The Core Expert Meeting on Comparative Studies for Purse Seine Fisheries in the Southeast Asian Region
18-19 September 2018, Kuala Lumpur, Malaysia
Country Report:
Malaysia – East Coast of Peninsular Malaysia

Introduction
Malaysia fisheries profile

Marine fishing areas in Malaysia can be divided into several fishing sub-areas:-

◆ West (Malacca Straits)

◆ East coast (South China Sea) of Pen Malaysia,

◆ Sarawak (South China Sea),

◆ West Sabah (South China Sea)
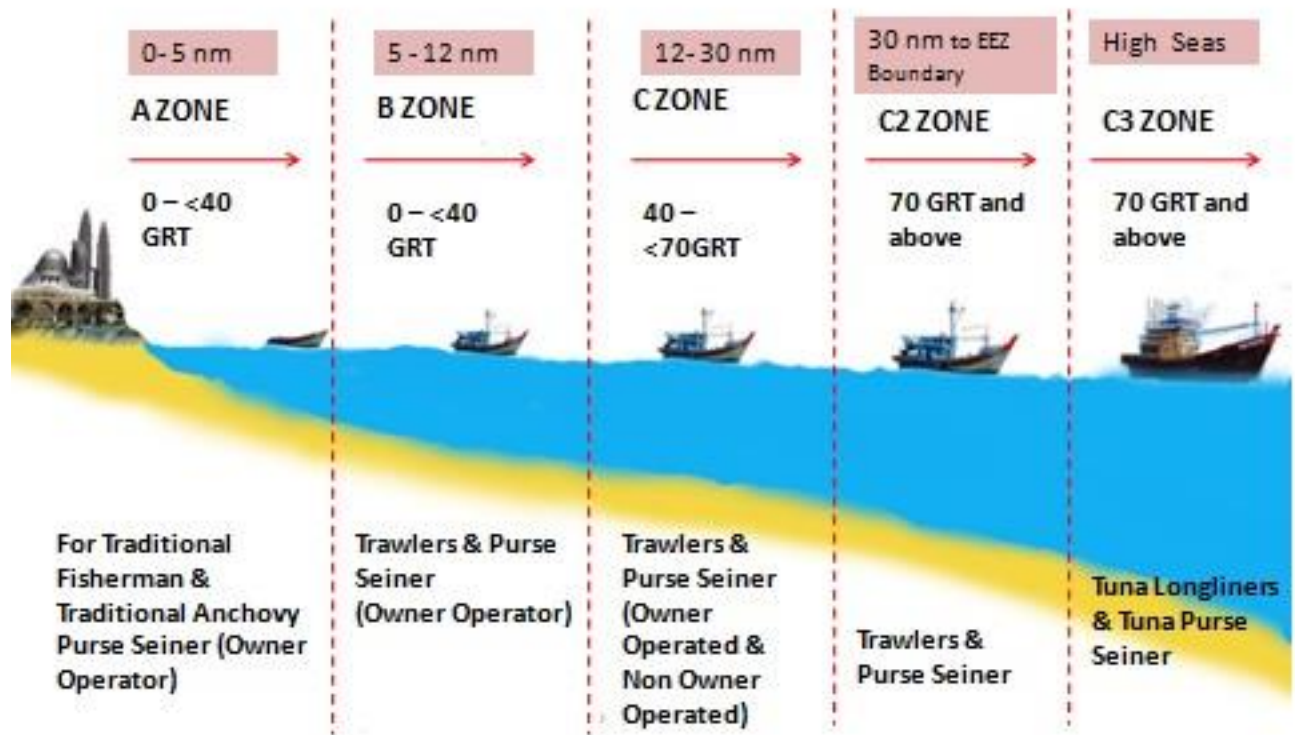
◆ East Sabah (Sulu and Celebes Seas.

The E & C PM are different. ECPM faces SCS, has a sandy bottom due to the presence of patchy coral reef that occurs along the coast. ECPM subject to severe weather during the north-east monsoon (Nov-Mar), during which no fishing – (except prawn trawling)

Introduction

+ The fisheries sector is an important sub-sector in Malaysia and plays a significant role in the national economy.

+ Apart from contributing to the national Gross Domestic Product (GDP), it is also a source of employment, foreign exchange and a source of protein supply for the rural population in the country

+ The marine capture fisheries can be categorized into two main types, namely coastal or inshore fisheries, and offshore fisheries

+ Various types of fishing gear used by the fishermen. -trawl, fish purse seine, driftnet, gill net - and traditional fishing gear, including hook-and-line, bag net, trammel net, lift net and traps. However, the fishing gears that contribute the bulk of the landings are trawls, purse seines, drift nets and gill nets.
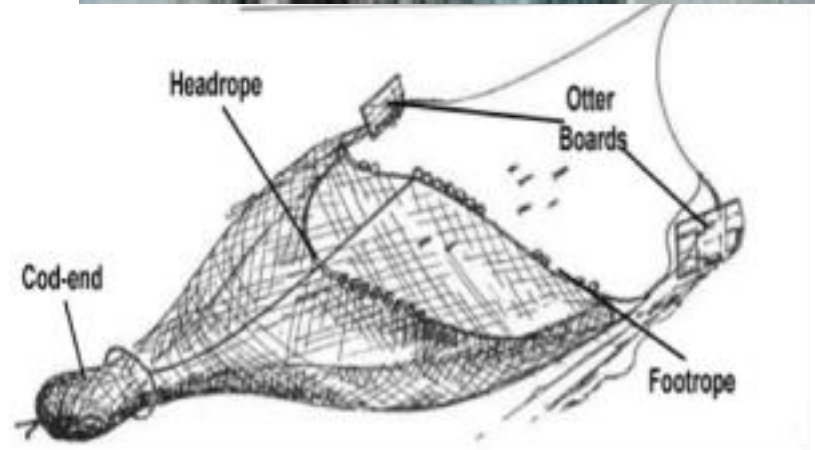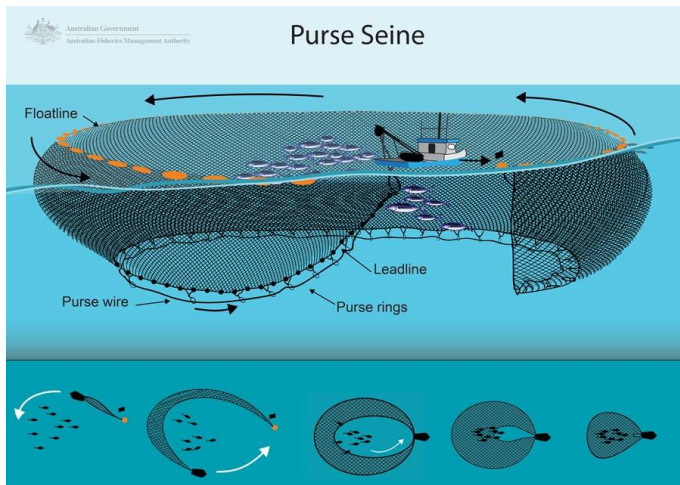
Fish Zones

Fishing area of Fish and Anchovy purse seine

0-5 nm	5 - 12 nm	12- 30 nm	30 nm to EEZ Boundary	High Seas
A ZONE	B ZONE	C ZONE	C2 ZONE	C3 ZONE
0 – <40 GRT	0 – <40 GRT	40 – <70GRT	70 GRT and above	70 GRT and above
For Traditional Fisherman & Traditional Anchovy Purse Seiner (Owner Operator)	Trawlers & Purse Seiner (Owner Operator)	Trawlers & Purse Seiner (Owner Operated & Non Owner Operated)	Trawlers & Purse Seiner	Tuna Longliners & Tuna Purse Seiner

* There is no restriction for vessels operating in the inner zones to fish in the zones further up e.g. vessels in Zone A are allowed to fish in Zone B, C and C2.

Types of Fishing Gear

Purse Seine

Floatline
Leadline
Purse wire
Purse rings

Headrope
Otter Boards
Cod-end
Footrope

Purse Seines-(Design and size of fishing gear and fishing vessel)

+ PS Vessel Categorized based on their gross tonnage

  + <10 GRT

  + 10 -24.9 GRT

  + 25 – 39.9 GRT (above 5 nm off shore)

  + 40 – 70 GRT (12 nm off shore) and

  + Above 70 GRT (above 30 nm offshore)

Continue…Purse seine fisheries…..

+ Major fishing gear used to exploit the pelagic fish resources.

+ Two main types –

+ *Fish purse seine*
    + The fish purse seine, which is used to catch small pelagics
    + Operated with or without fish aggregating devices (FADs),
    + The catching efficiency increased by using spotlights and sonar

+ *Anchovy purse-seine*
    + which is used to catch anchovies in the coastal waters.

Anchovy Purse seine

+ Without spotlights

+ With spotlights

Anchovy Purse seine

| Anchovy PS	Anchovy PS-Light
1. Day operation (0800 – 1700) 2. Searching school of fish 3. Length net -915 m, Width 146 m 4. No of crew 25 persons	1. Night operation (1700 – 0800) 2. Attract by light 3. Length net 73 m, Width -31 - 36 m 4. No of crew 7 – 15 persons

Fishing area

Source:

1. Information Collection for Sustainable Pelagic Fisheries in the South China Sea 2006

2. Fisheries Resources Survey-Tuna
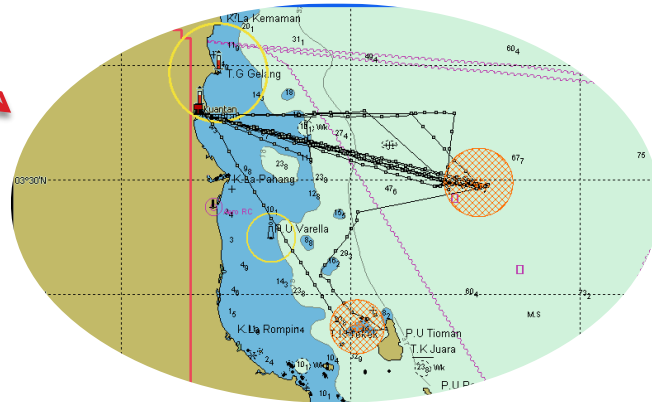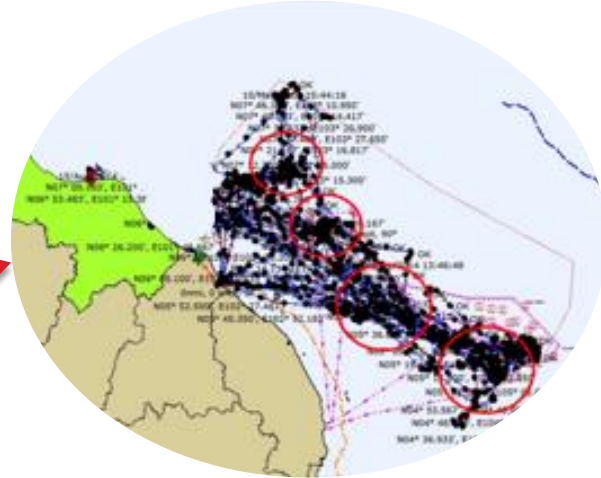
Landing Trend

Total landing of Pelagic fish ans Anchovy (MT) by type of Purse seine in EC Pen Malaysia
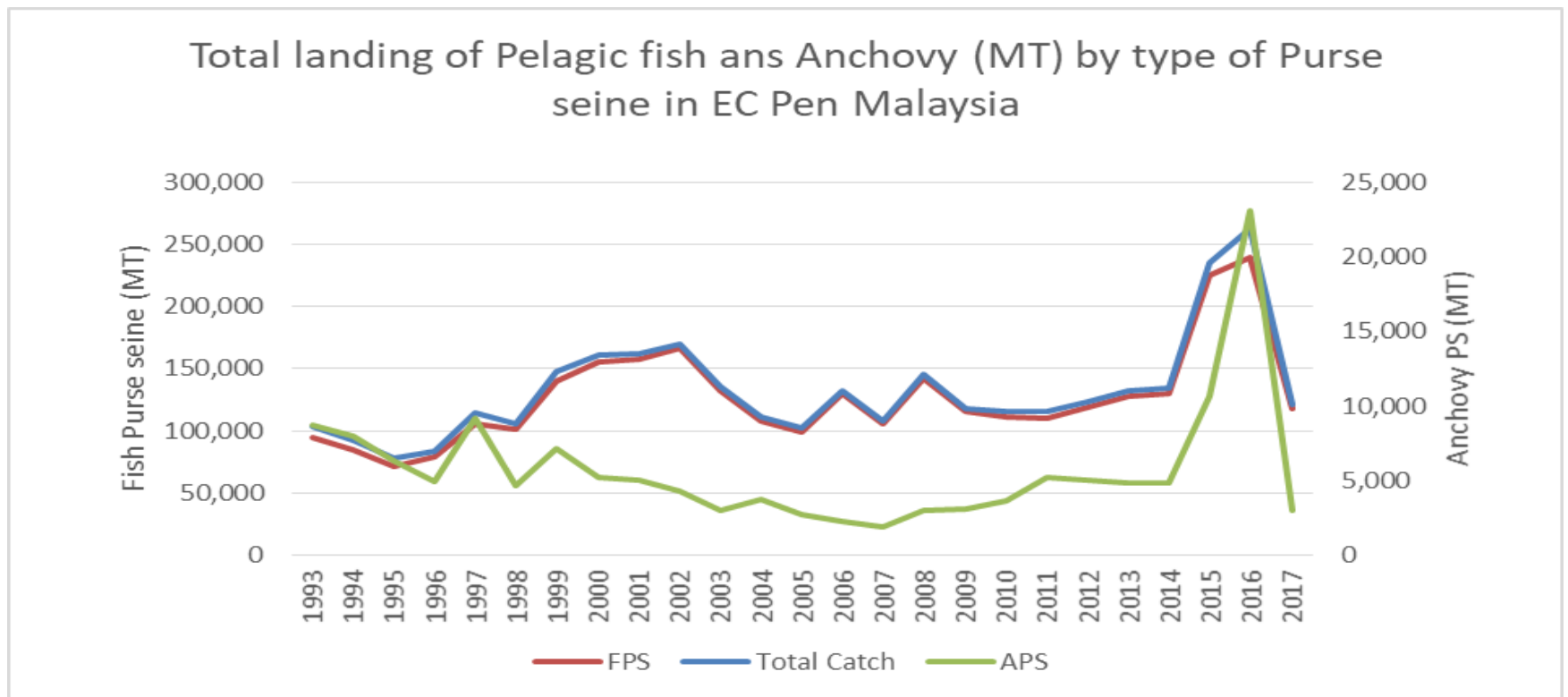
Total Landing from 1993 – 2017 by fish and anchovy purse seine in ECPM

Fish Composition(FPS &APS)
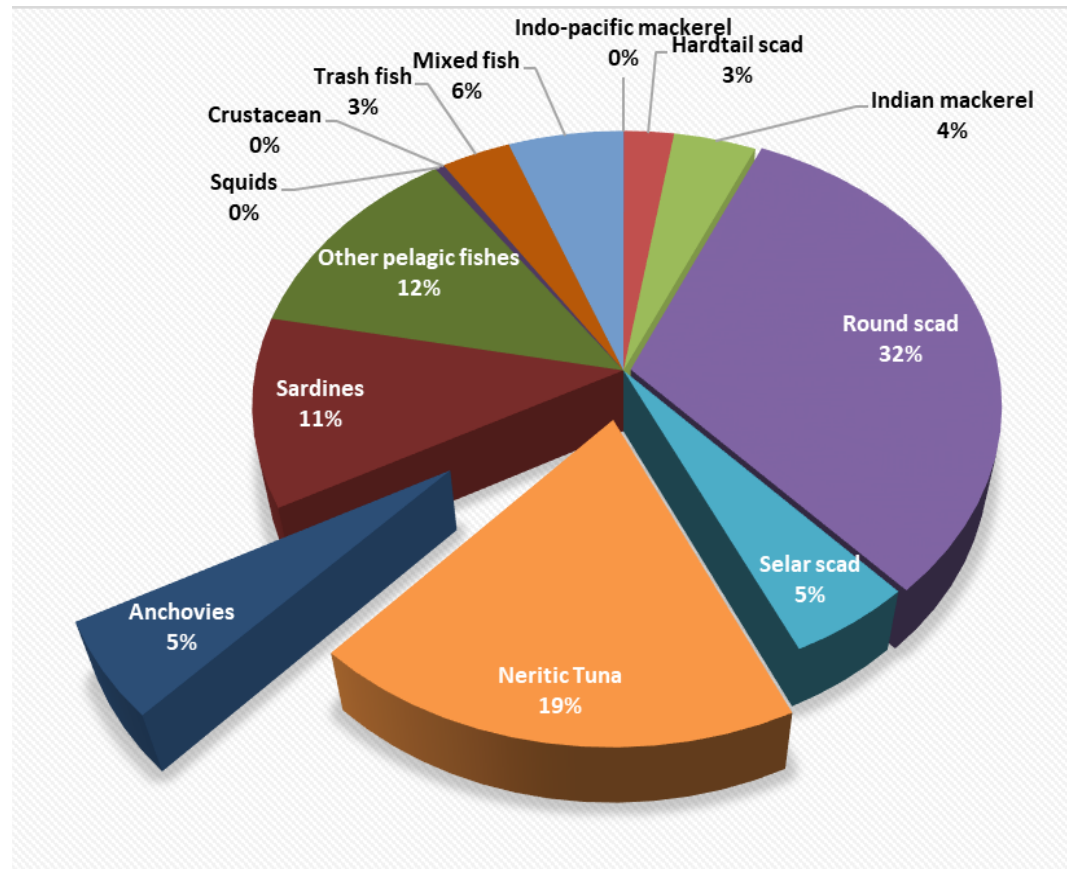
Average 2012 - 2016

Small Pelagic Fish 66%

Anchovies 5%

Neritic Tunas 19%

- ❑ Longtail tuna
- ❑ Kawakawa
- ❑ Frigate tuna

Others 10%

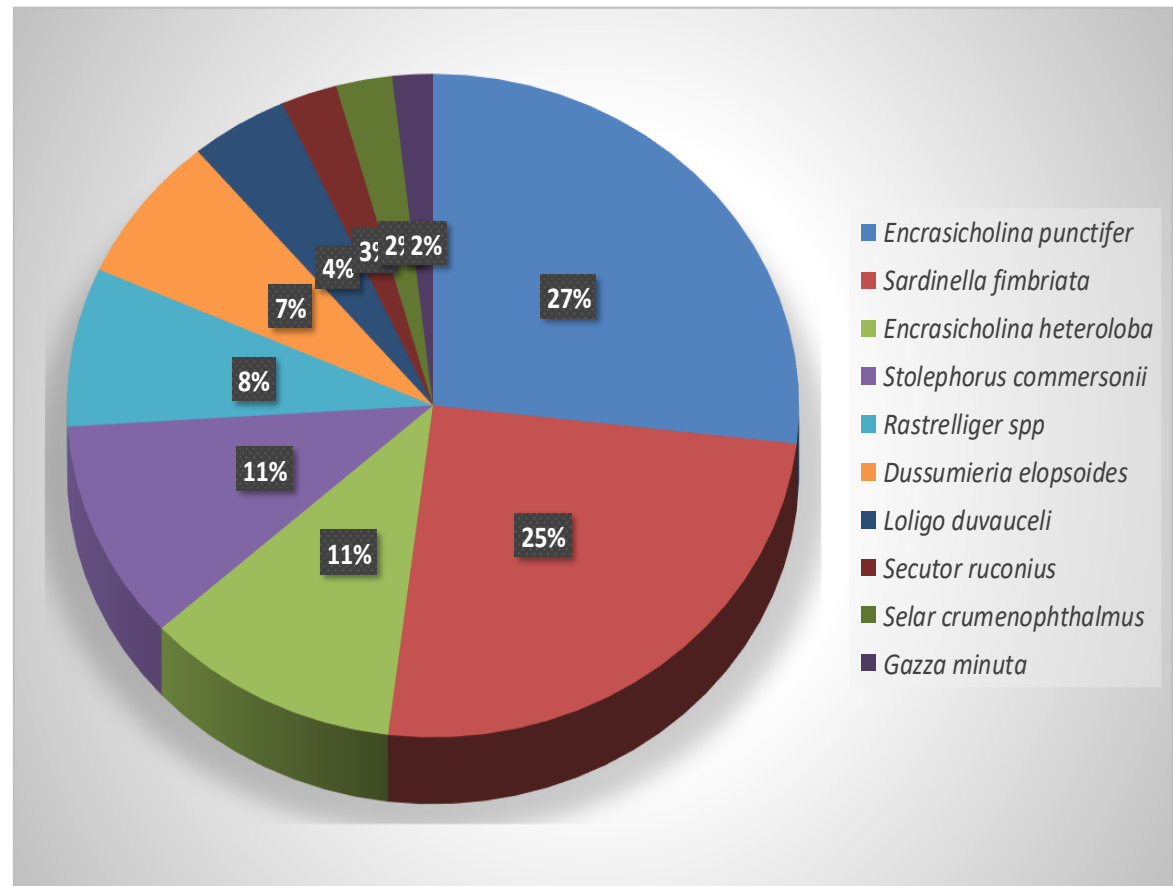# Fish Composition by Anchovy Purse seine

Encrasicholina punctifer 27%

Encrasicholina heteroloba 11%

Stolephorus commersonii 11%

■	*Encrasicholina punctifer*
■	*Sardinella fimbriata*
■	*Encrasicholina heteroloba*
■	*Stolephorus commersonii*
■	*Rastrelliger spp*
■	*Dussumieria elopsoides*
■	*Loligo duvauceli*
■	*Secutor ruconius*
■	*Selar crumenophthalmus*
■	*Gazza minuta*

27% 25% 11% 11% 8% 7% 4% 3% 2% 2%

The Length at First Maturity by species

Base on study

Information Collection for Sustainable Pelagic Fisheries in the South China Sea 2006

Species	Total Length at first maturity (mm)	
	F	M
Rastrelliger kanagurta	183 – 184	194 – 233
Decapterus maruadsi	146 – 155	166 – 175
Decapterus macrosoma	154 – 163	156 – 185

Spawning Season

Base on study

Information Collection for Sustainable Pelagic Fisheries in the South China Sea 2006

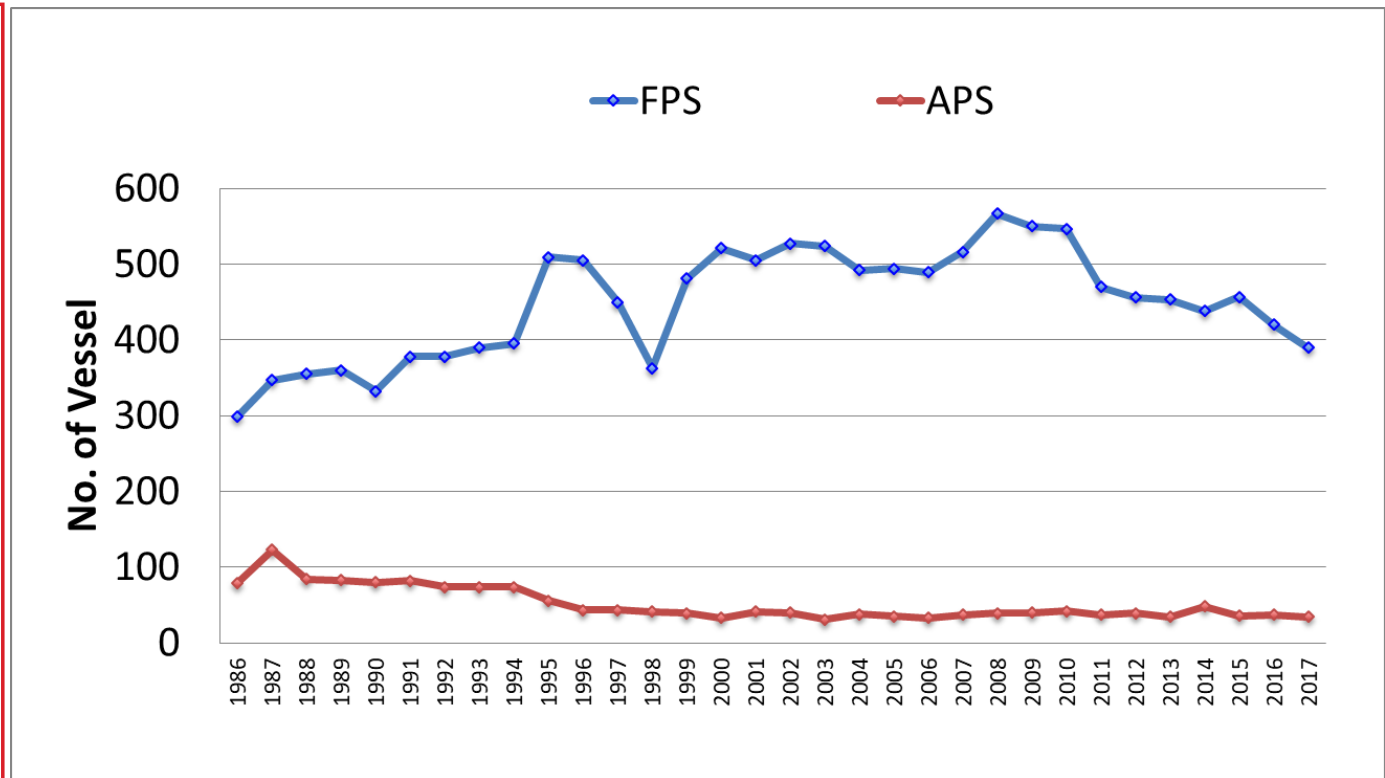| Species	Spawning Season
Rastrelliger kanagurta	May-Jun & Jul-Sept
Decapterus maruadsi	Mar-May & Jul-Aug
Decapterus macrosoma	Mar-Apr & Jul-Aug

Fishing effort for purse seine fisheries

No of Fish and Anchovy Purse Seine in ECPM 1986-2017

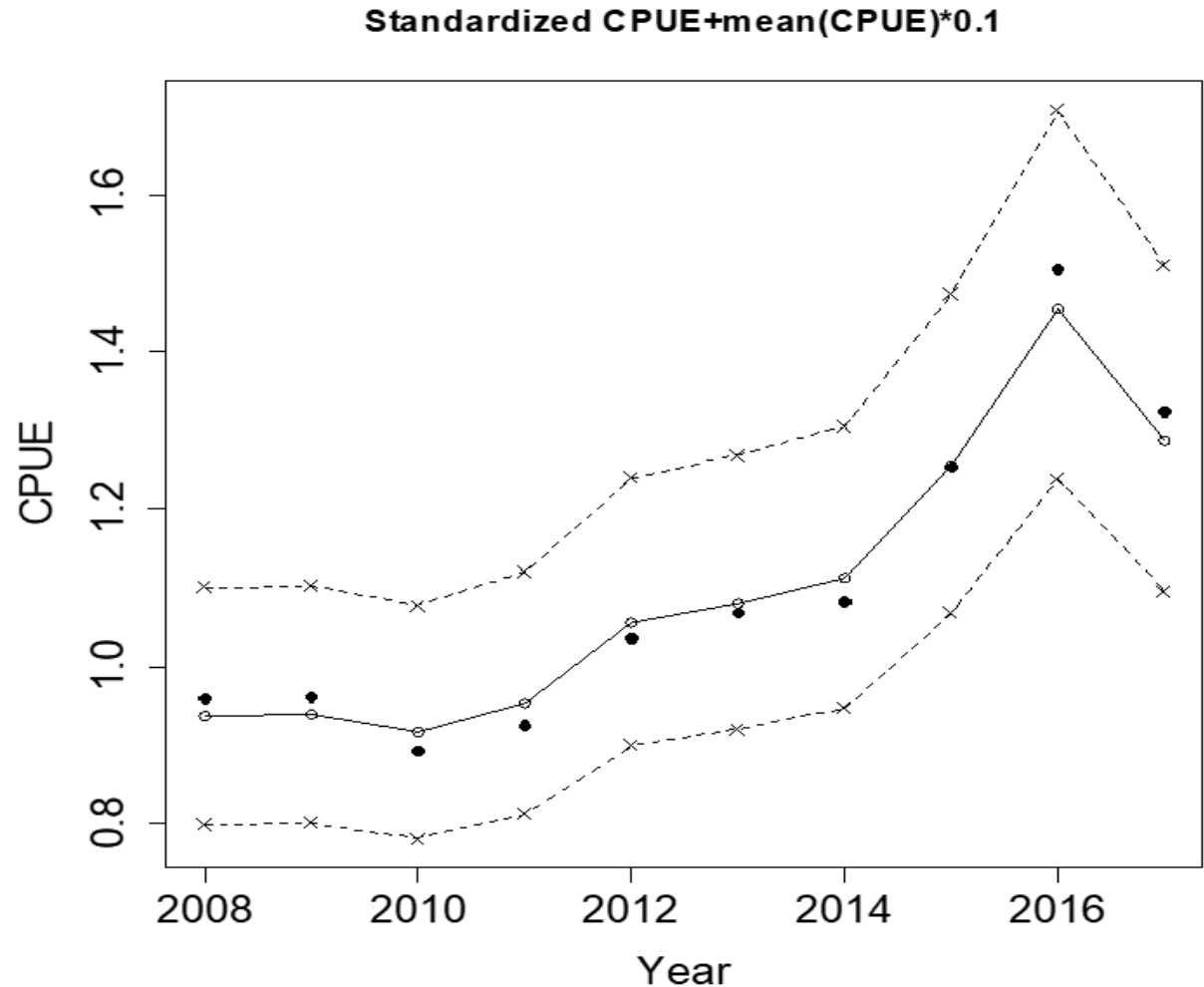FPS – Decrease since 2008 until present
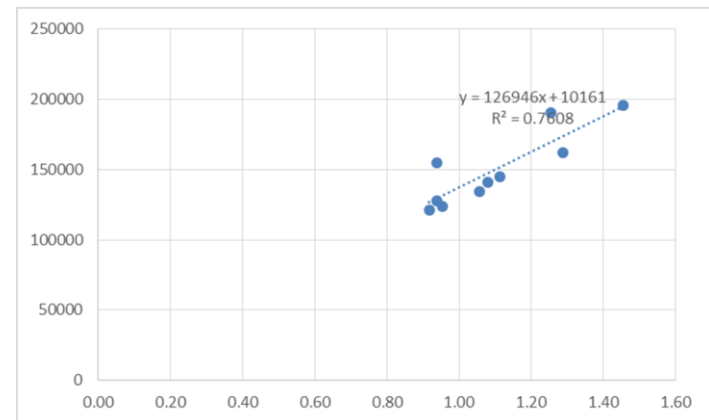
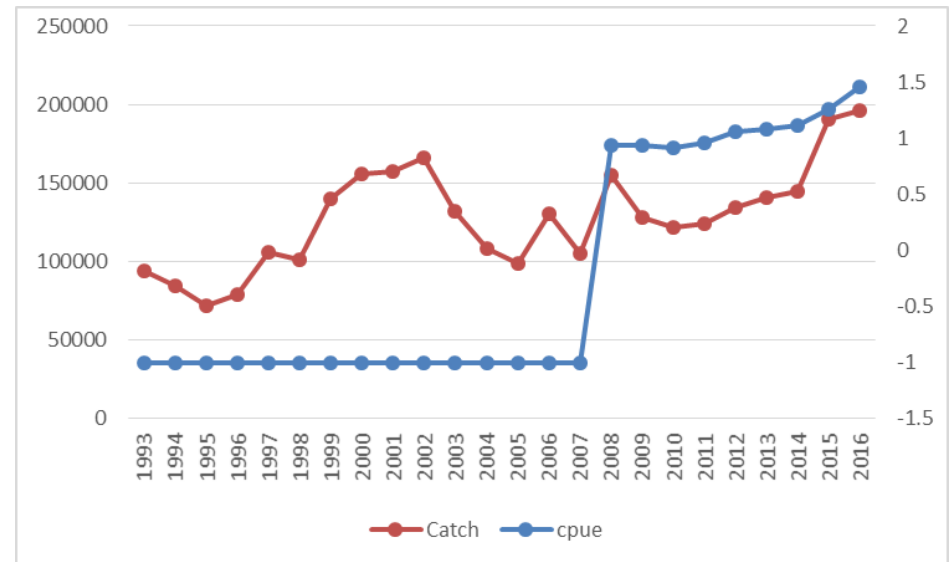APS – Decrease since 2013 until present

CPUE (Nominal & Standardized)

Annual standardized CPUE (solid line with 95% Confidential Interval and Nominal CPUE (Black dots)

Standardized CPUE+mean(CPUE)*0.1

RELATION BETWEEN CATCH VS STANDARDIZED CPUE

Catch (MT) vs STD_CPUE in EC PM
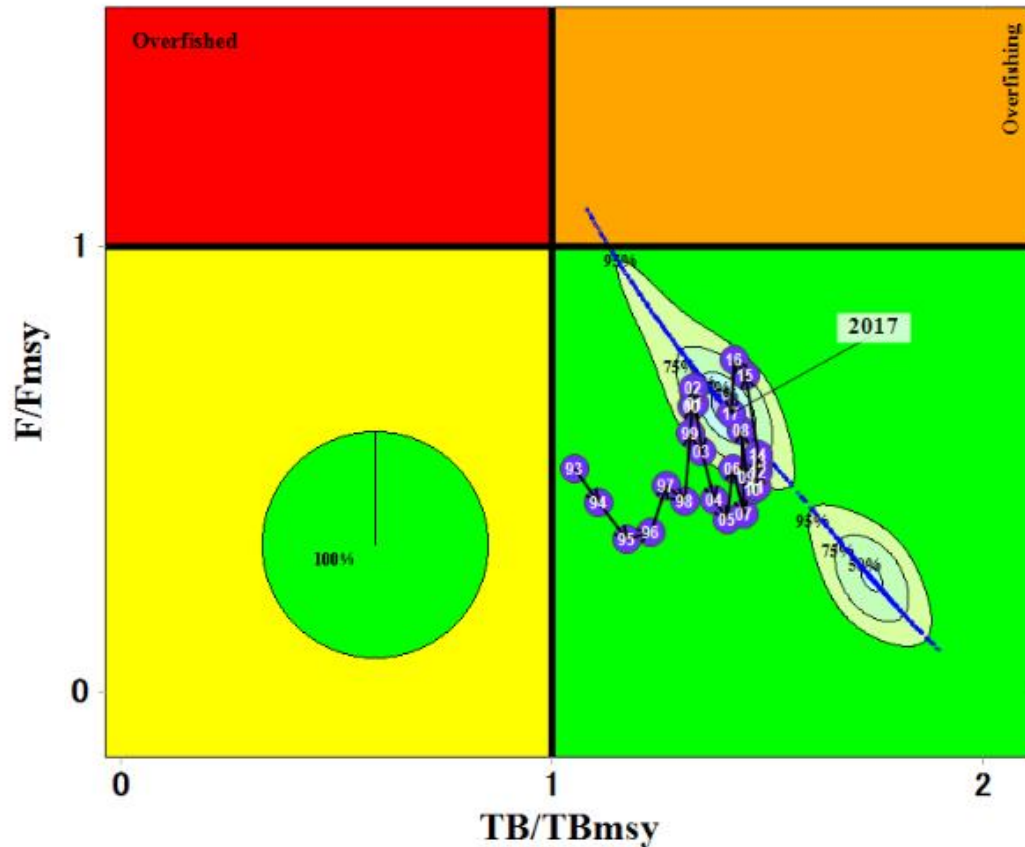
Status of pelagic fish stock

Current status (2017) is in Green zones

TB/TBmsy =1.41

TB 41% higher than MSY

F/Fmsy =0.63

F 37% lower than MSY

Probabilities violating TBmsy and Fmsy in 3 and 10 years

Current catch level 182,773 t (2015-2017)

MSY level 183,100 t

Probabilities(%) violating TBmsy and Fmsy in 3 and 10 years.

Color legend				
Risk levels	Low risk	Medium low risk	Medium high risk	High risk
Probably	0 - 20%	20 - 50%	50 - 80%	80 - 100

10 catch scenarios (tons)	60%	70%	80%	90%	100% MSY level	100% Current catch (*)	110%	120%	130%	140%
	109,664	127,941	146,218	164,496	183,100	182,773	201,050	219,328	237,605	255,882
TB2020 < TBmsy	0	0	0	0	0	0	0	0	0	1
F2020 > F MSY	0	0	0	0	0	0	4	11	29	60
TB2027 < TBmsy	0	0	0	2	5	5	9	13	21	38
F2027 > F MSY	0	0	0	0	5	5	16	54	64	67

(*)The current catch levelis the average catch in 3 recent years (2015-2017).
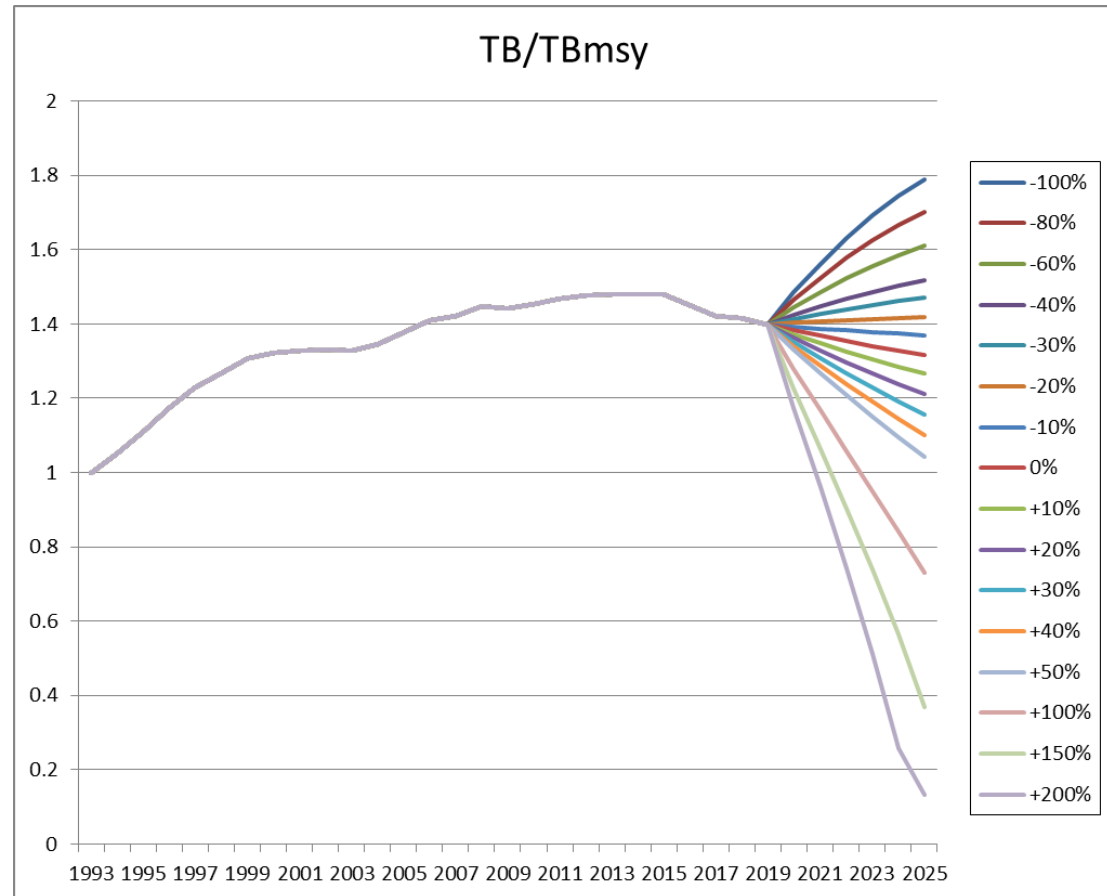
F_Risk

Increased and decreased will affect the status of F/Fmsy
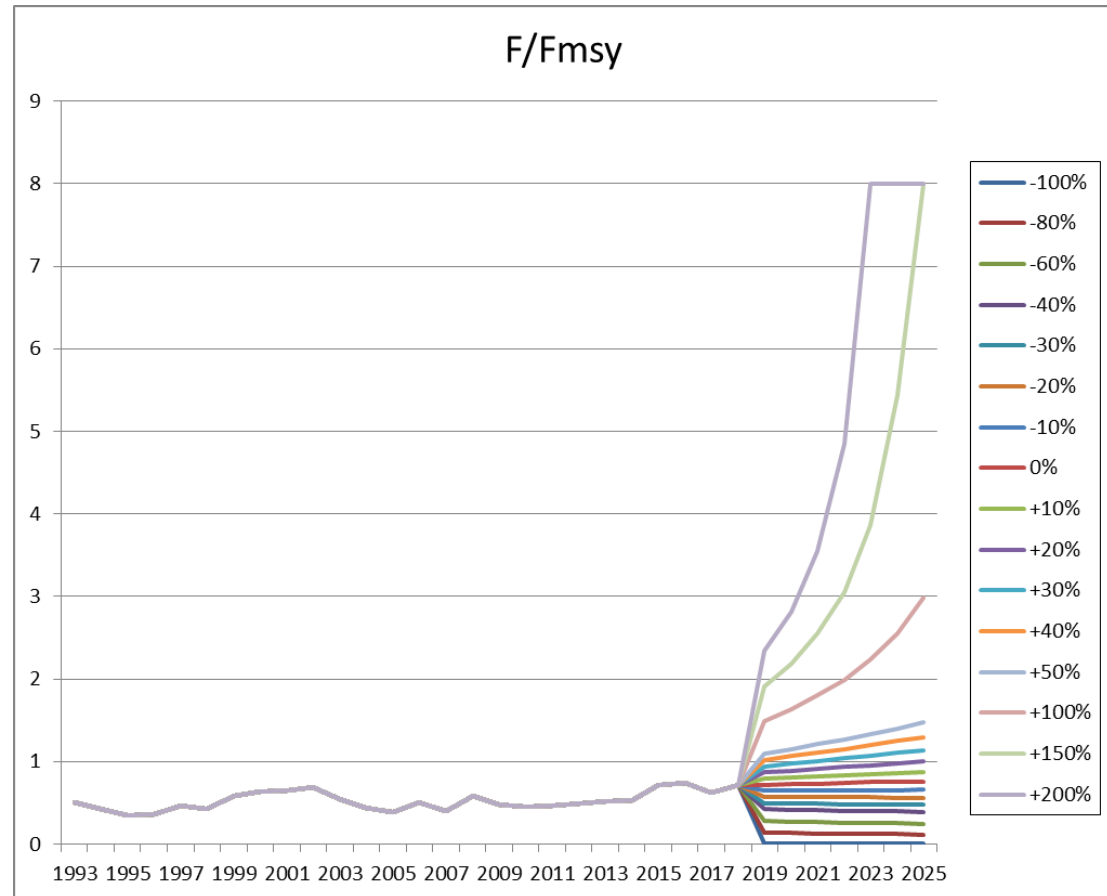
TB_Risk

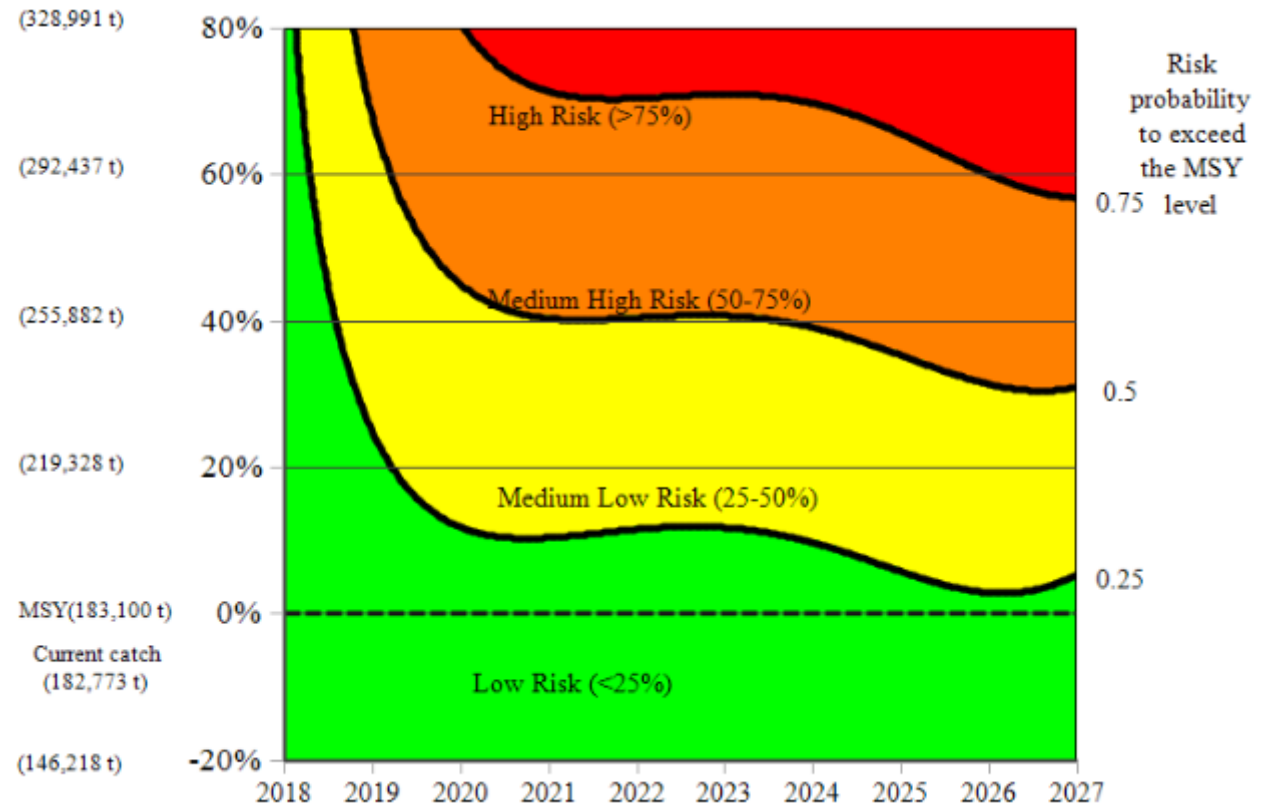Increased and decreased will affect the status of TB/TBmsy

TB/TBmsy

Legend:
- -100%
- -80%
- -60%
- -40%
- -30%
- -20%
- -10%
- 0%
- +10%
- +20%
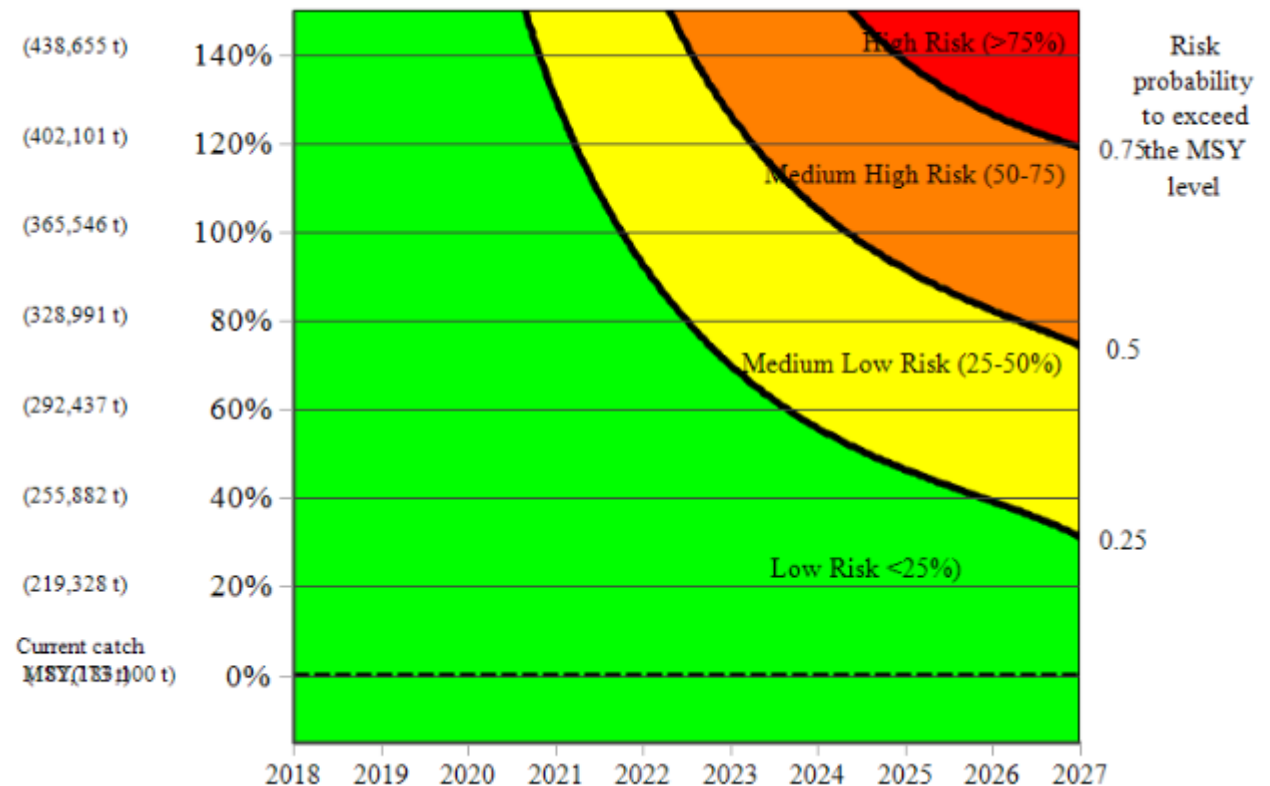- +30%
- +40%
- +50%
- +100%
- +150%
- +200%

F_Risk

Maintain current catch (2017) for 10 year will give results (Green zone)

Low Risk (<25%) of Fishing Mortality

TB_Risk

Increased 20% of catch landing form 2017 still give result in green zone in the next 10 years (Low Risk (<25%) in TB

Management measures for purse seine fisheries

+ One of the goals of fisheries management is to achieve sustainable pelagic fisheries

+ The management measures that have been implemented through the legal and institutional framework to control fishing effort include :

A. *direct limitation of fishing effort* =

    + Licenses for Zone A, B and C are no longer issued.

    + Application for permits for C2 (Deep Sea) zone is no longer issued.

    + Applications for permits for C3 (International Sea Waters) are still permitted.

Continue- *Management measures........*

B. **Controls on size and power of fishing vessels**

Any attempt by fishermen to change the tonnage or engine power of fishing vessels requires permission from the Director-General of Fisheries.

C. **Registration of fishermen**

This program controls entry of new individuals into the fishing industry. Every fisherman is required to have a fisherman registration card.

D. **Resettlement of excess fishermen into the other sectors**

Buy back scheme

Continue- *Management measures........*

E.   Closed fishing areas

Identification of nursery areas that should be protected and managed as a nursing area to ensure survival of juveniles of commercially important fish species –

> (i.e. Refugia of lobster in east Johor- under studies)

F.   Management zones

Marine Park (i.e. Pulau Redang & Pulau Perhentian)

G.   Rehabilitation of Resources

Artificial reef: to alleviate the problem of depleting fish resources in the coastal waters

H.   Monitoring, Control and Surveillance Program for fisheries management

Vessel Monitoring System (VMS) and Automatic Identification System (AIS)

Thank You
Terima Kasih