

# Regional Technical Meeting on Fisheries Resource Enhancement in Southeast Asia

*Bangkok, Thailand, 24-26 April 2018*





## AGENDA 4

# Update SEAFDEC Activities on Fisheries Resources Enhancement

# The Survey of Fish Enhancing Devices in Thailand

- Promotion of Sustainable Fisheries Resources Enhancement Measures in Critical Habitats/Fishing Grounds in Southeast Asia
  - Methodologies to Introduce and Manage the Effective Fish Enhancing Devices (FEDs)

**Nakaret Y.\*, Nopporn M., Santiphong P., Rattana T. and Taweekiet A.**

## Objectives

- Collection on the FEDs construction and design
- Mapping of important fishing grounds and habitats on FEDs installation in the Gulf of Thailand and Andaman Sea.
- Identify the target species of each FEDs design

# What is FED?

- Fish Enhancing Devices (FEDs) has been developed based on a simple FAD traditionally used by fishermen
- FEDs made from artificial or synthetic fiber as Polyethylene and Polypropylene for lasting longer and affordable

(Yingyuad and Amornpiyakrit, 2010)

# What is FAD?

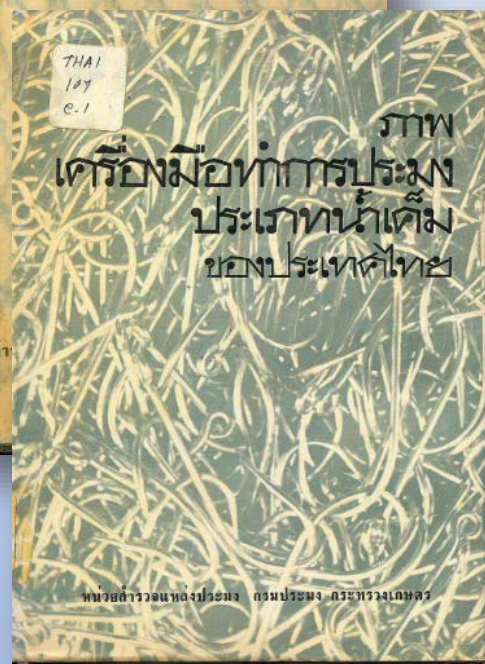
Fish Aggregating Device (FAD) is a permanent, semi-permanent or temporary structure or device made from any material and used to lure fish

(FAO-UN, 2005)

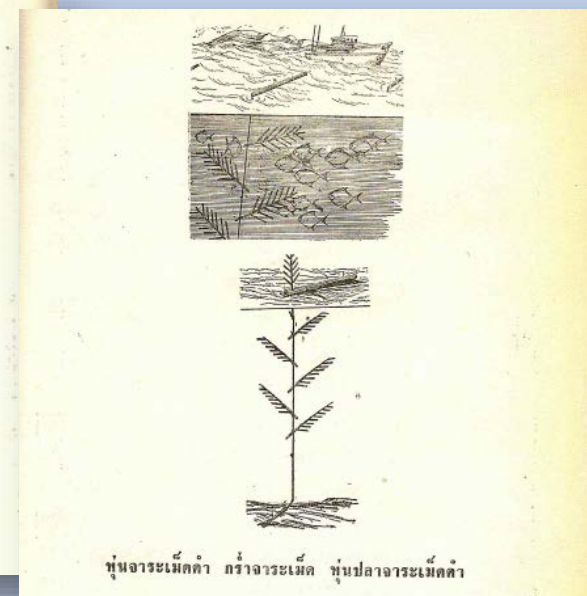
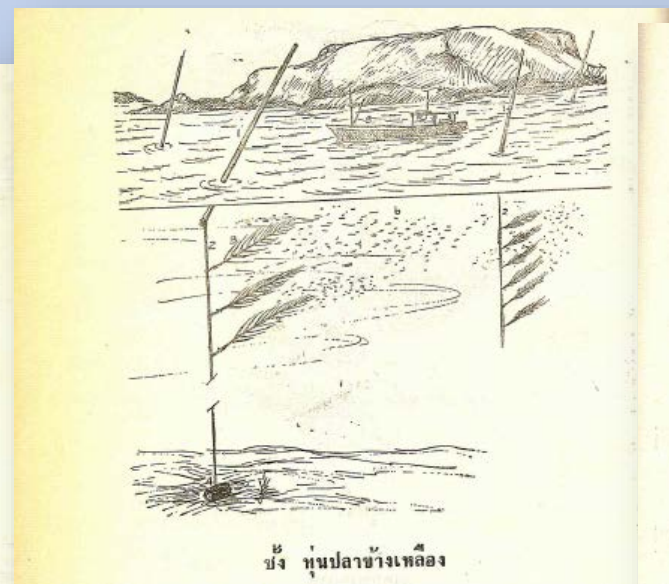
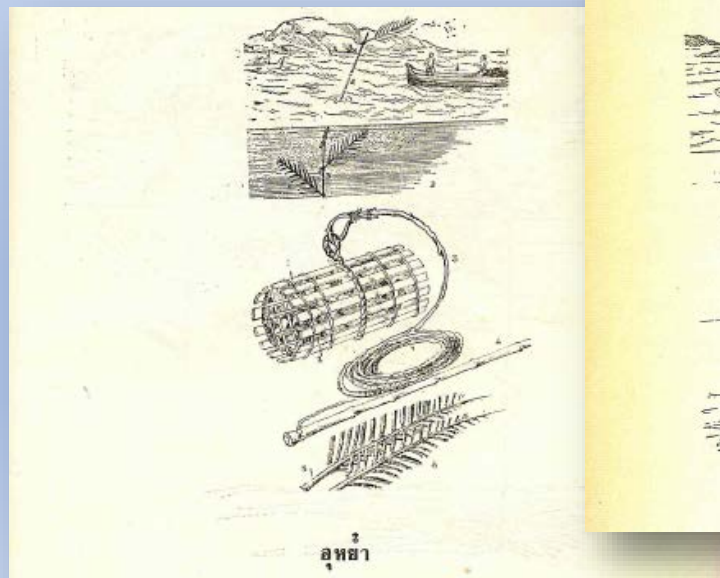
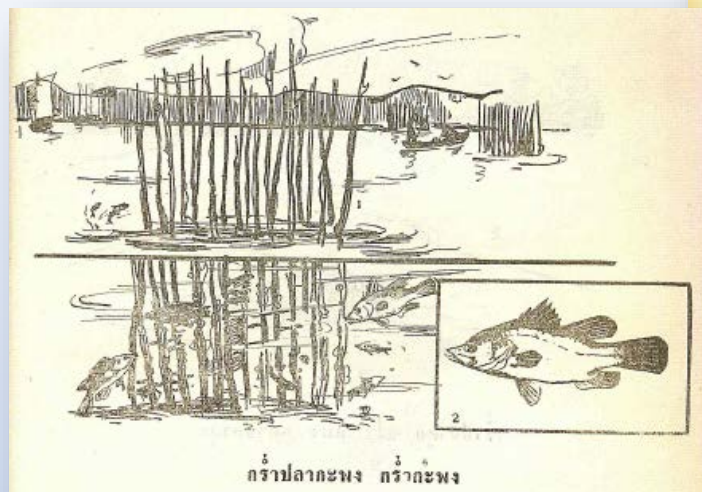
# How does FAD work?

1. The little fish may go to the FAD to hide from big fish and eat the seaweed and other plants and small animals that grow on the FAD
2. The big fish come to eat the little fish or it like to come to the FAD when theses are the only thing they can see in the middle of the sea
3. The fish do not stay close to the FAD all the time

(Ben-Yami *et al.*, 1989)



DOF Thailand (1969)

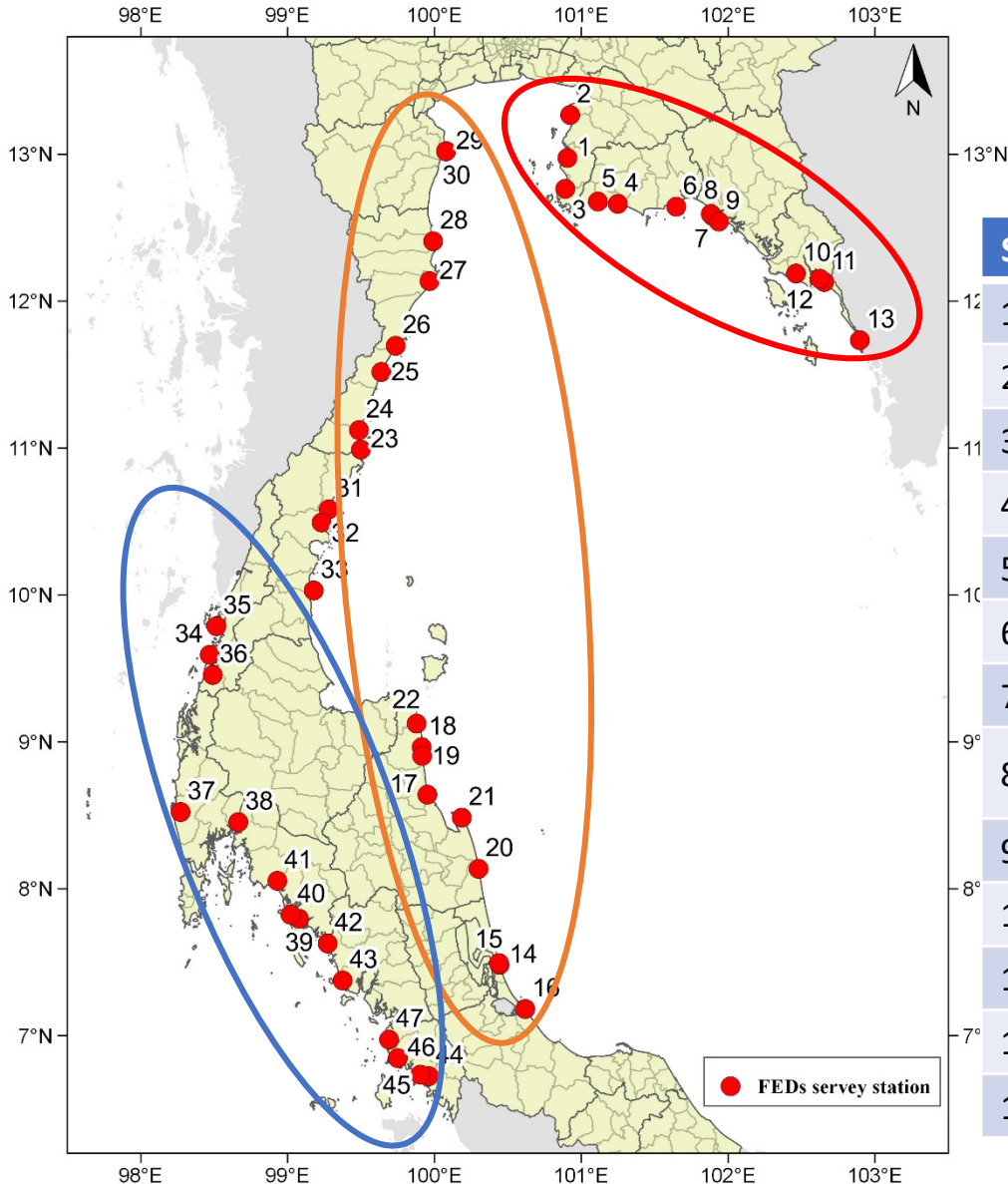


# 47 Survey Sts.

1<sup>st</sup> survey : 30 Oct - 5 Nov, 2017

2<sup>nd</sup> survey : 26 Nov - 4 Sep, 2017

3<sup>rd</sup> survey : 19 - 31 Jan, 2018



St.No.	St.Name
1	Na klua, Lan Pho
2	Had Vonnapha
3	Bang Sa-Re
4	Kao Yod
5	Had Sai Thong
6	Laem Tan
7	Khung Krabaen
8	Ban Hua Laem, Noen Nangphaya
9	Had Chao Lao
10	Ban Nam Chiao
11	Laem Klat Moo 10
12	Laem Klat Moo 2
13	Hat Lek
29	Laem Phak Bia
30	Had Chao Samran & Laem Phak Bia

St.No.	St.Name
31	Ban Thasamet, Chumphon
32	Ban Pakmahad, Chumphon
33	Ban Thongko, Chumphon
34	Ban Laemson, Ranong
35	Ban Hadsaidam, Ranong
36	Ban Naka, Ranong
37	Ban Thung Maphrao, Phang nga
38	Ban Tha Kai, Phang nga
39	Ban Klong Yang, Krabi
40	Ban Ao Thong Lang, Krabi
41	Ban Klong Prasong, Krabi
42	Ban Khao Mai Keaw, Trang
43	Ban Namrab, Trang
44	Ban Patae, Satun
45	Ban Sakorn, Satun
46	Ban Paknam, Satun
47	Ban KhonKlan, Satun

How many type of FEDs we found?

# Bush pile type



Trat



DoF Thailand officer

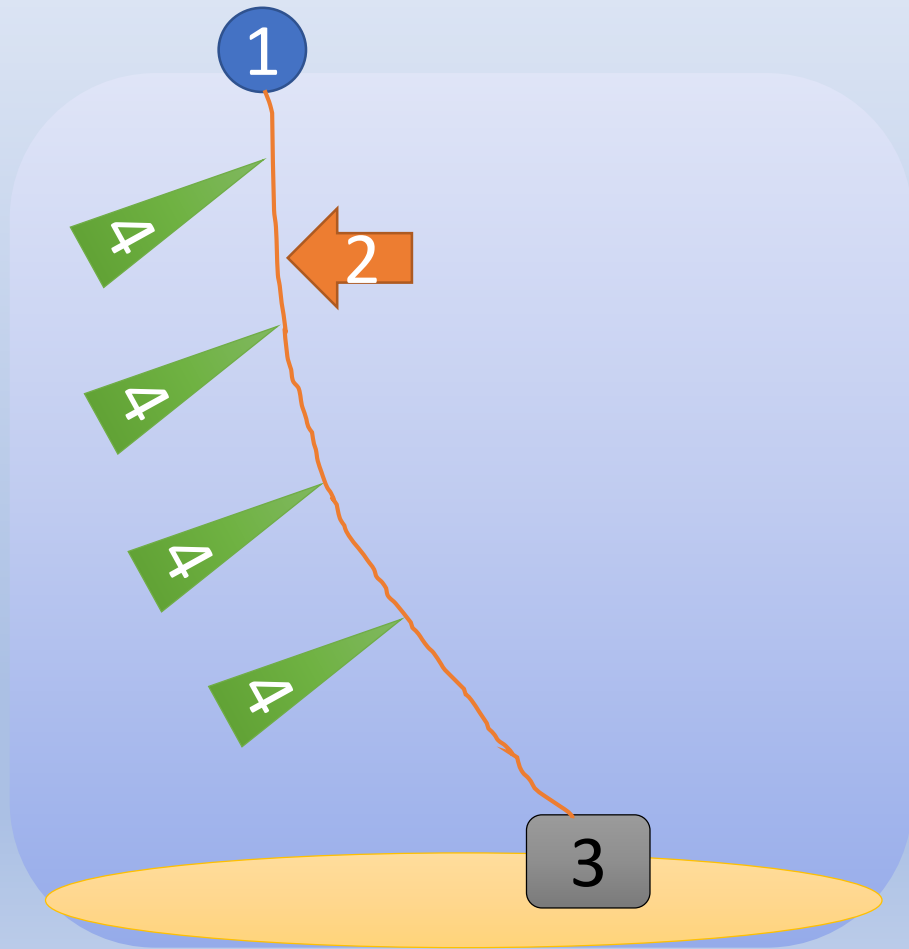
Thasala, Nakhon Si Thammarat



DoF Thailand officer

Chaiya, Surat Thani

# Anchored FEDs Structure



1. Float (bamboo, plastic buoy, oil gallon, plastic drum)
2. Anchor line (PP rope, PE rope)
3. Anchor (sand bag, concrete, concrete pipe)
4. Attractor (coconut leaf, oil palm leaf, PP & PE rope, PE net, shading net, plastic sack)

# Anchored FEDs (Manmade material)



Chonburi



Rayong

# Anchored FEDs (Manmade material)



Chanthaburi



Nakhon Si Thammarat

# Anchored FEDs (Manmade material)



Prachuap Khiri Khan



Ranong



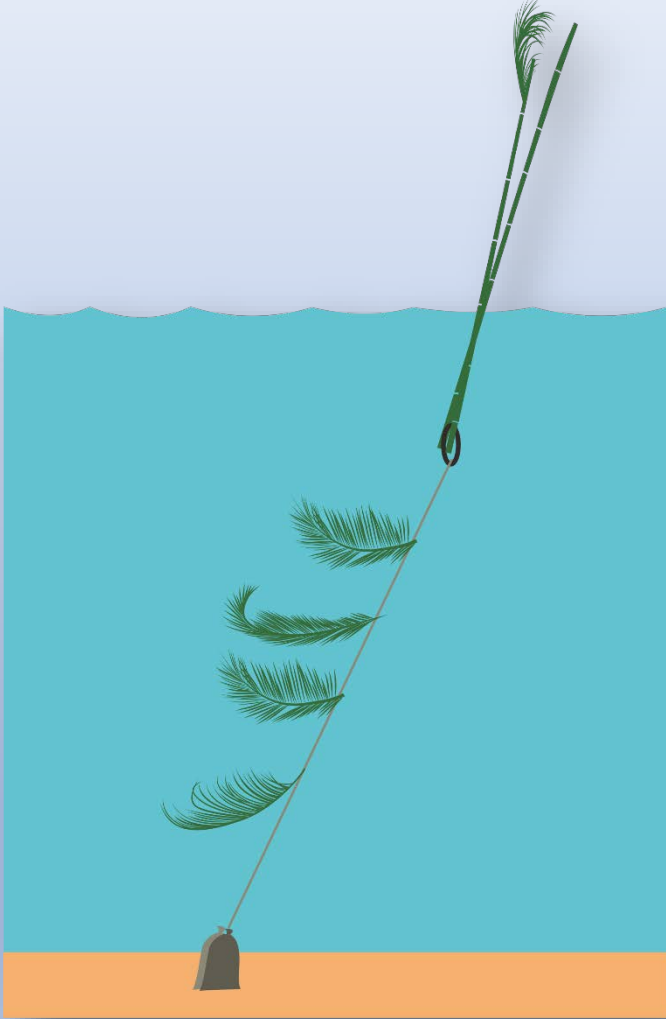
# Anchored FEDs (Manmade material)



Krabi



# Anchored FEDs (Mix material)



Sathing Phra, Songkhla



Rayong

# Anchored FEDs (Mix material)



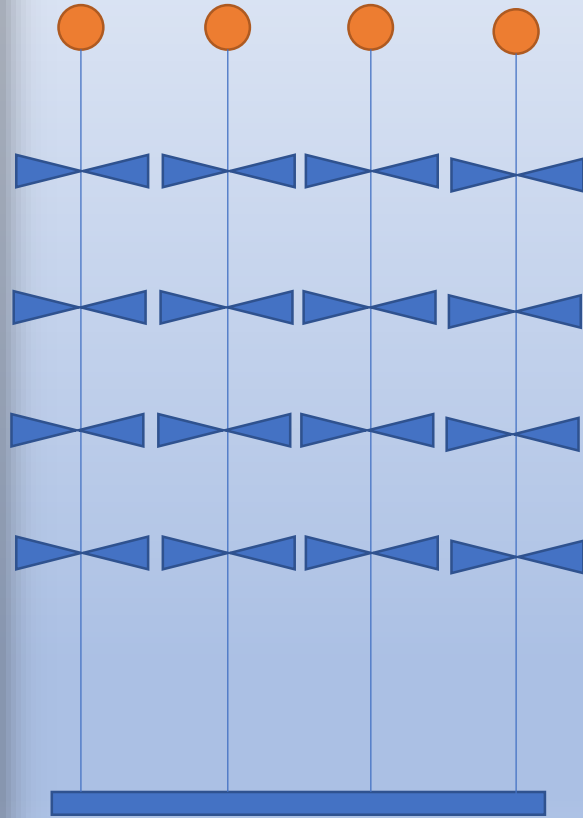
Chumphon

# Underwater Anchored FEDs



KKB Royal Development Study Center, Chanthaburi

# Underwater Anchored FEDs



Sathing Phra, Songkhla




Thabsakae & Pranburi, Prachuap Khiri Khan

# Increasing resources

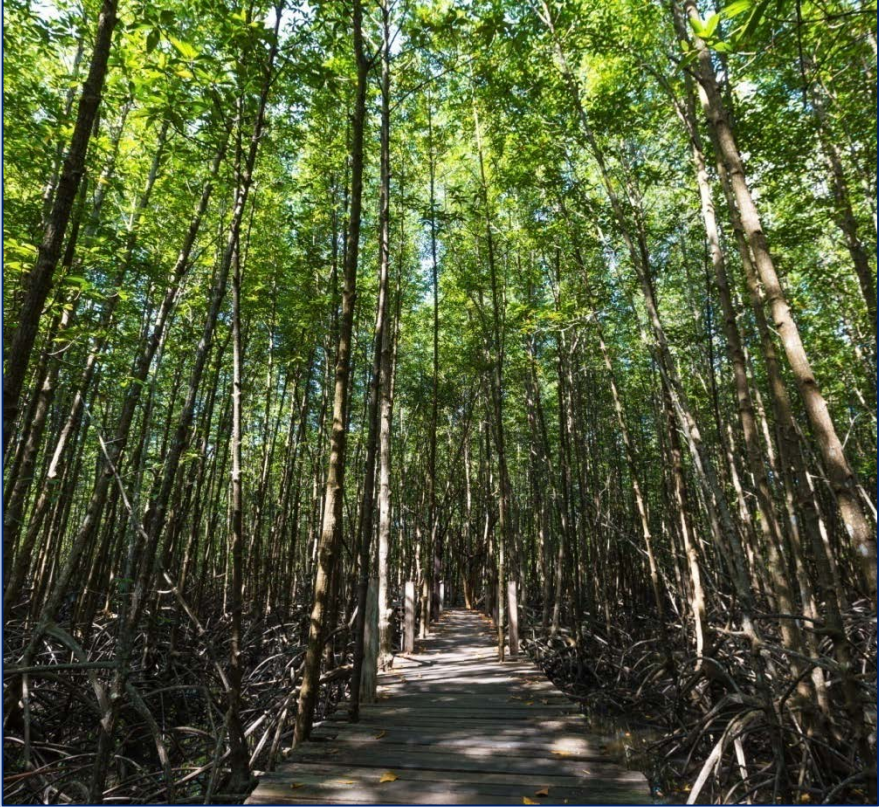
Fish	Crab	Squid
Barracuda	Blue swimming crab	Photololigo squid
Spanish mackerel	Serrated mud crab	
Black pomfret		
Longfin trevally		
Shortbody mackerel		
Yellowstripe scad		
Talang queenfish		
Fourfinger threadfin		
Grouper		
Snapper		
Catfish		
Giant seacatfish		

# Conclusion

- Bush pile FEDs and Anchored FEDs
- Bush pile FEDs used in water less than 5 m depth
- Most of FEDs are set less than 1 nm from shore with water depth  $\geq 10$  m
- Most of Feds are set in conservation area 
- FEDs can enhancing resources
- Most of FEDs life span is 7 - 8 months
- Underwater FEDs can stand for 2 years
- All FEDs are difficult to maintain

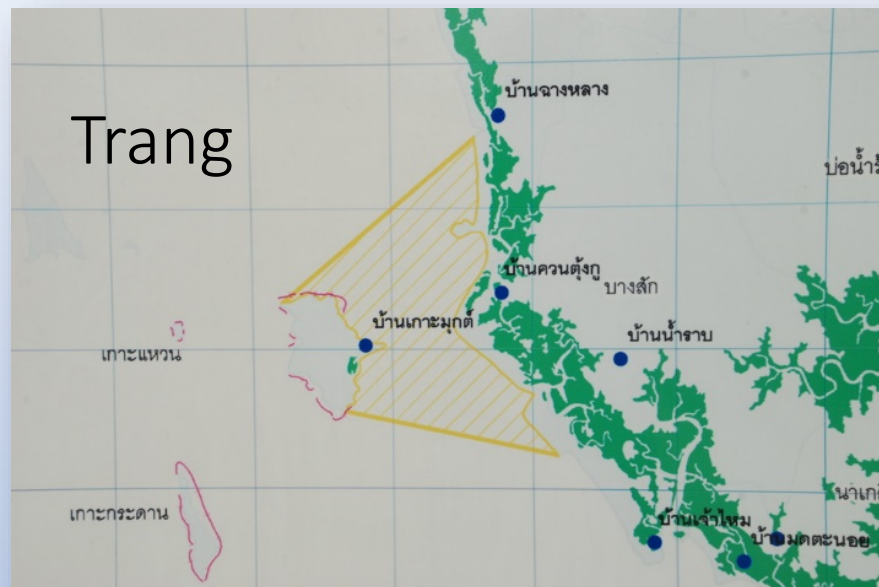
# Remark

- The average lifespan of coconut leaf is 1 – 2 months (*Ali et al.*, 2004)
- Palm leaf of the traditional FADs provide less effective shelter than rope (*Anna et al.*, 1999 )
- A threatened prey species can change their defensive strategy against predatory behavior when a physical structure is present (*Mauro et al.*, 2015)
- Double buoy (surface + underwater) might be extend the lifespan of FEDs
- Short rope for attractor will reduce the sinking force after the settle of shell and sessile organism



End Slide

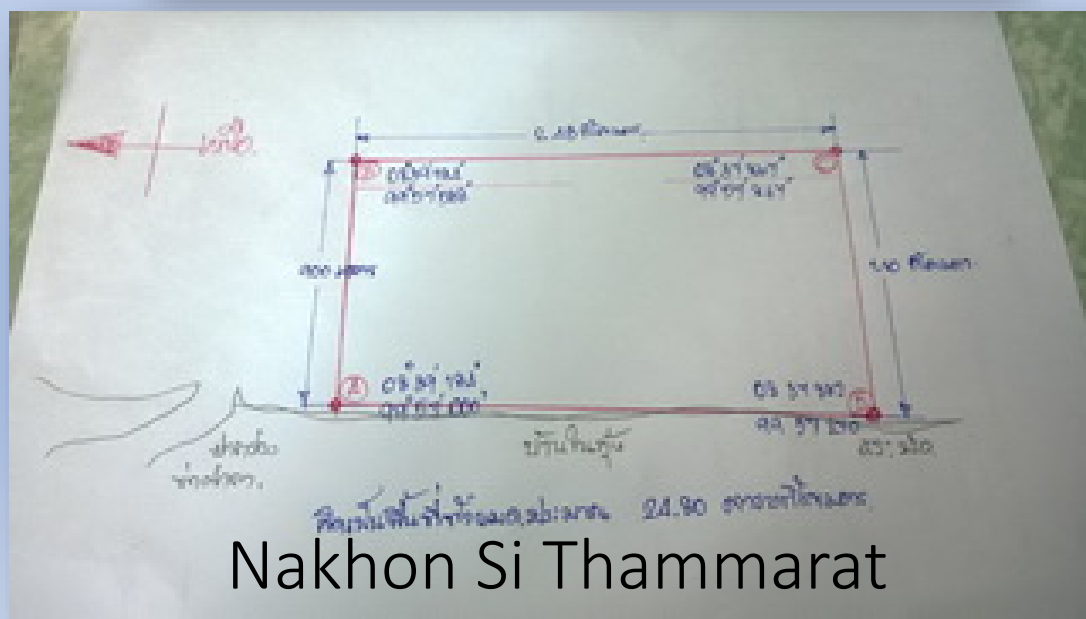
# Conservation Area



Conservation Area, Ban Laem Makham Village (32 km<sup>2</sup>)

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| 2. N 12.160900 | E 102.456260 |
| 3. N 12.158630 | E 102.456330 |
| 4. N 12.157360 | E 102.463460 |

Trat



Nakhon Si Thammarat



Satun

