香 港 大 學
THE UNIVERSITY OF HONG KONG

Press release

HKU holds "The 9th International Conference on Marine Pollution and Ecotoxicology" to advance science and technology for combating marine pollution

11 June 2019

The opening ceremony of **"The 9th International Conference on Marine Pollution and Ecotoxicology"** (ICMPE-9) co-organised by the School of Biological Sciences of the University of Hong Kong (HKU) and State Key Laboratory of Marine Pollution (SKLMP) (City University of Hong Kong) was held at HKU on 11 June 2019. Officiating guests include the Under Secretary for the Environment, Mr Tse Chin-wan, JP; Executive Director of United Nations' Partnerships in Environmental Management for the Seas of East Asia (PEMSEA), Ms Aimee Gonzales; Director of SKLMP and Vice President of City University of Hong Kong, Professor Paul Lam; HKU Vice-President and Pro-Vice-Chancellor (Research), Professor Andy Hor; and Professor at HKU School of Biological Sciences, Professor Kenneth Leung.

With the generous financial supports from the Environment and Conservation Fund of the Hong Kong SAR Government, the Croucher Foundation Limited, and other sponsors, 33 world renowned experts were invited to join the ICMPE-9. They will share their knowledge, experience and latest advancements in the field with some 270 scientists, environmental professionals and environmental regulators from 18 different countries.

This ICMPE-9 Conference primarily aims to provide a platform for participants to discuss and advance their understanding of regional and global marine pollution problems. Through the three plenary lectures, 18 keynote lectures, 12 invited talks, 78 platform presentations, and 137 poster presentations, participants will be able to learn more about the latest technologies, methods and policies for combating marine pollution.

The ICMPE-9 Conference will also promote capacity building and research collaboration. There will be a session for participants to discuss and plan for the development of large-scale marine environmental research projects in the Greater Bay Area in particular.

Some featured lectures are highlighted as follows:

- On 11 June 2019, Professor Gui-bin Jiang, an academician of the China Academy of Sciences, will present the latest advancement in technologies for detection of emerging persistent organic pollutants. Professor Joseph Lee of the Hong Kong University of Science and Technology will elucidate how we can apply numerical models to provide an early warning system for forecasting harmful algal blooms and red tides.

- On 12 June 2019, Dr. Carlie LaLone from the United States Environmental Protection Agency will introduce the application of Adverse Outcome Pathways for regulating chemical production, assessing and managing their environmental risks. Professor Daniel Schlenk from University California Riverside and Professor Warren Burggren from University of North Texas will reveal the multigenerational effect of chemical pollutants on fishes such as interference of epigenetics.

- On 13 June 2019, Professor Alistair Boxall from University of York will report on the latest results of a large-scale monitoring programme on pharmaceuticals (e.g. antibiotics, antidepressants, painkillers) in 91 rivers around the world, including Lam Tsuen River in Hong Kong (https://on.natgeo.com/2EIeG1M). Professor Jörundur Svavarsson from University of Iceland will describe the current environmental challenges in North Atlantic Ocean.

- On 14 June 2019, we have invited two iconic figures to share their experience in organising environmental campaigns for combating marine pollution. Dr. Martin Thiel from Universidad Catolica del Norte, Chile, will tell us about how citizen scientists can help monitor and reduce marine debris in Chile, while Mr. Murray Fisher, Founder of the Billion Oyster Project (https://billionoysterproject.org/) in New York will show us how his project successfully motivated New York people to engage in ecological restoration endeavor. So far, he and his team have already deployed over 28 million of oysters into the New York Harbor and witnessed some improvement of water quality.

HKU Leading the Hong Kong's Billion Oyster Project

Historically, there were many oysters in the marine environment of Hong Kong, such as Deep Bay and Tolo Harbour. Oysters play multiple roles in the marine environment. They form oyster reefs in the seabed that provide habitats and food for other marine organisms, and thus enhance marine biodiversity and fisheries resources. As a natural sea defense, the reef structure can attenuate wave action during storm. Individual oysters can also help improve the water quality through biofiltration and removal of microalgae and suspended organic matters from the water column; for example, an adult oyster could filter 130-220 liters of seawater per day. If we can restore enough numbers of oysters in Hong Kong's coastal waters, some positive changes of water quality will be envisaged. In

2014, the New York Harbor School has launched the Billion Oyster Project with a view to restoring oysters in New York Harbor, providing opportunities for STEM education and promoting marine conservation.

Following the exemplary Billion Oyster Project in New York, HKU Professor Kenneth Leung has initiated the Hong Kong's Billion Oyster Project, and established a Steering Committee in February 2019 (**Plate 1**). The Steering Committee consists of various stakeholders including representatives from Agriculture Fisheries and Conservation Department, Hong Kong Buddhist Association, Hong Kong Taoist Association, the Nature Conservancy, the Conservancy Association, Hong Kong Fishermen's Fisheries Development Association, Deep Bay Oyster Cultivation Association, headmasters from some local primary and secondary schools, and academics from HKU, the Chinese University of Hong Kong, and Education University of Hong Kong. The project will compose of three main components, including (1) ecosystem restoration, (2) scientific research, and (3) STEM and environmental education. The Steering Committee will also explore the possibility to integrate the practice of mercy release of animals with the deployment of oysters for ecosystem restoration. In the fall of 2019, the Hong Kong's Billion Oyster Project team will organise a number of preparatory workshops and Steering Committee meetings, and as anticipated, a formal launch of the Hong Kong's Billion Oyster Project will take place in early 2020. The Steering Committee is very delighted to be able to meet Mr. Murray Fisher, Founder of the New York's Billion Oyster Project, and learn from him during the ICMPE-9 Conference.

Table 1. Scientific Themes and Topics of the Key Lectures of the ICMPE-9 Conference.

Date	**Scientific Themes**	**Topics of Key Lectures**
11 June 2019 (Tuesday)	• Emerging chemicals of concern • Plastic pollution • OMICS • Greater Bay Area Research Collaboration	• High-throughput identification and prioritisation of ToxCast chemicals by liquid chromatography-mass spectrometry • Coastal eutrophication, hypoxia, harmful algae blooms and algal toxins: Experience in the Philippines through the rehabilitation of Manila Bay and Boracay • An early warning system for algal blooms and red tides • Ecological toxicity of organophosphorus flame retardants • Ecotoxicological evaluation and risks of emerging chemicals of concern in coastal regions of South China
12 June 2019 (Wednesday)	• Oil and PAH pollution • Plastic pollution • Integrated assessment and monitoring techniques	• Repaid recovery of coastal ecosystem affected by the Hebei spirit oil spill • *In situ* harmful algal bloom observations with biosensors: Progress towards an autonomous, adaptive regional observing network for multiple HAB species and toxins • Developmental plasticity, epigenetics and evolution: Implications for pollution and toxicology

		• Use of microRNA and mRNA analyses to identify novel modes of action of environmental contaminants to early life stage fish • Adverse outcome pathways: Creating a sustainable framework for decision-making • Ecological adverse outcome pathways of stressors - Connecting prediction and the field
13 June 2019 (Thursday)	• Emerging chemicals of concern • Biological responses to multiple stressors • Ecological responses to pollution	• Predicting the toxicity of mixtures of up to 22 pesticides in waters discharged to the Great Barrier Reef, Australia • Ecotoxicology of aquatic mammals: In vitro and in silico approaches to predict the chemical-induced disruption of nuclear receptor signaling pathways • The global problem of pharmaceutical pollution • Steroid hormones induce fish masculinisation in the environment • Environmental challenges at high latitudes of the North Atlantic Ocean • Coastal cities: Monitoring and managing urban impacts below the waterline
14 June 2019 (Friday)	• Emerging chemicals of concern • Advance monitoring technologies • Eutrophication	• Putting "eco" into ecotoxicology: A revisit • Recovery of an urbanised estuary: Clean-up, de-industrialisation and restoration of redundant dock-basins in the Mersey • Marine litter and citizen science: An opportunity • Billion Oyster Project: Engaging New York City in restoring its marine ecosystem

For detailed programme rundown, please visit:
https://www.icmpe.hku.hk/programme

Further information of the conference can be obtained from:
https://www.icmpe.hku.hk/.

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