Hong Kong Offshore LNG Terminal Project
Marine Conservation Enhancement Fund / Fisheries Enhancement Fund

Completion Report (MCEF21001)

1. **Project Title**

   Training Citizen Scientist to Study Seasonal Dynamics of Phytoplankton and its Relationship with Coastal Water Quality of Non-gazetted Beach in Western and Southern parts of Hong Kong

   培訓公民科學家研究香港西南部非憲報海灘浮游植物的季節性動態及其與沿岸水質的關係

2. **Executive Summary**

   This MCEF project was conducted over a 30-month period, from September 1, 2022, to February 28, 2025. Its primary aim was to investigate the biodiversity and community structure of phytoplankton assemblages in relation to physico-chemical parameters across 13 non-gazetted beach areas in the western and southern regions of Hong Kong. The project's key objectives included assessing phytoplankton biodiversity and community composition, establishing a culture collection library of phytoplankton species, and promoting public awareness of marine conservation and ecology through a citizen science approach. All objectives were successfully achieved without any significant problems.

   To support the project's implementation, one full-time Research Assistant (RA) and approximately ten part-time Research Support Assistants (RSAs) with relevant academic backgrounds in applied or environmental sciences were recruited. The project team conducted 33 comprehensive training sessions for the RSAs, covering theoretical and technical knowledge, equipment usage, field sampling techniques, and data management. Additionally, a number of workshops were organized to train citizen scientists in the project's objectives, technical skills, and practical fieldwork. Through these efforts, the project successfully engaged over 10 secondary schools and trained a total of 388 citizen scientists.

   Pre-field visits to all 13 sampling locations (non-gazetted beaches in the western and southern parts of Hong Kong) were conducted in November and December 2022. These visits facilitated the development of training materials to enhance participant understanding and engagement. Monthly monitoring, sampling, and experimental analyses commenced in January 2023 and continued for 24 months. The project team collected and analyzed a range of water quality parameters at each sampling station, including temperature, dissolved oxygen, conductivity, salinity, pH, turbidity, and depth. Laboratory analyses were also conducted to measure total nitrogen, total phosphate, ammonia, silicate, nitrite, dissolved oxygen, biochemical oxygen demand, total suspended solids, and chemical oxygen demand.

   In addition, the project team successfully optimized protocols and conditions for the isolation and cultivation of phytoplankton. As a result, a total of 69 monocultures were established and maintained in the phytoplankton species collection library, representing a significant contribution to the understanding of phytoplankton diversity in the region.

In summary, the project not only generated valuable baseline data on phytoplankton assemblages and their relationship to water quality in non-gazetted beaches but also successfully engaged and educated secondary school students and teachers as citizen scientists. This initiative fostered environmental awareness and strengthened community involvement in marine ecology, leaving a lasting impact on both scientific research and public engagement.