

Science, Service, Stewardship



## 2008 Atlantic Bluefin Tuna Stock Assessment Results

- Preliminary/Draft -

November 4, 2009

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## 2008 ICCAT Bluefin Tuna Stock Assessment Session

- Madrid, Spain, 23 June – 4 July
- Objective: To assess status of eastern and western Atlantic bluefin tuna stocks
- Scientists from Canada, France, Italy, Japan, Morocco, Norway, Portugal, Spain, Tunisia, Turkey, USA
- Observers from WWF, Greenpeace
- Results are **preliminary** until endorsed by the Standing Committee on Research and Statistics (in October, 2008)



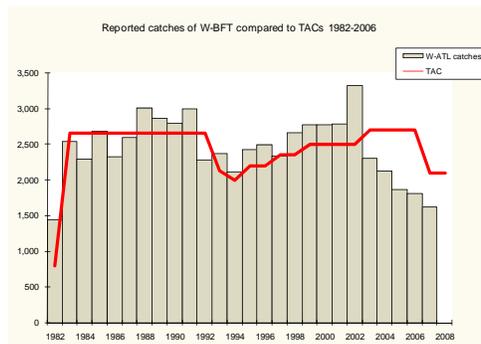
## 2008 ICCAT Bluefin Tuna Stock Assessment Session

# I. Western Stock



## WESTERN ATLANTIC BLUEFIN

Catches declined drastically since 2003, primarily due to decline in large fish catches by the USA



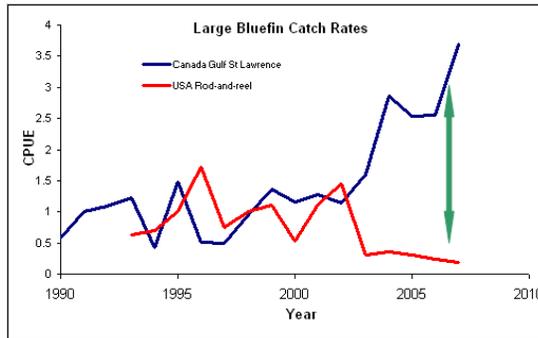
	2002	2003	2004	2005	2006	2007
Canada	641	571	552	600	735	491
Cuba	74	11	19	27	19	
FR, SPM	3	1	10	5		
Japan	575	57	470	378	376	277
Korea Rep.				1	52	
Mexico	12	22	9	10	14	7
U.S.A.	2014	1644	1066	848	615	849



## WESTERN ATLANTIC BLUEFIN

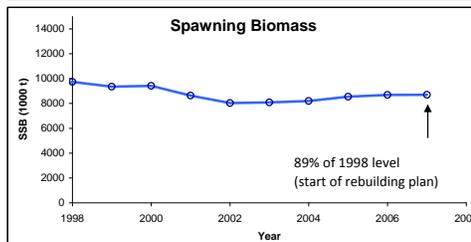
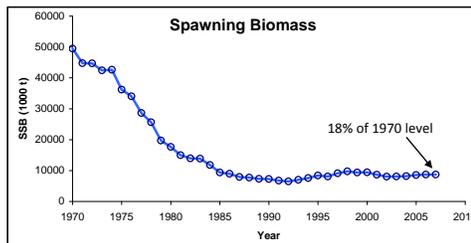
Has the US catch declined because of availability or abundance?

Catch rates in the Gulf of St Lawrence (GSL) increased  
While catch rates in U.S. Mid-Atlantic have declined



## WESTERN ATLANTIC BLUEFIN

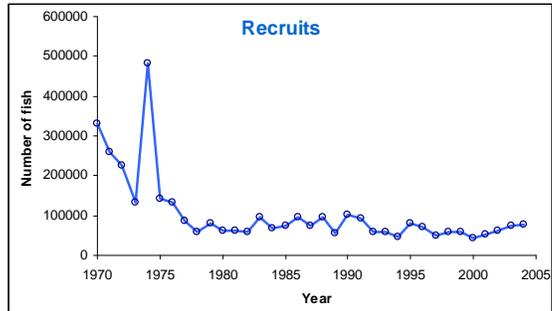
Estimates of spawning stock biomass show slow progress towards rebuilding





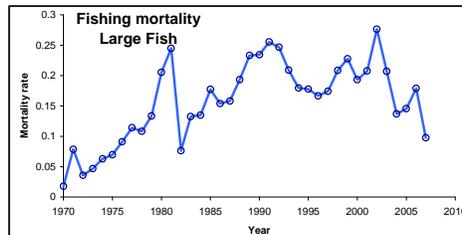
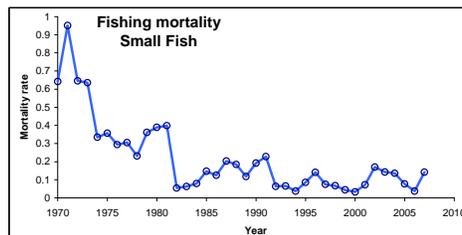
## WESTERN ATLANTIC BLUEFIN

Estimates of recruits do not show strong year-classes since 1973



## WESTERN ATLANTIC BLUEFIN

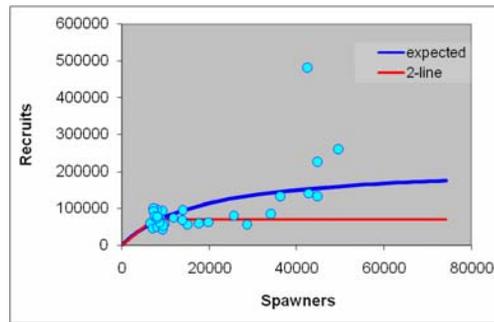
Estimates of large-fish mortality show large drop since 2002





## WESTERN ATLANTIC BLUEFIN

There is uncertainty about long-term potential: Will recruitment stay at recent levels or will it increase when stock size increases?



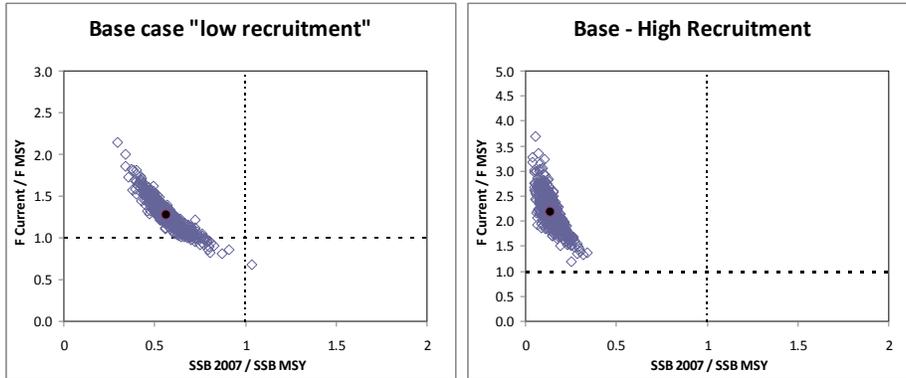
## WESTERN ATLANTIC BLUEFIN

Assuming Low Potential Recruitment		Assuming High Potential Recruitment	
<b>Maximum Sustainable Yield (MSY)</b>	2,852 t	<b>Maximum Sustainable Yield (MSY)</b>	6,201t
<b>Relative Spawning Stock Biomass:</b>		<b>Relative Spawning Stock Biomass:</b>	
$B_{2007}/B_{1975}$	0.25	$B_{2007}/B_{1975}$	0.25
$B_{2007}/B_{MSY}$	0.57	$B_{2007}/B_{MSY}$	0.14
<b>Relative Fishing Mortality:</b>		<b>Relative Fishing Mortality:</b>	
$F_{current}/F_{MSY}$	1.27	$F_{current}/F_{MSY}$	2.18

(More pessimistic)



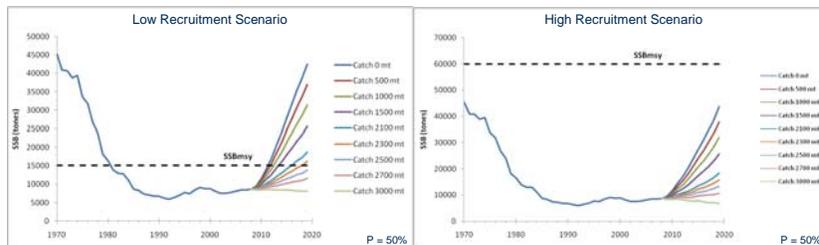
## WESTERN ATLANTIC BLUEFIN



## WESTERN ATLANTIC BLUEFIN

Outlook depends on:

- Productive potential (low vs high recruitment)
- Targets (objectives)
- Probability of achieving objectives (risk)





## WESTERN ATLANTIC BLUEFIN

2,100 t (current TAC) rebuilds stock to  $B_{MSY}$  with 50% prob. by 2017  
but not with 75% probability

Projected Catch Level (mt)	Base Case	
	Low	High
0	2012	No
500	2012	No
1000	2013	No
1500	2014	No
1600	2014	No
1700	2015	No
1800	2015	No
1900	2015	No
2000	2016	No
2100	2017	No
2200	2017	No
2300	2018	No
2400	2019	No
2500	No	No
2600	No	No
2700	No	No
3000	No	No
5000	No	No

Projected Catch Level (mt)	Base Case	
	Low	High
0	2013	No
500	2013	No
1000	2014	No
1500	2015	No
1600	2016	No
1700	2016	No
1800	2017	No
1900	2018	No
2000	2019	No
2100	No	No
2200	No	No
2300	No	No
2400	No	No
2500	No	No
2600	No	No
2700	No	No
3000	No	No
5000	No	No



## WESTERN ATLANTIC BLUEFIN

1,800 t or less needed to end overfishing (F/F<sub>msy</sub>)  
under a conservative scenario

Projected Catch Level (mt)	Base Case	
	Low	High
0	2009	2009
500	2009	2009
1000	2009	2009
1500	2009	2009
1600	2009	2010
1700	2009	2011
1800	2009	2012
1900	2009	2013
2000	2010	2014
2100	2011	2015
2200	2012	2016
2300	2014	2017
2400	2015	2018
2500	2017	No
2600	No	No
2700	No	No
3000	No	No
5000	No	No

P = 50%

Projected Catch Level (mt)	Base Case	
	Low	High
0	2009	2009
500	2009	2009
1000	2009	2010
1500	2009	2015
1600	2009	2016
1700	2009	2018
1800	2011	2019
1900	2012	No
2000	2013	No
2100	2014	No
2200	2016	No
2300	2019	No
2400	No	No
2500	No	No
2600	No	No
2700	No	No
3000	No	No
5000	No	No

P = 75%



## WESTERN ATLANTIC BLUEFIN

### Draft management advice:

- Stock not rebuilding as rapidly as originally projected under current plan
- Strongly advise against an increase in TAC
- Recommend more conservative decisions with 75% probability of rebuilding to Bmsy by 2019
  - 2,000 t (base case assessment with "low recruitment")
  - 1,500 t (assessment without Can. GSL catch rates)

(Note that 1,500 t are expected to end overfishing even under "high recruitment" scenario)



## WESTERN ATLANTIC BLUEFIN

**Both the productivity of western Atlantic bluefin and western Atlantic bluefin fisheries are linked to the eastern Atlantic and Mediterranean stock. Therefore, management actions taken in the eastern Atlantic and Mediterranean are likely to impact the recovery in the western Atlantic, because even small rates of mixing from East to West can have significant effects on the West due to the fact that Eastern plus Mediterranean resource is much larger than that of the West.**



## II. Eastern Stock



## EASTERN ATLANTIC BLUEFIN

There are considerable data limitations for the eastern stock for the recent period. These include poor temporal and spatial coverage for detailed size and catch-effort statistics for many fisheries, especially in the Mediterranean. Substantial under-reporting of total catches is also evident.



## EASTERN ATLANTIC BLUEFIN

2007 records were not made available on time by most contracting parties. The assessment used ICCAT vessel lists and expert knowledge to estimate probable catch.

Mediterranean 2007		Active fleet	
Vessel category	Nb Vessels	Catch rates	Estimated yields
PS large (>= 40 m)	83	150 - 300	17550
PS medium (> 24 m & < 40 m)	205	75 - 150	22050
PS small (<= 24 m)	63	20 - 40	2040
LL large (>= 40 m)	43	50	2150
LL medium (> 24 m & < 40 m)	9	20	180
LL small (<= 24 m)	221	10	2210
Handline	127	3	381
Trawler	25	2	50
Trap	10	40	400
Other artisanal	220	4	880
<b>Total Mediterranean</b>	<b>1006</b>		<b>47891</b>
Mediterranean PS			41640
Mediterranean LL			4540
Mediterranean OTH			1711

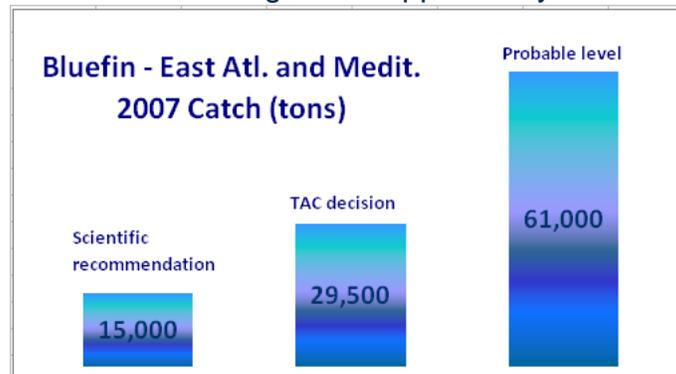
East Atlantic 2007		Active fleet	
Vessel category	Nb Vessels	Catch rates	Estimated yields
PS medium (> 24 m & < 40 m)	30	50	1500
PS small (<= 24 m)	4	25	100
LL large (>= 40 m)	55	50	2750
LL medium (> 24 m & < 40 m)	29	20	580
LL small (<= 24 m)	13	10	130
Baitboat > 24 m	39	40	1560
Baitboat <= 24 m	42	15	630
Handline	12	5	60
Trawler	98	15	1470
Trap	18	245	4410
Other artisanal	20	3	60
<b>Total East-Atlantic</b>	<b>330</b>		<b>13250</b>
East-Atlantic PS			1600
East-Atlantic LL			3460
East-Atlantic OTH			8190

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## EASTERN ATLANTIC BLUEFIN

The 2007 catch is likely around 61,000 t, more than twice the TAC. This figure is supported by market data.

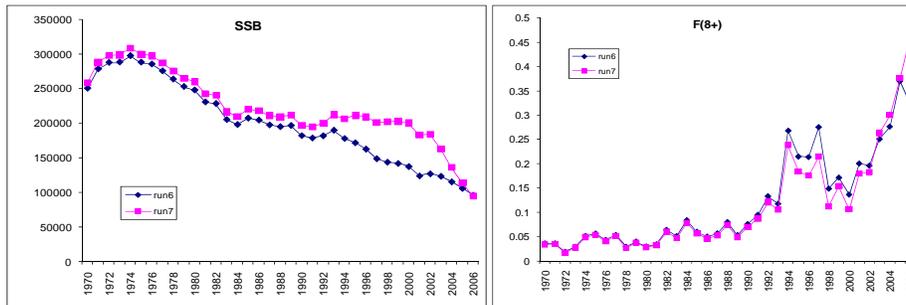


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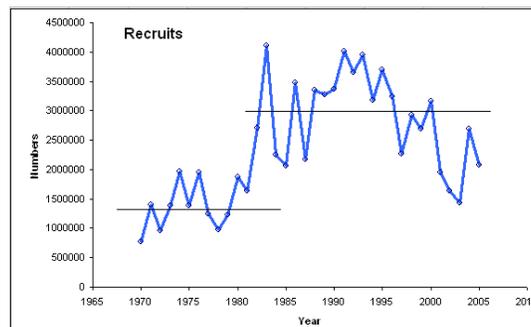
## EASTERN ATLANTIC BLUEFIN

The assessment indicates that spawning biomass is declining rapidly while fishing mortality continues to increase, especially for large fish (ages 8 and older)



## EASTERN ATLANTIC BLUEFIN

Like in the west, there is uncertainty about long-term potential: Will recruitment stay at recent levels or could it be lower?



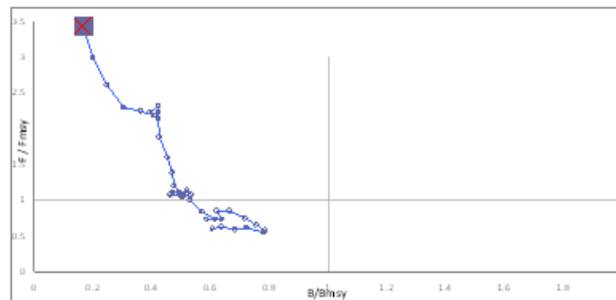


## EASTERN ATLANTIC BLUEFIN

The stock is overfished and severe overfishing is ongoing:

$$B / B_{msy} \sim 0.20$$

$$F / F_{msy} > 3.0$$



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## EASTERN ATLANTIC BLUEFIN

Evaluation of current recovery plan (Rec. [06-05])

- Detailed data for 2007 were not provided
- Based on equilibrium projections, current measures are a step in the right direction but unlikely to achieve recovery in 15 years
- Unless the plan is adjusted for greater controls, there is a high risk of collapse

**The only management scenarios with potential to address the declines and initiate recovery are those which (in combination) close the Mediterranean to fishing during spawning season and decrease mortality on small fish through minimum size regulations.**

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## EASTERN ATLANTIC BLUEFIN

### Draft management recommendation

An overall reduction in fishing effort and mortality is needed to reverse current trends. Current fishing capacity largely exceeds the current TAC and has even increased over the last two years. Therefore, management actions are also needed to mitigate the impacts of overcapacity as well as to eliminate illegal fishing. Deferring effective management measures will likely result in even more stringent measures being necessary in the future.