Title : Geometric Morphometric Analysis and Genetic Distance of Siamese Mud Carp (*Henicorhynchus siamensis*) across Five Rivers in Northern Thailand

Author(s) :
1. Bannakan Khaisangjan — **Student ID :** 650510330
2. **Student ID :**
3. **Student ID :**

Major : Zoology

Advisor(s) :
1. Assist. Prof. Dr. Monruedee Chaiyapo
2. Assist. Prof. Dr. Nattawadee Nantarat
3.

Type of presentation* ***(choose 1)*** **:**

- ☐ **Oral Presentation** (เฉพาะ ตัวแทนนศ.ที่สาขาเลือกให้นำเสนอแบบบรรยาย)
- ☑ **Poster** (กรณี นำเสนอผลงานปัญหาพิเศษ/การค้นคว้าอิสระ)
- ☐ **Cooperative Education** (กรณี นำเสนอผลงานสหกิจศึกษา)

ABSTRACT

Siamese mud carp (*Henicorhynchus siamensis*) is an economically significant freshwater fish and widely distributed in major river basins, particularly Chao Phraya and Mekong basins, across Thailand. Environmental variations among river basins strongly promotes local adaptation in fish populations, resulting in population divergence and, ultimately, ecological speciation. However, population differentiation of *H. siamensis* in Thai river systems has not been completely investigated. The objectives of this study are to examine morphological variations and to investigate population structure of *H. siamensis* from five rivers in the Northern Thailand. A total of 226 specimens sampled from Kok, Ping, Wang, Yom, and Nan rivers were examined under stereomicroscope for species identification and analyzed by using a combination of geometric morphometric approach and mitochondrial DNA analysis of the cytochrome c oxidase subunit I (COI) gene. Specimens were photographed and morphometric analysis was carried out on a set of landmarks defined on the digital photos using MorphoJ software. For molecular analysis, genomic DNA was extracted from muscle tissue, and a fragment of the COI gene was amplified and sequenced for nucleotide analysis. The results of geometric morphometric analysis and

**Type of presentation must be matched with an option you choosing on student upload system.*

***The abstract can be more than one page and must be approved by project advisor before upload.*

Canonical Variate Analysis (CVA) revealed significant morphological differences among populations from the five rivers ($P < 0.05$), indicating clear shape-based separation, particularly between the Yom and Ping River populations. These differences are likely associated with variations in environmental conditions among river systems. Moreover, mitochondrial DNA analysis further supported population differentiation corresponding to river distribution. The findings of this study demonstrate the population structure of *H. siamensis* across the Northern Thai river basins and provide important insights for fisheries management and conservation planning to maintain genetic diversity at the population level.

**Type of presentation must be matched with an option you choosing on student upload system.*

***The abstract can be more than one page and must be approved by project advisor before upload.*