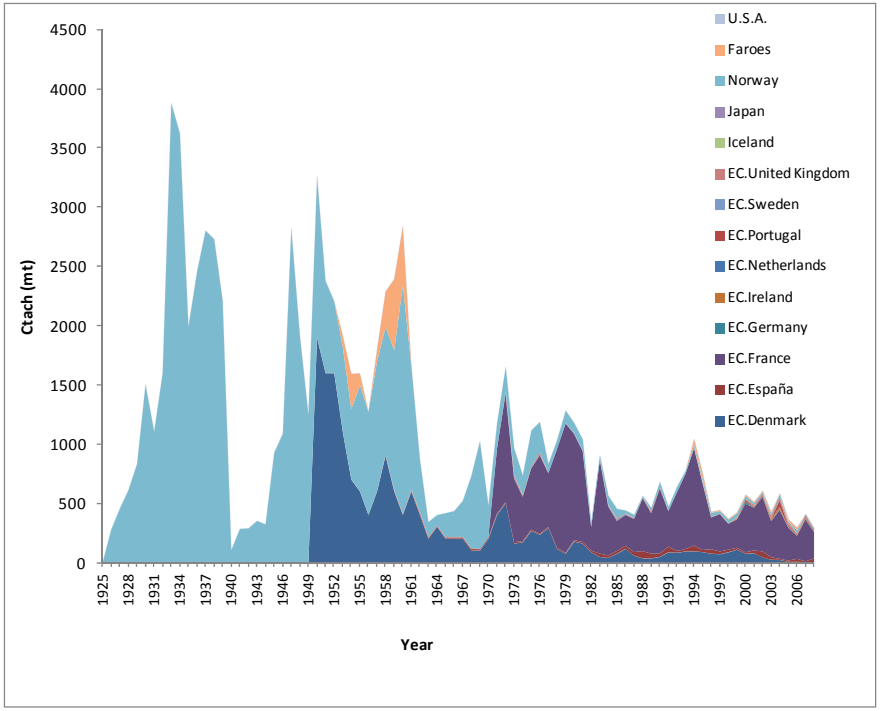


Not Overfished
No Overfishing

South Atlantic

Porbeagle: catches and CPUE

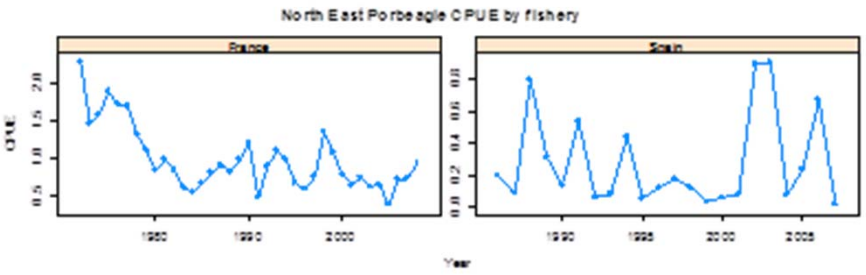
Northeast Atlantic



Overfished

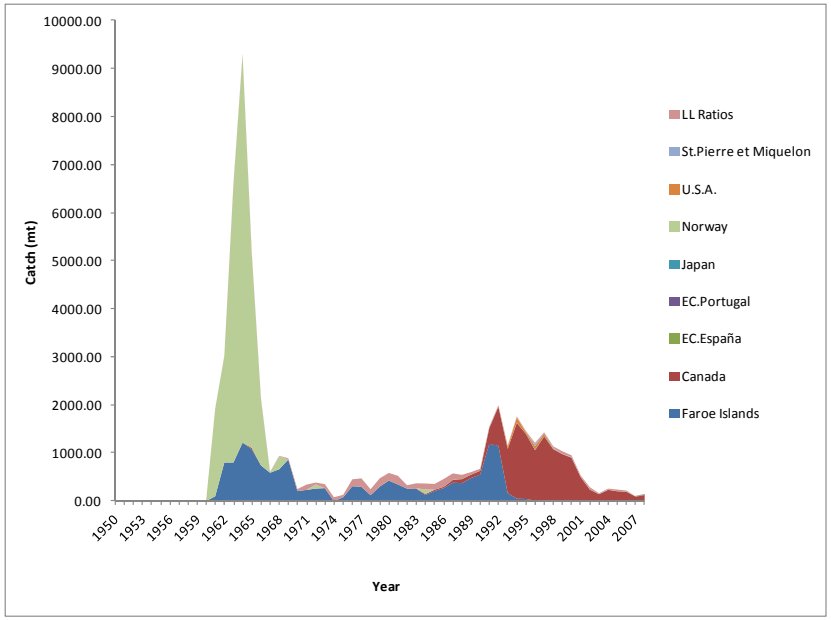
No Overfishing

Catches



CPUEs

Porbeagle: catches and CPUE

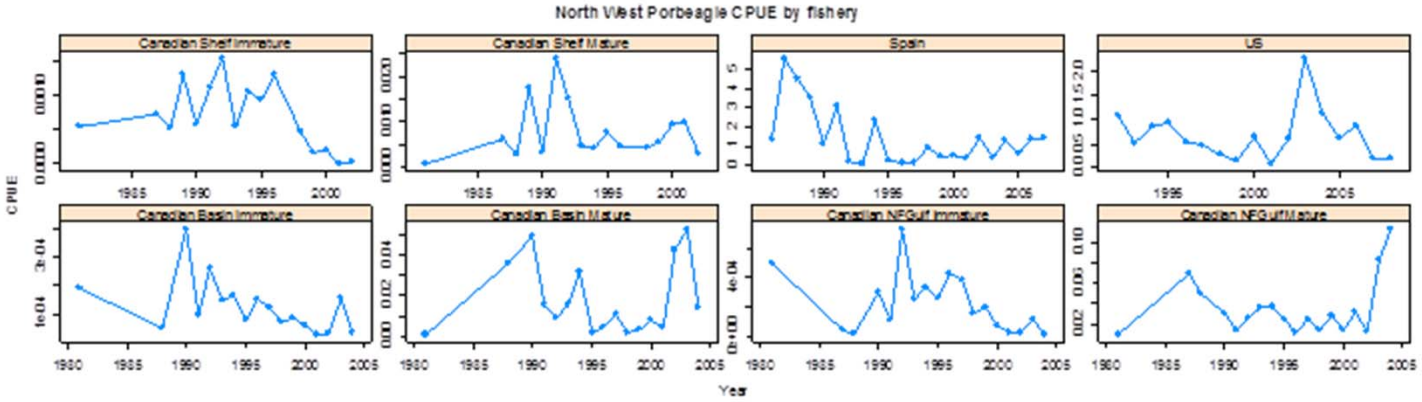


Northwest Atlantic

Catches

Overfished

No Overfishing

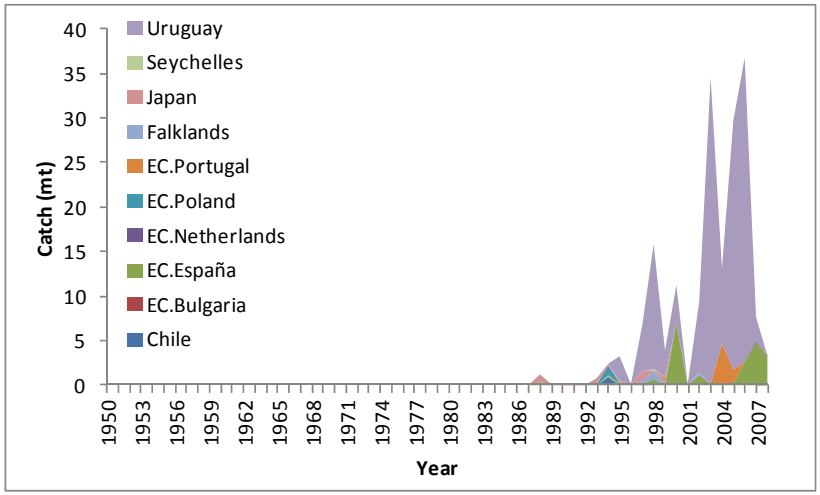


CPUEs

Porbeagle: catches and CPUE

Task I

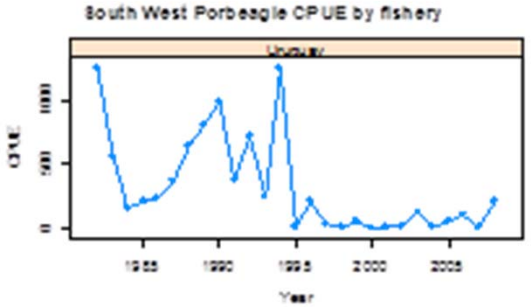
Catches



Southwest Atlantic

Overfished

No Overfishing



CPUEs

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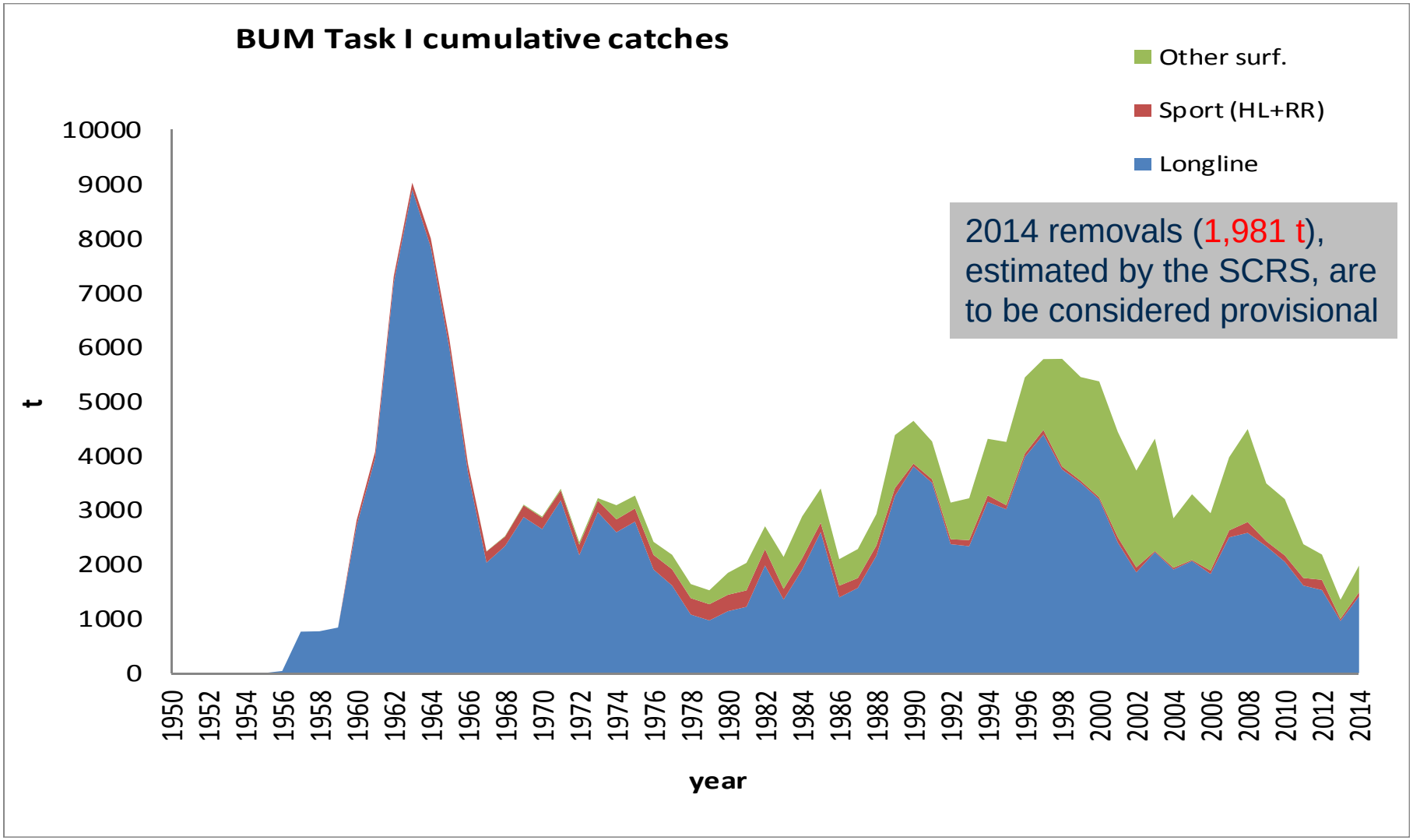
SERVICE

Billfish

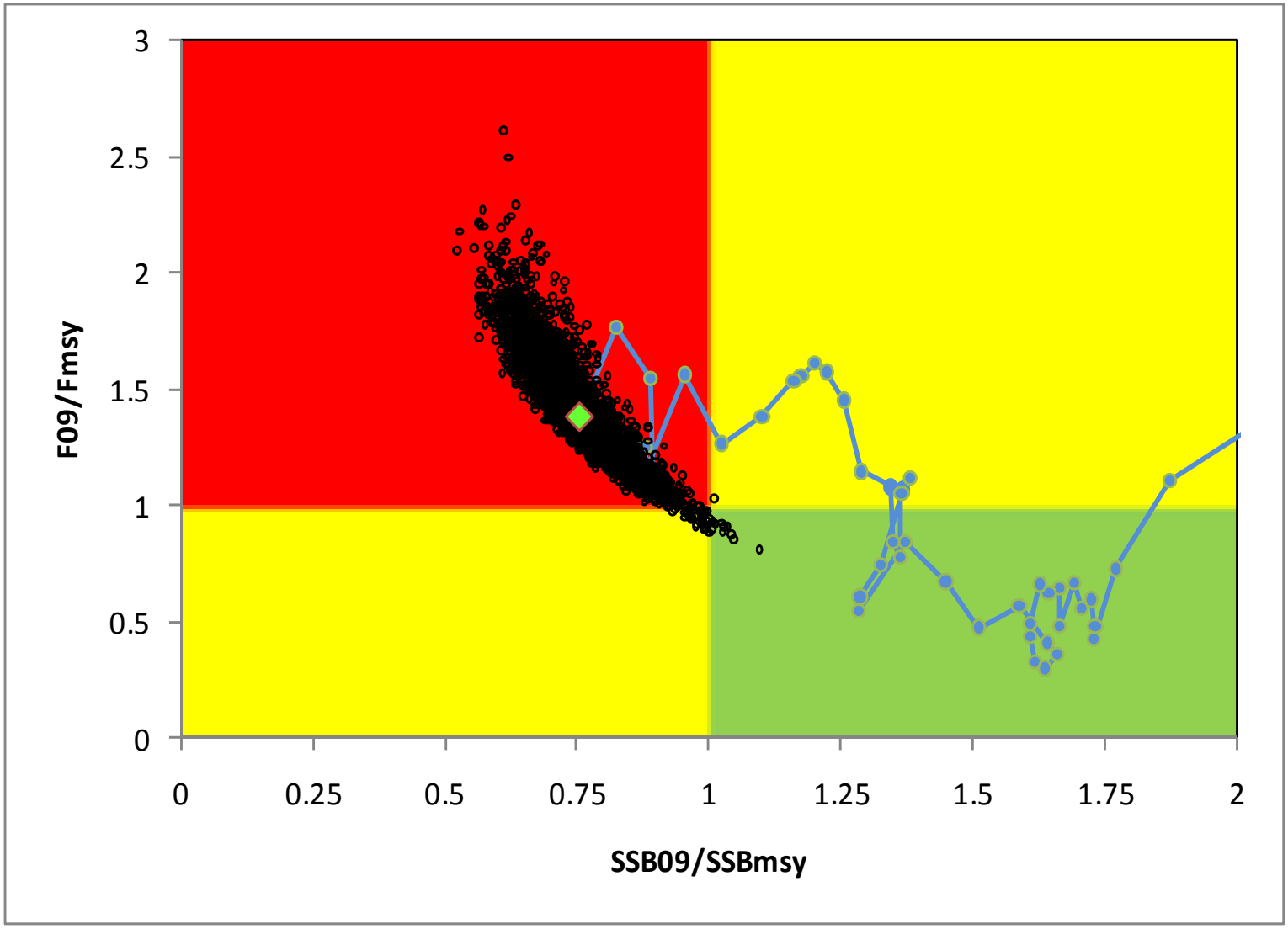
Blue Marlin Landings

North & South



Blue Marlin Stock Status

Overfished and undergoing overfishing



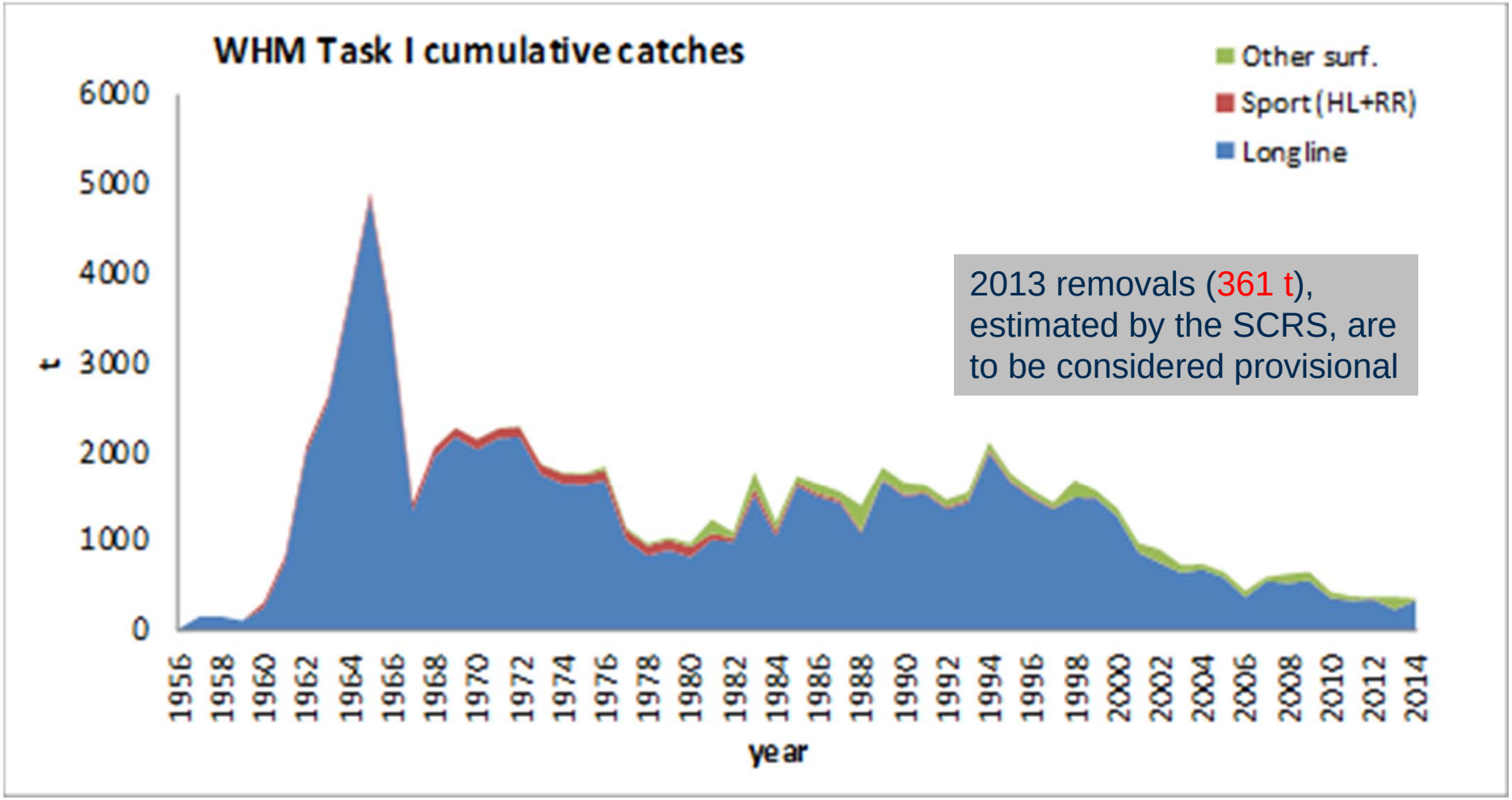
ATLANTIC BLUE MARLIN SUMMARY

Maximum Sustainable Yield	2,837 t (2,343 – 3,331 t)[1]
Current (2014) Yield	1,981 t[2]
Relative Biomass (SSB_{2009}/SSB_{MSY})	0.67 (0.53 – 0.81)[1]
Relative Fishing Mortality (F_{2009}/F_{MSY})	1.63 (1.11 – 2.16)[1]
Overfished	Yes
Overfishing	Yes
Conservation and Management Measures in Effect:	Recommendation [Rec. 12-04]. Reduce the total harvest to 2,000 t in 2013, 2014, and 2015.

[1.] Stock Synthesis version 3.2.0.b model results. Values correspond to median estimates, 95% confidence interval values are provided in parenthesis.
[2] 2014 yield should be considered provisional.

White Marlin Landings

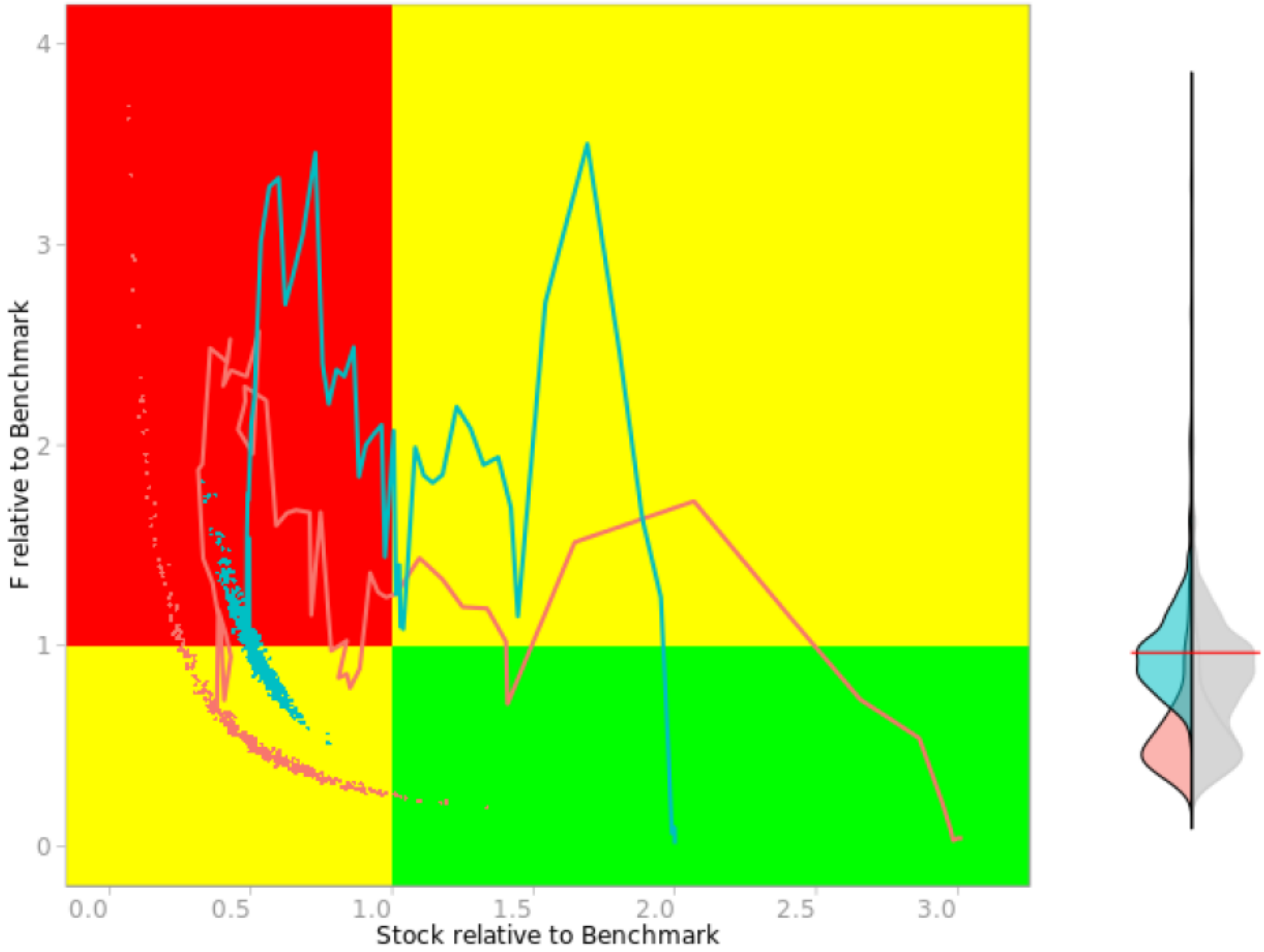
North & South



Note: white marlin catches reported to ICCAT include significant numbers of round scale spearfish (can be 22-27%) in some areas of the Atlantic, and no misidentification in other areas.

White Marlin Stock Status

Overfished and undergoing overfishing



ATLANTIC WHITE MARLIN SUMMARY

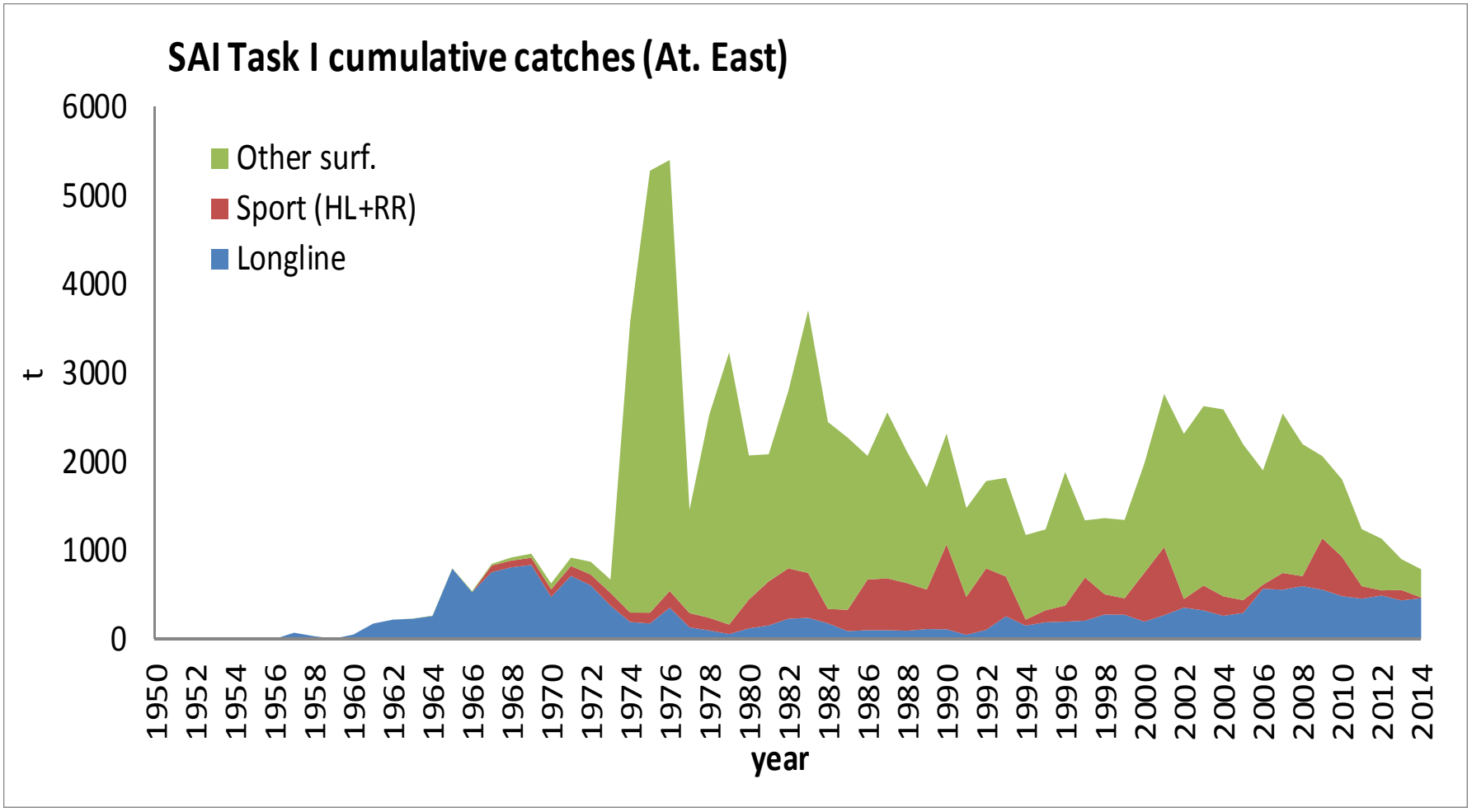
MSY	874 t [1] - 1604 t [2]
Current (2014) Yield	361 t [3]
Relative Biomass:	
B_{2010}/B_{MSY}	0.50 (0.42-0.60)[4]
SSB_{2010}/SSB_{MSY}	0.322 (0.23-0.41)[5]
Relative Fishing Mortality:	
F_{2010}/F_{MSY}	0.99 (0.75-1.27)[4] 0.72 (0.51-0.93)[5]
$Catch_{recent}$ [6]/$Catch_{1996}$ Longline and Purse seine	0.30
Overfished	Yes
Overfishing	Not likely[7]
Conservation and Management Measure in Effect:	Recommendation [Rec. 12-04]. Reduce the total harvest to 400 t in 2013, 2014, and 2015

[1] ASPIC estimates.
[2] SS3 estimates.
[3] 2014 yield should be considered provisional.
[4] ASPIC estimates with 10 and 90 percentiles.
[5] SS3 estimates with approximate 95% confidence intervals.
[6] Catch $_{recent}$ is the average annual longline and purse seine catch for 2009-2011.
[7] Overfishing could be occurring if catches are under reported.

SAILFISH Fishery indicators

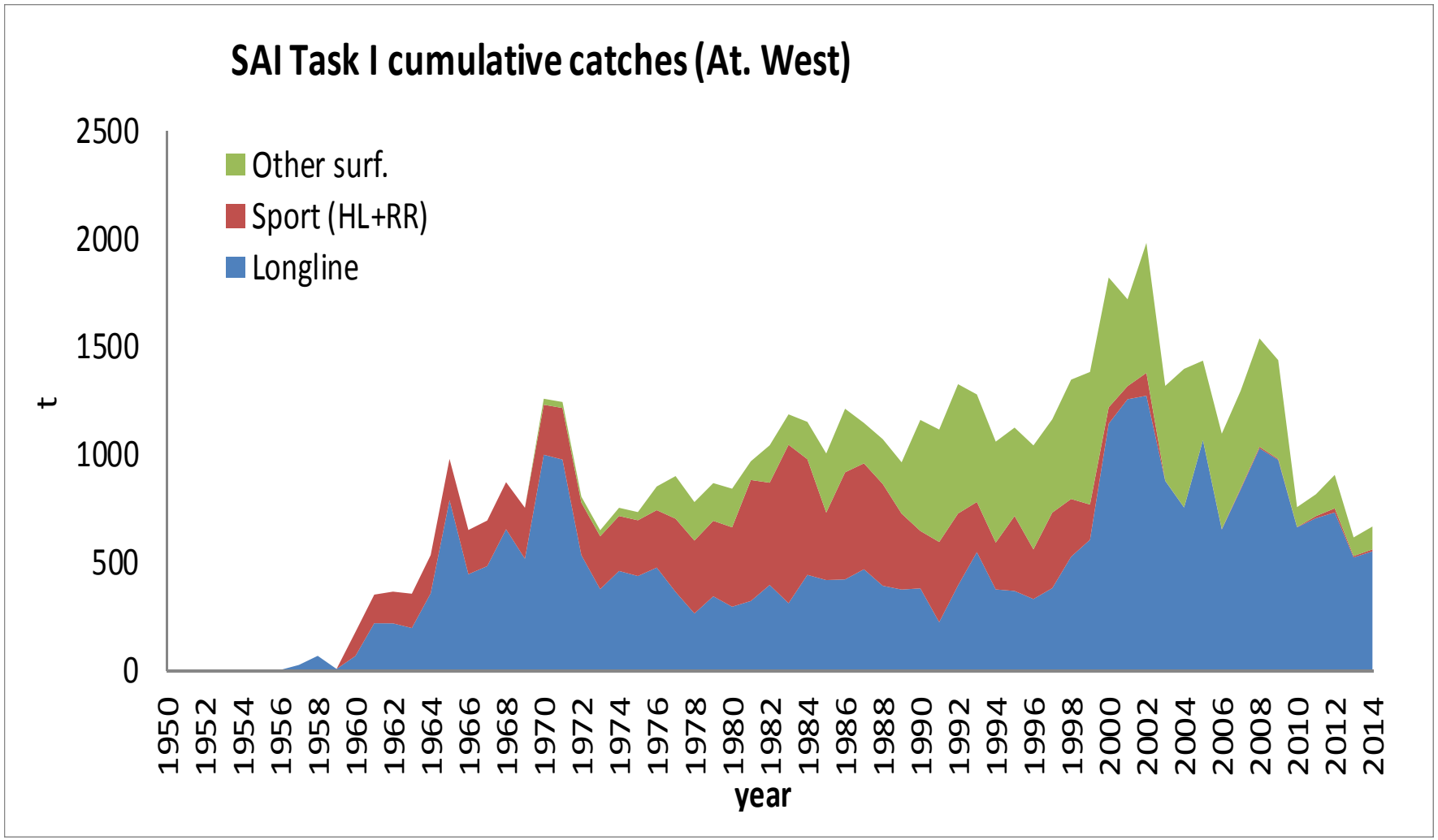
SAI East stock

2014 Yield = 786 mt



SAI west stock

2011 Yield = 412 mt



ATLANTIC SAILFISH SUMMARY

	West Atlantic	East Atlantic
Maximum Sustainable Yield (MSY)	600-1,100[1] t	1,250-1,950[1] t
2014 Catches (Provisional)	666 t	786 t
B_{2007}/B_{MSY}	Possibly < 1.0	.0
F_{2007}/F_{MSY}	Possibly	.0
Overfished		Likely
Overfishing		Likely
2008 Rep	Not estimated	Not estimated
Managem ures in Effect	None[2]	None[2]

Scheduled for assessment in 2016

[1] Results from Bayesian production model with informative priors. These results represent only the uncertainty in the production model fit. This range underestimates the total uncertainty in the estimates of MSY.

[2] Some countries have domestic regulations.

2016 SCRS Meeting Schedule

	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Jan							1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Feb			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29						
																	WGSAM																				
Mar				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
										YFT DATA PREP							FADs																				
Apr							1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
										SC-ECOSYSTEMS + SMT																				SHARKS							
																																			ALBACORE		
May		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31					
			ALBACORE																												SAILFISH						
Jun					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			
					SAILFISH ASS																										YFT ASSESSMENT						
Jul							1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
																															BFT DATA PREP						
Aug			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
Sep						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
																															SPECIES GROUPS						
Oct	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31						
			SCRS PLENARY																																		
Nov				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30				
Dec						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	

SCRS meetings

NOAA FISHERIES

2015-2020 TENTATIVE SCHEDULE OF MEETINGS

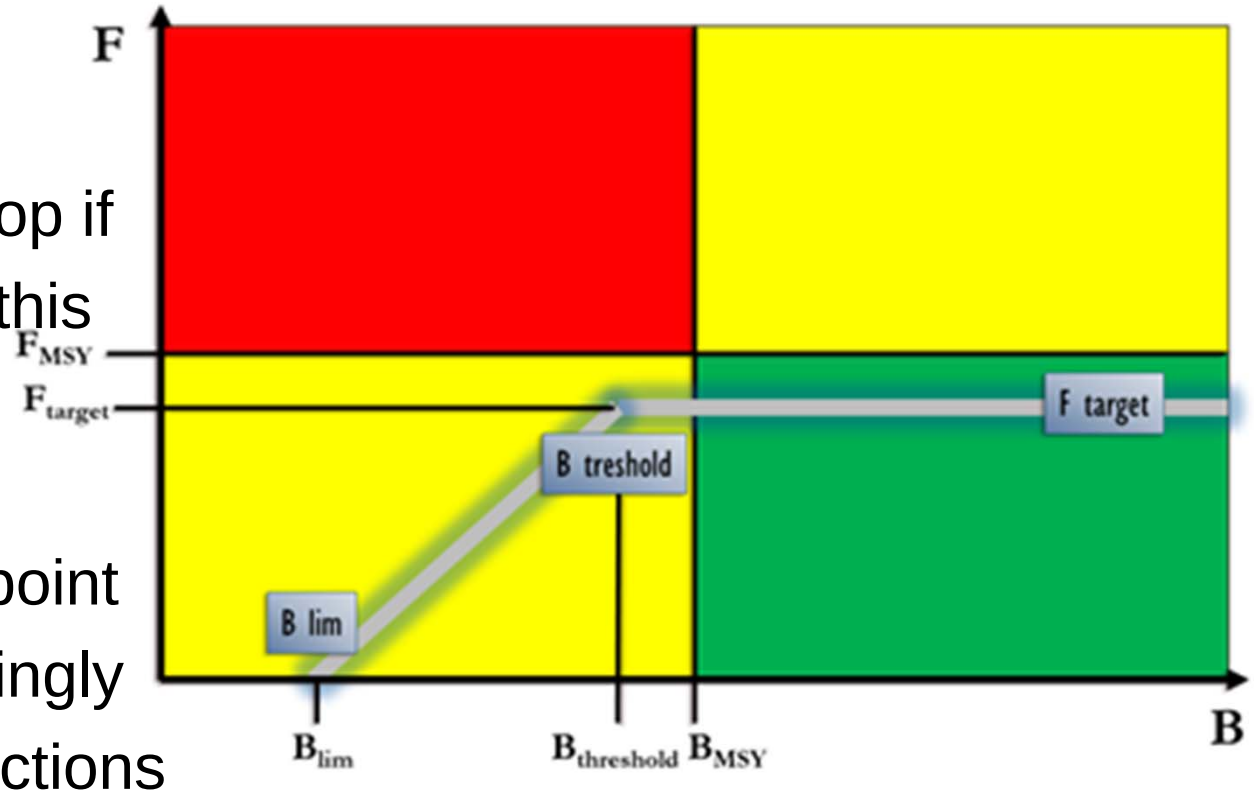
	2015	*2016*	*2017*	*2018*	*2019*	*2020*
ALB		ALB (N,S,M) Data Prep ALB (N,S,M) SA session				ALB (N,S,M) Data Prep ALB (N,S,M) SA session
BFT	BFT (E,W) Data Prep	BFT (E,W) Data Prep	BFT SA session		BFT Data Prep	BFT SA session
YFT-SKJ-BET	BET Data Prep BET SA session	YFT Data Prep YFT SA session	Management of FAD fishing in the EAF context		SKJ SA session	BET Data Prep BET SA session
SWO			SWO (N,S,M) Data Prep SWO (N,S,M) SA session			
BIL		SAI SA		BUM & WHM SA		
SHK	BSH SA session	SHK Data Prep	SMA SA	Other SHK SA session	POR SA	
SMT	SMT Data Prep	SMT Data Prep	SMT Data Prep	SMT SA session		SMT Data Prep
		Workshop on Ecosystem Based Fishery Management				
		Ad hoc WG FADs	Management of FAD fishing in the EAF context		Workshop on fishery independent abundance indicators	
Methods	WGSAM					
Ecosystems	SC-ECO					
Courses	COURSES					
SCRS-COM	WG DIALOGUE SCRS - COMM					

This schedule has been prepared for planning purposes and will be adapted according to the different requirements and the progress of the SCRS SSP, especially with the incorporation of MSE approaches in the work of the SCRS.

Harvest Control Rules: North Atlantic Albacore – Interim B_{lim} set at $0.4B_{MSY}$

B_{lim} = fishing must stop if biomass falls below this point

$B_{Threshold}$ = biomass point below which increasingly strict management actions should be taken as biomass decreases



F_{target}, the target fishing mortality rate to be applied such that it is lower than F_{MSY} with 'high