

Environmental Research, Technology Demonstration and Conference Project

ECF Project:	ECF 2019-105
Project Title:	Baseline evaluation of Hong Kong's rocky shore biodiversity
Applicant:	Professor Gray A. Williams, The Swire Institute of Marine Science, The University of Hong Kong
Total Approved Grant:	\$2,657,800
Duration:	1/8/2020 to 11/7/2023
Project Status/Remarks:	Completed
Project Scope:	<p>The Biodiversity Strategy and Action Plan (BSAP) commits the Hong Kong SAR Government to the conservation of our natural biodiversity. In order to effectively manage and conserve our biodiversity it is important to identify and address gaps in our knowledge. Whilst many habitats have been the subject of detailed studies, one clear knowledge gap lies in the documenting and understanding the biodiversity of Hong Kong's rocky shore communities. Preliminary surveys suggest that this environment harbours a rich biodiversity which is shaped by unique local characteristics of the Hong Kong environment, yet imminent impacts from land use and climate changes are largely unknown.</p> <p>This project aims to document this biodiversity, providing a state-of-the-art collection of species found on rocky shores, which can be accessed through an online GIS database. By integrating data on species distributions with quantitative surveys at different locations and over different time scales, this database will identify biodiversity hotspots and map the distributions of ecologically important species. By the combination of species identification, cataloguing, and measurement of the community dynamics, the proposed project will contribute towards Hong Kong's BSAP in facilitating conservation and management planning.</p>
Summary of the Findings/Outcomes:	<p>This project provides a comprehensive assessment of Hong Kong's rocky shores and constructed an extensive dataset of its biodiversity. Over 412 species across 44 selected sites were recorded through regular intensive surveys, citizen science outreach events, and dedicated active searches. 1,936 preserved faunal specimens, 217 preserved algae specimens were identified and collected, and 313 DNA barcodes deposited at SWIMS to aid future conservation efforts. The distribution of Hong Kong's intertidal biodiversity hotspots was mapped on a publicly accessible, interactive GIS web-based platform. Combining physical environmental data and biodiversity assessments indicated that Hong Kong's intertidal assemblages are driven by four main environmental variables: wave fetch, chlorophyll a, rock porosity, and maximum temperature at the low-mid shore tidal heights. Assemblage composition was similar between years; but varied between seasons (winter and summer) and regions. In terms of biodiversity hotspots, Hong Kong's southern region is one of immense importance. As such, these findings contribute directly to the Hong Kong SAR's commitment to the Convention on Biological Diversity</p>

	(contributing to areas 2 and 3 of the HK SAR Biodiversity Strategic Action Plan 2016) and meet the goals outlined in maintaining biodiversity (species lists and preserved museum specimens) and sharing knowledge (through the GIS platform).
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