

Exploratory Note on JAPANESE PBF PROPOSAL



**INTER-AMERICAN TROPICAL TUNA COMMISSION
87TH MEETING (RESUMED)
La Jolla, California (USA)
27-29 October 2014**

Migration Pattern of PBF

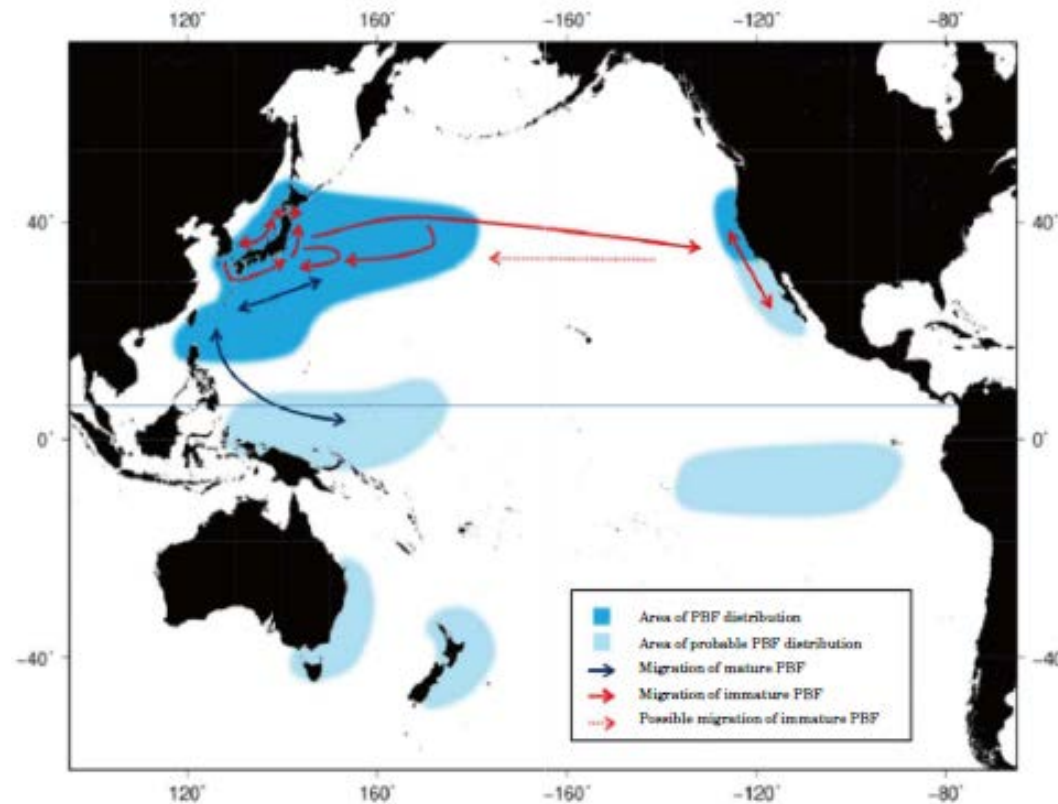
Age 0-1: WCPO

Age 1-2: Partly migrate to EPO
and stay several years

Age 4 - : Return to WCPO



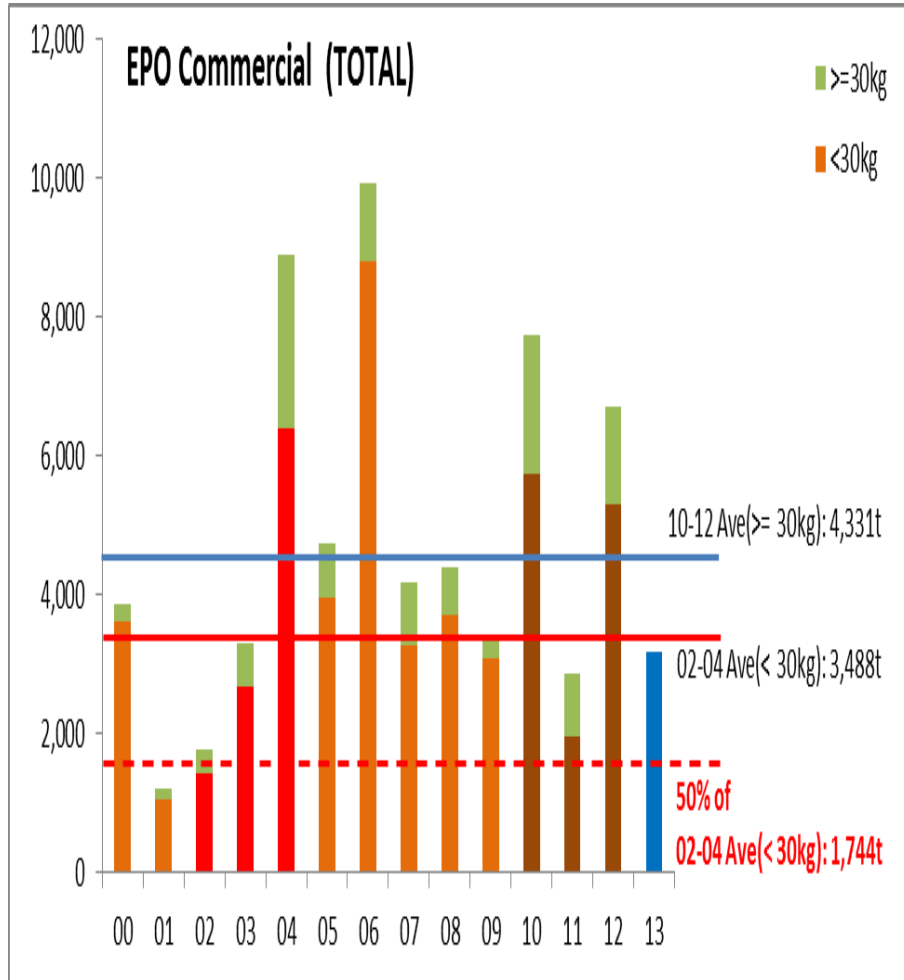
For effective conservation of PBF, **equivalent measure** should be adopted both in IATTC and WCPFC



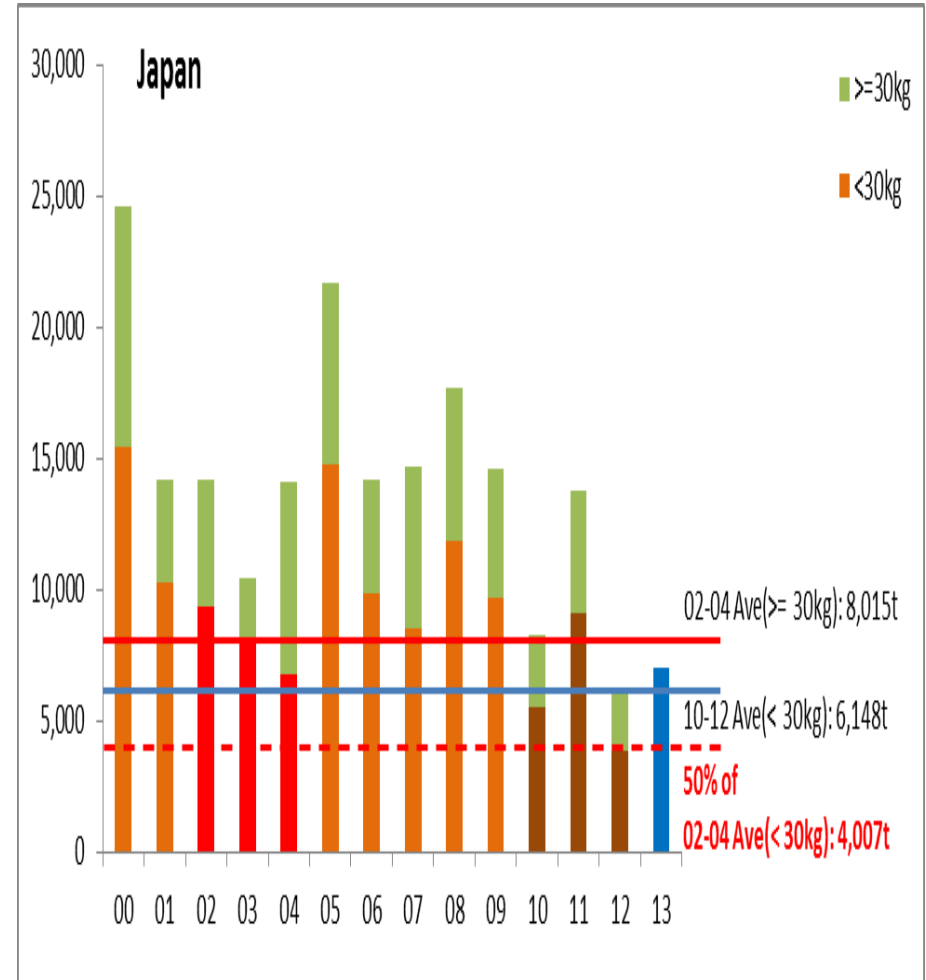
Fishing Pattern and Existing Management Scheme in WCPO & EPO (as of 2013)

Age	Weight	Maturity		Catch		Existing Measure		Catch Volume(mt) (Ave.2002-2004)	
		WCPO	EOP	WCPO	EPO	WCPO	EPO	WCPO	EPO
0				○		Catch Limit	Catch Limit	9,450	3,771
1				○	○				
2	<30kg	0%	0%	○	○				
3	>30kg	20%	0%	○	○		Catch Limit		
4		50%	0%	○	○				1,252
5		100%	0%	○	○				
6		100%		○			Effort Limit	6,591	
7		100%		○					
8		100%		○					
9		100%		○					
10		100%		○					
~		100%		○					
21		100%		○					

Catch Trends in EPO/WCPO

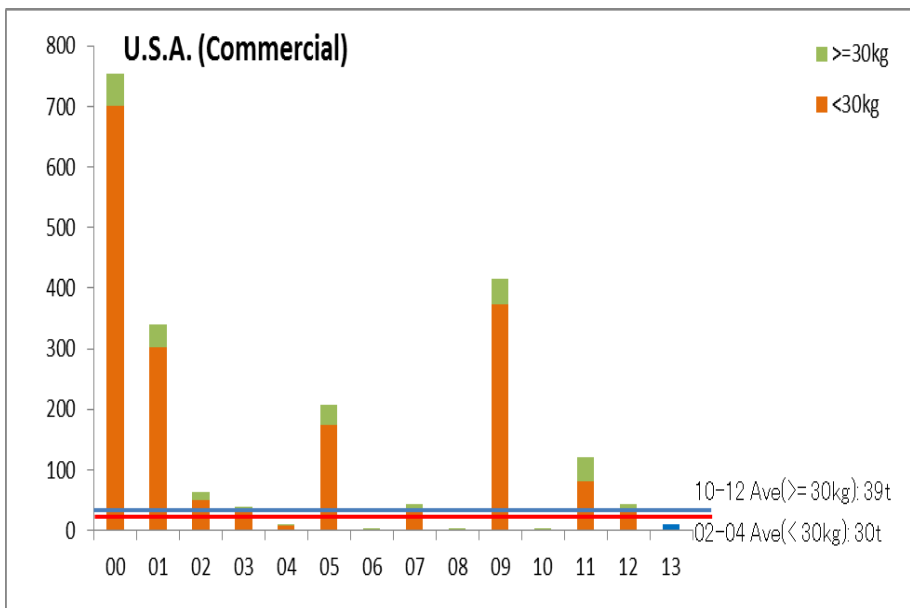
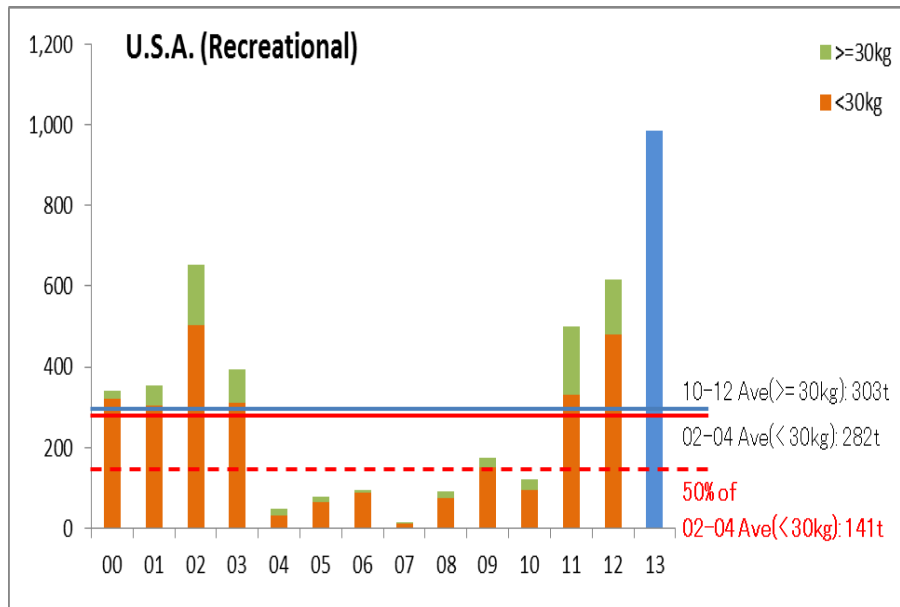
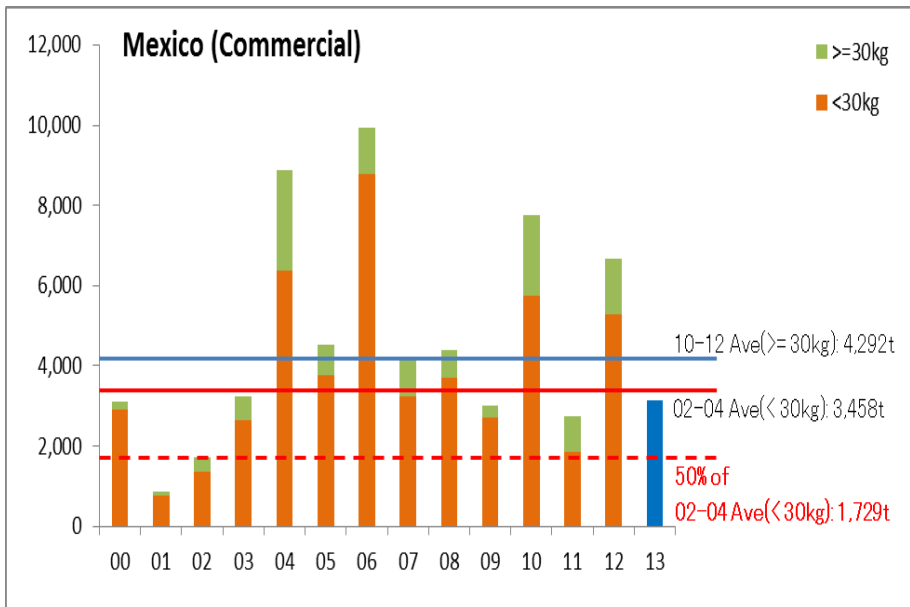


02-04 Av. < 10-12 Av.



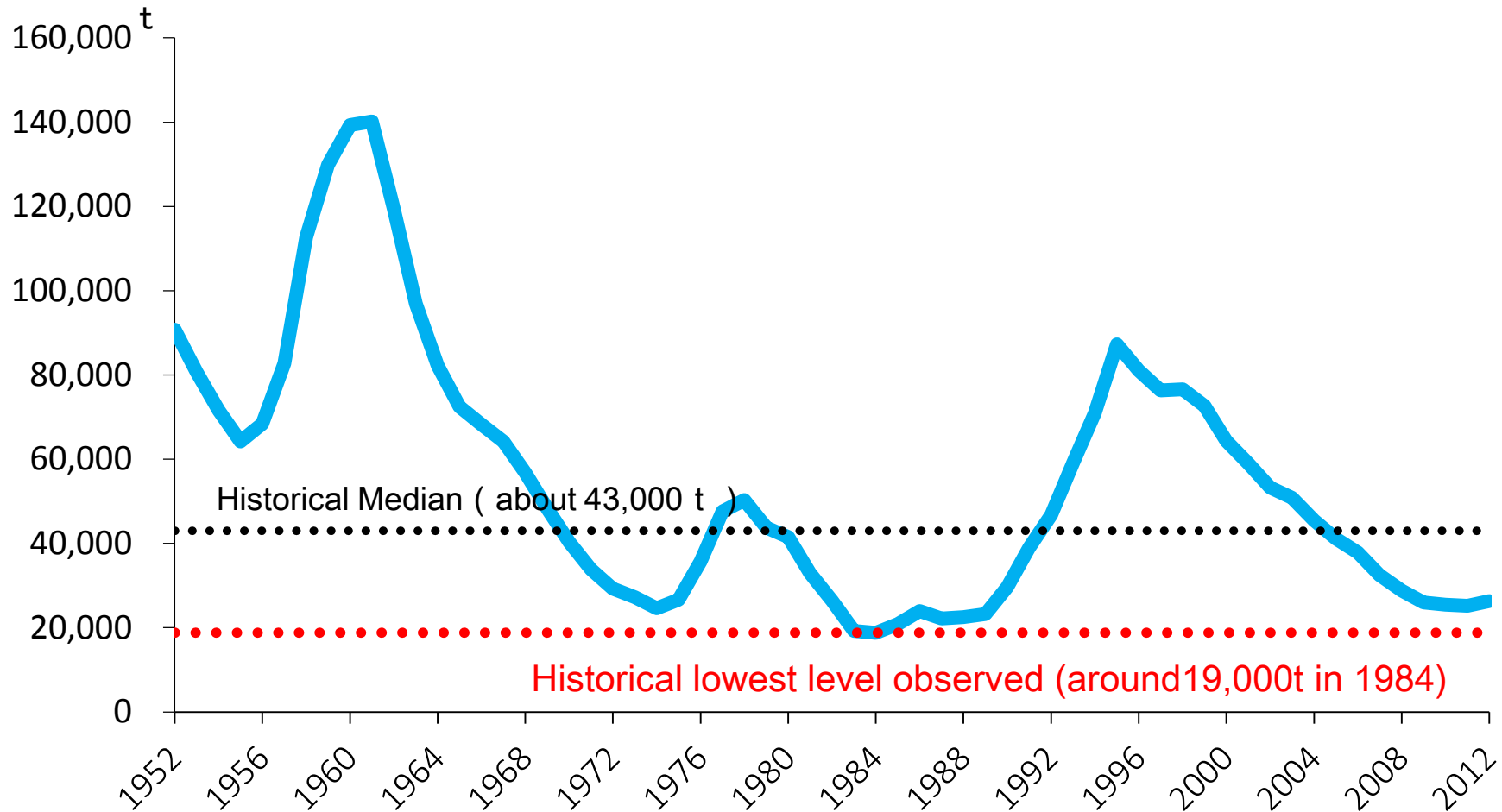
02-04 Av. > 10-12 Av.

Catch Trends by Member, by Commercial/Recreational



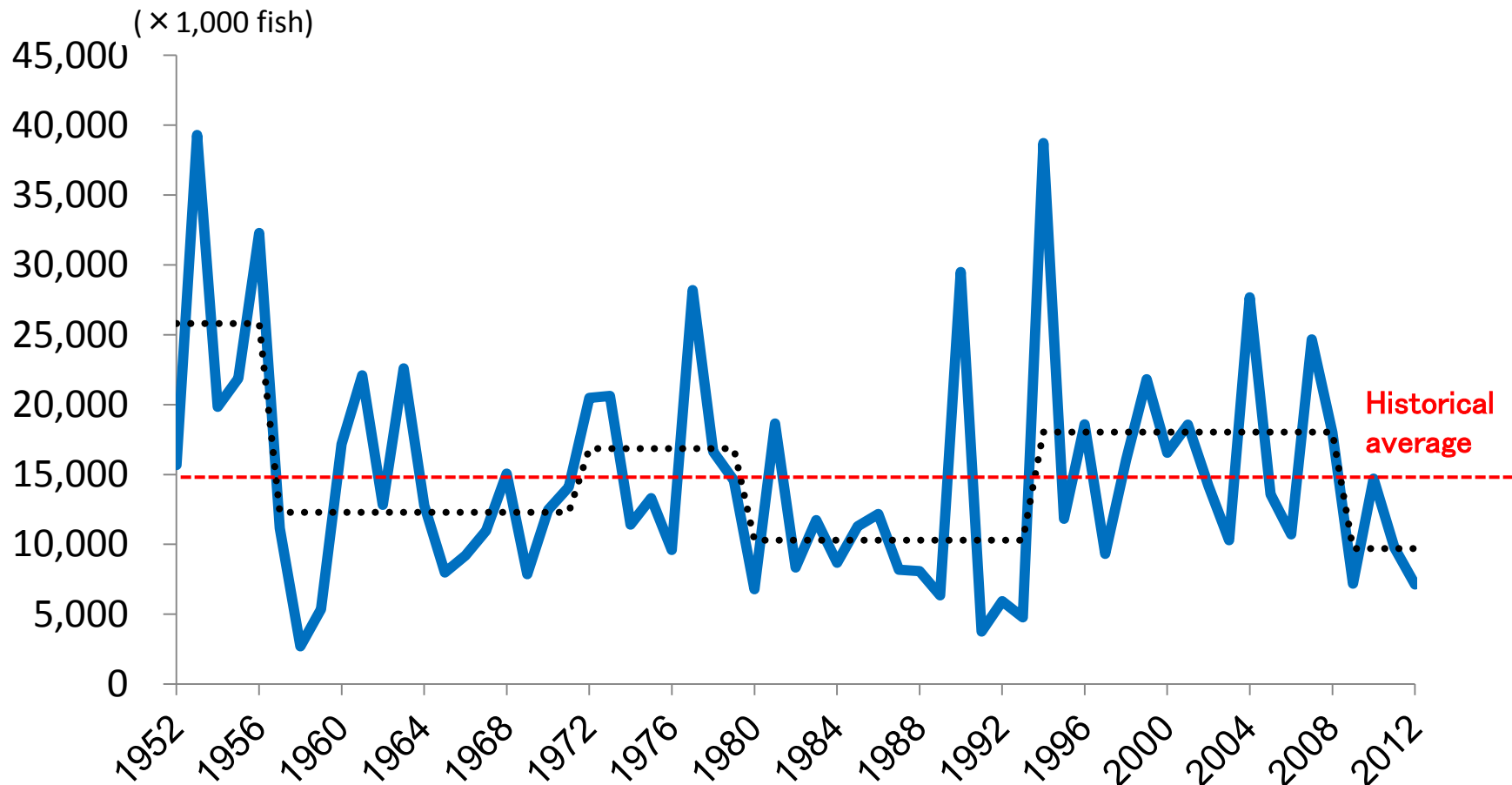
Result of ISC14: Spawning Stock Biomass

The current (2012) SSB of 26,324t is **near historically lowest levels** (around 19,000t).



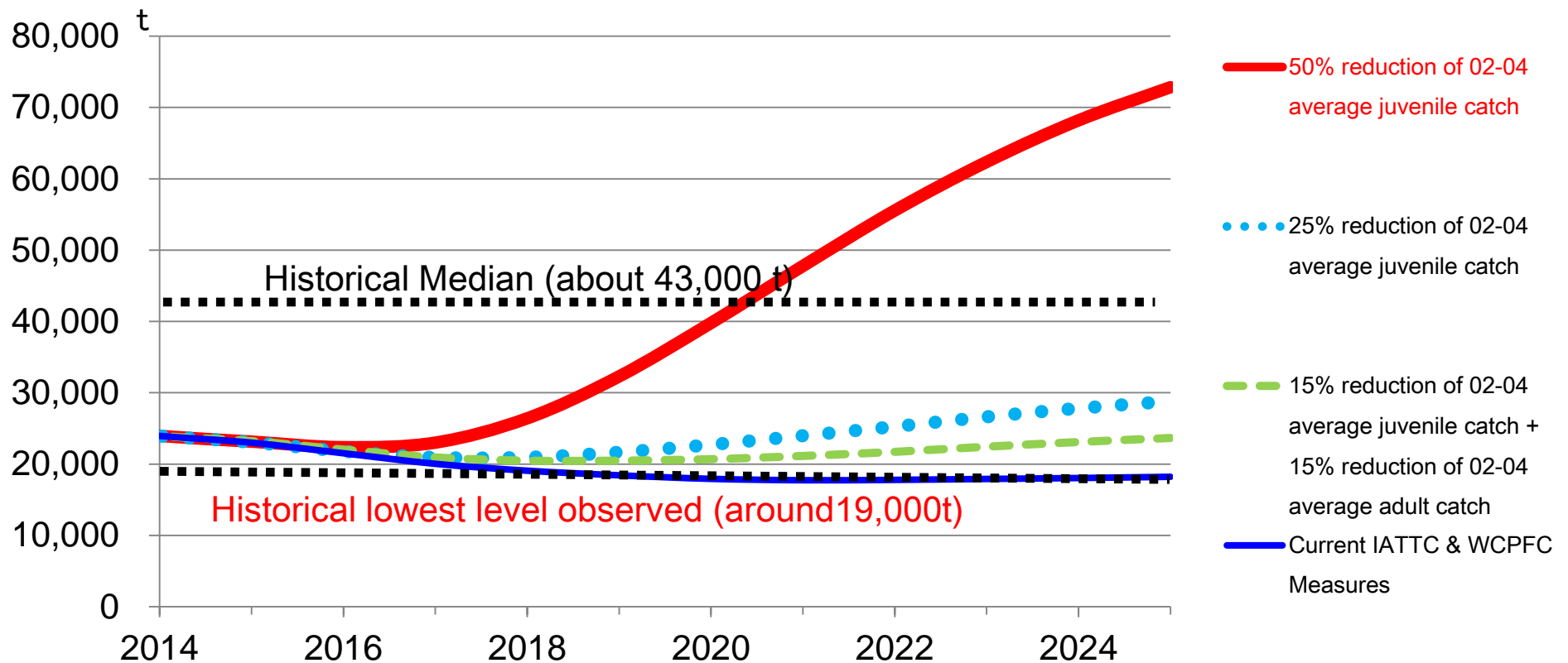
Result of ISC14: Recruitment

The recruitment level in 2012 was estimated to be **relatively low** (the 8th lowest in 61 years), and the average recruitment level for the last 5 years may have been **below the historical average level**.



Result of ISC14: Future Projections

No scenario except for 50% reduction of juvenile catch demonstrates recovery to the historical median within 10 years.



Result of ISC14: Conservation Advice

- In relation to the projections requested by NC9, only Scenario 6*, the strictest one, results in an increase in SSB even if the current low recruitment continues.

*For a WCPO, a 50% reduction of juvenile catches from the 2002-2004 average level and F no greater than $F_{2002-2004}$. For the EPO, a 50% reduction of catches from 5,500t.

- Given the result of Scenario 6, further substantial reductions in fishing mortality and juvenile catch over the whole range of juvenile ages should be considered to reduce the risk of SSB falling below its historically lowest level.

Recent Recruitment Trend

- **Possibility of low recruitment persists is high** from the preliminary results from JPN troll survey.
- It is concerned that **recruitment in 2014 is lower than that of 2012.**

Changes indexed using the average of 2011-2012 as a base of 1

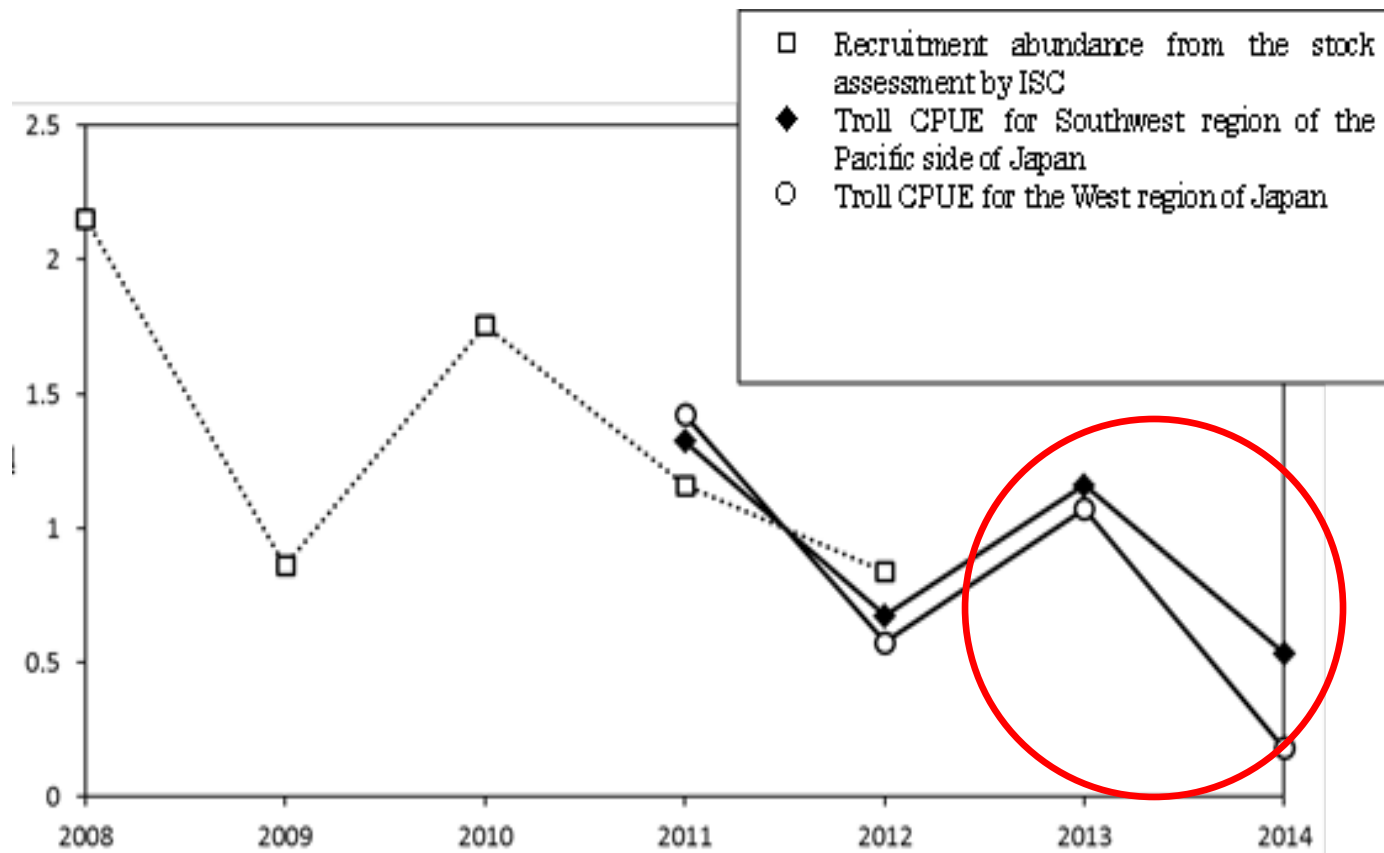


Fig. Annual fluctuation of “recruitment abundance from the stock assessment by ISC” and “experimental troll CPUE around Japan in 2013 and 2014”

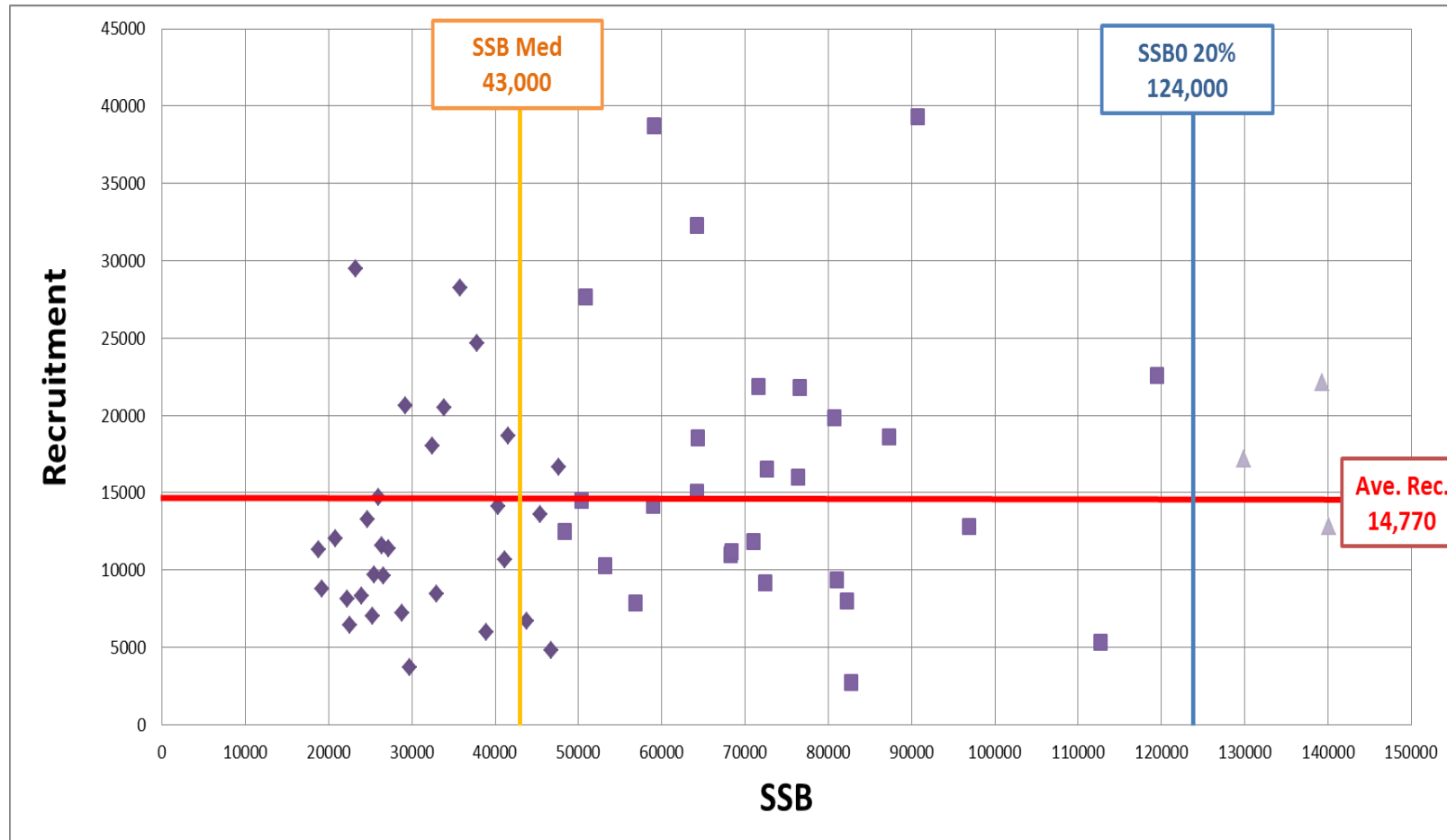
WCPFC Northern Committee Recommendation on PBF adopted in September, 2014

- *Provisional Multi-Annual Rebuilding Plan*
 - Rebuilding the SSB to the historical median (42,592t) within 10 years with at least 60% probability starting 2015.
- *Effort Limit*
 - Below the 2002-2004 annual average levels.
- *Catch Limit*
 - PBF less than 30kg: Reduced to 50% of the 2002-2004 annual average levels.
 - PBF 30kg or larger: Not increased from the 2002-2004 annual average levels.

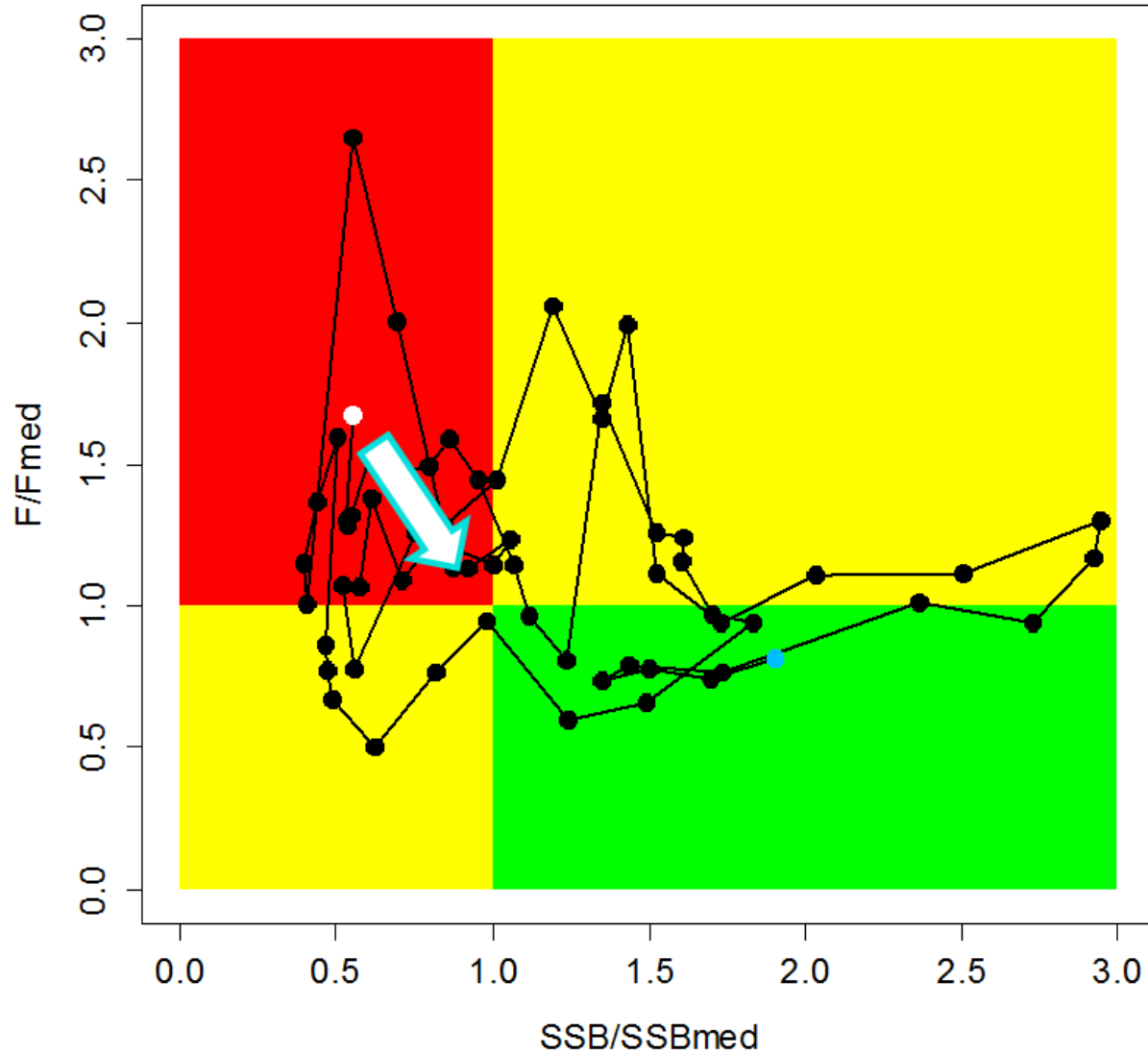
Rebuilding Target of PBF: Why SSB_{med} ?

Based on the past experience, if SSB recovers to SSB_{med} , sufficient recruitment have been ensured.

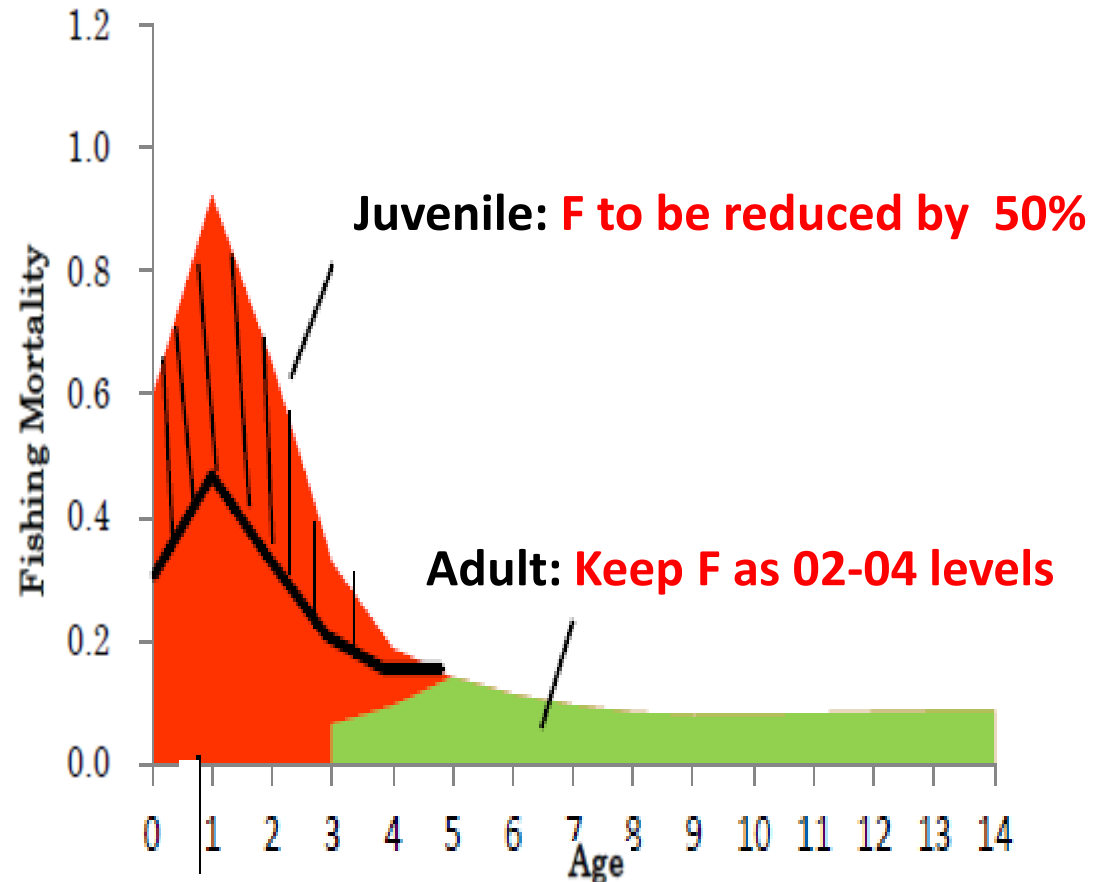
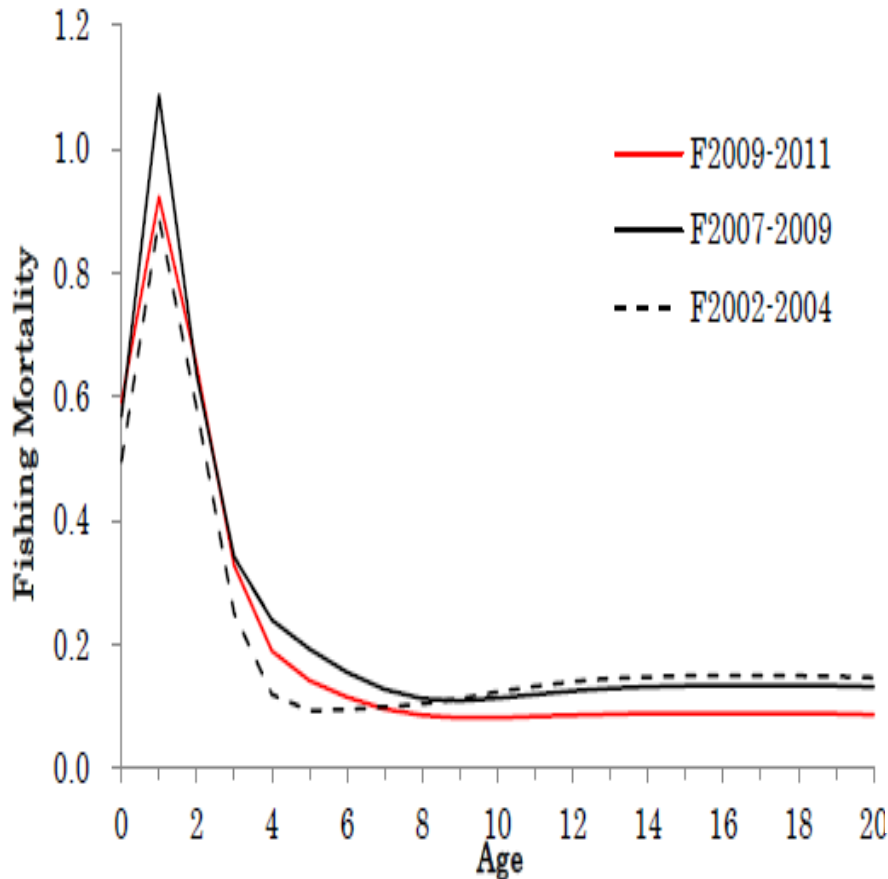
→ → → → **SSB_{med} can be a Rebuilding Target**



Rebuilding Goal of PBF in 10 years



Concept of reduction in terms of mortality corresponding to the Rebuilding Target



Catch Limits in PBF Proposals

	ISC Projection		IATTC Staff Recom.		USA Proposal		Mexico Proposal		Japan Proposal (1st)		Japan Proposal (2nd)		02-04 Ave. Catch in EPO		10-12 Ave. Catch in EPO	
	COM.	Non-COM.	COM.	Non-COM.	COM.	Non-COM.	COM.	Non-COM.	COM.	Non-COM.	COM.	Non-COM.	COM.	Non-COM.	COM.	Non-COM.
30kg <	2,750	-	3,154	221	3,500 (in 2015)	N/A	4,327	308	1,886		1,744	142	3,488	283	4,331	303
30kg >=					3,000 (in 2016)				1,458		1,438	110	1,169	83	1,438	110
Total	2,750		3,375		3,500 - 3,000		4,635		3,434		3,182	252	4,657	366	5,770	413
											3,434		5,023		6,182	

Comparing 50% reduction in number and weight

WCPO juvenile catch accounted for **92% in number** and **72% in weight** during 02-04

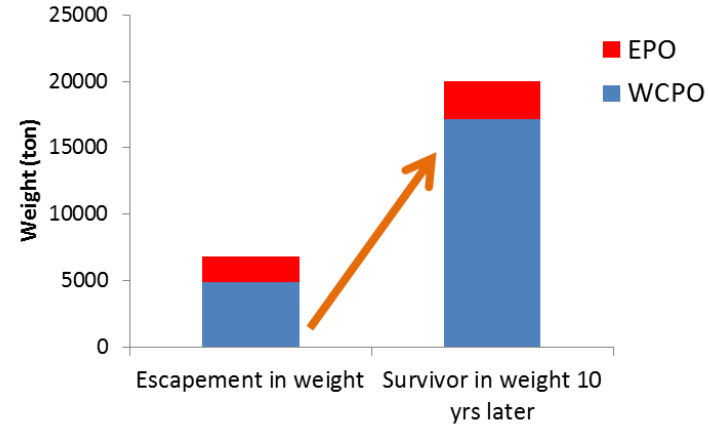
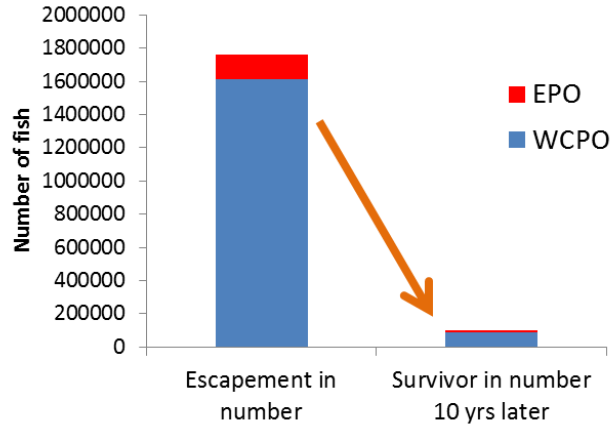
Number		Catch in number at age			
		Age 0-2 (< 30 kg)			
		Age 0	Age 1	Age 2	Subtotal
WCPO	02--04	2,468,449	707,300	55,380	3,231,129
EPO	02--04	14,237	131,775	146,266	292,279
Total	02--04	2,482,686	839,075	201,646	3,523,408
# of fish survived by 50% catch reduction	WCPO	1,234,225	353,650	27,690	1,615,564
		76%	22%	2%	100%
	EPO	7,119	65,888	73,133	146,139
		5%	45%	50%	100%

Weight		Catch in weight at age			
		Age 0-2 (< 30 kg)			
		Age 0	Age 1	Age 2	Subtotal
WCPO	02--04	5,060	3,653	827	9,540
EPO	02--04	108	1,324	2,280	3,711
Total	02--04	5,168	4,977	3,107	13,252
Total weight of fish survived by 50% catch reduction	WCPO	2,530	1,826	414	4,770
		53%	38%	9%	100%
	EPO	54	662	1,140	1,856
		3%	36%	61%	100%

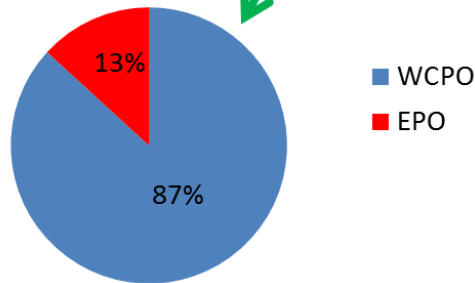
WCPO : EPO
1,615,564 : 146,139
 = **92% : 8%**

WCPO : EPO
4,770 : 1,856
 = **72% : 28%**

Comparing impact of 50% reduction less than 30kg between EPO and WCPO

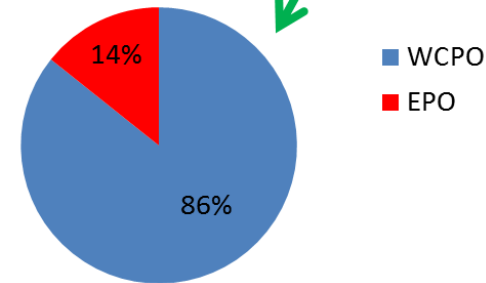


Survivor in number 10 yrs later



10 years later, **87%** of survivors in numbers are from WCPO

Survivor in weight 10 yrs later



10 years later, **86%** of survivors in weight are from WCPO

Impact of fishery for PBF : WCPO : EPO = **84%** : 16% (IATTC 83-05)