



## Executive Summary

The funded project **Small things matter: Hong Kong cryptobenthic fish diversity** is the first comprehensive assessment of cryptobenthic fish communities across Hong Kong's coastal ecosystems, combining both invasive and non-invasive survey techniques. The project aimed to document species diversity, abundance, and distribution, generate genetic sequence data, and contribute to public outreach.

Surveys were successfully conducted across multiple sites and seasons, yielding a robust ecological dataset. A total of 60 cryptobenthic fish species were identified, spanning 34 genera and 5 families. Environmental DNA (eDNA) analysis proved highly effective, detecting 57 species, while invasive sampling methods identified 17 species from 372 collected specimens. Three species—*Priolepis semidoliata*, *Bathygobius megitti*, and *Enneapterygius etheostoma*—were only detected through invasive sampling and morphological identification, highlighting the complementary value of both approaches.

The family Gobiidae dominated the community, accounting for 65.7% of eDNA reads and 90% of specimens collected invasively. *Istigobius campbelli* emerged as the most abundant species by eDNA, while *Tridentiger trionocephalus* and *Bathygobius spp* were most frequently collected through invasive methods. Species composition varied significantly across sites, with many species favoring urbanized locations such as Gold Coast and North Lantau.

Environmental parameters explained most of the variation in species composition, with total inorganic nitrogen (TIN) emerging as a key driver. *T. trionocephalus* showed strong positive correlations with nutrients, faecal coliforms, and suspended sediments, indicating its tolerance for nutrient-rich, disturbed environments. In contrast, *Gobiopsis arenaria* exhibited a negative correlation, suggesting sensitivity to pollution and a preference for less urbanized habitats.





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Genetic sequence data from this study have been uploaded to NCBI, enriching global biodiversity databases. Preserved specimens were donated to the Swire Coastal Outreach Hub and the Hong Kong Biodiversity Museum, supporting long-term research and public engagement. The first draft of the scientific paper detailing the study's findings has been completed and is currently being prepared for submission to a peer-reviewed journal. Overall, this study provides critical baseline data on cryptobenthic fish diversity in Hong Kong and underscores the ecological impact of urbanization on coastal communities.



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