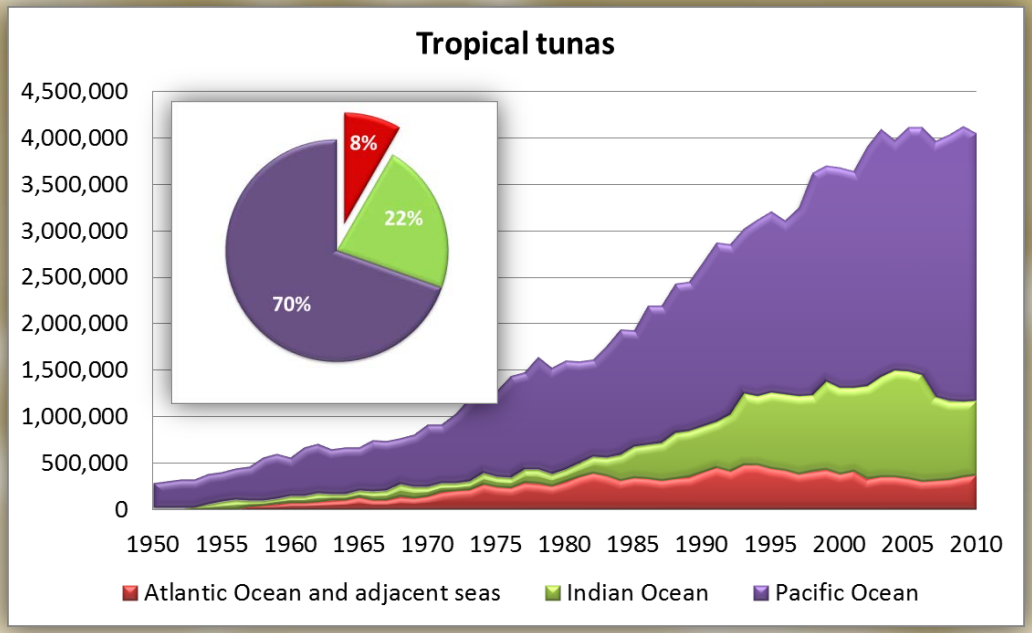
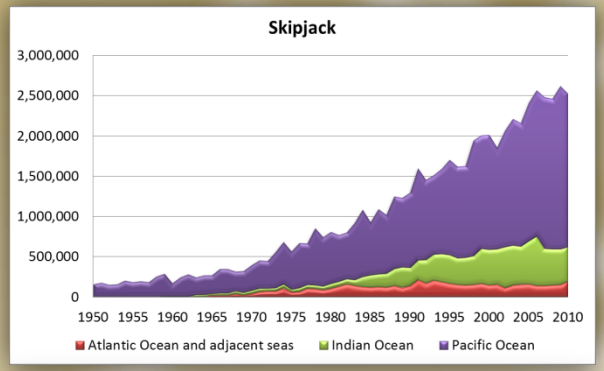
Panel 1: Tropical tunas

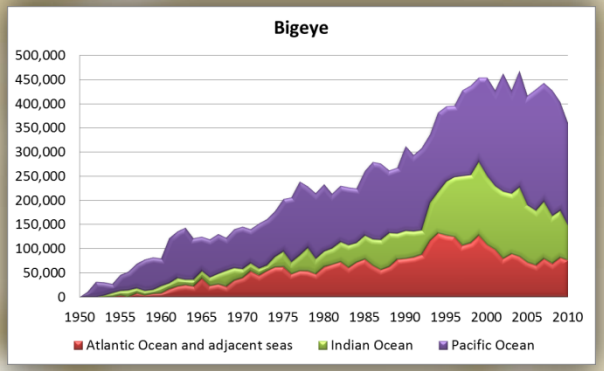
SKJ Skipjack
BET Bigeye tuna
YFT Yellowfin tuna

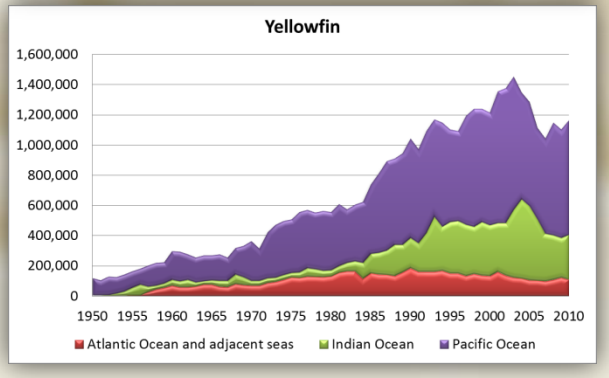
Panel 1: Items to be discussed

- SKJ Skipjack (assessed in 2008)
- BET Bigeye tuna (assessed in 2010)
- YFT Yellowfin tuna (assessed in 2011)
- 2012 Tropical Tuna species group inter-sessional meeting
- General recommendations to the Commission
- Responses to COM Requests





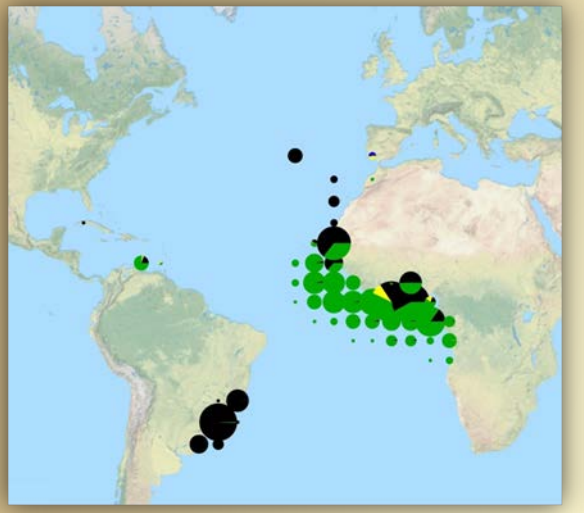




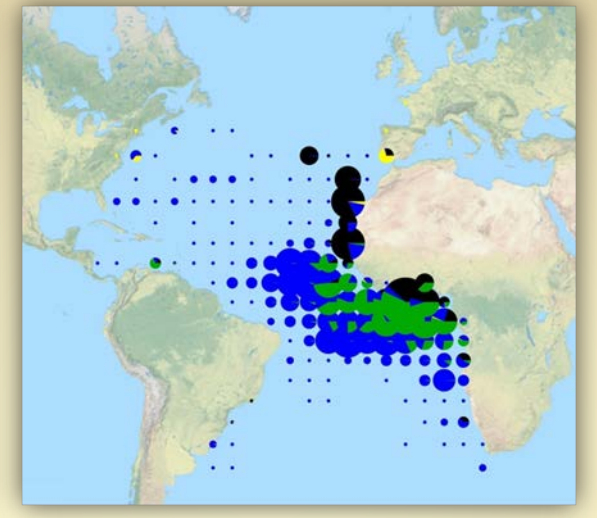
- **Atlantic** Tropical Tuna represents **8% of the world production** (338,000 t - average 2006-2010).
- TT catches in the Atlantic has been in general **decline since the historic peak in 1994 (487,000 t).**
- This **tendency has changed since 2007.**

Tropical tuna, a multi-gear and a multi-specific fishery

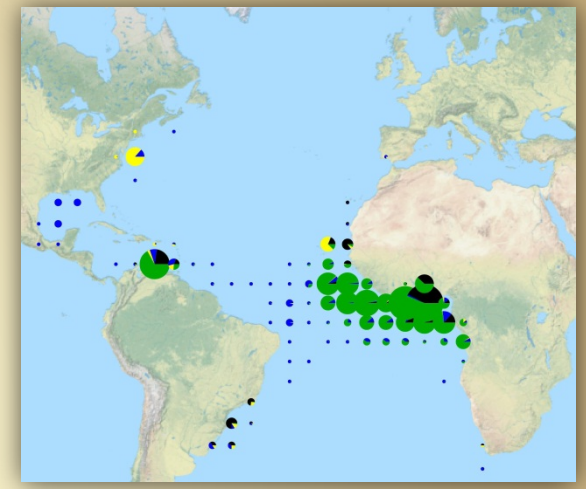
SKJ



BET



YFT

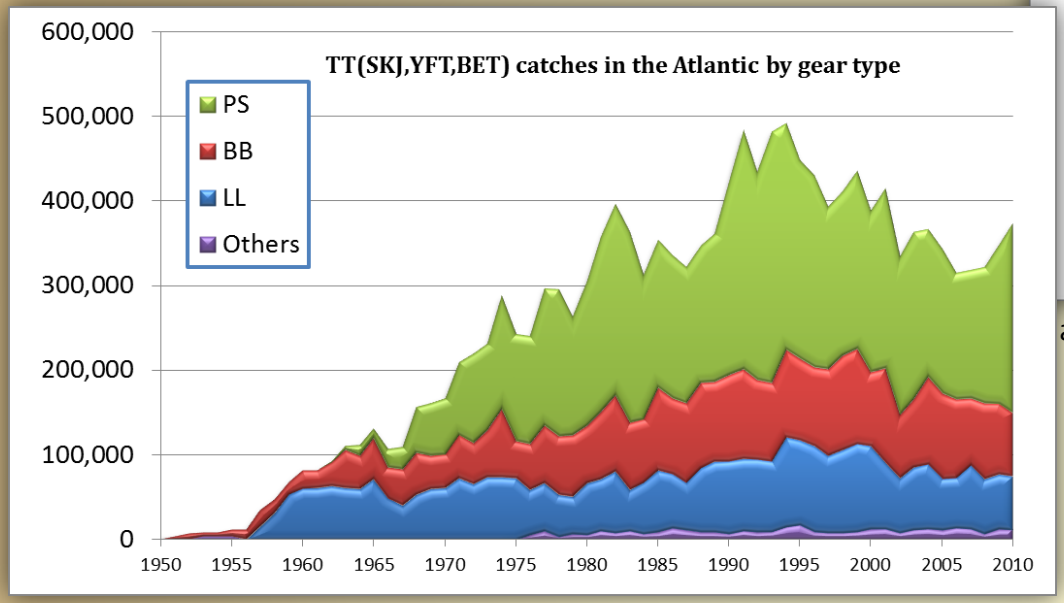


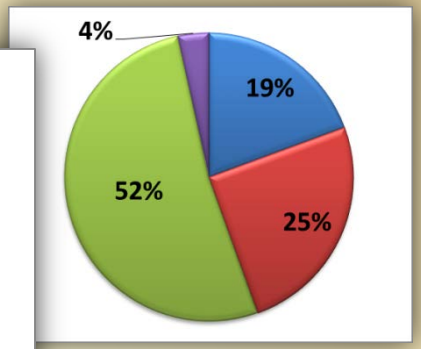
Task II data 2000-2009

Purse seine **Longline** **Baitboat** **Others**

- **Multi-specific fisheries** nature of the Tropical Tuna (TT) fisheries.
- TT species are strongly associated in the pelagic ecosystem.

Tropical tuna, a multi-gear and a multi-specific fishery



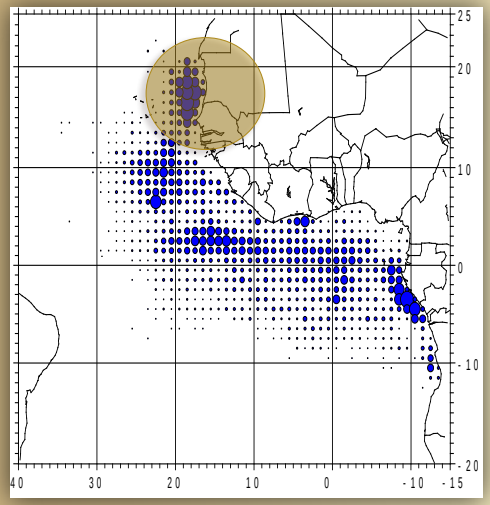


average catch in 2006-2011

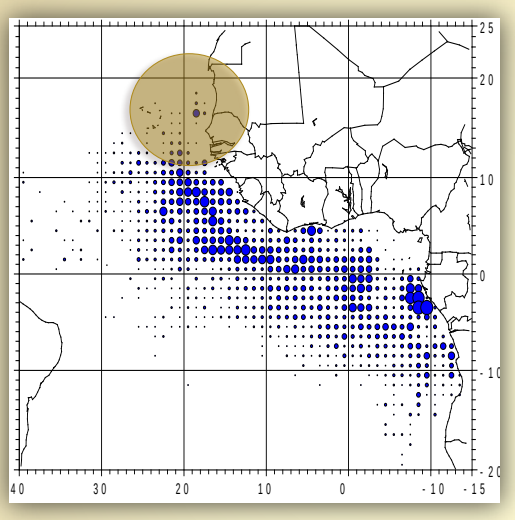
- **Multi-specific fisheries** nature of the Tropical Tuna (TT) fisheries.
- TT species are strongly associated in the pelagic ecosystem.
- **77% of the** Atlantic TT are caught by surface gears: (259,000 t - average 2006-2010).
- The use of **FADs** causes concerns for management.

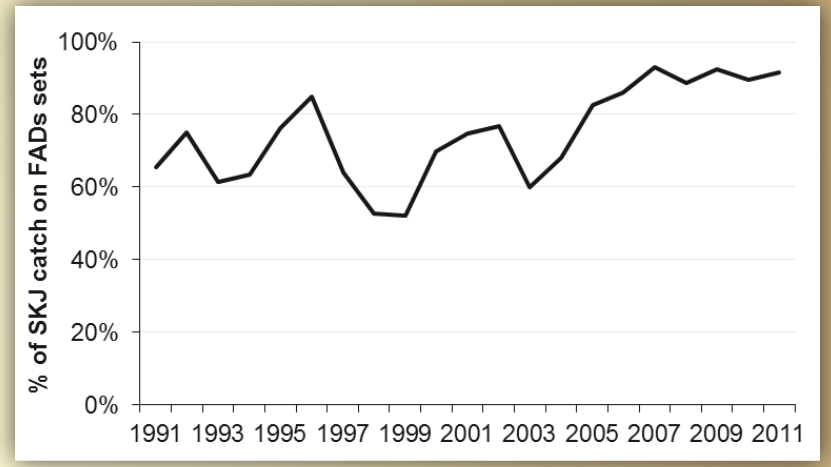
Recent changes in the spatial distribution of the EU PS fishery

1996-2005
54% of the PS SKJ catches



2006-2009
47% of the PS SKJ catches



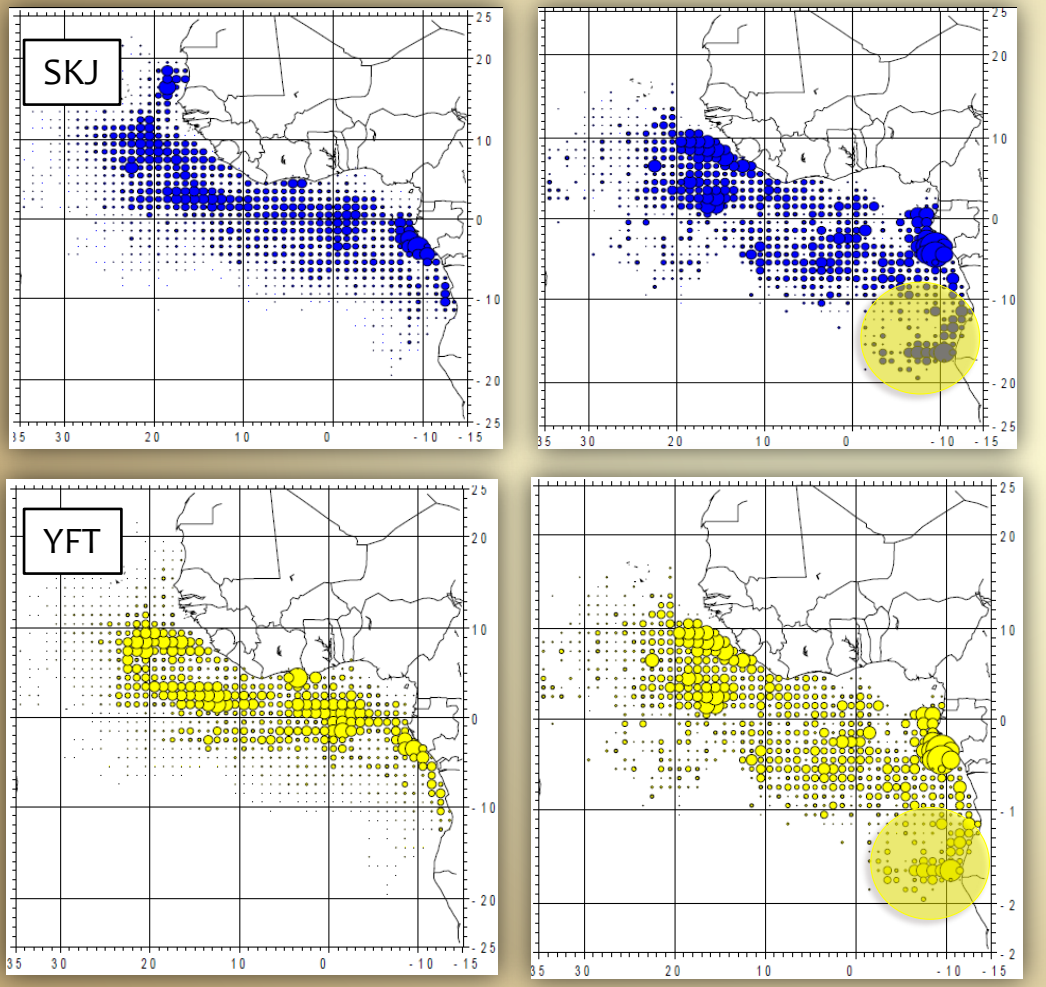


- Skipjack catches made by European purse seiners (about 32% of the total catches) 1996-2005 (left panel) and 2006-2009 (right panel) showing the **withdrawal from the Senegal zone (an area of free school fishing)** due to non-renewal of the fishing agreements.

- Consequently, the proportion of the catches on **FADs** has continued to increase, reaching slightly **more than 90% of the catches**

Recent changes in the spatial distribution of the EU PS fishery

2000-2010 2011

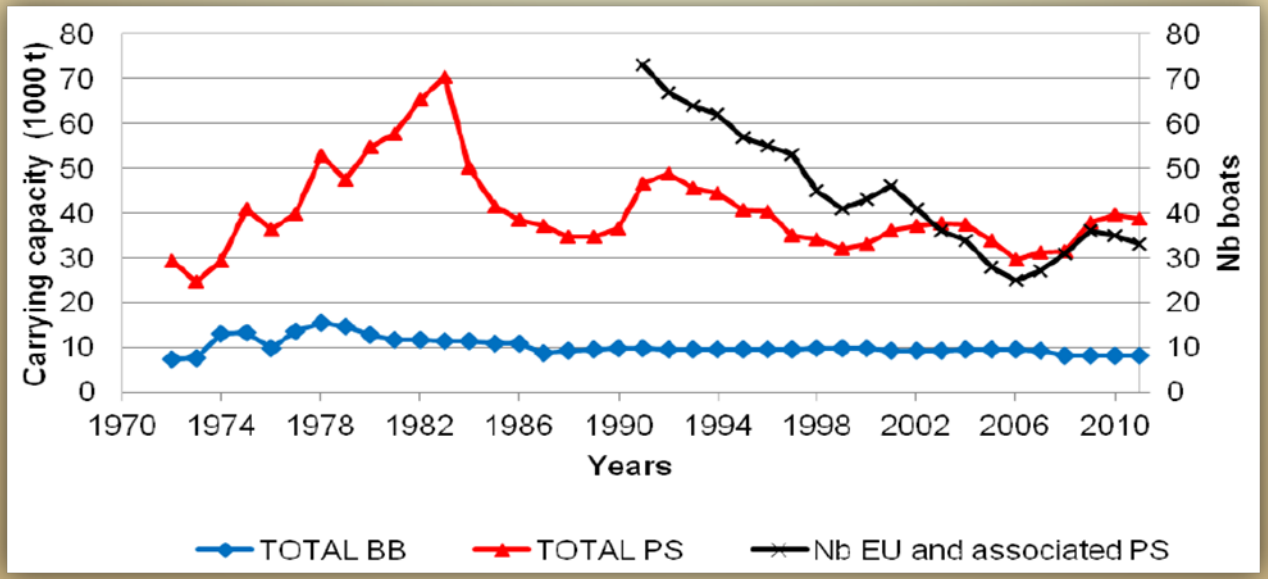


Recent increase in the area explored successfully:

- towards the central West Atlantic
- off Angola.

Fishing effort of purse seiners

- Difficult to estimate a fishing effort targeting TT as well as calculated fishing effort on FADs.
- Nominal PS has decreased regularly since the mid-1990s up to 2006 (as a reference, there were 72 EU and associated vessels in 1990, 44 in 2001, 25 vessels in 2006.).
- **Recent considerable increase:**
  - EU PS have transferred their effort to the East Atlantic (**piracy** - Indian Ocean)
  - Presence of one new PS fleet operating from Tema (**Ghana**)
- The vessels transferred from the Indian Ocean are newer vessels with greater fishing power and carrying capacities
- EU PS seems to have stabilized in 2010.



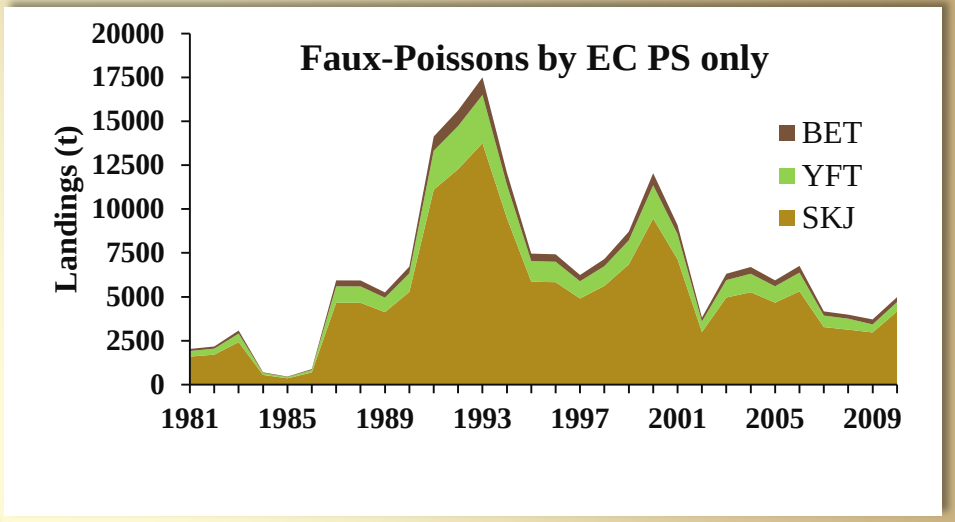
Some catch statistics are uncertain:

- Significant catches of small BET, YFT, SKJ and other species not valued by canneries continue to be landed to local West African markets and sold as "**faux poisons**".
  - Monitoring of such catches has progressed in some countries but remain underrepresented in catch statistics and there is still a need for a coordinated approach that will allow ICCAT to properly account for these catches

- Estimates of the **unreported catches of some PS** are larger and increasing since 2006 and now may exceed 20,000 tons for the 3 main species of tropical tunas.
  - Not incorporated into assessments and are not included in the catch estimates presented in the 2012 SCRS Report; and they **are likely to influence the assessments and the resulting perception of stock status**.

- **IUU longline BET catches** - estimated from Japanese import statistics - but estimates are considered uncertain.

Some catch statistics are uncertain: Estimate of the small tropical tuna landed as "faux-poisson" in the local market of Abidjan in Côte d'Ivoire



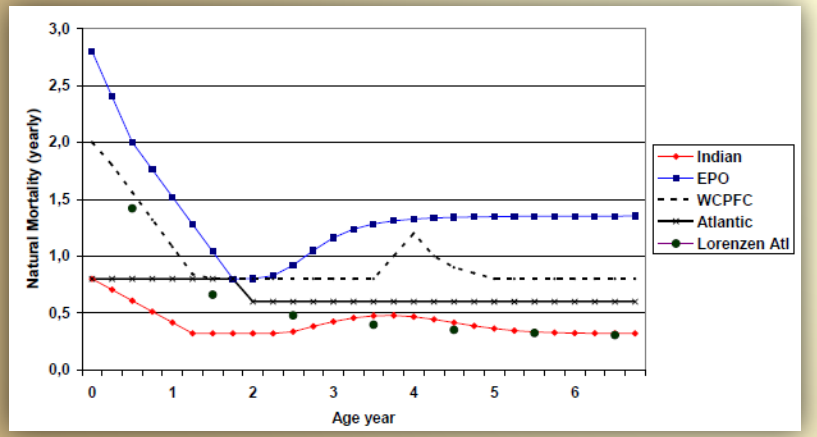
- An average of 6,641 t/year between 1988 and 2007.
- The Committee regularly integrates these estimates in the **reported historical catches** for the EU-purse seiners since 1981, as well as in the catch-at-size matrix.
- However, new estimates indicate amounts of around 11,000 t/year between 2005 and 2010 for all the PS fleet operating in the East Atlantic (3.919 t/year EU PS).

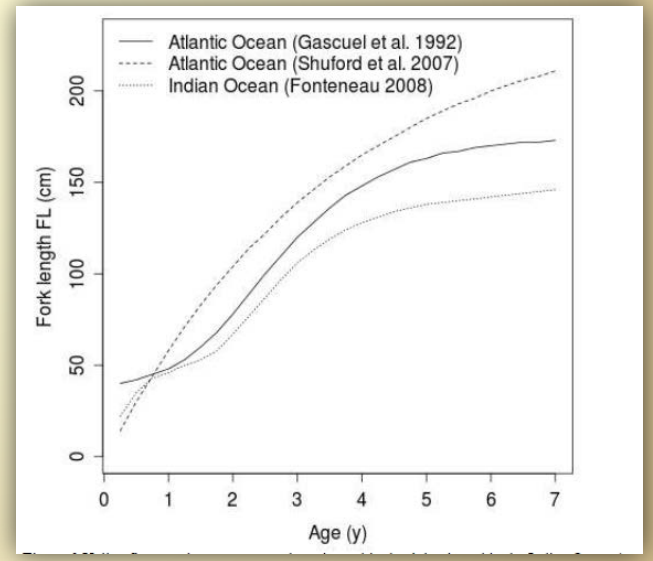
Some catch statistics are uncertain: Unreported catches of some PS

- Catches of a segment of the purse seine fleet, transshipped at sea on carriers before 2011, **had escaped the collection process of fishery statistics**.
- The unreported catches of some purse seine catches were estimated by comparing monitored landings in West African ports and cannery data to catches reported to ICCAT. Estimates of the unreported catches of these purse seine catches have increased since 2006 and **may have exceeded 20,000 tons** for the three main species of tropical tunas.
- The Committee expressed the need for countries and the involved industry in the region to **cooperate** to estimate and report these catches correctly to ICCAT.
- The preliminary results of the recent mission of experts carried out in Ghana under ICCAT suggest the existence of **bias in the sampling protocol** aimed at correcting the multi-species composition of catches reported in the logbooks.
- These estimates **have not been incorporated into assessments** and are not included in the catch estimates presented in this report. The magnitudes of these estimates of IUU catch, however, are likely to influence the assessments and the resulting perception of stock status

Uncertainty on biological parameters

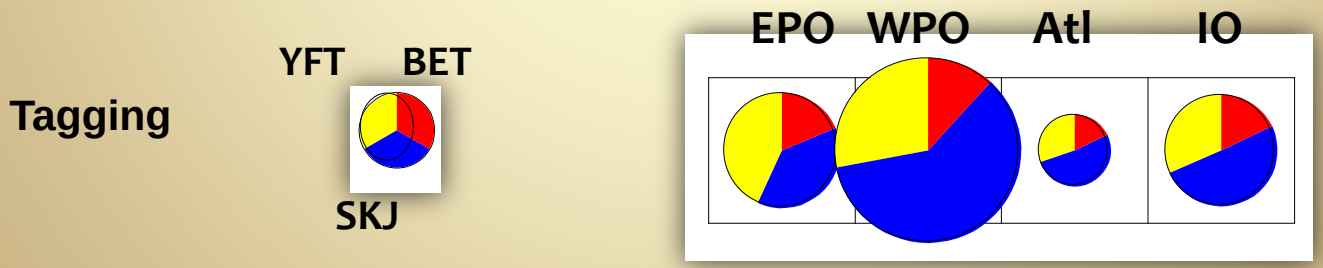
- There is **a high degree of uncertainty on biological parameters** needed to conduct accurate stock assessments:
  - Stock structure and movements.
  - Growth (VB vs two-stanza); differences by sex
  - Natural mortality





Proposal: Atlantic tropical tagging program

- Importance of simultaneously tag the 3 species (YFT-SKJ, BET):
  - Comparative biological results (**growth, movements, natural and fishing mortality at age**),
  - Indication of **movements** and possible **stock structure**.
  - Analysis of **interactions** among fleets.
  - Effects of FADs on tuna resources.
  - **Evaluation of management measures** (i.e., impact of **closures**)
  - Tagging programmes, if successful, provide data useful to answer the most important question: What is the **current population size**?

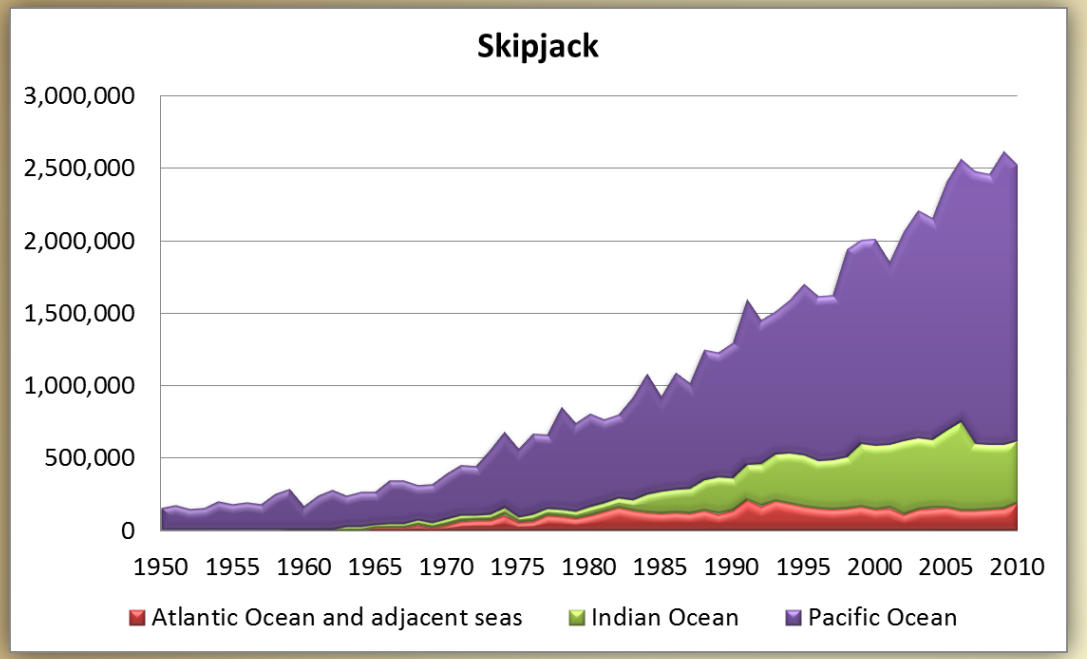


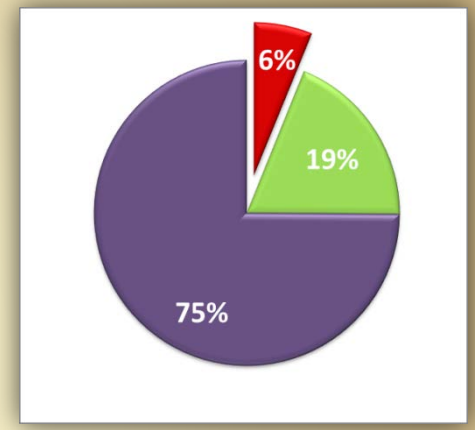
Skipjack

Last assessment: 2008

2 management units

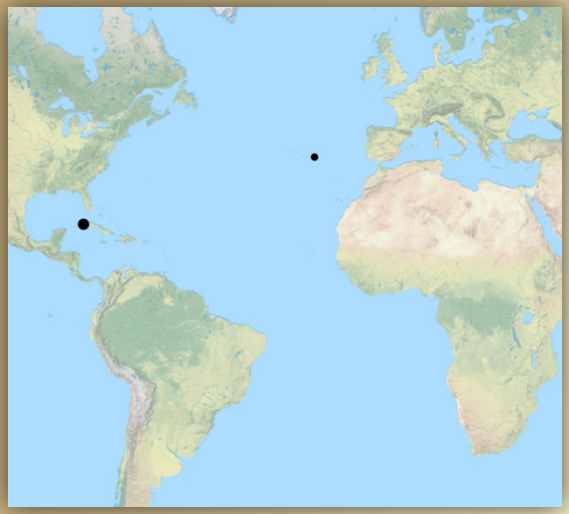
Skipjack, Listado, Listao	
Scientific name	*Katsuwonus pelamis*
Distribution	Gregarious species that is found in tropical, subtropical, and warm temperate waters
Spawning grounds	Skipjack breed opportunistically throughout the year over wide areas of the Atlantic
Maturity	depending on the areas, between 42 and 50 cm
Life span	Around 5 years
Maximum size	Around 100 cm (18 kg)
Natural mortality	Assumed M=0.8



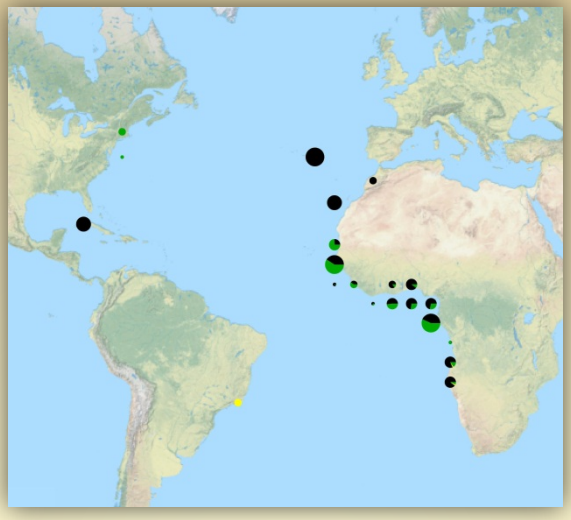


% average catch in 2006-2010

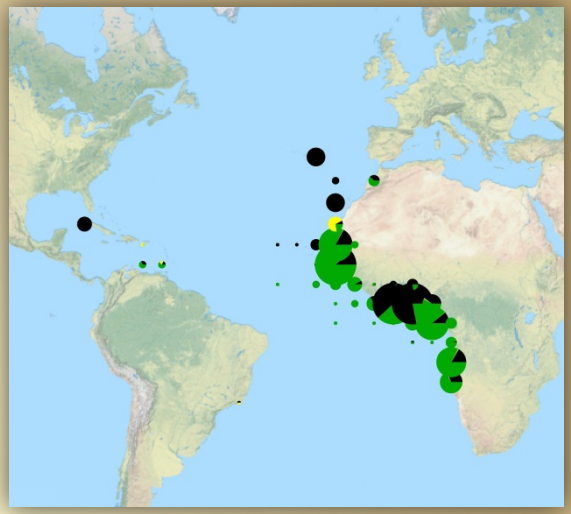
- Atlantic SKJ, although **the largest volume production of Atlantic tunas** at about 150,000t per year, represents a small proportion of the world-wide production of this species
- **Atlantic** SKJ represents **6% of the world production** (average 2006-2010).



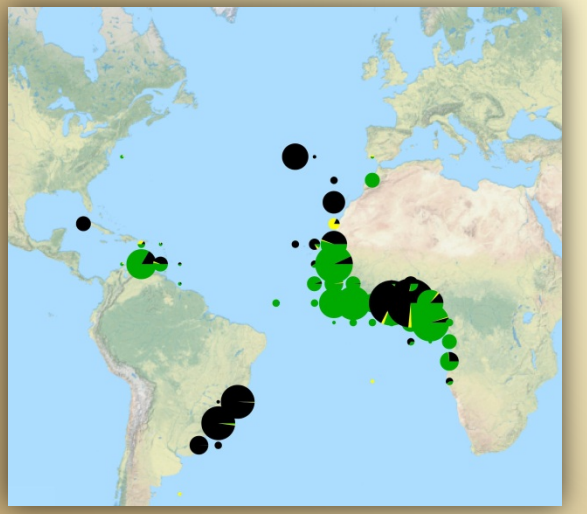
1950



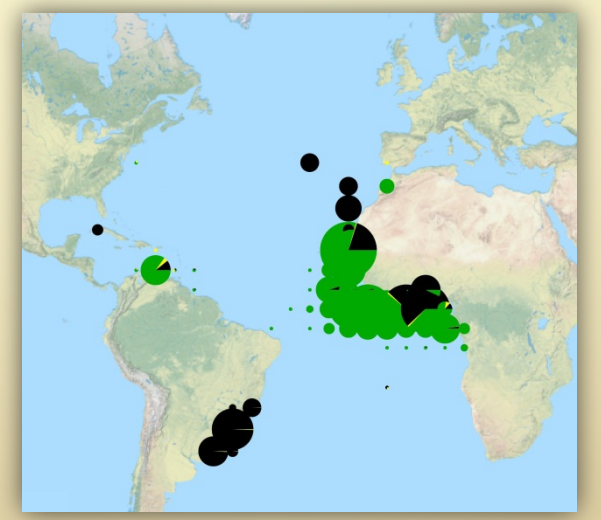
1960



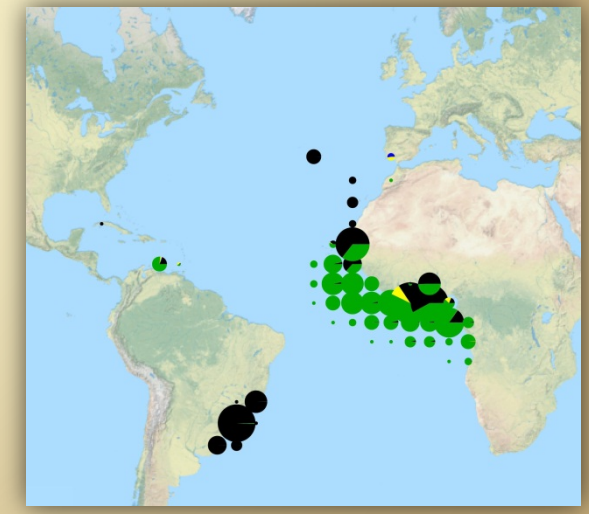
1970



1980

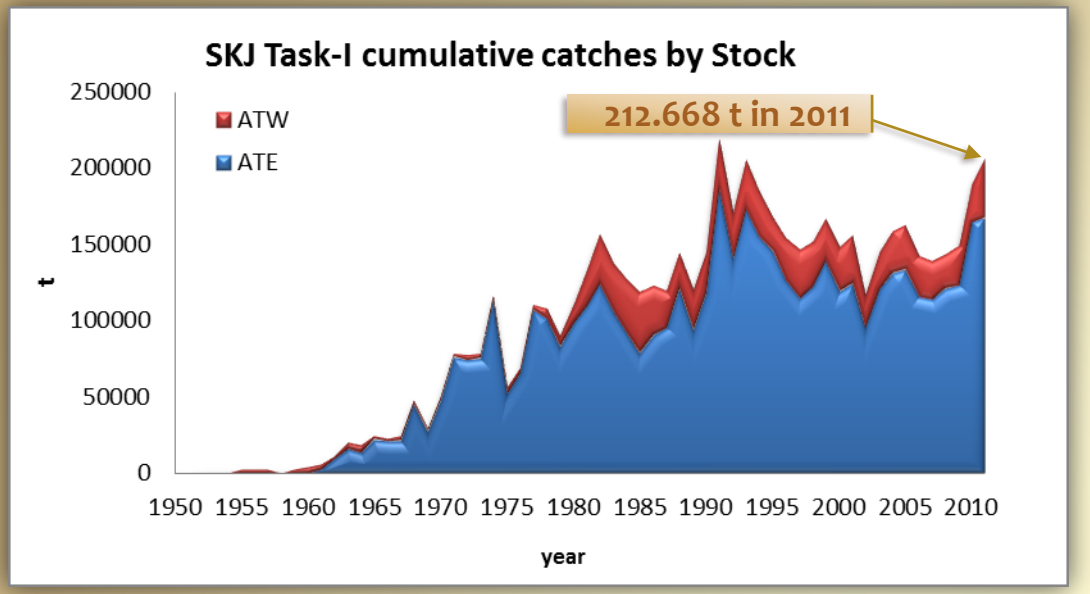


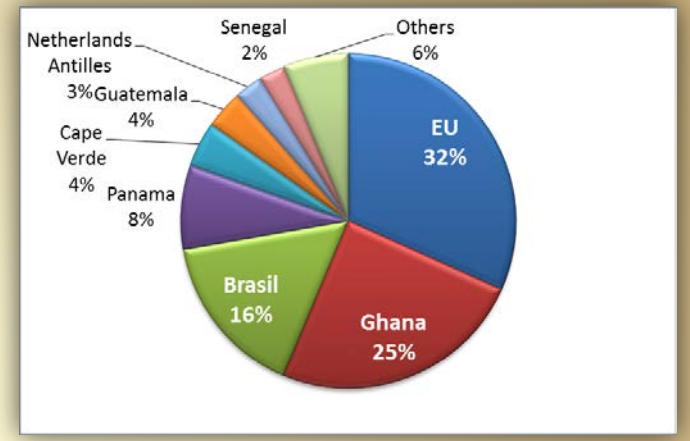
1990



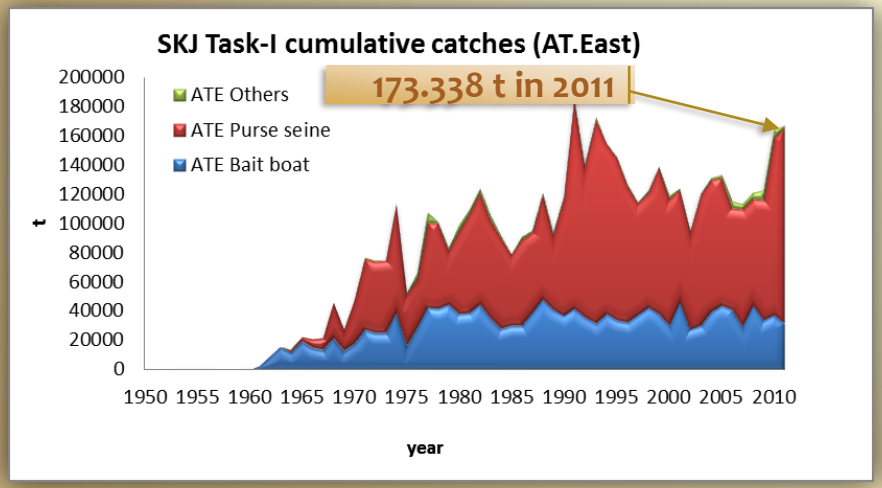
2000

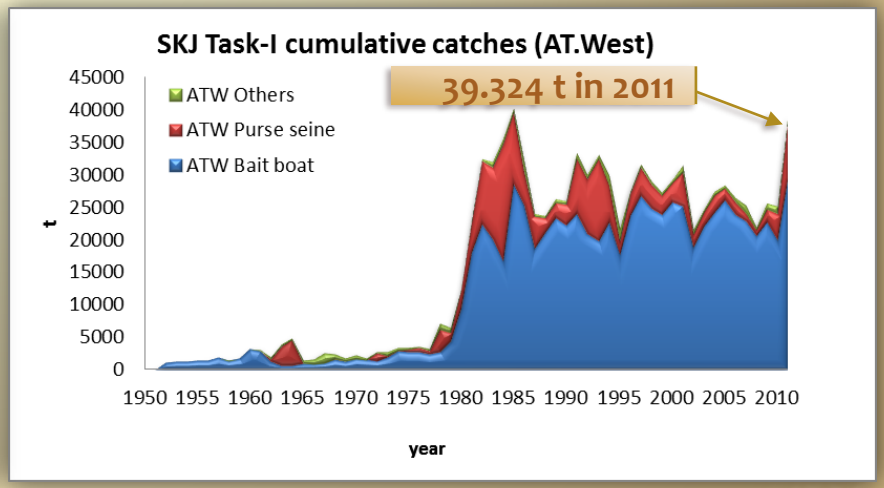
Purse seine **Longline** **Baitboat** **Others**

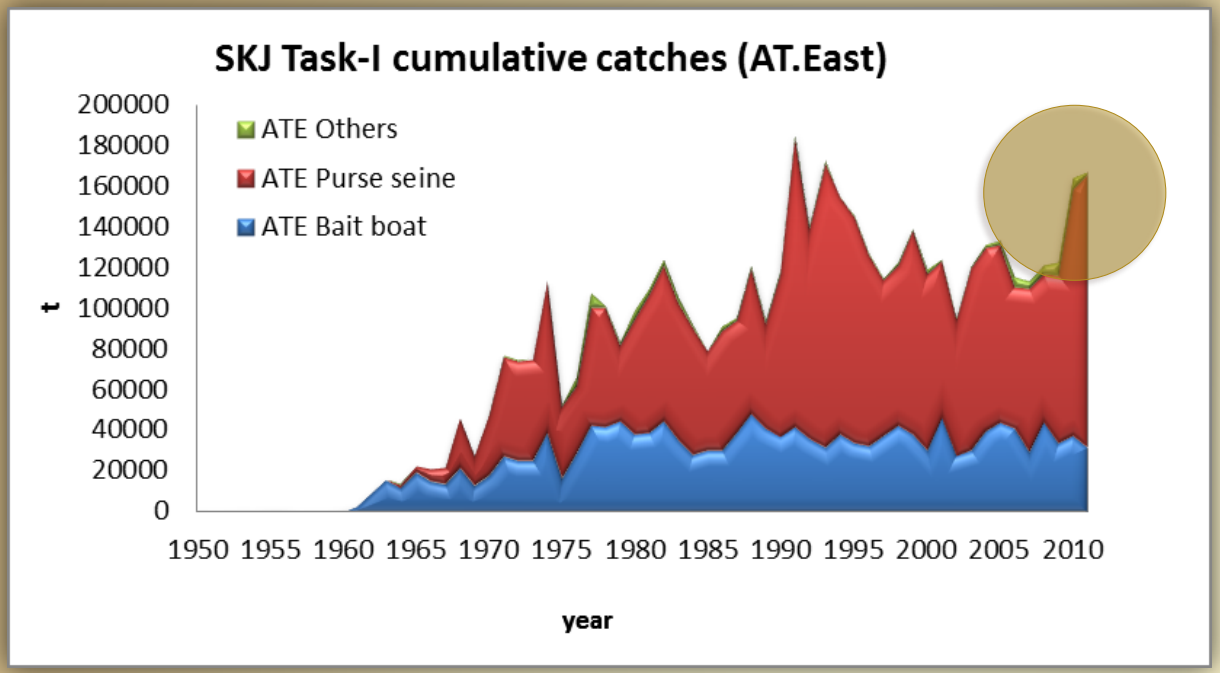




% average catch in 2006-2011





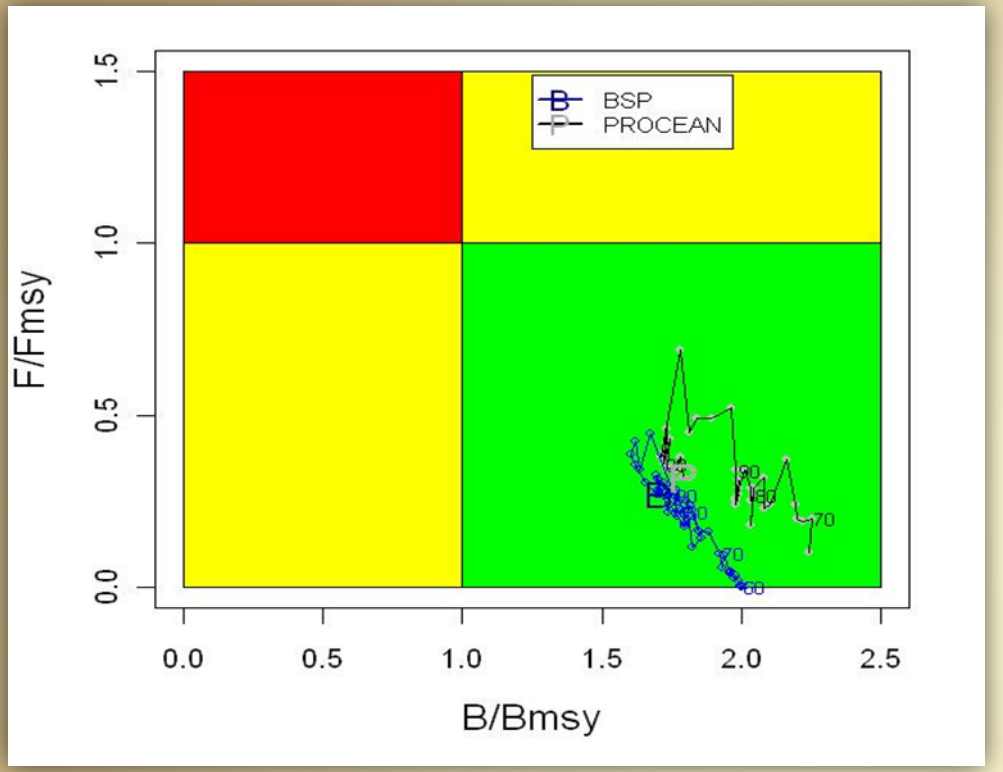


- Estimated 2011 SKJ catches in the East Atlantic amounted to **173,338 t**, that is, an **increase of around 34%** compared to the average of 2006-2010.

- Estimates of the unreported catches of some PS have **increased since 2006** and now may exceed **20,000 tons** for the 3 main species of tropical tunas.

- **Not incorporated into assessments** and are not included in the catch estimates presented in the 2012 SCRS Report; and they are **likely to influence the assessments and the resulting perception of stock status.**

Stock status (East Atlantic)



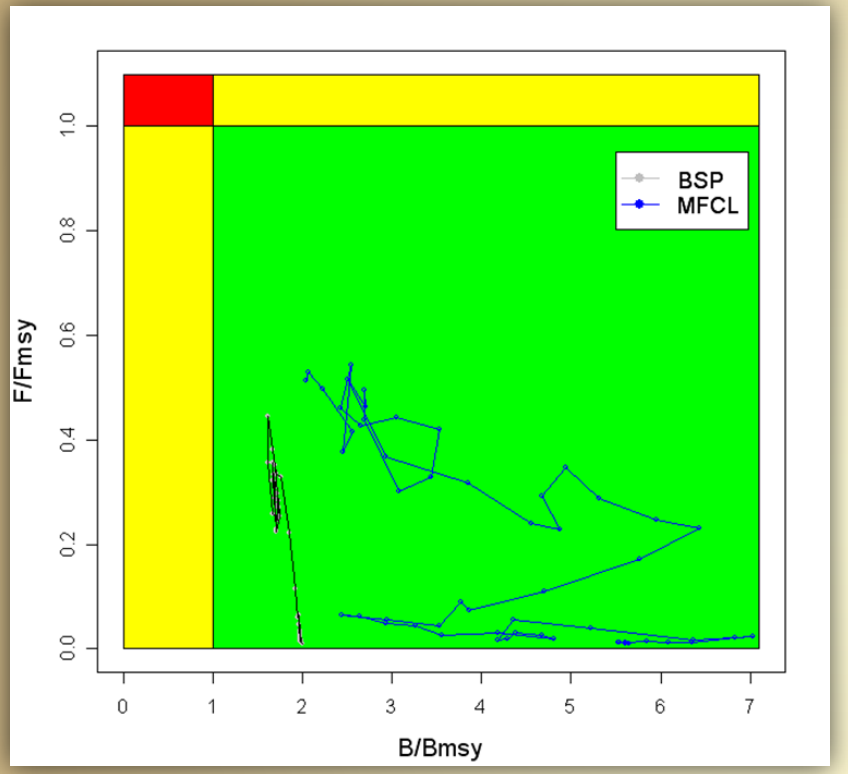
Model type	MSY
RRIC (G & G index)	149,000 t
Catch only model (Schaefer)	143-156,000 t
Procean (Generalised)	155–170,000 t
BSP (Schaefer)	155–170,000 t

MSY: 143,000 – 176,000 t

Current Catch (2011)	173,338 t
Average catches (5 years)	137,789 t

- SA conducted in 2008 with fisheries information until 2006
- It is **unlikely that skipjack be overexploited** in the eastern Atlantic.

Stock status (West Atlantic)



Model type	MSY
RRIC (G & G index)	30,000 t
Catch only model (Schaefer)	30,000 t
Multifan CL	31–36,000 t
BSP (Schaefer)	34,000 t

MSY: 30,000 – 36,000 t

Current Catch (2011)	39,324 t
Average catches (5 years)	27,547 t

It is unlikely that the current catch is larger than the current replacement yield

Effects of current regulations

- There is currently **no specific regulation** in effect for skipjack tuna.

- Although the average of catches in recent years are below the estimates of MSY, the Committee is concerned about
  - the **high catches of skipjack reported in 2011** from the two coasts of the Atlantic ,
  - the **potential under-reporting** in recent years for the East stock.

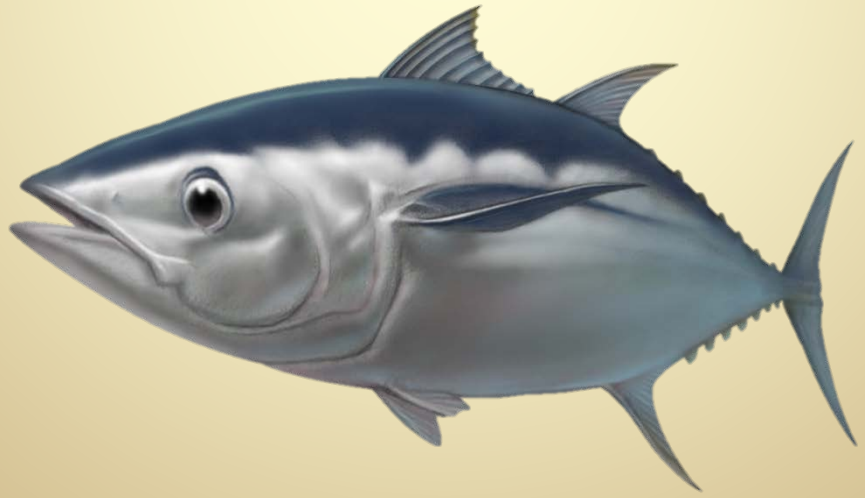
- The new Recommendation [Rec. 11-01] (entering into force in 2013) will most likely have an impact on the skipjack catches.

Management recommendations

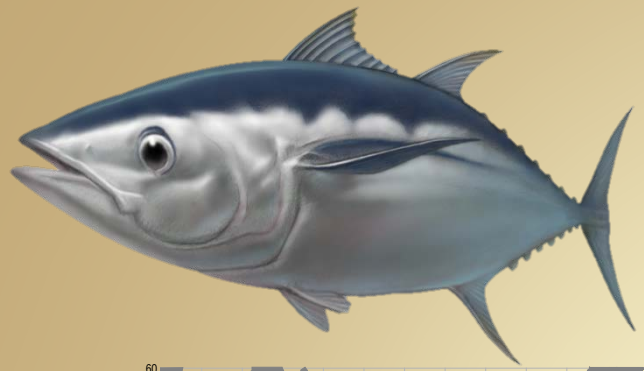
- Although the Committee makes no management recommendations in this respect, **catches should not be allowed to exceed MSY**.

- The Commission should be aware that increasing harvests and fishing effort for skipjack could lead to **involuntary consequences for other species** that are harvested in combination with skipjack in certain fisheries.

Bigeye tuna

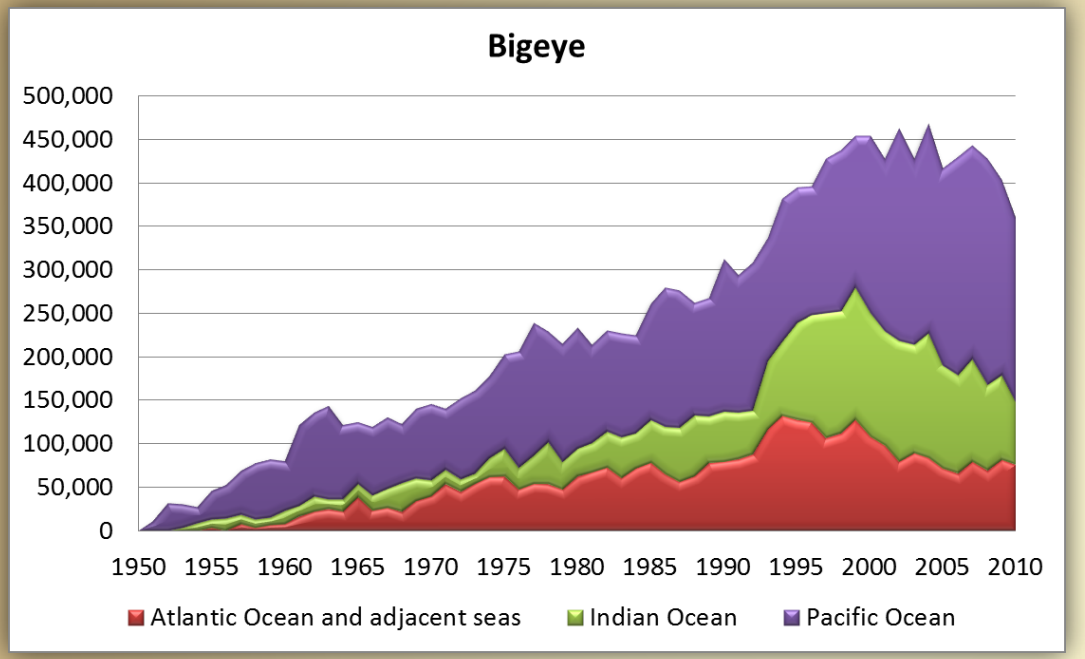


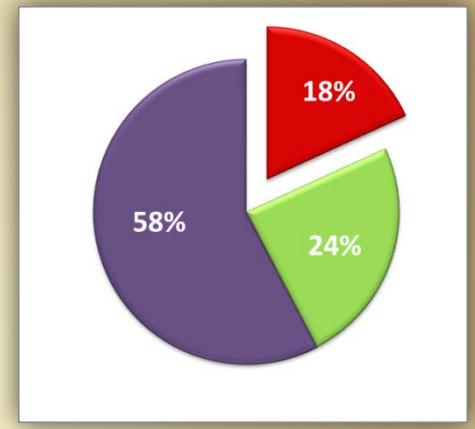
Last assessment: 2010



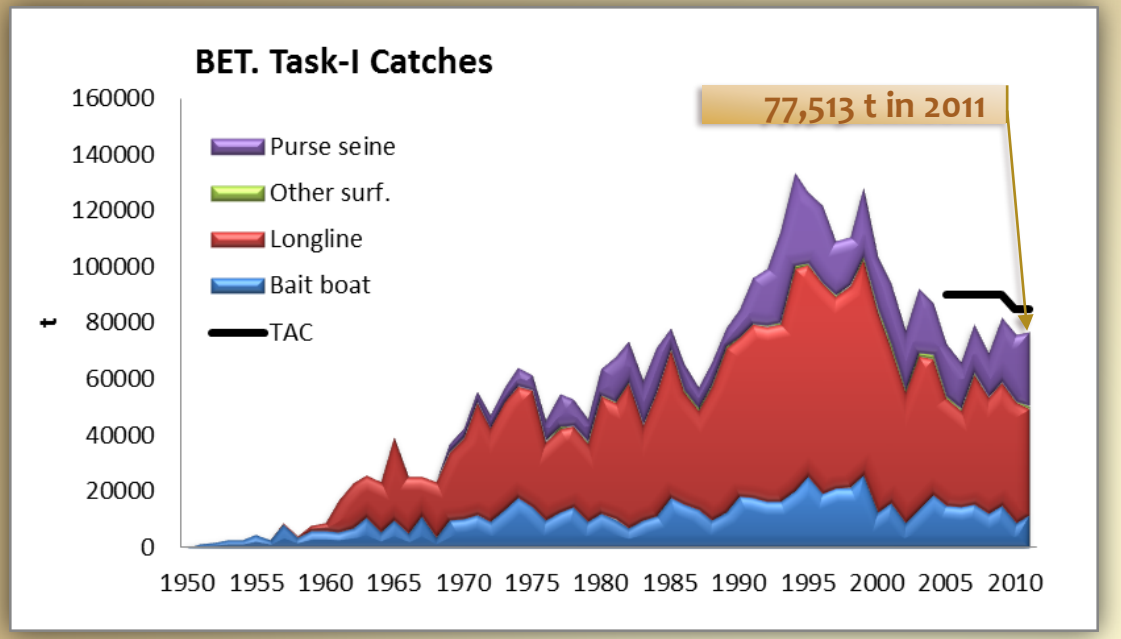
1 management unit

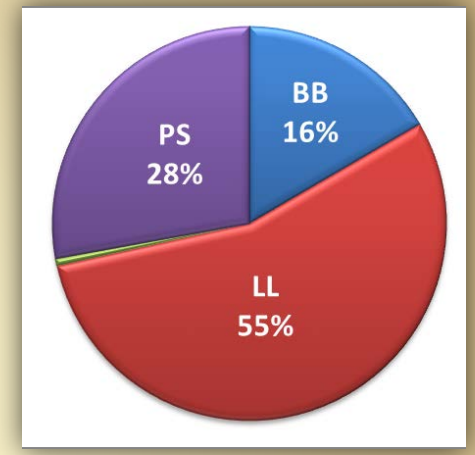
Bigeye tuna, Patudo, Thon obèse	
Scientific name	*Thunnus obesus*
Distribution	Widely distributed in the tropical and subtropical waters of the Atlantic. Geographical limits are 55°-60°N and 45°-50°S.
Spawning grounds	Spawning takes place throughout the entire year in a vast zone in the vicinity of the equator with temperatures above 24°C from the coast of Brazil to the Gulf of Guinea. primer trimestre en mayoria y zona limitada entre 5°S y 10°S
Maturity	Around 100-110 cm - 3 year old
Life span	Around 15 years
Maximum size	Around 200 cm
Natural mortality	Assumed to be 0.8 for ages 0 and 1, and 0.4 for ages 2+





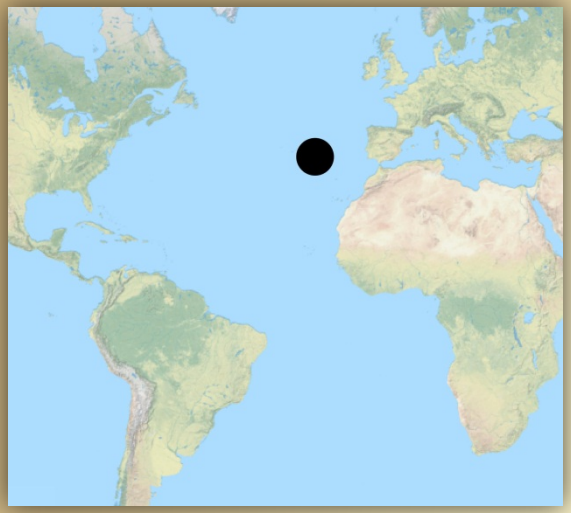
- **Atlantic** bigeye tuna represents **around 18% of the world production** (average 2006-2010).
- Although the largest proportion of the BET world-wide production it represents the lowest volume production of Atlantic tropical tunas at about 75,000t per year (average 2006-2010).



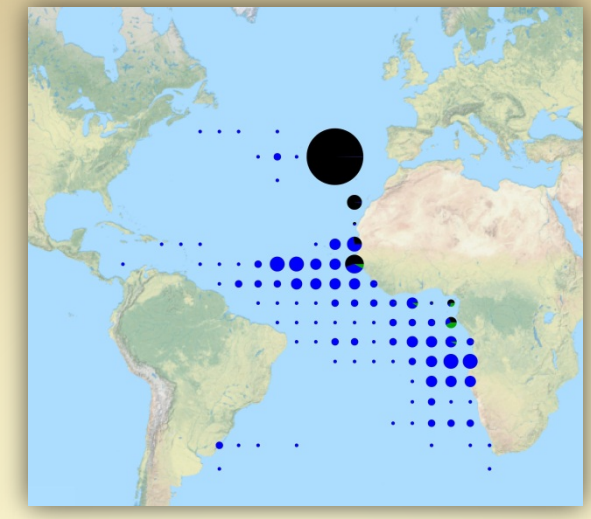


% average catch in 2007-2011

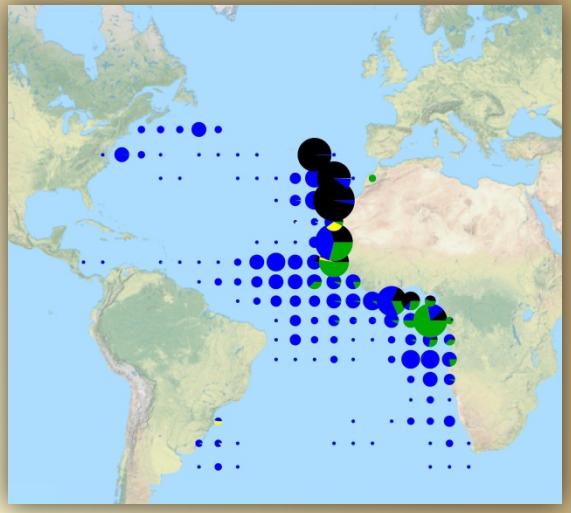
- Historic high of about 133,000 t in 1994.
- After 1994, all major fisheries exhibited a decline of catch; related to declines in fishing fleet size (LL) as well as decline in CPUE (LL & BB).
- The number of active PS declined by more than half from 1994 until 2006; but then increased since 2007 (piracy in the Indian Ocean; other fleets).



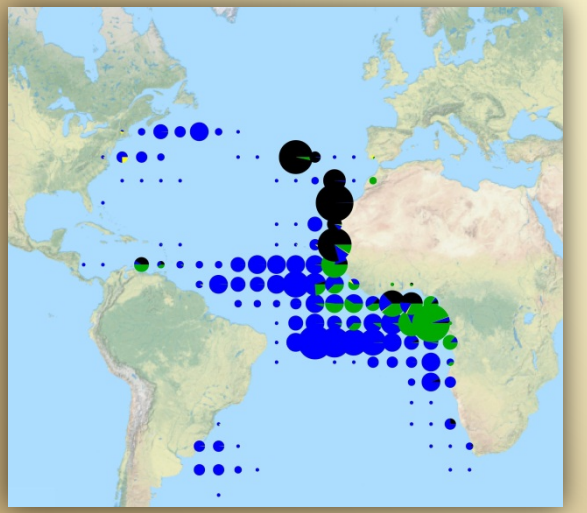
1950



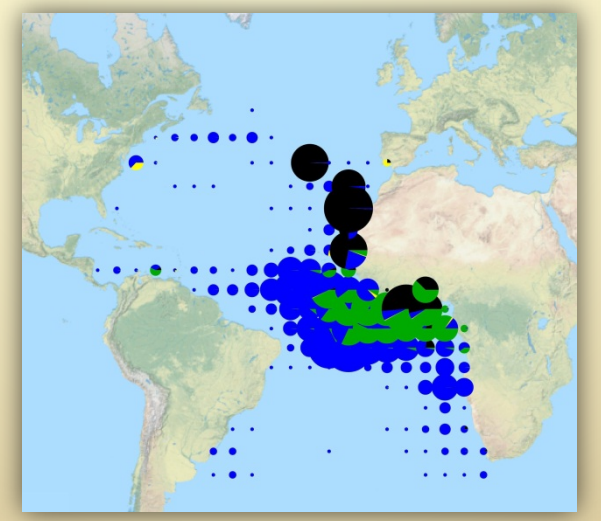
1960



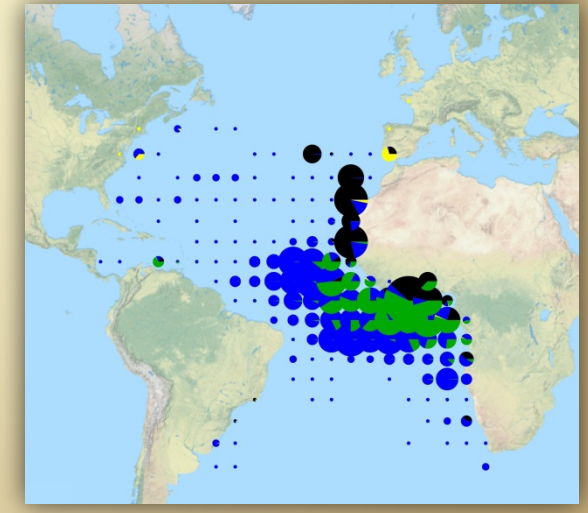
1970



1980



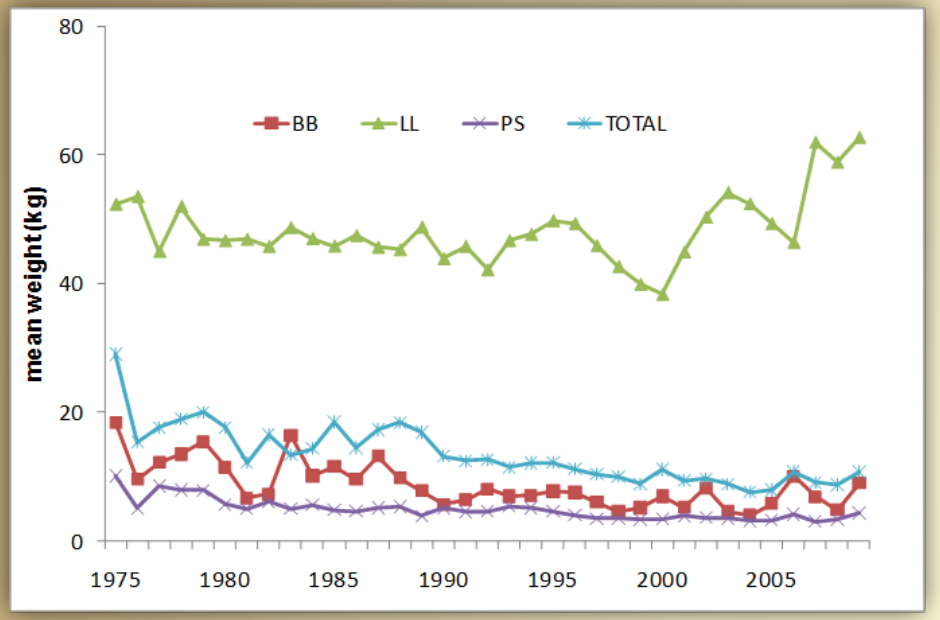
1990

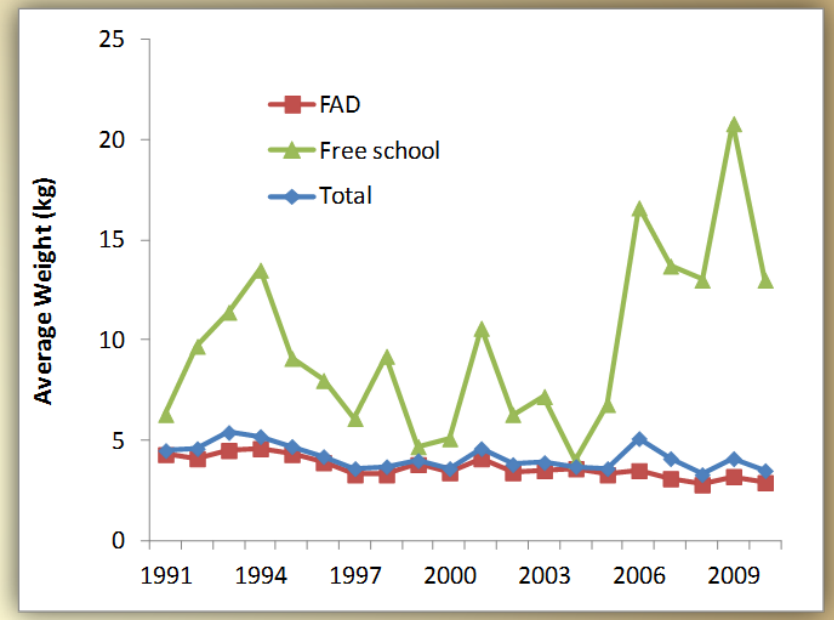


2000

Purse seine **Longline** **Baitboat** **Others**

Average weight of bigeye tuna by fishing gear

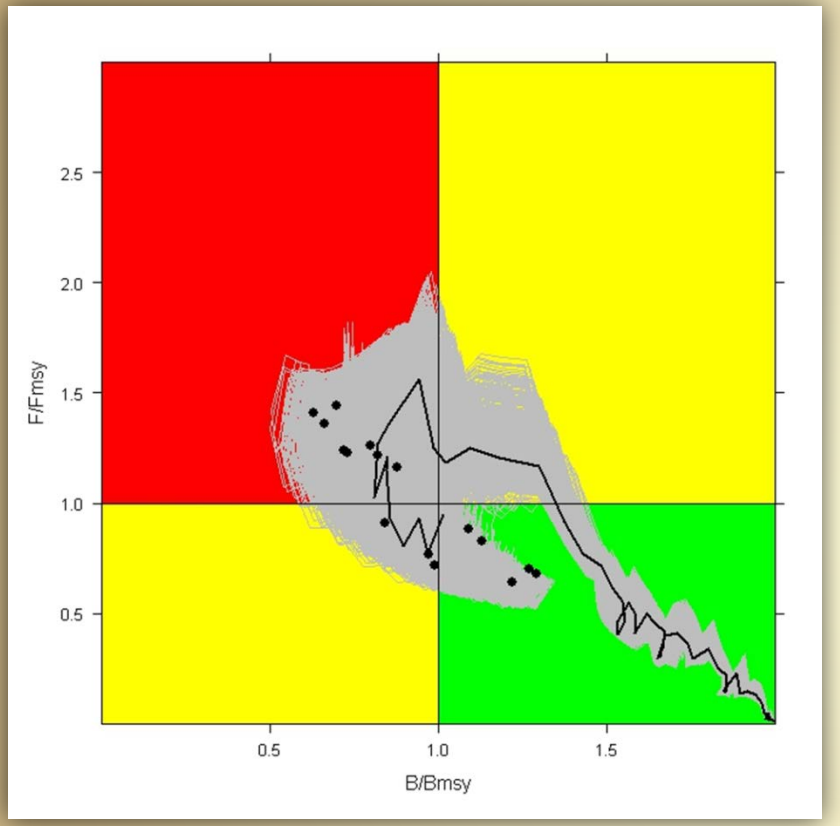


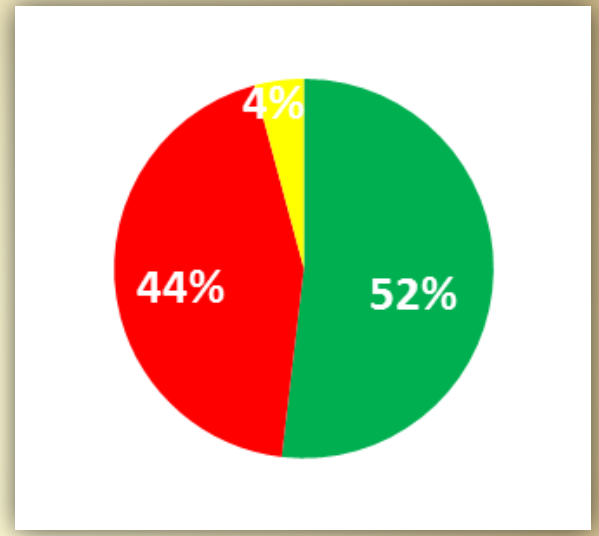


Average fish weight differs between major gears

Bigeye tuna caught free schools are significantly larger than those caught on FADs; these differences are notably large in the last four years

Stock status





- There is considerable **uncertainty** in the assessment of stock status and productivity for bigeye tuna.
- **52%** of the outcomes indicate the stock is **consistent with the Convention Objective**.

Outlook

77.513 t in 2011

Current TAC 85,000 t

TAC	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
60,000	54%	63%	71%	75%	79%	82%	84%	85%	86%	87%
70,000	54%	61%	67%	71%	74%	76%	77%	79%	80%	81%
80,000	54%	58%	62%	66%	68%	70%	71%	72%	73%	74%
90,000	54%	57%	58%	60%	61%	62%	62%	63%	63%	64%
100,000	53%	54%	54%	54%	54%	54%	54%	54%	55%	55%
110,000	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%

- Modeled probabilities of the stock being maintained at levels consistent with the Convention Objective over the next five years are **about 60% for a future constant catch of 85,000 t.**
- Reported catches for 2011 (77,513 t) is lower than the corresponding TAC.

Outlook

- It needs to be noted that projections made by the Committee assume that future constant catches represent the **total removals** from the stock, and not just the TAC of 85,000 t established by ICCAT [Rec. 09-01] & [Rec. 11-01] .
- Catches made by other **fleets not affected by catch limits of [Rec. 11-01]**(1) need to be added to the 85,000 t for comparisons with the future constant catch scenarios.
- Furthermore, any **future changes in selectivity** due to changes in the ratios of relative mortality exerted by the different fleets - such as an increase in the relative mortality of small fish - will change and add to the uncertainty of these projections.

(1) CPCs whose annual catch of bigeye tuna in the Convention area in 1999 is less than 2,100 t.

Effects of current regulations

- During the period 2005-2008 an overall TAC was set at 90,000 t. The TAC was later lowered [09-01] to 85,000 t. Estimates of **catch for 2005-2011** seem to have been always **lower than the corresponding TAC**.

- Concern over the catch of small bigeye tuna partially led to the establishment of **spatial closures** to surface fishing gear in the Gulf of Guinea [Rec. 04-01], [Rec. 08-01] and [Rec. 11-01].

- Conclusive evidence that the spatial closures to date have been sufficient to reduce fishing mortality of juvenile bigeye is not available.

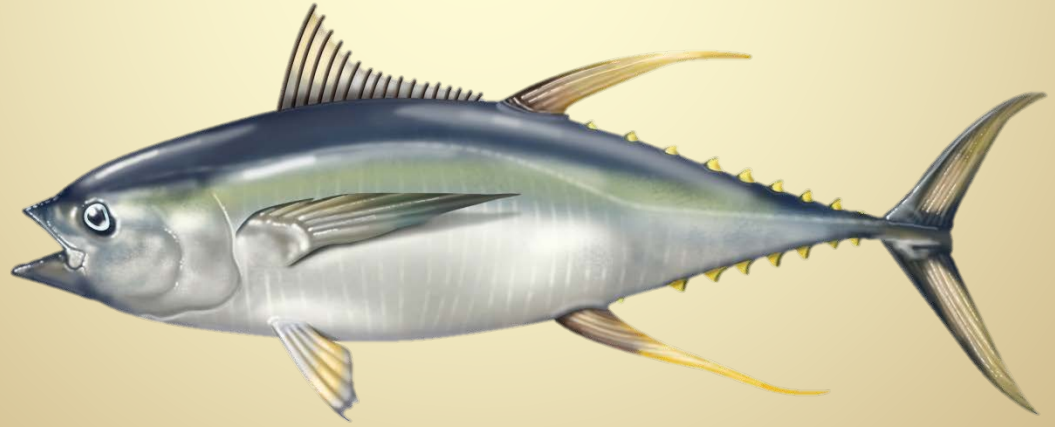
Management recommendations

- **TAC =85,000 or less** would provide a high probability of maintaining at or rebuilding to stock levels consistent with the Convention objectives.

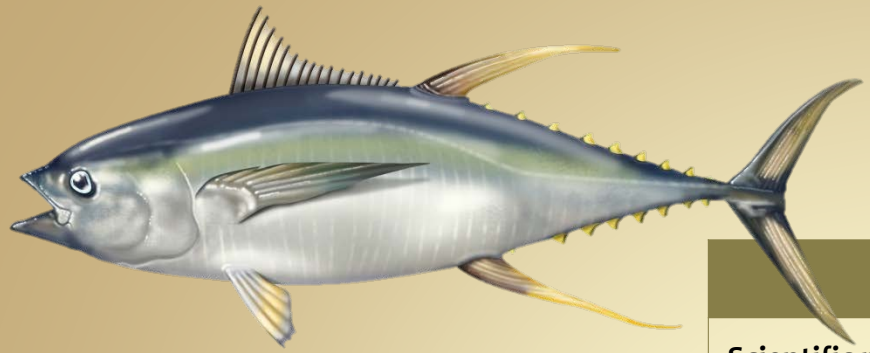
- The Commission should be aware that if major countries were to take the **entire catch limit set under Recommendations 09-01 and 11-01** and other countries were to maintain recent catch levels, then the total catch **could well exceed 100,000 t.**

- The Committee reiterates its **concern** that **unreported** catches, including those part of the "faux poisson" category, might have been poorly estimated.

Yellowfin tuna



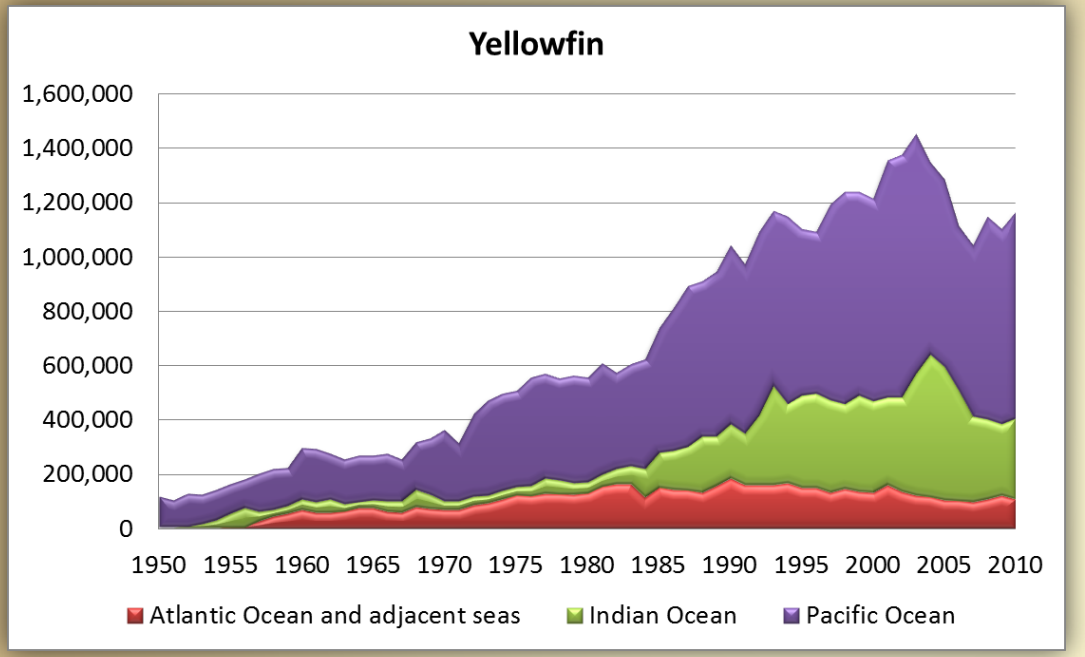
Last assessment: 2011

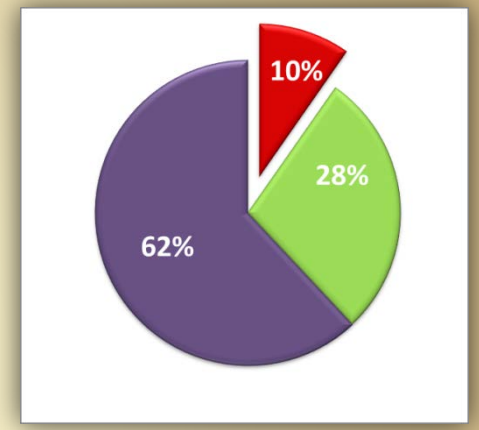


1 management unit

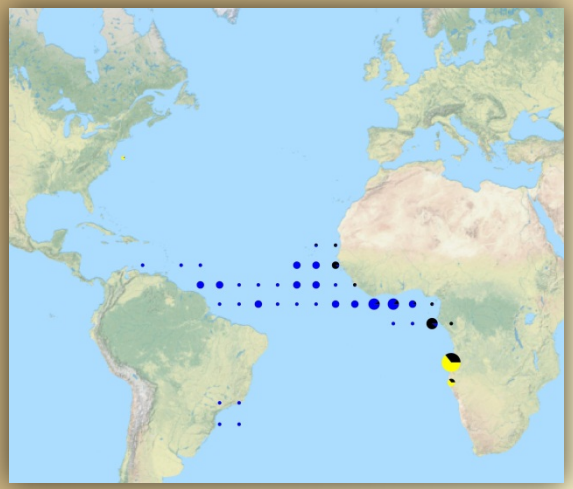
Yellowfin, Rabil, Albacore	
Scientific name	*Thunnus albacares*
Distribution	Tropical and subtropical species distributed mainly in the epipelagic oceanic waters
Spawning grounds	The main spawning ground is the equatorial zone of the Gulf of Guinea (January to April). Spawning also occurs in the Gulf of Mexico, in the southeastern Caribbean Sea, and off Cape Verde, although the relative importance of these spawning grounds is unknown
Maturity	Around 100 cm - 3 year old
Life span	Around 10 years
Maximum size	Around 230 cm (180 kg)
Natural mortality	Assumed to be 0.8 for ages 0 and 1, and 0.6 for ages 2+

- Uncertainties in both natural mortality and growth have **important implications for stock assessment.**
- **Younger age classes exhibit a strong association with FADs.** This association increases the vulnerability of these smaller fish, and may also have a negative impact on the biology and on the ecology of YFT due to **changes in feeding and migratory behaviors.**

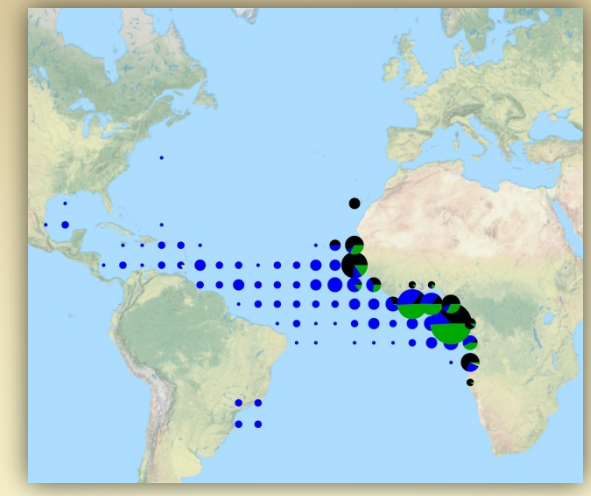




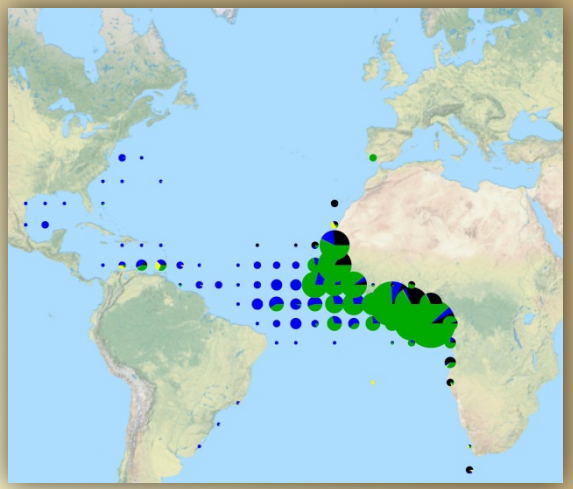
- Atlantic YFT, although the **second largest volume production of Atlantic tunas** at **about 108,000t per year** (average 2006-2010), represents a small proportion of the world-wide production of this species
- **Atlantic** YFT tuna represents **10% of the world production** (average 2006-2010).



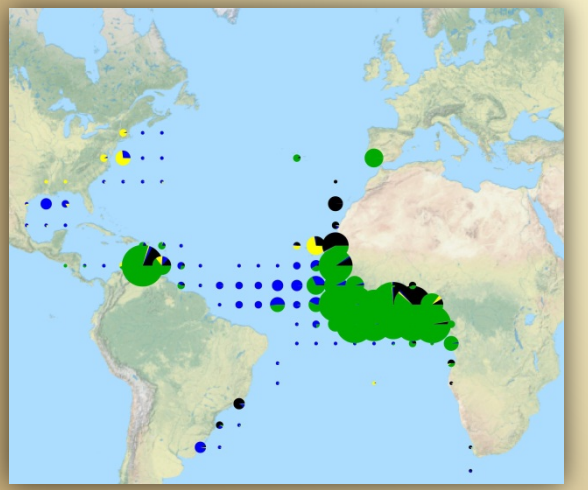
1950



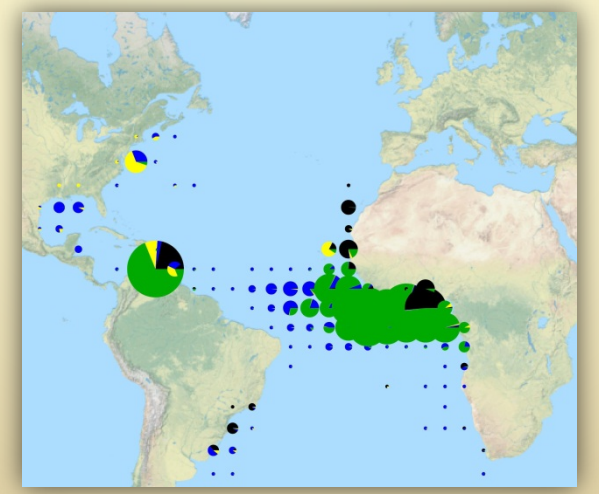
1960



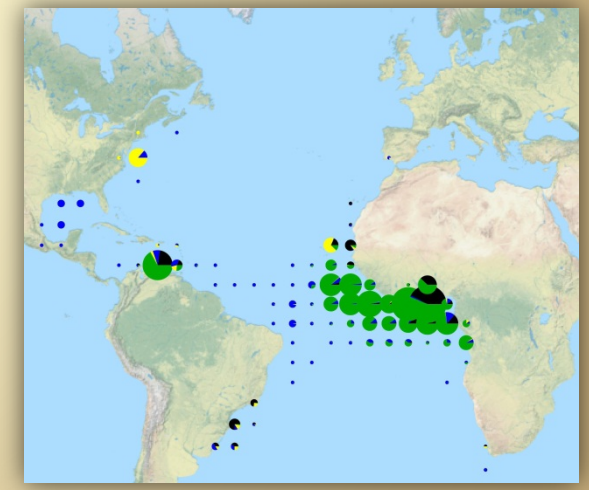
1970



1980

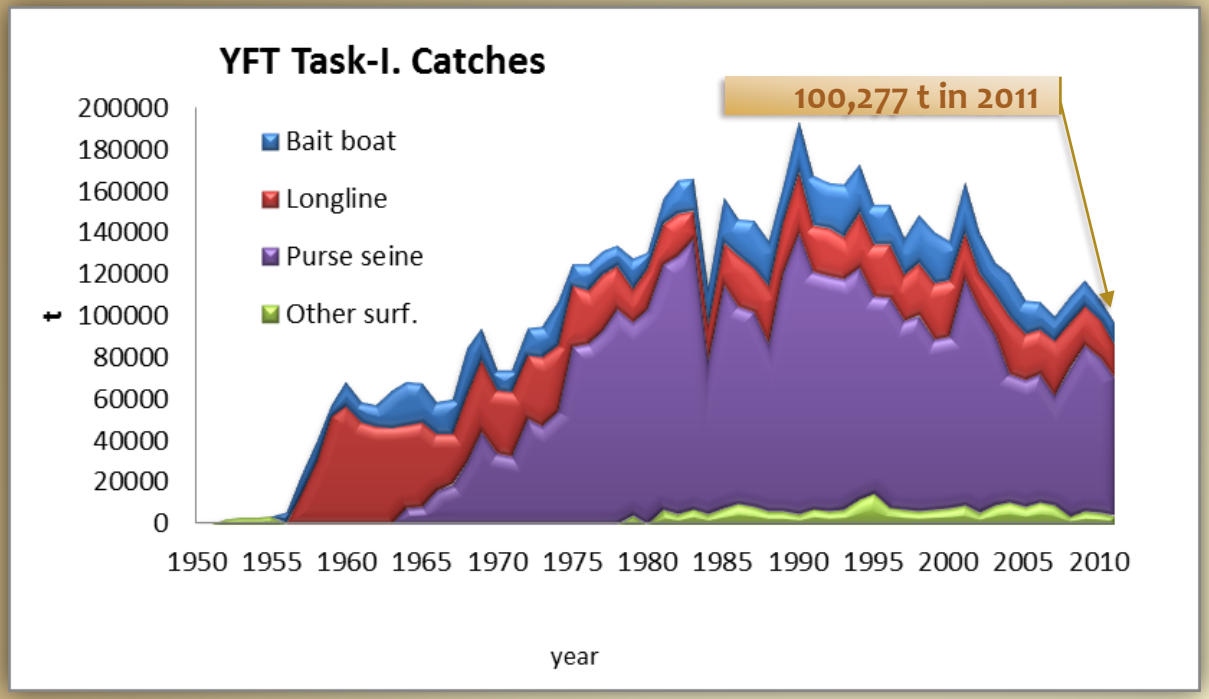


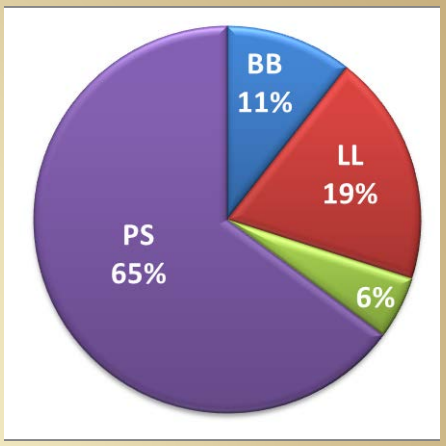
1990



2000

Purse seine **Longline** **Baitboat** **Others**



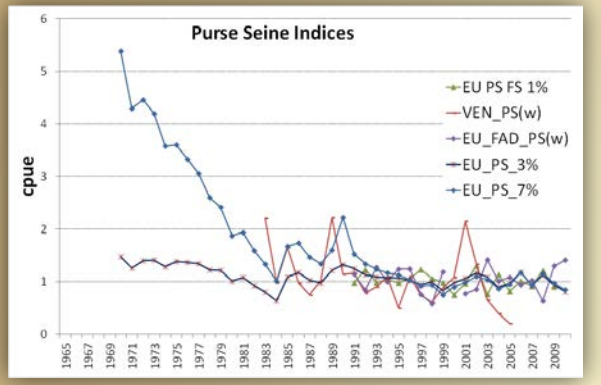


% average catch in 2007-2011

- Historic high of about 194,000 t in 1990.
- After 1991, catches declined to the lowest level in nearly 40 years (100,000 t) in 2007. Catches have increased by about 10% from that level in recent years.
- The number of active PS declined by more than half from 1994 until 2006; but then increased since 2007 (piracy in the Indian Ocean; other fleets).

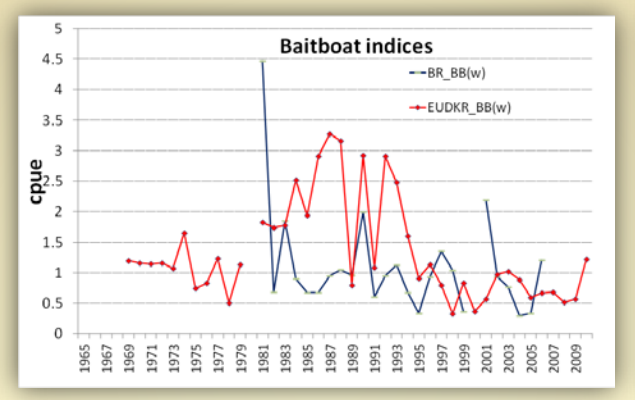
CPUE series:

Purse seine



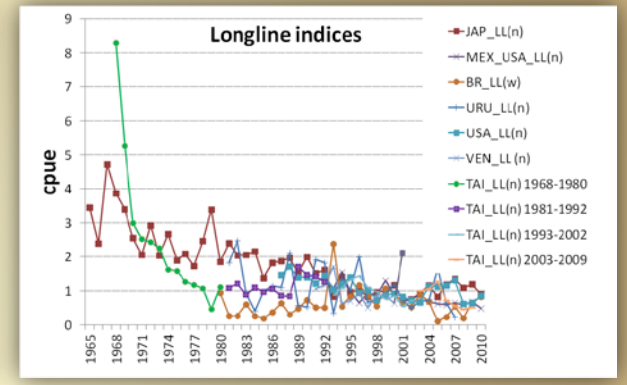
After an initial period of apparent declines, showed high variability without clear trend in recent years

Baiboat



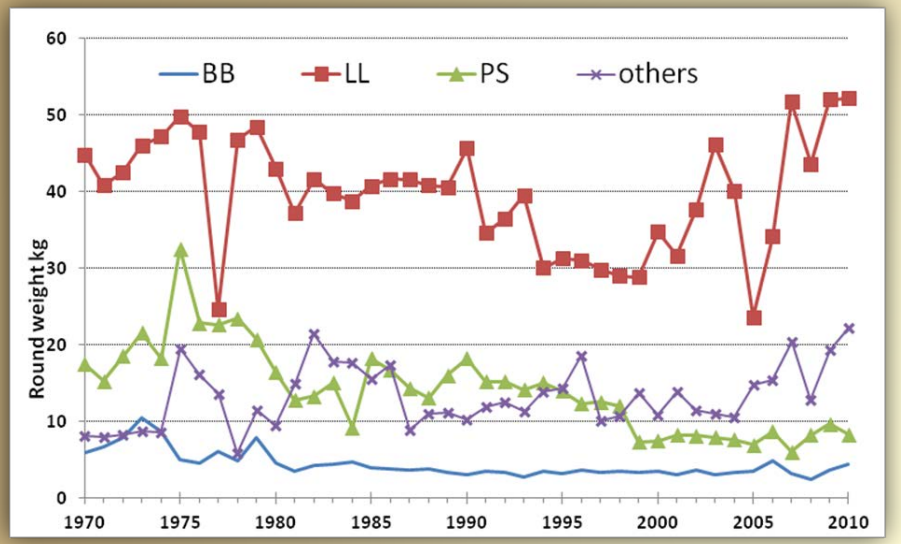
Large fluctuations, with a somewhat declining overall trend

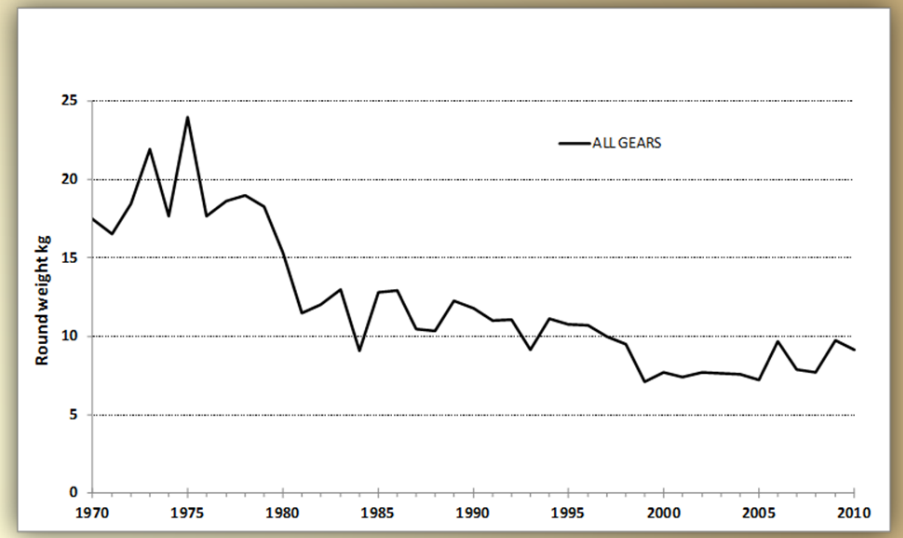
Longline



declining trend until the mid-1990s, and have fluctuated without clear trend since

Average weight of yellowfin tuna by fishing gear





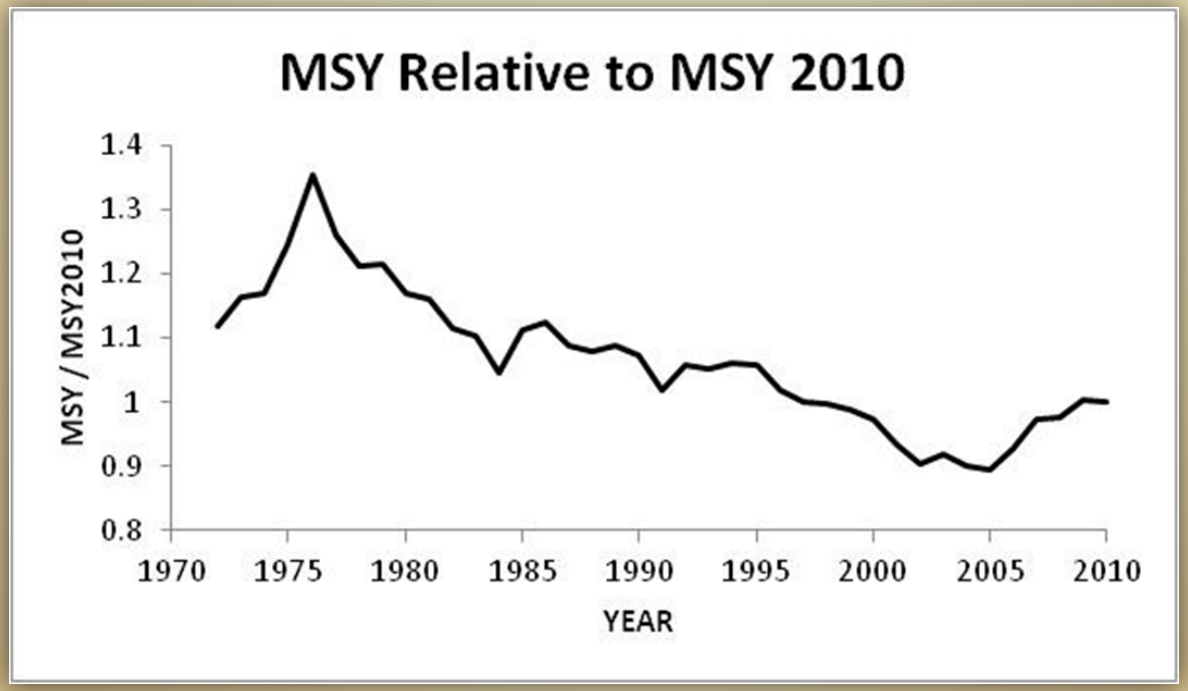
Average fish weight differs between major gears. The recent average weight in EU PS catches has declined to about half of the average weight of 1990 (at least in part due to changes in selectivity associated with fishing on FADs beginning in the 1990s).

Trend in YFT average weight (all gears combined)

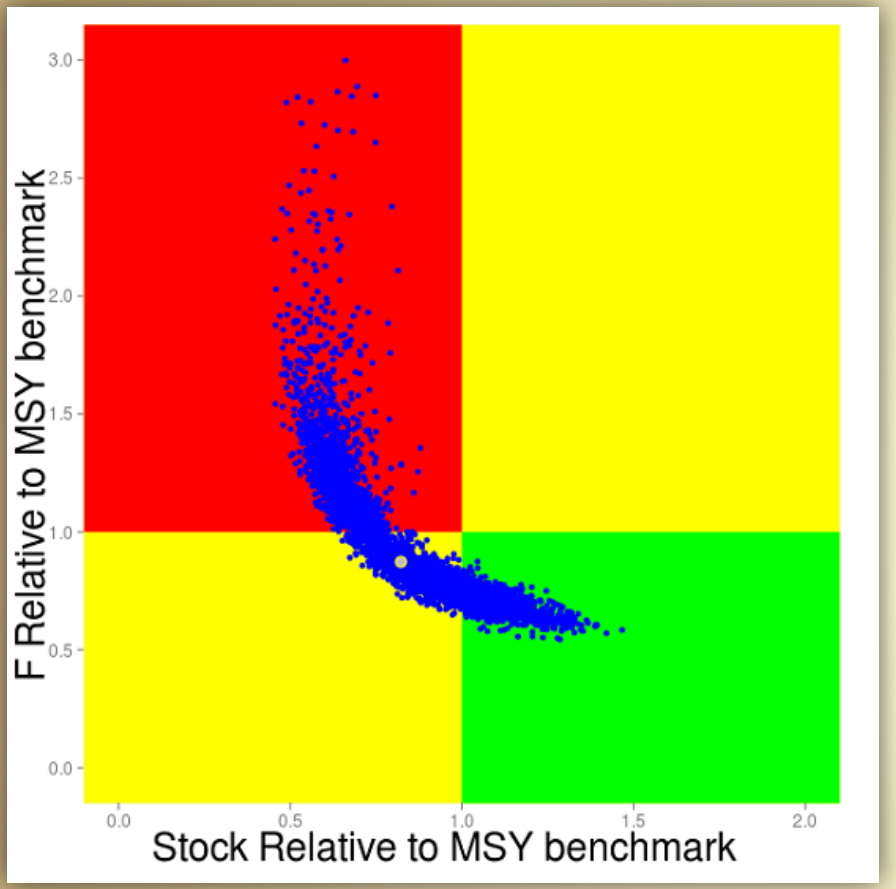
Catch at age: 1970-2010

- In terms of selectivity the overall fishery focus has generally evolved since the early 70's of larger/older fish to smaller/younger fish.

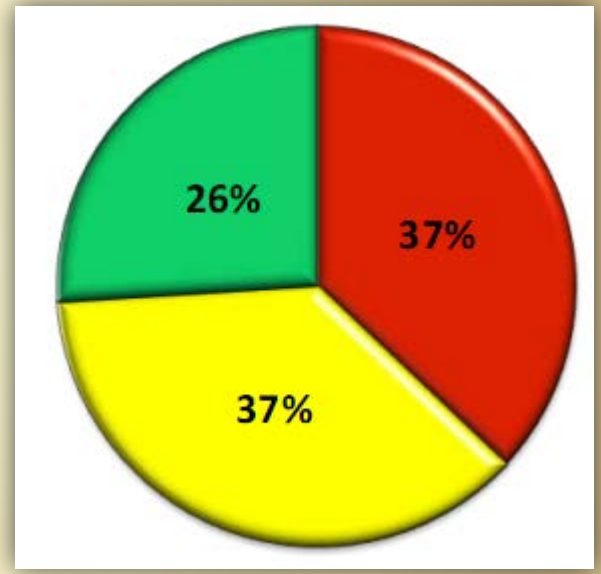
- This **evolution in selectivity has implications** for how much yield can be taken from the stock while maintaining (or rebuilding) it at a level consistent with the Convention Objective.



Stock status

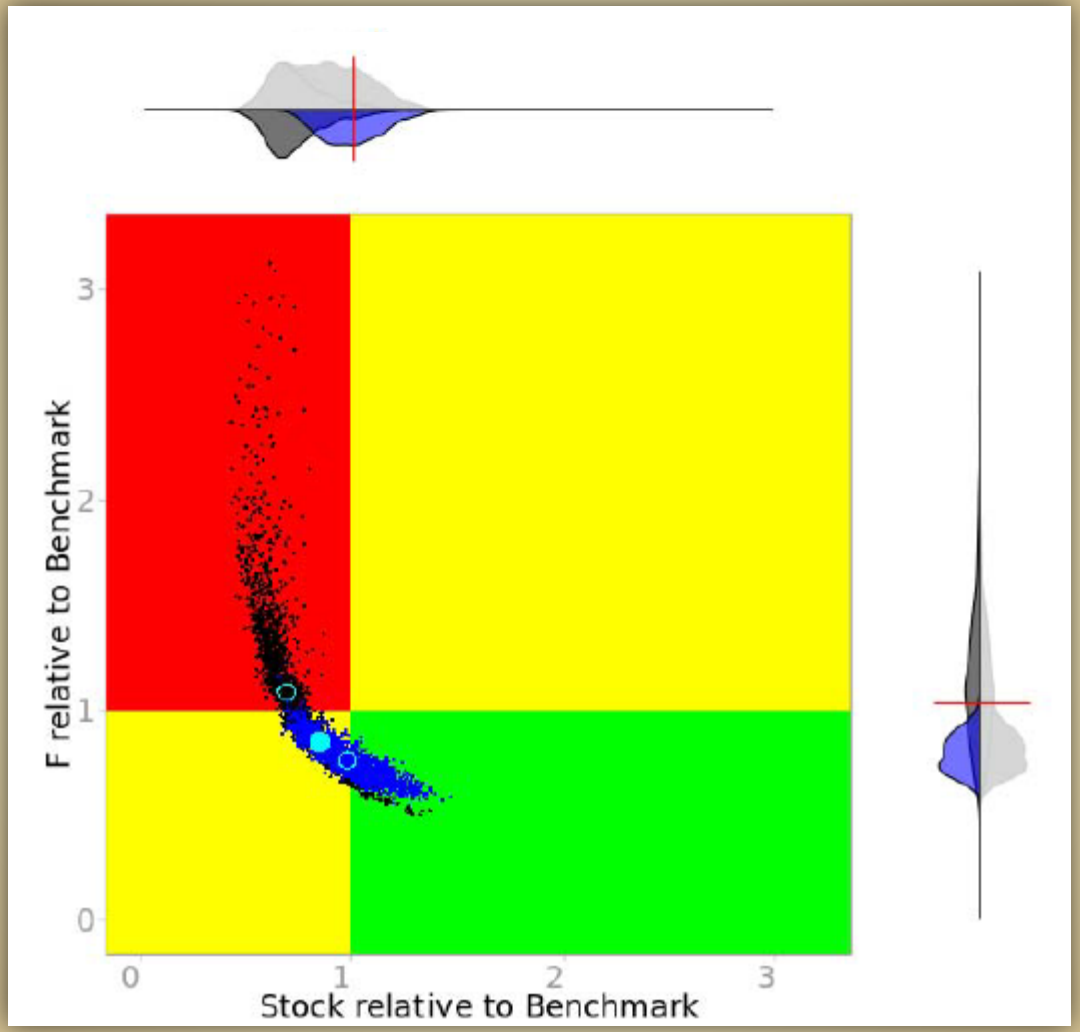


MSY = **144,600 t** (114,200-155,100 t)
2011 Yield = 100,277 t
B_{2010}/B_{MSY} = **0.85** (0.61-1.12)
$F_{current}/F_{MSY}$ = **0.87** (0.68-1.40)



- There is considerable **uncertainty** in the assessment of stock status and productivity for yellowfin tuna.
- **26%** of the outcomes indicate the stock is **consistent with the Convention Objective.**

Stock status



Outlook

TAC	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
50,000	25%	51%	70%	78%	84%	87%	89%	91%	92%	93%	94%	95%	95%	96%
60,000	24%	48%	66%	76%	81%	85%	87%	89%	90%	92%	93%	93%	94%	94%
70,000	24%	45%	63%	73%	78%	82%	85%	87%	89%	90%	90%	92%	92%	93%
80,000	24%	43%	59%	69%	75%	79%	82%	84%	86%	87%	88%	89%	90%	90%
90,000	24%	40%	54%	65%	71%	75%	78%	81%	82%	84%	85%	86%	87%	88%
100,000	24%	37%	49%	59%	66%	70%	73%	76%	78%	80%	81%	82%	83%	84%
110,000	23%	35%	45%	53%	59%	64%	67%	70%	72%	74%	75%	76%	77%	78%
120,000	23%	32%	40%	46%	51%	55%	58%	61%	64%	65%	66%	68%	69%	70%
130,000	23%	29%	35%	39%	43%	45%	47%	49%	51%	53%	54%	55%	56%	58%
140,000	22%	26%	29%	31%	33%	34%	36%	36%	37%	38%	39%	39%	40%	40%
150,000	20%	21%	22%	22%	22%	21%	21%	21%	21%	21%	21%	21%	20%	20%

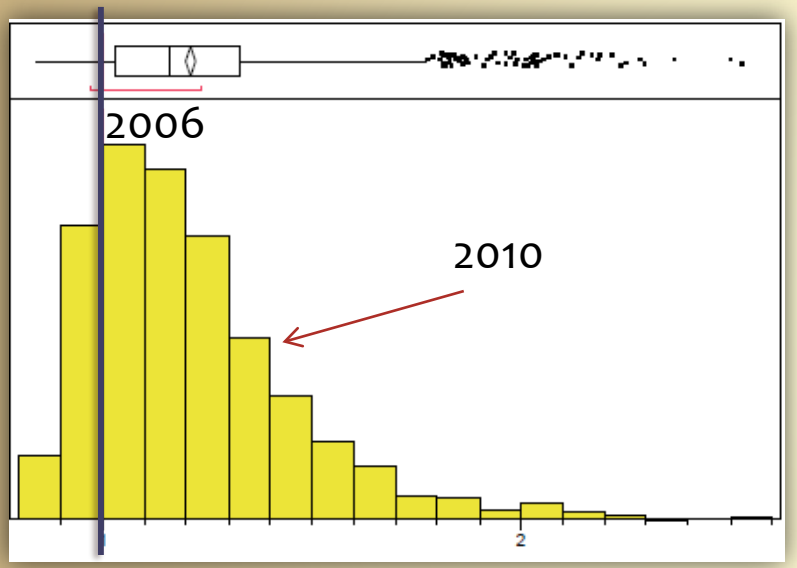
100.277 t in 2011

TAC 110,000 t

- Maintaining current TAC= 110,000 t [Rec. 11-01] is expected to lead to a biomass somewhat above B_{MSY} by 2016 with a 60% probability.
- Reported catches for 2011 (100,277 t) is lower than the corresponding TAC.

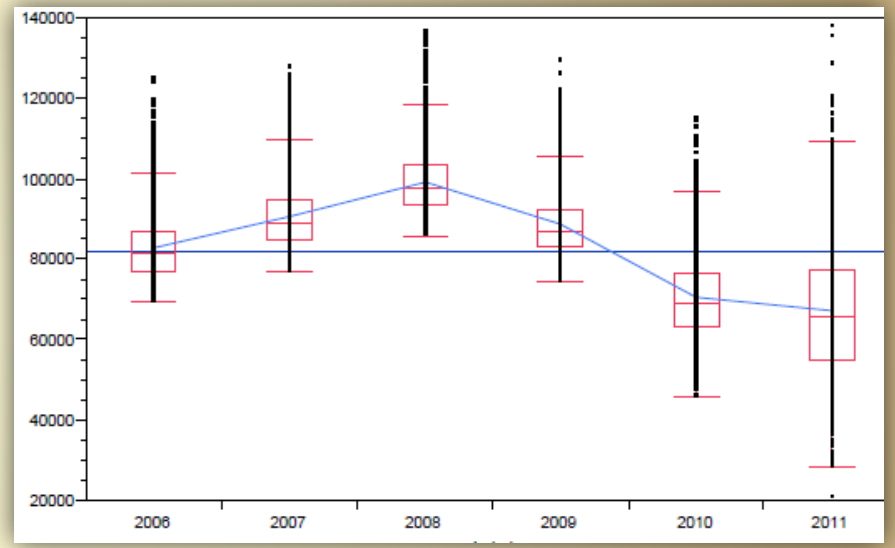
Outlook

Estimates of fishable biomass trends from **ASPIC** indicate a slow, continued **rebuilding tendency**



Estimated fishable biomass in 2011 relative to estimated fishable biomass in 2006 from the 2011 production model assessment bootstraps. (15% increase in fishable biomass since 2006)

Estimates of SSB trend from the **VPA** indicates **recent decline** and corresponding increasing F on mature fish



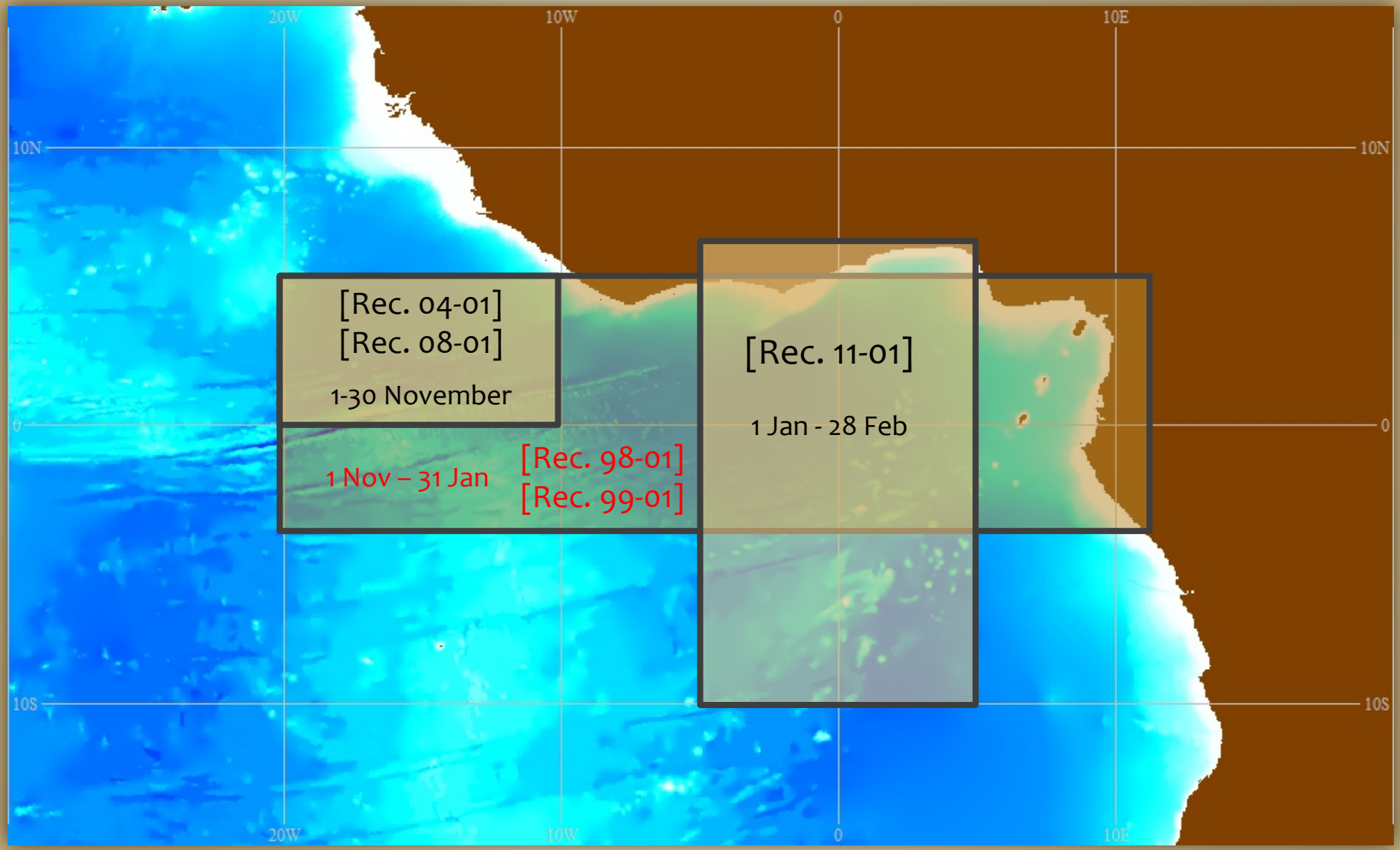
Estimated spawning stock biomass from the age-structured analysis indicating recent declines

In either case, **continued increasing catches are expected to slow or reverse rebuilding of fishable biomass and accelerate decline in SSB.**

Effects of current regulations

- **Spatial closures** to surface fishing gear in the Gulf of Guinea [Recs. 98-01, 99-01, 04-01, 08-01, **11-01**].
- **Larger time/area moratoria are likely to be more precautionary** than a smaller moratoria, providing that the moratoria are fully complied with.
- Rec. 11-01 also implemented a **TAC of 110,000** t for 2012 and subsequent years.
- In 1993, the Commission recommended "that there be no increase in the level of effective fishing effort exerted on Atlantic YFT, over the level observed in 1992". **Effective effort in 2010 appeared to be near the 1992 levels.**

Effects of current regulations

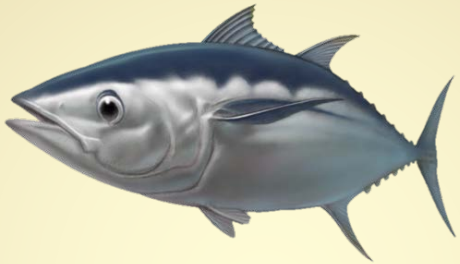


Management recommendations

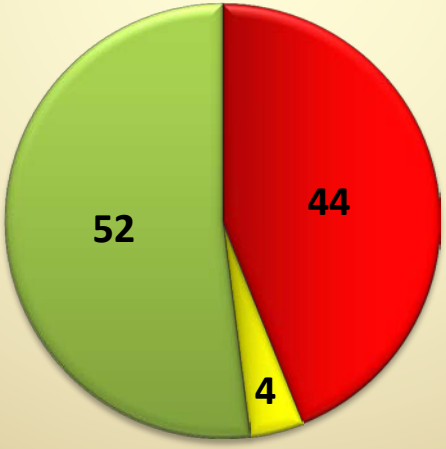
- Catches approaching **140,000 t or more would reduce the chances** of meeting Convention Objectives below 50%, even after 15 years (2025).
- The Committee continues to recommend that **effective measures be found to reduce FAD-related and other fishing mortality of small YFT**.
- The Committee notes that the **closure implemented in Rec. 11-01 may be more effective** than that implemented by [Rec. 04-01].
- If the provisional estimates of **unreported purse seine catches** are considered, **estimates of current stock status and projections would be more pessimistic**. It is especially important to implement effective **full monitoring of the fleet** for which the Committee has provisionally estimated unreported catch.

Atlantic Tropical tunas: 2011 summary

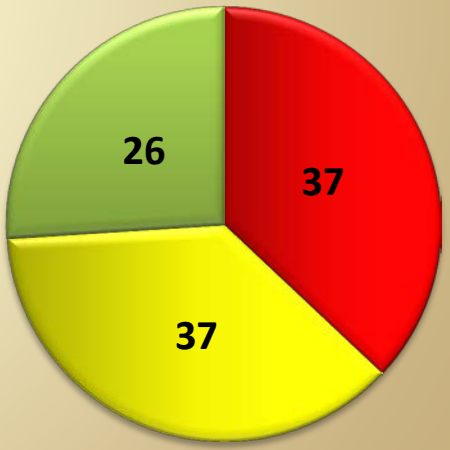
Skipjack



Bigeye



Yellowfin



P1 Research and Statistics

General recommendations to the Commission that have financial implications

1. **Côte d'Ivoire** has expressed its desire to obtain assistance to develop a **database and data processing system** with the aim to elaborate Task I and Task II on the species caught by its **artisanal fleet since 1985.**

2. Due to the uncertainty on biological parameters needed to conduct accurate stock assessments the Committee recommends an **inter-sessional meeting** devoted to the review of objectives of the **Atlantic tropical tagging program.**

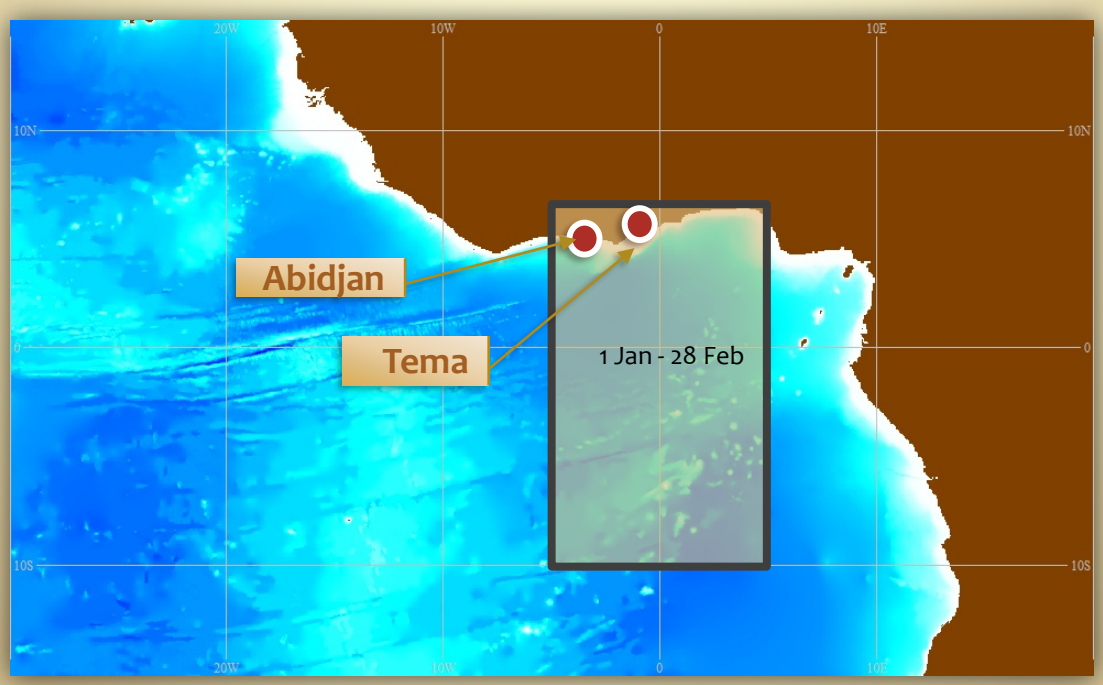
3. Considering the recent increase in the catches of skipjack, the expansion of the purse seine fleet to new fishing areas and the need to update the biological and statistical information, the Committee recommends that the **skipjack stock be assessed in 2014.**

Responses to Commission's requests

18.1	Advise the Commission on the creation of sanctuaries for BFT, Rec.[10-04], par. 26	P2
18.2	Evaluate the BFT national observer programmes conducted by CPCs to report the Commission and to provide advice on future improvements, Rec.[10-04] par. 90.	P2
18.3	Evaluate the national observer programmes conducted by CPCs to report the Commission and to provide advice on future improvements, Rec.[10-10] par. 6.	PL
18.4	Develop a Port Sampling Plan aimed at collecting fishery data for BET, YFT, and SKJ that are caught in the geographical area of the area/time closure referred to in paragraph 20. Rec. [11-01] par. 31.	**P1**
18.5	Review the content of FAD Management Plans elaborated by CPCs, Rec.[11-01] par. 25	**P1**
18.6	Analyze the potential benefits and applicability of the use of time/area closures as a tool for marlin conservation, Rec.[11-07] paragraph 4.	P4
18.7	Evaluate the data collection improvement plans submitted by CPCs and, as necessary, make recommendations on how shark data collection can be improved, Rec.[11-08] par. 8.	P4
18.8	Establish common standard for the detailed and executive reports, Res. [11-14].	PL
18.9	Evaluate sea-turtles data provided by CPCs and by-catch mitigation information, Rec.[10-09].	P4
18.10	Explore operationally viable technologies and methodologies for determining the size and biomass at the points of capture and caging [Rec. 10-04] par. 87.	P2
18.11	Provide guidance on a range of fish size management measures for western Atlantic BFT and their impact on yield per recruit and spawner per recruit considerations [Rec. 10-03] par. 19.	P2

18.4 Develop a Port Sampling Plan aimed at collecting fishery data for BET, YFT, and SKJ that are caught in the area/time closure referred to in par. 20. Rec. [11-01] par. 31

- [Rec. 11-01] requests the SCRS to develop, by 2012, a Port Sampling Plan aimed at collecting fishery data for bigeye, yellowfin, and skipjack tunas that are caught in the geographical area of the area/time closure referred to in paragraphs 20.



Currently **multi-species sampling programs** exist in **Abidjan** for sampling and monitoring the European and associated fleets and in **Tema** for the component of the Ghanaian fleet landing in this port.

18.4 Develop a Port Sampling Plan aimed at collecting fishery data for BET, YFT, and SKJ that are caught in the area/time closure referred to in par. 20. Rec. [11-01] par. 31

Number of surface vessels existing in 2012 in the ICCAT record of vessels and fishing in the Equatorial area by flag, gear and main landing port.
(This table does not include supply or cargo vessels)

Gear	Flag	No. Boats	Landing port
PS (58)	Belize	5	Tema, Abidjan
	Côte d'Ivoire	1	Abidjan
	Cap-Vert	2	Abidjan
	Curaçao	3	Abidjan
	Ghana	15	Tema, Abidjan
	Guinee Rep.	3	Abidjan
	UE_France	10	Abidjan
	UE_Spain	15	Abidjan
	Guatemala	2	Abidjan
	Panama	2	Abidjan
BB (22)	Ghana	22	Tema

18.4 Develop a Port Sampling Plan aimed at collecting fishery data for BET, YFT, and SKJ that are caught in the area/time closure referred to in par. 20. Rec. [11-01] par. 31

The Committee developed the Port Sampling Plan as follows:

- **Size and species composition**
  - Multi-species sampling: 500 fish for small fish (<10 kg) and 50 fish for big fish. (Annex 2 to Chapter 4 in ICCAT Manual).
  - Stratified by: Time (month), Area, Fishing mode (FADs vs. Free school), Size category (<10 kg =>10 kg)
  - Sampling coverage: 1 fish by t (minimum coverage)
  - Type of measure: FL for small fish and LD1 for large fish

- **Weight and biological sampling**
  - Through length/ weight relationship
  - In addition, as part of a biological sampling (genetic, maturity, sex,…). To reduce cost this biological sampling could be implemented through specific agreement with the canneries.

18.4 Develop a Port Sampling Plan aimed at collecting fishery data for BET, YFT, and SKJ that are caught in the area/time closure referred to in par. 20. Rec. [11-01] par. 31

In order to implement the sampling plan it is fundamental:

- To **reinforce the sampling teams** working in Abidjan and Tema.
- To ensure that **all vessels from any flag** landing in each landing port are sampled according with the established sampling scheme.
- To do that it is fundamental that the sampling teams can **access to all vessels landing at port, independently of their flag and including cargo vessels**. **Vessels should facilitate sampling** and should provide them with all the information needed to accomplish the sampling plan (logbooks, well's plan, etc.).

18.5 Review the content of FAD Management Plans elaborated by CPCs, Rec.[11-01] par. 25

[Rec. 11-01] requests the Secretariat to report the content of the FAD Management Plans to SCRS and to the Compliance Committee for review at each annual meeting.

- FAD Management Plan: a **mandatory component** (number of FADs to be deployed per vessel; description of FAD characteristics & FAD markings), and an **optional component**.

- **6 flag States** submitted FAD Management Plans and **only 3 of these included the mandatory information,** such as the number of FADs to be deployed per vessel.(1)

- Besides being incomplete, the information received in these Management Plans **does not appear to be useful** for stock assessment or for improving the Committee's ability to advise the Commission.

(1) Appendix 1 of the "Secretariat Report on Statistics and Coordination of Research in 2012" (SCI-008)

18.5 Review the content of FAD Management Plans elaborated by CPCs, Rec.[11-01] par. 25

For scientific purposes, there are 2 primary types of **information that should be collected and reported:**

(i) An inventory of FADs and FAD activity (**"FAD logbook"**: FAD markings, deployment, retrievals, etc.),

(ii) A **record of encounters** of fishing (and supply) vessels with the FADs (**"Fishing logbook"**: visits to FADs and catches from sets made on the FADs).

These two types of information should be **linked through the FAD ID** or marking.

The Committee recommends that the Commission **revisit the requirements for FAD monitoring included in the [Rec. 11-01]** (paragraphs 17-19 and Annexes 1 and 2 of the Recommendation).

18.5 Review the content of FAD Management Plans elaborated by CPCs, Rec.[11-01] par. 25

For achieving this, the following information should be made **mandatory to be collected and reported in a FAD logbook** under the management plan:

- ✓ On a quarterly basis, the **number of FADs deployed, retrieved and lost** by type (e.g., equipped/not with electronic equipment) by each PS and each supply vessel;
- ✓ Number of associated **support vessels** (i.e., supply vessels);
- ✓ **FAD design** characteristics (a description) in a yearly basis;
- ✓ **FAD/buoy markings and identifiers** (a unique number could be useful)
- ✓ **Any deployment and retrieval** of a FAD (including by a supply vessel);

18.5 Review the content of FAD Management Plans elaborated by CPCs, Rec.[11-01] par. 25

- Additionally, the following **fishing activities** in association with objects, including FADs, need to be collected in logbooks (partially covered in par. 17 & 18 of [Rec. 11-01])

  - ✓ The position, date, identification of the aggregating device and results of the set;
  - ✓ Catch reporting from FAD sets.

- Noting that some of the above data would be at the operational level, it is recommended that the data be treated in accordance with the "Rules and Procedures for the Protection, Access to, and Dissemination of Data Compiled by ICCAT" (Annex 6 to the 2010 ICCAT Biennial Report).