

# SKLMP NEWSLETTER

VOL. 5  
AUG 2023



*Spheractis cheungae* in Hong Kong. Photo by: Miss Ma Ka Man



# Director's message



When people work with one heart, they can even move Mount Tai.

人心齊·泰山移。

The scorching summer sun serves as a reminder that I have been leading the State Key Laboratory of Marine Pollution (SKLMP) for nearly three years. Thanks to the concerted efforts of our team, we have made significant progress that aligns closely with our Strategic Plan (April 2021 – March 2024). Over the past year, we have successfully recruited 19 new members, including seven experts in human and environmental health.

In March 2023, we signed a memorandum of understanding with the National Observation and Research Station of Coastal Ecological Environments in Macao, hosted by the Macau University of Science & Technology. This partnership is aimed at synergizing our research and innovation efforts, ultimately benefiting the Greater Bay Area of China. Additionally, since April 2023, SKLMP (CityU) has been entrusted by the Intergovernmental Oceanographic Commission (IOC) of the UNESCO to host its Regional Training and Research Centre on Coastal Contaminant Monitoring and Marine Innovative Technologies (Coastal COMMIT) for the Western Pacific region. Under the leadership of our Associate Director, Dr. Leo Chan, the Coastal COMMIT Centre successfully organized its first scientific diving training program at Pulisan Bay, Indonesia, during 20-24 May 2023. The participants were

trained on how to conduct underwater habitat mapping surveys and benthic dinoflagellate sampling, paving the way for more extensive regional collaborative research projects.

SKLMP has also partnered with the Hong Kong Marine Ecological Association to launch the "Oysters Save our Seas" (Oyster SOS) program for local schools. This initiative aims to promote local marine biodiversity and ecosystem restoration with oyster shells.

In the first half of 2023, four of our members and their students won gold medals and special awards at the 48<sup>th</sup> Geneva International Exhibition of Inventions. Gladly, seven members of SKLMP secured the Marine Conservation Enhancement Fund, with a total of HK\$8.9m awarded.

I extend my heartfelt congratulations to all involved in these remarkable achievements.

*Kenneth Leung*  
Director of SKLMP  
August 2023



## Visit of Representatives of Xiamen University



On 27 March 2023, SKLMP had the pleasure of hosting a visit for the five distinguished guests from Xiamen University, including Mr. Liwu Wu, Secretary of the Party Committee of the College of Ocean and Earth Sciences, Prof. Dazhi Wang, Chair Professor of State Key Laboratory of Marine Environmental Science (Xiamen University), together with Prof. Hantao Zhou, Ms. Mengmei Ling and Ms. Tinglin Yang.

They wanted to learn from Hong Kong's innovation institutions and provide references for the construction of the Marine Innovation Laboratory in Fujian. Dr. Leo CHAN, Associate Director of SKLMP, introduced the laboratory's research areas, ongoing projects, and major achievements to the visiting guests. This visit provided a valuable opportunity for both parties to learn from each other and explore potential avenues for future collaborations.

## Visit of the Shenzhen Luohu Technology Bureau



On 11 April 2023, a delegation of four people from the Shenzhen Luohu Technology Bureau, including Mr. Zehua Dai, the Deputy Director of the Bureau, and Ms. Xiaoru Peng, Chief of the Science and Technology Innovation Promotion Division, visited SKLMP.

Prof. Kenneth Leung, the Director of SKLMP, warmly welcomed the delegation and provided an in-depth introduction to our research focus, and major achievements. He also shared with the delegation some of our impactful research and innovations. Dr. Leo Chan, the Associate Director of SKLMP, led the delegation on a lab tour, during which the representatives of our research staff and students introduced them to several main projects of the laboratory through poster presentation and demonstration.

## Hong Kong Marine Ecological Association's Inaugural Ceremony and Oyster SOS Launch Celebration

The Hong Kong Marine Ecological Association ("HKMEA") celebrated its inauguration and launched its flagship project, "Oysters Save Our Seas" ("Oyster SOS") on 25 April 2023 at the Royal Hong Kong Yacht Club with overwhelming support from stakeholders including government officials, corporate representatives, educators, and environmental organizations.

SKLMP Director Prof. Kenneth Leung is currently the Chairman of HKMEA. He welcomed guests to the event and highlighted the significance of Oyster SOS.

HKMEA aims to promote a biologically diverse and sustainable marine environment in Hong Kong through its newly launched Oyster SOS project. Inspired by the Billion Oyster Project in New York, the project creates natural microhabitats by deploying oyster shells in the sea, enhancing biodiversity, and raising awareness among younger generations on ecological restoration and marine conservation through educational projects. Up till now, over 700 participants from local schools and youth organizations have joined the Oyster SOS program.

## Visit of the Liaison Office of the Central People's Government in the Hong Kong SAR



On 30 March 2023, a delegation from the Liaison Office of the Central People's Government in Hong Kong SAR visited SKLMP. This delegation was led by Dr. Weiming Wang, Director-General of the Department of Educational, Scientific and Technological Affairs of the Liaison Office and the accompanying officials included Ms. Cheng Wu, Deputy Director-General, Ms. Lichun Shi, Associate Director, and Mr. Liangwu Zhong. Our Associate Director, Dr. Leo Chan presented a comprehensive overview of the laboratory's research achievements, highlighting the key areas of focus, such as the UN endorsed "Global Estuaries Monitoring (GEM)" Programme, as well as the strategies for the future development of SKLMP. The delegation was given a tour of the laboratory's state-of-the-art research equipment and technology, and was also introduced to several key projects of the laboratory.

## Visit of Pearl River Water Resources Research Institute

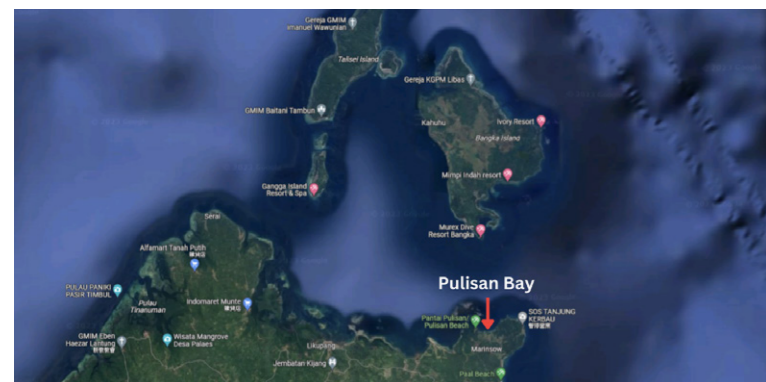


On 25 May 2023, a delegation of six experts from the Pearl River Water Resources Research Institute (PRWRI) visited SKLMP, led by their Vice President Ms. Fang YANG. During the visit, the group met with SKLMP Director, Prof. Kenneth Leung, who gave them an overview of SKLMP's research direction, major achievements and the Eco-Shoreline project, alongside SKLMP member Dr. Meng Yan.

The experts also had the chance to tour the SKLMP laboratory, where some PhD students and research staff presented their research projects and engaged with the PRWRI experts in a productive discussion. The visit allowed the PRWRI experts to deepen their understanding of SKLMP's research capabilities and ongoing initiatives, and fostered a closer collaboration between the two organizations.

# Activities

## Advancing Marine Research: SKLMP Pulisan Bay Scientific Diving Training



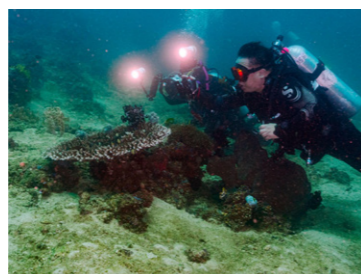
SKLMP had conducted a scientific diving training program at Pulisan Bay (North Sulawesi, Indonesia) between 20 and 24 May 2023. This collaborative program was led by our Associate Director, Dr. Leo Lai Chan in partnership with Wallace Conservation Licoupan and Sam Ratulangi University.

The team spent 5 days conducting dive site assessments and staff training, practicing the use of Underwater Information Systems (UWIS) and Ocean Plan system, and conducted underwater habitat mapping survey and benthic dinoflagellate sampling. Apart from identifying the most suitable sites for scientific diver training, the team developed integrated scientific diving training programs, International Organisation of Standards Standard (ISO Standard) and Standard Operating Procedures (SOP) in underwater habitat mapping and health monitoring of coral reef ecosystems, and advanced their skills in underwater sampling techniques.

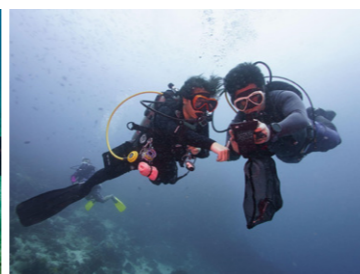
The scientific diving training program at Pulisan Bay was a great success. It opened up new opportunities for further international research and collaboration.



Group photo with Wallace Conservation Team on 24 May 2023



Dr. Leo Chan leading the team for dive site assessment on 21 May 2023



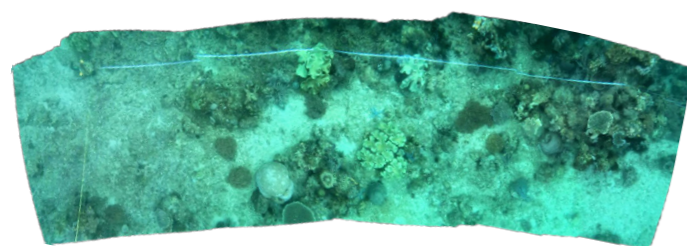
Use of Ocean Plan System during diving training



Staff training for benthic dinoflagellate sampling



Research Assistant Mr. Tzu Hao Chung conducting benthic habitat mapping using transect and underwater camera



10m x 3m trial mapping result from Pulisan I dive site.





# New members



**Dr. Juan Carlos ASTUDILLO P.**  
Assistant Professor  
School of Science and Technology, HKMU  
**Expertise:**  
Ecological restoration, Ecological engineering, Biodiversity assessment, Invasive species



**Dr. Colin Wenlong CAI**  
Assistant Professor  
Department of Infectious Diseases and Public Health, Jockey Club College of Veterinary Medicine and Life Sciences CityU  
**Expertise:**  
Aquatic animal health, Transcriptomics, Biofilm, Fish immunity, Bacterial virulence factors



**Dr. Renee Wan Yi CHAN**  
Associate Professor  
Department of Paediatrics, CUHK  
**Expertise:**  
Paediatric Health, Mucosal sample measurements, Toxicity assessment using human primary cells



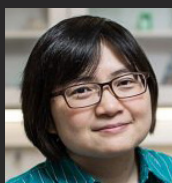
**Prof. Sheng CHEN**  
Chair Professor  
Department of Food Science and Nutrition, Faculty of Science, PolyU  
**Expertise:**  
Bacterial antimicrobial resistance, Metagenomics, Microbial ecology, Microbial evolution, Novel drug discovery from microorganisms



**Dr. Ding HE**  
Assistant Professor  
Department of Ocean Science, HKUST  
**Expertise:**  
Estuaries and coasts, Organic geochemistry, Ultra-high resolution mass spectrometry, Optical spectroscopy, Big-data and machine learning techniques



**Dr. Philip Wing Lok HO**  
Scientific Officer  
Department of Medicine, HKU  
**Expertise:**  
Endocrine disruption, Neurodegeneration, Animal models, Bioassays



**Prof. Megan Yi-Ping HO**  
Associate Professor  
Department of Biomedical Engineering, CUHK  
**Expertise:**  
Single cell analysis, Droplet microfluidics, DNA nanosensors, BioMEMS



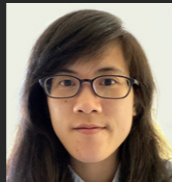
**Prof. Hugh Simon Hung San LAM**  
Professor  
Department of Paediatrics, Faculty of Medicine, CUHK  
**Expertise:**  
Environmental exposures, Child health



**Dr. Agnes Sze Yin LEUNG**  
Assistant Professor  
Department of Paediatrics, Faculty of Medicine, CUHK  
**Expertise:**  
Food allergy (seafood allergy), Impact of pollutants on allergy, Allergen immunotherapy, Allergy prevention, Component resolved diagnostics



**Prof. Tak Yeung LEUNG**  
Professor  
Department of Obstetrics and Gynaecology, CUHK  
**Expertise:**  
Prenatal genetic screening, Diagnosis and therapy of fetal abnormalities, Twin pregnancy, Preterm delivery, Fetal growth restriction, External cephalic version



**Dr. Jiying LI**  
Assistant Professor  
Department of Ocean Science, HKUST  
**Expertise:**  
Marine biogeochemistry, Sediment geochemistry, Carbon nutrient cycling



**Dr. Peggy Pik Kwan LO**  
Associate Professor  
Department of Chemistry, CityU  
**Expertise:**  
DNA, Sensing, Therapy, Nucleic acids, Biomaterials



**Dr. Zhenpin LU**  
Assistant Professor  
Department of Chemistry, CityU  
**Expertise:**  
Organic synthesis, Green catalysis, Boron chemistry, Main-group chemistry, Supramolecular chemistry



**Dr. Thuc Hue LY**  
Assistant Professor  
Department of Chemistry, Department of Materials Science and Engineering, CityU  
**Expertise:**  
2D materials, Synthesis and applications, Water filtration membranes, Desalination membranes



**Dr. Mathew Stephen SEYMOUR**  
Assistant Professor  
School of Biological Sciences, Faculty of Science, HKU  
**Expertise:**  
Environmental DNA, Molecular ecology, Biogeography, Biomonitoring, Community ecology



**Dr. Martin Tsz Ki TSUI**  
Associate Professor  
School of Life Sciences, Earth and Environmental Sciences Programme, CUHK  
**Expertise:**  
Mercury, Trace elements, Stable isotopes, Food webs



**Dr. Alex Chun Yuen WONG**  
Associate Professor  
Department of Chemistry, CityU  
**Expertise:**  
Microplastic, Chemical sensor



**Dr. Zhiyuan ZENG**  
Assistant Professor  
Department of Materials Science and Engineering, CityU  
**Expertise:**  
Marine biogeochemistry, Sediment geochemistry, Carbon nutrient cycling



**Prof. Xiangru ZHANG**  
Professor  
Department of Civil and Environmental Engineering, HKUST  
**Expertise:**  
Disinfection byproducts, Emerging micropollutants, Toxicity evaluation, Disinfection, Innovative water and wastewater treatment

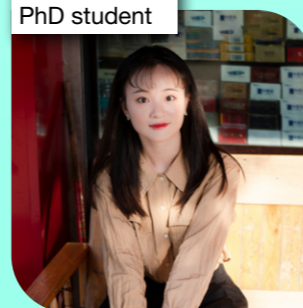
# Meet our team

**Dr. Xian QIN**  
Postdoc



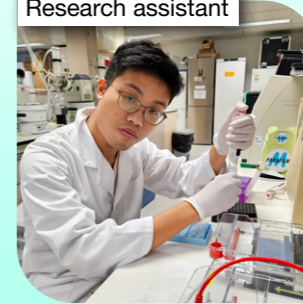
I received my doctoral degree at CityU, where I developed a keen interest in exploring the toxicity of environmental pollutants and their underlying toxic mechanisms. Now I am still working on the toxicology of different pollutants and environmental DNA to study the biodiversity of marine ecosystems. I enjoy working at SKLMP since we are like a big family dedicated to improving the marine environment.

**Miss Yao XIE**  
PhD student



My research interest is aquatic ecology. As a member of the eco-shoreline research team at SKLMP, I am focusing on improving biodiversity and ecosystem functions and services in artificial seawalls through eco-engineering. Eco-engineering in constructed areas can serve as a means to not only improve the marine ecosystem but also engage citizens with nature. I am lucky to join this team of individuals who share a passion for marine ecology and conservation.

**Mr. Junhao CHEN**  
Research assistant



As an aquaculture graduate, I have gained a good understanding of animal breeding. I hope to protect endangered marine organisms through the study of their habits and habitats. At SKLMP, I'm responsible for managing the samples retained from previous projects, assisting with species identification and photography, and preparing tools required for fieldwork. I'm grateful that my colleagues are willing to share their knowledge with me, and has helped develop my research skills.

**Miss Wendy Man Sze KWOK**  
MSc student



My research interest includes the analysis of emerging organic pollutants. Currently, my research focuses on the trophic transfer of pharmaceuticals in the marine food webs in Hong Kong and their potential risks to human health. At SKLMP, I obtained lots of opportunities to collaborate with a diverse group of experienced researchers, which has enriched my research and broadened my perspective.

# Research highlights

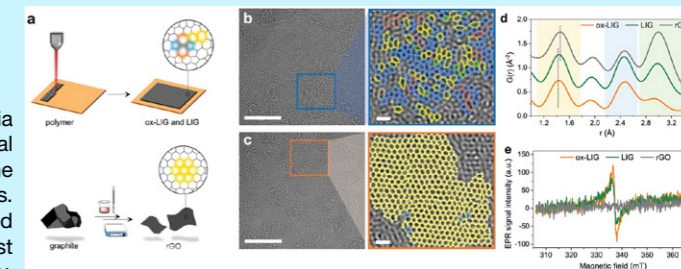


**Dr. Ruquan YE**  
Assistant Professor,  
Department of Chemistry, CityU

## Direct synthesis of ammonia from nitrate on amorphous graphene with near 100% efficiency

*Advanced Materials*, 844, 2211856 (2023). (Impact Factor: 32.086)

This paper presents a novel metal-free electrocatalyst for direct nitrate-to-ammonia electroreduction, an important process in the agricultural and pharmaceutical industries. The unique atomic properties of amorphous graphene facilitate the adsorption of intermediates and the formation of  $\text{NH}_3$  during the  $\text{NO}_3^-$  reduction process. The electro-reduced nitrate electrolyte can be used to grow vegetables and significantly increase crop yields. Compared to metal-based catalysts, this is the first report of a metal-free material with comparable or superior nitrate-to- $\text{NH}_3$  selectivity. These results have significant implications for the remediation of nitrate-contaminated water and the closing of the NO<sub>x</sub> cycle.



[Read Online](https://doi.org/10.1002/adma.202211856) <https://doi.org/10.1002/adma.202211856>

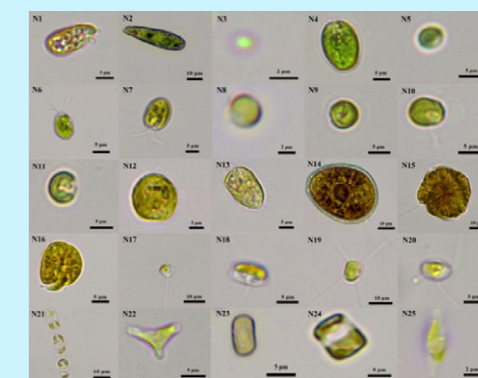


**Dr. Meng YAN**  
Research Assistant Professor,  
SKLMP, CityU

## Polarization fingerprint for microalgae classification

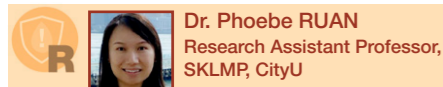
*Optics and Lasers in Engineering*, 166, 107567 (2023). (Impact Factor: 5.666)

A new method for classifying microalgae based on the physical properties encoded in the Mueller matrix is presented in the paper, which is a "polarization fingerprint" composed of sixteen polarization parameters that are selected based on their explicit physical meanings and associations with the structural properties of microalgae. Microalgae can be effectively classified by the polarization fingerprint and machine learning algorithms. This work demonstrates the potential of the polarization fingerprint to classify microalgae and monitor aquatic environments in-situ.



[Read Online](https://doi.org/10.1016/j.optlaseng.2023.107567) <https://doi.org/10.1016/j.optlaseng.2023.107567>

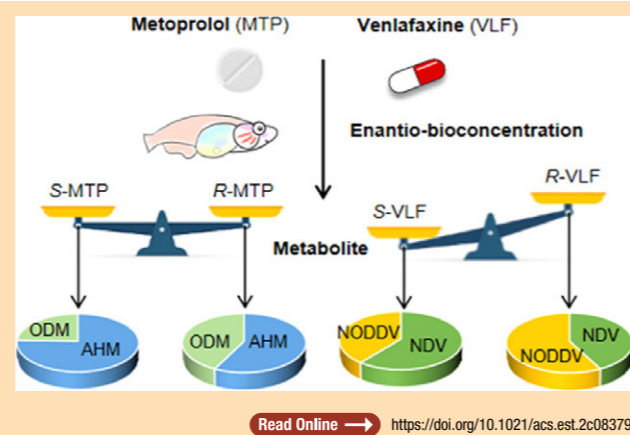




**Dr. Phoebe RUAN**  
Research Assistant Professor,  
SKLMP, CityU

**Enantiospecific uptake and depuration kinetics of chiral metoprolol and venlafaxine in marine medaka (*Oryzias melastigma*): tissue distribution and metabolite formation**  
*Environmental Science & Technology*, 57(11), 4471-4480 (2023). (Impact Factor: 11.357)

This study investigates the tissue-specific uptake and depuration kinetics of two pairs of pharmaceutical enantiomers, metoprolol and venlafaxine, in marine medaka during a 28-day exposure and 14-day clearance period. Considerable bioconcentration potential of these chemicals was found in the exposed fish. Metoprolol and venlafaxine exhibited higher bioconcentration potential in the eyes than other tissues, indicating the possibility of impairment in the visual function of marine medaka, which needs further investigation. This is the first time to report the toxicokinetic parameters of pharmaceuticals concerning chirality in marine model organisms. The enantiospecific difference in bioconcentration and metabolism provides future directions for eco-toxicodynamic studies, especially for marine species.



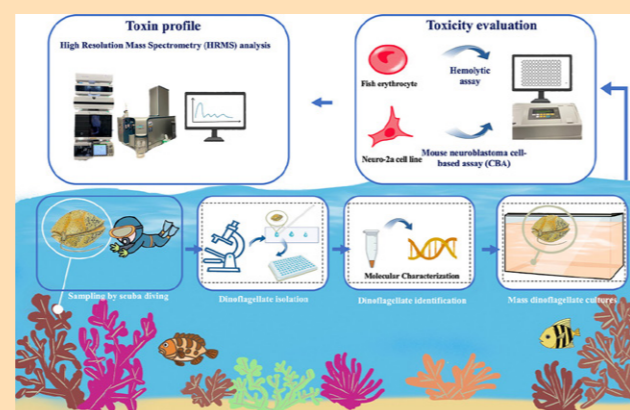
Read Online → <https://doi.org/10.1021/acs.est.2c08379>



**Dr. Leo CHAN**  
Associate Director,  
SKLMP, CityU

**Regional comparison on ciguateric activity, hemolytic activity, and toxin profile of the dinoflagellate *Gambierdiscus* from Kiribati and Malaysia**  
*Science of the Total Environment*, 872, 162236 (2023). (Impact Factor: 10.754)

This research focuses on the ciguatera poisoning (CP) risks associated with *Gambierdiscus* and *Fukuyoa* dinoflagellates that produce Ciguatoxins (CTXs) and Maitotoxins (MTXs). The analysis revealed the presence of ciguateric strains of *Gambierdiscus* in both Kiribati and Malaysia, however, no solid evidence of their contribution to the incidence of CP outbreak was recorded. The study examines the regional differences in CP risks through a region-specific toxicological assessment of *Gambierdiscus* and *Fukuyoa*. The results show that *Gambierdiscus* from both Kiribati and Malaysia have detectable ciguateric activity, with the Kiribati strains being more haemolytic. Putative 44-methylgambierone was identified as part of the contributors to the haemolytic activity, and other unknown hydrophilic toxins produced can be potentially linked to the higher CP incidence in Kiribati. Haemolysis assay was suggested to discriminate the hydrophilic CTX precursor produced.



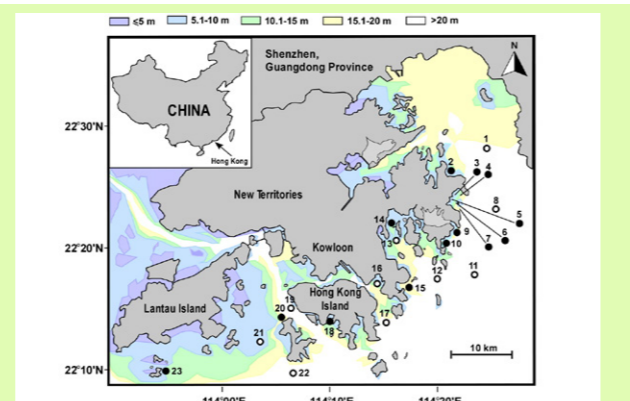
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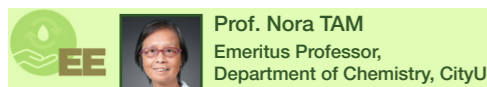
**Prof. Jianwen QIU**  
Professor,  
School of Biology, HKBU

**Spatial distribution, abundance, seasonality and environmental relationship of amphioxus in subtropical Hong Kong waters**  
*Regional Studies in Marine Science*, 57, 102726 (2023). (Impact Factor: 2.166)

This study provides up-to-date the distribution and abundance of amphioxus at 23 sites spanning the eastern, southern and southwestern waters of Hong Kong. Amphioxus is classified as a Class II protected species in China. This study also elaborated the relationship between amphioxus abundance and environmental factors. The results show that amphioxus strongly prefer shallow seabed with coarse sandy sediment and low organic matter content, indicating that subtle changes in substratum and water quality may alter the distribution and abundance of amphioxus in Hong Kong. It is suggested that cautious planning in coastal development is required so as to minimize anthropogenic disturbance and pollution in the core habitats of amphioxus. The study also reveals seasonal differences in population size structure, with higher percentages of juveniles in the dry season, indicating reproductive seasonality in amphioxus.



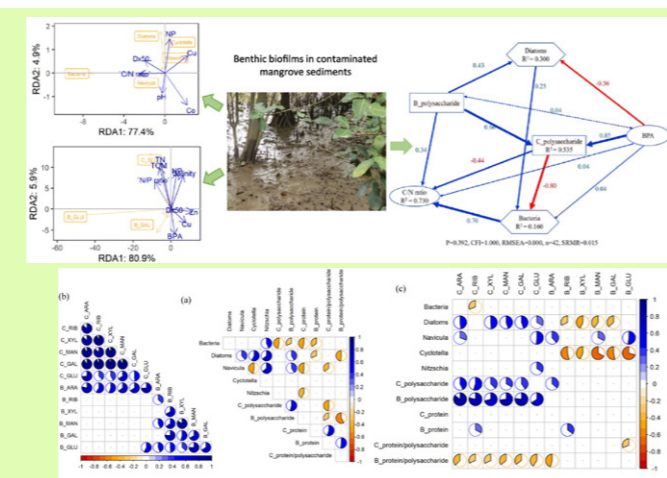
Read Online → <https://doi.org/10.1016/j.risma.2022.102726>



**Prof. Nora TAM**  
Emeritus Professor,  
Department of Chemistry, CityU

**Characterization of benthic biofilms in mangrove sediments and their variation in response to nutrients and contaminants**  
*Science of the Total Environment*, 857, 159391 (2023). (Impact Factor: 10.754)

This study investigates the factors involved in shaping sediment biofilms in contaminated mangrove sediments through in-situ characterization of biofilm components and environmental factors. The pennate diatom *Navicula* plays a crucial role in balancing the abundance of *Nitzschia* and *Cyclotella* and producing bound-polysaccharides. The taxa composition shifts in a high N/P matrix, with the populations of pennate diatoms increasing but that of centric diatoms decreasing. High nutrient concentrations result in more diatoms and elevated levels of extracellular polymeric substances (EPS), which are consumed by bacteria and these bacteria tend to be more symbiotic with *Nitzschia*. The study also examines the response of biofilms to specific contaminants, which inhibit the abundance of bacteria and diatoms but enhance most EPS fractions except bound-polysaccharides. The findings contribute to understanding the microbial carbon loop of benthic biofilms in mangrove ecosystems under stress by nutrients and mixed contaminants.



Read Online → <https://doi.org/10.1016/j.scitotenv.2022.159391>

# SKLMP Outstanding Research Output Prizes

The 3<sup>rd</sup> SKLMP Outstanding Research Output Prizes (2022) have been carefully selected by our adjudicator, Prof. Bingsheng Zhou of Institute of Hydrology, CAS. There are three winners.

**Dr. Qi Wang**, a postdoc of Dr. Yuefei Ruan, was awarded **Prof. Paul Lam's Postdoctoral Researcher Output Prize** for his publication in *Environmental Science & Technology* entitled "Tissue-specific uptake, depuration kinetics, and suspected metabolites of three emerging per- and polyfluoroalkyl substances (PFAS) in marine medaka". The study looked at how PFAS are absorbed and removed from different organs and tissues of *Oryzias melastigma*. He found that the liver had the highest levels of the chemical, while the eyes kept the chemical for the longest time. Also, the fish was not good at breaking down the emerging chemicals.

There were two awardees for **Prof. Rudolf Wu's Research Postgraduate Output Prize (RPOP)**. One RPOP goes to **Miss Danyang Tao**, a PhD student under the joint supervision of Dr. Henry He, Prof. Paul Lam and Prof. Kenneth Leung for her publication in the *Journal of Hazardous Materials* "Widespread occurrence of emerging E-waste contaminants – Liquid crystal monomers (LCMs) in sediments of the Pearl River Estuary, China". LCMs can accumulate in the fatty tissues of animals and affect the health of marine life and humans. In this study, LCMs were detected in the waters off Stonecutters Island and Tuen Mun in Hong Kong, which may have been released from damaged liquid-crystal displays in the West New Territories Landfill.

Another RPOP was awarded to **Miss Yun Song**, a PhD student of Dr. Ruquan Ye, for her publication in *Advanced Materials*, entitled "Atomically Thin, Ionic-Covalent Organic Nanosheets for Stable, High-Performance Carbon Dioxide Electroreduction". The study discovered that an electrocatalyst made of atomically thin, cobalt-porphyrin-based, ionic-covalent organic nanosheets with cationic quaternary ammonium groups can significantly improve CO<sub>2</sub> reduction reaction (CO<sub>2</sub>RR) activity, stability, and conversion efficiency, suggesting a promising structure for future CO<sub>2</sub>RR applications.



Dr. Qi Wang



Miss Danyang Tao



Miss Yun Song

## News updates

### SKLMP approved to establish Hong Kong's first UNESCO RTRC

On 5 April 2023, SKLMP received approval to host the first UNESCO Regional Training and Research Centre on Coastal Contaminant Monitoring and Marine Innovative Technologies (RTRC-Coastal COMMIT) for the Western Pacific region. The decision was made during the 14<sup>th</sup> Intergovernmental Session of the IOC Sub-Commission for the Western Pacific (WESTPAC-XIV) in Jakarta, Indonesia. SKLMP Director, Prof. Kenneth Leung, will lead the Centre, which is the third of its kind in China and the sixth in the Western Pacific region.

The RTRC-Coastal COMMIT will provide training courses for monitoring contaminants of emerging concern, environmental risk assessment, coral reef survey techniques; lead collaborative research project (e.g., toxic benthic algae study) and assist developing nations in the region to enhance their research capacity in coastal contaminant monitoring.



### Award-winning SKLMP at International Exhibition of Inventions Geneva 2023

The research team of SKLMP, led by our Director Prof. Kenneth Leung, won two major awards for the research project "Eco-tiles for Enhancing Marine Biodiversity" at the 48<sup>th</sup> Geneva International Exhibition of Inventions, which included the Special Prize of the Korean Invention Promotion Association and the Gold Medal with Congratulations of the Jury.

The eco-tiles, made of low-pH environmentally friendly concrete using recycled materials and consisting of various microhabitats, are able to promote sustainable biodiversity on artificial seawalls. SKLMP has already implemented several eco-shoreline engineering projects in Hong Kong to restore coastal marine ecosystems. Professor Leung's eco-tile invention also won a Gold Medal of the Asia International Innovative Invention Award 2023, presented by the Hong Kong Federation of Innovative Technologies and Manufacturing Industries (FITMI).



SKLMP member Dr. Chris Tsang has received a Gold Medal with Congratulations of the Jury at the 48<sup>th</sup> Geneva International Exhibition of Inventions for his invention entitled "Rapid Quantification of Microplastics Using Total Organic Carbon Analysis with Simple Sample Pretreatment". Utilizing a common water quality analysis equipment along with a multifunctional semi-automated device to perform several "pre-treatment" steps, the invention allows for the rapid measurement of microplastic levels in various sewage samples and can significantly save up to 75% of processing time and reduce costs by 60%.

SKLMP member Dr. Peggy Lo and her team have achieved a remarkable feat by winning the gold medal at the 48<sup>th</sup> Geneva International Exhibition of Inventions. Their scientific project, "TNA-Based Probes for miRNA Detection," has been recognized for its innovative approach towards developing cost-effective, sensitive, and non-toxic threose nucleic acid-based probes for the real-time detection of disease-associated target microRNAs in living cells. This breakthrough invention has the potential for use in clinical tests and paves the way for more accurate and timely disease diagnoses.





## SKLMP Signs MOU with Macau University of Science and Technology

On 28 March 2023, SKLMP Director Prof. Kenneth Leung was present at the first China-Portugal Forum on Coastal Environment and Innovative Technology for Sustainable Development (CPCET 2023), hosted by the Macau University of Science and Technology (M.U.S.T.). During the forum, M.U.S.T. signed a memorandum of understanding (MOU) with SKLMP, which was witnessed by prominent leaders and guests, including Mr. Wanhei Chan, representative of the Secretary for Economy and Finance of the Macao SAR Government, Chair Professor Joseph Hun-wei LEE, the President of M.U.S.T.. The MOU aims to integrate the research advantages of both parties in the field of marine and coastal ecological research, carry out innovative research in related fields and hence bring benefits to the higher education and scientific research development of the Greater Bay Area of China.



## Prof. Kenneth Leung appointed to three advisory councils in Hong Kong



Photo from TVB "Scoop": <https://rb.gy/d6l3o>

Prof. Kenneth Leung, Director of SKLMP, has been appointed to three important advisory councils this year: Deputy Chairman of the Advisory Council on the Environment, as well as two reappointments as Chairman of the Advisory Council on Food and Environmental Hygiene, and Chairperson of the Lantau Conservation Fund Advisory Committee. Prof. Leung's appointments will enable him to make ample contributions to environmental sustainability, biodiversity conservation, and public health in Hong Kong. His expertise will contribute to the development and implementation of policies and initiatives that promote a more healthy and eco-friendly Hong Kong.

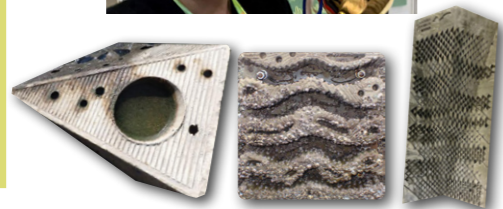
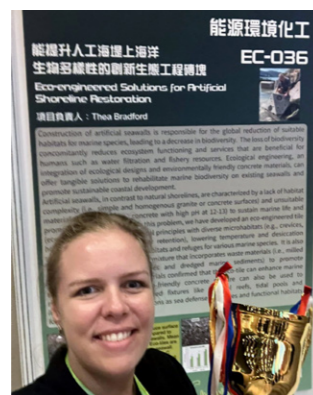
## SKLMP Members and Research Staff Won Marine Conservation Enhancement Fund

The Marine Conservation Enhancement Fund has awarded HK\$8.9 million to support seven outstanding marine conservation projects proposed by SKLMP members and staff. The recipients include Prof. Wenxiong Wang, Dr. Yuhe He, Dr. Jianwen Qiu, Dr. Ding He, Dr. Juan Carlos Astudillo, Dr. Apple Pui Yi Chui, and Dr. Qi Wang. Their projects cover a wide range of issues, such as biodiversity monitoring with eDNA, biodiversity conservation, and the study of emerging chemicals of concern. The funding awarded to these projects highlights the importance of scientific research in supporting effective marine conservation efforts and presents the contributions of SKLMP to the protection of marine environment of Hong Kong.



## PhD Student Won Silver Award at Greater Bay Area STEM Excellence Award 2023

Miss Thea Bradford, a PhD student at SKLMP, has won the Silver Award in the Tertiary or above Stream at the Greater Bay Area STEM Excellence Award 2023 (Hong Kong SAR). The award was announced on 1 June 2023, and was given in recognition of her eco-engineered solutions for artificial shoreline restoration. Miss Bradford is currently a member of SKLMP's eco-shoreline research team and a co-founder of afterNature, a startup dedicated to the development of ecologically engineered solutions to enhance biodiversity and ecosystem functioning of artificial shorelines and degraded habitats.



## PhD student Xintong LIU won Best Paper Award in 2023 PolyU Research Student Conference

Miss Xintong Liu is a second-year PhD student under the supervision of the Dr. Ling Jin's lab from the Hong Kong Polytechnic University and SKLMP. Her primary research focus lies in exploring the mixture toxicity effects of marine pollutants on endangered species like the Chinese white dolphins and finless porpoise. On 8 May 2023, Xintong presented her findings at the PolyU Research Student Conference. Her conference paper titled "Unexpected Discovery of an Algal Toxin as a Major Toxicity Contributor in Hong Kong Marine Waters Impacting the Finless Porpoise" was conferred with the Best Paper Award. Xintong will continue studying marine water quality and wildlife conservation in the future.



## A Global Study Won the Cozzarelli Prize and THE Award

Our Director, Prof. Kenneth Leung and his former postdoc, Dr. Racliffe Lai participated in the Global Monitoring of Pharmaceuticals Project led by York University in the UK. This project involved 127 scientists from 104 countries, and examined pharmaceuticals in 258 rivers around the world using the standard protocol. Prof. Leung and Dr. Lai were responsible to collect river samples from Hong Kong and Bhutan, conduct statistical analyses on the results, and contribute to the manuscript preparation. The results were published as a research article in the *Proceedings of the National Academy of Sciences of the United States of America* (PNAS) in February 2022. On 30 April 2023, this article was conferred with the prestigious 2022 Cozzarelli Prize in the Applied Biological, Agricultural, and Environmental Sciences category. The annual Cozzarelli Prize recognizes the best paper in each of the six subject categories published in PNAS. In addition, the study was also awarded the "2022 International Collaboration of the Year" Award by The Times Higher Education, further highlighting the significance and impact of the research.



## Upcoming events



### Dr. Mathew Seymour to Organize First International eDNA Workshop

SKLMP member Dr. Mathew Seymour's lab is going to organize the First International Environmental DNA (eDNA) Workshop at The University of Hong Kong from 16 to 27 October 2023, which is targeted to postgraduate students, early career researchers, and senior researchers interested in using eDNA methodologies in their research. Dr. Seymour and other leading international eDNA experts will serve as instructors, providing participants with valuable knowledge, like field and laboratory procedures for single and multiple species studies, as well as synthesizing and publishing eDNA-generated data and findings. The committee for the workshop includes four other SKLMP members, namely Prof. Kenneth Leung, Prof. Jianwen Qiu, Dr. Meng Yan, and Dr. Chi Chiu Cheang. This workshop will offer a valuable opportunity for participants to exchange knowledge and build collaborations in this rapidly evolving field.



### ICMPE-10: The International Conferences on Marine Pollution and Ecotoxicology Returns to CityU in 2024

The International Conference on Marine Pollution and Ecotoxicology (ICMPE-10) will be held physically at City University of Hong Kong from 3 to 6 January 2024, jointly organized by SKLMP, the Department of Chemistry of CityU, Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) and UNESCO-IOC Regional Training and Research Centre on Coastal COMMIT. The conference is a continuation of the successful ICMPE Conference series first created in 1995 by Prof. Rudolf Wu and is also a significant event in the international arena of marine pollution and ecotoxicology research. ICMPE-10 aims to provide a platform for experts worldwide to discuss the frontier research and explore solutions to global marine pollution issues through the latest scientific and technological advancements. This conference will also mark and celebrate the 30th Anniversary of ICMPE Conference series. All are welcome to join us.

## New promotion

### SKLMP Members Attain New Heights with Promotions in Research and Administration

Several distinguished SKLMP members have been promoted to new positions in recognition of their outstanding achievements in research and academia.

- ★ Dr. Ruquan Ye has been promoted to Tenured Associate Professor at CityU
- ★ Dr. James Fang has been promoted to Tenured Associate Professor at PolyU
- ★ Dr. Vincent Ko have been promoted to Professor at CityU
- ★ Dr. Patrick Lee have been promoted to Professor at CityU

- ★ Prof. Michael Leung has been promoted to Chair Professor of Renewable Energy, and appointed as Associate Provost (Academic Affairs) at CityU
- ★ Prof. Shuk Han Cheng has been appointed as Associate Vice President (Research) at CityU
- ★ Prof. Michael Yang has been appointed as Senior Vice President (Innovation and Enterprise) at CityU

These promotions reflect the dedication and excellence of the scholars in their respective fields.

## Call for contributions

To better capture the news, updates and great work of the SKLMP members and community, we are now calling for contributions for the next issue of our newsletter. Please email us your contributions (up to 100 words) to [sklmp.info@cityu.edu.hk](mailto:sklmp.info@cityu.edu.hk) by 31 October 2023. Ideas of contributions include your new publications or projects, received awards, and conferences or meetings that are of particular interest to the SKLMP members. We look forward to your contributions!

