



BIOLOGICAL STUDY OF SHORT MACKEREL IN KOH KONG, CAMBODIA



Dr. Kornrawee Aiemsomboon

**Department of Marine Science,
Faculty of Science
Chulalongkorn University,
THAILAND**

Email: kornrawee_a@chula.ac.th

Technical Training on Biological Studies of Short Mackerel (*Rastrelliger brachysoma*) 12th to 14th February 2019

- ❖ The subjects are focused on species identification, maturity stage identification, and methodology for larval and juvenile fish surveys in the coastal areas of Koh Kong province



Biological Studies of Short Mackerel (*Rastrelliger brachysoma*)

CU SCI 101

Asst. Prof. Dr. Kornrawee Aiemsomboon
Department of Marine Science,
Faculty of Science
Chulalongkorn University, THAILAND

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Biological data:

- **Monthly size composition of short mackerels**
- **Length-weight relationship**
- **Length at first maturity**
- **Sex ratios**
- **Spawning season determination from Gonadosomatic Index (GSI) and % of maturity**
- **Sampling methodology and procedure for plankton, larvae and juvenile fish by plankton net.**
- **Stock unit/population structure using DNA analysis methods**

Larval and juvenile fish surveys:

- Brief on sampling methodology and procedures for plankton, larval and juvenile fish by zooplankton net
- For monitor monthly larval and juvenile fish species and composition in coastal area of Koh Kong province





Dorng Tung market



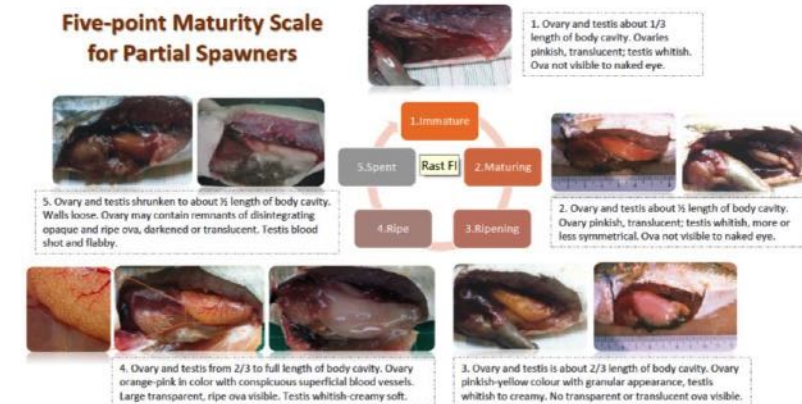
Village 4 market

Training: morphological studies, species identification, maturity stage identification, and stomach content

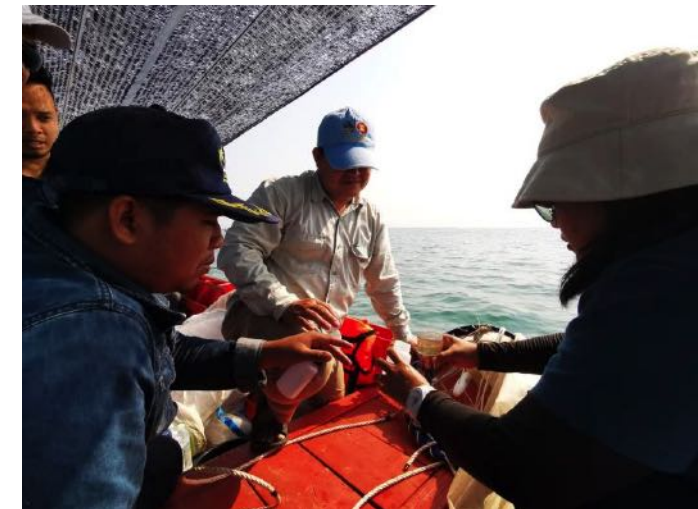
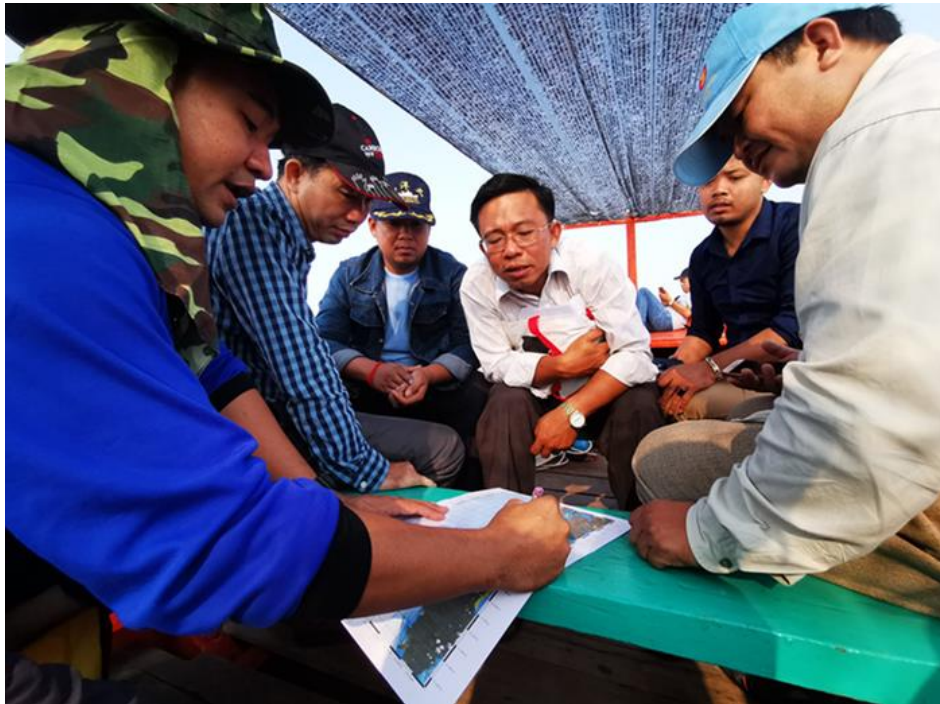


UN environment gef The Technical Training on Biological Studies of Short Mackerel (*Rastrelliger brachysoma*) for SEAFDEC/UNEP/GEF Project on Establishment and Operation of a Regional System of Fisheries Refugia in the South China Sea and Gulf of Thailand in Cambodia at Koh Kong, Cambodia on 12th – 14th February 2019

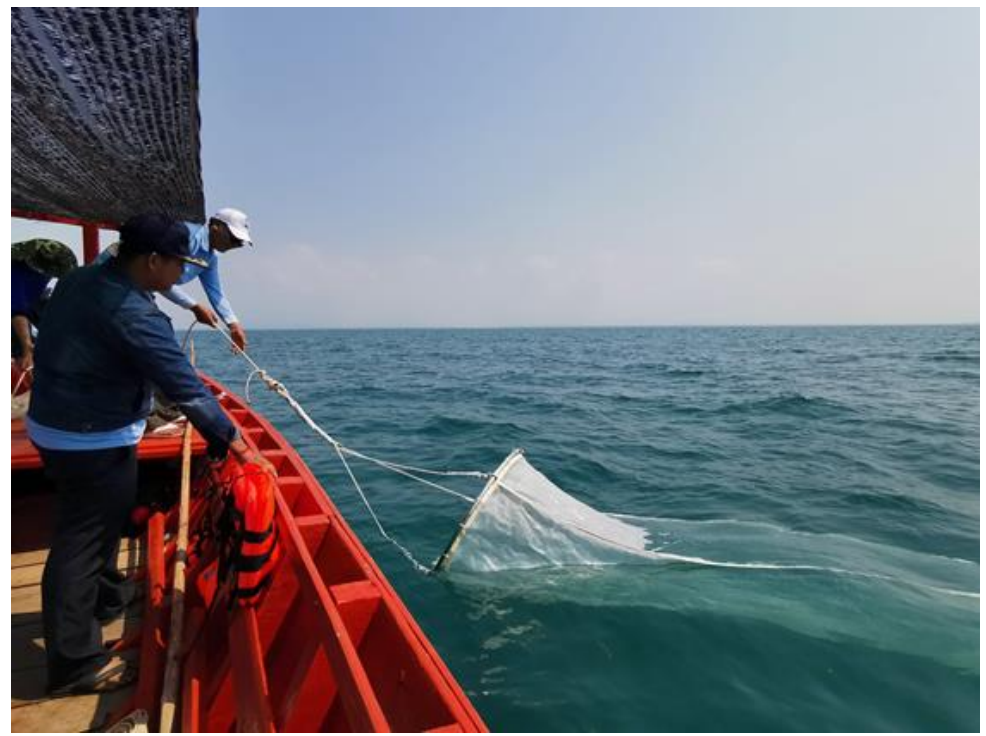
Five-point Maturity Scale for Partial Spawners



Training: plankton, larval and juvenile fish samplings in the coastal area, sea surface temperature and salinity, etc.



field work



Training: Identification of plankton and fish larvae related to the stomach content study in Short Mackerel

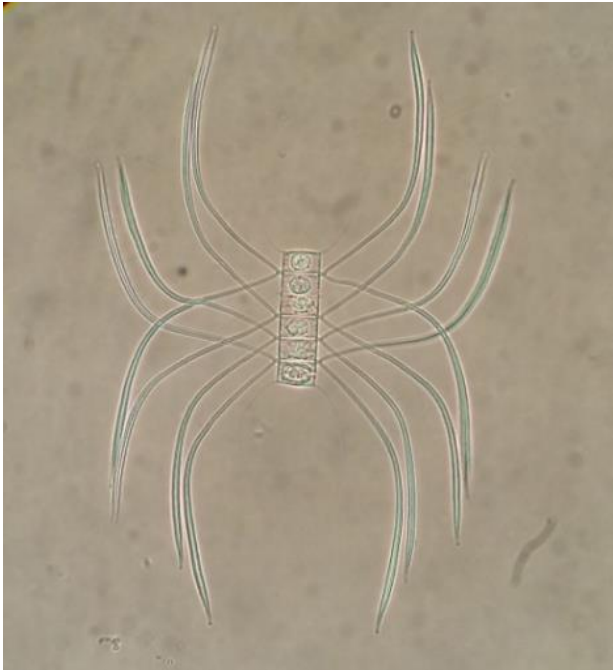


Result of biological study of short mackerel In Koh Kong province



Data analysis from field work

DATA ANALYSIS OF SAMPLE PHYTOPLANKTON



Chaetoceros sp.

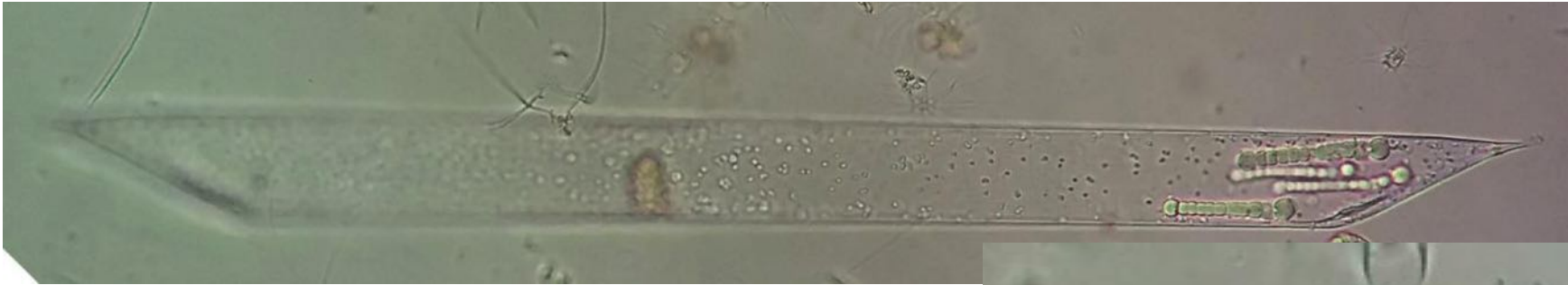


Bacteriastrum sp.



Hemiaulus sp.

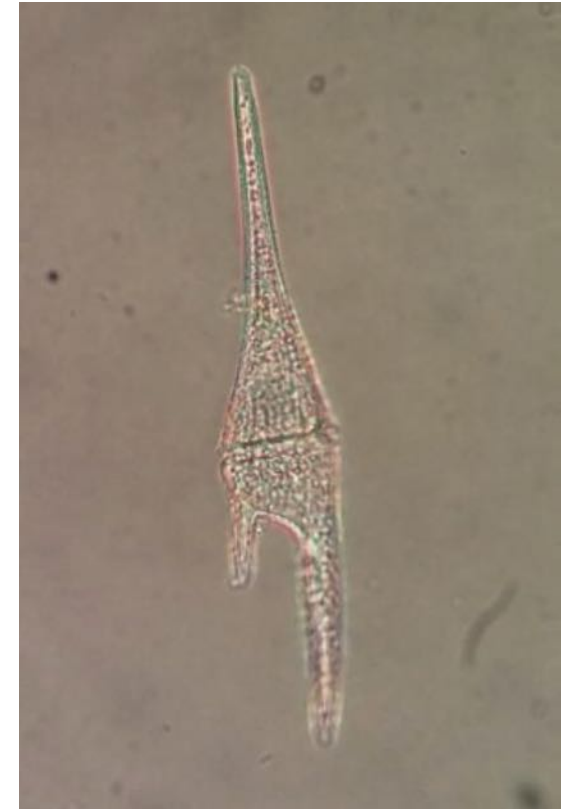
DATA ANALYSIS OF SAMPLE PHYTOPLANKTON



Rhizosolenia sp.



Pleurosigma sp.



Ceratium furca

DATA ANALYSIS OF SAMPLE ZOOPLANKTON



Calanoid copepod

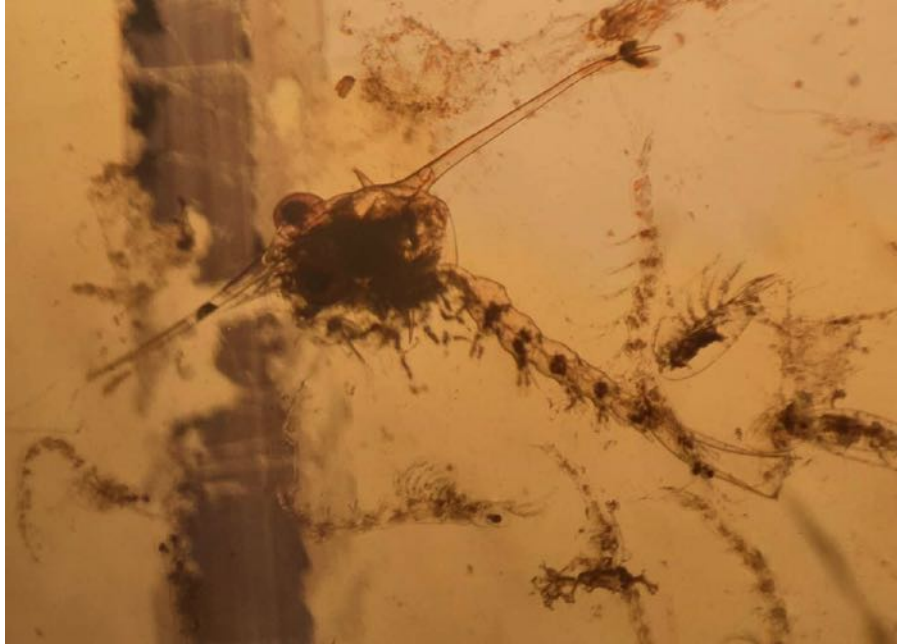


Copepodid larvae

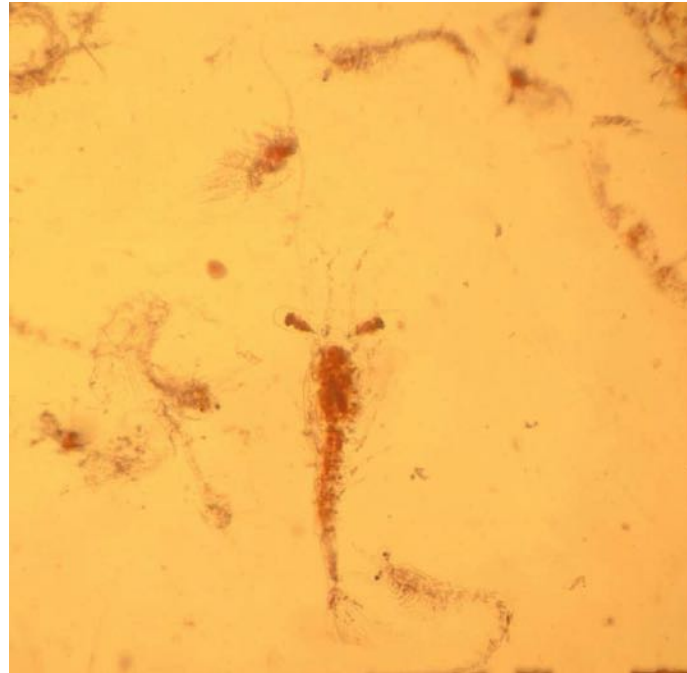


Nauplius copepod

DATA ANALYSIS OF SAMPLE ZOOPLANKTON



Brachyuran zoea

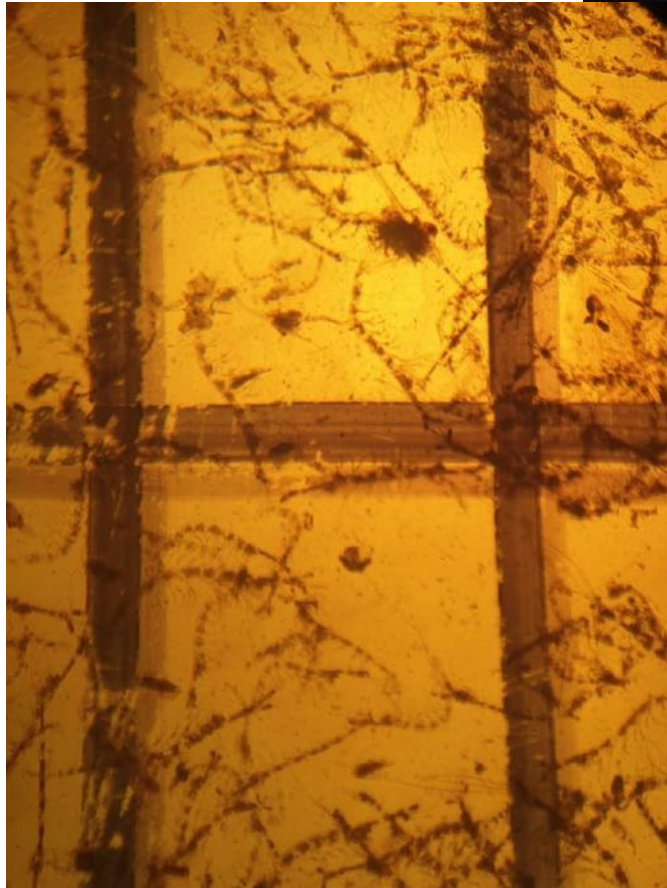


Shrimp larvae



Fish egg

DATA ANALYSIS OF SAMPLE ZOOPLANKTON



Lucifer sp.



Polychaetes larvae



Protozoa of *Lucifer*



Gastropod veliger larvae

- ❖ **Form the marine plankton data, diatom is a group of phytoplankton that are dominant composition in the coastal areas of Koh Kong province**
- ❖ **Copepod is a group of zooplankton that are dominant composition in this areas.**
- ❖ **Form the research of Methee *et al.* (2017) reported in Thailand, the present study showed that diatom and copepod were the major food item in Short Mackerel in this area.**

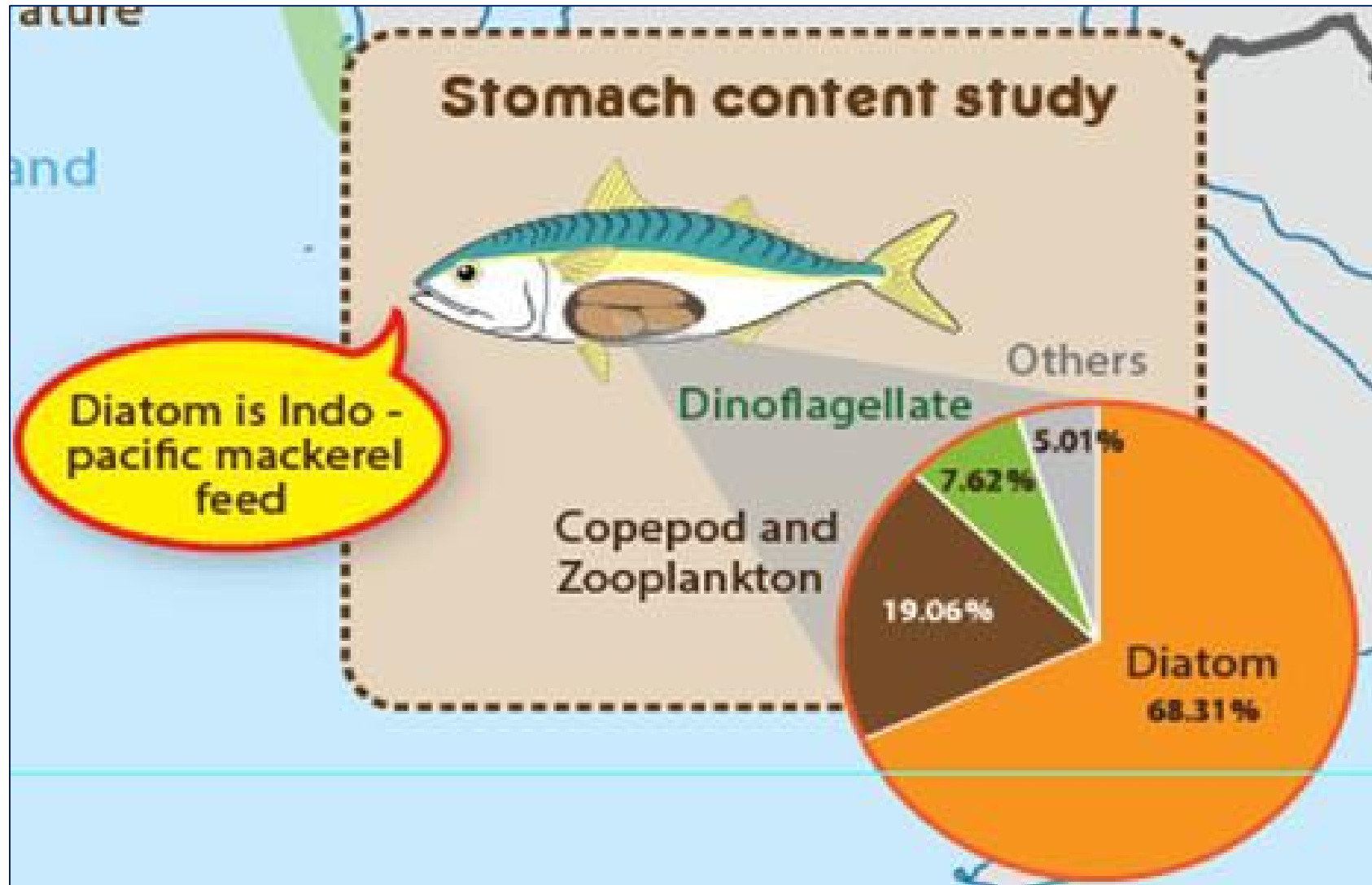


Figure: Stomach content of Short mackerel in Prachuap Khiri Khan Province, Thailand during 2013 (Methee et al., 2017).

DATA ANALYSIS OF SAMPLE FISH LARVAE

Marine fish larvae collected in February to April 2019 at Koh Kong province

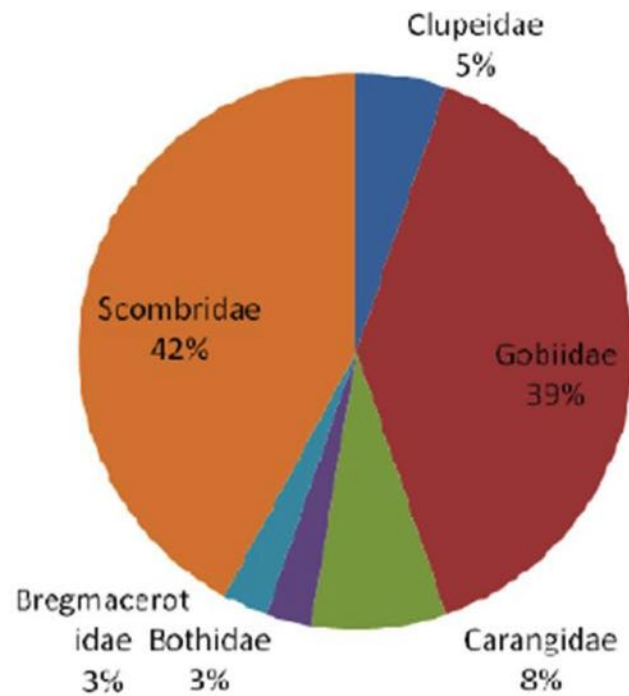
Dr. Chea Tharith and Mr. Lang Sin

Marine fisheries research and
development institute



DATA ANALYSIS OF SAMPLE FISH LARVAE

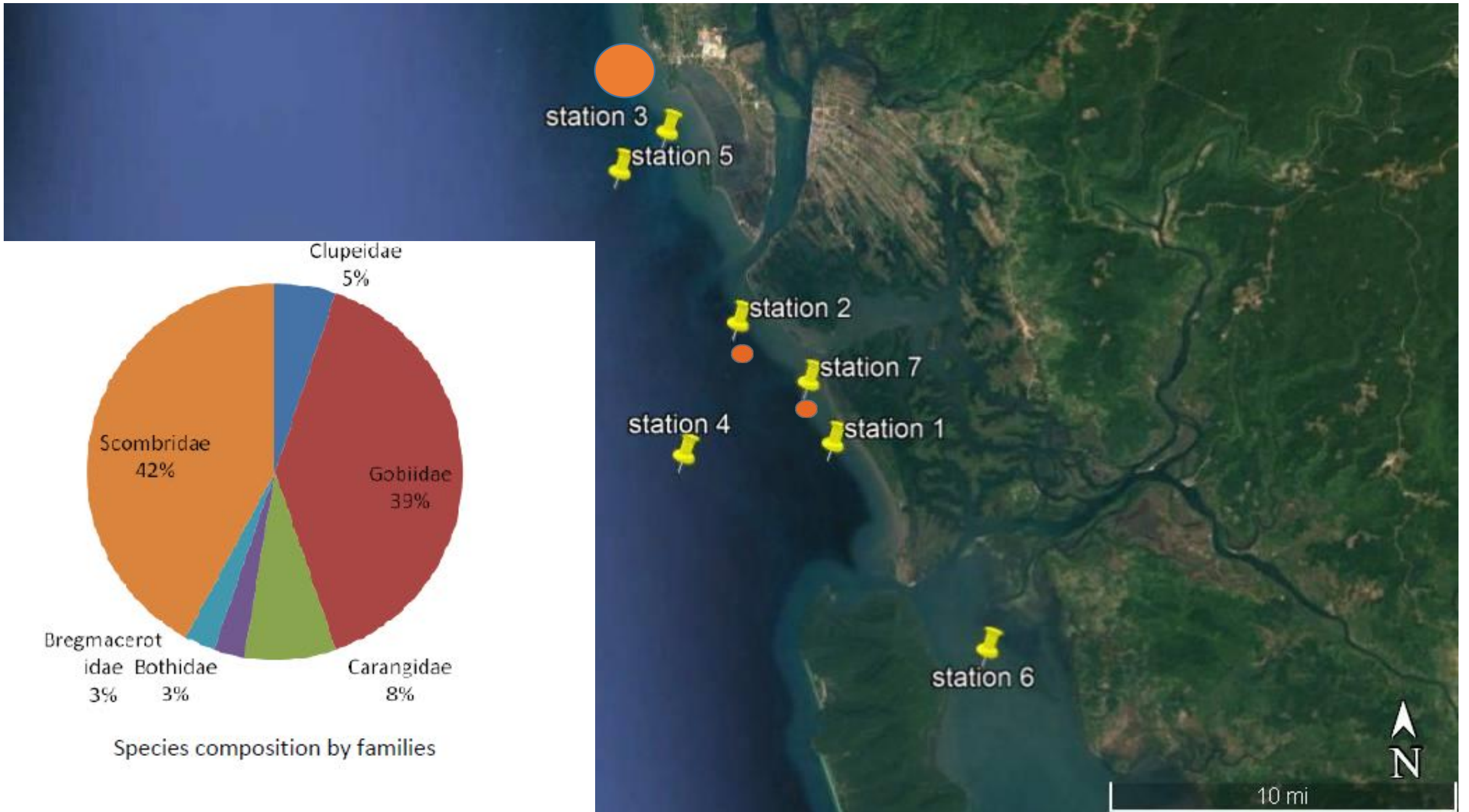
In March 2019, a total of 38 fish larvae were identified belonging to 6 families. Scombridae 42%, Gobiidae 39%, Carangidae 8%, Clupeidae 5%, Bothidae and Bregmacerotidae each family 3%.



Species composition by families



Rastrelliger sp.

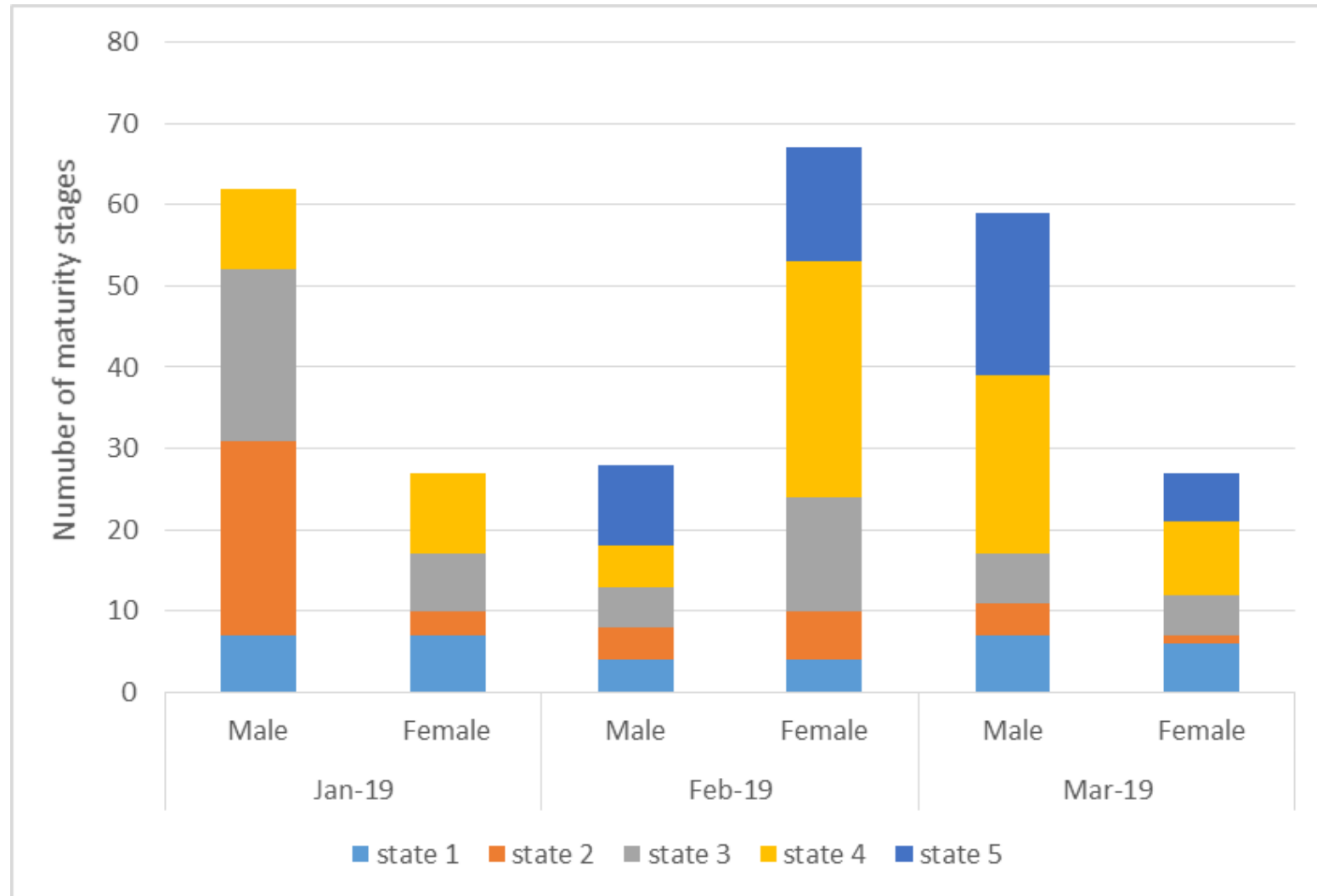


Marine fish larvae collection in March 2019 at Koh Kong province

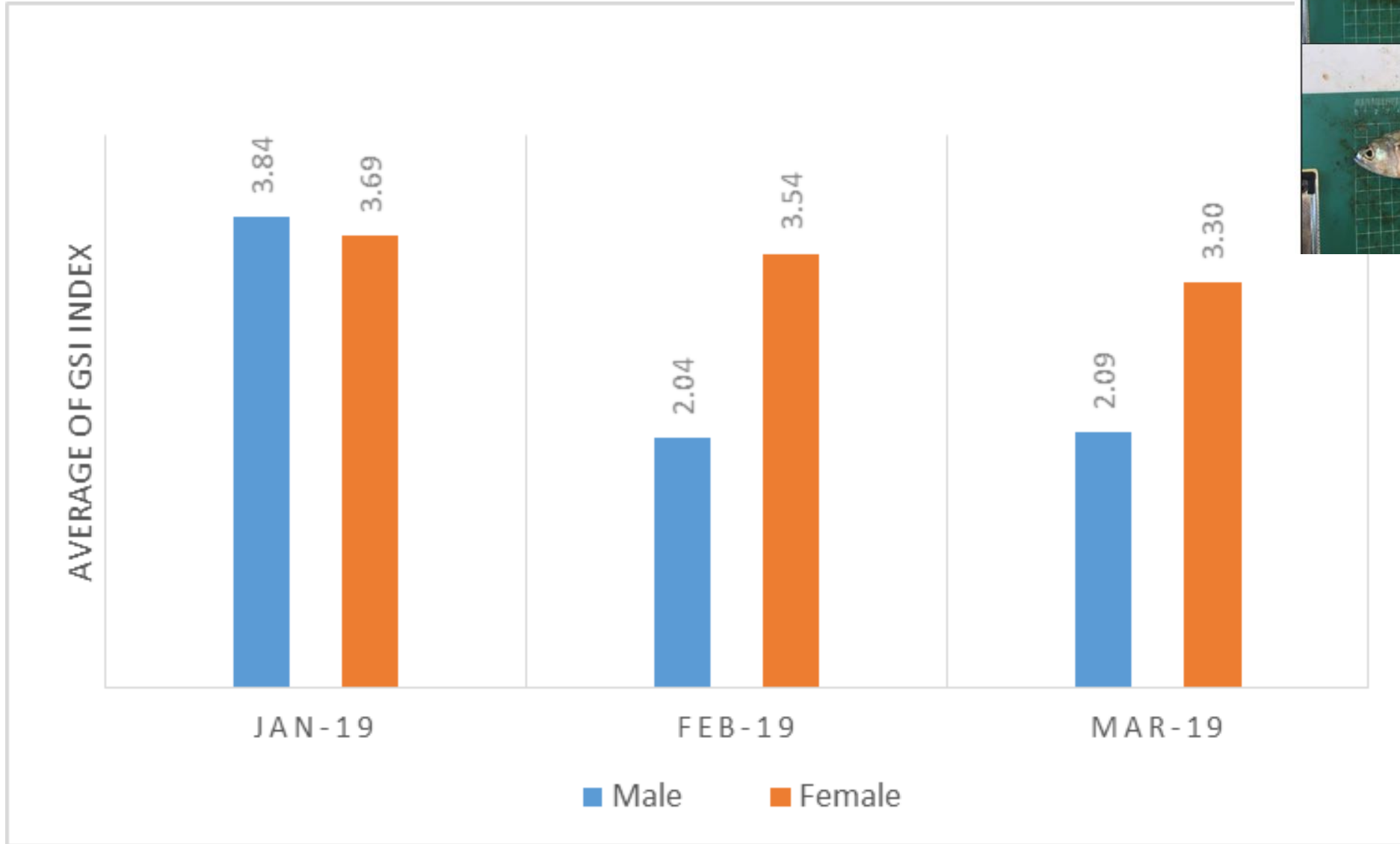
- ❖ **Form the marine fish larvae data, Scombridae is the dominant fish group in this area**
- ❖ **Station 3 have highest Scombridae, its located in Koh Yor water area near Thailand border**
- ❖ **The present study also showed that Koh Yor water area is the important site for Scombridae in spawning and nursery ground.**
- ❖ **Station 2 and 7, its found that Scombridae, those station near the perposed fisheries refugia protected areas of Koh Kong province**

Data analysis from the baseline survey of short mackerel

❖ Maturity stage development of Short Mackerel



❖ Gonadosomatic Index (GSI) of Short Mackerel



Thank you for your attention



The 2nd Regional Scientific and Technical Committee Meeting for the SEAFDEC/UNEP/GEF Project on Establishment and Operation of a Regional System of Fisheries Refugia in the South China Sea and Gulf of Thailand