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23rd meeting of LDAC

Working Group 1 - Highly Migratory Stocks and Tuna RFMOs

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HCRs and management measures for tropical tunas

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AZTI. Tuna Research Area

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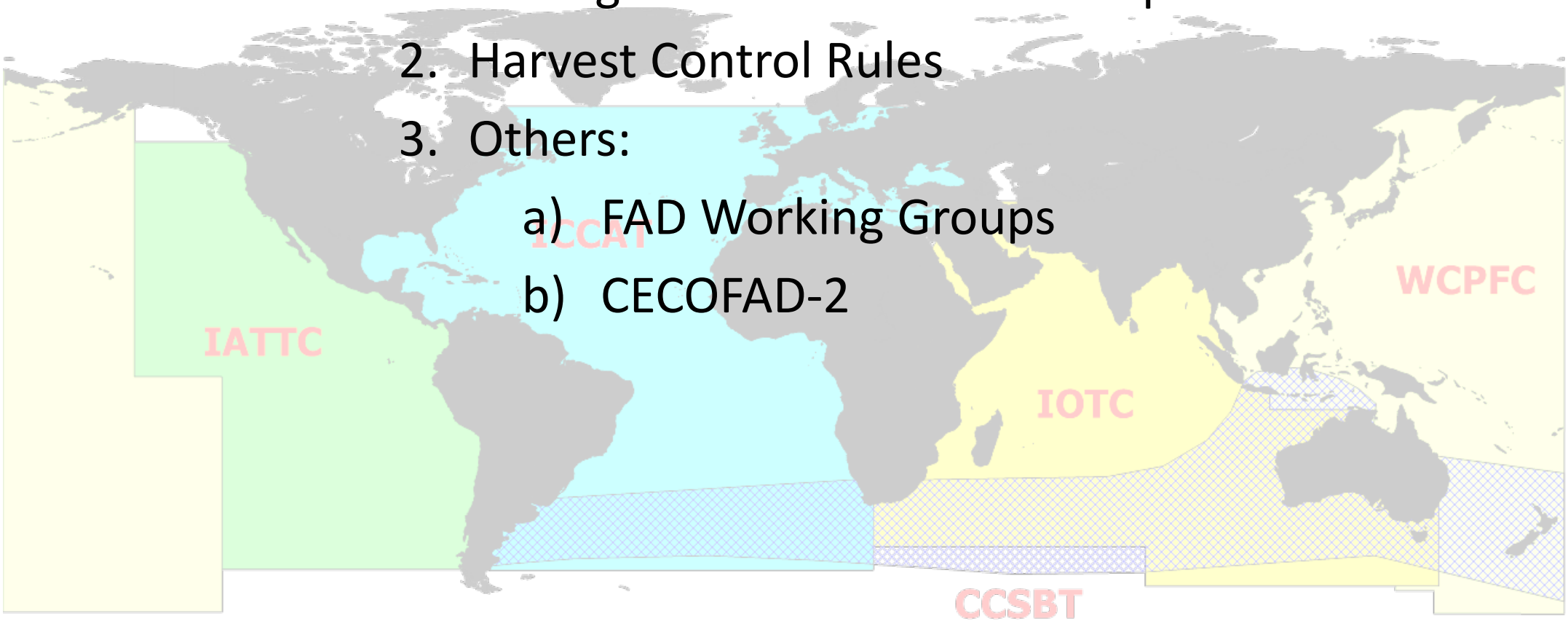
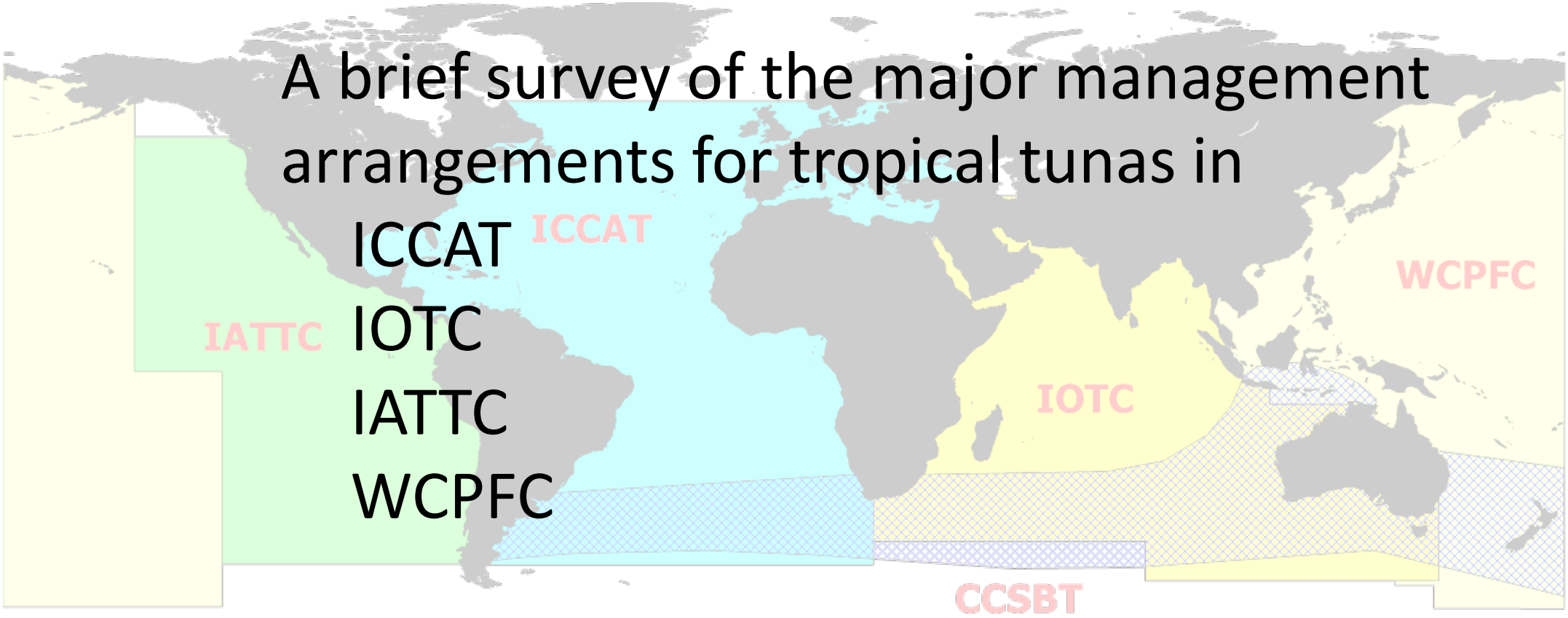
    a) FAD Working Groups
    b) CECOFAD-2



https://josusb.shinyapps.io/tRFMO_TT/

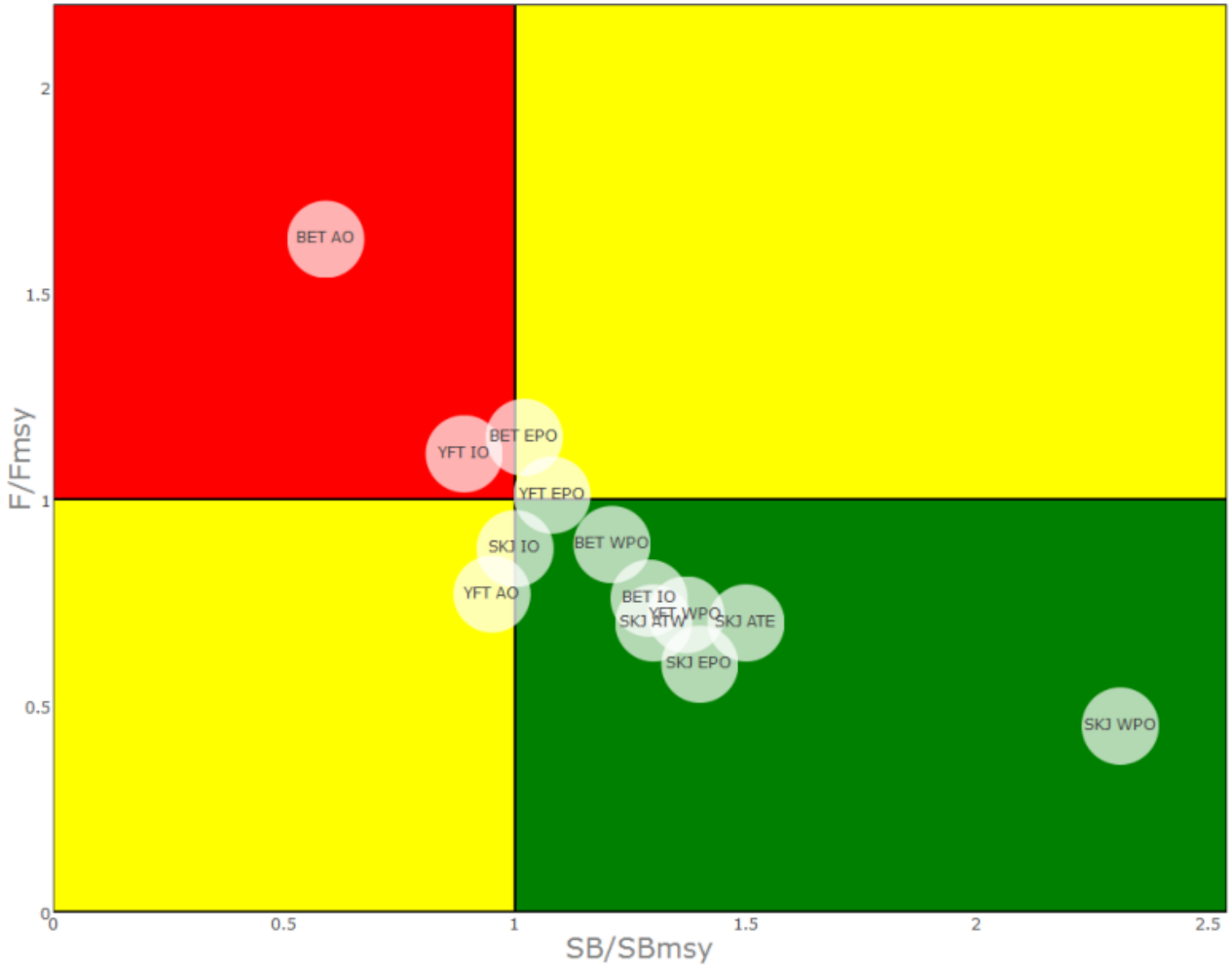
1. Management measures for tropical tunas



A brief survey of the major management arrangements for tropical tunas in

- ICCAT
- IOTC
- IATTC
- WCPFC

1. Management measures for tropical tunas



1. Management measures for tropical tunas

[ICCAT Rec. 16-01] Recommendation on a Multi-annual Conservation and Management Programme for Tropical Tunas

TAC FOR BIGEYE TUNA

2. TAC for bigeye tuna: 65,000 t
3. Catch limits …… to the following CPCs …..
4. Catch limits shall not apply to CPCs whose annual catch was less than 2,100 t [in 1999]

TAC FOR YELLOWFIN

11. TAC for yellowfin tuna:110,000 t

CAPACITY MANAGEMENT MEASURES

12. … number of LL and PS vessels shall each year be subject to the following limits...

1. Management measures for tropical tunas

[ICCAT Rec. 16-01] Recommendation on a Multi-annual Conservation and Management Programme for Tropical Tunas

MANAGEMENT OF FADs

13. FAD Area/Time closure: 1 Jan to 28 Feb in the Gulf of Guinee

16. Limitation of FADs: No more than 500 instrumental buoys

18. FAD Management Plans

21. FAD logbook and list of deployed FADs

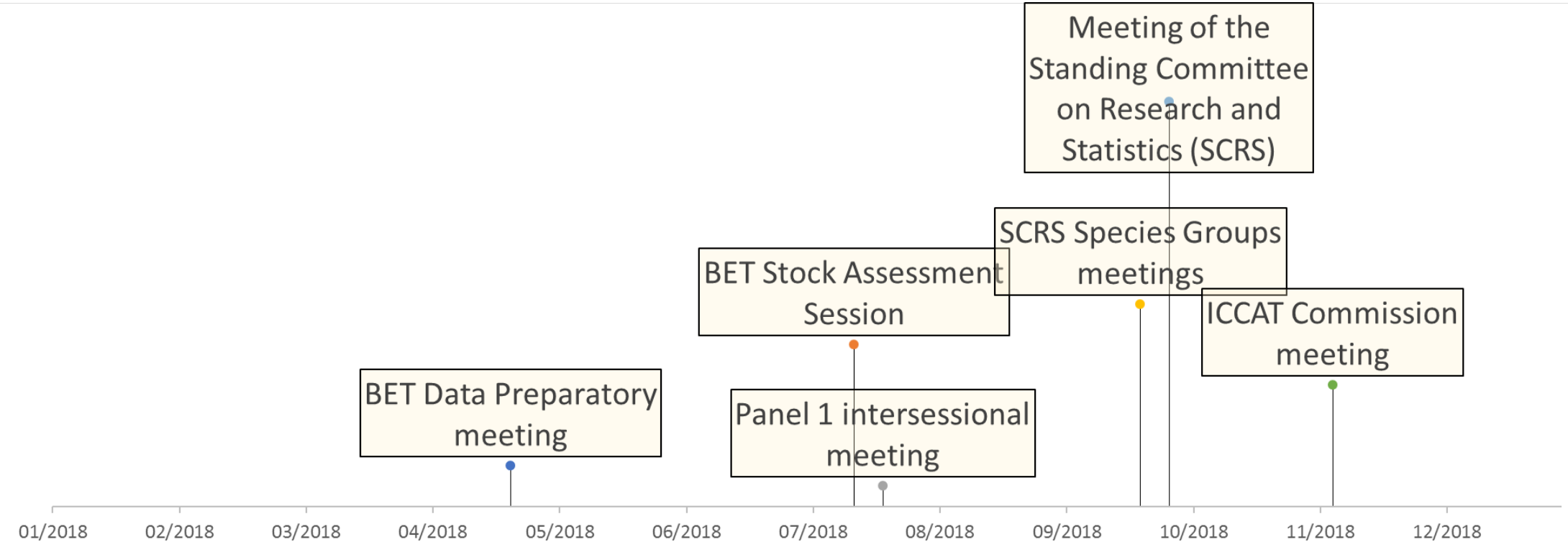
23. Reporting obligations on FADs and on support vessels

24. Non-entangling and biodegradable FADs

- replace by 2016 existing FADs with non-entangling FADs.
- undertake research to gradually replace existing FADs with fully biodegradable and non-entangling FADs, with a view to phase out non-biodegradable FADs by 2018, if possible

1. Management measures for tropical tunas

2018 schedule



BET assessment

1. Management measures for tropical tunas

[IOTC Res. 18-01] On an interim plan for rebuilding the Indian Ocean yellowfin tuna stock in the IOTC area of competence

3. **Purse seine**:

a) CPCs whose Purse seine catches of YFT reported for 2014 were above 5000 MT to reduce their catches of yellowfin by 15 % from the 2014 levels (or 2015 SIDs).

b) The number of FADs will be no more than 350 active instrumented buoys and 700 acquired annually per PS vessel.

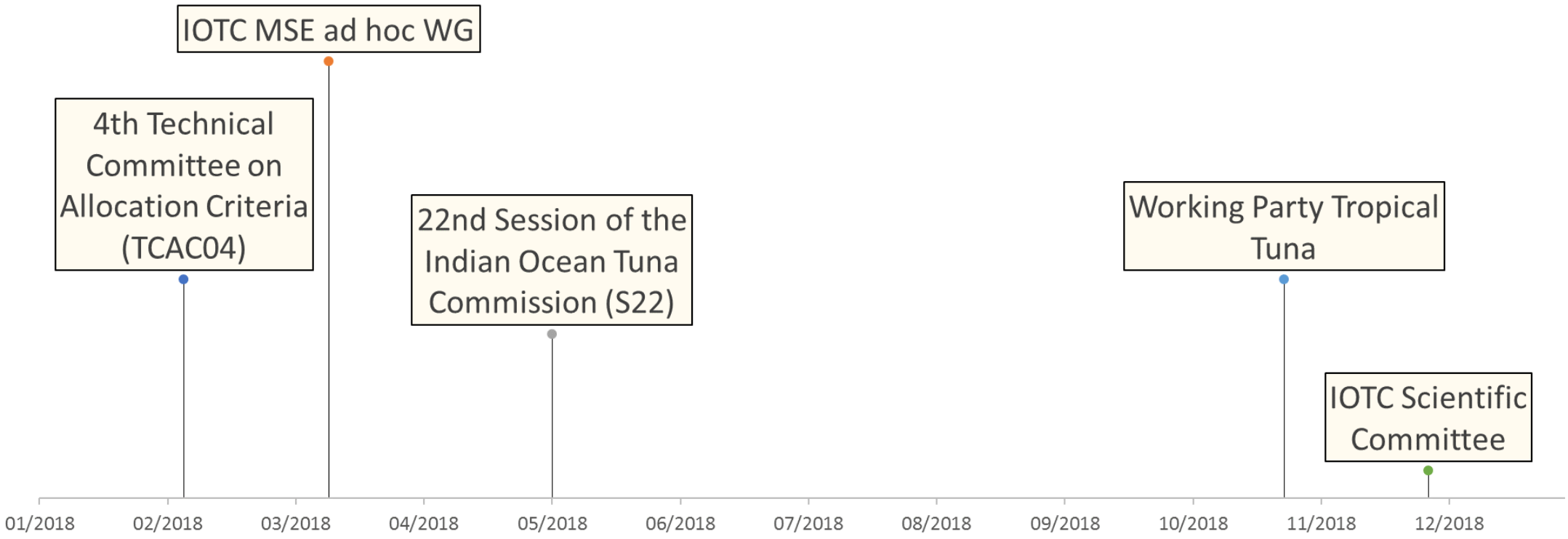
c) Supply vessels: gradually reduced by 31st December 2022 :

01/2018 - 12/2019	01/2020 - 12/2022
1 supply --- 2 PS	2 supplies --- 5 PS

4-6. **Gillnet /longline** (reduction of 10%) /**other gears**: 5 % from the 2014 levels.

1. Management measures for tropical tunas

2018 schedule



YFT assessment

1. Management measures for tropical tunas

IATTC Res. 17-02: Tuna conservation in the EPO 2018-2020

MEASURES FOR PURSE-SEINE FLEETS

3. Stop fishing for a period of 72 days: 29 Jul - 8 Oct or 9 Nov - 19 Jan
4. Corralito: Area of 96º and 110ºW and 4ºN and 3ºS closed from 9 Oct to 8 Nov.

MEASURES FOR THE FISHERY ON FISH-AGGREGATING DEVICES

8. FADs active at any one time:

Class 6 (> 1200m^3)	Class 6 (< 1200m^3)	Class 4-5	Class 1-3
450	300	120	70

9. A FAD shall be activated exclusively onboard a purse-seine vessel.
10. Definition of active: deployed at sea; and starts transmitting ...
11. …CPCs shall report, or require their vessels to report, daily information on all active FADs (delay of at least 60 days)
12. … develop guidance on the reporting of FAD data

1. Management measures for tropical tunas

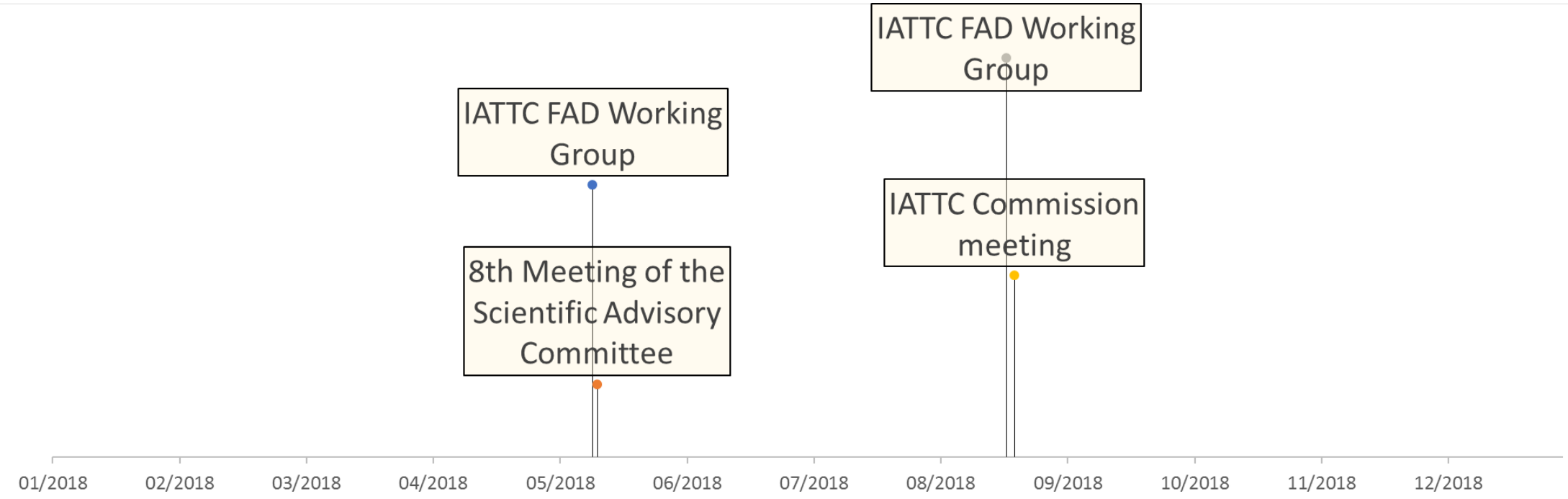
IATTC Res. 17-02: Tuna conservation in the EPO 2018-2020

MEASURES FOR THE LONGLINE FISHERY

16. China, Japan, Korea, United States, and Chinese Taipei undertake to ensure that the TAC of bigeye tuna by their longline vessels in the Convention Area during 2018-2020 do not exceed **55,131 metric tons**, distributed at the following levels:

1. Management measures for tropical tunas

2018 schedule



BET assessment
YFT update

1. Management measures for tropical tunas

[CMM 2017-01] Conservation and Management Measure for bigeye, yellowfin and skipjack tuna in the Western and Central Pacific Ocean

PURSE SEINE FISHERY

- A **3-months** (July-September) prohibition of deploying, servicing or setting on FADs.
  …. in the **High Seas** for **additional 2-months** (April-May or November-December)
- Non-entangling & biodegradable FADs: "encourage", "promote", "research",…
- Instrumented Buoys: **350** / activated exclusively on board the vessel.
- Zone-based purse seine effort control: Table 1 with vessel days
- High seas purse seine effort control: Table 2 with vessel days --- except SIDS

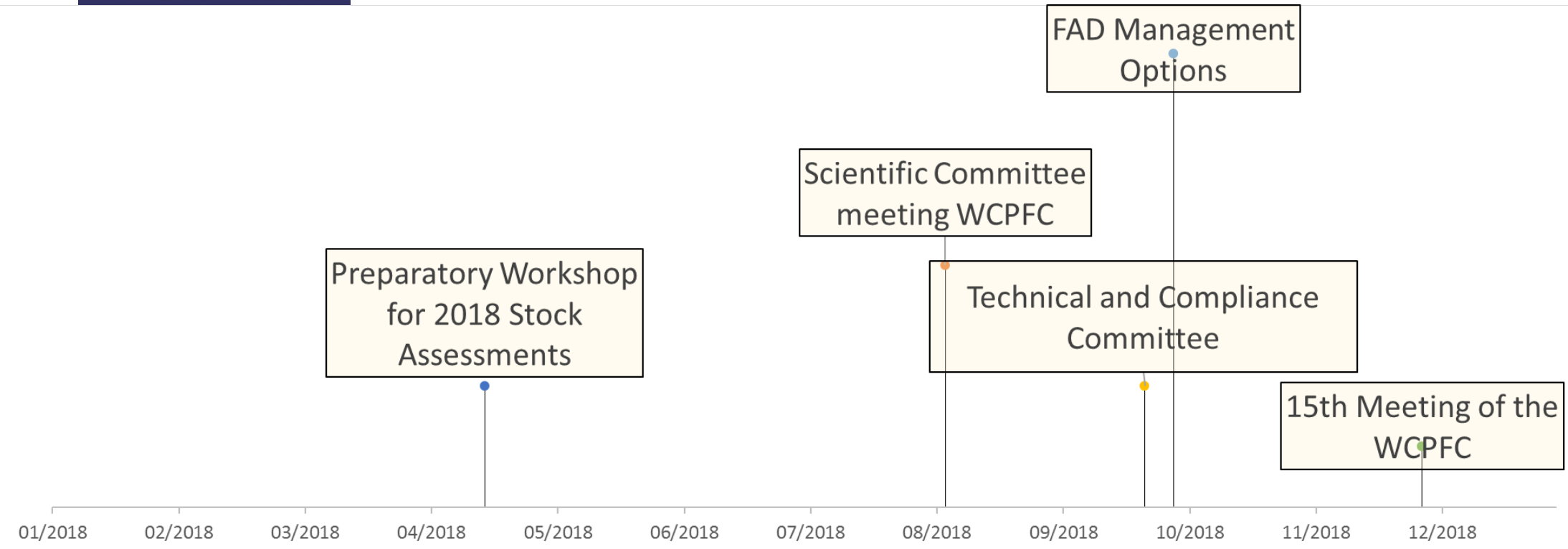
LONGLINE FISHERY

39. …interim measure, … restrict the level of BET catch to the levels specified in Table 3.

1. Management measures for tropical tunas

Western and Central Pacific Fisheries Commission

2018 schedule



implications of updated growth analyses for bigeye on stock status

1. Management measures for tropical tunas

General measures

	IATTC	ICCAT	IOTC	WCPFC
TAC or catch limits for LL	BET			BET
TAC or catch limits all gears		BET/YFT	SKJ/YFT	
PS effort control	X (72d)			X (vessel days)
PS Time-area closure	X (1m)			
Fleet capacity limits	X	X	X	X
Limit supply vessels	X		X	

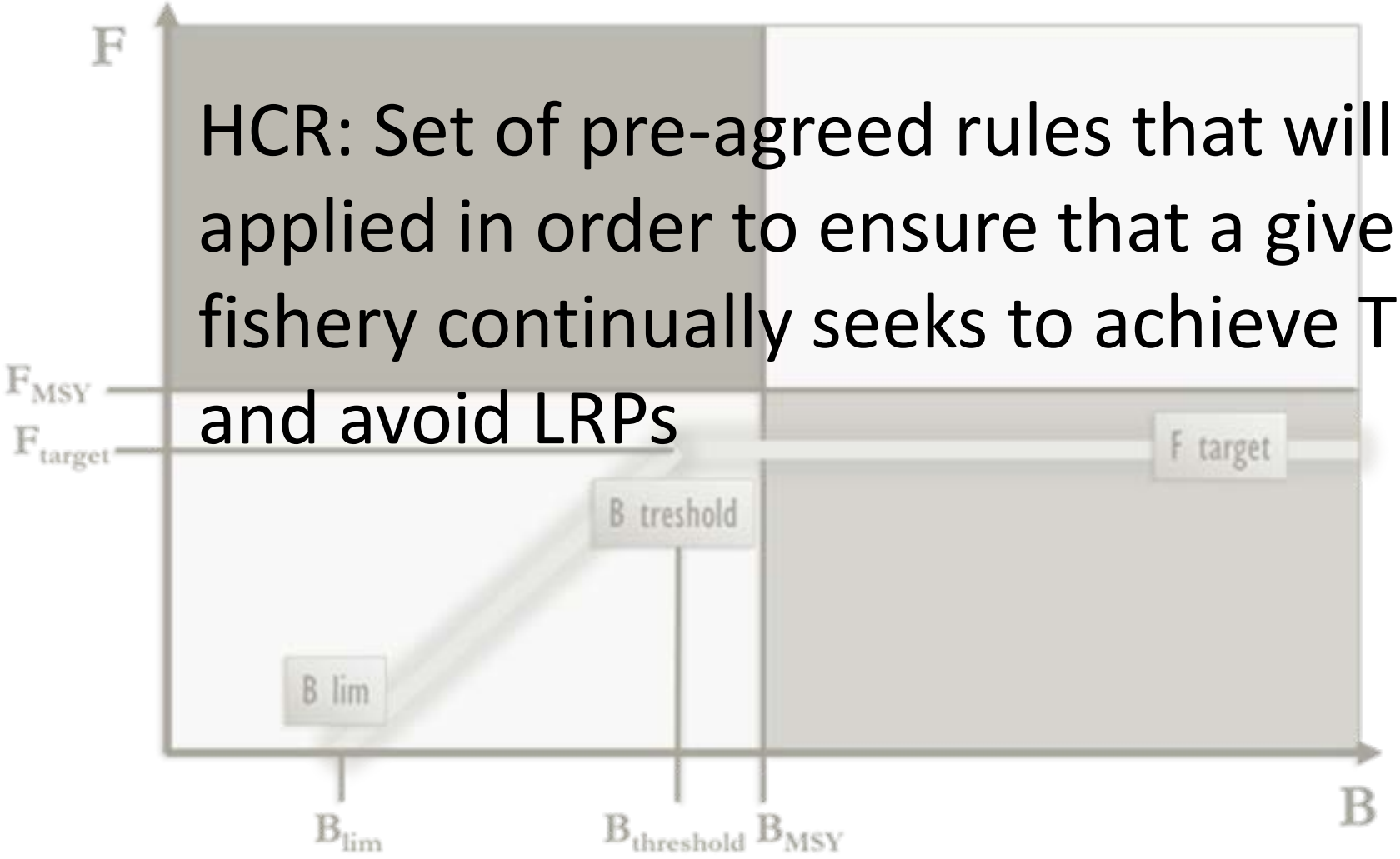
FAD specific measures

Marking of FADs	X		X	X
FAD Time closure				X (3 m)
FAD Time-area closure		X (1m)		X (HS 2 m)
Number of FADs	X (70-140)	X (500)	X (350)	X (350)
Buoy purchases			X (700)	
Activation exclusively onboard	X		X	X
FAD deployment Time closure	X (15d)			
FAD recovery	X (15d)			
Non entangling	X (2019)	X (2016)	X (2014)	-

Other measures

PS Full retention	X	X	X	X
PS Transhipment at sea	X	X	X	X

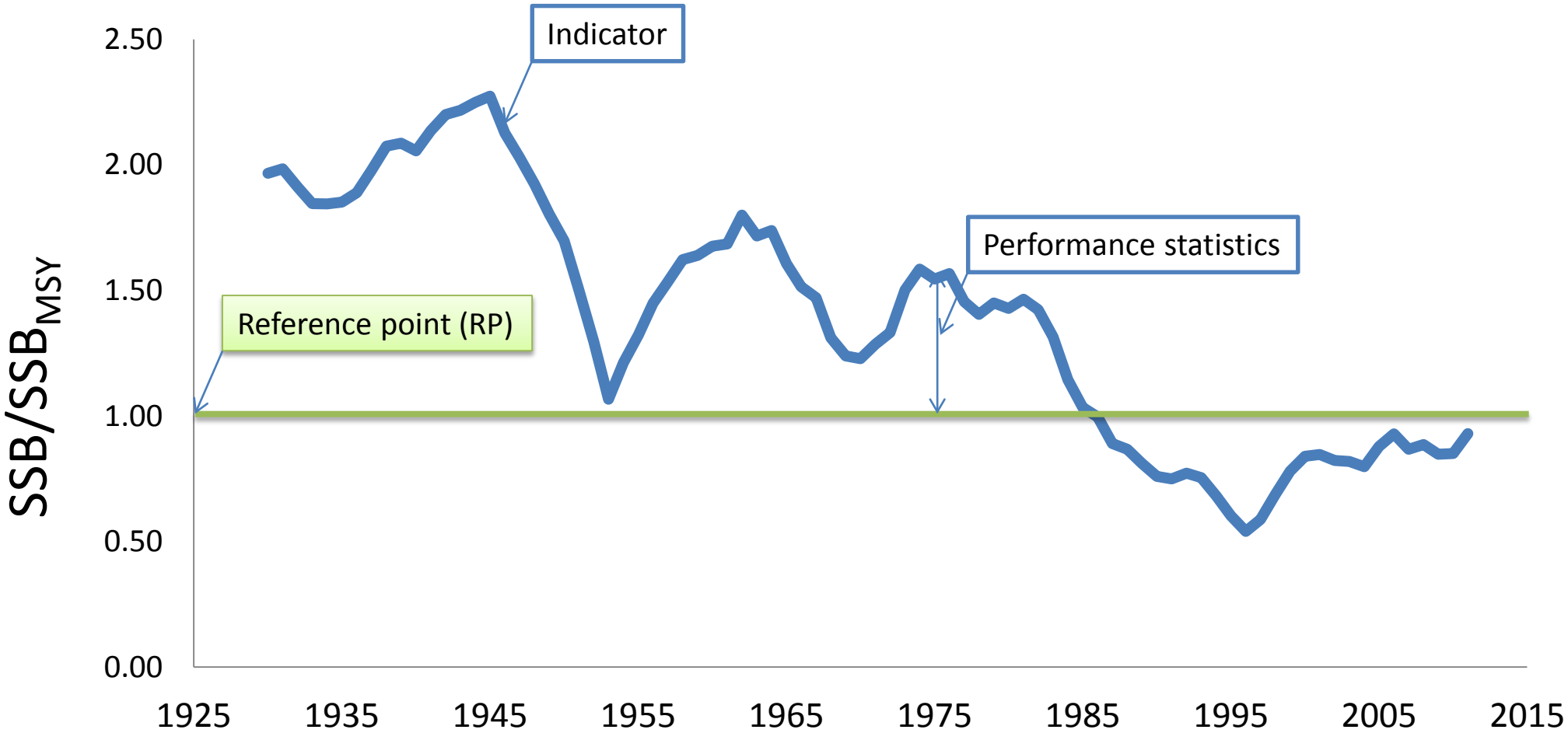
2. Harvest Control Rules (HCR)



HCR: Set of pre-agreed rules that will be applied in order to ensure that a given fishery continually seeks to achieve TRPs and avoid LRPs

2. Harvest Control Rules

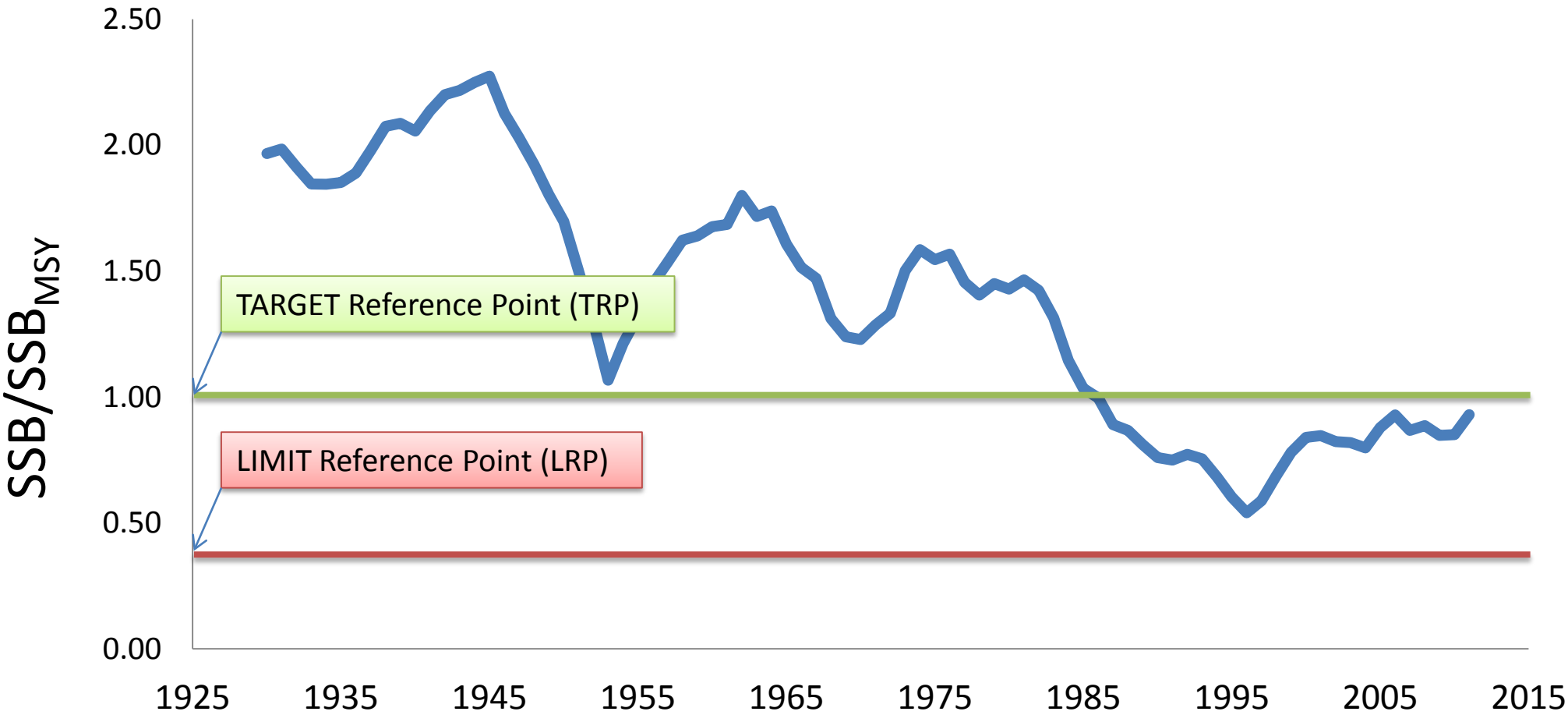
Reference points



Reference Point is a **pre-determined** level of a given indicator that corresponds to a particular state of the stock that management either seeks to achieve (TRP) or avoid (LRP).

2. Harvest Control Rules

Reference points



Reference Point is a **pre-determined** level of a given indicator that corresponds to a particular state of the stock that management either seeks to achieve (TRP) or avoid (LRP).

2. Harvest Control Rules

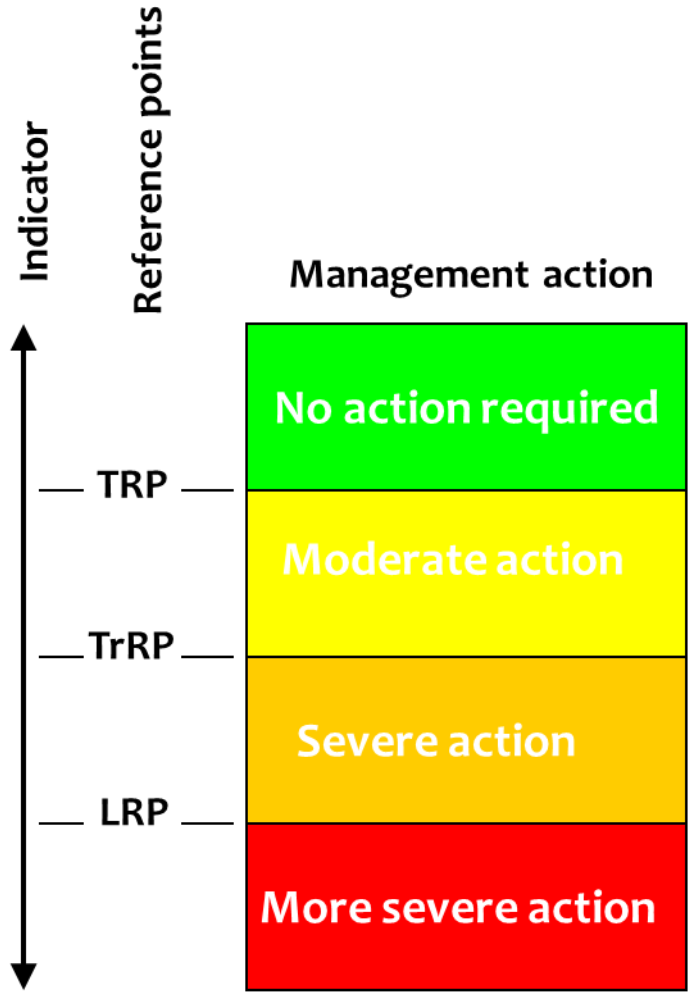
- RPs are guidelines for management; can be:
  - exploitation rates or biomass based;
  - model or empirical based

- **Target Reference Points** (TRPs): values for stock size and/or fishing mortality rate that a manager aims to **achieve and maintain**.

- **Threshold Reference Points** (TrRPs), which identify a predefined management response.

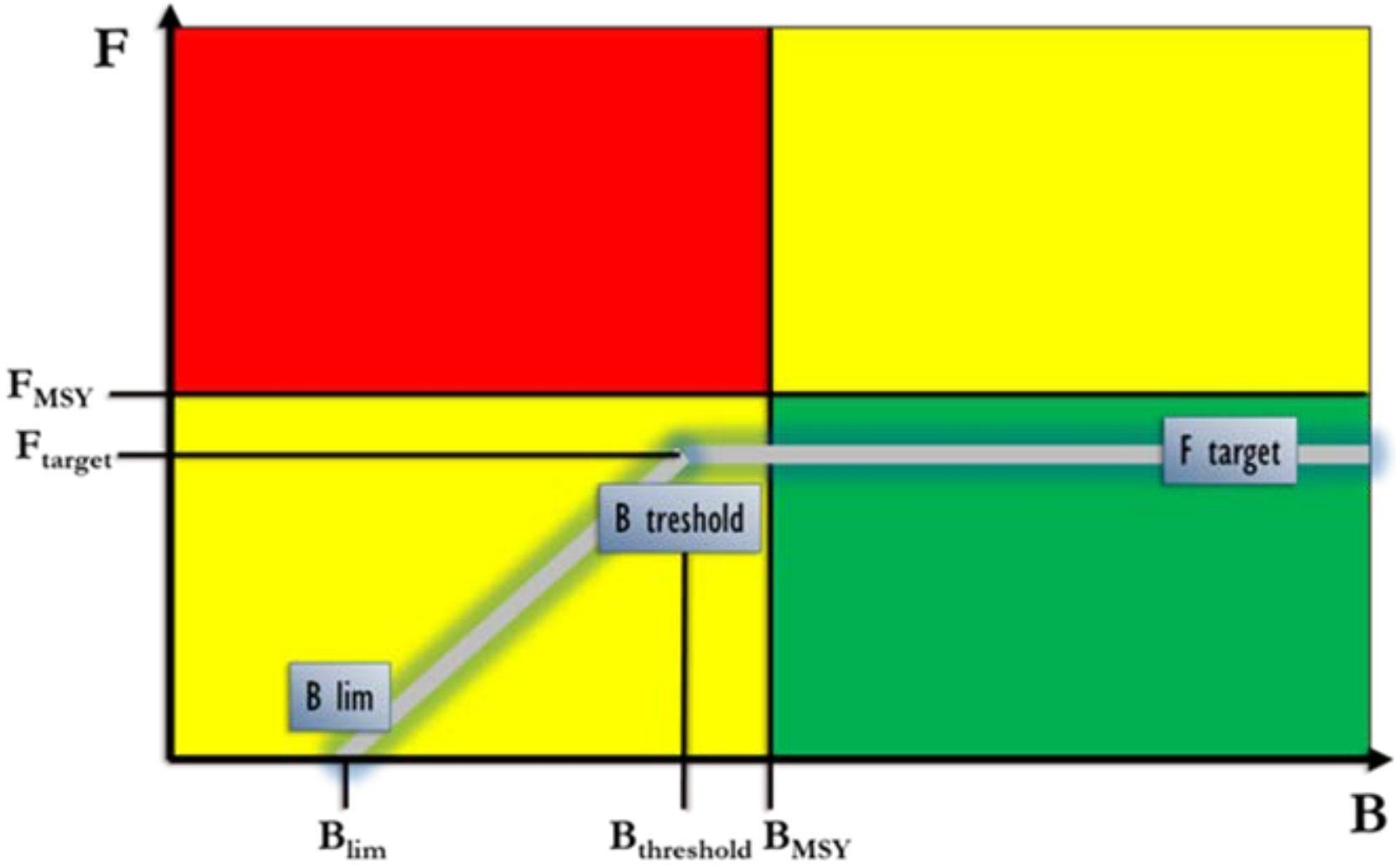
- **Limit Reference Points** (LRPs), which describe an undesirable state of the indicator that should be **avoided** with high probability.

Reference points



2. Harvest Control Rules

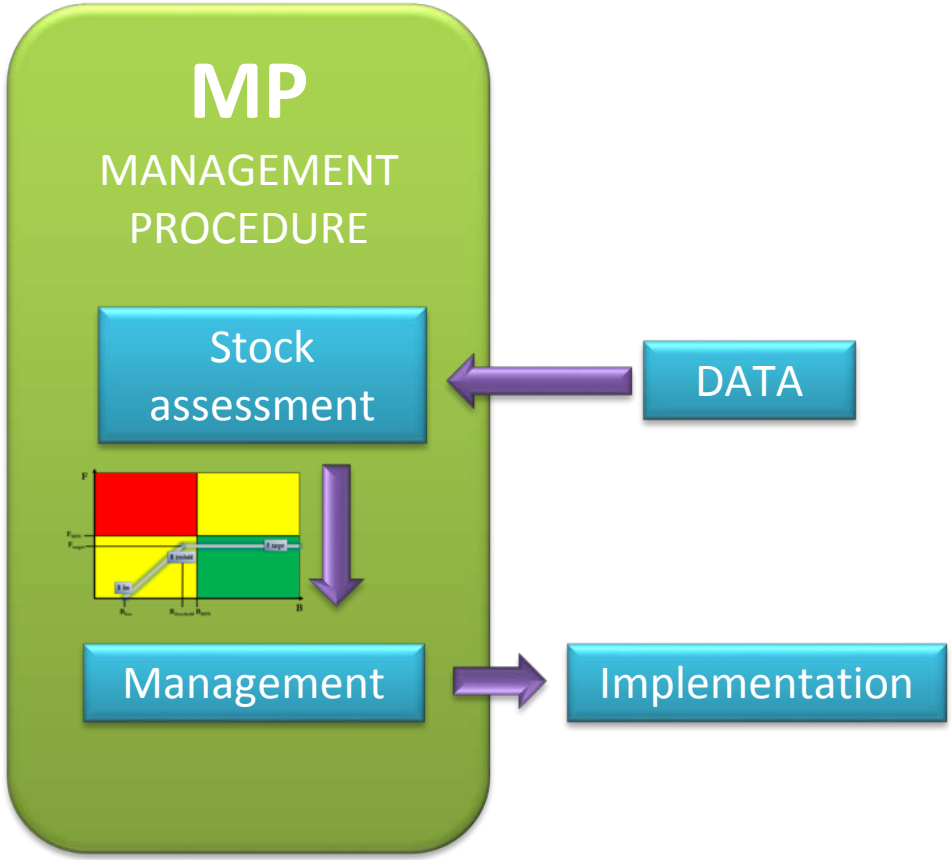
Harvest Control Rule



- **RP** are only relevant if placed as **part of harvest strategies** or decision rules pre-agreed (HCR).

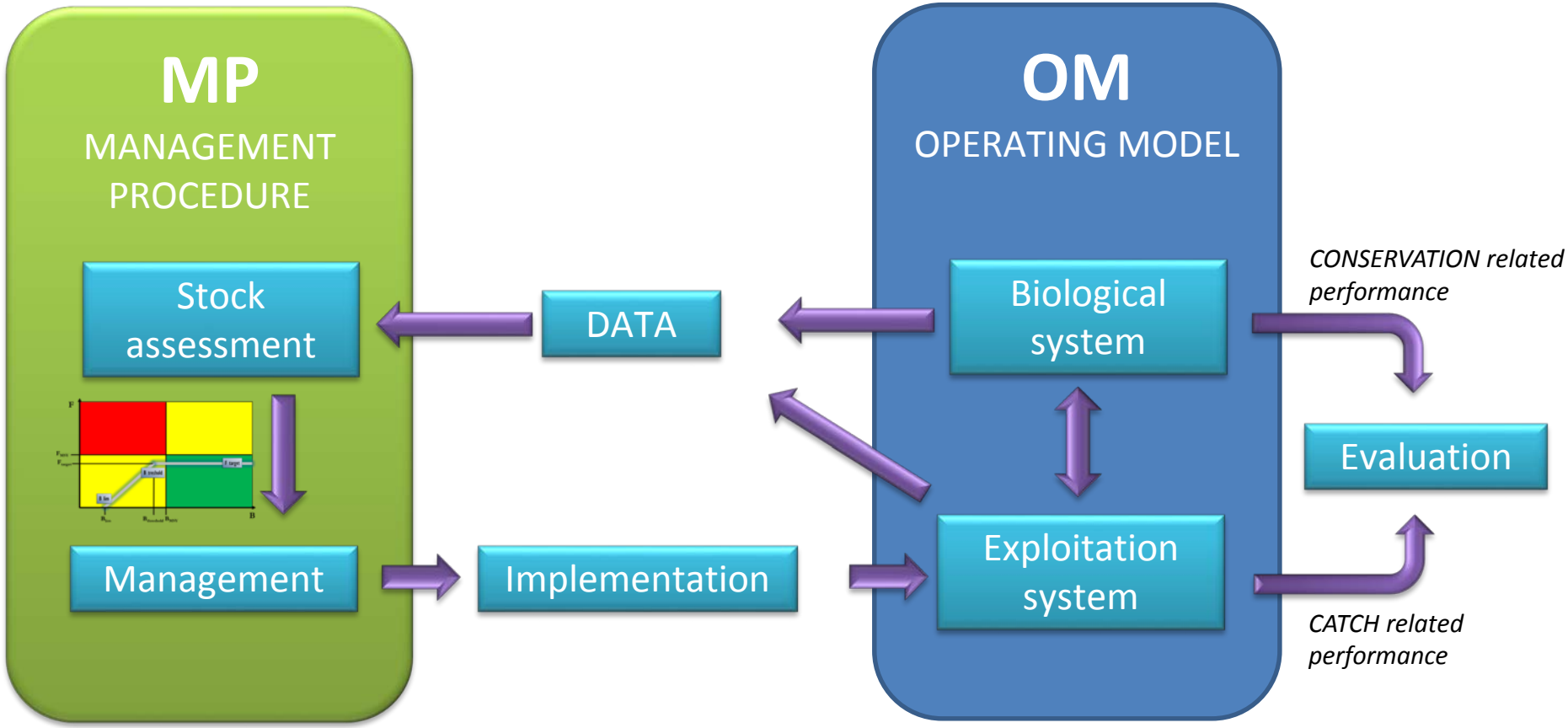
2. Harvest Control Rules

Management procedure



2. Harvest Control Rules

Management Strategy Evaluation [MSE]



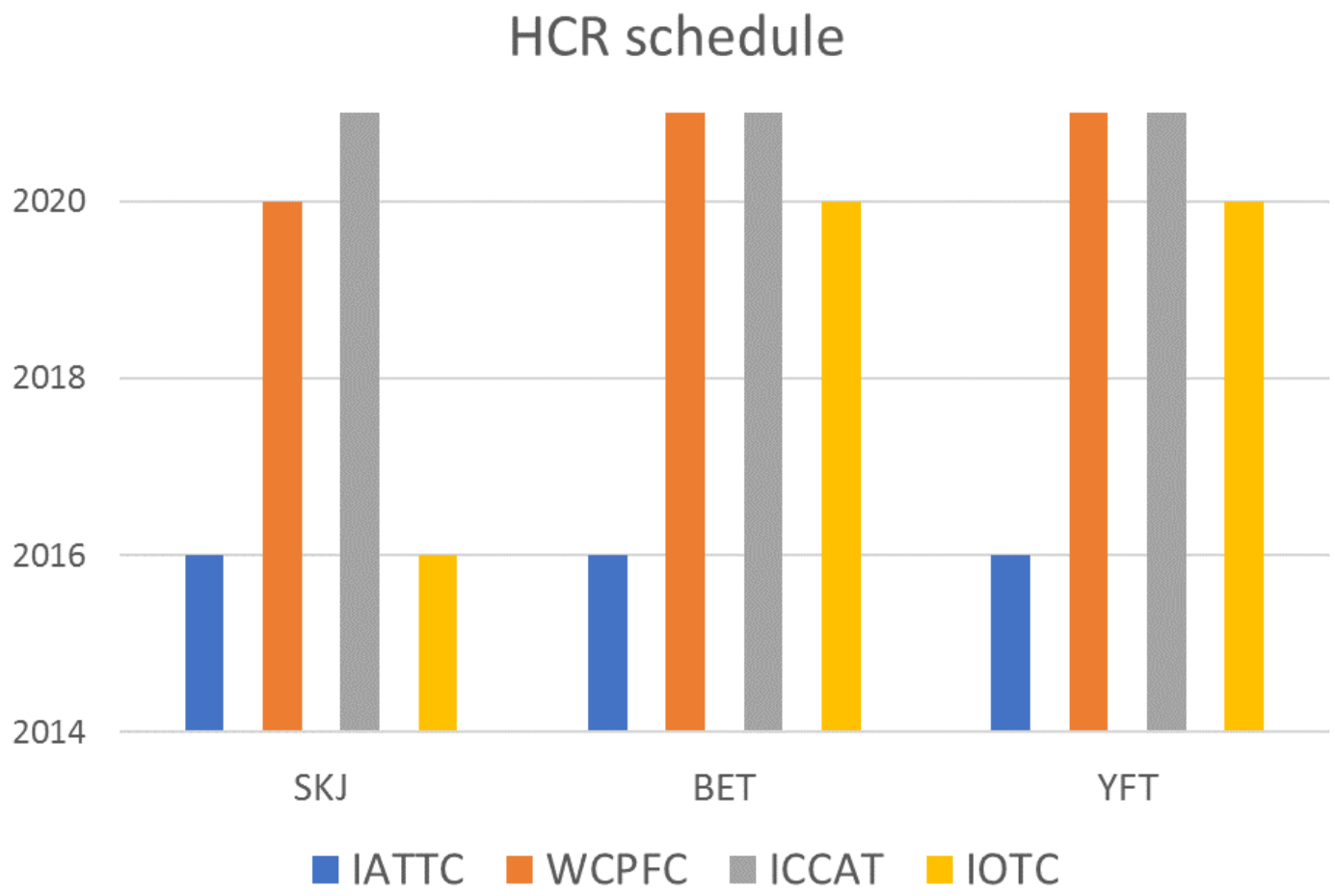
Analyst' perception

Underlying reality

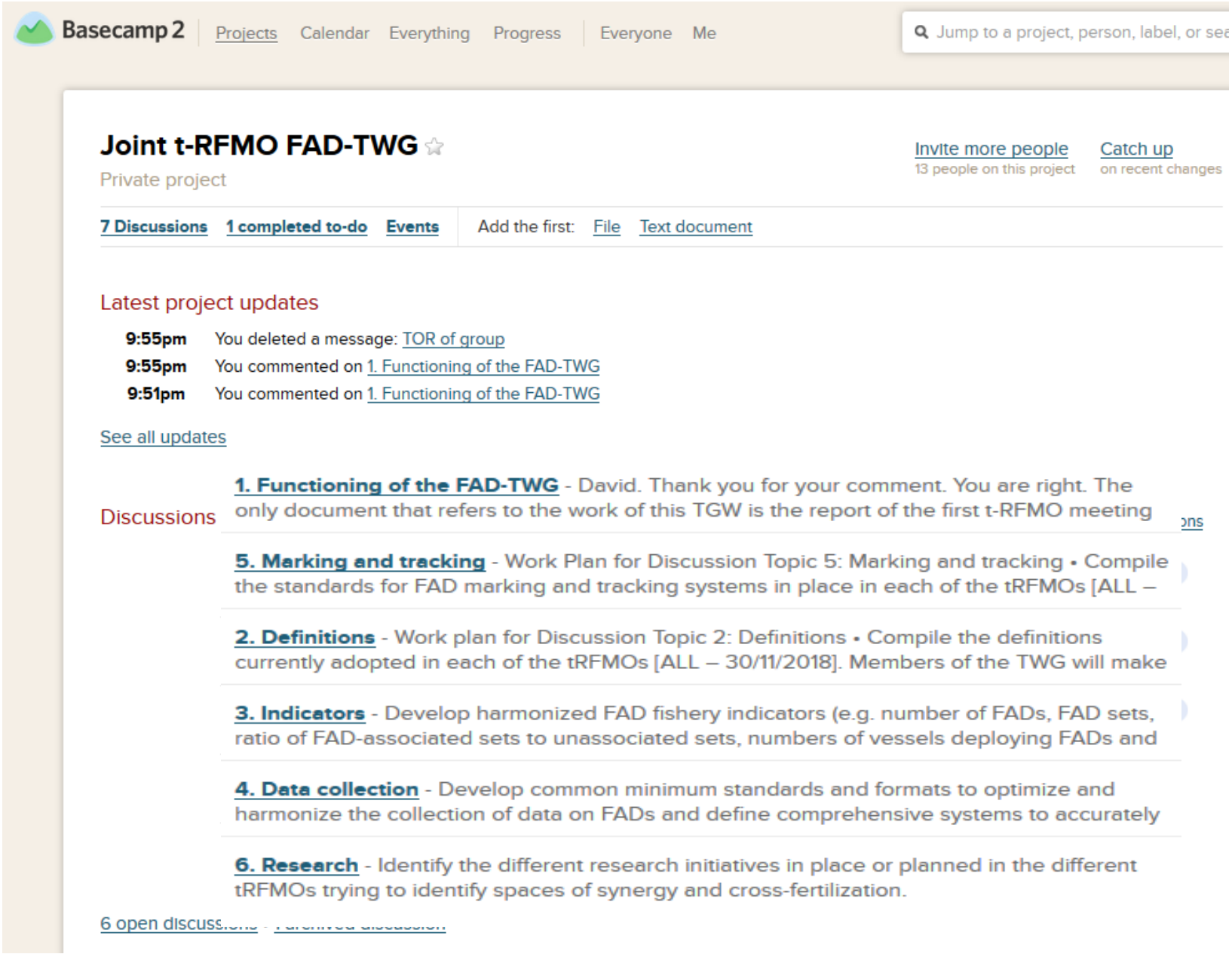
2. HCR Schedule in tRFMOs

RFMO	Stocks	Adopted biomass LRP	B-LRP relative to B_0	Adopted TRP	HCR
CCSBT	SBT	-	-	-	Yes
IATTC	BET/YFT	$B_{0.5R0}$	0.08	B_{MSY} / F_{MSY}	Yes
	BET-YFT-SKJ				Yes
ICCAT	ALB-N	0.40 B_{MSY}	0.15	0.8 F_{MSY} [B_{THRESH}=B_{MSY}]	Yes
IOTC	SKJ	0.20 $SB_{F=0}$	0.20	0.4 $SB_{F=0}$	Yes
	BET	0.50 B_{MSY} - 1.30F_{MSY}	0.14	B_{MSY} / F_{MSY}	
	ALB-YFT-SWO	0.40 B_{MSY} - 1.40F_{MSY}	-	B_{MSY} / F_{MSY}	
WCPFC	BET	0.20 $SB_{F=0}$	0.20	-	
	SKJ	0.20 $SB_{F=0}$	0.20	0.5 $SB_{F=0}$	
	YFT	0.20 $SB_{F=0}$	0.20	-	
	ALB-S	0.20 $SB_{F=0}$	0.20	-	
	ALB-N	0.20 $SB_{F=0}$	0.20	-	

2. HCR Schedule in tRFMOs



3. FAD Working Groups in tRFMOs



4. CECOFAD 2

CATCH, EFFORT, AND ECOSYSTEM IMPACTS OF TROPICAL TUNA FISHERIES

2. PURPOSE OF THE SPECIFIC CONTRACT

This study has three specific objectives:

1. Estimate the contribution of the new fishing technologies (implemented by the tropical tuna purse seine fisheries) to fishing mortality;

2. Estimate the accuracy and precision of direct indices of abundance;

3. Improve the knowledge of the environmental impact of tropical tuna fisheries and develop ecosystem management measures accounting for ecosystem considerations.