



The University of Hong Kong
School of Biological Sciences

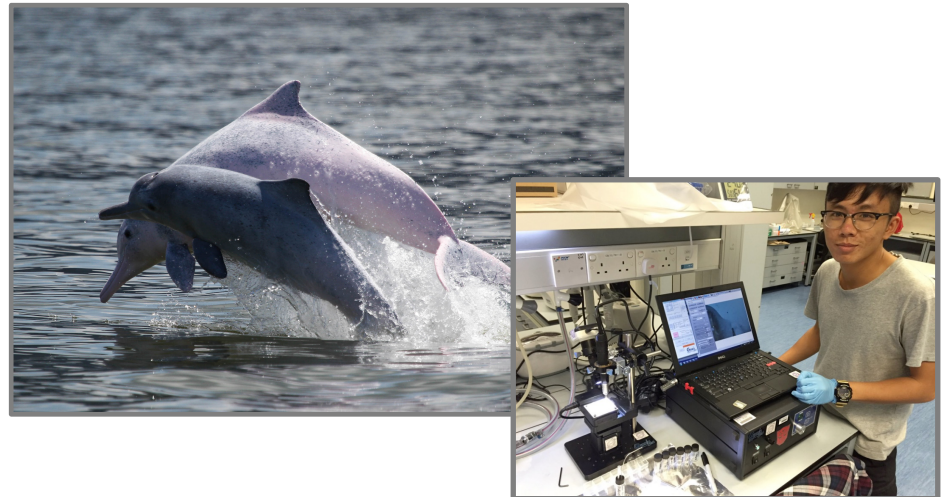
**Public
Seminar**

Foraging ecology of Indo-Pacific humpback dolphins in the Pearl River Estuary: A multifaceted approach

Date: 15 July 2021 (Thur)

Time: 09:00 (UTC + 8)

Venue: KBSB 6N-11/Zoom



About the speaker:

Derek Yuen Wa HO is a PhD student of Dr. Leszek Karczmarski, with interest in biochemical, bioacoustic and ecological research. His doctoral project investigated various aspects of habitat relationship and foraging ecology of Indo-Pacific humpback dolphins in Hong Kong and the greater Pearl River Estuary.

Abstract:

Indo-Pacific humpback dolphins (*Sousa chinensis*) in the Pearl River Delta (PRD) region are exposed to a wide range of anthropogenic impacts. Although the research effort in the region dates back two decades, much of humpback dolphin foraging ecology remains poorly understood. This study aimed at addressing this knowledge gap with a novel and multifaceted analytical approach.

Tooth dentine isotopic values were analysed for ontogenetic dietary shift using a hierarchical Bayesian framework. The results indicate that humpback dolphins wean before the age of three, although with a considerable heterogeneity among individuals. The weaning age differs between sexes, with males displaying an earlier dietary shift. Isotopic niche analysis points to differences in foraging preferences between sexes, with males occupying a larger isotopic niche area and consuming prey from a more depleted carbon source. Isotopic niche area decreases from the east to west of the PRD, suggesting a regional difference in feeding habits and foraging efficiency, which corresponds with similar finding in a recently published dietary study.

Stomach samples collected from dolphin carcasses stranded in Hong Kong waters were analysed for microplastics ingestion. The high abundance of plastic particles indicates a very considerable microplastic ingestion by this inshore delphinid. The majority of microplastics were low-density polymers, smaller than 170.4 μm . Hierarchical Bayesian prediction model suggests that the ingestion of very small size classes of microplastics may be substantially underestimated, which underscores the need for comprehensive evaluation of the proportion of identified plastics. I also studied the soundscape pattern in a fine spatial scale in western Hong Kong waters and developed a framework of soundscape information retrieval. A spectral feature which peaks at 2 kHz turned out to be a reliable predictor of humpback dolphin's core habitat. The sound source of the 2 kHz feature remains unknown but is likely associated with humpback dolphins' prey, and it positively correlates with the dolphins' habitat use pattern.

My PhD study contributes a novel component to a more holistic understanding of humpback dolphin foraging ecology. In this seminar, after presenting my key findings, I am going to discuss relevant conservation implications and the links between monitoring of marine soundscape, enforcement of microplastics pollution regulations, proper habitat and fishery resources management, and the conservation efforts aiming at securing long-term persistence of humpback dolphins in the PRD and elsewhere in the species range.