

The 4<sup>th</sup> Core Expert Meeting on “Comparative Studies for Management of Purse Seine Fisheries in The Southeast Region” Kuala Lumpur, Malaysia 18 - 19 September, 2018

# Management of Purse Seine Fisheries in Myanmar

Department of Fisheries  
Myanmar

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# Introduction



- Land area - 676,577 sq.km
- Population - 54 million
- Coastal length - 2832 kilometers
- Marine water areas - 486,000 sq.km



# **Coastal Fisheries activities are classified into two components as follows :-**

## **1. Marine Capture fisheries**

- ❖ Inshore Fisheries**
- ❖ Offshore Fisheries**

## **2. Mariculture**

- ❖ Marine Fish, Soft-shell Crab and Shrimp**
- ❖ Seaweed**

# Marine Capture Fisheries

# Marine capture fisheries

## a. In-shore Fishery

- Zone: 0-10 nautical mile from shore
- Engine:  $\leq 25$  hp
- Length of the boat:  $\leq 30$  ft



## b. Off-shore fishery

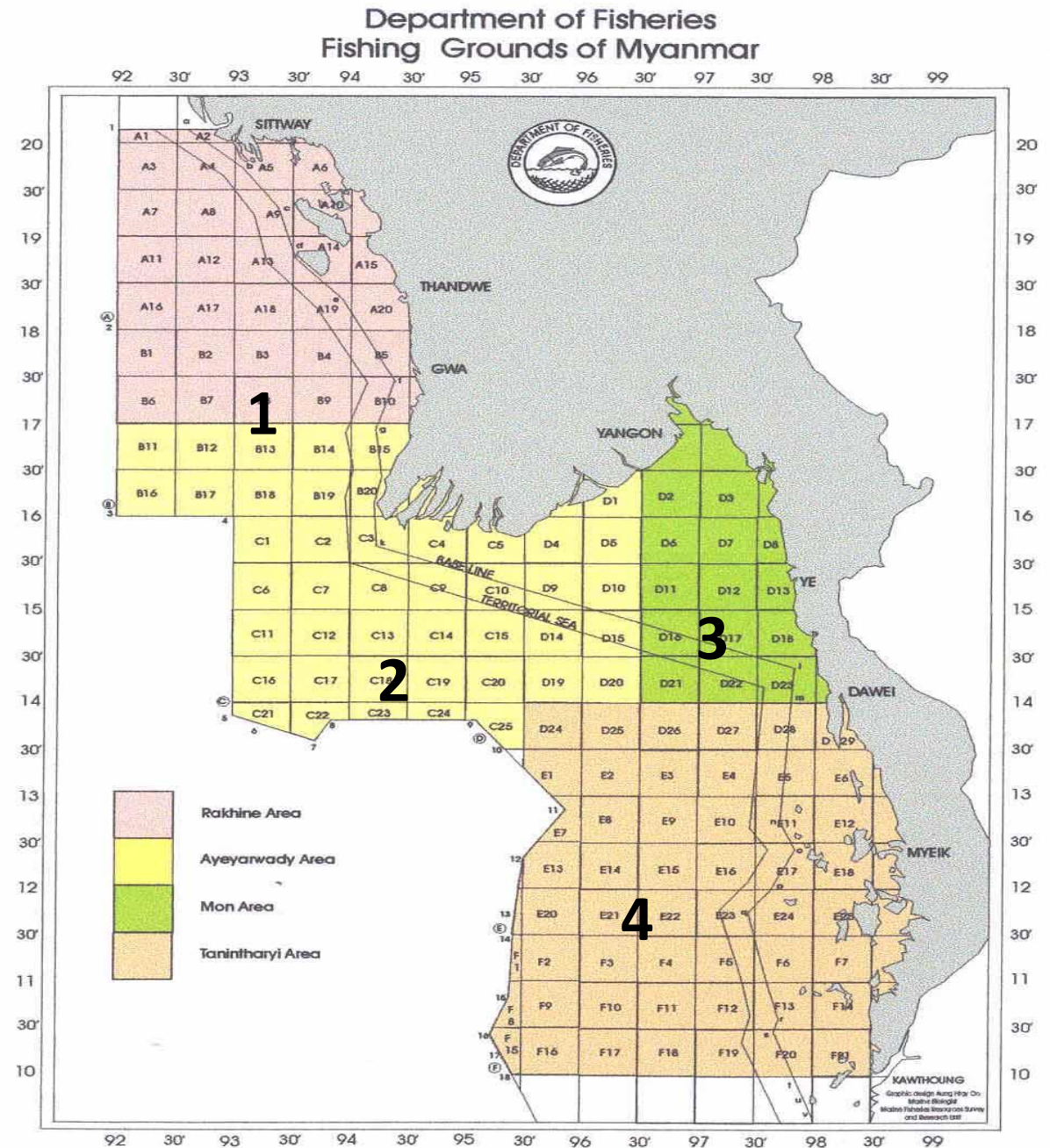
- Zone: 10 nautical mile to end of EEZ
- Engine:  $\geq 25$  hp
- Length of the boat:  $\geq 30$  ft



# Offshore Fisheries

*Demarcated into 4 fishing grounds*

- 1. Rakhine Area
- 2. Ayeyawady Area
- 3. Mon Area
- 4. Tanintharyi Area





## Types of off-shore fishing gear

No	Type of Gear
1	Trawl
2	Purse seine
3	Stow net
4	Drift net (Gill net)
5	Long line
6	Squid cast net
7	Fish Trap



# Purse Seine Fisheries

# Purse Seine Fisheries

- **Two main types of pelagic fishery in Myanmar waters:**
  - Fish purse seine, which is used to catch pelagic species like *Hilsa*
  - Two boats seine, used to catch anchovies in inshore coastal waters
- **Purse seine is the major fishing gear used to exploit the pelagic fish resources.**
- **Common fishing area for purse seine fisheries: Southern area of Rakhine state and Tanintharyi Region**



# Fish purse seine

- The **fish purse seine** boats are about 50 to 100 GRT and operated in a traditional manner, without fish aggregating devices (FADs). Most purse seiners have an expert skipper in seeking out fish schools by using sonar.
- *Hilsa* fish is mainly harvested and the fishing season for fish purse seine is from October to May annually.



# Anchovy purse seines

- **Anchovy purse seines** are two boats seine operated in very shallow waters inshore areas and target mainly anchovies of the genus *Stolephorus*. The anchovy purse seine fishery also harvests small mackerels and sardine species, such as *Rastrelliger* spp. and *Sardinella* spp.
- Two techniques of fishing operation: free school fishing and light luring fishing (night). Fishing season is from October to May annually.
- Anchovy fishery is important particularly along the Southern coast of Rakhine. Post-harvest technique is primitive, mainly rely on sun-drying on the shore.



# Purse seine fishing boats

Number of purse seine fishing vessels engaged in offshore and inshore fishery waters

No	Type of Gear	Year										
		2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
1	Fish Purse Seine (Offshore)	152	158	161	168	273	278	287	283	284	310	329
2	Anchovy Purse Seine (Inshore)	375	374	375	377	366	362	360	297	217	350	350

# Commercial Pelagic fishes

# *Hilsa* shad



- *Hilsa* is very important pelagic fish resource in Myanmar, highly contributed to the national economy by small-scale fishery and industry fishery. It is distributed widely on the entire coast of Myanmar as well as in the inland waters. The fish migrate through the river system, particularly, the Ayeyarwady river complex as spawning ground.
- Fishing season of the delta area is from September to March with two peak seasons namely, August and September. The most effective fishing gears previously is encircling gill nets. Since last decade, purse seine was introduced as new fishing technology in this fisheries in order to increase catch production.



## Mackerels



*Rastrelliger kanagurta*  
(Indian Mackerel)



*Rastrelliger brachysoma*  
(Short Mackerel)

The Indian mackerels are caught mainly by fish purse seines, encircling gillnets and occasionally by bottom trawls. Their fishing grounds extend widely from the inshore to the offshore of Myanmar coastal areas.

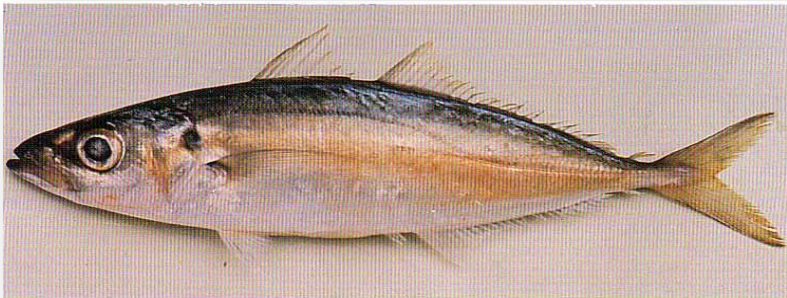
# Sardines



The sardines found in Myanmar waters belong to *Sardinella* spp. Among *Sardinella* spp., the goldstriped sardine (*Sardinella gibbosa*), fringescale sardine (*Sardinella fimbriata*) and spotted sardine (*Sardinella amblygaster*) are commonly found. However, they are grouped together as sardines (*Sardinella* spp) in the Myanmar fisheries statistics .

Sardines are widely distributed with high concentration in the coastal areas. They are caught mainly by purse seines, encircling gillnets and driftnets.

# Pelagic Fishes



## Round Scads

The round scads found in Myanmar waters are represented by three species of *Decapterus* spp. Among them, *Decapterus macrosoma* and *Decapterus maruadsi* are commonly caught in Myanmar waters. The round scads are widely distributed in the offshore waters.

They are caught mainly by purse seines. The catch of all species of round scads are grouped together as *Decapterus* spp in the Myanmar fisheries statistics .

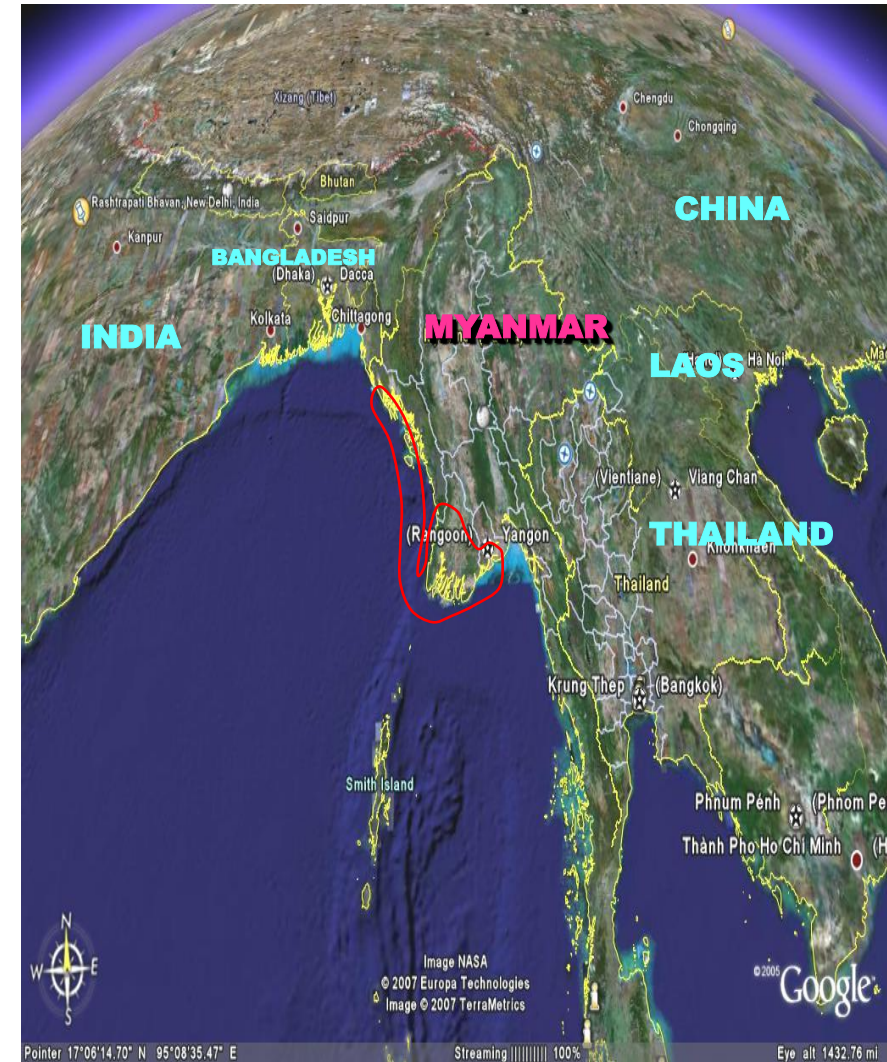
## Bigeye scad



- The bigeye scads (*Selar crumenophthalmus*) are abundant and widely distributed in the offshore waters as the round scads.
- They are caught together with the round scads from purse seine fishery and also trawl fishery.

## Fishing ground of *Hilsa* in Myanmar

Spawning grounds and migration routes of *Hilsa* shad in the Rakhine Coast. There are no *Hilsa* fishing ground and fishing activities in Myeik Archipelago.



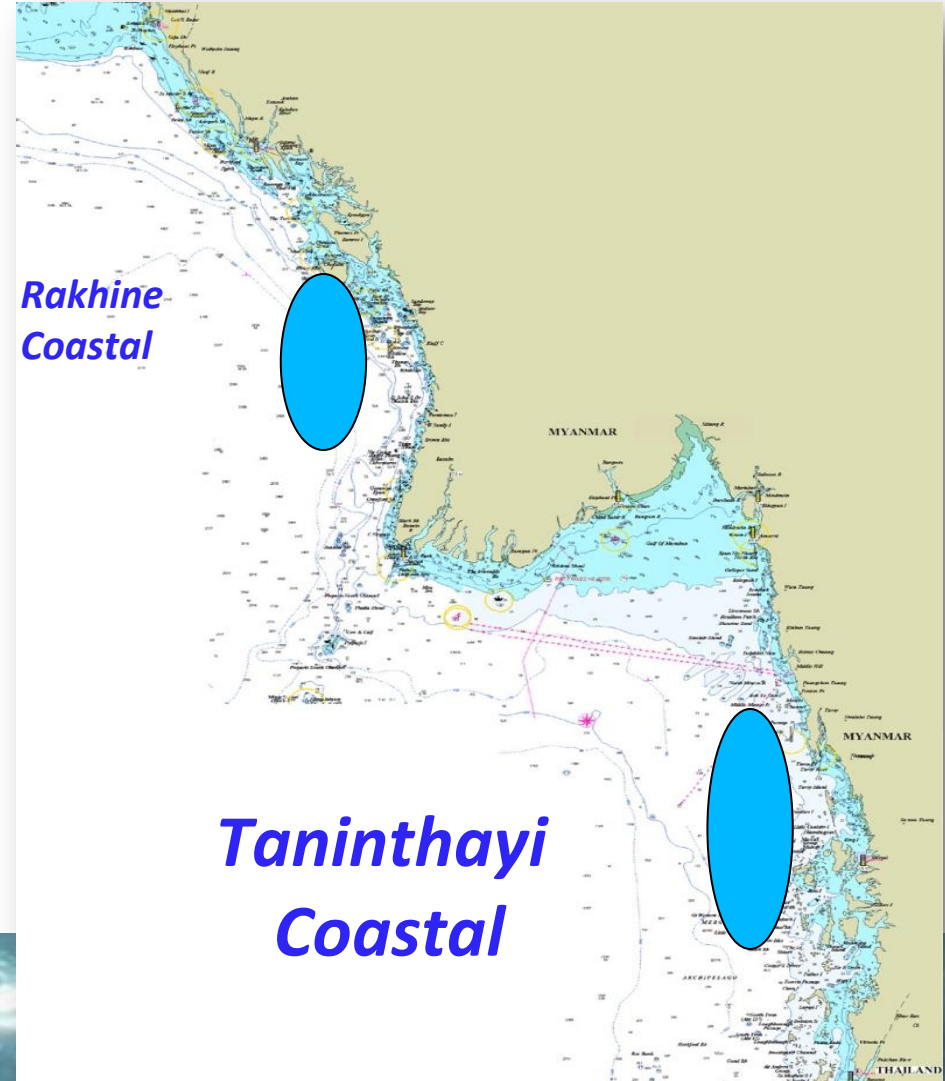
# Indian Mackerel and Indo Pacific Mackerel Fishing Grounds



*Rastrelliger kanagurta*  
(Indian Mackerel)



*Rastrelliger brachysoma*  
(Short Mackerel)



# Fishing Season of the Indian Mackerel



Area	Months											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rakhine	■	■									■	■
Tanintharyi	■	■	■	■							■	■



Fishing season



# Anchovy Fisheries



## Anchovy Species



The anchovies in the Myanmar waters belong to the species of *Stolephorus* spp:

- Commerce's anchovy ( ***Stolephorus commerson*** )
- Indian anchovy ( ***Stolephorus indicus*** )



They are commercially important and very abundant in the nearshore waters. The anchovies are caught by small-meshed purse seine and beach seine.

# Anchovy fisheries



# Anchovy fisheries



## Landing of Anchovy purse seine fisheries in Rakhine

Year	Number of boats	Catch (in ton)				Total (in ton)
		Anchovy	Sardine	<i>Rastrelliger</i> spp	Other	
2005-2006	368	4505	1457	100	1030	7092
2006-2007	377	1978	1842	30	3857	7707
2007-2008	375	5024	1028	58	3022	9132
2008-2009	374	6188	2215	44	2170	10617
2009-2010	375	6973	3216	20	3998	14215
2010-2011	377	7873	3926	32	4301	16132
2011-2012	366	5031	1816	53	5812	12712
2012-2013	362	4205	2510	79	4098	10892
2013-2014	360	2156	4773	124	6899	13952

# CPUE & Status of Pelagic Fish

## Offshore and Inshore Purse Seine Catch Activities and CPUE

- **Offshore Fish Purse seine**

Number of haul / day	= 1 – 2 haul / day
Number of day / trip	= 15 – 20 days
Number of day / month	= 20 days
Number of fishing month / year	= 7 - 8 months
CPUE	= 1.5 to 2.0 ton / day

- **Inshore Anchovy Purse seine (two boats seine)**

Number of haul / day	= 1 – 2 haul / day
Number of day / trip	= 1 – 2 days
Number of day / month	= 10 days
Number of fishing month / year	= 6 months
CPUE	= 1 - 1.5 ton / day (Average)

# Present status of pelagic fish stock in 2013

According to the 2013 survey result by research vessel Dr. Fridtjof Nansen in Myanmar water, pelagic fish stock was decrease as shown below;

## Comparisons of pelagic fish biomass estimation 1979-80 vs 2013

- 1979-80 : 1,000,000 t (10cm mean Length, apply)
- 2013 : 110,000 t (10cm mean Length, apply)
- Standing stock in 2013 is possibly about 10% of 1980 Biomass

# Constraints

- Lack of latest data: information needed for marine fisheries is inadequate.
- Marine fisheries cannot be successfully managed unless information on key aspects is known.
- Accuracy of data collection: the difficulty in marine fisheries data collection is due to the dispersion of data sources. If data collection is done through interviews and port or market, the sampling collectors may not get enough accurate data because data sources are numerous and disperse.
- Difficulty in acquiring actual data: fishing vessels transfer their catch to the port by carrier vessels. Aside, all of the inshore vessel landed their catch at their village and directly harvested by sun drying technique at the beach.
- Knowledge of scientific data collection: data collection is considered as a statistic tools in science and data gathering has to follow proper scientific procedures. The lack of basic knowledge and standardization of data collecting protocols cause difficulties in fish identification for specific marine species.
- Lack of financial support: scientific surveys of fish population in large ecosystem are difficult to be carried out in Myanmar because of limited budgets, equipment and qualified manpower. These constraints need to be resolved through internal arrangement.



# Conclusion

- Encourage research and develop long-term monitoring program, database and share information with international and regional conservation and management organizations such as FAO, SEAFDEC , BOBLME, etc. for technical and logistic support.
- Regarding data collection, training program for concerned institutions and stakeholders. (As of now FAO and Myanmar conducting pilot project for fisheries data collecting program)
- More fund should be allocated for future research and data collection program are needed.
- Apart from the government's role in fisheries development, collaboration and cooperation together with international and regional fisheries related agencies are required.

# Thanks

