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# **São Paulo School of Advanced Science on Ocean Interdisciplinary Research and Governance**

## **Regional Fisheries Agreements and Organizations**

**São Paulo, August 20<sup>th</sup> 2018**

### **Speaker:**

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**Full Professor Fisheries and Aquaculture Department/ UFRPE**

**Former Chair of UN/FAO Committee on Fisheries (2014-2016)**

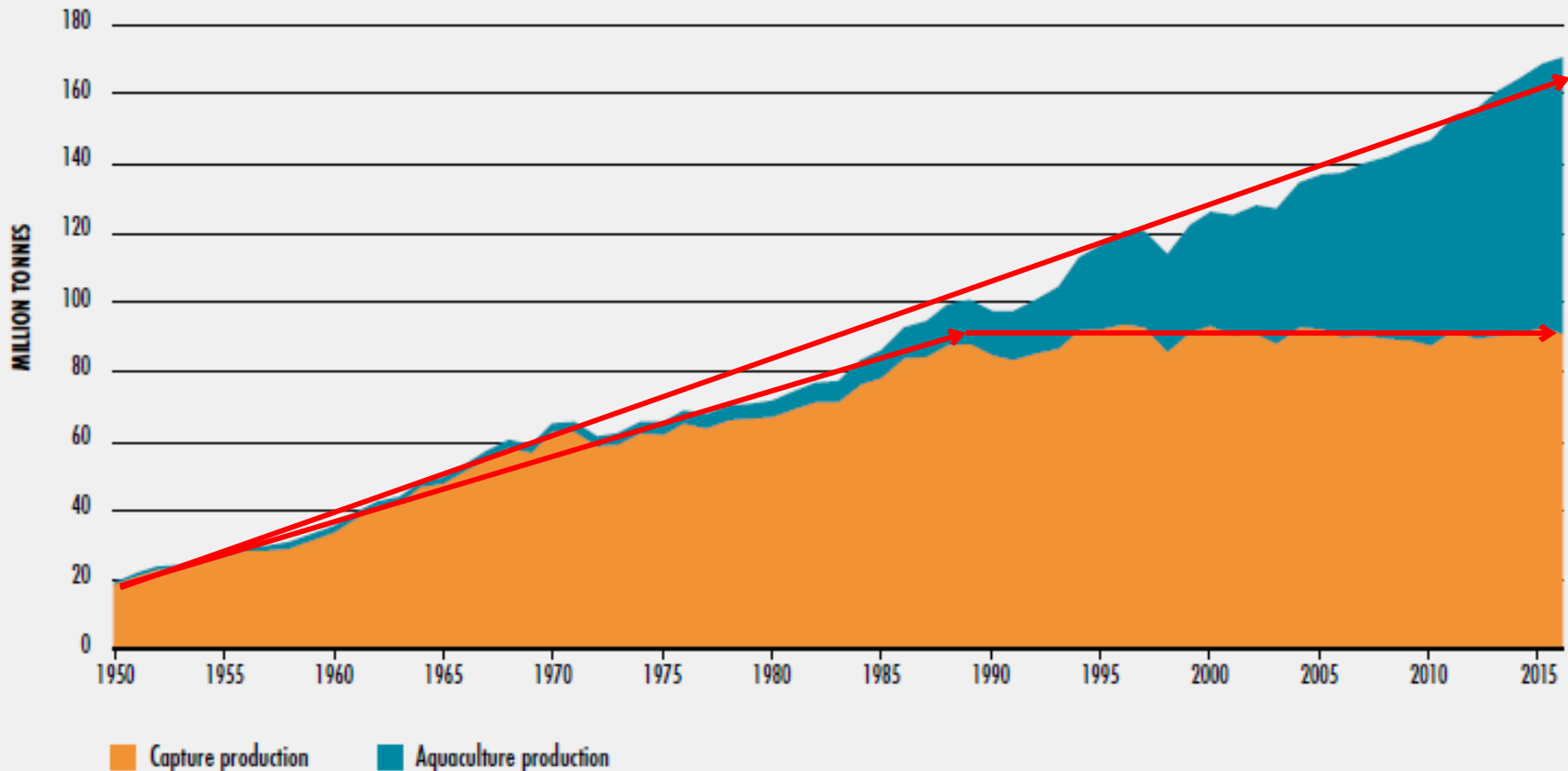
**Former Chair of the International Commission for the Conservation of Atlantic Tunas-  
ICCAT (2007 - 2011)**

**Former National Secretary for Fisheries, (2015)**

# Status of the World Fisheries and Aquaculture

## Evolution of the World Fisheries Production

Capture x Aquaculture



NOTE: Excludes aquatic mammals, crocodiles, alligators and caimans, seaweeds and other aquatic plants

# World Fisheries Production and its utilization, from 2011 to 2016

TABLE 1  
WORLD FISHERIES AND AQUACULTURE PRODUCTION AND UTILIZATION (MILLION TONNES)<sup>a</sup>

Category	2011	2012	2013	2014	2015	2016
<b>Production</b>						
Capture						
Inland	10.7	11.2	11.2	11.3	11.4	11.6
Marine	81.5	78.4	79.4	79.9	81.2	79.3
<b>Total capture</b>	<b>92.2</b>	<b>89.5</b>	<b>90.6</b>	<b>91.2</b>	<b>92.7</b>	<b>90.9</b>
Aquaculture						
Inland	38.6	42.0	44.8	46.9	48.6	51.4
Marine	23.2	24.4	25.4	26.8	27.5	28.7
<b>Total aquaculture</b>	<b>61.8</b>	<b>66.4</b>	<b>70.2</b>	<b>73.7</b>	<b>76.1</b>	<b>80.0</b>
<b>Total world fisheries and aquaculture</b>	<b>154.0</b>	<b>156.0</b>	<b>160.7</b>	<b>164.9</b>	<b>168.7</b>	<b>170.9</b>
<b>Utilization<sup>b</sup></b>						
Human consumption	130.0	136.4	140.1	144.8	148.4	151.2
Non-food uses	24.0	19.6	20.6	20.0	20.3	19.7
Population (billions) <sup>c</sup>	7.0	7.1	7.2	7.3	7.3	7.4
Per capita apparent consumption (kg)	18.5	19.2	19.5	19.9	20.2	20.3

<sup>a</sup> Excludes aquatic mammals, crocodiles, alligators and caimans, seaweeds and other aquatic plants.

<sup>b</sup> Utilization data for 2014–2016 are provisional estimates.

<sup>c</sup> Source of population figures: UN, 2015e.

~53%  
Aquaculture

# Evolution of the World Fisheries Production by Capture

1950 = 17.000.000 t

➤ 100 % in 1 decade

1960 = 35.000.000 t

➤ 100 % in 2 decades

1980 = 70.000.000 t

➤ 35 % em 2 decades

2000 = 95.500.000 t

2016 = 90.900.000 t (last 5 years: 89.5 a 92.7)

**According to FAO, maximum of 105.000.000 t**

**Why? → We are very close to the ceiling (MSY) !**

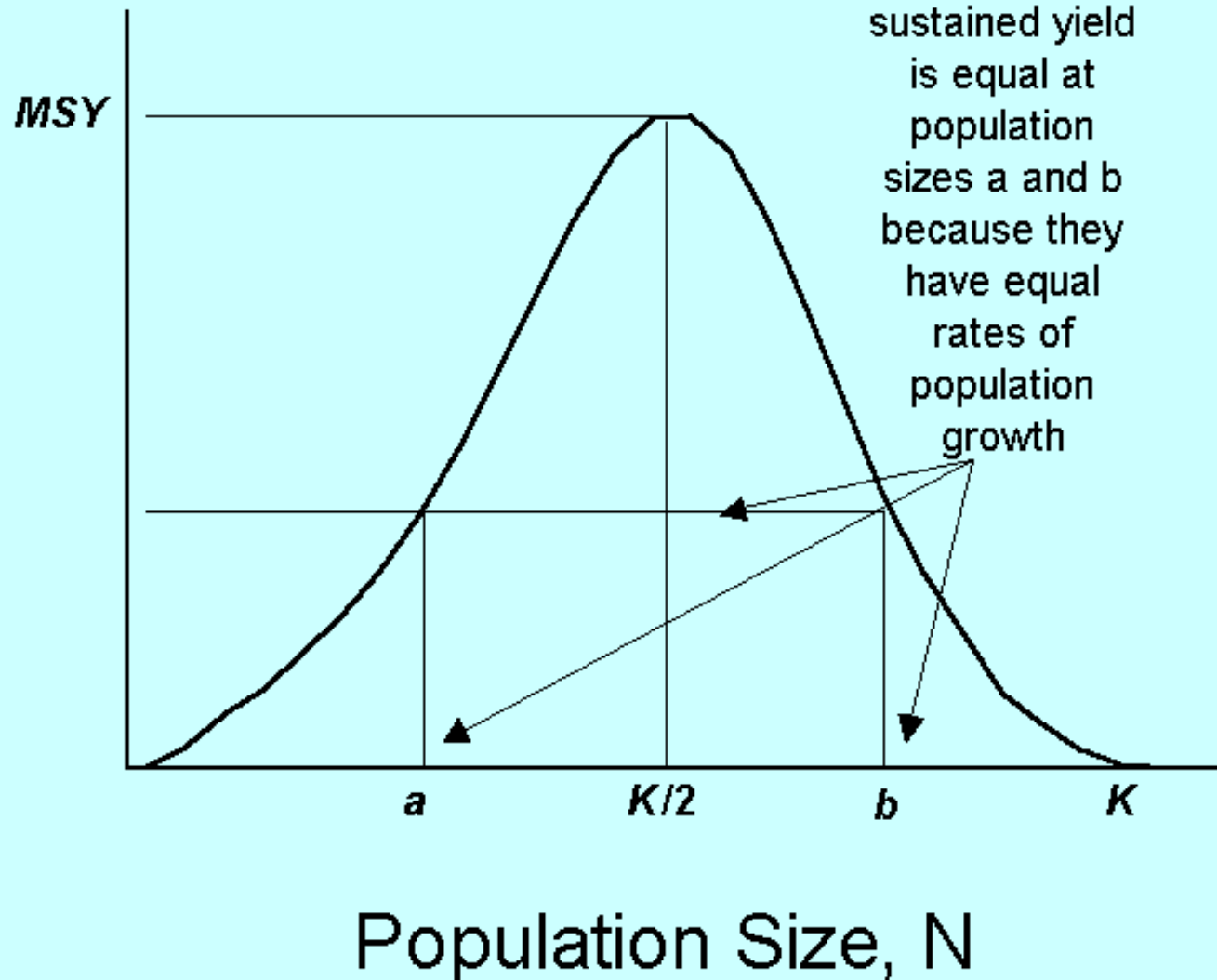
- ↪ 7% under-exploited (Biomass > MSY)
- ↪ 60% fully exploited (Biomass at MSY)
- ↪ 33% over-exploited (Biomass < MSY)

**# Only 7% can produce more... #**

## What is MSY- Maximum Sustainable Yield ??

2b

Sustained Yield, or  
Population Growth



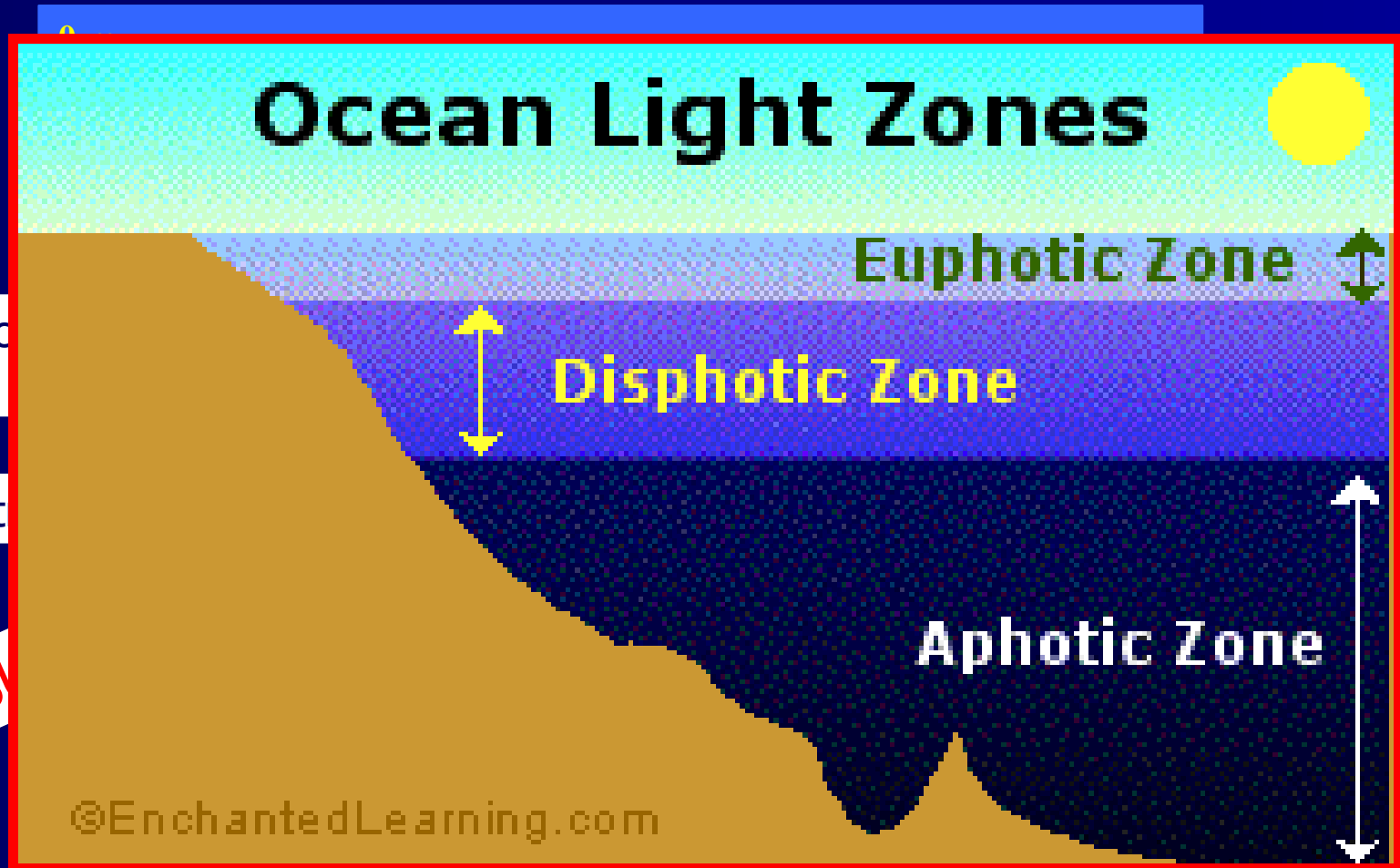
**The Maximum Sustainable Yield is generally reached when the fish population is around half its virgin size ( $K$ )**

**Why we are already close to the ceiling?**  
**Because the oceans are an immense desert... of water!**

90% of capture fisheries production comes from 2 - 3% of ocean area

**WHY ??**

- ✓ Mean ocean depth  $\approx 3.800$  m
- ✓ Depth of the euphotic zone  $\approx 200$  m



200 m | PROFUNDIDADE DE  
PENETRAÇÃO DA LUZ

PROFUNDIDADE MEDIA  
DOS OCEANOS

➤ **About 70% (67%) of the World fish stocks are under-exploited or fully exploited; i.e. are being sustainably exploited at a level compatible with the Maximum Sustainable Yield (MSY)**

➤ **About 95% (93%) of the World fish stocks are over-exploited or fully exploited (60%)**



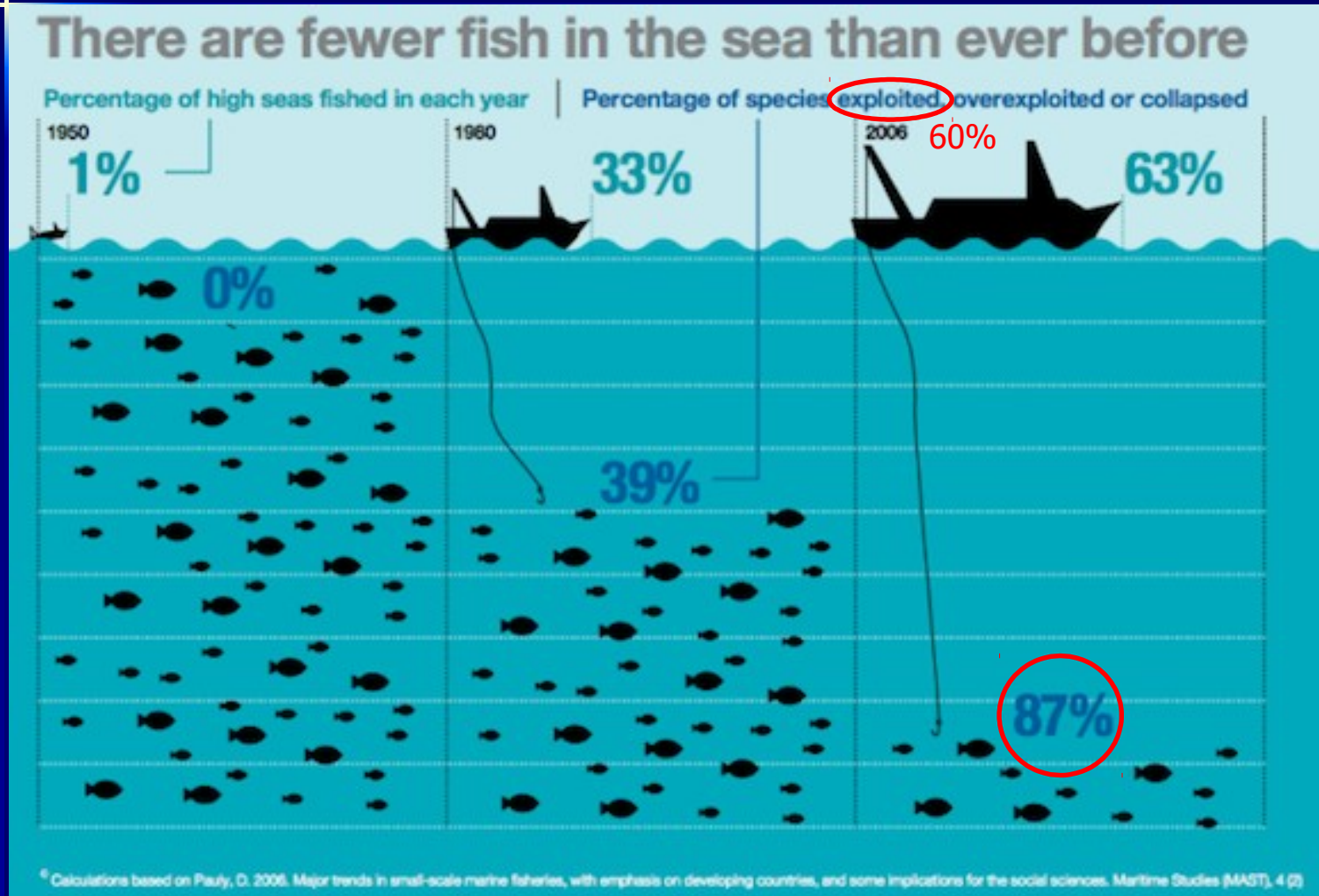


# How the situation of fish stocks is generally portrayed by the media and environmental NGOs?

PLANETEXPERTS

(<http://www.planetexperts.com/top-10-things-learned-ocean-2014/>)

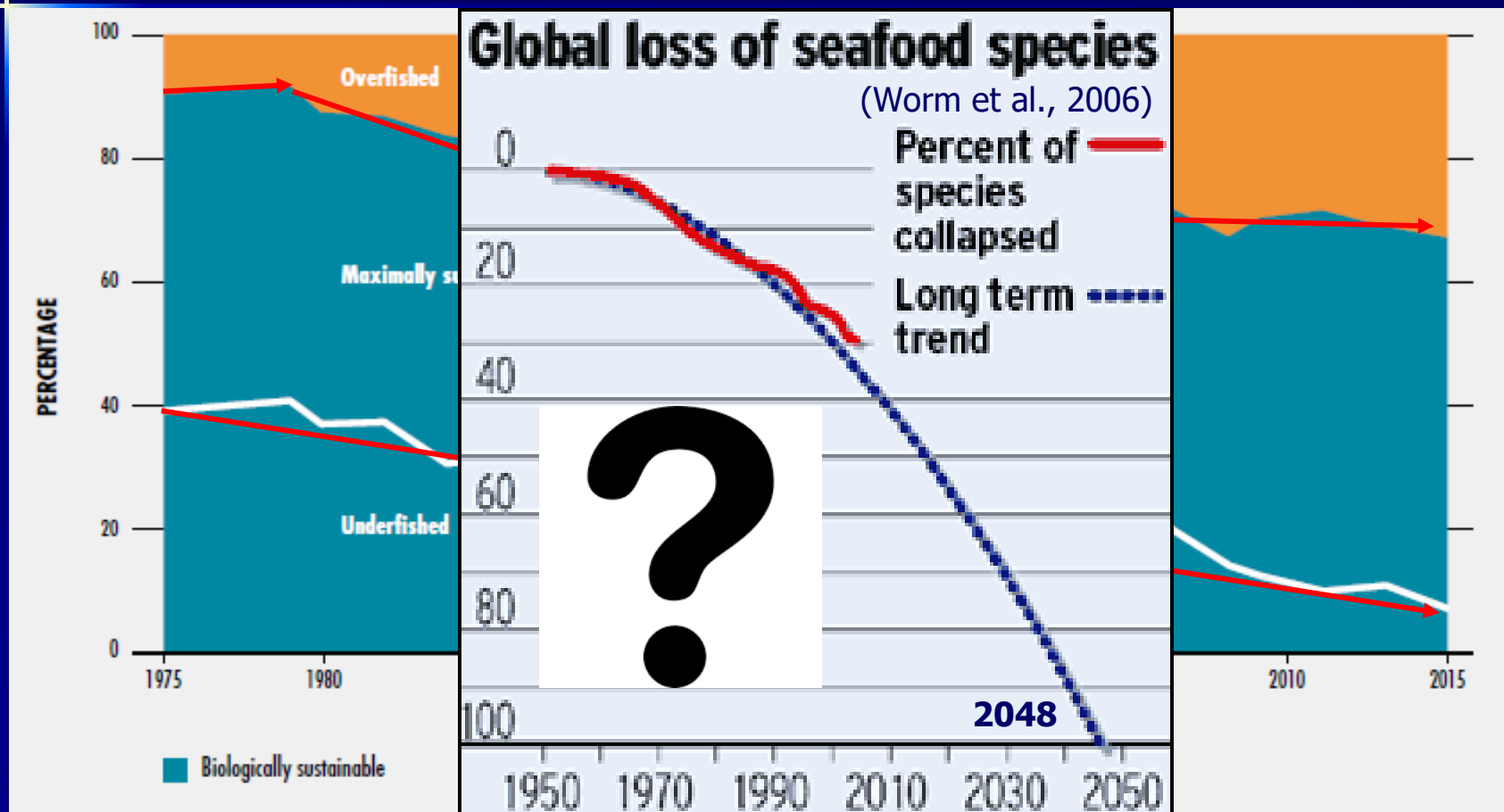
## The Top 10 Things We Learned About the Ocean in 2014





# Status of the World Fisheries and Aquaculture

## Evolution of fish stocks

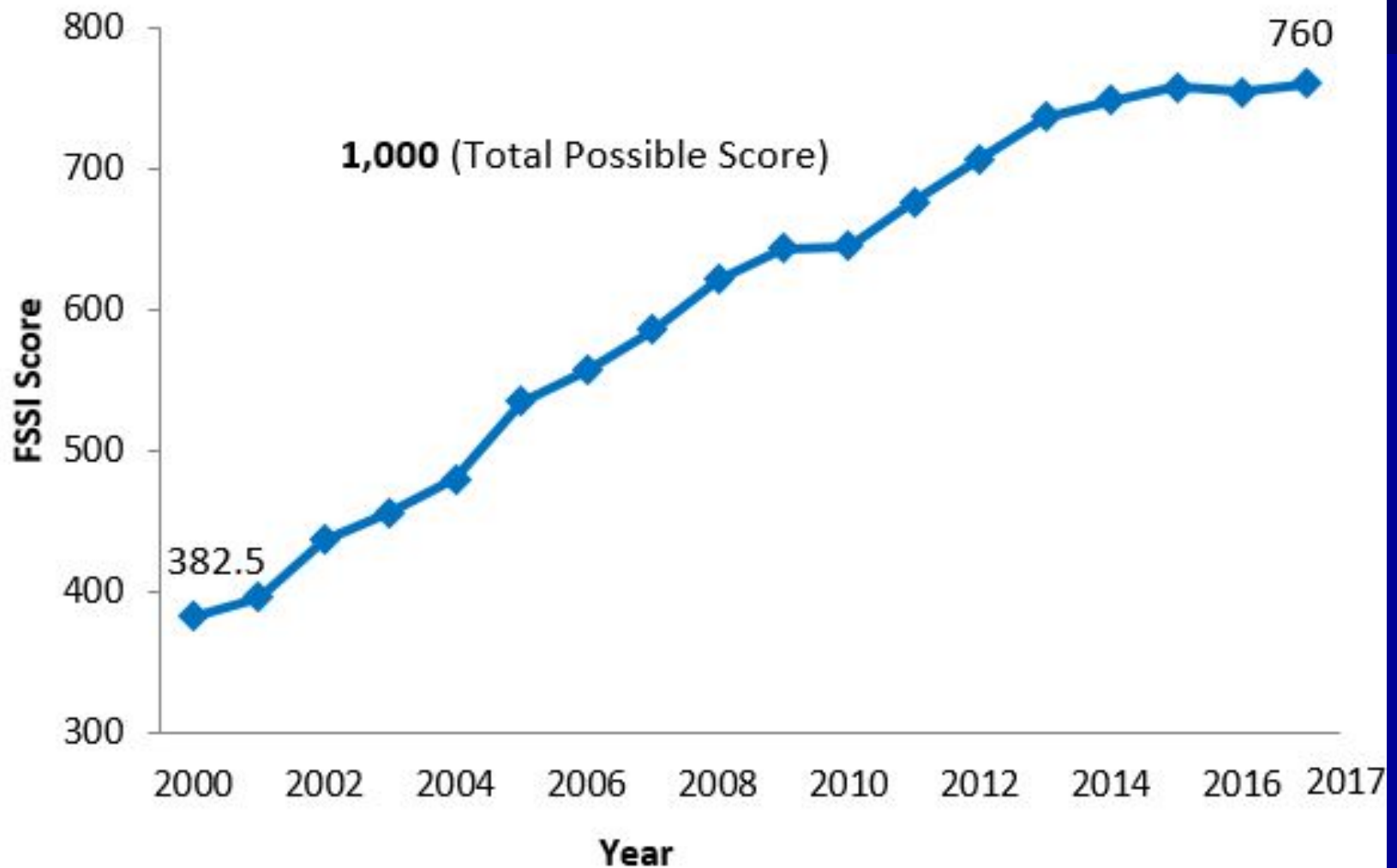


Although it does not mean we do not have problems...

Fonte: FAO, 2018

# Status of the World Fisheries and Aquaculture

## Evolution of fish stocks in developed countries



# Situation of fish stocks in the United States

## Fish Stock Sustainability Index (FSSI)



### 37 Stocks Rebuilt as of March 31, 2015

#### North Pacific:

Southern tanner crab - Bering Sea - 2007 & 2012  
Blue king crab - St. Matthews Is. - 2009  
Snow crab - Bering Sea - 2011

#### Pacific:

Pacific whiting - Pac Coast - 2004  
Lingcod - Pac Coast - 2005  
Chinook salmon - N. CA Coast: Klamath (fall) 2011  
Widow rockfish - Pac Coast  
Coho salmon - WA Coast: Queets - 2011  
Coho salmon - WA Coast: W. Straight of Juan de Fuca - 2012  
Chinook salmon - CA Central Valley: Sacramento (fall) 2013

#### Highly Migratory Species:

Blacktip shark - Atlantic/Gulf of Mexico - 2003<sup>1</sup>  
Swordfish - N. Atlantic - 2009

#### New England:

Sea scallop - NW Atl Coast - 2001  
Silver hake - Gulf of Maine/N. Georges Bank - 2002  
Silver hake - S. Georges Bank/Mid-Atlantic - 2007  
Winter flounder - Georges Bank - 2003  
Haddock - Georges Bank - 2010  
Pollock - Gulf of Maine/Georges Bank - 2010  
Haddock - Gulf of Maine - 2011  
Acadian redfish - Gulf of Maine/Georges Bank - 2012  
Windowpane - S. New England/Mid-Atlantic - 2012  
Yellowtail flounder - S. New England/Mid-Atlantic - 2012

#### New England & Mid-Atlantic:

Goosefish (Monkfish) - Gulf of ME/N. Georges Bank - 2008  
Goosefish (Monkfish) - S. Georges Bank/Mid-Atlantic - 2008  
Spiny dogfish - Atlantic Coast - 2010

#### Mid-Atlantic:

Bluefish - Atlantic Coast - 2008  
Scup - Atlantic Coast - 2009  
Black sea bass - Mid-Atlantic Coast - 2009  
Summer flounder - Mid-Atlantic Coast - 2011  
Tilefish - Mid-Atlantic Coast - 2014  
Butterfish - Gulf of ME to Cape Hatteras - 2014

#### South Atlantic:

Pink shrimp - S. Atl Coast - 2012  
Black sea bass - S. Atl Coast - 2013  
Yellowtail snapper - S. Atl/Gulf of Mexico - 2003

#### Gulf of Mexico:

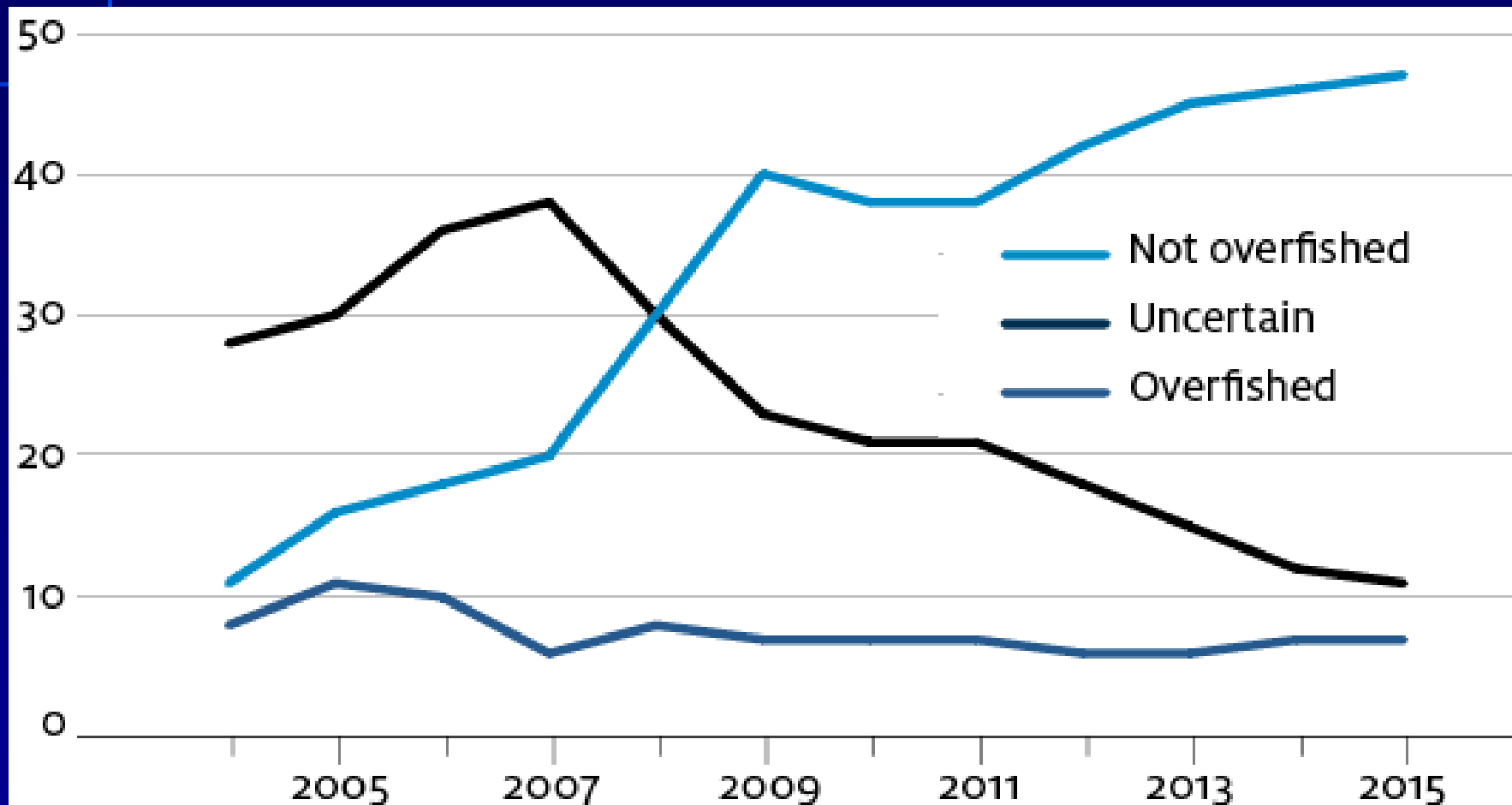
Red grouper - Gulf of Mexico - 2007  
King mackerel - Gulf of Mexico - 2008  
Gag - Gulf of Mexico - 2014



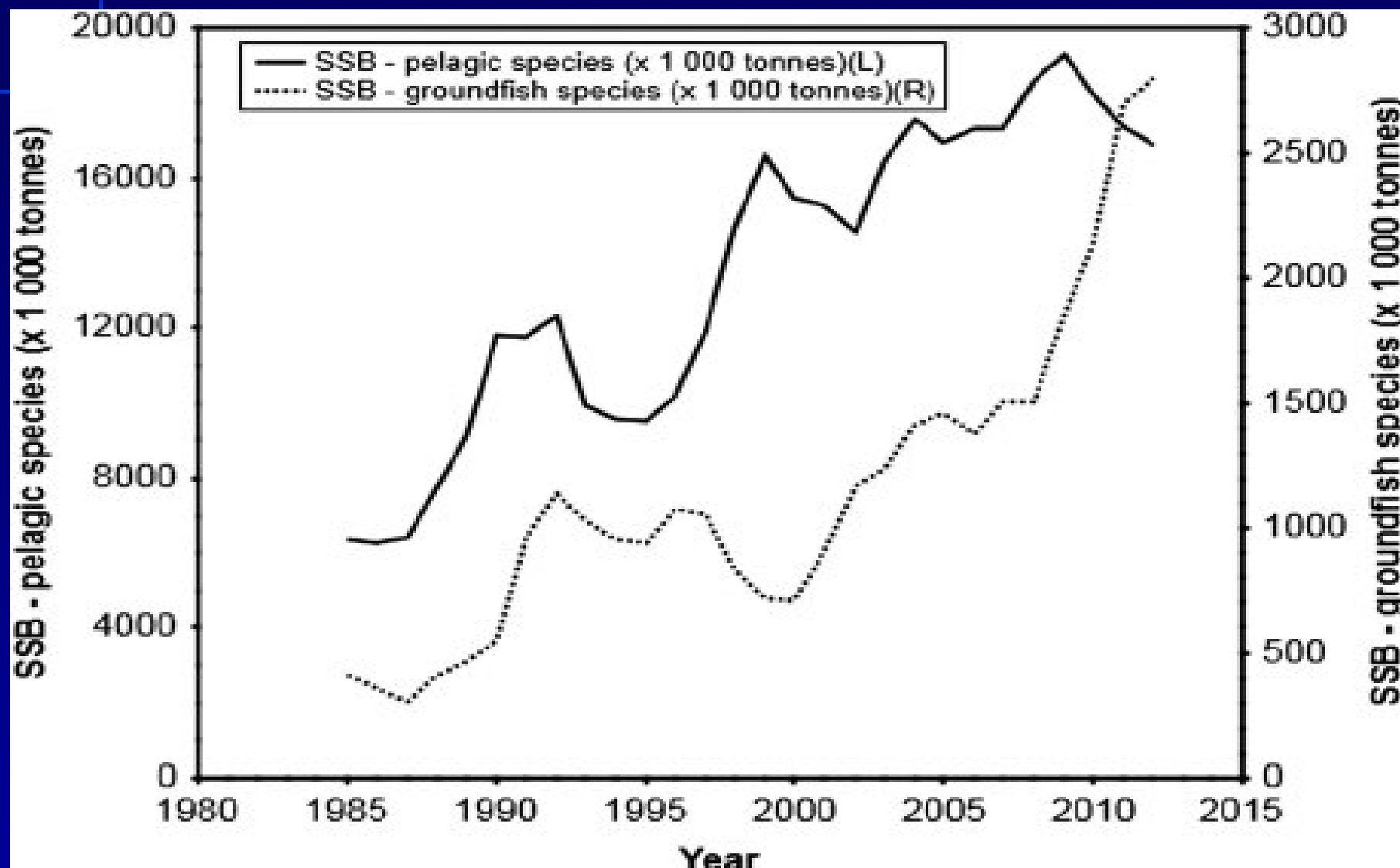
**NOAA**  
FISHERIES

1. Blacktip shark is now two separate stocks, but was previously assessed as one combined Atlantic/Gulf of Mexico stock.

# Situation of fish stocks in Australia



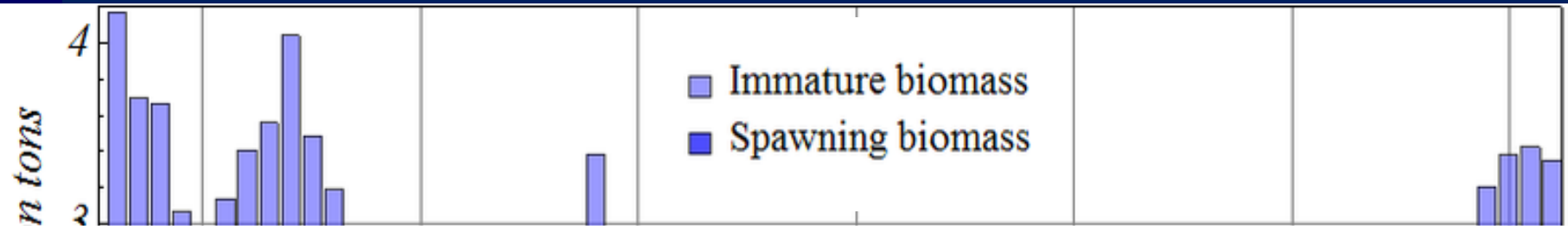
# Spawning stock biomass of the main fish stocks exploited by Norway



# Evolution of the cod stock in the Barents Sea

18 SEP 2014: **Yale Environment REPORT**

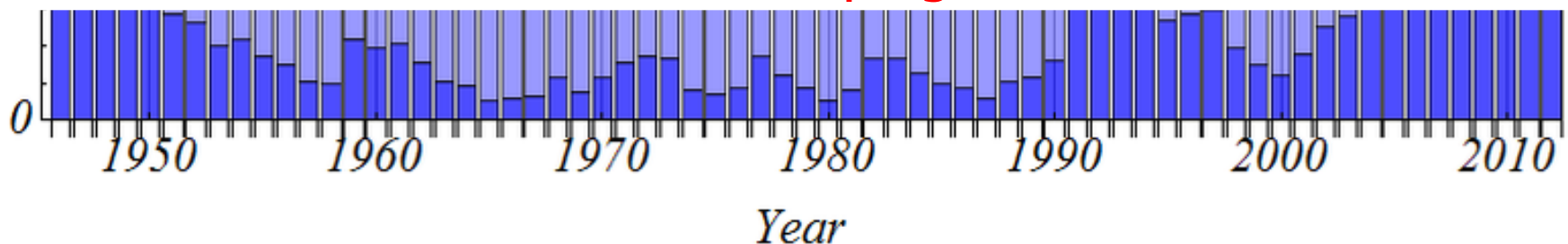
How Norway and Russia Made A Cod Fishery Live and Thrive



So, developed States, in general, are doing a good job in ensuring the sustainability of their fisheries and the conservation of their fish stocks!

With exceptions, like the Canadian cod...

What about developing States?



# Status of the World Fisheries and Aquaculture

## Evolution of fish stocks in developing countries

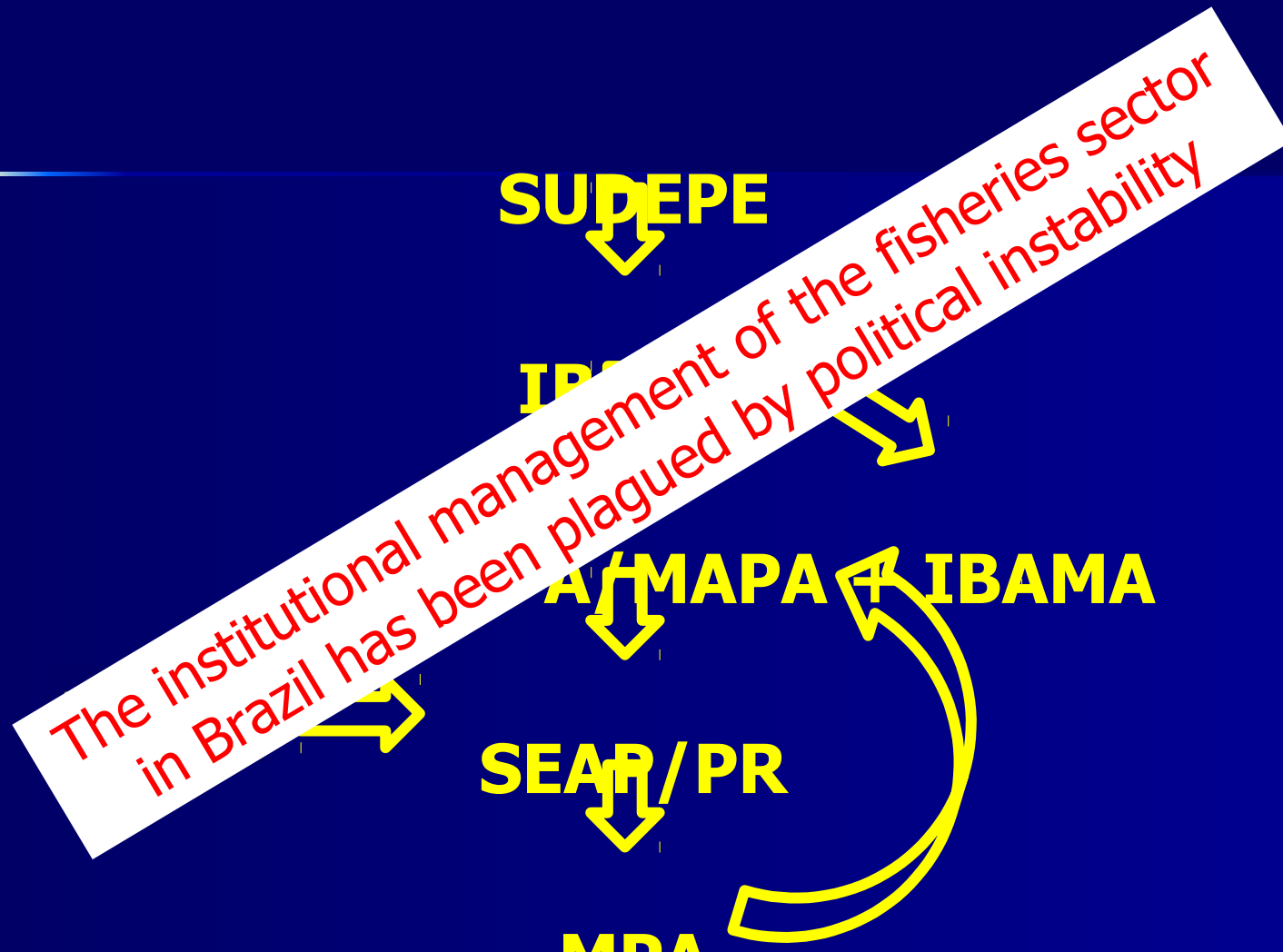


**We don't**

**know...**



# Where are we?



It has destroyed our fisheries statistics and consequently our capacity to manage our fisheries

# What about the fish stocks managed by RFMOs??

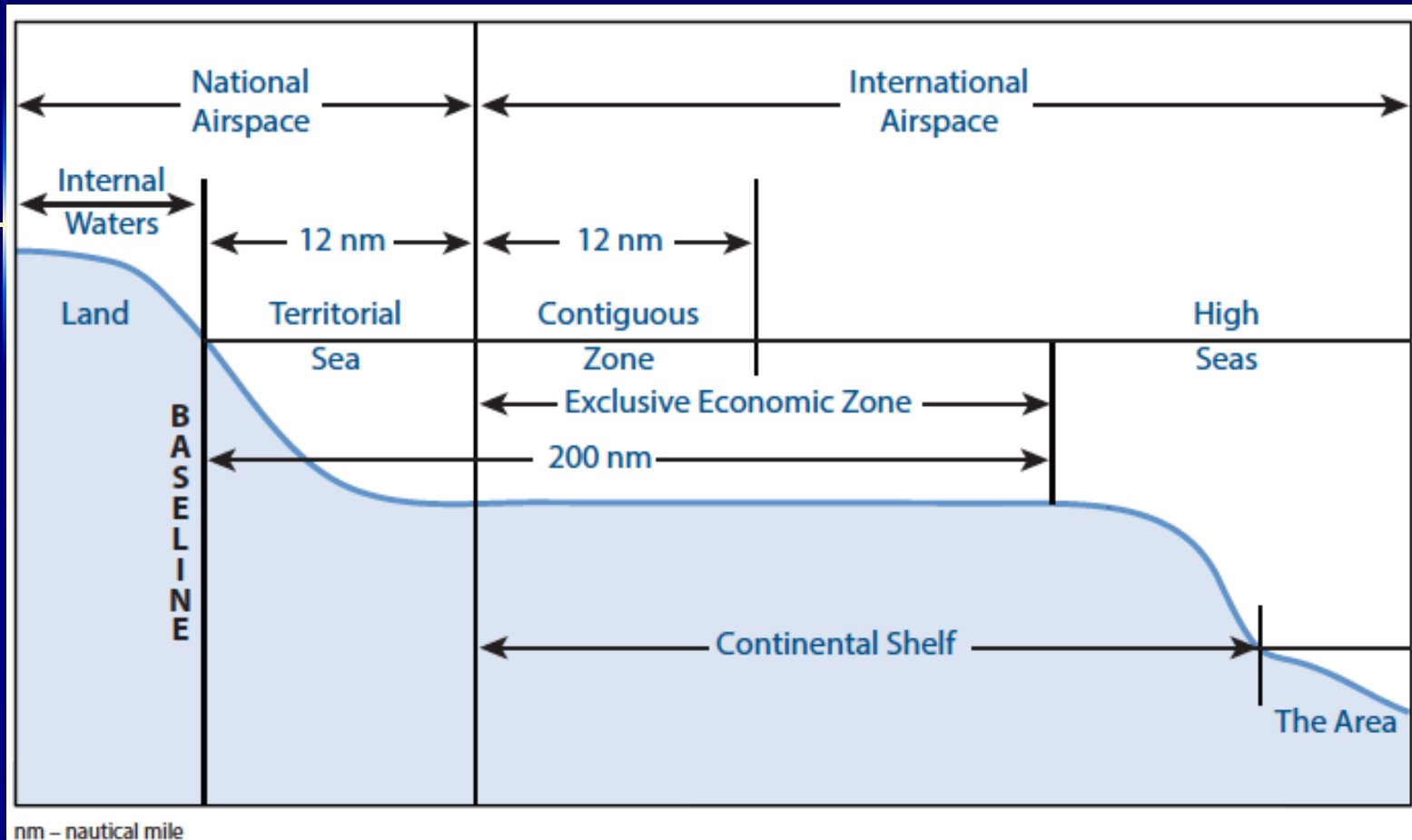
## The United Nations Convention on the Law of the Sea UNCLOS

- ⇒ Negotiations started at 1967
- ⇒ Open for signature on December 10<sup>th</sup>, 1982 in Montego Bay, Jamaica
- ⇒ In force since November 16<sup>th</sup>, 1994
  - ⇒ 168 members + 14 signed = 182 x 193 UN members
    - ⇒ Not signed: USA, Venezuela, Peru, Turkey...

## UNCLOS= International Constitution of the Seas

- ⇒ From boundaries (territorial sea, EEZ, etc) to Marine pollution and maritime traffic! Plus Living Resources!
  - ⇒ Parte VII, Section 2:  
Conservation and Management of the Living Resources of the High Seas ⇒ RFMO/As
  - ⇒ Parte XII:  
Protection and preservation of the marine environment

# Maritime limits as defined by UNCLOS



Transboundary fish stocks: occurring in the EEZ of two or more countries

Straddling fish stocks: occurring both in the EEZ and in the high seas

Highly migratory fish stocks: occurring in the high seas and in the EEZ of several countries, e.g. tunas

## PART V- EXCLUSIVE ECONOMIC ZONE

### *Article 62- Utilization of the living resources*

- ⇒ 2. The coastal State shall determine its capacity to harvest the living resources of the exclusive economic zone. ⇒ **Programa REVIZEE**

### *Article 63- Stocks occurring within the exclusive economic zones of two or more coastal States or both within the exclusive economic zone and in an area beyond and adjacent to it*

⇒ **transboundary or straddling stocks**

- ⇒ 2. Where the same stock or stocks of associated species occur both within the exclusive economic zone and in an area beyond and adjacent to the zone, the coastal State and the States fishing for such stocks in the adjacent area shall seek, either directly or through appropriate subregional or regional organizations, to agree upon the measures necessary for the conservation of these stocks in the adjacent area.

## PART VII- HIGH SEAS

### *Article 118- Cooperation of States in the conservation and management of living resources*

- ⇒ States shall cooperate with each other in the conservation and management of living resources in the areas of the high seas. States whose nationals exploit identical living resources, or different living resources in the same area, shall enter into negotiations with a view to taking the measures necessary for the conservation of the living resources concerned. They shall, as appropriate, cooperate to establish subregional or regional fisheries organizations to this end.

## **Consequence:**

**All States that fish for straddling and highly migratory fish stocks are OBLIGED to cooperate for the management and conservation of the shared resources.**

**All States parties to UNCLOS are obliged, by international law, to apply the management and conservation measures adopted by a Regional Fisheries Management Organization, even though they are not obliged to become a member of that RFMO.**

# **The New York Agreement (1995):**

AGREEMENT FOR THE IMPLEMENTATION OF THE PROVISIONS OF THE UNITED NATIONS CONVENTION ON THE LAW OF THE SEA OF 10 DECEMBER 1982 RELATING TO THE CONSERVATION AND MANAGEMENT OF STRADDLING FISH STOCKS AND HIGHLY MIGRATORY FISH STOCKS

✚ **Open for signature: December 4<sup>th</sup>, 1995/ In force: December 11<sup>th</sup>, 2001**

✚ **80 Member States**

✚ **The precautionary approach: Articles 5 e 6**

✚ **The Ecosystem approach: Article 5**

✚ **Obligation to cooperate: Article 8**

## **Article 8- Cooperation for conservation and management**

1. Coastal States and States fishing on the high seas shall, ..., pursue cooperation in relation to straddling and highly migratory fish stocks either directly or through appropriate sub-regional or regional fisheries management organizations or arrangements, ..., to ensure effective conservation and management of such stocks.
3. Where an RFMO/A has the competence to establish conservation and management measures for particular straddling or highly migratory fish stocks, States fishing for the stocks on the high seas and relevant coastal States shall give effect to their duty to cooperate by becoming members of such organization ..., or by agreeing to apply the conservation and management measures established by such organization or arrangement.

# The New York Agreement (1995):

## ⇒ **Obligation to submit scientific data: Article 14**

### **Article 14- Collection and provision of information and cooperation in scientific research**

1. States shall ensure that fishing vessels flying their flag provide such information as may be necessary in order to fulfil their obligations under this Agreement. To this end, States shall in accordance with Annex I:
  - (a) collect and exchange scientific, technical and statistical data with respect to fisheries for straddling fish stocks and highly migratory fish stocks;
  - (b) ensure that data are collected in sufficient detail to facilitate effective stock assessment and are provided in a timely manner to fulfil the requirements of subregional or regional fisheries management organizations or arrangements;
  - (c) take appropriate measures to verify the accuracy of such data.

### **Consequence:**

**All States that fish for straddling and highly migratory fish stocks are OBLIGED to provide scientific, technical and statistical data to RFMO/As.**



# The New York Agreement (1995):

## PART VII- REQUIREMENTS OF DEVELOPING STATES

### Article 25- Forms of cooperation with developing States

1. States shall cooperate, either directly or through subregional, regional or global organizations:
  - (a) to enhance the ability of developing States, in particular the least-developed among them and small island developing States, to conserve and manage straddling fish stocks and highly migratory fish stocks and to develop their own fisheries for such stocks;
  - (b) to assist developing States, in particular the least-developed among them and small island developing States, to enable them to participate in high seas fisheries for such stocks, including facilitating access to such fisheries subject to articles 5 and 11; and
  - (c) to facilitate the participation of developing States in subregional and regional fisheries management organizations and arrangements.

## **Other International Instruments adopted by the UN/FAO Committee on Fisheries**

- ✓ **The Code of Conduct for Responsible Fisheries (1995)**
- ✓ **The International plans of action (IPOA)**
  - ⇒ for the conservation and management of sharks
  - ⇒ for reducing the catch of seabirds in longline fisheries
  - ⇒ for the management of fishing capacity
  - ⇒ to prevent, deter and eliminate illegal, unreported and unregulated (IUU) fishing
- ✓ **The FAO Strategy for Improving Information on Status and Trends of Capture Fisheries**
- ✓ **The FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas**

## **Other International Instruments adopted by the UN/FAO Committee on Fisheries**

- ✓ **The International guidelines for the management of deep-sea fisheries in the high seas**
- ✓ **The International guidelines on bycatch management and reduction of discards**
- ✓ **The guidelines for the ecolabelling of fish and fishery products from marine capture fisheries**
- ✓ **The FAO Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing**
- ✓ **The Voluntary Guidelines for Flag State Performance**
- ✓ **The Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication**

# The International Governance System

The word "governance" has faced strong opposition in international fora, It has become a "forbidden" word, because it has not been properly defined...

## UN/ FAO/ COFI- Committee on Fisheries

- ⇒ COFI is a subsidiary body of the FAO Commission on the High Seas established by the FAO Conference at its Thirteenth Session in 1964.
- ⇒ The Committee constitutes the principal inter-governmental forum where major international fisheries and aquaculture problems and issues are discussed and recommendations addressed to governments, regional fisheries organizations, NGOs, fishworkers, FAO and international community periodically on a world-wide basis.

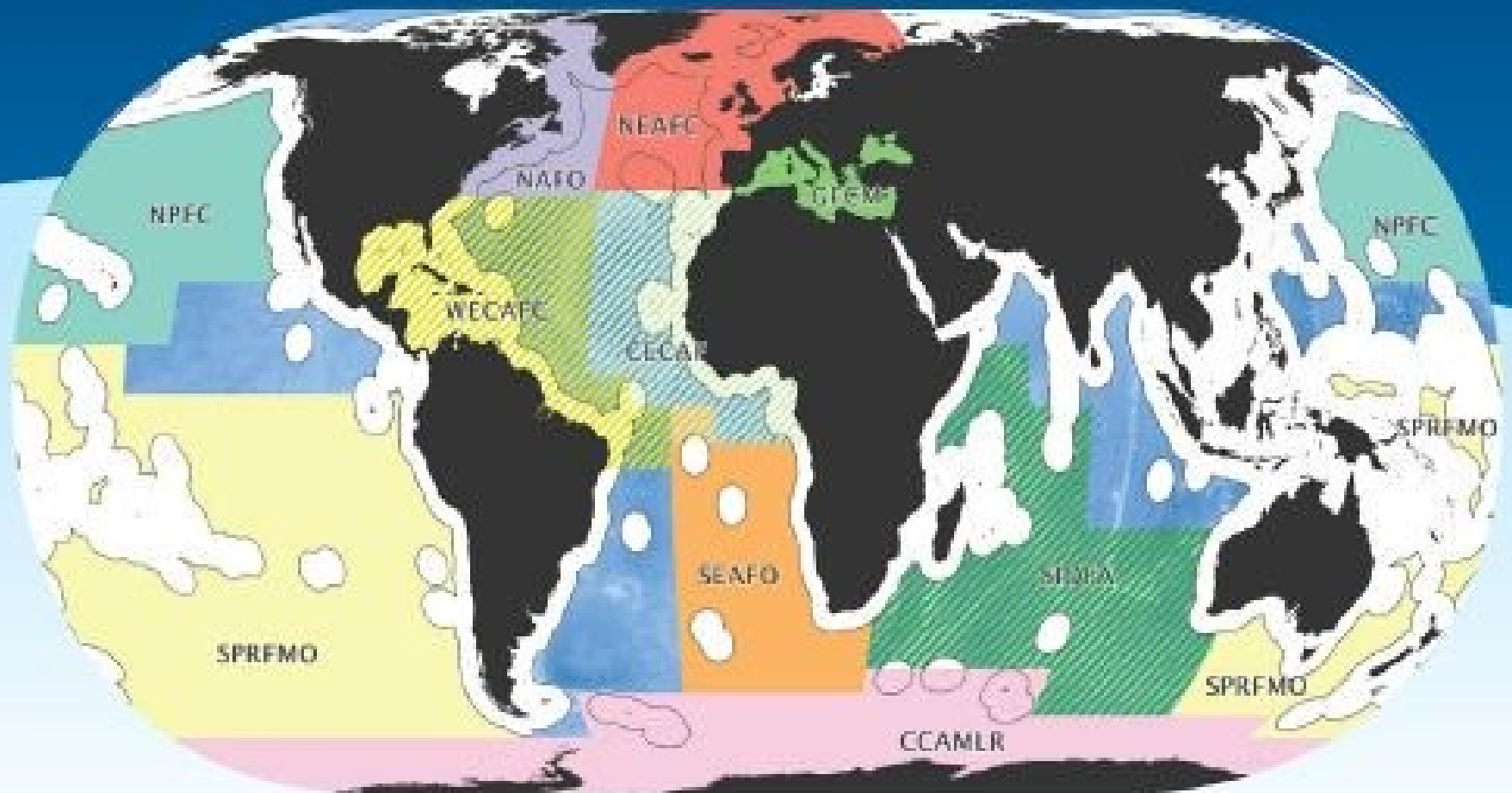
Everything is interconnected: UN x COFI x RFMOs x ...  
Developed States x Developing States

## Regional Fisheries Management Organizations/ Arrangements- RFMO/As

- ⇒ More than 50 !
  - ⇒ 5 of them exclusively dedicated to tuna species
    - ⇒ ICCAT, IATTC, WCPFC, IOTC e CCSBT
  - ⇒ Brazil: ICCAT, CCAMLR (CCSBT ?)

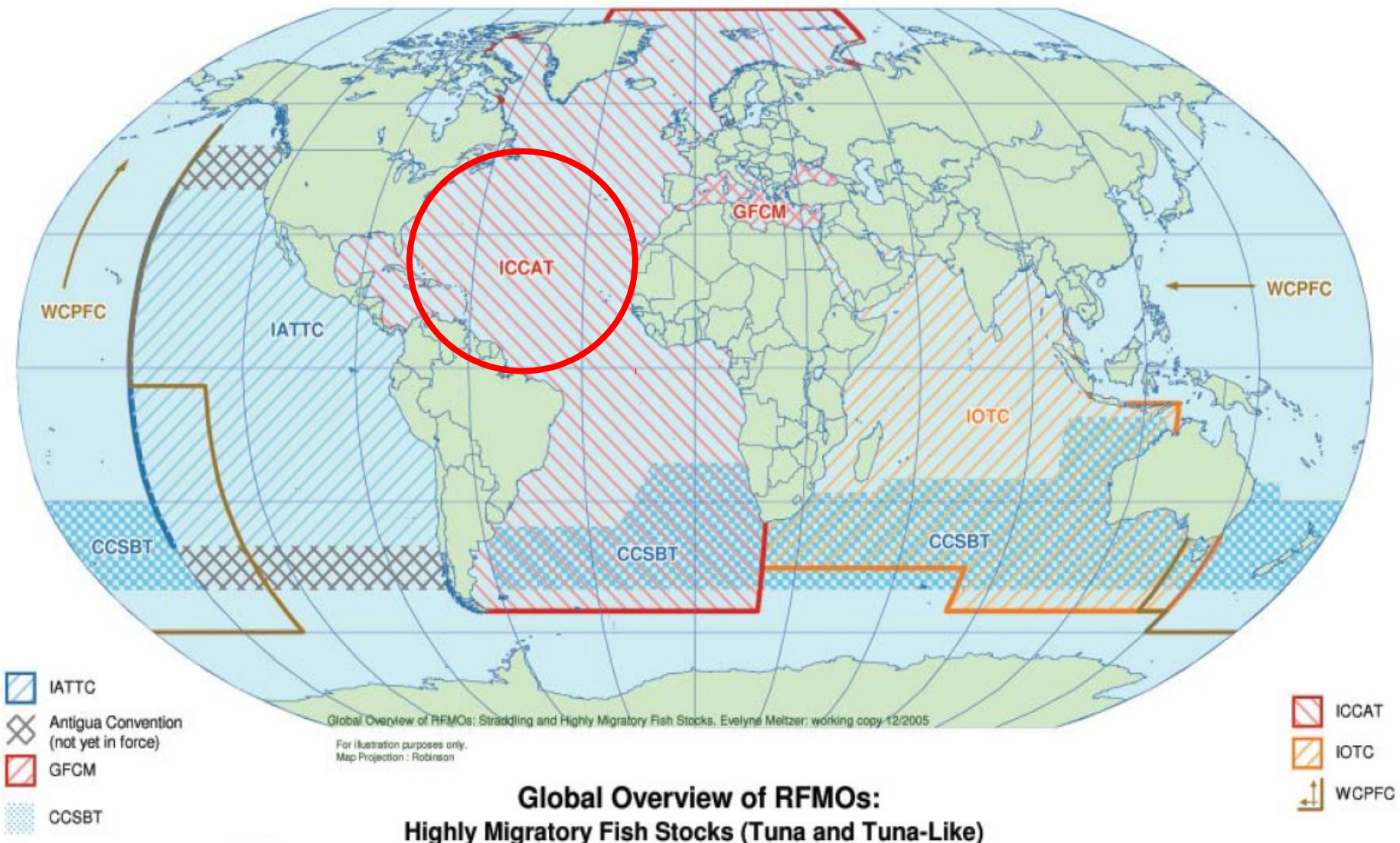
**Today in the World  
there are more than  
50 RFMO/As**

- NAFO**  
Northwest Atlantic Fisheries Organization
- NEAFC**  
North East Atlantic Fisheries Commission
- SEAFO**  
South East Atlantic Fisheries Organisation
- GFCM**  
General Fisheries Commission for the Mediterranean
- SIOFA**  
Southern Indian Ocean Fisheries Agreement
- NPFC**  
North Pacific Fisheries Commission
- SPRFMO**  
South Pacific Regional Fisheries Management Organisation
- CCAMLR**  
Commission for the Conservation of Antarctic Marine Living Resources





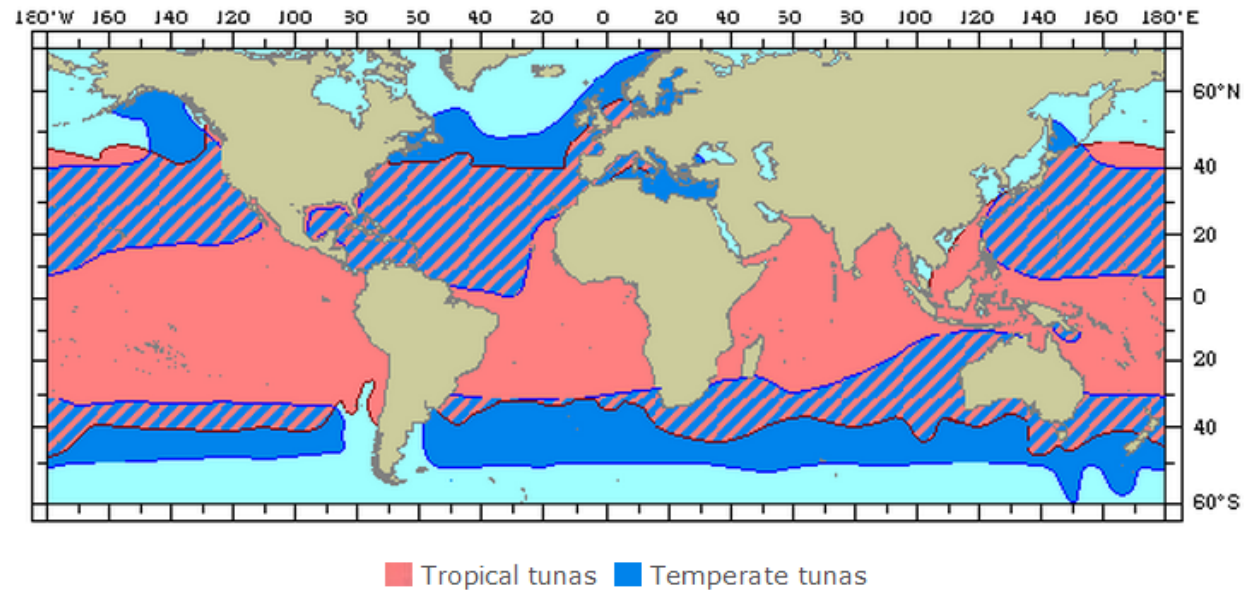
# There are 5 RFMOs exclusively dedicated to the management of tuna fisheries



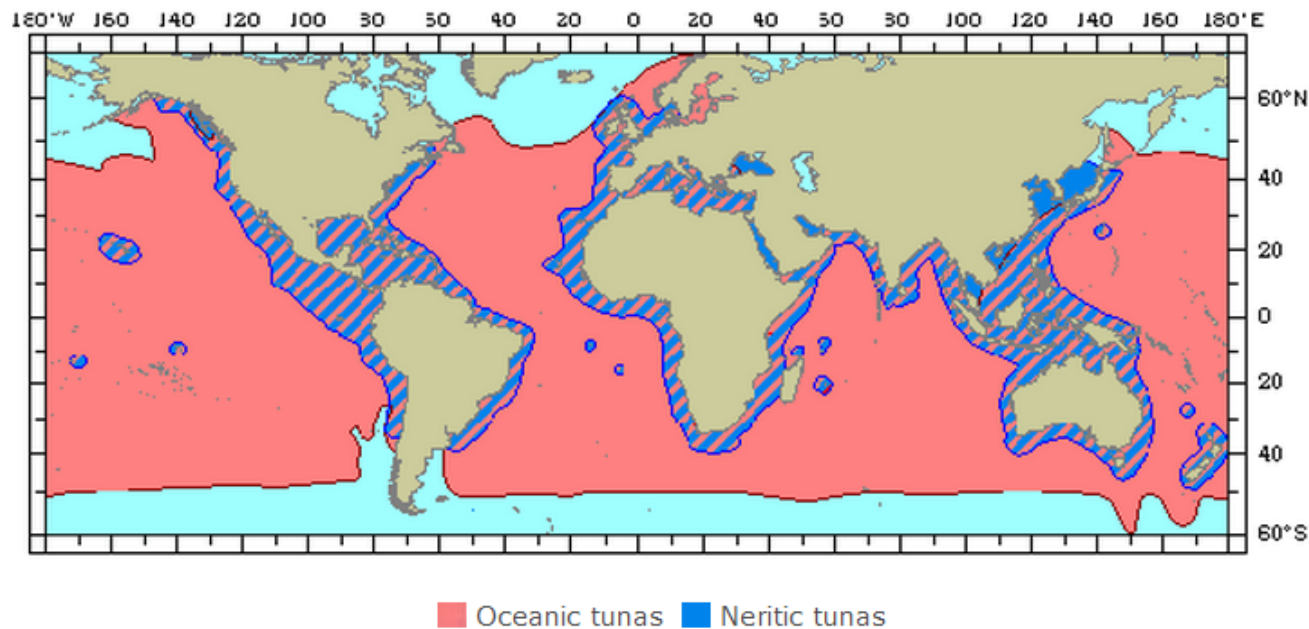
**Most tuna and tuna-like (e.g. swordfish, billfishes, sharks), fish species are cosmopolitan and highly migratory!**

**So, they can only be managed by RFMO/As**

*Tropical and temperate tunas*



*Oceanic and neritic tunas*



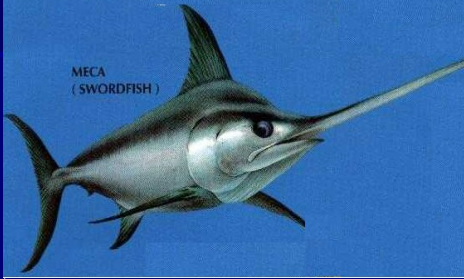


# Main Tuna and Tuna-like Fish Resources

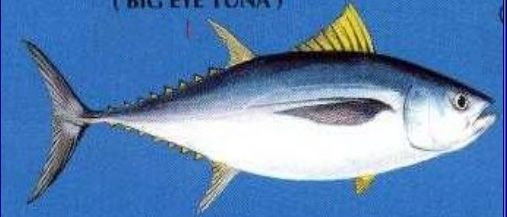
ATUM YELLOW-FIN  
( YELLOW FIN TUNA )



MECA  
( SWORDFISH )



ATUM BIG-EYE  
( BIG EYE TUNA )



ATUM BONITO LISTRADO  
( SKIPJACK TUNA )

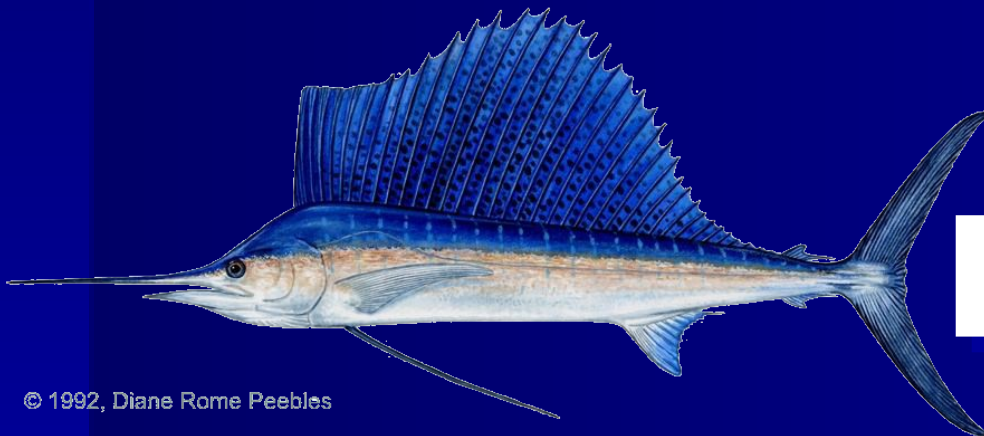
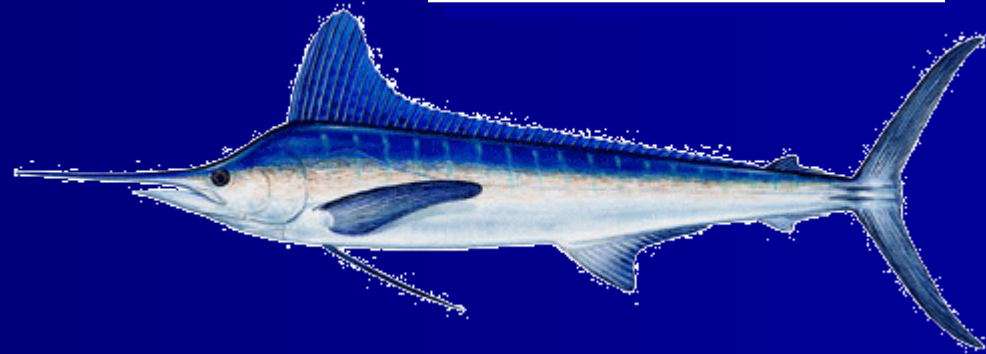


ATUM ALBACORA  
( ALBACORE TUNA )



# Billfishes

## *Bycatch*



# Oceanic Sharks

## *Bycatch*



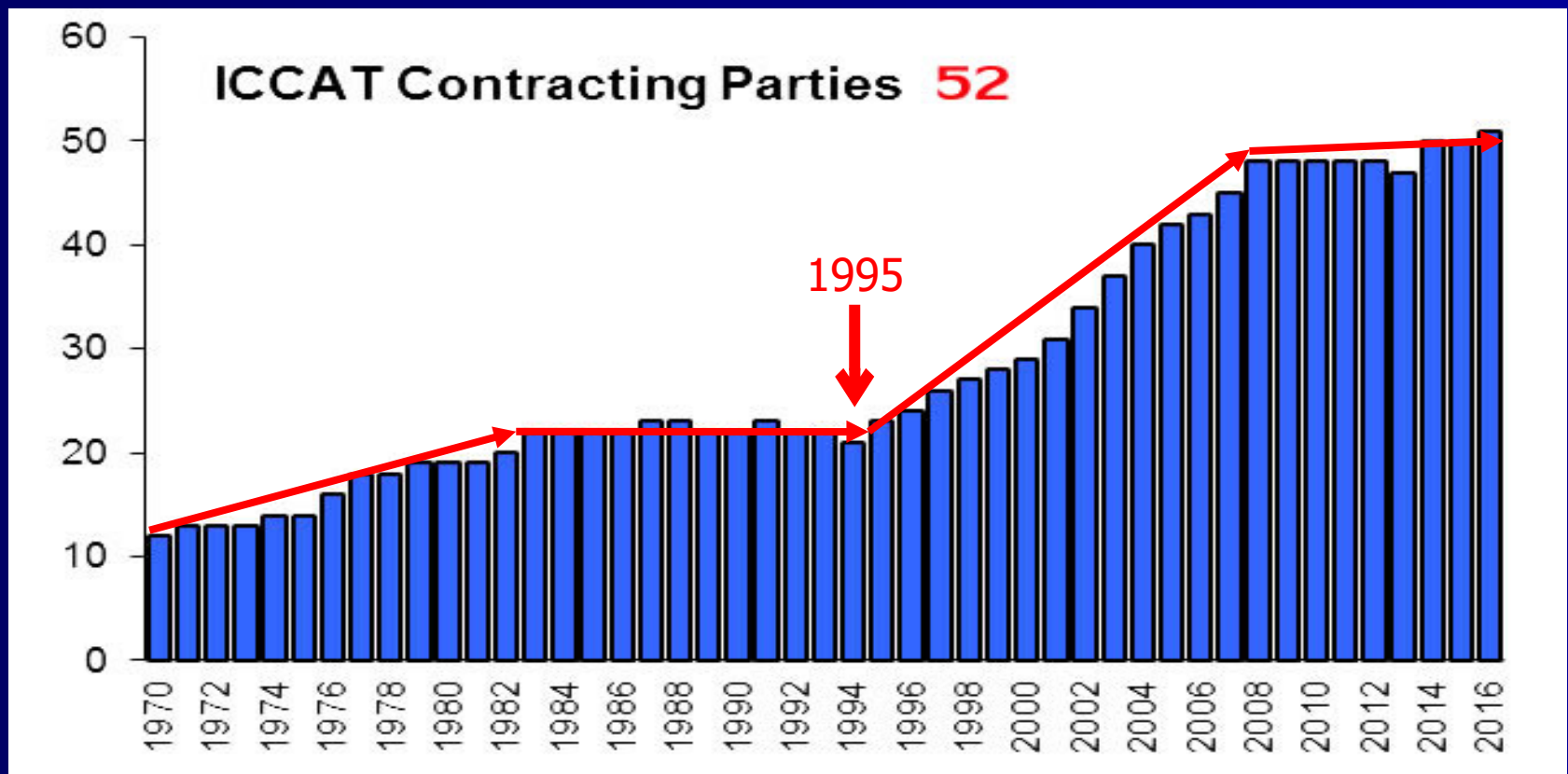
# How RFMOs work? The ICCAT example

## The International Commission for the Conservation of Atlantic Tunas

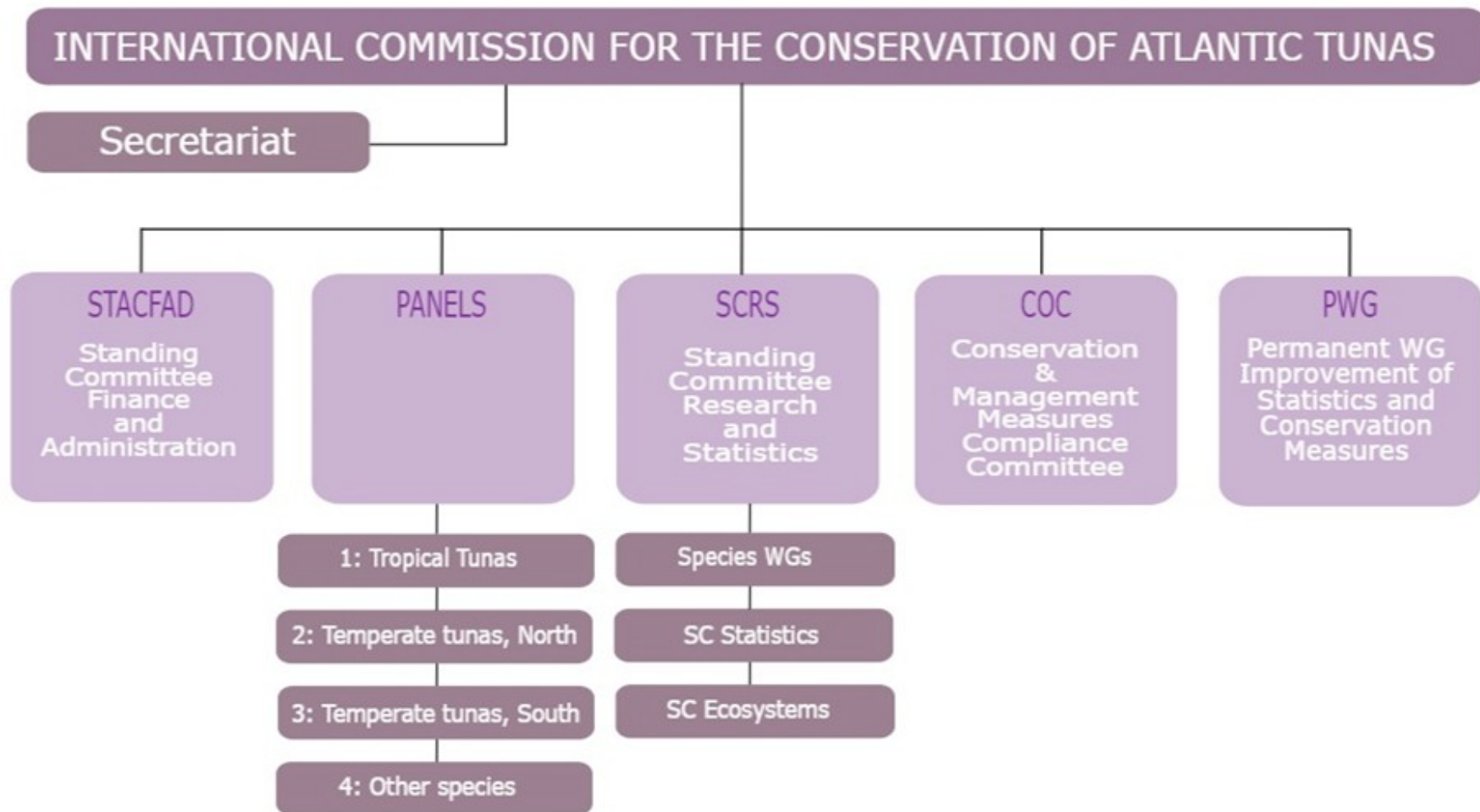
↳ **Founded in 1966, in Rio de Janeiro, by 17 countries:**

África do Sul, Argentina, Brasil, Canadá, Coréia, Cuba, Congo, Espanha, EUA, França, Japão, Portugal, Reino Unido, Senegal, URSS, Uruguai, Venezuela.

↳ **2018: 52 years of ICCAT**



# ICCAT structure:



**Composition: researchers with experience on tunas and tuna fisheries**

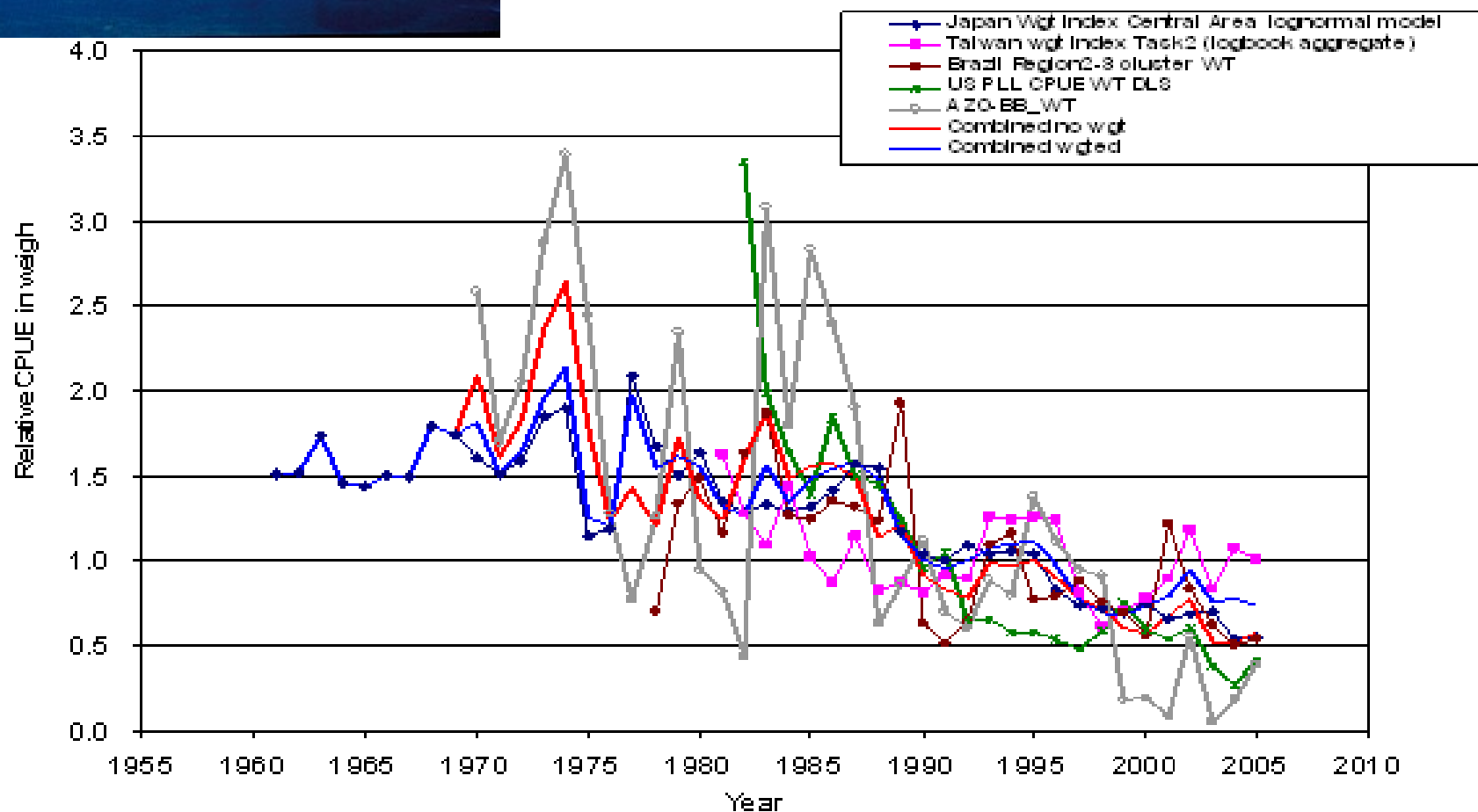
✓ UFRN, UFRPE, UVA, UNIVALI, FURG, Instituto de Pesca, IBAMA, etc





# The example of the bigeye tuna (2007/ 2010/ 2015/ 2018)

Input Wgt factor Base case



## ASPIC

## BSPM

FIT Mode : Estimated Population Trajectory Results for  
C:\FT\ASPIC5\BET2007b\inp  
Relative Biomass and Fishing Mortality



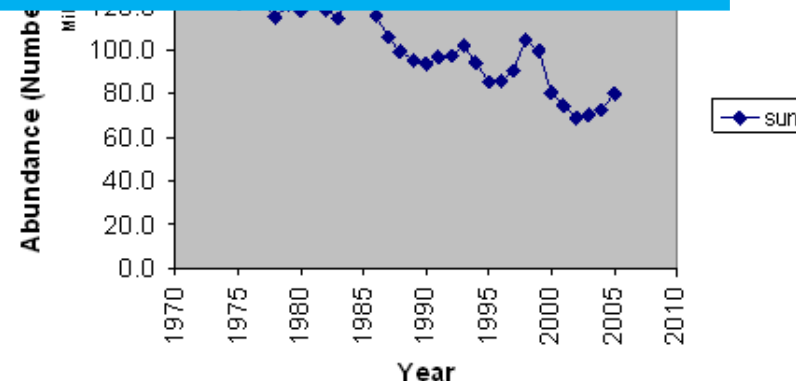
### Management Benchmarks

	Estimate	Std. Dev	CV
K	845772	185696	0.220
r	0.468	0.13	0.276
MSY	93219	5022	0.054
B(2005)	406755	76691	0.189
B(2005)/K	0.487	0.05	0.106
B1950	845057	185713	0.220
B(2005)/B(1950)	0.487	0.05	0.106
C(2005)/MSY	0.764	0.04	0.055
Sigma	0.025	0.01	0.224

## Bigeye tuna stock assessment (2010)

Maximum Sustainable Yield	92,000 t (78,700- 101,600)
Current yield (2010)	76,000 t
Relative biomass (B <sub>2009</sub> /B <sub>MSY</sub> )	1.01 (0.72-1.34)
Relative Fishing Mortality (F <sub>2009</sub> /F <sub>MSY</sub> )	0.95 (0.65-1.55)

RUN	Comment	109.8	0.25	676.8	0.68
1	U				
2	F				
3	Fix M to values derived by IATTC	86.7	0.19	700.8	1.14
4	Ignore tagging data and assume a single region	88.2	0.15	947.2	1.30
5	Initial stock size estimated with M only	98.2	0.15	636.0	1.14
6	Exact catch option (SS2 solution)	117.1	0.24	702.0	0.67
7	Exclude Tag Group 11				
8	Fewer groupings for selectivity and reporting rates; different f weighting	108.7	0.27	617.2	0.67
9	Fix M to same values in VPA, with only one region	40.3	0.22	333.9	1.23
10	Give less weight to Japanese LL effort series; 3 regions	119.6	0.26	637.2	0.62
11	Give less weight to Japanese LL effort series; 1 region	90.8	0.20	660.4	1.02

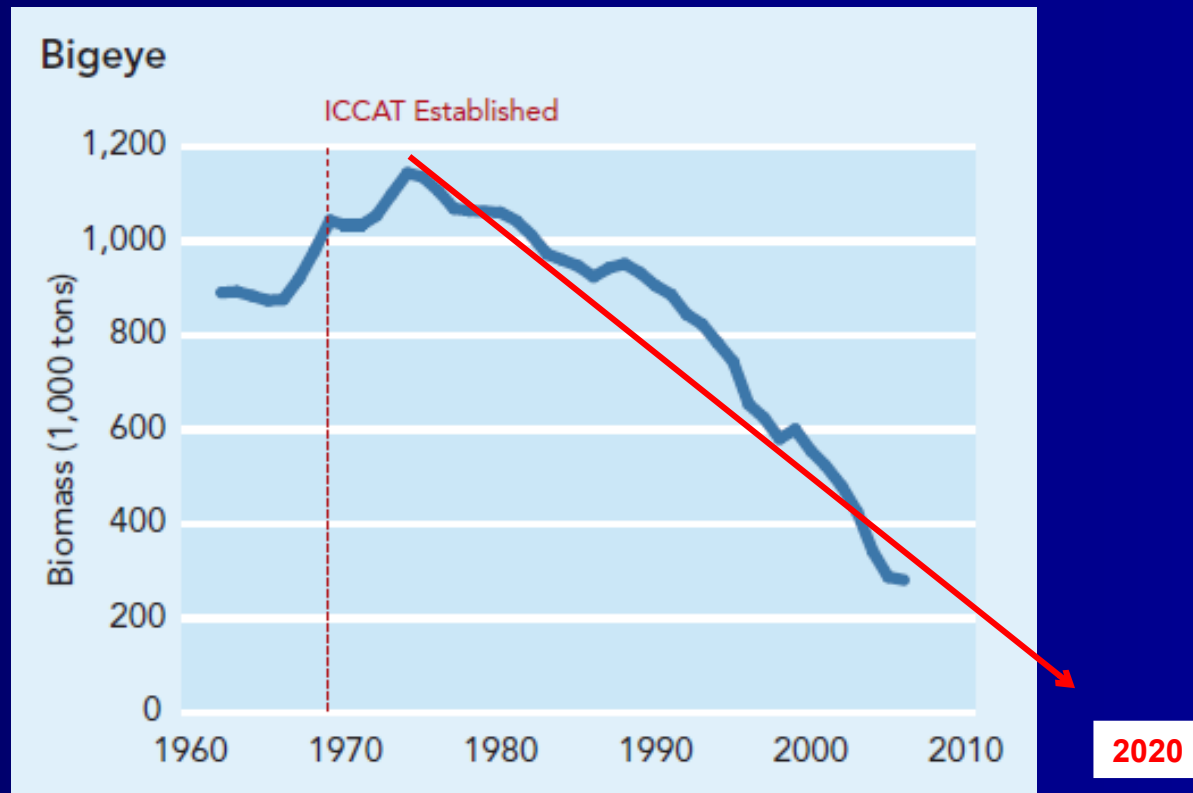




## Reality x Myth

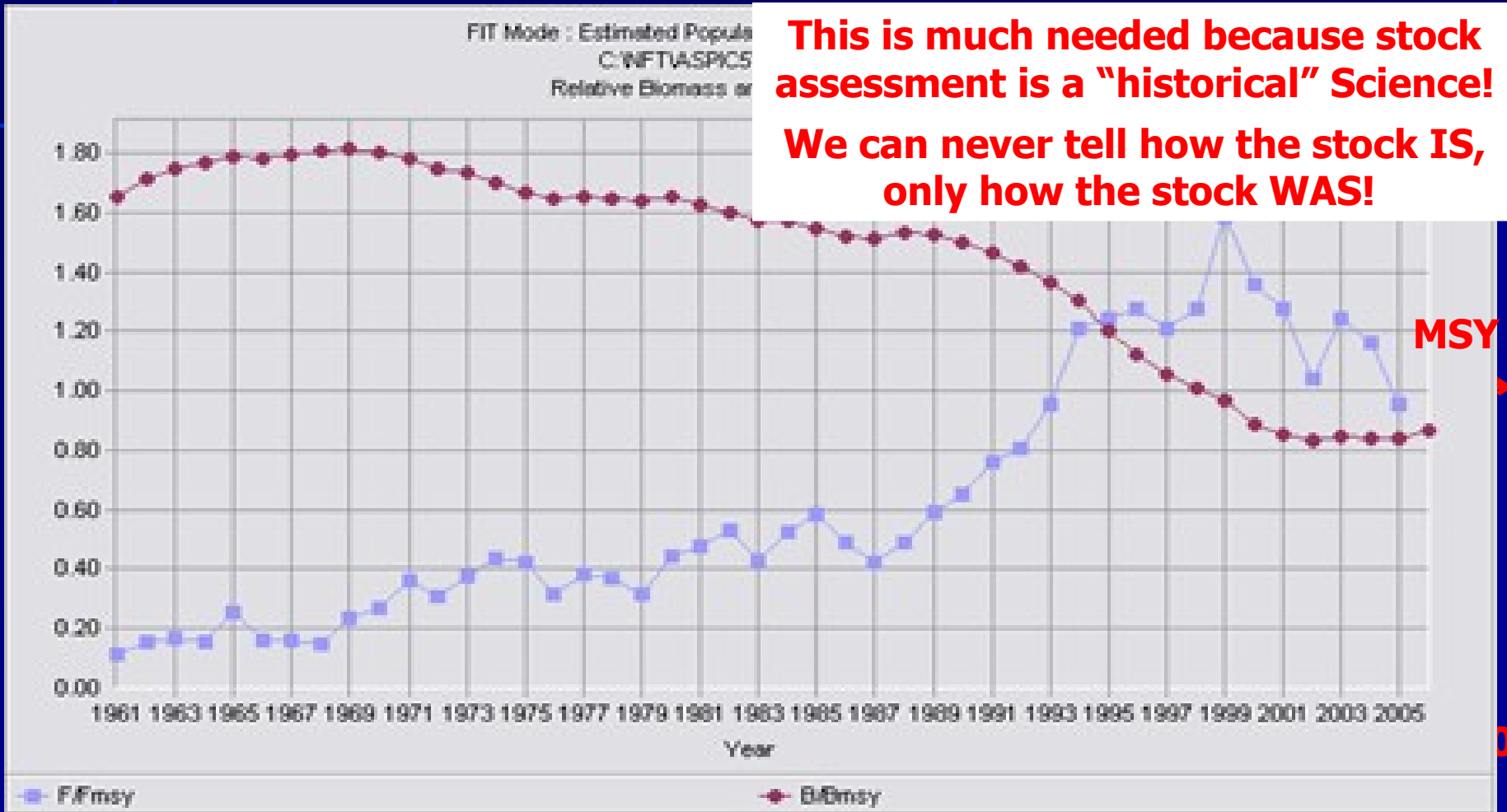
### The case of bigeye tuna, *Thunnus obesus*, in the Atlantic Ocean

Failing the high seas: A global evaluation of regional fisheries management organizations, by S. Cullis-Suzuki, D. Pauly. Marine Policy (2010) Volume: 34, Issue: 5, Pages: 1-141.



**Example of historical biomass evolution for a tuna stock under ICCAT management (bigeye tuna); dashed lines denote year of RFMO establishment, 1969.**

## The example of the bigeye tuna, *Thunnus obesus*, in the Atlantic Ocean



# ICCAT NEW Convention

## Article III bis

The Commission and its Members, in conducting work under the Convention, shall:

- (a) apply the precautionary approach and an ecosystem approach to fisheries management in accordance with relevant internationally agreed standards and, as appropriate, recommended practices and procedures;
- (b) use the best scientific evidence available;
- (c) protect biodiversity in the marine environment;
- (d) ensure fairness and transparency in decision making processes, including with respect to the allocation of fishing possibilities, and other activities; and
- (e) give full recognition to the special requirements of developing Members of the Commission, including the need for their capacity building, in accordance with international law, to implement their obligations under this Convention and to develop their fisheries.

## Article VIII

1. (a) The Commission may, on the basis of scientific evidence, make recommendations designed to :
  - (i) ensure in the Convention area the long-term conservation and sustainable use of ICCAT species by maintaining or restoring the abundance of the stocks of those species at or above levels capable of producing maximum sustainable yield;

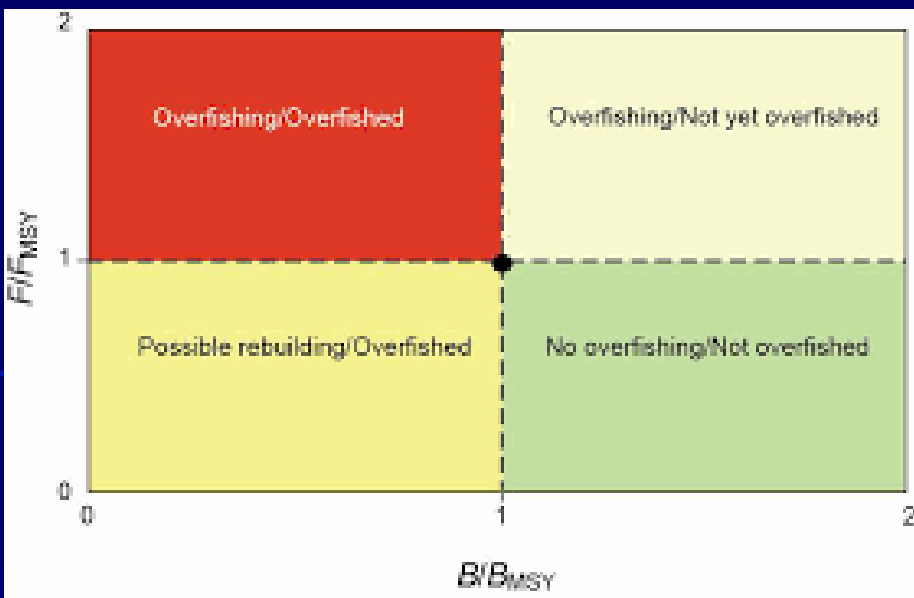
## Stock assessment of bigeye tuna in 2015

### ATLANTIC BIGEYE TUNA SUMMARY

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

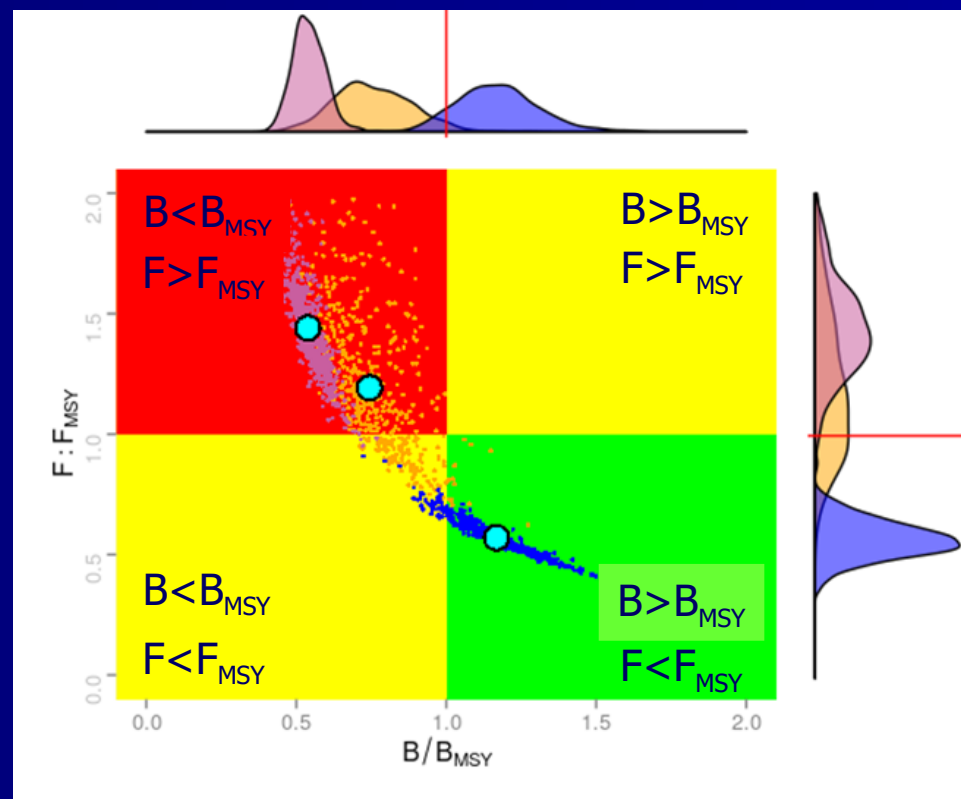
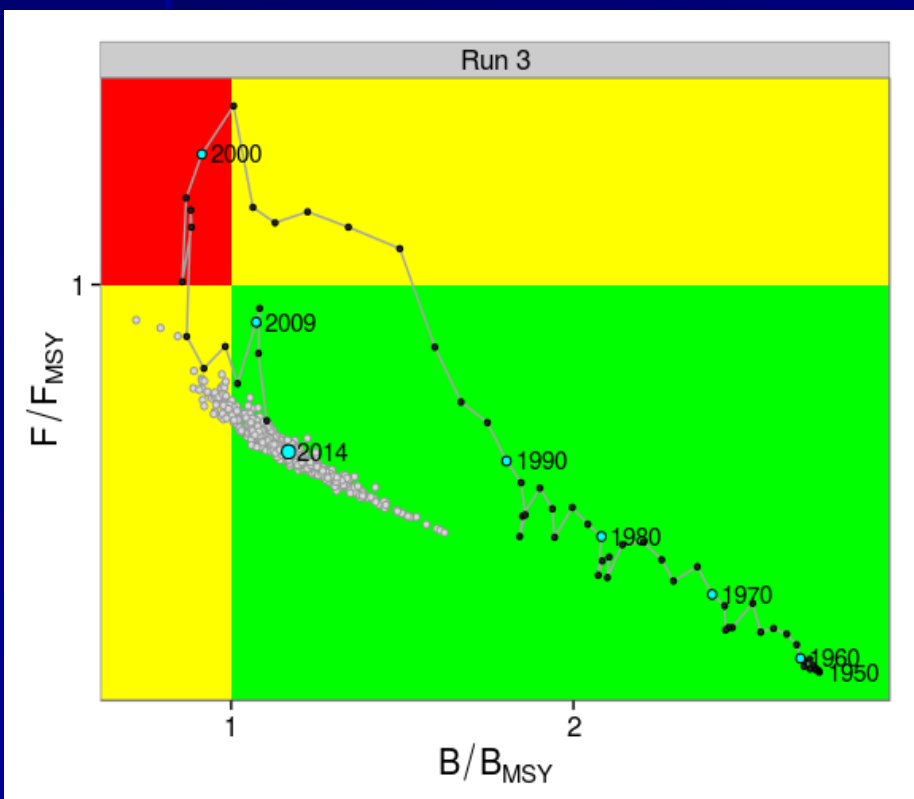
### Bigeye tuna stock assessment (2015)

Maximum Sustainable Yield	78,824 t (67,725- 85,009)
Current yield (2014)	72,505 t
Relative biomass ( $B_{2014}/B_{MSY}$ )	0.67 (0.48-1.20)
Relative Fishing Mortality ( $F_{2014}/F_{RMS}$ )	1.28 (0.62-1.85)



# Kobe Phase Plot

The Kobe phase plot of the of bigeye tuna 2015 stock assessment



## **Management Measures adopted by ICCAT in 2015 for the bigeye tuna:**

### **RECOMMENDATION BY ICCAT ON A MULTI-ANNUAL CONSERVATION AND MANAGEMENT PROGRAM FOR TROPICAL TUNAS**

- ⇒ **Reduction of the TAC from 85.000t to 65.000t**
- ⇒ **Reduction of juvenile catch**

### **RECOMMENDATION BY ICCAT ON THE DEVELOPMENT OF HARVEST CONTROL RULES AND OF MANAGEMENT STRATEGY EVALUATION**

3. As first steps of MSE implementation for a specific stock, the Commission shall provide guidance to the SCRS. Therefore, beginning in 2016 and consistent with priorities to be agreed by the Commission in light of the SCRS work program, the relevant ICCAT Panels will identify the following management inputs on a stock-by-stock basis, for, *inter alia*, northern albacore, bluefin tuna, North Atlantic swordfish, and tropical tunas:
  - a) Management objectives, such as maximizing average catch, minimizing inter-annual fluctuations in TAC levels, returning or maintaining the stock in the green quadrant of the Kobe plot, etc, taking into account the requirements of Rec. [11-13];
  - b) Acceptable quantitative level(s) of probability of achieving and/or maintaining stocks in the green zone of the Kobe plot and avoiding limit reference points; and
  - c) Timeframes for halting overfishing on a stock and/or rebuilding an overfished stock.

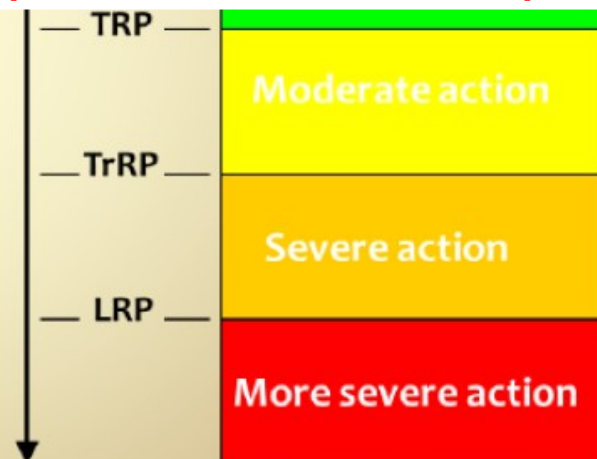
# RECOMMENDATION BY ICCAT ON THE DEVELOPMENT OF HARVEST CONTROL RULES AND OF MANAGEMENT STRATEGY EVALUATION

One of the main challenges in fisheries management is the lack of an efficient communication between Scientists and managers!

In 2013, ICCAT established a Standing Working Group on Dialogue between Fisheries Scientists and Managers (SWGSM) (Recommendation 13-18)!!

manager aims to **achieve and maintain**.

- **Threshold Reference Points (TrRPs)**, which identify a predefined management response.
- **Limit Reference Points (LRPs)**, which describe an undesirable state of the indicator that should be **avoided** with high probability.



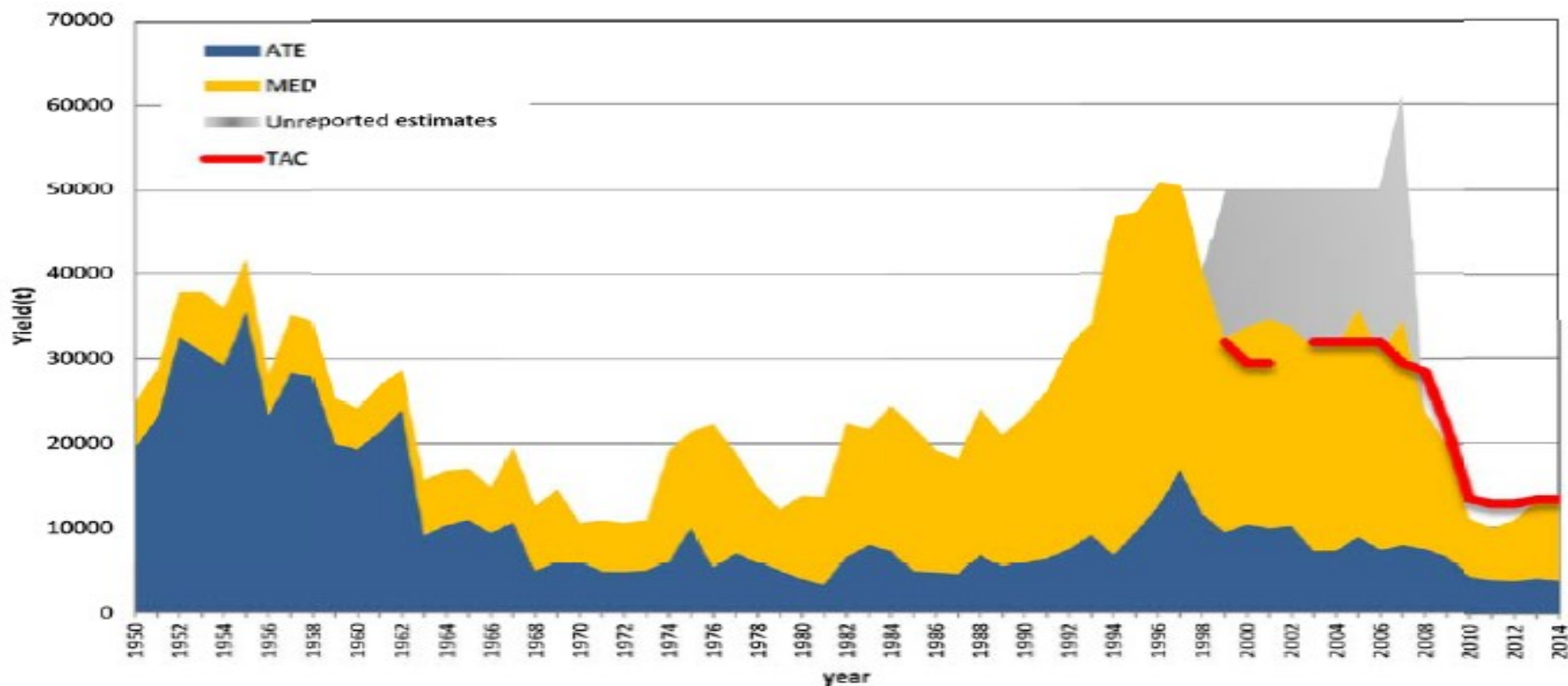


## The bluefin tuna case

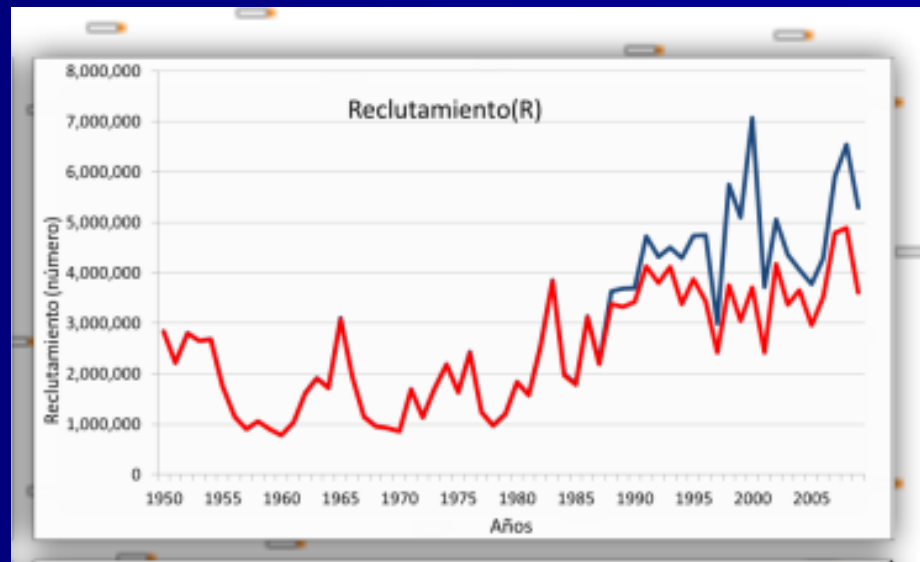
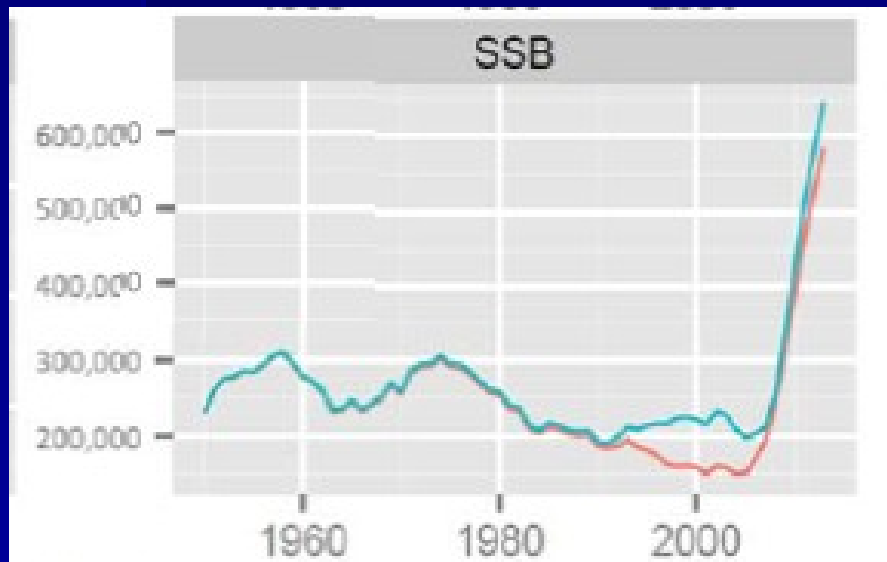
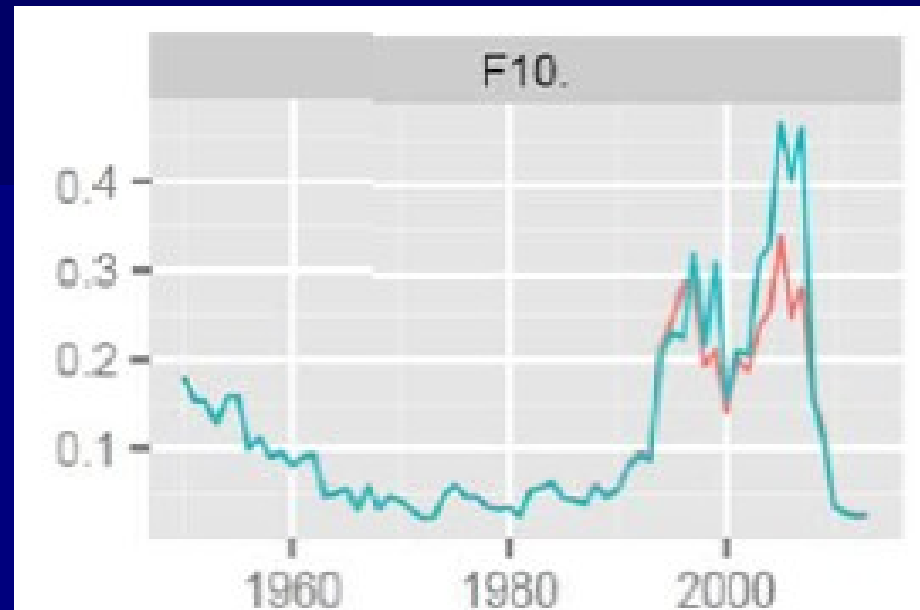
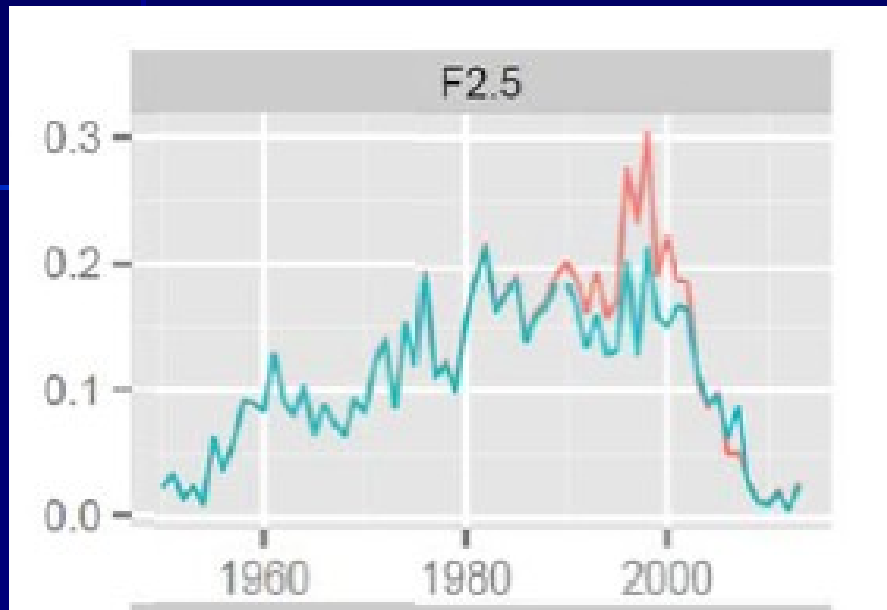
Brazil

Year	Recommended	TAC	Reported	Estimated
2006	15,000	32,000	35,700	50,000
2007	15,000	29,500	34,514	61,000
2008	15,000	28,500	23,929	30,000
2009	15,000	22,000	19,701	18,308
2010	13,500	12,900	11,294	11,294

BFT -East Atlantic stock (Task-I) by region



## The Result



# 2014: Bluefin Tuna Probability that $SSB/SSB_{MSY} > 1$

TAC 2015= 16,142; 2016= 19296; 2017= 23155

TAC	2014	2015	2016	2017	2018	2019	2020	2021	2022
0	63	67	73	80	89	94	98	99	100
2000	63	67	73	80	88	94	97	99	100
4000	63	67	72	79	87	93	97	99	100
6000	63	67	72	79	87	93	97	99	100
8000	63	67	72	79	86	92	96	98	99
10000	63	67	72	78	86	92	96	98	99
12000	63	67	72	78	85	91	95	98	99
13500	63	67	71	77	84	91	94	97	99
14000	63	67	71	77	84	90	94	97	99
15000	63	67	71	77	84	90	94	97	99
16000	63	67	71	77	83	90	94	97	99
18000	63	67	71	76	83	89	93	96	98
20000	63	67	71	76	82	88	93	96	98
22000	63	67	70	76	82	88	92	95	97
24000	63	67	70	75	81	87	91	94	97
26000	63	67	70	75	80	86	90	94	96
28000	63	67	70	75	80	85	89	93	95
30000	63	67	70	74	79	85	89	92	95

# Ecosystem approach to fisheries: bycatch- Sharks

Until 2007:

- ✓ Prohibition of finning (2004; Rec. 04-10)

From 2007 to 2011 (under Brazilian chairmanship):

- ✓ Prohibition of boarding, maintaining on board and selling of the **thresher shark (*Alopias superciliosus*)** (2009; Rec. 09-07);
- ✓ Prohibition of boarding, maintaining on board and selling of the **mako shark (*Isurus oxyrinchus*)**, for countries that do not provide catch and effort data: stock assessment (2010; Rec. 10-06);
- ✓ Prohibition of boarding, maintaining on board and selling of the **oceanic whitetip shark (*Carcharhinus longimanus*)** (2010; Rec. 10-07);
- ✓ Prohibition of boarding, maintaining on board and selling of the **hammerhead shark (*Sphyrna* spp., exceto *S. tiburo*)** (2010; Rec. 10-08) (except for local consumption in developing countries + prohibition of international trade);
- ✓ Prohibition of boarding, maintaining on board and selling of the **silky shark (*Carcharhinus falciformis*)** (2011; Rec. 11-08) (except for local consumption in developing countries + prohibition of international trade));

## **Ecosystem approach to fisheries: bycatch- Seabirds**

**Up to 2007:**

**✓ Nothing**

**From 2007 to 2011:**

**✓ Mandatory use of tori-lines or night setting, to the south of 20°S (90% of incidental catches) (2007; Rec. 07-07);**

**✓ Mandatory use of, at least, two simultaneous mitigation measures (tori-lines + night setting + secondary line weighting), ao sul de 25°S (2011; Rec. 11-09);**

## **Ecosystem approach to fisheries: bycatch- Sea Turtles**

**Up to 2007:**

**✓ Nothing**

**From 2007 to 2011:**

**✓ Mandatory use of equipment for hook removal and mandatory submission of catch data (2010; Rec. 10-09);**

**There has been a considerable improvement in ICCAT performance, since 2007!**

**To a great extent, that was possible because of the independent performance reviews carried out by the Commission, in 2008 and in 2017 !!**

# **Regional Fisheries Management Organizations (RFMOs)**

## **Performance Reviews: a brief history**

### **International events that motivated and shaped RFMOs Performance Review:**

- ✓ **June 2004: The North Atlantic Salmon Conservation Organization (NASCO)** establishes the Working Group on the Next Steps for NASCO, with the aim of further developing and strengthening the Organization
  - ↳ the first Performance Review of all RFMOs
    - ↳ No predefined criteria
    - ↳ WG Meetings (2) + Stakeholder Consultation Meetings (2)
- ✓ **March 2005: FAO/ COFI- Twenty-sixth Session**
  - ↳ Agreed that it could extend an invitation to RFMO members and other interested parties encouraging them to participate in the development of parameters for the assessment of the performances of RFMO
- ✓ **May 2005: The St. John's Conference on the Governance of High Seas Fisheries**
- ✓ **June 2005: Fourth Round of Informal Consultations of States Parties to the Agreement**
- ✓ **July 2005: the Sixth Meeting of the UN Open-ended Informal Consultative Process on Oceans and the Law of the Sea**
- ✓ **Nov. 2005: UNGA Resolution 60/31**
  - ↳ *Encourages* States, through their participation in RFMO/As, to initiate processes for their performance review, and welcomes the work of FAO in the development of general objective criteria

# **Regional Fisheries Management Organizations (RFMOs)**

## **Performance Reviews: a brief history**

### **International events that motivated and shaped RFMOs Performance Review:**

- ✓ **March 2006: The North East Atlantic Fisheries Commission (NEAFC) approves the Terms of Reference of its Performance Review**
  - ↳ **Clear set of Criteria**
  - ↳ **Internal (3) + External (3) Members**
- ✓ **March 2006: Fifth Round of Informal Consultations of States Parties to the Agreement**
- ✓ **March 2006: The Ministerially-led Task Force on IUU Fishing on the High Seas Releases its Final Report, “Closing the Net”, where it encourages the launch of an independent review and evaluation process for RFMOs**
- ✓ **May 2006: Review Conference on the Agreement**
- ✓ **July 2006: the Seventh Meeting of the UN Open-ended Informal Consultative Process on Oceans and the Law of the Sea**
- ✓ **Dec. 2006: UNGA Resolution 61/105**
  - ↳ **Urges States, through their participation in RFMO/As, to undertake, on an urgent basis, performance reviews of those regional fisheries management organizations and arrangements, using transparent criteria based on the provisions of the Agreement and other relevant instruments, including the best practices of regional fisheries management organizations or arrangements.**



# **Regional Fisheries Management Organizations (RFMOs)**

## **Performance Reviews: a brief history**

### **International events that motivated and shaped RFMOs Performance Review:**

- ✓ **Jan. 2007: First Joint Meeting of Tuna RFMOs, in Kobe (+ 2009, 2011)**
  - ✦ It was agreed that the five tuna RFMOs should have their performance reviewed, in accordance with a common methodology, based on common criteria, to the extent possible.
- ✓ **March 2007: FAO/ COFI- Twenty-seventh Session**
  - ✦ Agenda: Strengthening Regional Fishery Management Organizations (RFMOs) and their performances including the outcome of the 2007 Tuna RFMOs Meeting
  - ✦ Chatham House/ HSTF presents: Recommended Best Practices for Regional Fisheries Management Organizations/ HSTF
- ✓ **May 2007: Sixth Round of Informal Consultations of States Parties to the Agreement**
  - ✦ Non-paper: Recommended Minimum Criteria for Reviewing the Performance of Regional Fisheries Management Organizations

**International discussions that motivated and shaped the RFMOs Performance Review Process extended for 3 years:**

[	From March 2004, with NASCO WG on the Next Steps
	To May 2007, with the adoption of the minimum criteria

**From 2004 to 2007: NASCO and NEAFC**

**After 2007: CCSBT, IOTC, CCAMLR, ICCAT, GFCM, SEAFO, NPAFC, NAFO, SWIOFC, CECAF, WCPFC, and others to come (presently, about 40 RFMO/A & RFB)**

# Present situation of the main fish stocks managed by ICCAT (2016), according to its SCRS

	TAC	Current	MSY	B/P	E/E
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## In conclusion 1:

Despite the complexity and difficulties to reconcile the different and often times divergent interests of more than 50 countries, coastal and distant-water, developing and developed, ICCAT has successfully managed to keep the fish stocks under its mandate at sustainable levels!

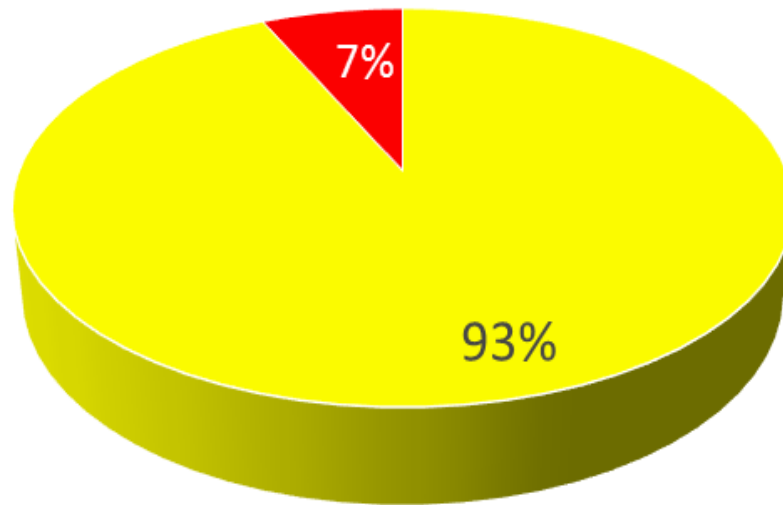
Bonito listrado W ( <i>Katsuwonus pelamis</i> )	-	20 000	31 000	1.20	0.70
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## In conclusion 2:

Developed states as well as RFMO/As, with variable degrees of success, have been able to improve the situation of the stocks under their purview in recent years/ decades. So, the main problems related to the sustainability of fisheries in the world today are, and will be ever more, restricted to developing states, which do not have the means to control their fisheries!

# The risk of international certification systems

**Guess WHO is getting a better access to markets and better prices for their seafood products?**



- Developed countries
- Developing countries

## The allocation of fishing possibilities (quotas)

## Or HOW the game is played...

## Up to 1998 the historical catch criterion reigned...

## How to build up a fishing fleet ? How to develop fishing capacity ?

**1) Need to solve the old chicken and egg problem !**

**Or, what about THE OLD CHICKEN AND EGG PROBLEM ...**

ota?

➡ Developing Coastal States need to be able to get a fishing quota which is sufficient to develop and sustain an economically viable fishing effort

## Minimum threshold

↗ Lack of fishing capacity ⇒ lack of negotiation capacity (x RBFM)

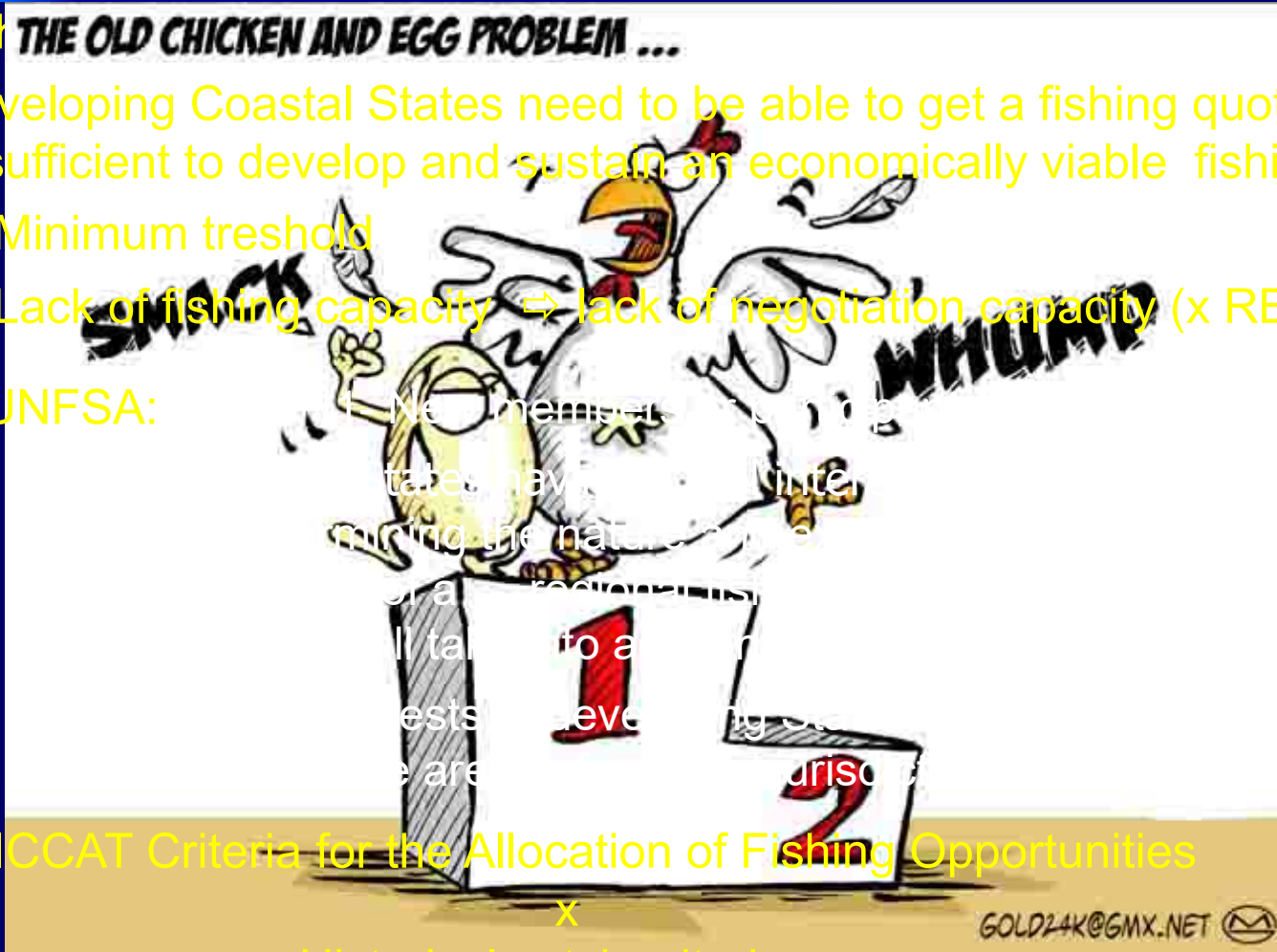
## UNFSA:

concerned)  
rights for new  
ization, ...,

in or region  
to occur.

## 🏠 ICCAT Criteria for the Allocation of Fishing Opportunities

## Historical catch criterion



# **The allocation of fishing possibilities (quotas) Or HOW the game is played...**

## **15-13. RESOLUTION BY ICCAT ON CRITERIA FOR THE ALLOCATION OF FISHING POSSIBILITIES (27 new criteria)**

### **I. Qualifying Criteria**

### **II. Stocks to Which the Criteria Would be Applied**

### **III. Allocation Criteria**

***A. Criteria Relating to Past/Present Fishing Activity of Qualifying Participants***

***B. Criteria Relating the Status of the Stock(s) to the Allocated and the Fisheries***

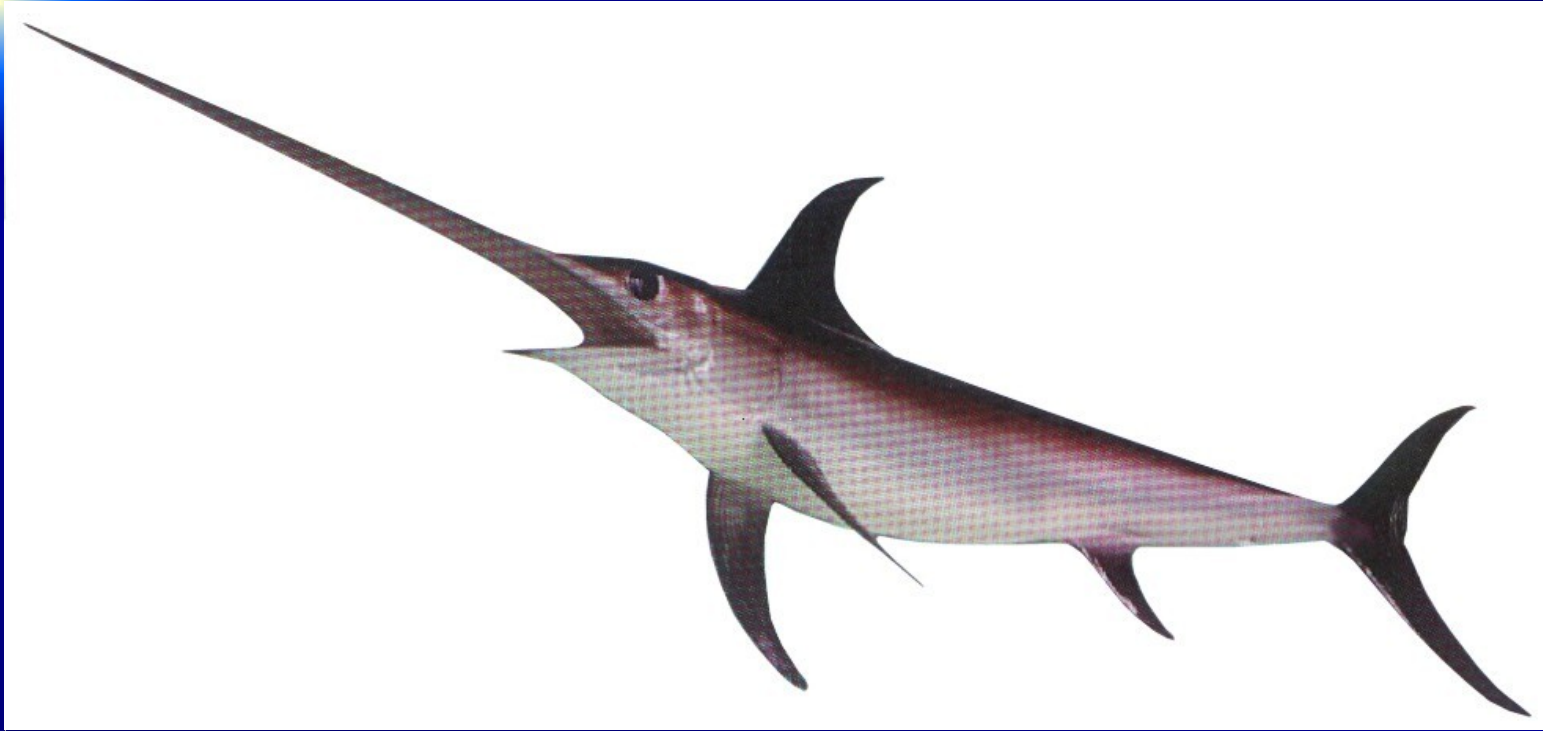
***C. Criteria Relating to the Status of the Qualifying Participants***

***D. Criteria Relating to Compliance/Data Submission/Scientific Research by Qualifying Participants***

### **IV. Conditions for Applying Allocation Criteria**

# The allocation of fishing possibilities (quotas)

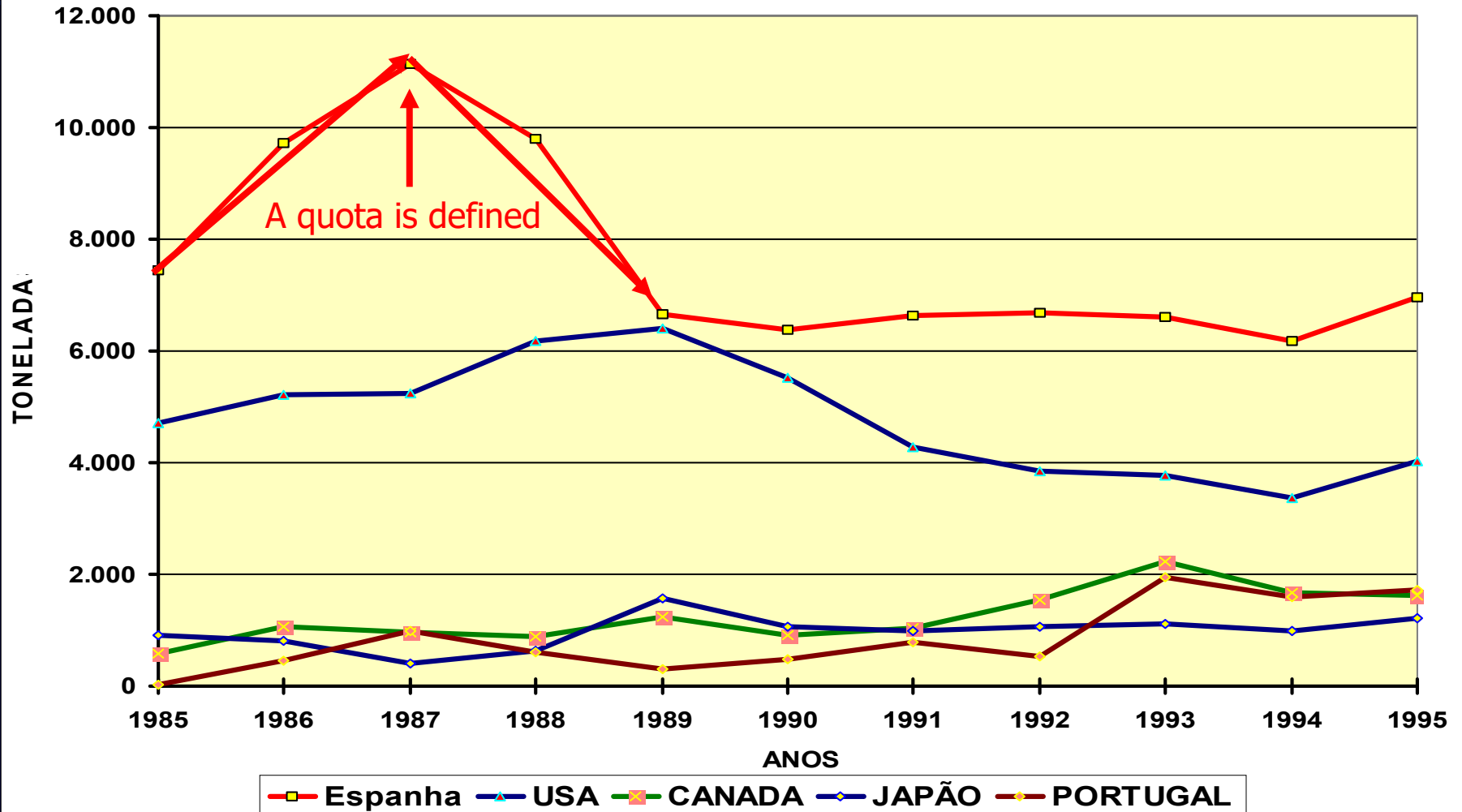
## Theory x Reality



## The South Atlantic Swordfish Case

# The evolution of SWO landings by countries In the North Atlantic, from 1985 to 1995

## DESEMBARQUE PEIXE ESPADA - ATLÂNICO NORTE PRINCIPAIS PAISES





# The evolution of SWO landings by countries In the South Atlantic, from 1985 to 1995

## DESEMBARQUE PEIXE ESPADA - ATLÂNTICO SUL PRINCIPAIS PAISES



Quota brasileira negociada em 1997 = 2.340 t  
Quota brasileira negociada em 2002 = 4.086 t  
Quota brasileira negociada em 2006 = 4.720 t

## Result: Retaliation from Spain/ 2002: Suspension of chartering

“ As razões para impedir (o arrendamento) são sólidas e se fundamentam na melhor defesa do patrimônio espanhol gerado pelos direitos históricos na pesca do espadarte e outras espécies reguladas pela ICCAT ”

Ass.: Samuel J. Casado  
Secretário Geral de Pesca Marítima

2004: Technical trade barriers for imported swordfish (Rec. 02-21 e 02-22)

Produção nacional: 2001= 4.082 t/ em 2003  $\approx$  3.000 t

## Valor Econômico

Sábado, 23 setembro de 2006

### **UE BARRA PRODUTOS DE PESCA DO BRASIL**

**Para europeus, condições fitossanitárias do País são inadequadas; medida atinge principalmente atum do Nordeste**

A União Europeia (UE) estabeleceu novas barreiras para a exportação brasileira. Desta vez, o setor atingido é o da pesca. Ontem, em Bruxelas, os veterinários europeus decidiram exigir novos testes dos produtos nacionais diante das condições fitossanitárias consideradas inadequadas. Além disso, cinco estabelecimentos nacionais foram excluídos da lista de exportadores brasileiros autorizados a vender para a Europa, também por motivos de saúde animal.

# 2018: the bigeye tuna and yellowfin tuna crisis

In 2015, after the dismantling of the Ministry of Fisheries and Aquaculture, the problems faced by Brazilian fisheries statistics were aggravated !

In June, 2017, the Scientific Subcommittee (SSC) presented its collective resignation!

Faced with the risk of being prohibited to fish for tunas in the Atlantic Ocean (Rec. 11-15), the new Secretary commits to reestablish the SCC and to provide the data

In March 31st, 2018, Brazil submit its 5-year catch data to ICCAT !

National production of bigeye tuna catch: 2010= 1.173 t  $\Rightarrow$  2017= 7,694

National production of yellowfin tuna catch: 2010= 3.677 t  $\Rightarrow$  2017= 18,362 t

## União Europeia suspende importação de pescado do Brasil

17/05/2018 - 16h26min

País exporta cerca de U\$ 270 milhões em peixes por ano. Desse total, aproximadamente US\$ 40 milhões são enviados ao bloco europeu. A **União Europeia** (UE) suspendeu, nesta quinta-feira (17), a importação de pescados brasileiros. Por meio de um comunicado, o bloco comunicou ao **Ministério da Agricultura** que está "deslistando todos os estabelecimentos pesqueiros e navios brasileiros que ainda são elegíveis para exportar produtos de pesca para a UE".

## RECENT DEVELOPMENT

BBNJ: INTERGOVERNMENTAL CONFERENCE ON AN INTERNATIONAL LEGALLY BINDING INSTRUMENT UNDER THE UNITED NATIONS CONVENTION ON THE LAW OF THE SEA ON THE CONSERVATION AND SUSTAINABLE USE OF MARINE BIOLOGICAL DIVERSITY OF AREAS BEYOND NATIONAL JURISDICTION

2015- UNGA: Resolution 69/292, establishing the PrepCom to prepare substantive recommendations on the elements of a draft text of an ILBI. The PrepCom

RFMOS should be strengthened, not weakened... before the end of its 72nd session (i.e. September 2018), decide on the convening and on the starting date of an intergovernmental conference to consider the

They are far from perfect, but they are the best chance we have to ensure the sustainability of the fisheries for the shared highly migratory species...

“A new ILBI should not undermine existing relevant legal instruments and frameworks and relevant global, regional and sectoral bodies”

“Democracy is the worst form of Government, except for all those other forms that have been tried from time to time....

Winston Churchill

November 11, 1947

IISD: To date, the process has been dominated by a small number of states, with the lack of consensus and half-hearted support from many significant stakeholders.

the PrepCom is still in the early stages of its work, with the lack of consensus and half-hearted support from many significant stakeholders.

question should be “now, rather than “if,” the new treaty will address fisheries, considering the countless appeals to complement, and not undermine, existing regional management frameworks.

**Muito Obrigado !**  
**Thank You!**