The University of Hong Kong
School of Biological Sciences

Public Seminar

Investigating biodiversity dynamics and anthropogenic impacts in coastal ecosystem: insights from molecular ecology approaches

Date: 2 August 2024 (Fri)

Time: 15:00

Venue: 6N-11, KBSB +

Zoom

About the speaker:

Arthur Chung is a PhD candidate from the Molecular Ecology and Evolution Lab, with broad and interdisciplinary research interests encompassing the exploration of marine teleost biodiversity and intricate ecological interactions. His work focuses on the fields of marine conservation and molecular ecology, aiming to enhance conservation strategies through a deeper understanding of species dynamics and ecological interactions.

Abstract:

The rich marine biodiversity is crucial for ecosystem functions, providing valuable ecosystem services at both local and global scales. With over 18,000 fish species, the highest diversity among vertebrates, marine fish biodiversity is under severe threat in the Anthropocene. My research primarily focuses on groupers (Serranidae), a commercially and culturally significant taxa group of 167 species across 16 genera, which are heavily being overexploited.

Utilizing next-generation sequencing and environmental DNA (eDNA), my research aims to investigate different aspects that shape the current marine biodiversity, and offer efficient alternatives for marine biodiversity monitoring and conservation. My thesis involves:

1. **Unveiling past hybridization events**: Quantification of genomic divergence and historical introgression within the *Epinephelus* genus.
2. **Addressing Overexploitation**: Development of a probe-based species-specific qPCR assay for the endangered *E. akaara* to enable sensitive and specific detection.
2. **Addressing non-native species impact**: Deployment of gut content metabarcoding to evaluate prey diversity in non-native hybrid groupers released through religious practices, and establishment of dietary baselines for local *Epinephelus* spp..
4. **Optimising survey methods**: Evaluation *of* the effectiveness of eDNA metabarcoding and underwater visual census (UVC) surveys across environmental gradients in documenting marine fish diversity in impacted coastal ecosystems.