LIFE BELOW WATER

Research

Enhancement of Marine Biodiversity and Ecosystem Functioning along Lantau Eco-Shoreline

Led by Ir Professor Poon Chi-sun, Michael Anson Professor in Civil Engineering, Director of Research Centre for Resources Engineering towards Carbon Neutrality, Chair Professor of Sustainable Construction Materials, Head of the Department of Civil and Environmental Engineering, the project "Enhancement of Marine Biodiversity and Ecosystem Functioning along Lantau Eco-Shoreline with Low-pH Sea-Sand Seawater Eco-Engineered Seawall Panels" has received funding from the Lantau Conservation Fund of HK$2,269,000. This project aims to develop a novel low-pH eco-friendly concrete mix and then to create an eco-engineered and lighter panel on vertical seawall. Holes passing through the panels will provide habitats of marine species. Its effectiveness of biodiversity enhancement comparing with conventional concrete panels will be evaluated.

Application of Satellite Imagery Technology for Marine Environmental Management

The Department of Land Surveying and Geo-Informatics has leveraged the University's remote sensing technology to assist the Hong Kong Environmental Protection Department in carrying out a research study on the application of satellite imagery technology for marine environmental management of Hong Kong coastal waters. A set of new algorithms for the parameters' retrieval and a pilot satellite imagery marine water quality monitoring system will be further developed.

Green Antimicrobial Agents and Textiles

Marine debris, including fragmented plastics, is responsible for causing marine pollution. One potential solution is the substitution of fossil-based plastics with degradable alternatives. Poly(lactide acid) / poly(hydroxy-butyrate) (PLA/PHB) is among the viable degradable options. Research conducted by a team from the Research Institute for Intelligent Wearable Systems and the School of Fashion and Textiles has led to the development of PLA/PHB fabrics using innovative bio-based and degradable PLA/PHB multifilament yarns. It is predicted that 100% degradation of PLA/PHB fabrics can be achieved in **one to three and a half years**, significantly shorter than for fossil-based plastics which can take hundreds of years, thus potentially contributing to the mitigation of marine plastic pollution.

Education

Webinar about Clam Digging Activities

As one of the events on the Campus Sustainability Weeks, the online sharing was delivered by a conservation officer of the World Wildlife Fund (WWF)-Hong Kong, focusing on the ecological damage caused by clam digging activities by visitors to Shui Hau Wan on Lantau Island — an area rich in biodiversity. In addition to examining how this threatens the Shui Hau ecosystem, the WWF officer introduced a marine conservation project named "Environment and Conservation Fund Sustainable Shui Hau Project", with aims to maintain the ecological value of the area and encourage the sustainable use of coastal resources in the long term.

Educational Materials on Hong Kong Marine Life

Published by the Campus Facilities and Sustainability Office, "Green Tips" is a monthly educational e-flyer that focuses on information on a single green topic. It presents helpful and easily actionable ideas on how the PolyU community can live an eco-friendlier lifestyle. In order to inform students and staff about the threats faced by marine life in Hong Kong waters and the world's oceans and educate them how the natural marine habitats might be preserved, Chinese white dolphin and pollution of the oceans were among the featured topics.

Engagement

Modern Mariculture Demonstration Farm

With support from the Sustainable Fisheries Development Fund, the Research Institute for Future Food has set up a project promoting modernised and sustainable mariculture at a demonstration farm. It provides hands-on training and lectures to conventional mariculturists and those who intend to join the mariculture industry with a view to helping the local trade develop cutting-edge mariculture practices. To enhance the effectiveness of mariculture production and promote food safety of fisheries products, a Standard Operating Procedure and Hazard Analysis and Critical Control Point will also be developed for the target fish species with data acquired through culture trials.

Policies and Operations

Sustainability-Conscious Food Consumption in Official Entertainment

Demonstrating PolyU's commitment to the promotion of green living and sustainability, the University pledged in 2017 to adopt sustainability-conscious food consumption practices for official entertainment functions. Food resources which are captured in ecologically unfriendly or unsustainable ways or have aroused international and local conservation concerns are excluded from official entertainment functions. Shark fin, bluefin tuna, humphead wrasse, wild-caught Hong Kong grouper, sturgeon caviar and black moss are examples of food items excluded.

Phasing out Bottled Water on Campus

Since 2017, in order to help conserve the marine environment by reducing the amount of plastic entering the oceans and breaking into small pieces harmful to marine life, the University has discontinued the sale of bottled water in any single-serving plastic bottle with a capacity of less than one litre in vending machines, the convenience store and catering outlets on the main campus and in hostels. Such single-serving bottles are also not offered at university activities and events.