



Mahseers in Thailand and conservation

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Comparative of neurocranium of medium size cyprinids



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Abstract

There are many conflicts in generic status and their classification of cyprinids fishes in South-east asia. However, it seem only morphometric and external characteristic was done in studies. This study aimed to apply osteology for fishes taxonomy and their evolutionary. accord to this study, the evolutionary tree form of skull can be separate into 6 groups, when analyze with only skull characteristic. Moreover, when analyzed with both external diagnostic character and skull character, comparative medium size cyprinids in this area can be separated into 6 groups and 5 subgroups.



figure. 1 neurocranium structure and morph

Fishes sample was corrected directly for Rainboth (1996), Robert (1998) and Kottelat (1998) characteristic and morphometric character with



figure. 2 photograph of fishes skull in this studies

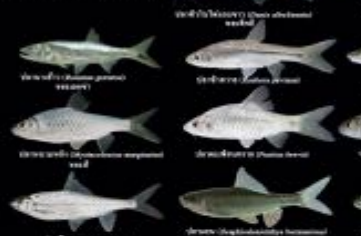
Introduction

Thailand-Burmese hot spot is one of the diversity hotspot in the world, in this area has many species of fishes. Fishes diversity in this area was many conflict in systematics study. skull is the permanent structure and there are the diagnostic character between species. In

นิเวศวิทยาปลาในน้ำไหลในอมก๋อย (Omkoi stream fish ecology)

โดย อภินันท์ สุวรรณรักษ์
คณะเทคโนโลยีการประมงและทรัพยากรทางน้ำ มหาวิทยาลัยแม่โจ้

กลุ่มปลาหัวปลีและเขียด



กลุ่มปลาอืด ปลาซีก



กลุ่มปลาหน้ามิง



กลุ่มปลาไหล ปลากระดังงู



Taxonomic studies

ความหลากหลายของชนิดปลาในแม่น้ำสาละวิน ในเขตประเทศไทย

The diversity of fishes in Salween basin on Thailand border

โดย อภินันท์ สุวรรณรักษ์ Apinun Suwanharaksha
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This slide presents a comprehensive list of fish species from the Salween basin. The species are organized into several groups:

- Group 1 (Top Row):** Includes species like *Hydrophilus elongatus*, *Aplocheilichthys*, *Puntius*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, and *Hydrophilus*.
- Group 2 (Second Row):** Includes species like *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, and *Hydrophilus*.
- Group 3 (Third Row):** Includes species like *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, and *Hydrophilus*.
- Group 4 (Fourth Row):** Includes species like *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, and *Hydrophilus*.
- Group 5 (Fifth Row):** Includes species like *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, and *Hydrophilus*.
- Group 6 (Sixth Row):** Includes species like *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, and *Hydrophilus*.
- Group 7 (Seventh Row):** Includes species like *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, and *Hydrophilus*.
- Group 8 (Eighth Row):** Includes species like *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, and *Hydrophilus*.
- Group 9 (Ninth Row):** Includes species like *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, and *Hydrophilus*.
- Group 10 (Tenth Row):** Includes species like *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, *Hydrophilus*, and *Hydrophilus*.

Additional sections include:

- นิเวศวิทยาของแหล่งน้ำไหลในอมก๋อย (Omkoi stream fish ecology):** Illustrations of aquatic insects like crickets, beetles, and dragonflies.
- นิเวศวิทยาน้ำไหล:** Illustrations of various aquatic insects and their life stages.
- นิเวศวิทยาน้ำนิ่ง:** Illustrations of aquatic insects in still water environments.

Logos of various institutions and organizations are displayed at the bottom of the slide.

Ffish.asia

Fishes MAP SPECIMENS DATA TAXONOMY LITERATURE FORUM ABOUT

Fishes of Mainland Southeast Asia

Explore the freshwater fish diversity in the mainland Southeast Asia



Search

Input scientific name or common name in English, in Thai, in Chinese, in Burmese, in Khmer, in Vietnamese, in Malay, in Indonesian, or in other languages.

Image gallery ... [Globalfishes](#) 1/24



Database

- 21624 Specimens Data
- 763 Species
- 122 Genera
- 39 Families
- 15 Orders

About this project



This project is managed by the Nagai Endang Environmental Foundation, Japan (財団法人南江田環境財団) and aims to document the freshwater fish biodiversity of Southeast Asia, with the ultimate aim of the project is being conducted with the collaboration of institutions in Laos, Thailand, Cambodia, Vietnam, Malaysia and Japan. The field research was conducted by local researchers by themselves and specimens were deposited in each country for the local development of human resource and environmental studies. The fish photos in this website are all under the CC BY-NC 3.0 license for the benefit sharing. Learn more about us...



Using this database: Kato T, Adnan MS, Crawford T, Guejean J, Kephau W, Madanatharan P, Nakai Y, Okumura T, Prapayontakul S, Phongsak K, Rongjindaj A, Sittakorn K, Sittakorn T, So R, Suvannaratana A, Thach B, Thano PM, Tye DB, Uthairat K, Yamashita T (2012) An online database on freshwater fish diversity and distribution in Mainland Southeast Asia. *Ecological Research* 27: 283-295.

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Neolissocheilus and allies



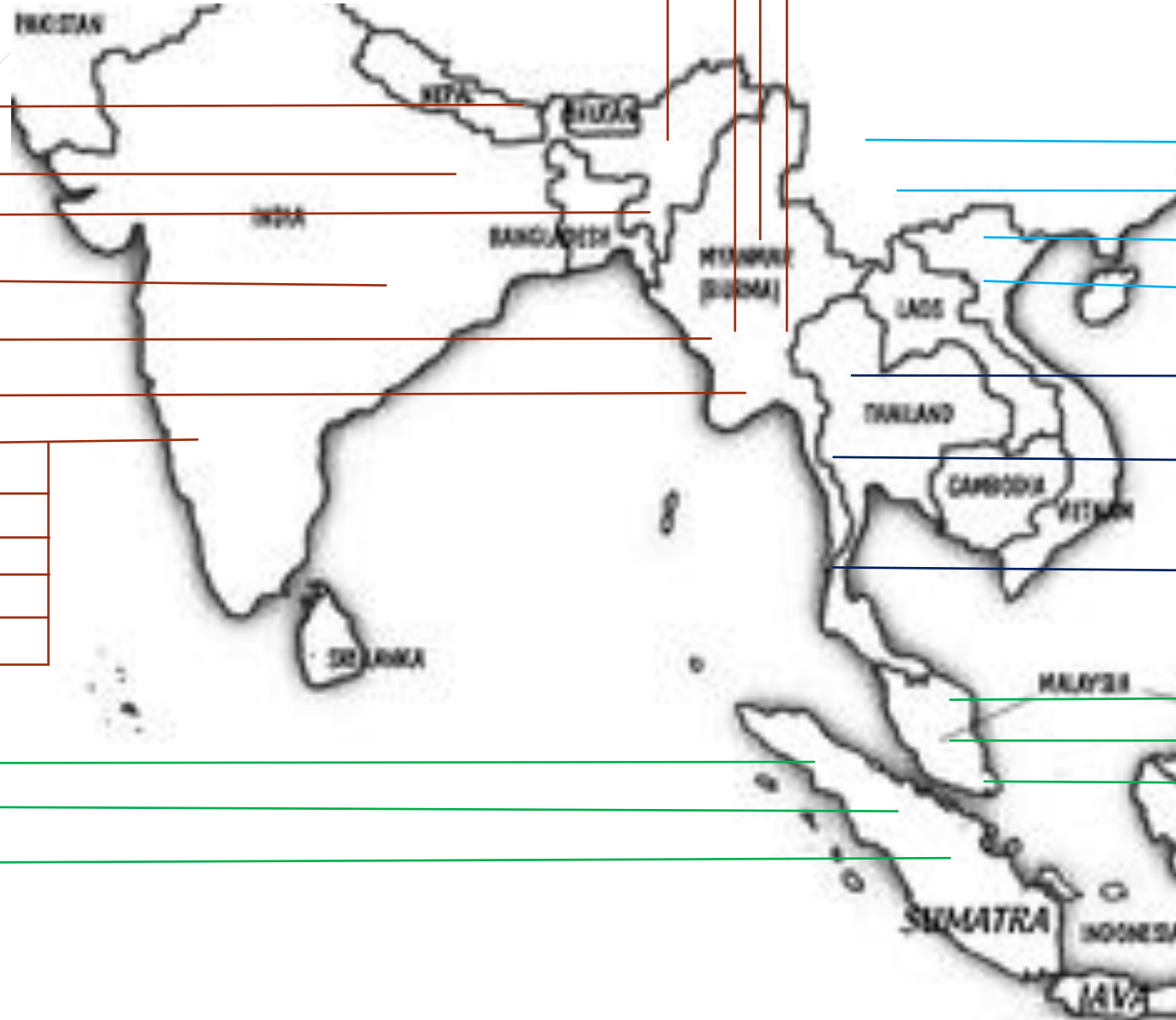
Tor



Neolissochilus

Types locality of *Neolissochilus*

N. stracheyi
N. nigrovittatus
N. blythii
N. hexagonolepis



N. spinulosus
N. dukai
N. kaladanensis
N. hexastichus
N. stvensoni
N. compressus
N. wynaadensis
N. capudelphinus
N. minimus
N. microphthalmus
N. acutirostris
N. tamiraparaniensis

N. baoshanensis
N. heterostomus
N. benasi
N. namlenensis

N. subteraneus
N. vittatus

N. paucisquamatus

N. handrsoni
N. soroides
N. tweediei

N. thienemanni
N. sumatranus
N. longipinnis



Key to species of Thai Masheers



Eye diameter 1.5 times HL, small head; 26-29 lateral line scales; white-pink color body.....
Neolissochilus subterraneus

Eye diameter 1.5-2.4 times HL



Eye diameter >1.5 times HL; 22 lateral line scales.....
Neolissochilus paucisquamatus

8-9½ branched dorsal rays



Eye diameter 2.6-2.9; plain color body; iii-iv, 9-9½ branched dorsal rays; 21-27 lateral line scales.....
Neolissochilus soroides

Eye diameter 2.5-2.9 times HL



8-8 ½ branched dorsal rays; dark lateral stripe; 23-25 lateral line scale.....
Neolissochilus vittatus

Eye diameter 2.5-2.6 times



Thick lip, lower lip tip straight, lateral stripe absent.....
Neolissochilus sumatranus

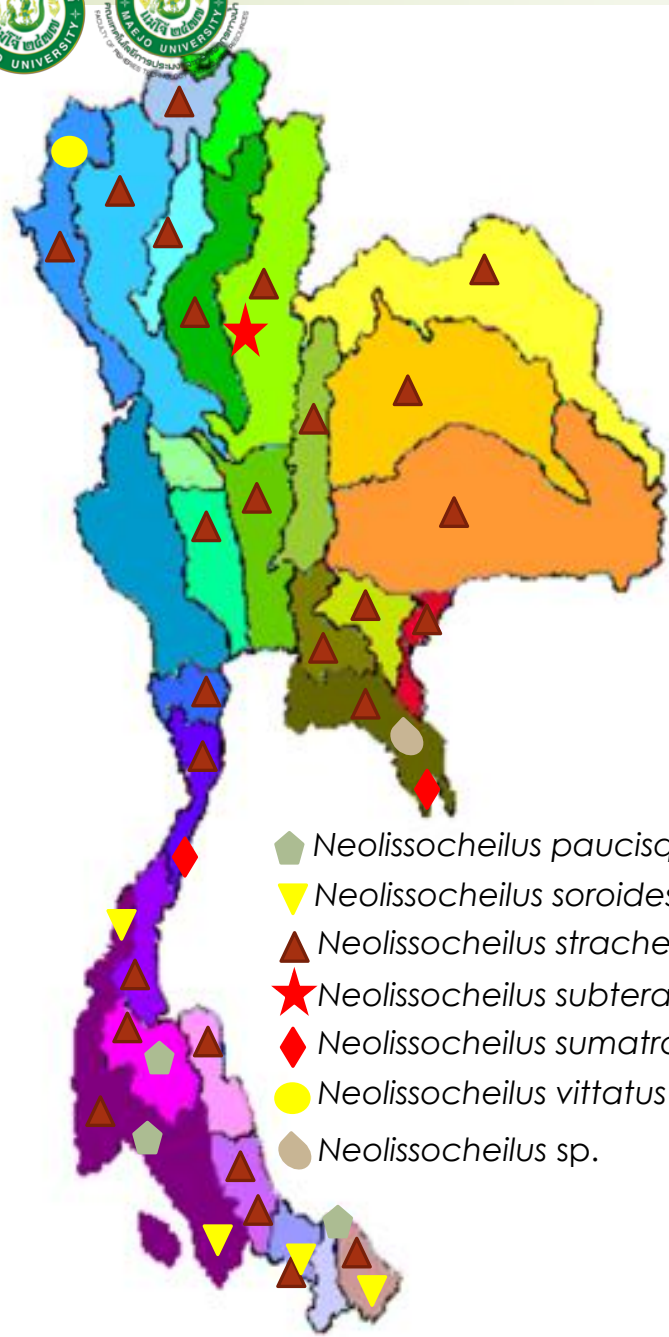
9-9 ½ branched dorsal rays



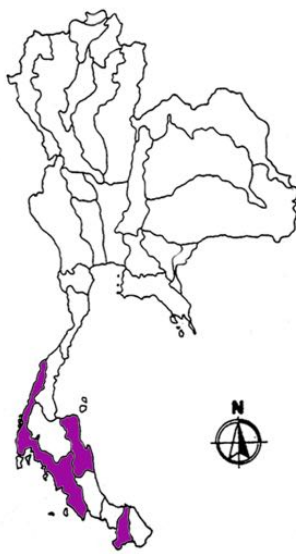
Lip normal, lower jaw slightly curve, lateral stripe dark,
Neolissochilus stracheyi

10-10½ branched dorsal rays.....

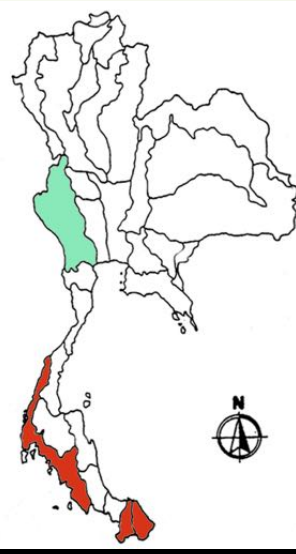




- *Neolissocheilus paucisquamatus*
- ▼ *Neolissocheilus soroides*
- ▲ *Neolissocheilus stracheyi*
- ★ *Neolissocheilus subteraneus*
- ◆ *Neolissocheilus sumatranus*
- *Neolissocheilus vittatus*
- *Neolissocheilus* sp.



Neolissocheilus paucisquamatus



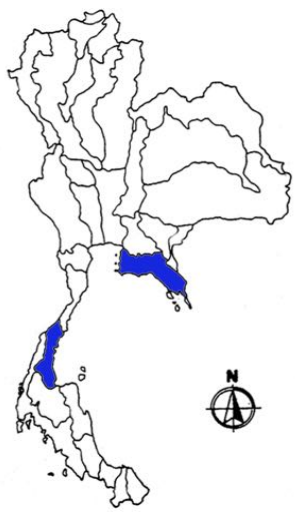
Neolissocheilus soroides



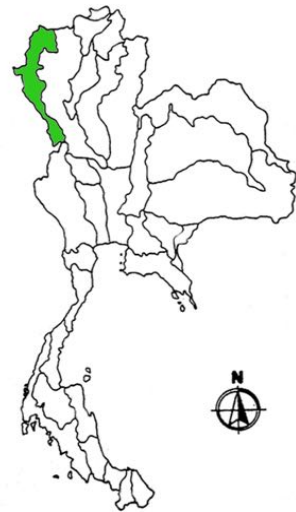
Neolissocheilus stracheyi



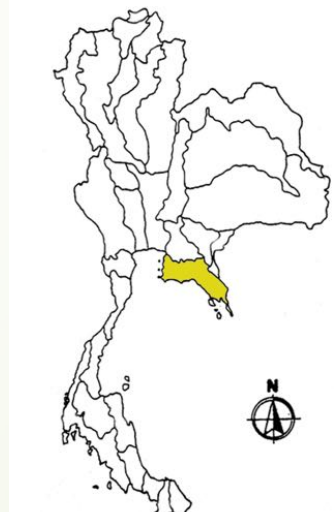
Neolissocheilus subteraneus



Neolissocheilus sumatranus



Neolissocheilus vittatus

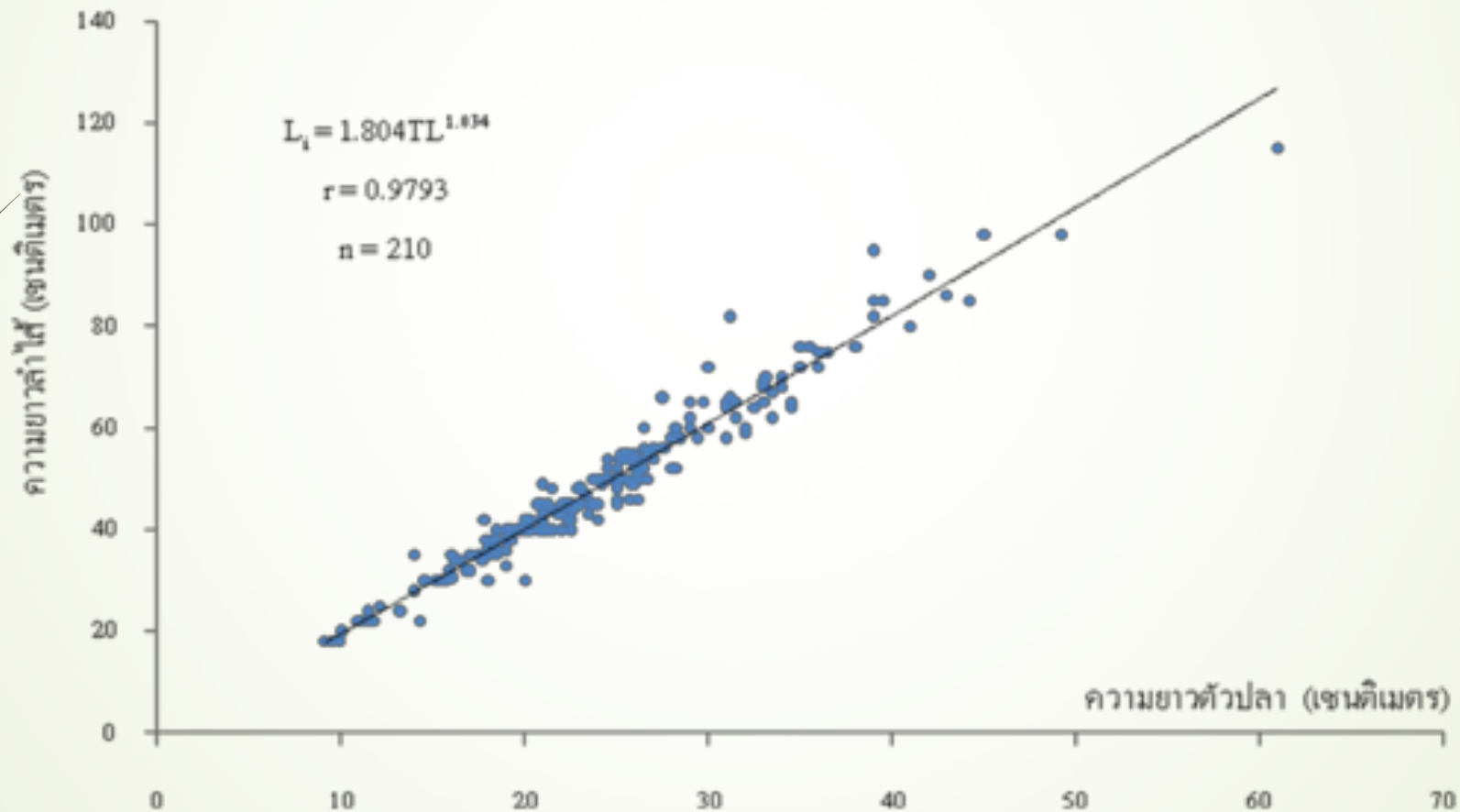


Neolissocheilus sp.



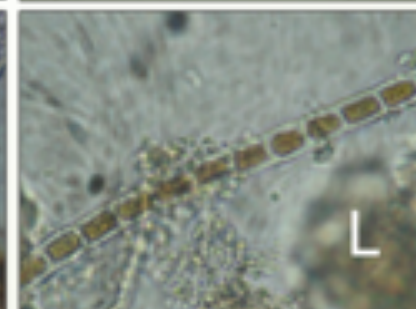
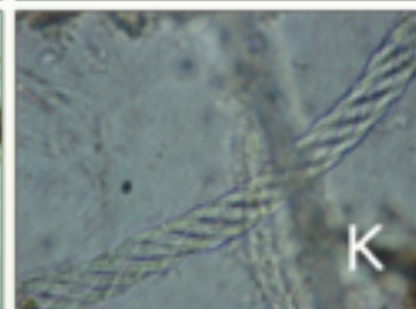
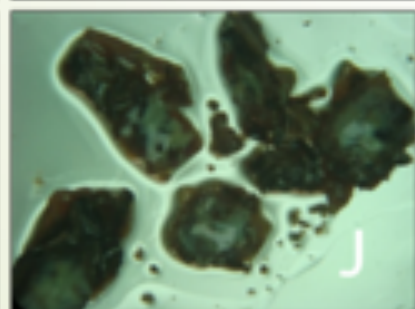
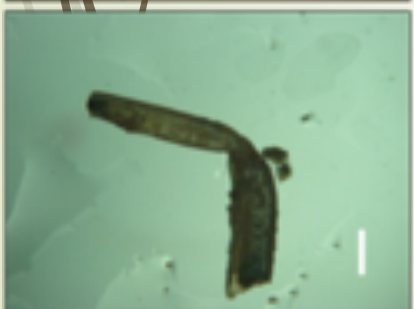
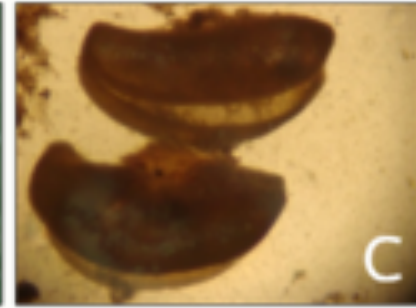
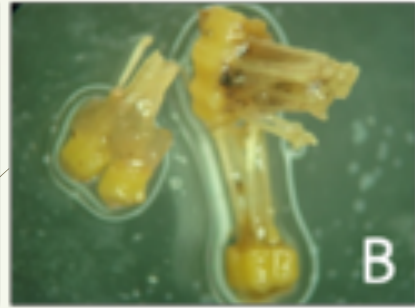
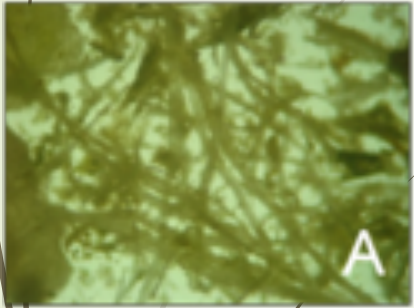
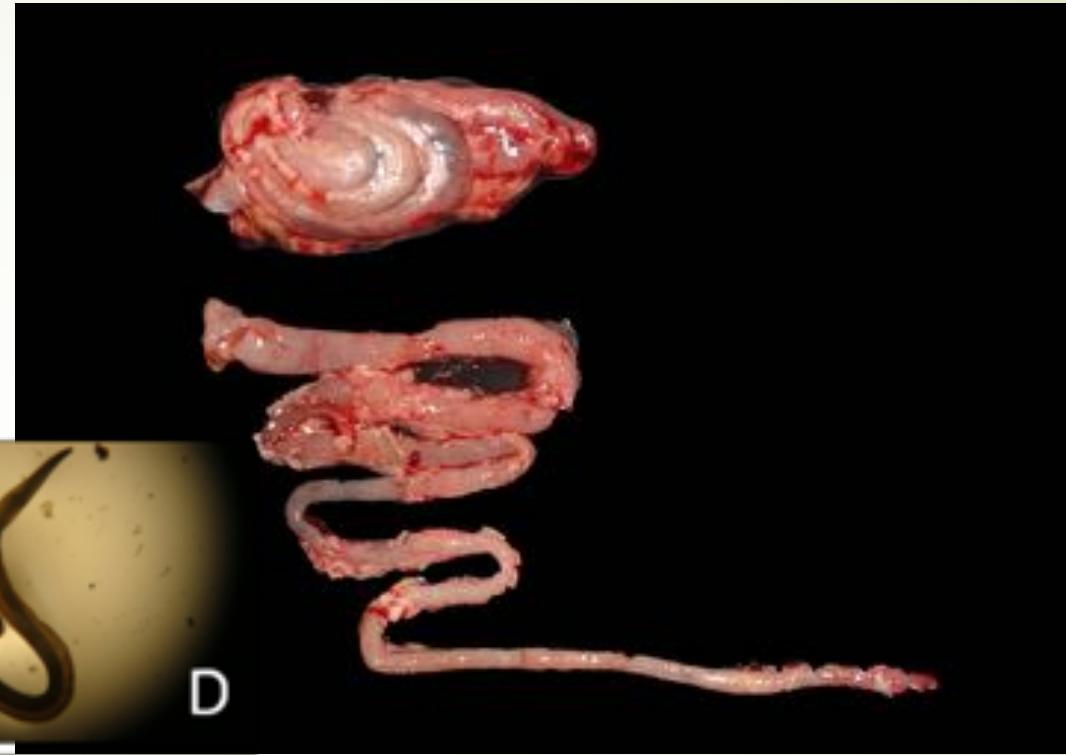
Biology

Relationship between Intestinal length and standard length



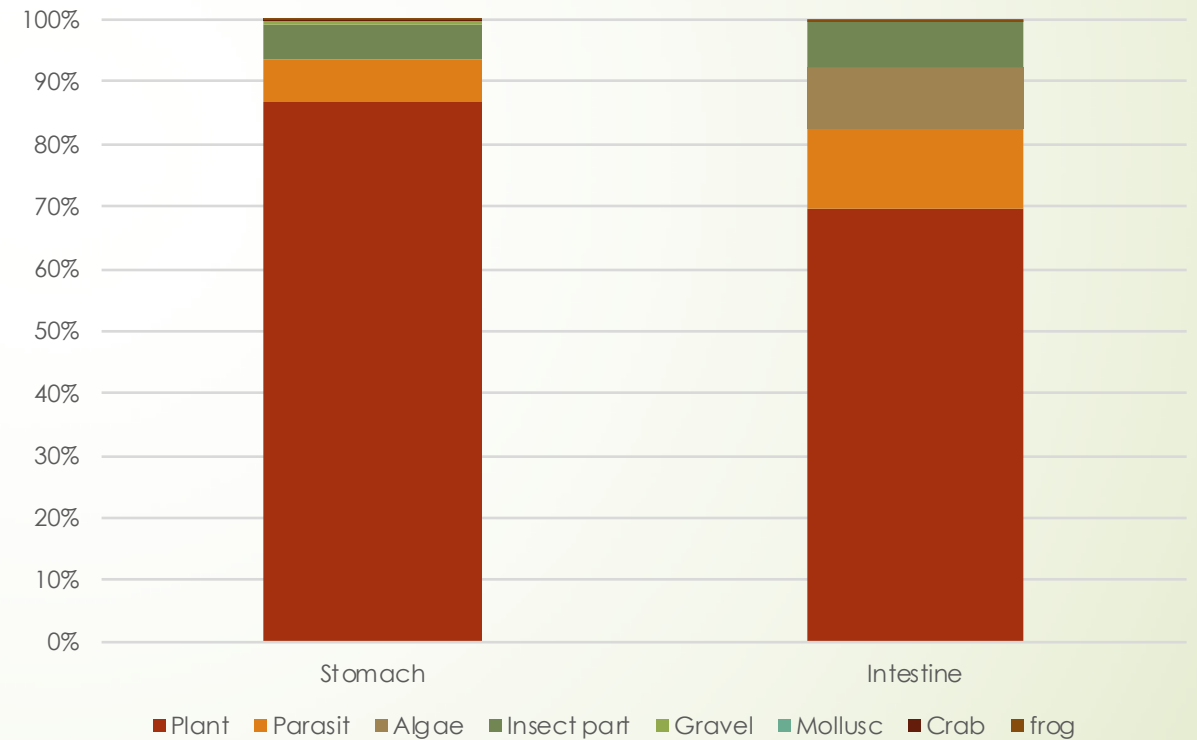
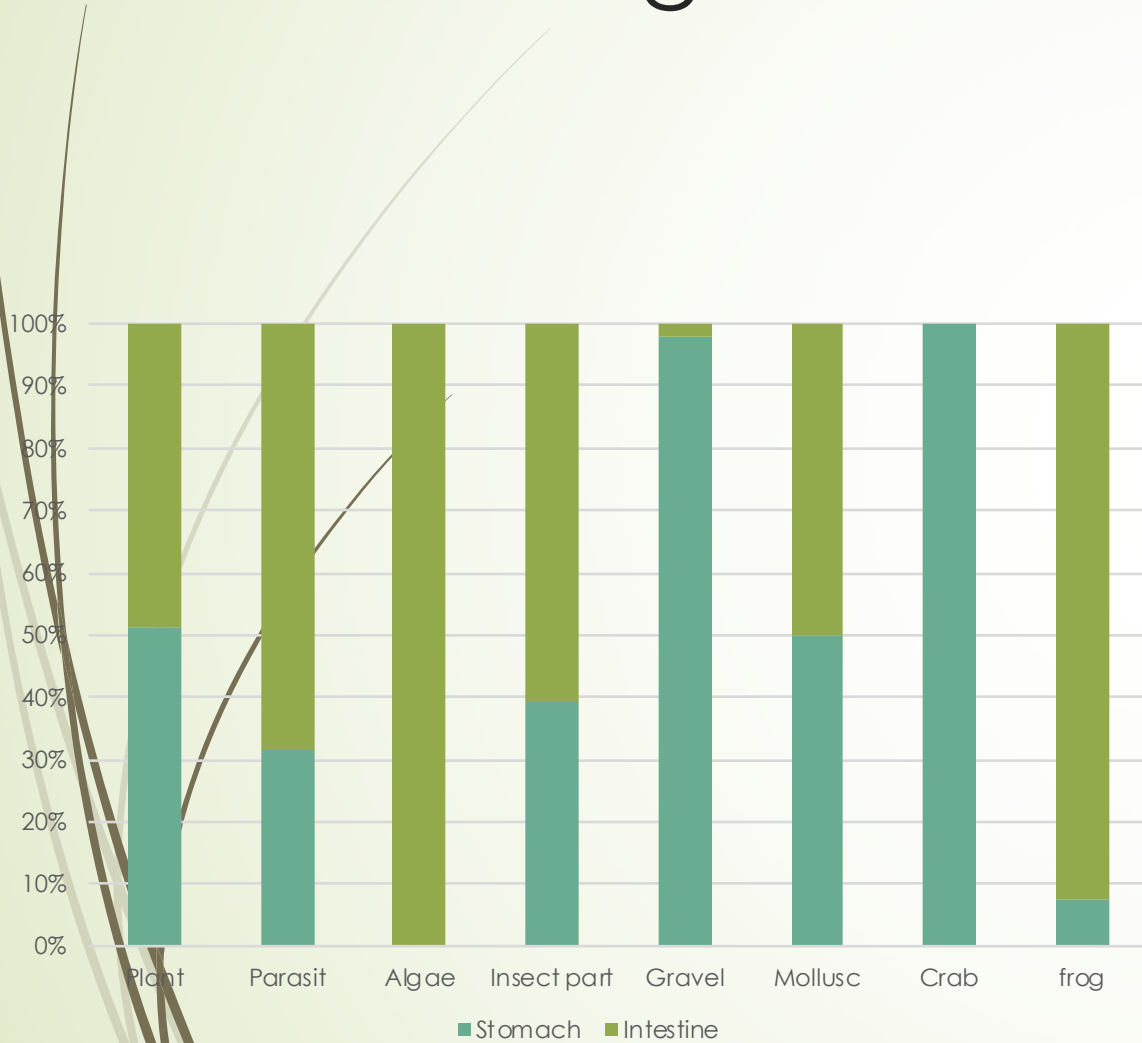


Feeding behavior



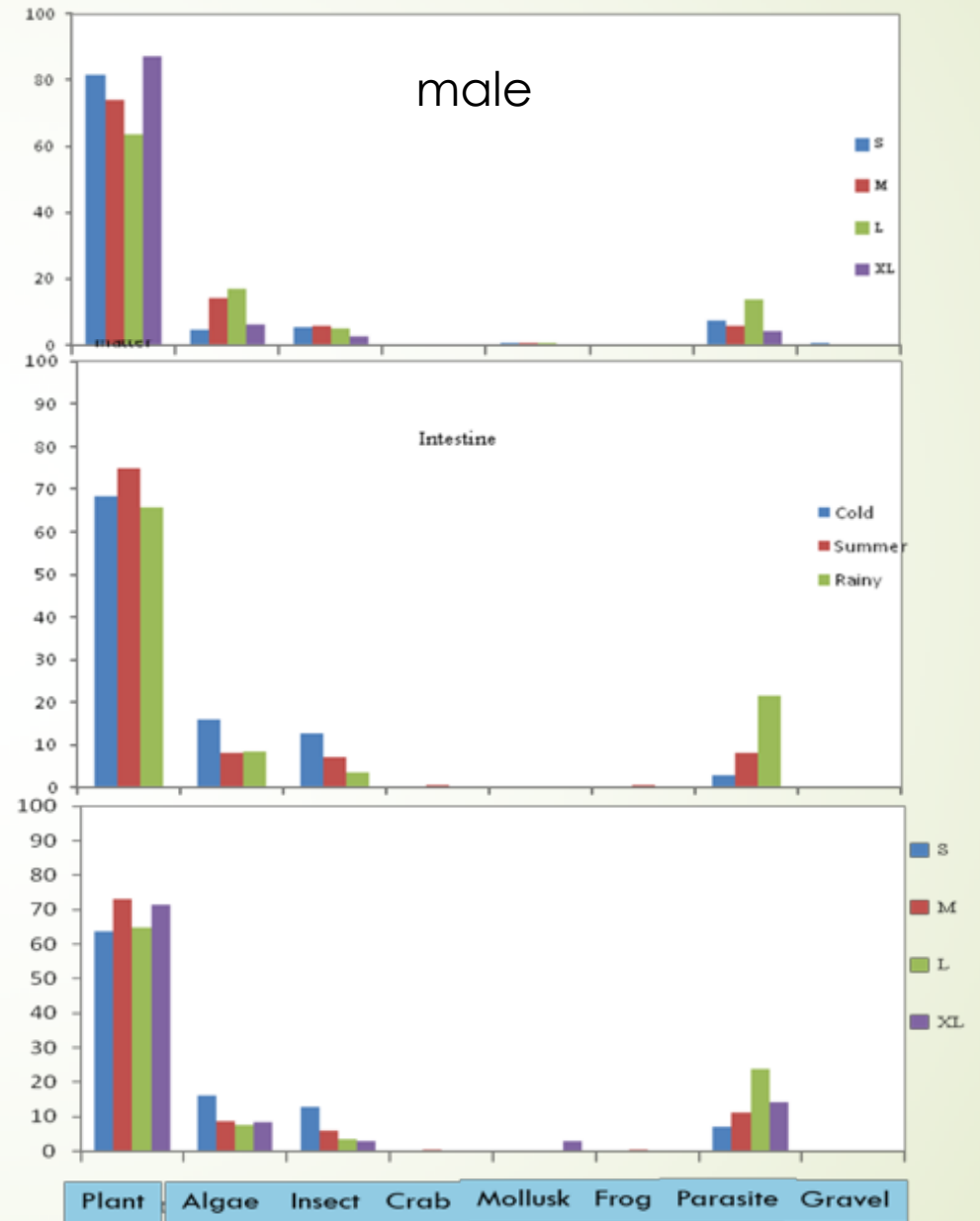
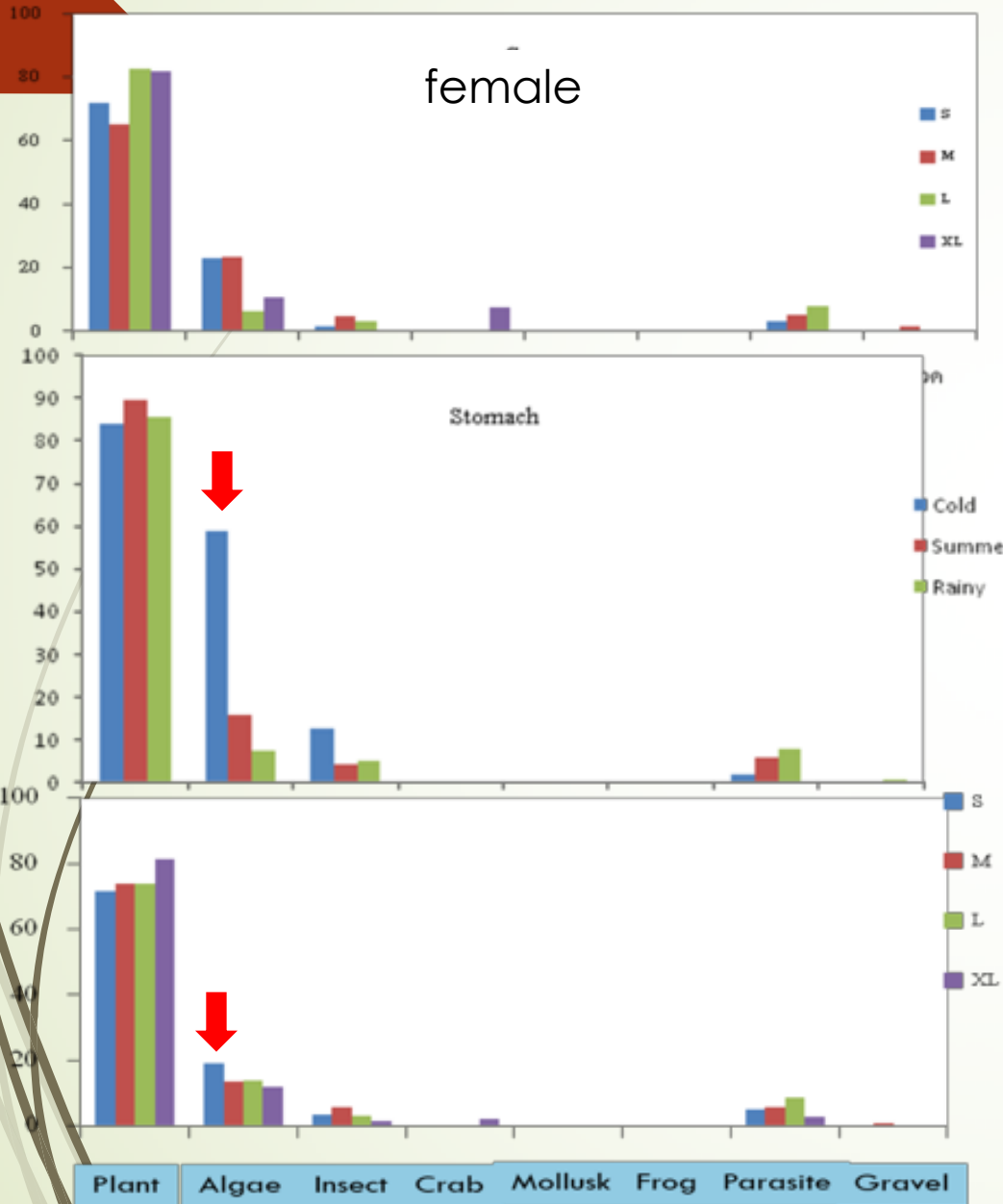


Feeding of the *Neolissocheilus*



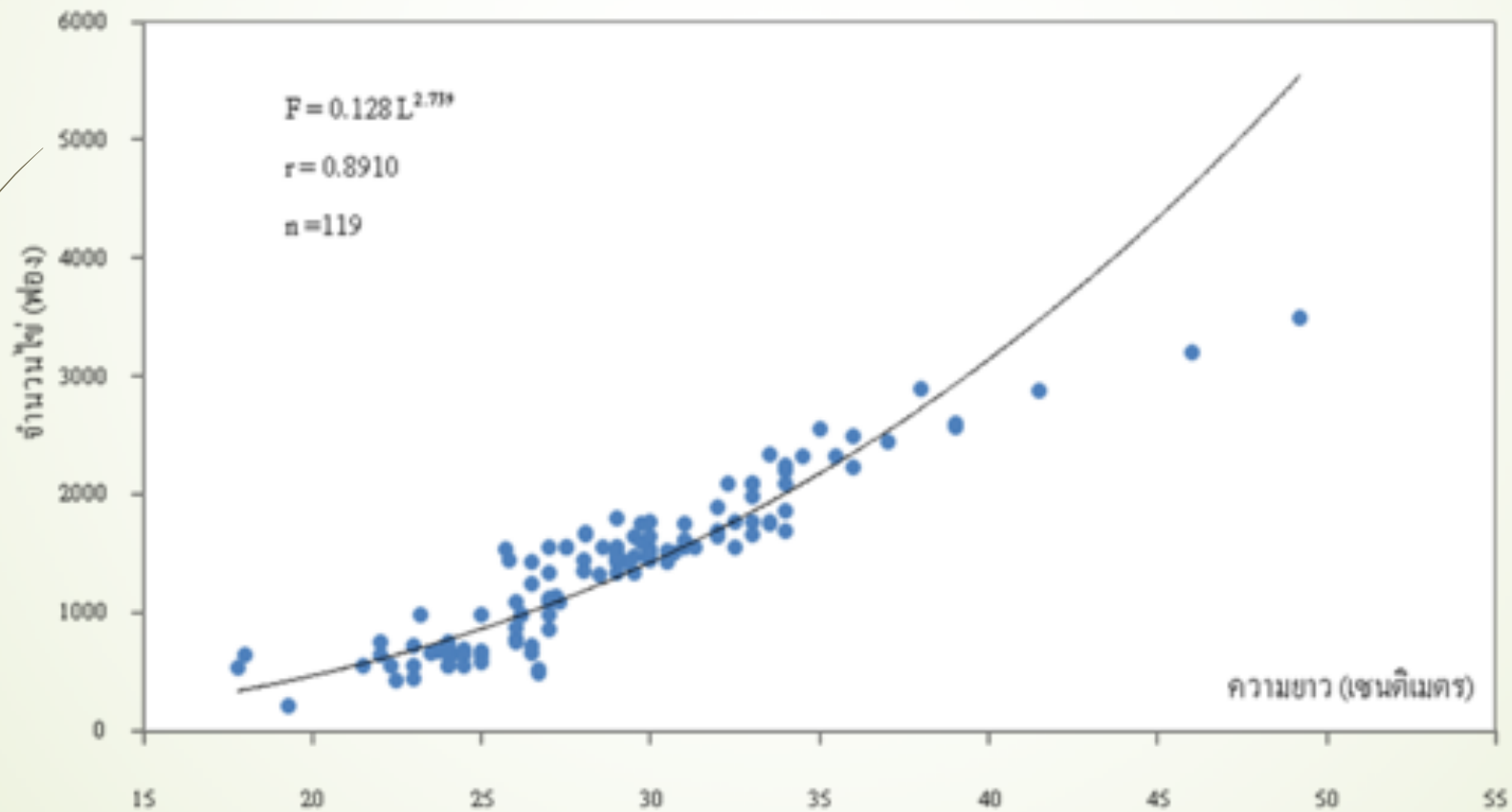


Food: compared in stomach and intestine





Fecundity



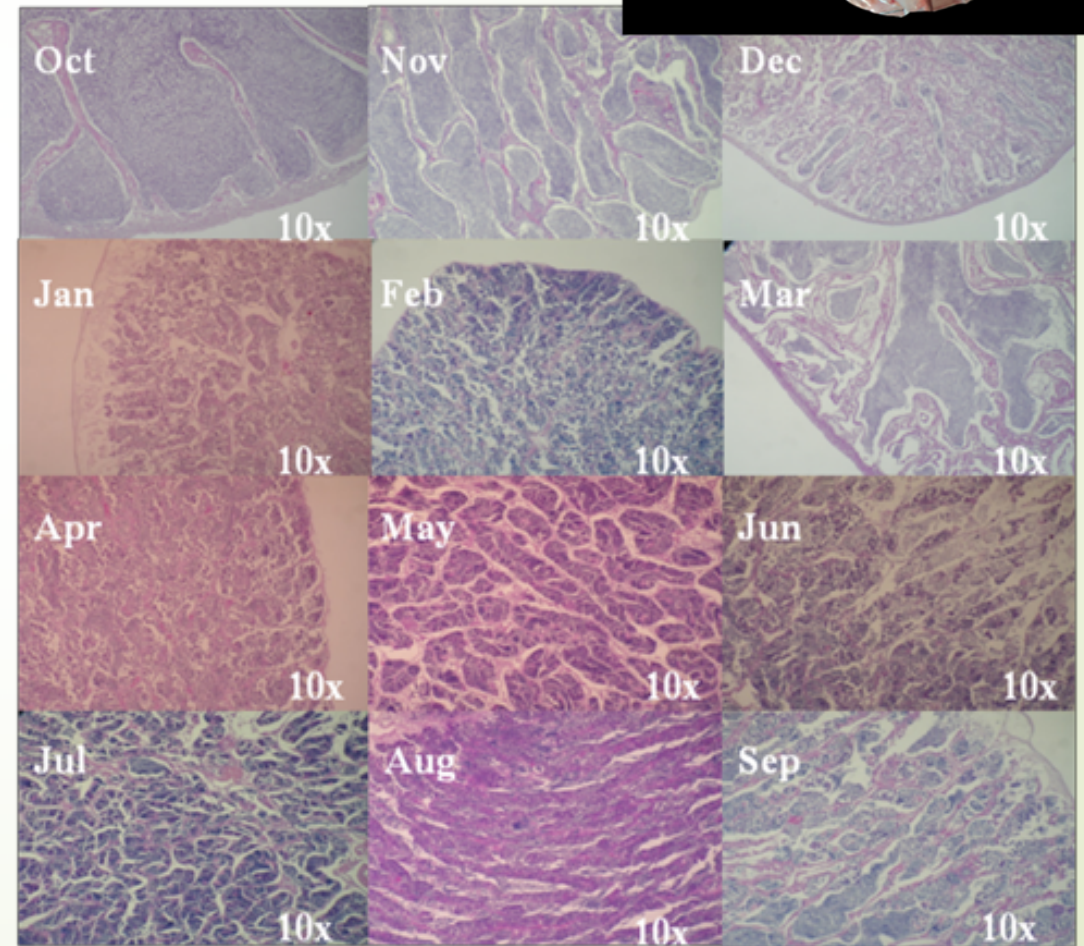
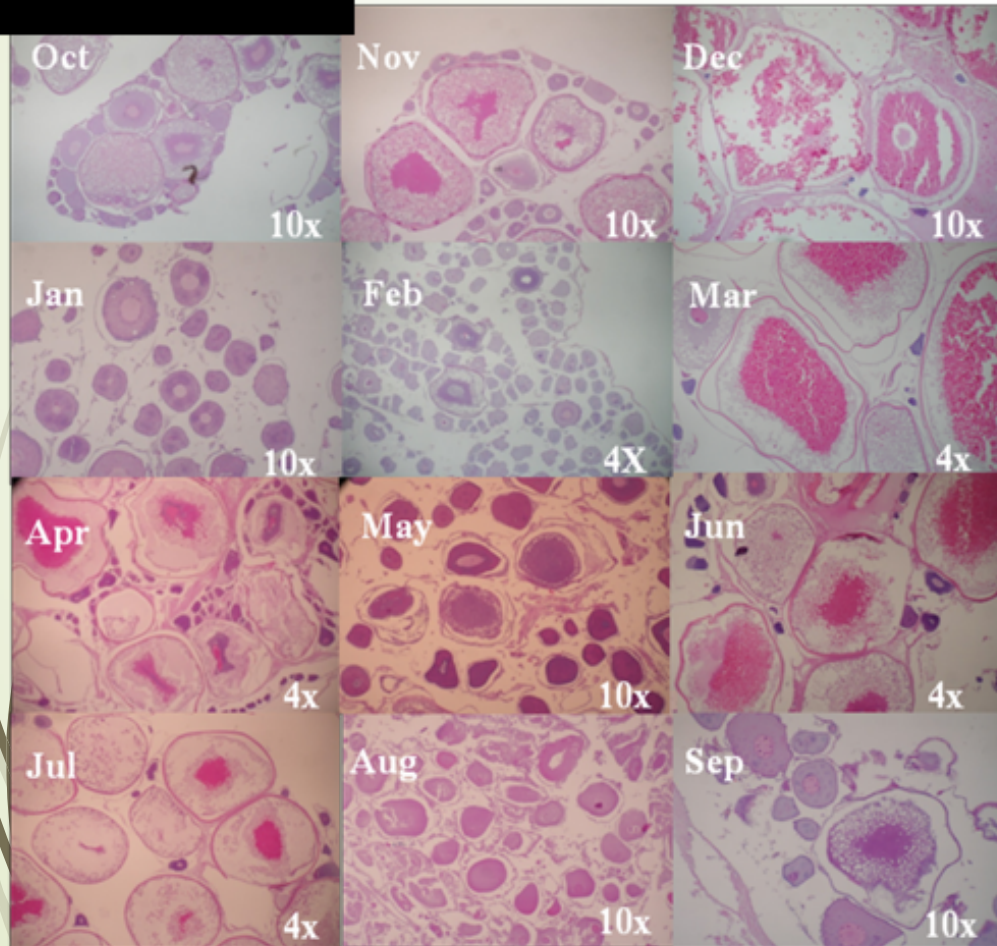
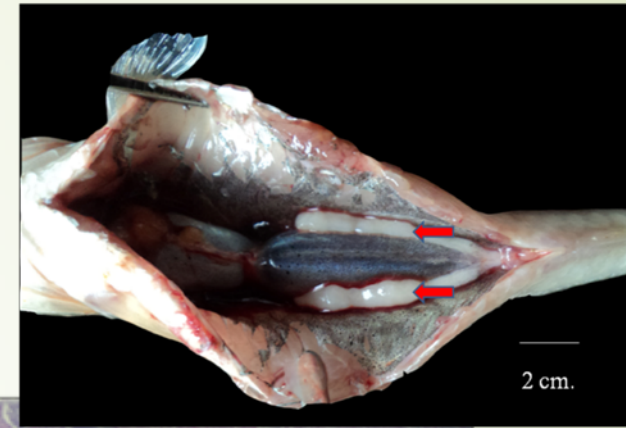
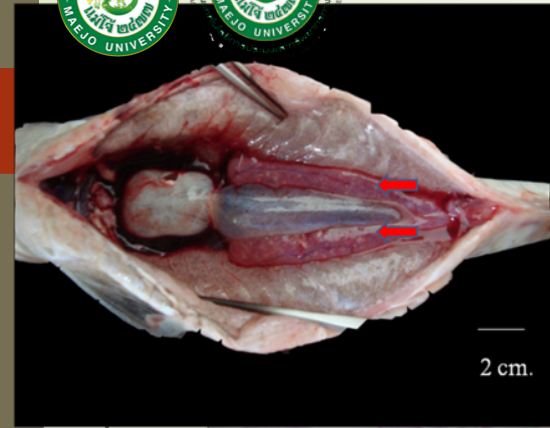


Sex





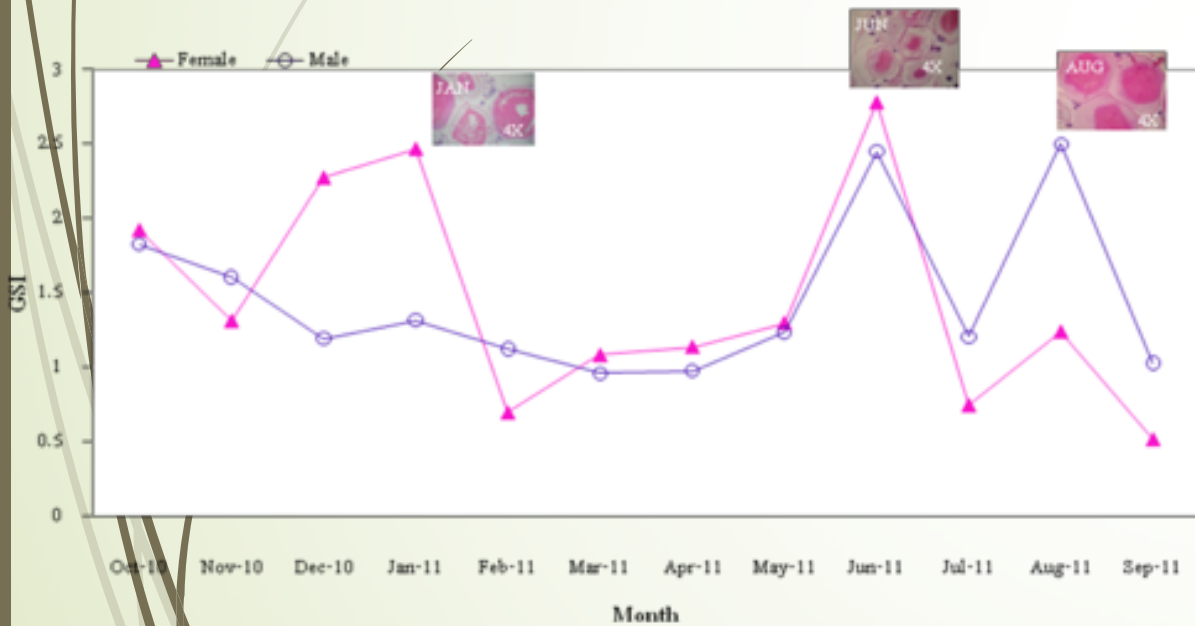
Gonad development



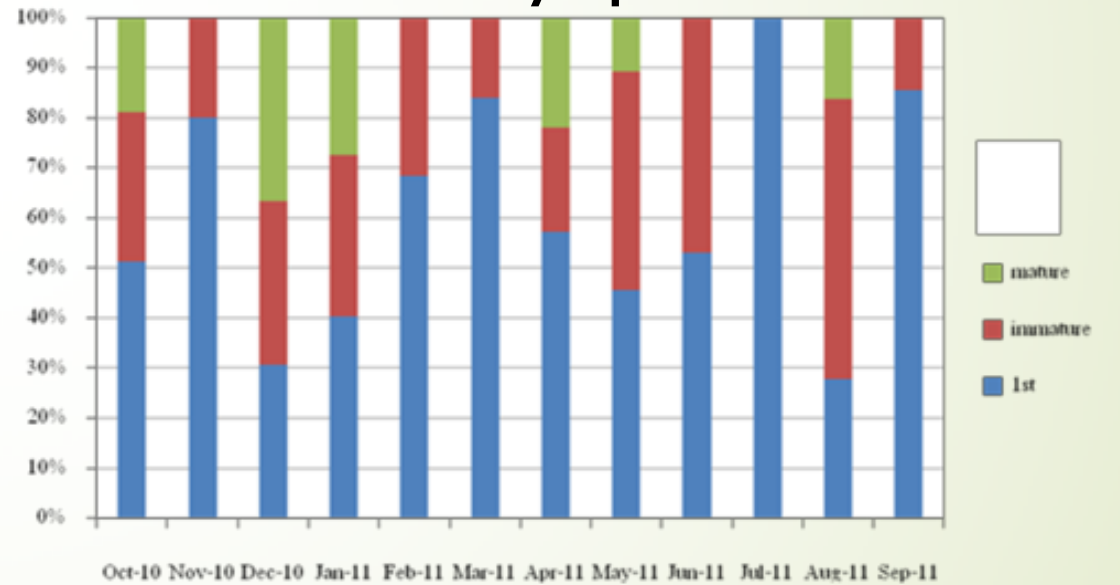


Spawning season

GSI

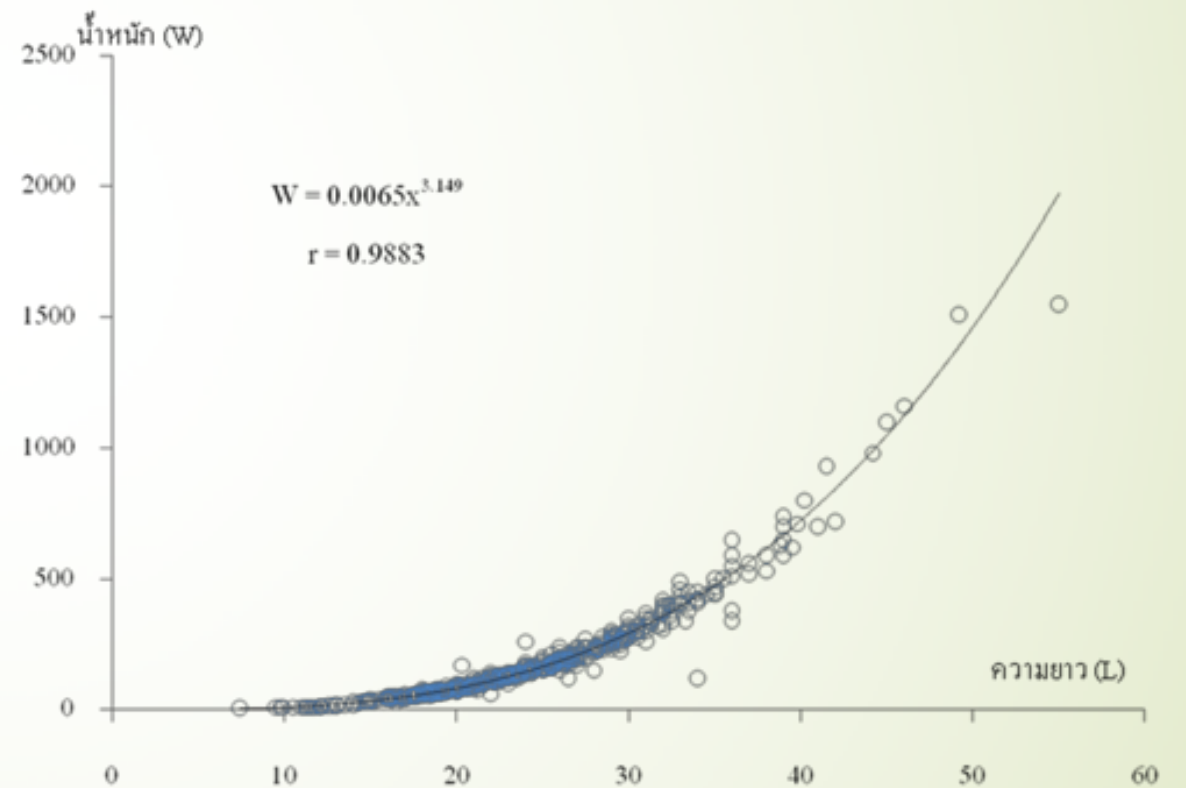
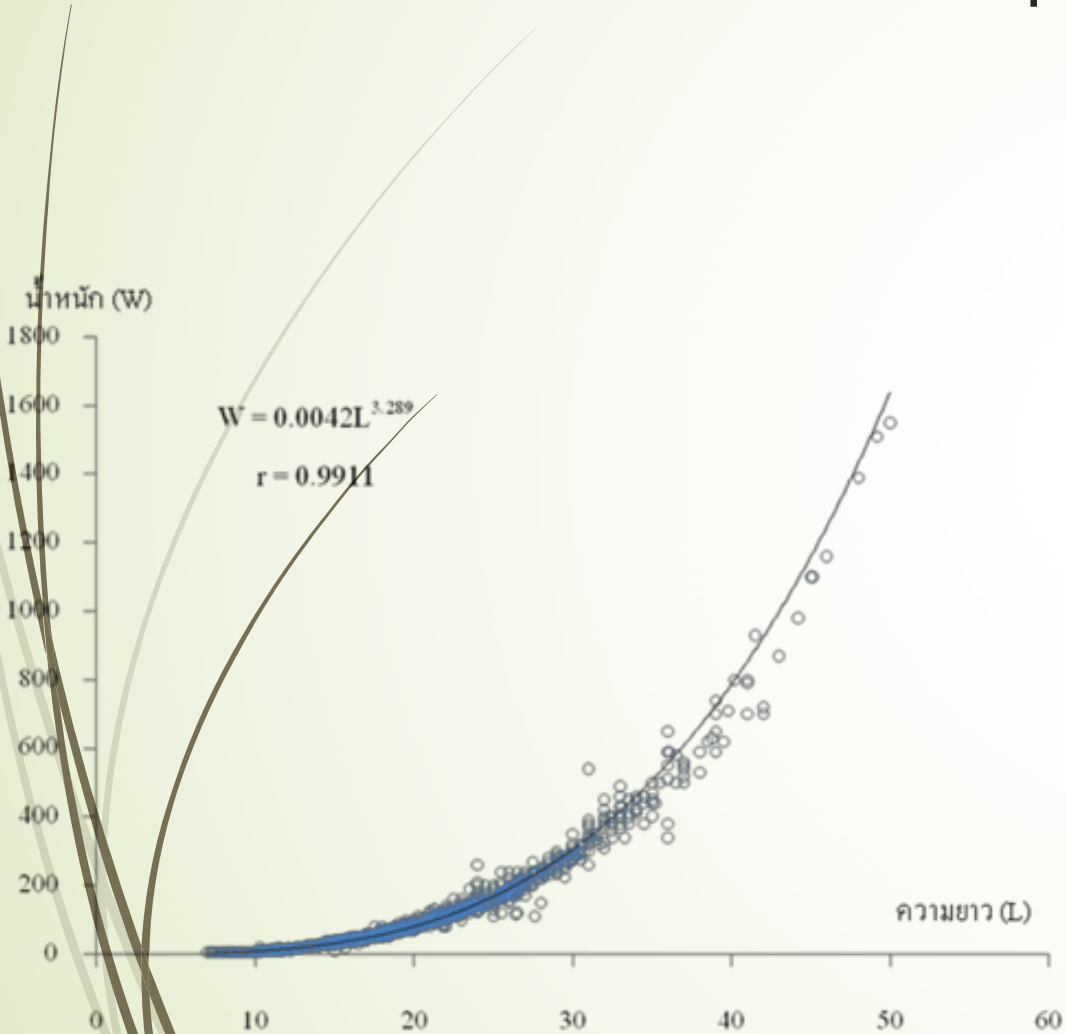


Maturity phase

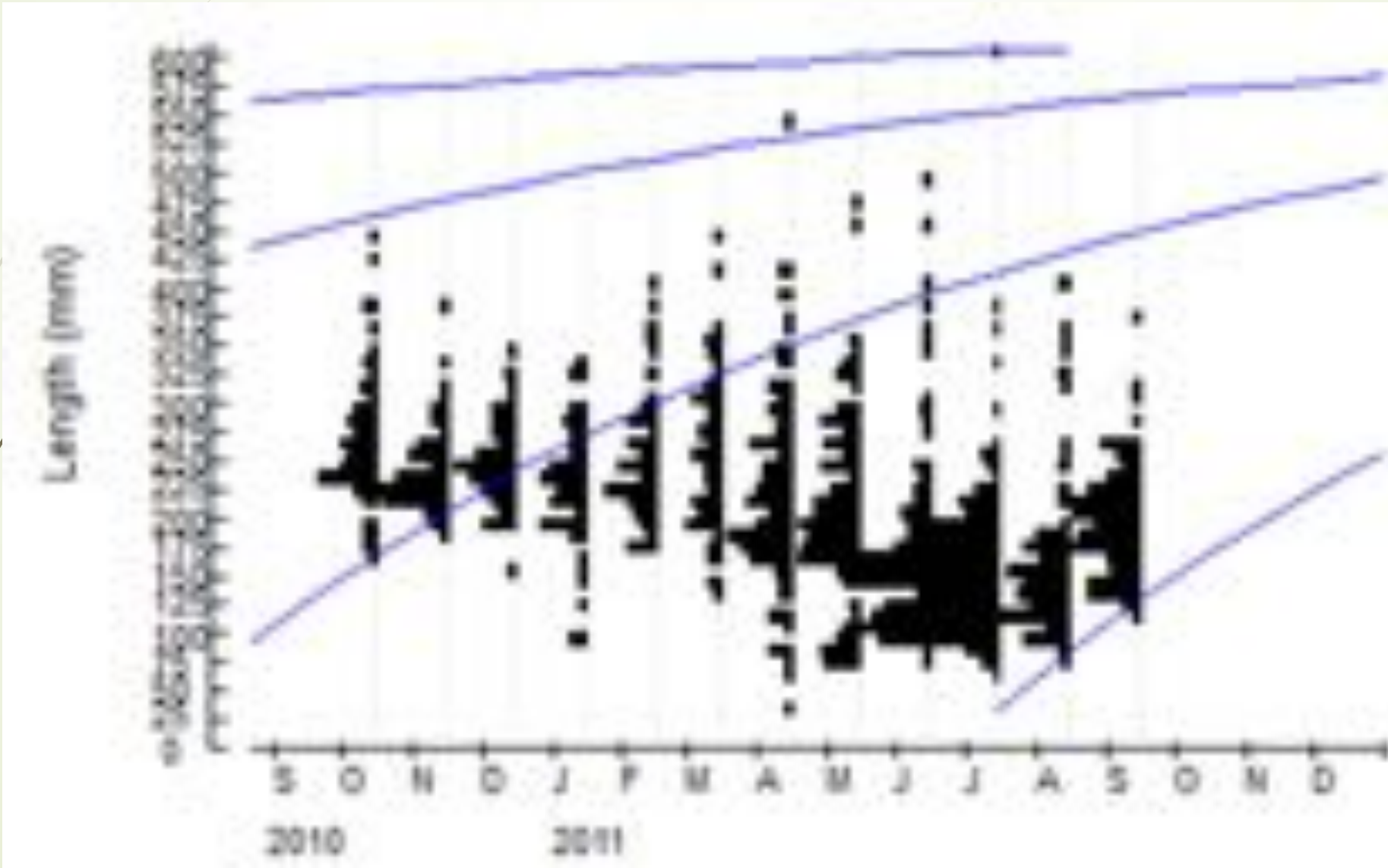




L&W relationship

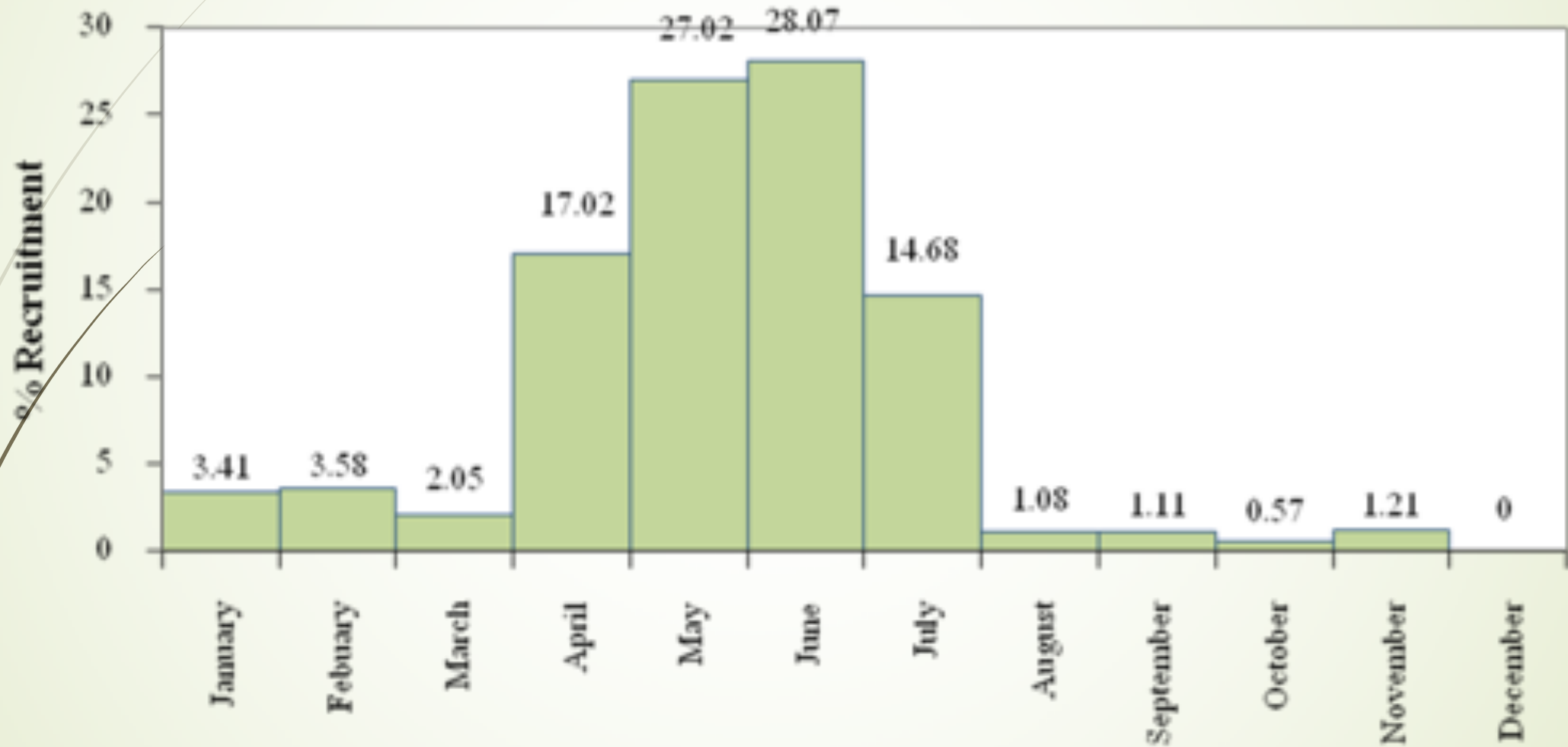


Length distribution





Recruitment





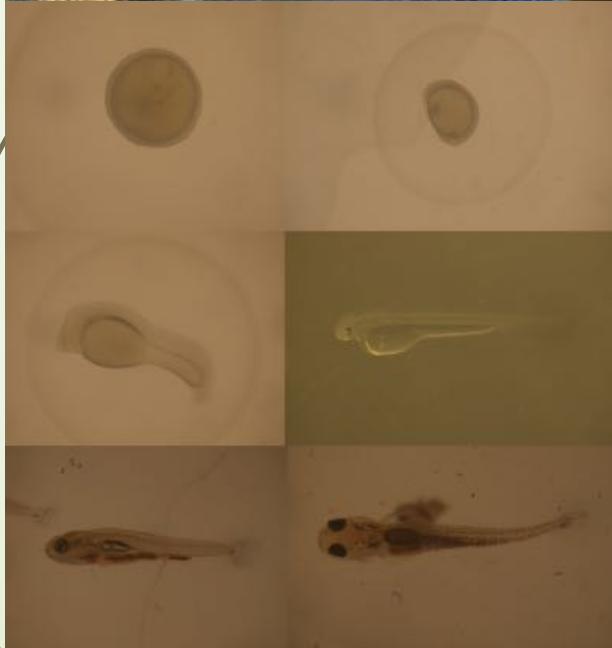
Conservation strategy



1. Aquatic resources training for local youth



2. Fish culture for local people



Fish culture in the mountainous area



2. Fish breeding transfer



3. Reservation



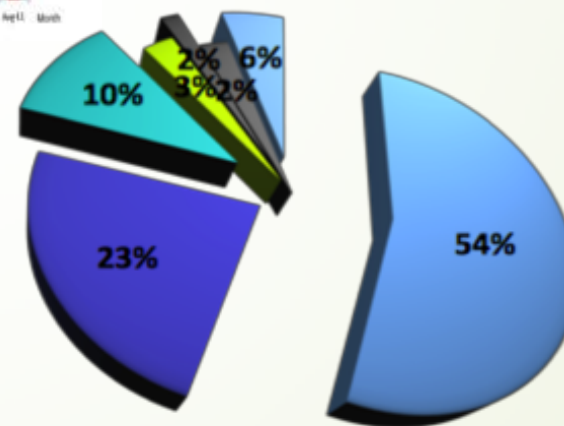
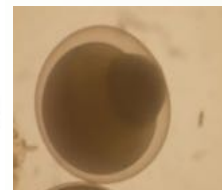
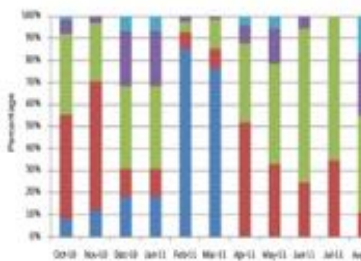
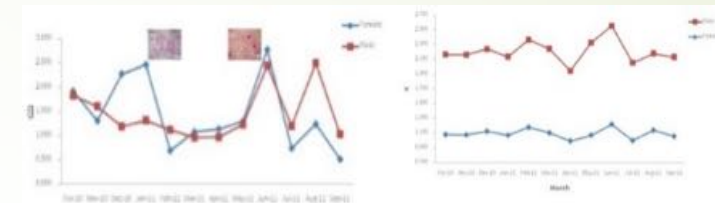
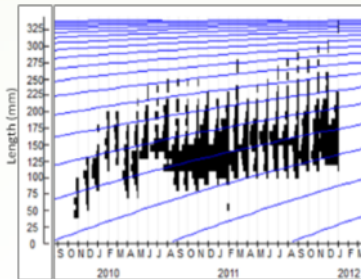
80 national parks 11.0% (60,000 km²)
57 wild life sancturay 5.45%
many Reserve area 7.35%
Totally 33.8%

Re-habitat

Aquatic Habitat Conservation and Management



Restocking



- Cypriniformes
- Siluriformes
- Perciformes
- Synbranchiformes
- Clupeiformes
- Teterodontiformes
- Other

Released!

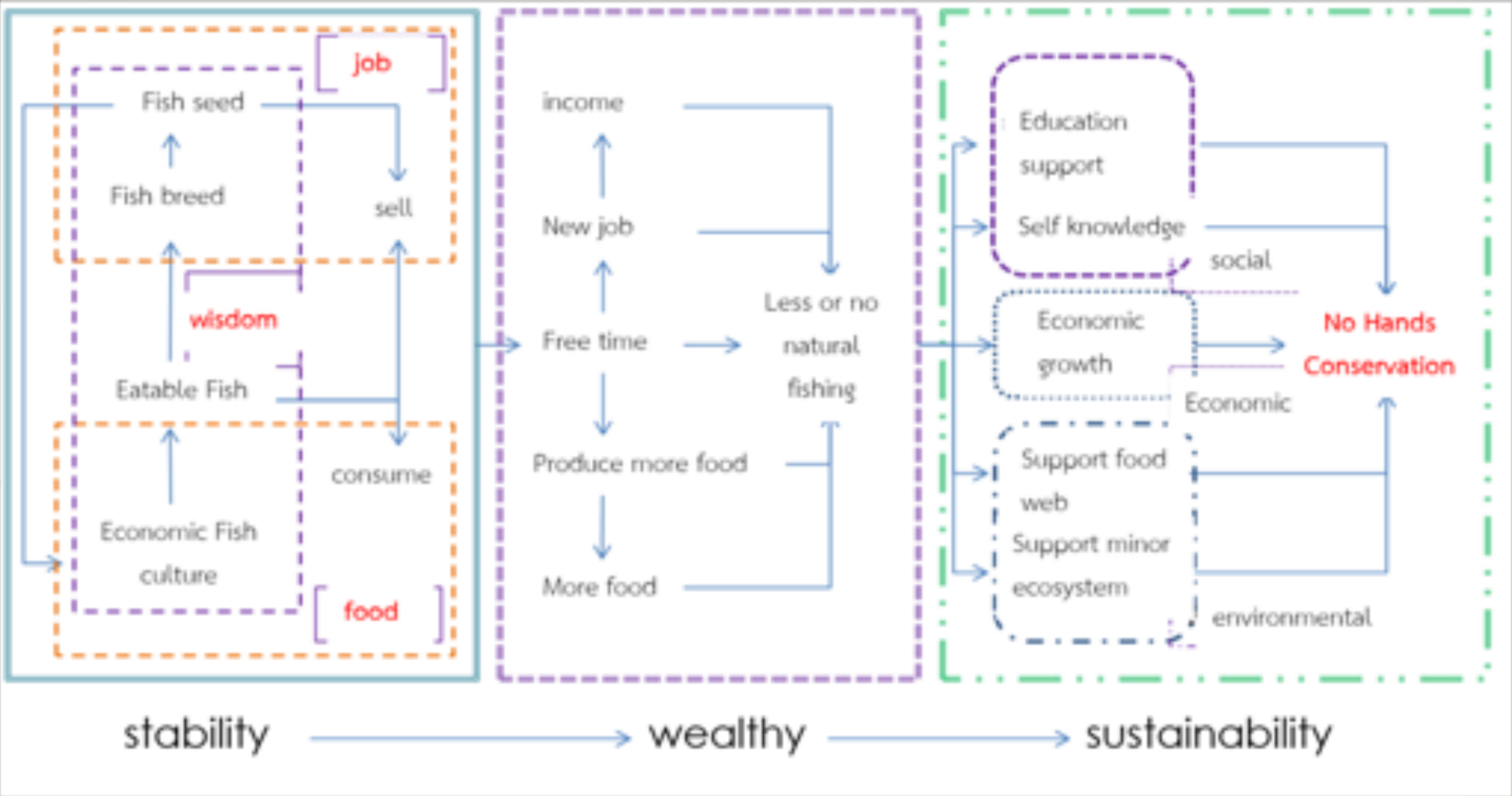


Conclusion



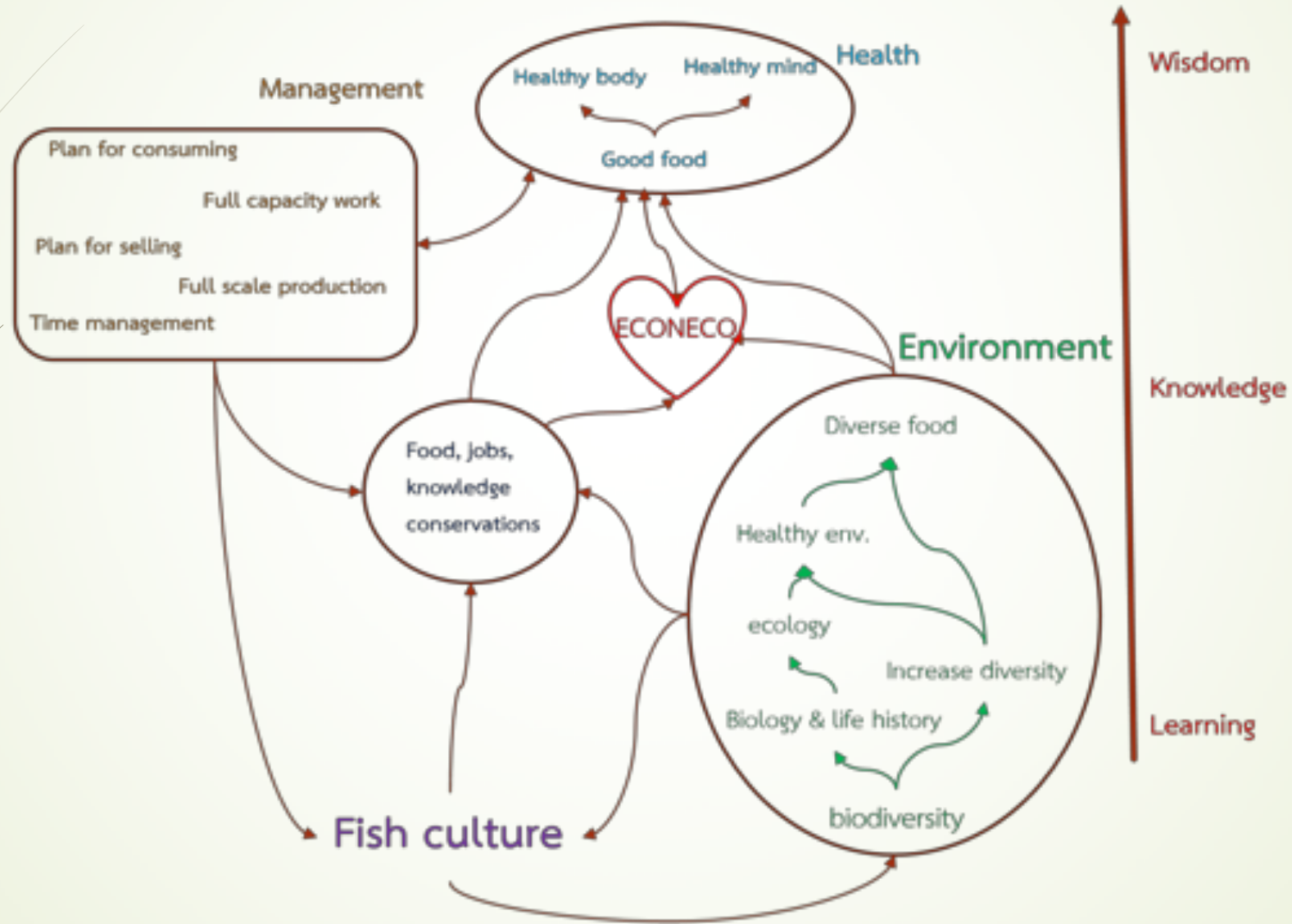


No Hands Conservation





ECONECO





Thank you

Give a man a fish - you feed him for a day;
Teach a man to fish - you feed him for a life;
Teach a man to culture fish - you feed his family;
Teach a man to breed fish - you feed his community;
Teach a man to conserve fish - you feed his environment;
Teach a man to no hand conservation - you feed them dynamics sustainable.