PART 1

INFORMATION ON ICCAT COMPLIANCE WITH ARTICLE 10 OF UNFSA

One of the objectives of the International Convention for the Conservation of Atlantic Tunas, which

As concerns Article 10(b) of the UN Agreement, total allowable catches (TACs) and quotas are agreed upon at regular intervals and are based on scientific advice. The *ICCAT Criteria for the Allocation of Fishing Possibilities* [Ref. 01-25] were adopted in 2001 to serve as a guideline for the Commission regarding the allocation of TACs. The rights of participation are determined, among others, by the following criteria: present/past fishing activity, status of the participants, implementation of the ICCAT measures, and data submission requirements.

The provisions of Article 10(c) aimed at adopting and applying any generally recommended international minimum standards for the responsible conduct of fishing operations are covered by the *Recommendation by ICCAT Concerning the Establishment of an ICCAT Record of Vessels over 24 Meters Authorized to Operate in the Convention Area* [Rec. 02-22] and the *Recommendation by ICCAT Concerning the Duties of Contracting Parties, Entities or Fishing Entities in Relation to their Vessels in the ICCAT Convention Area* [Rec. 03-12].

Article 10(d) provides for obtaining and evaluating scientific advice and the review of status of the stocks and assessment of the impact of fishing on non-target and associated or dependent species. The l04 Tw[(oe)-es[-5n(y)-61(n)0.7Recie.3(ar)]TJ6(for)h(y)-61a(for)n-es[-5.1(e)]Te5l(for)tist6.5(lcs (SC.5(lR2nd 1(S16.if)-0.

and other research activities. The scientific Committee reviews and coordinates the results of the research programs presented in the scientific papers by the national scientists. Each year, more than 100 papers are presented and are published in the ICCAT *Collective Volume of Scientific Papers.*

ICCAT has research programs on bluefin tuna and billfish that are currently on-going. The scientific Committee regularly conducts assessments of the stocks of 13 targeted species or groups of targeted species. The reports of the meetings of the scientific Committee are published and transmitted to all the meeting participants each year. They are also published on the ICCAT web site.

ICCAT maintains close working relationships with several networks such as ASFA, FIRMS and CWP, whose Secretariats are assured by FAO.

Article 10(h) foresees the establishment of cooperative mechanisms for effective monitoring, control, surveillance and enforcement. Measures concerning monitoring, control and surveillance (MCS) as well as measures on enforcement are the object of various Recommendations adopted in 2002 by ICCAT: the *General Outline of Integrated Monitoring Measures Adopted* [Ref. 02-31] which led to the adoption in 2003 of the following three Recommendations which are binding: the *Recommendation by ICCAT Concerning the Duties of Contracting Parties and Cooperating Parties, Entities or Fishing Entities in Relation to Their Vessels in the ICCAT Convention Area* [Rec. 03-12]; the *t*

decisions are taken by consensus. The number of Recommendations and Resolutions adopted by the

PART 2

STOCK STATUS INFORMATION FOR MAJOR STOCKS ASSESSED BY ICCAT

The following information has been extracted from the Executive Summaries produced by ICCAT's Standing Committee on Research and Statistics. The full text of the Executive Summaries can be obtained from the ICCAT Biennial Reports, available from the Internet (http://www.iccat.int/pubs_biennial.htm) or upond request from the ICCAT Secretariat.

1. ATLANTIC ALBACORE TUNA (*Thunnus alalunga*)

1.1 State of stocks

The Committee noted the considerable uncertainty that continues to remain in the catch-at-size data for the North and South stocks, and the profound impact this has had on attempts to complete a satisfactory assessment of northern albacore. The Committee assessed the status of the South Atlantic albacore stock after a review of the Task I and Task II data available. In respect of the North Atlantic, however, the Committee concluded that it was not appropriate to proceed with a VPA assessment based on the 2003 catch-at-age until the catch-at-size to catch-at-age transformation is reviewed and validated. No attempt was made to analyze the status of the Mediterranean stockt

South Atlantic

In 2003, an age-structured production model (ASPM), using the same specifications as in 2000, was used to provide a Base Case assessment for South Atlantic albacore. Results were similar to those

ATLANTIC AND ALBACORE SUMMARY

	North Atlantic[1]	**South Atlantic**[2]
Current (2004) Yield	25,460 t[5]	22,468 t
Maximum Sustainable Yield	32,600 t (32,400-33,100)	30,915 t (26,333-30,915)
Replacement Yield (2004)	Not estimated	29,256 t (24,530-32,277)
Relative Biomass[3]		
$B_{current}/B_{MSY}$	0.68 (0.52-0.86)	1.66 (0.74-1.81)
Relative Fishing Mortality[3,4]		
$F_{current}/F_{MSY}$	1.10 (0.99 - 1.30)	0.62 (0.46-1.48)
$F_{current}/F_{MAX}$	0.71 (0.66 - 0.78)	--
$F_{current}/F_{0.1}$	1.25 (1.14 - 1.39)	--
Management measures in Effect	[Rec. 98-08]: Limit number of vessels to 1993-1995 average. TAC: 34,500 t [Rec. 03-06]	[Rec. 03-07]: Limit catches to 29,200 t.

[1] VPA results based on catch data (1975-1999). 80% confidence intervals from bootstrap.
[2] ASPM results based on catch data (1956-2002). 80% confidence intervals from bootstrap.
[3] F_{1999} = North Atlantic, Geometric Mean 1996-1998.
[4] North "current" is from 2000 assessment F_{1999}

Three indices of relative abundance were available to assess the status of the stock. All were from longline fisheries conducted by Japan, Chinese Taipei and U.S. While the Japanese indices have the longest duration since 1961 and represent roughly 20-40% of the total catch, the other two indices are

ATLANTIC BIGEYE TUNA SUMMARY	
Maximum Sustainable Yield (likely range[1])	93,000 t - 114,000 t
Current (2004) Yield [2]	72,000 t
Replacement Yield 2003 [1]	89,000 - 103,000 t
Relative Biomass (B_{2003}/B_{MSY}) [1]	0.85 - 1.07
Relative Fishing Mortality (F_{2002}/F_{MSY}) [1]	0.73 - 1.01
Conservation & management measures in effect:	- Limits on numbers of vessels [Recs. 98-03, 02-01, 03-01]. - Catch limits for those who reported 1999 catch in 2000 was larger than 2,100 t [Rec. 02-01]. - Moratorium on FAD fishing for all surface fleets, Nov 1 to Jan 31, in eastern tropical area. Observers on board are required during the moratorium [Rec. 99-01]. - No purse seine and baitboat fishing during November in the area encompassed by 0 -5 N and 10 W-20 W. [Rec. 04-01]. This recommendation will replace [79-01 and 99-01] after June, 2005.

[1]Range based on point estimates from various production models and including a delay-difference model. Other models applied during the assessment resulted in estimates outside this range.
[2]Provisional figure, subject to change in the future.
[1] Available at the time of the assessment.

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4. ATLANTIC SWORDFISH (*Xiphias gladius*)

4.1 State of the Stocks

South Atlantic

The Committee noted that reported total catches have been reduced since 1995, as was recommended by the SCRS. Previously the Committee expressed serious concern about the trends in stock biomass of South Atlantic swordfish based on the pattern of rapid increases in catch before 1995 that could result in rapid stock depletion, and in declining CPUE trends of some by-catch fisheries.

ATLANTIC SWORDFISH SUMMARY		
	North Atlantic	**South Atlantic**
Maximum Sustainable Yield[1]	14,340 t (11,580-15,530)[4]	Not estimated
Current (2004) Yield[2]	12,283 t	12,779 t
Current (2002) Replacement Yield[3]	about MSY	Not estimated
Relative Biomass (B_{2002}/B_{MSY})	0.94 (0.75 - 1.24)	Not estimated
Relative Fishing Mortality		
F_{2001}/F_{MSY}[1]		
F_{2000}/F_{max}		
$F_{2000}/F_{0.1}$		
F_{2000}/F		

The Committee noted the large catches of small size swordfish, i.e., less than 3 years old (many of which have probably never spawned) and the relatively low number of large individuals in the catches. Fish less than 3 years old represent 50-70% of the total yearly catches.

5.2 Outlook

Assessment results indicated the presence of a stable recruitment pattern and suggested that the current exploitation pattern and level of exploitation are sustainable, at least in the short-term. Average catch over the past decade has been about to 14,000 t per year. The Committee expects that annual catches of about this magnitude will keep the stock at about the present level, at least over the short-term.

MEDITERRANEAN SWORDFISH SUMMARY	
Maximum Sustainable Yield	Not estimated
Current (2004) Yield[1]	13,222 t
Current (2002) Replacement Yield	~15,000 t
Relative Biomass (B_{2002}/B_{MSY})	Not estimated
Relative Fishing Mortality	
F_{2001}/F_{MSY}	Not estimated
F_{2001}/F_{max}	2.7
$F_{2001}/F_{0.1}$	4.7
$F_{2001}/F_{30\%SPR}$	3.3
Management measures in effect:	No ICCAT regulations; national closed areas, minimum size and effort controls.

[1] Provisional, and subject to revision.

6. ATLANTIC YELLOWFIN TUNA (*Thunnus albacares*)

6.1 State of the stock

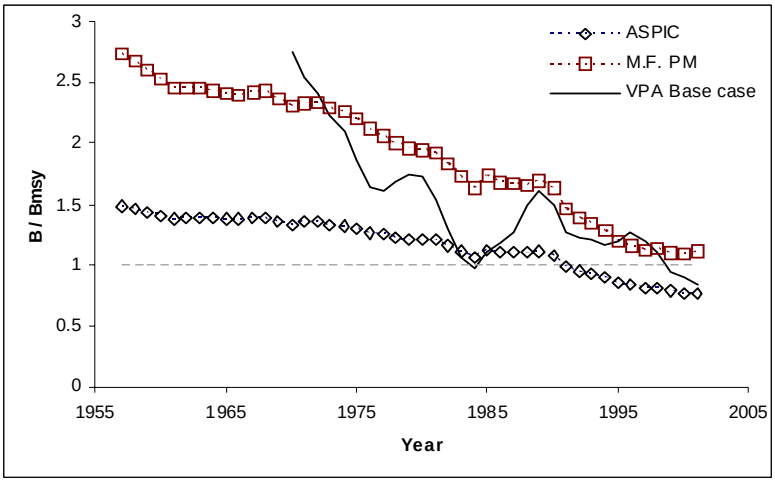
A full assessment was conducted for yellowfin tuna in 2003 applying various age-structured and

ATLANTIC YELLOWFIN TUNA SUMMARY

Maximum Sustainable Yield (MSY)[1]	~148,000 t
Current Yield [2]	
(2001)	159,000 t
(2004)	116,000 t
Replacement Yield (2001)	May be somewhat below the 2001 yield
Relative Biomass B_{2001}/ B_{MSY}[3]	0.73 - 1.10
Relative Fishing Mortality: F_{2001}/F_{MSY}[3]	0.87-1.46
F_{99-01}/F_{MSY}[4]	1.13 (80% confidence limits 0.94 to 1.38)
$F_{0.1}$[4]	0.55
F_{MSY}[4]	0.72

Management measures in effect:
- 3.2 kg minimum size [Rec. 72-01].
- Effective fishing effort not to exceed 1992 level [Rec. 93-04].
- Closed area/season for fishing on FADs [Rec. 99-01].

[1] MSY estimates based upon results of age-structured and non-equilibrium production models, and VPA. The complete range of results from all models is 147,200-161,300 t.
[2] The assessment was conducted using the available catch data through 2001. Reports for 2004 should be considered provisional.
[3] These are ranges of point estimates; no estimates of uncertainty were calculated around these point estimates during the assessment.
[4] Result exclusively from VPA and yield-per-recruit analyses.

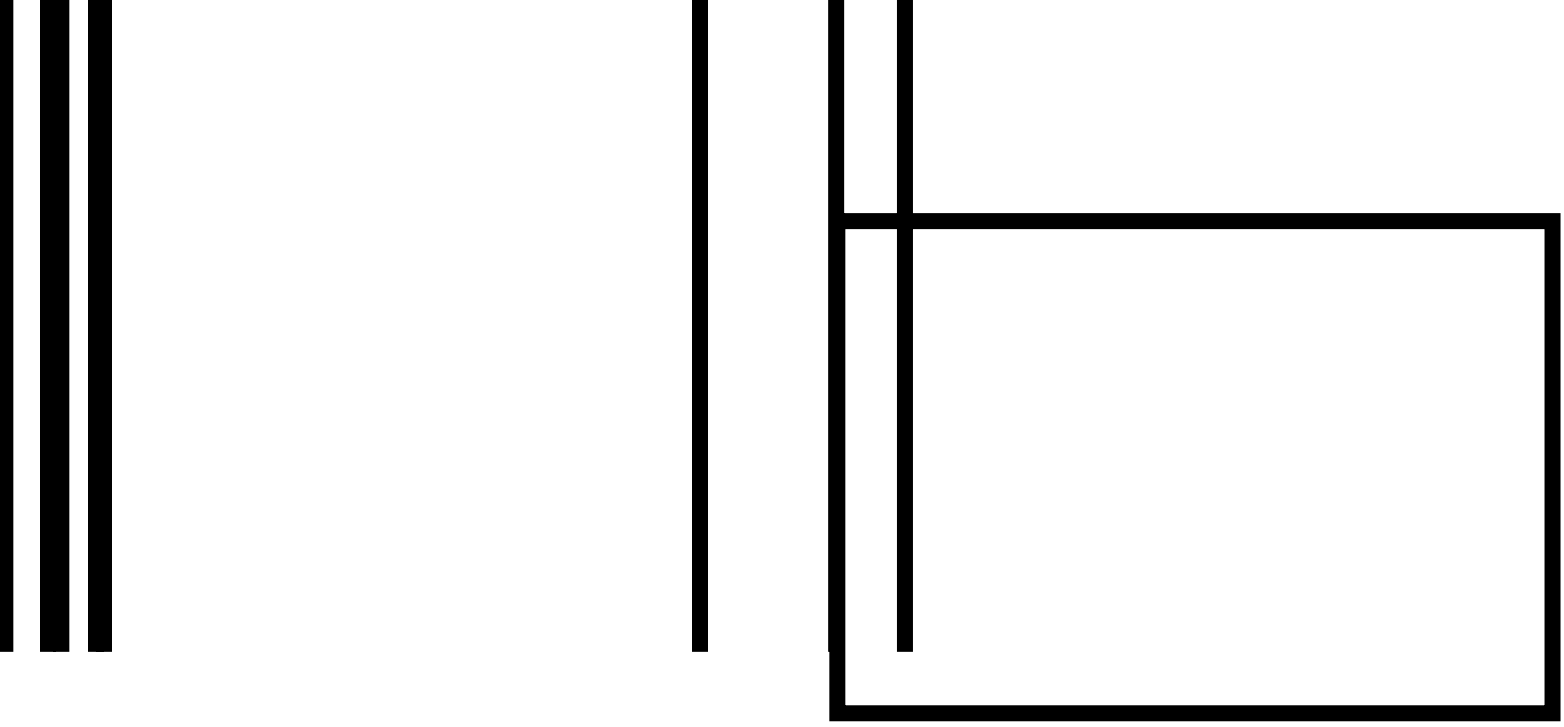


7. ATLANTIC BLUE MARLIN (*Makaira nigricans*)

7.1 State of the stock

The 1996 blue marlin assessment indicated that in the mid-1990s biomass was about 25% of B_{MSY}, that fishing mortality was about three times F_{MSY}, and that over-fishing had been occurring for about three decades. MSY was estimated to be near 4,500 t.

An assessment was carried out in 2000 using similar methods to the previous assessment, but with



8. ATLANTIC WHITE MARLIN (*Tetrapturus albidus*)

8.1 State of the stock

The data available for white marlin, in spite of significant improvements in the relative abundance estimates made available during the last two assessments and the current assessment, is not informative enough to provide an estimate of stock status with high certainty. For consistency with the last assessment, the results presented in 2002 (continuity case) are largely based on treatment of data and assumptions that closely resemble the analyses made in 2000. The previous two white marlin assessments, made in 1996 and 2000, indicated that biomass of white marlin has been below B_{MSY} for more than two decades, thus that the stock has been over-fished for many years. The 2000 assessment estimated that biomass in the late 1990s was about 15% of B_{MSY}, and that fishing mortality was increasing and reaching more than five times F_{MSY}. The MSY estimates of 2,200 t made in 1996 were reduced to 1,300 t in the 2000 assessment. The assessment results presented are similar to those obtained in 2000; they suggest that the total Atlantic stock in 2000 remains over-fished and continues to suffer over-fishing.

Available relative abundance indices suggest similar trends in abundance in the last twenty years, however, the abundance trend.6044 02,079 se e ealysis of ia reg

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fishing effort, historical data validation, and biologi

9. ATLANTIC NOTHERN BLUEFIN TUNA (*Thunnus thynnus*)

9.1 EAST ATLANTIC AND MEDITERRANEAN BLUEFIN TUNA

9.1.1 State of the stock

The Committee notes that basic catch statistics are still undergoing revisions by the reporting agencies and, also, the Committee suspects that there was over-reporting between 1993 and 1997 and that there has been increased under reporting in the last few years, especially since 1998. Additionally, although there have been improvements to most of the available CPUE indices, the CPUE and size data are not available for important Mediterranean fisheries. Thus, the Committee does not have confidence in assessments based upon these data. Nevertheless, the Committee's best determination of the state of the stock is that which was developed in the 2002 assessment at the Commission's request.

An assessment was done in 2002 with similar specifications to those used in the previous assessment in 1998, but using alternative scenarios. The scenarios included two trials using catches as reported to ICCAT (but using two alternative modelling constraints). These were trials 5 and 9. A third trial was also tested in which catches were assumed to be over-reported in 1994-1997, and under-reported, subsequently (Trial 12). The Committee evaluated these different analyses but, due to the low quality of the data used, it had no basis to assign preference to any one of the sets of outputs. Therefore, no "Base Case" assessment was defined for the eastern stock. Results of this assessment are similar to the results obtained in 1998 in terms of trends, but are more optimistic in terms of current depletion. The new assessment indicates that the SSB in 2000 was about 86% of the 1970 level (first year of data in the assessment), while the ratio of the 1997/1970 SSB estimated in the 1998 assessment was 47%. This difference is due primarily to the new and updated CPUE indices used in the 2002 assessment, as well as recent increased recruitment (1995-1996).

The assessment indicates two peaks in spawning biomass and an increase in fishing mortality rates, especially for older fish after 1993.
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	Trial 5	*Trial 9*	*Trial 12*
$Yield_{long\text{-}term}$	24,649	23,543	24,294
$Yield_{long\text{-}term}/Yield_{2000}$	0.69	0.66	0.59
$SSB_{long\text{-}term}/SSB_{2000}$	0.43	0.38	0.36

The results of these projections were similar to those obtained in the 1996 and 1998 assessments. These results suggest that current catch levels cannot be sustained in the long-term under the current selectivity pattern and current fishing mortality rate for the stock. The Committee recognizes that zero fishing mortality on juvenile bluefin is an impracticable objective. If either total fishing mortality or the mortality of small fish could be reduced substantially, then projections by the Committee indicated that current or even higher yields (perhaps more than 50,000 t) could be sustained.

9.2 WEST ATLANTIC BLUEFIN TUNA

9.2.1 State of the stock

The assessment results are similar to those from previous assessments. They indicate that the spawning stock biomass (SSB) declined steadily from 1970 (the first year in the assessment time series) through the late 1980s, before leveling off at about 20% of the level in 1975 (which has been a reference year used in previous assessments). A steady decline in SSB since 1997 is estimated and leaves SSB in 2001 at 13% of the 1975 level. The assessment also indicates that the fishing mortality rate during 2001 on the spawning stock biomass (SSB) is the highest level in the series. Estimates of recruitment of age 1 fish have been generally lower since 1976. However, recruitment of age 1 fish in two recent years (1995 and 1998) is estimated to be comparable in size to some of the year-classes produced in the first half of the 1970s.

While the large decline in SSB since the early 1970s is clear from the assessment, the potential for rebuilding is less clear. Key issues are the reasons for relatively poor recruitment since 1976, and the out s tohsose1.1ugse12(es the recruit)5.8(ment)7el ages few. Iff tuit.5(u)7el isent6fsam75(u)1.3(so 4.(ed)1.3(int6f)-(e)1823 0 525.0002 T

are plausible. Therefore, management strategies should be chosen to be reasonably robust to this uncertainty.

The results of projections for both recruitment scenarios are given infor several catch levels, and for 2,500 t only. The results are summarized in the table below.

The projections for the low recruitment scenario estimated that a constant catch of 3,000 t per year has an 83% probability of allowing rebuilding to the associated SSB_{MSY} by 2018. A constant catch of 2,500 t per year has a 35% probability of allowing rebuilding to the 1975 SSB by 2018.

The results of projections based on the high recruitment scenario estimated that a constant catch of 2,500 t per year has a 60% probability of allowing rebuilding to the 1975 level of SSB, and there is a 20% chance of rebuilding SSB to SSB_{MSY} by 2018. If the low recruitment scenario is valid, the TAC could be increased to at least 3000 t without violating the Commission's rebuilding plan. If the high recruitment scenario is valid, the TAC should be decreased to less than 1,500 t to comply with the plan.

Probability of achieving target biomass in 2018

	Low Recruitment Scenario		*High Recruitment Scenario*	
Catch (t)	SSB_{1975}	SSB_{MSY}	SSB_{1975}	SSB_{MSY}
500 t	95%	100%	98%	73%
1000 t	89%	100%	96%	62%
1500 t	77%	100%	87%	47%
2000 t	60%	99%	75%	30%
2300 t	45%	98%	66%	24%
2500 t	35%	97%	60%	20%
2700 t	26%	95%	52%	17%
3000 t	14%	83%	38%	11%
5000 t	0%	1%	2%	0%

The estimate of SSB_{MSY} for the high recruitment scenario is critical to inferences regarding the probability of achieving rebuilding under different future levels of catch, and also less well determined by the data than SSB_{MSY} for the low recruitment scenario. In particular, the estimates of SSB_{MSY} based on the high recruitment scenario are substantially larger than the largest spawning stock size included in the assessment. This extrapolation considerably increases the uncertainty associated with these estimates of SSB_{MSY}. Previous meetings have used SSB_{1975} as a rebuilding target in the context of interpreting projections. Arguably SSB_{1975} is appropriate as a target level for interpreting the implications of projections based on the high recruitment scenario. Under such a target level for the high recruitment scenario, a TAC of 2,700 t has an estimated probability of reaching the rebuilding

MSY

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

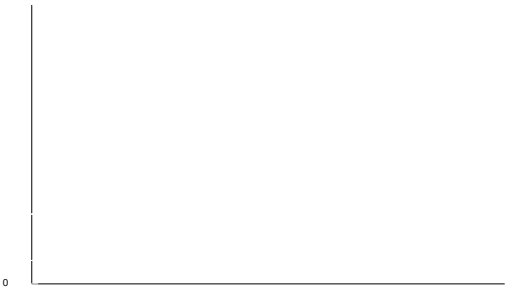
Current (2004) Catch[1] (including discards)	~2,000 t
Short-term Sustainable Yield	Probably >3,000 t

For these reasons, no standardized assessments have been able to be carried out on the Atlantic skipjack stocks. Notwithstanding, some estimates we

10.2 Outlook

Uncertainties in the underlying assumptions for the analyses prevent the extracting of definitive conclusions regarding the state of the stock. However, the results suggest that there may be over-exploitation within the FAD fisheries, although it was not clear to what extent this applies to the entire stock.

The Committee could not determine if the effect of the FADs on the resource is only at the local level or if it had a broader impact, affecting the biology and behavior of the species. Under this supposition,



11. ATLANTIC SAILFISH/SPEARFISH (*Istiophorus platypterus/ Tetrapturus pfluegeri*)

11.1 State of the stocks

All initial assessments of Atlantic sailfish were done on aggregate data on sailfish and spearfish obtained from the offshore longline fleets. The 1991 assessment for western Atlantic sailfish/spearfish (1992 SCRS) concluded that the composite stock was at least fully exploited and that fishing mortality had stabilized since the 1980s at around the level that would produce MSY. The 1994 assessment for the eastern Atlantic sailfish/spearfish stock (1995 SCRS) concluded that there were signs of over-fishing for this composite stock because estimated biomass was below the level that would produce MSY and estimated fishing mortality was greater than the level that would produce MSY. Both of these assessments had considerable uncertainties especially because of the inability of separating spearfish and sailfish catches from the offshore longline fleets and because of the limited number of reliable abundance indices for the early part of the history of the fishery and for the coastal eastern Atlantic fisheries.

The last assessments were conducted in 2001 for the eastern and western Atlantic sailfish stocks based on sailfish/spearfish composite catches and sailfish "only" catches for the period 1956-2000. The assessments tried to address the shortcomings of the previous assessments by improving the list of abundance indices and by separating the catch of sailfish from that of spearfish in the offshore longline fleets. Considerable progress was made on obtaining new, or more reliable abundance indices. The new separation of sailfish/spearfish allowed assessments to be attempted on sailfish "only" data. However, considerable uncertainties remain relating to both catches and catch rates that can only be addressed by substantial research investment in historical data validation and in investigations of the habitat requirements of sailfish.

All quantitative assessment models used in 2001 produced unsatisfactory fits. The biomass dynamic models were unable to satisfactorily explain the observed patterns in the abundance indices and catch. It will be necessary to apply population models that can better account for these dynamics in order to provide improved assessment advice.

At present, abundance indices represent the most reliable information and indication of changes in biomass for the stocks of sailfish "only" or sailfish/spearfish. Abundance indices for the eastern stock may be less reliable than those for the western stock. The differences in the indices between the early and later part of the fishery should not be ignored and should be considered to represent an indication of a decrease in the size of these stocks.

For the western Atlantic stock recent catch levels for sailfish/spearfish combined seem sustainable because over the last two decades both CPUE and catch have remained relatively constant. For the combined sailfish/spearfish western stock, it is not known whether the current catch level is below, or at maximum sustainable yield. For this same stock, tentative catches of sailfish "only" have averaged about 700 t over the past two decades and the abundance indices have remained relatively stable for