The Swire Institute of Marine Science

太古海洋科學研究所

Annual Report

2023

Simon Chan (Assistant Director, (Conservation)) and Gray at the MoU ceremony with AFCD

Director's Foreword

After what seemed like an eternity Hong Kong's COVID restrictions were finally reduced and then lifted during the early part of 2023 and SWIMS was able to kick back into fulltime operation. Ironically this actually meant many SWIMers leaving Hong Kong to re-initiate projects and international collaborations overseas! Noticeably, however, visitor numbers to SWIMS jumped back as did school visits and education groups (see SCOH section) and we were able to host more than 850 different visitors.

After a long wait, it was good for Prof Minhan Dai to be able to visit SWIMS as a Visiting Professor on the Science Distinguished Visiting Scholars Scheme. Minhan is a long term friend and collaborator of SWIMS and was instrumental in establishing UCAS as well as the MoUs between SWIMS and MEL, Xiamen University (XMU) including the recent Postgraduate Studentship and Post Doctoral Fellowship schemes. As part of his visit, Minhan delivered a special lecture at HKU entitled '*Coastal ocean under intensifying human activities and changing climate: from science to sustainability*'. We were also pleased to host friends from the Institute of Oceanology, Chinese Academy of Sciences (IOCAS, CAS), Prof Li Li, and XMU, Prof Chris Wei Wei to SWIMS after a long break to continue discussions on our Joint Laboratory (with IOCAS) and MoU related to Rajans' oyster aquaculture programme (IOCAS and XMU).

SWIMS also collaborated with HKSAR Government Departments, signing a new institutional MoU with AFCD to enhance data sharing on marine biodiversity in January. We also hosted a visit from Mr Michael Fong (Director) and colleagues from the Civil Engineering and Development Department who met to discuss new projects and share ideas on the role of ecological enhancement in future engineering projects. SWIMS researchers also shared their work on local and mainland outreach platforms such as the *Hong Kong's Ecologists* series on RTHK and Phoenix TV's series on *Hong Kong Nature*.

Finally, this is my last year as SWIMS Director as, after more than 20 years, I decided not to seek reappointment and in 2024 Dave Baker will take over as SWIMS Interim Director. It has been a privilege to lead SWIMS during this period. This time has not been without its fair share of trials and tribulations with the new expansion and the COVID pandemic, but I believe that SWIMS is now in an excellent position to meet future challenges as one of the premier marine facilities in SE Asia. With excellent facilities and a young and dynamic set of researchers SWIMS can continue to build its strong global research reputation over the coming years and, as I am not leaving HKU yet, I look forward to continuing to play a part in SWIMS journey ….

Best wishes,

Gray A Williams

The 15th UCAS Postgraduate Symposium: *'Change our planet or change ourselves'*

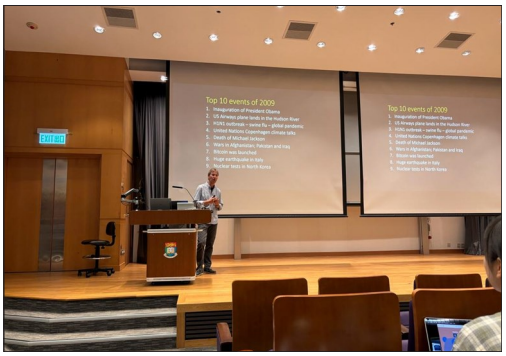
This was a big year for UCAS, as we could finally organize an in -person UCAS again after several years of online meetings due to the COVID pandemic. UCAS has been one of the best platforms for postgraduates in SWIMS to connect with other scholars specialising in aquatic science from the nearby regions, so it was especially meaningful for us as the hosting university to hold the meeting in Hong Kong in 2023. The symposium this year engaged over 40 postgraduate students and academic staff from four universities with Xiamen University (XMU), China, National Taiwan Ocean University (NTOU) and National Sun Yat-sen University (NSYSU), Taiwan and of course us at HKU.

During the symposium, we invited our SWIMS Director Prof Gray A Williams to give an opening speech to mark the start of the 15th UCAS. Throughout the four-day symposium, postgraduate participants presented their research on a wide range of topics in aquatic ecosystems (mainly marine), including taxonomy, biochemistry, ecology, computer vision, etc.

Five keynote talks were given by the invited speakers as well, including Prof Juan Diego Gaitan-Espitia and Prof. Paolo Momigliano from SWIMS, Prof. Bicheng Chen (XMU), Dr Shunyan Cheung (NTOU) and Dr Yu Jia Lin (NSYSU). An interactive workshop on photogrammetry was organised by Jackson and Yifei. To boost interactions between the students, Jiachen (co-organizer from XMU) held a session on effective science communication. We were especially thankful to Dr Cheung from NTOU, who organized an *ad-hoc* barbecue night, to introduce HK-style BBQ to our visitors.

After all the official presentations and workshops, we had the symposium dinner near our campus, including an UCAS cake! People started to miss the friends they had made during the symposium, but some were not worried as they knew they will be reconnecting at next year's UCAS, which will be hosted by Xiamen University. We are all excited to meet our friends there again and build the UCAS spirit!

Group photo of 15th UCAS



Gray giving the opening speech

HK-style BBQ night

Jiachen introducing the rules of the 'And-then' game (to practice active listening)

Calvin introducing the outdoor aquarium to students

Students getting excited by organisms in the touch tank

Phil and Calvin at a weekend education booth outside SWIMS

Marine Debris Module conducted in collaboration with the Surerin Foundation

Swire Coastal Outreach Hub (SCOH)

The SCOH has three main goals which are described below for 2023, its first full-year in action.

Marine Science Modules: 2023 was the first year since the expansion that we have been able to invite school students, government groups, NGOs and other members of the public to visit SWIMS and participate in hands-on marine science education. Methodologies of flagship research projects, such as MarineGEO, offer excellent experiences for participants to engage with research and learn about Hong Kong's marine biodiversity. This year SWIMS hosted 12 international and six local schools to participate in marine science modules where our outreach staff teach about marine biodiversity, rocky shore ecology, and environmental issues about microplastics. Together with these groups, we engaged with more then 500 students and many more members of the public.

Swire Coastal Outreach Hub (Visitor Area): Reaching out to the many thousands of visitors who come to Cape d'Aguilar to enjoy the natural area is primary goal of the SCOH. SWIMS has teamed up with local design company, Design for Culture, to design and install exhibits and displays for a guided tour space within SWIMS. Hikers will be able to sign up for tours on-site and will be guided through four interactive exhibits; including a 3D-printed model of Cape d'Aguilar to introduce the marine reserve, RFID tagged specimens from SWIMS' marine collection to learn about our marine biodiversity, research tools to engage visitors with SWIMS projects, and a digital catalogue of collaborative activities for guests to join for future engagements. The SCOH visitor area is planned to open in 2024.

Outreach in Hong Kong: The SCOH is also about creating linkages between SWIMS and the many organizations with similar goals of educating students and the public about marine biodiversity, ocean conservation and coastal ecology. Our 'niche' in this space is as the marine scientists, offering a professional level of scientific expertise to our collaborations. Some of our outreach events in 2023 have included biodiversity demonstrations at the Swire Group's Annual Fun Fair and leading a BioBlitz team on the mudflats for the City Nature Challenge at Lamma Island. Next year, SWIMS will team up with the Hong Kong Maritime Museum to host collaborative biodiversity workshops in the Swire Marine Discovery Centre.

Gray A Williams

As COVID restrictions were gradually lifted our group attended the International Temperate Reef Symposium at the University of Tasmania in January, which provided a great opportunity to present our new work and catch up with old friends. In February Gray also joined one of the discussion panels at HK Maritime Museum's 'Harbour Circle Symposium'. We also ran two workshops at SWIMS; one on our new ECF grant on marine databases led by Brian and Rachel, and also one on environmental sustainability and education with colleagues from the Education Faculty.

Overseas experiential teaching trips were also re-activated and this year Gray (together with Jackson as a Demonstrator) was able to lead the BIOL3328 class back to join collaborators at Tsitsikamma, South Africa and also started teaching on the BIOL3305 course with Bayden and Stefano in temperate Sydney and tropical Queensland (Orpheus Island). In November, Gray was also appointed as a Visiting Professor at the University of Florence, Italy to teach on the TROPIMIUNDO, Erasmus Mundus course.

Research in Hong Kong continued: Adrian completed his PhD on the splash zone limpet, *Lottia;* Ben monitored oyster ecophysiology; Yifei developed a new system to monitor mussel beds from drone images, and Jackson maintained the final stages of the RGC grant on ecosystem engineers. We were also able to revitalize old collaborations: returning to Si Chang Island, Thailand to continue our work on the thermal tolerance of snails and high-shore oysters with Monthon Ganmanee; and Gray and Sarah spent part of July visiting Emilio Rolan-Alvarez to work on mate choice and the influence of thermal conditions on snail colour polymorphism. It was great to re-connect with collaborators in Vigo, Spain and also join the XIII International Symposium on Littorinid Biology and Evolution in Portugal. After this, Emilio rejoined us in Hong Kong to continue work on mate selection in local littorinid snails and was also part of a HKU Knowledge Exchange programme (*https://www.ke.hku.hk/story/video/tidalzone*) based on our work.

After more than 20 years, Gray returned to Europe's first Marine Reserve, Lough Hyne, in Ireland to complete the final stage of a long-term monitoring programme led by Colin Little where he caught up with old colleagues from the UK and also Valerie who has returned to Cork where she will undertake a PhD in 2024.

Finally, big congratulations to Tommy who moved on to take up a RAP position in Lingnan University!

Liam, May, Sarah, Jackson, Ben and Yifei at the ITRS in Hobart, Tasmania

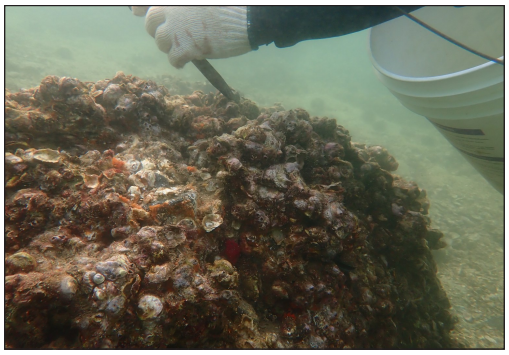
Emilio, Sarah and Gray outside ECIMAT, University of Vigo

The team on the shore at Si Chang island, Thailand

Valerie, Gray, Colin Little and Graham Pilling at Lough Hyne, Ireland

Bayden Russell

Bayden sampled from "natural analogues" of future acidified conditions, reef lagoons in Palau



Sampling oysters from Tolo Harbour to quantify their denitrification capacity

The subtidal surveys around Lantau Island discovered more oyster habitat than expected

Kevin and Bayden processing and measuring oyster samples from south of Lantau Island

The Marine Futures Laboratory had a breakthrough year in 2023, expanding our research (and team!) into Nature Based Solutions to environmental issues to include more ecosystems and project partners. Our oyster reef restoration projects with The Nature Conservancy had some major successes, planning to upscale to over 3,000 m^2 of reefs over the next 12 months. The public excitement surrounding these projects increased with Bayden giving several talks to community groups, including The Royal Geographical Society of Hong Kong. We also added a new important ecosystem to restore; *Sargassum* seaweed forests. Capitalizing on Bayden's 20 years working with seaweeds, and our early research (from 2018-19) documenting the decline of *Sargassum* forests in Hong Kong, the Marine Futures Laboratory is partnering with community groups and start-up companies to rapidly expand the restoration of seaweed forests in Hong Kong. Watch this space!

The lab also continued with its more fundamental ecological research. Rhian continued to develop her work using climate models to project the effects of marine heatwaves on populations of fish and invertebrates throughout East and Southeast Asia. This work has provided new insights into how extreme events can negatively impact the growth of species when integrated over time – a direction that Rhian will be following in her recent project on how marine heatwaves affect ocean food webs underpinned by krill. Khan and Kaile wrapped up their work on seagrass and seaweeds as they prepare to finish their PhDs in 2024. Bayden ran broad-scale surveys for subtidal oyster reefs in Hong Kong. If these reefs exist, they will be true survivors of millennia of exploitation and coastal development in the region and will form the basis for scaling-up future restoration efforts.

There was much to celebrate this year. Rhian and Bayden were successful in getting a GRF grant and Samantha and Bayden a Marine Conservation Enhancement Fund grant. We celebrated Cheryl successfully defending her PhD thesis and taking up a Post Doc position at City University of Hong Kong. Congratulations Dr Chu! We also welcomed three new people to the group; Dr Zhengquan Zhou started a Post Doc to experimentally identify whether exposure of adult sea urchins to marine heatwaves make their offspring more able to survive future extreme events; Shariar Islam started a PhD assessing the potential for restoring *Sargassum* seaweed forests in Hong Kong for both ecosystem restoration and enhancing Blue Carbon sequestration; and Samantha Klein started as a Research Assistant running a project to quantify denitrification of coastal waters by oysters.

V ThiyagaRajan

Our interdisciplinary team was very lucky and productive in 2023: 1) continuing our outstanding grant success rate with Research Grant Council, receiving >HK$1M as our 10th GRF grant to study peptide chemistry), 2) successful utilization of two big grants from industry and government, 3) smoothly operating the "Hong Kong Oyster Hatchery and Innovation Research Unit (HKO-HIRU)", and 4) reaching a new milestone in knowledge exchange activities.

Novel bioactive peptides: Cultivation of Hong Kong (HK) oyster species is expanding to high salinity areas to meet global demand, but with a cost. Exposure to high salinity stress causes unprecedented mass mortality during the harvesting winter season. Two of our graduate students (Fazil and David) are investigating the root cause of this winter mortality and identifying novel stress-tolerant small bioactive peptides in the oysters in collaboration with Ivan Chu, Chemistry Department, HKU.

Inheritance of Ocean Acidification (OA) tolerance traits: Our interdisciplinary team of three SWIMS researchers (Alessia, Xin and Kanmani) with mechanical engineers of HKU and OA research experts from Australia, USA, and UK have successfully traced transgenerational inheritance patterns of OA tolerance and susceptible traits (such as sex-ratio, shell forming peptides or proteins, mechanical properties of shells and stress-tolerance molecular pathways) in two oyster species. These results are now under preparation for submission to *Global Change Biology* or *PNAS*.

Happily, both Xin and Alessia have successfully defended their PhD thesis to become Post Docs and Kanmani has been promoted to Senior Post Doc in City University of HK. Congratulations to the team!

Digital breeding and technology to breed Hong Kong Oysters: As we have identified stress tolerance genes and pathways in HK oysters, we have developed a Single Nucleotide Polymorphism (SNP's) chip set to identify high salt stress tolerant wild populations to use them as brood stock to expand and enhance aquaculture production. We have started this challenging project in 2023 with an interdisciplinary team involving many mainland scientists in the Joint Laboratory between SWIMS and IOCAS, Qingdao.

Oyster Aquaculture Alliance for One Health (OAA-OH): Our alliance has officially launched with a mission to "improve oyster aquaculture environment, species and culturing protocols with one health practices as an innovative solution to enhance commercial value of oyster products by entering the half shell market". This is an important milestone and bigger part of our SWIMS vision to propel knowledge exchange activities among researchers, policy makers, growers and industries.

Fazil, Basanta and Leung showing Hong Kong oysters to Prof Ximing Guo of Rutgers University

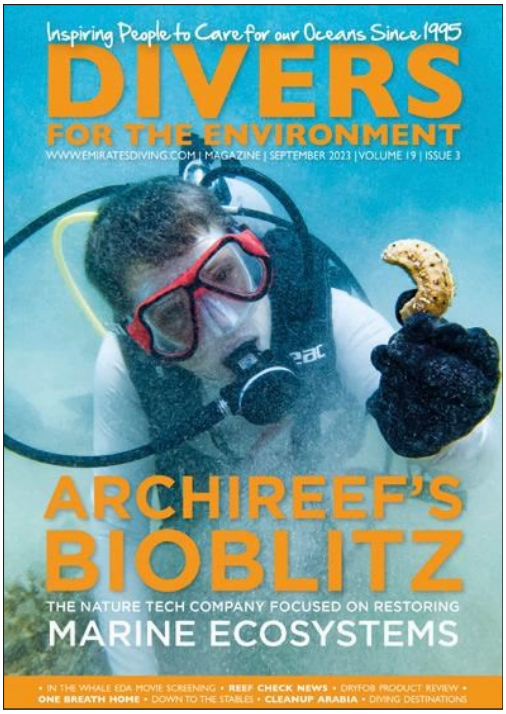
Researchers from SWIMS and mainland discussing strategies to develop multi-species SNP chips

Logo of OAA-OH in the hands of its core members at SWIMS

Our lab team members celebrating the successful completion of various research projects in 2023

Dave and Emily at her poster session at the APCRS in Singapore

HK Economic and Trade Offices visiting Archireef's eco-engineering facility in Kezad, Abu Dhabi



Archireef on the cover of Divers for Environment Magazine with full spread on first regional bioblitz

David Baker

The Baker-McIlroy lab celebrated a major milestone with Shelby's migration to CUHK where she has taken up a tenure-track assistant professorship at the Simon Li Marine Laboratory. Before that, Shelby and Dave's work on our new taught-postgraduate program in "Integrative Marine Ecology and Conservation" was realized with Senate approval - to be launched in 2025. Shelby, Haoya, Joe, and Wendy were welcomed at KIOST in Jeju, Korea by alumni Taihun and Anna Kim where they discussed new research directions with a growing group of collaborators in Japan and Taiwan. Our alumna Dr. Inga Conti-Jerpe returned to Hong Kong to take up a tenure-track assistant professorship at Lingnan University. Our collaborations on coral reef ecology, stable isotopes, and biodiversity will only get stronger!

In June, the entire crew went to the Asia-Pacific Coral Reef Symposium hosted by NUS in Singapore. Dave gave a keynote talk covering the team's research in coral biology and restoration - introducing Archireef to the scientific community - while most of the lab contributed oral talks and posters. Haoya received the "best presentation" award for her talk at the East Asian Federation of Ecological Societies Symposium while Shelby and Joe gave invited talks in the "Evolution and ecology of peripheral corals" session. Other international talks were given at the ASLO meeting in Mallorca, Spain; a MarineGEO meeting held at SERC in Edgewater, MD - attended by Dave, JD and Isis; and the Global Marine Economy Forum in Shenzhen.

As the SWIMS facilities reopened, we did our best to make use of the space. Coral and urchin experiments were launched in the new aquarium facilities and ARMS were transferred into the mesocosms as part of an integral step in our MarineGEO research. Locally, we engaged in a new collaboration with Prof. Haiwei Luo of CUHK who we welcomed with his team to SWIMS to tour the new facilities. Abroad, Joe spent six weeks in Jeju to examine coral physiology at high latitudes.

The Baker lab spin-off company, Archireef, Ltd. - led by Vriko Yu - had a breakout year in 2023. The company hosted the Secretary for Environment & Ecology Tse Chin-wan at our eco-engineering facility in Abu Dhabi during the COP28 meeting events hosted in nearby Dubai. Vriko represented the company and Hong Kong in general at the World Economic Forum in Davos. We executed the first Bioblitz in Abu Dhabi to help bolster biodiversity records in the Arabian Gulf through collaboration with international institutions and local citizen scientists.

Moriaki Yasuhara

I took my sabbatical from July 2022, and January this year was my last month of the sabbatical. I stayed in Japan and delivered some seminars at Shimane University during this time. I had busy new year while traveling, since I was writing a *Nature* mini review about long-term development of latitudinal diversity gradients (related to fantastic papers of Fenton et al. and Woodhouse et al.) with tight timelines at that time. But it was well worth the effort and I am very glad to have this piece that, I believe, gives a new perspective on deep-time Latitudinal Diversity Gradient development.

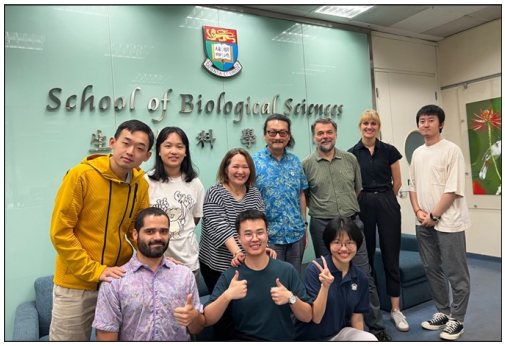
Then I came back to Hong Kong in February and 2023 was a bit like a roller coaster! My research commitment increased during the pandemic, because of no travel, etc. Then in 2023, the pandemic was practically gone and we were able to resume travels. But my research commitment remained the same as the pandemic time which was my major challenge this year.

But, I did not even realize this problem when I finished my sabbatical. At that time, I was thinking, after my sabbatical when I focused on microscopic work rather than writing, I should have more time to write papers. So, my major goal of 2023 was publishing as many papers of my previous students' and Post Docs' projects as possible. This was partly successfully with papers from Rachel Chu and Briony Mamo both of whom worked with me as undergrad thesis student and Post Doc, respectively. But since that time I have been travelling a great deal to Norway, Taiwan, Malaysia, Japan, Germany, USA, Taiwan, Germany, and Singapore, from April to December for conferences, research collaborations, etc.

For our lab, Natalia and Lalita are new members who joined this year. Natalia is new Post Doc working with on a living ostracod/ostracod ecophysiology project. Lalita is new PhD student who is working on the Lessepsian project of invasive ostracod species via the Suez Canal. Both are very welcome!!

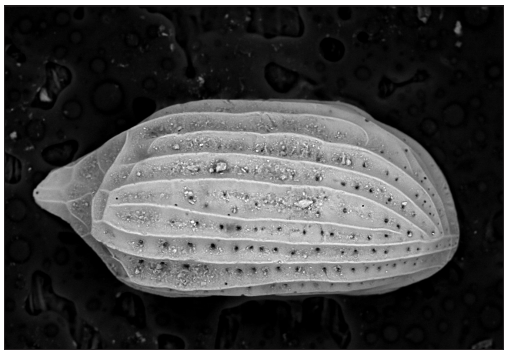
Stay tuned for results on our Hong Kong paleoecology project, for which we did sediment coring this summer, and also see my recent Croucher Foundation interview: *https://projects.croucher.org.hk/news/time-machine-biology*. A more detailed annual summary for Yasuhara Lab 2023 is available at: *https://moriakiyasuhara.com/annual-summary/*

Our lab members joining the 2nd Asian Palaeontological Congress APC2 in Tokyo, Japan



Collaborators Peter Frenzel and Ella Quante visiting our lab

A lunch to welcome new student Lalita



The ostracod Semicytherura sulcata *from the eastern Mediterranean*

Plastic debris found during a beach cleanup in Hong Kong

Expanded polystyrene debris collected during a beach cleanup in Hong Kong

Fieldwork in Pak Nai for our collaboration with The Nature Conservancy

Graduation day for Coco, Mandy and Hamsun

Christelle Not

My research group is a multidisciplinary team of scientists using geochemical tools to investigate environmental changes on recent and quaternary time scales.

In 2023, we continued to work on problems related to coastal carbon storage and changes of paleo-oceanic circulation in the northern Atlantic. We are also continuing our collaboration with The Nature Conservancy by investigating the changes in Pak Nai sediments resulting from their oyster farm reconfiguration work.

In 2023, we completed several projects studying plastic pollution. We examined the variability in plastic debris abundance in Hong Kong's coastal environments, including beaches and mangroves. We also investigated the degradation of plastic polymers in natural water and aerial conditions. Importantly, we focused on assessing the viability of "bioplastics" as environmentally-friendly alternatives to fossil fuel-based plastics. This research aimed to better understand the scale of the plastic pollution challenge and identify potential solutions to reduce its environmental impact. The findings from these projects provide valuable insights to guide future efforts addressing this critical global issue.

Three MPhil students (So Wing Kwan Mandy, Cheung Ka Hei Coco and Hing Sang Hamsun Chan), who worked on plastic pollution issues have graduated and their work has been published in several publications. Some key findings reported are the higher abundance of expanded polystyrene debris (macro and micro sized plastic debris) in Hong Kong and in Asia in comparison to the rest of the world but also the important role of weather conditions in the abundance of plastic debris found in marine coastal environments.

In addition, another MPhil student from the group (Lui Lok Ching Angela) graduated from her MPhil in Education and her research led us to a better understanding of the importance of 'message framing' in climate actions.

Finally, the entire team contributed to public engagement, leading or participating in outreach events at schools and in the private sector, such as "Behind Titles" and BNP Bank's "GREEN Monday" luncheon. The goal of engaging in these outreach events is to bridge the gap between scientific findings and the public, enabling rapid dissemination of this important research to our society.

JD Gaitán-Espitia

2023 was an exciting year for the iBEER lab. First, Bovern became the first PhD graduate of the lab! His work on marine invertebrate-associated microbiomes was recognised by the Early Career Award of the Malacological Society of London! Similarly, Jaimie Dwi and Greenie Ng (our first MPhil students) successfully defended their theses in which they developed ecological and molecular tools to monitor and restore seagrasses in Hong Kong.

Other members of the group were also successful attracting international awards for sharing their research at the 6th World Conference on Marine Biodiversity in Malaysia. It was a great experience to attend this event with the whole group, developing networks with potential collaborators in Southeast Asia. At the WCMB Ricca received the award for the best poster among PG students!

In terms of major projects, our group started the NSFC-RGC joint scheme project in collaboration with our colleagues from IOCAS, Qingdao with the support of other SWIMS members (Bayden and Gray). This project assesses impacts of extreme and compound events in benthic species across the Northwest Pacific.

Parallel to these activities we have been very active in terms of knowledge exchange. JD was one of the keynotes at the Nature-Based Solutions for Climate Forum, co-organised by The Nature Conservancy (TNC) and Civic Exchange. In his talk, JD shared some of the progress made by the seagrass team exploring the value of ecological restoration as an approach to enhance carbon sequestration in Hong Kong.

This work (under review for publication) represents the first assessment of the blue carbon potential of seagrasses in Hong Kong. It has been an exciting collaboration among iBEER members with other colleagues such as Christelle Not (SWIMS) and Benoit Thibodeau (ex SWIMS and now CUHK). We were able to share this area of research with the general community in Hong Kong as part of the *Hong Kong's Ecologists* program broadcasted by RTHK *https://www.youtube.com/watch?v=XJpmdKYogpY*.

Finally, the iBEER lab is continuously evolving, with some members moving to their new academic/research positions and new members joining. This year, we welcomed four new postdocs supporting the Blue Carbon team (Dr Man Zhao) and the Animal Eco-Evo team (Dr Alessia Carini, Dr Yingqiu Zheng, and Dr Dang Xin). Stay tuned to learn about their work and projects in Southeast Asia and Hong Kong!

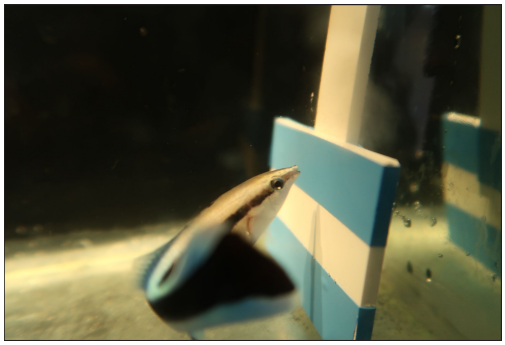
The iBEER team dinner integration and welcoming to Alessia and Xin as new Post Docs

Jaimie and Chanaka sampling seagrass meadows' eDNA for monitoring and restoration programs

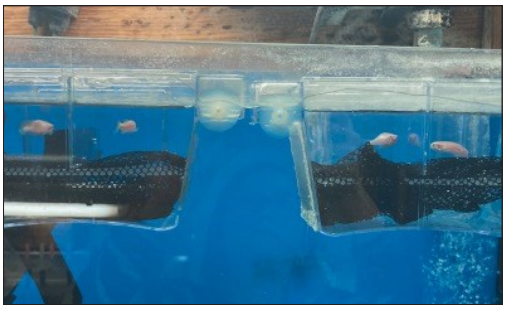
The iBEER team enjoying some local delicacies (Durian!) in Penang during the WCMB

The iBEER team attending the 6th World Conference in Marine Biodiversity in Penang, Malaysia.

Celia Schunter



Cleaner wrasse have fewer olfactory genes than non-cleaners but increased expression of touch-related genes



Watching zebrafish breed to study long-term effects of climate change

Arthur using eDNA at Ocean Park as a tool to detect the endangered Hong Kong grouper

We had an inspiring time at the IPFC in Auckland New Zealand. Do you like our lab fish sculpture?

In 2023, Celia embarked on a sabbatical to Hawaii, joining forces with former Post Doc Jose Ricardo Paula to study *Labroides phthirophagus*, the Hawaiian cleaner wrasse. Simultaneously, our team published the cleaner wrasse genome (*L dimidiatus*), led by Post Doc Jingliang Kang, and uncovered that touch and taste play a crucial role in their specialized cleaning behaviour. Moreover, we analyzed their brains to determine how their behaviours might change in response to future climate change. Ocean warming and acidification both reduced the cleaners' interaction time with their clients, though these alterations were driven by distinct brain mechanisms. The study has been featured in a HKU promotional video (*https://twtr.to/V54Z_*).

Other projects on neurological effects were led by Jade on the effects of temperature on zebrafish behaviour and molecular responses. Debora, an HKPF awardee since 2022, is working on transgenerational effects of aquatic pollutants on marine medaka to unravel the neurological effects of emerging pollutants. Lastly, Celia spent time at the Gulbenkian Institute of Science in Portugal with Prof. Rui Oliveira learning techniques on neurological imaging related to behaviour.

But of course there are plenty of other projects, less 'brainy', still fishy! Lucrezia joined us as a Post Doc and she is digging deeper into the transfer of information from one generation to the next asking how do coral reef fish pass on beneficial information to their offspring in warming oceans?

We also have open projects related to fishes from the South China Sea. The search for crypto-benthic fishes is still ongoing and we have been working on hybrid groupers and the use of eDNA to study fish biodiversity in the murky waters of Hong Kong. Arthur and the team also studied the endangered Hong Kong grouper (*Epinephelus akaara*) sponsored by the Ocean Park Conservation Foundation. Finally, we are working with the Swire Charitable Trust and FishBase to further increase the availability of information on under-represented species from the South China Sea. With this project we are developing a 'genetic diversity risk indicator', from which we can highlight the status of a population based on its genetic diversity.

Lastly, we had an amazing time in New Zealand where many members of the lab went to their first 'in person' conference. The Indo-Pacific Fish conference is truly always a delight with many amazing talks but most importantly a great supportive atmosphere. We recommend it to all 'afishionados'.

Nicole Khan

The Sea-level and Coastal Change Laboratory was busy this year, carrying out field work, attending conferences and meetings internationally in mainland China, the United States, Italy, Sweden, Norway, and Australia.

The lab group started out the year conducting fieldwork in January 2023 in the Becher Plain beach ridge sequence as part of a Research Grants Council General Research Fund project to improve knowledge on the drivers of sea-level change in Western Australia and to understand ice volume changes in response to climate warming during the Holocene.

In June 2023, we got undergraduate students on the EASC3419 Earth System Science field course involved in the group's research, collecting sediment cores containing evidence of past tsunamis generated by megathrust earthquakes along the Cascadia subduction zone from coastal wetlands on the Oregon coast. The students learned about how these records can be used to understand the recurrence interval of such events, and in turn, anticipate and inform preparation for future earthquakes.

We spent time in Scandinavia during the summer. Nicole was invited to be an instructor at a glacial-isostatic adjustment modelling training school in Gävle, Sweden and also carried out fieldwork with collaborators from the Norwegian University of Science and Technology and Nanyang Technological University to better understand the ice sheet response to climate warming during the last deglaciation.

The lab group continued their ongoing work in Hong Kong throughout the year. PhD students Howard and Francis Liu continued their work in Mai Po mangroves to use microfossils and environmental DNA to reconstruct past environmental and sea-level changes. PhD student Yonghui Qin continued work to understand how past sea-level changes have influenced carbon storage at the site over the last several millennia. We also welcomed a new PhD student, Chengcheng Gao, who is interested in how humans influence sediment transport mechanisms over a range of geographic settings and environments.

We published several papers this year examining trends and drivers of sea-level change in tropical regions (Pacific Islands, Southeast Asia); exploring the limits of resilience of coastal ecosystems to rapid sea-level rise; understanding how storms impact mangrove sedimentary archives; and considering internal climate variability influences sea level in Hong Kong over years to decades. We look forward to the year ahead and continuing our research in Hong Kong and across the globe.

Howard running ground penetrating radar transects with collaborators from NTU in Western Australia

Undergraduate studying a sediment core as part of the field course in Oregon, USA

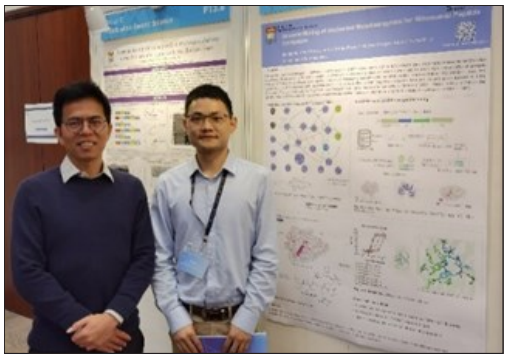
'Celsius Rock', Sweden indicating uplift due to ice sheet melting at the Last Glacial Maximum

The lab group studied wetlands to understand carbon burial and shoreline changes

Philip Li

Philip's group at HKU

The group at the 5th Symposium on Actinomycetes Biology and the 3rd Workshop on Microbial Drugs



HKU Research Postgraduate Symposium Award Presentation Ceremony

Publication Award and Best Poster Presenter to Beibei

Philip's team is a group of researchers who are passionate about exploring the potential of ocean and human microbiota for innovative therapeutics. They are focused on creating an integrated platform for targeted antibiotic discovery from untapped microbiomes by leveraging the latest advances in bioinformatics, synthetic biology and chemical biology. The goal is to unlock the genetic potential of ocean and human microbiota and harness the power of small molecule biosynthesis to develop new and effective treatments for global health challenges.

The research team has achieved significant accomplishments in the field, with six publications as leading authors in 2023. Their studies focused on genomics-guided discovery and biosynthesis, particularly in the area of RiPP antibiotics. Notably, they introduced a groundbreaking big data genome mining strategy that leverages the natural principles of biosynthesis. This strategy has enabled them to uncover new and unexplored sequence space of enzymes involved in modifying and structurally enhancing peptide antibiotics. The findings of this research were published in the prestigious journal *Angew Chem Int Ed.*

In addition, the team is deeply committed to studying the chemical ecology of complex microbiota and the intricate "language" of host-microbe interactions. They hope to gain a profound understanding of microbial communication and competition, new drug targets, and effective strategies for maintaining ocean or human microbiome homeostasis. In recent studies published in *Microbiome*, the team highlighted the vital role of lactic acid bacteria (LAB) and their small molecules in sustaining the human microbiome and influencing microbial communities. They also made a groundbreaking discovery of the first antibiotic and anti-archaeal metabolites in archaea, revealing insights into their metabolism and interactions in salty environments and uncovering new sources of bioactive compounds.

The team also collaborated with Zhang's group from the Ocean University of China, and their research, published in *Nature Communications*, emphasized the importance of microbial diversity in maintaining a healthy ocean ecosystem. Their findings provided new insights into the role of *Roseobacter* bacteria in marine sulfur cycling.

In 2023, two outstanding graduates, Zheng Zhong and Beibei He got their first positions. Zheng secured a position at BGI Genomics, while Beibei garnered recognition for his exceptional work, receiving both the Publication Award and Best Poster Presenter award from HKU. Beibei is now embarking on an exciting journey in a biotech company to further contribute and achieve remarkable accomplishments.

Paolo Momigliano

2023 was the first year for the new Marine Evolution Lab, led by Paolo Momigliano, a new Assistant Professor in the School of Biological Sciences.

The main research focus of the lab lies at the intersection of evolutionary and conservation biology of marine organisms. We work on a broad range of marine taxa, from corals to sharks and marine mammals. The lab quickly grew in the first year, and now counts three PhD students and a Post Doctoral fellow.

PhD student Carolin Dahms obtained both a HKPF and an HKU Presidential PhD Scholarship to undertake a PhD project on population genetics and conservation of reef associated sharks across the Indo-Pacific. Sam King Fung Yiu, a biologist with a passion for the marine biodiversity of Hong Kong, started his PhD on the taxonomy and evolution of Hong Kong's ahermatypic corals. This work stems from his previous discovery and description of new coral species in Hong Kong. Wendy Mcleod started her PhD project focusing on examining the adaptive potential of the coral *Acropora samoensis* to eutrophication. Her project employs a combination of field experiments and analyses of whole genome data from hundreds of coral colonies from Hong Kong. Wendy's PhD work will be financed by a new GRF grant led by Shelby McIlroy (ex-SWIMS and now Chinese University of Hong Kong) and Paolo at SWIMS. Postdoc Petri Kemppainen started working on theoretical models to understand range expansions from genetic data and predict spatial patterns of genetic diversity in marine organisms for prioritization of conservation efforts.

Carolin published a meta-analysis on the effects of temperature change on marine fish range shifts in the journal *Global Change Biology*, and submitted her first paper from her PhD. Petri's work on range expansions was accepted for publication in *Molecular Biology and Evolution*, and he presented it at the 3rd Asia Evolution Conference in Singapore. Carolin and Wendy gave their first oral presentations in international conferences, at the Asia Evolution Conference and the Asia-Pacific Coral Reef Symposium (respectively).

One of Paolo's long term collaborations on evolution on a novel ecotype of ringed seal was published in *Molecular Ecology*. Paolo gave an invited talk on the challenges of demographic modelling from genetic data at the 3rd Asia Evolution Conference in Singapore, and a keynote speech on the use of genetic tools for the conservation of sharks and marine mammals at the 6th EMBRIO International Symposium in Indonesia.

Wendy, Carolin, Petri and Paolo at the Asia-Pacific Coral Reef Symposium in Singapore

Paolo, Wendy and collaborator Shelby during a coral sampling fieldtrip in Hong Kong

Petri and Carolin at the Society for Molecular Biology and Evolution conference in Italy

Paolo presenting a keynote talk on his previous studies during the 15th UCAS

As part of the expansion SWIMS enhanced the outside mesocosm facilities

Research Opportunities

The Laurence Caplin Scholarship in Marine Biology

Established in memory of Laurence Caplin by his widow, Mrs E Caplin and daughter, Mrs J Woodford, to bring young people to SWIMS to undertake research in marine biology with a resident staff member.

The Intertidal Trust Fund

Established in 1982 with profits from the book "The Seashore Ecology of Hong Kong", grants from the Intertidal Trust Fund can be made to overseas students and scientists who wish to undertake research on intertidal ecology at SWIMS.

Cape d'Aguilar Trust Fund

Established in 1995 with profits from the book "An Introduction to the Cape d'Aguilar Marine Reserve, Hong Kong", grants from the Cape d'Aguilar Trust Fund can be made to local or overseas students and scientists who wish to undertake marine biological research on the Cape d'Aguilar Marine Reserve at SWIMS.

Higher Degrees (M.Phil / Ph.D)

Students who are interested in undertaking a research postgraduate degree (M.Phil or Ph.D) in marine biology and ecology should directly contact SWIMS academic staff for more information regarding individual projects.

View of the newly expanded SWIMS sitting in the Cape d'Aguilar Marine Reserve

Student Research Assistantships/Internships

Undergraduate students holding a permanent Hong Kong identity card are encouraged to apply to work as volunteer student research assistants during the semester breaks/summer holidays. Undergraduate students from both local and overseas institutions who are enrolled in a degree programme, which requires the completion of an internship, may also contact us to discuss how we can facilitate that requirement. Interested students should contact SWIMS Secretary, Ms Sylvia Yiu.

SWIMS Publications (Jan - Dec 2023)

Abd Rahim NH, Satyanarayana B, Ibrahim YS, Not C, Idris I, Mohd Jani J, Cannicci S, Dahdouh-Guebas F (2023) Dataset of microplastics in the mangrove brachyuran crabs at Setiu Wetlands, Peninsular Malaysia. *Data in Brief* **49**: 109420

Aguilera V, Sepulveda F, Von Dassow P, Gaitán-Espitia JD, Mesas A, Vargas CA (2023) Local scale extreme low pH conditions and genetic differences shape phenotypic variation in a broad dispersal copepod species. *Frontiers in Marine Science* **10**: 1221132

Au MFF, Williams GA, Hui JHL (2023) *Status quo* and future perspectives of molecular and genomic studies on the genus *Biomphalaria* -the intermediate snail host of *Schistosoma mansoni*. *Molecular Sciences* **24**: 4895

Breedon SA, Varma A, Quintero-Galvis J, Gaitán-Espitia JD, Mejías C, Nespolo RF, Storey KB (2023) Torpor-responsive microRNAs in the heart of the Monito del Monte, *Dromiciops gliroides*. *BioFactors* **49**: 1061-1073

Cai P, He J, Song ZM, Tian Y, Zhong Z, Zhang D, Shi Y, Tang X, Li YX (2023) Uncovering untapped Carboxylic Acid Reductases (CARs) for one-step biosynthesis and diversification of bioactive nitrogen-containing heterocycles. *ACS Catalysis* **13**: 15404-15416

Carini A, Gaitán-Espitia JD, Thiyagarajan V (2023) Extracting proteins from microscopic biominerals: a reproducible method development using oyster larvae. *Limnology and Oceanography: Methods* **21**: 673-686

Chan HSH, Not C (2023) Variations in the spatial distribution of expanded polystyrene marine debris: are Asian's coastlines more affected? *Environmental Advances* **11**: 100342

Chandra Rajan K, Li Y, Dang X, Lim YK, Suzuki M, Lee SW, Thiyagarajan V (2023) Directional fabrication and dissolution of larval and juvenile oyster shells under ocean acidification. *Proceedings of Royal Society B* DOI: 10.1098/rspb.2022.1216

Cheng W, Gaitán-Espitia JD, Solano J, Nakamura A, Machjer B, Ashton L (2023) Heat tolerance variation reveals vulnerability of tropical herbivore-parasitoid interactions to climate change. *Ecology Letters* **26**: 278-290

Cheung CKH, Not C (2023) Impact of extreme weather events on microplastic distribution in coastal environments. *Science of the Total Environment* **904**: 166723

Chik YYP, Leung SCJ, Bridges SM, Williams GA, Russell B, Not C (2023) Learning in and from the field : a qualitative study of affective engagement. *Environmental Education Research* DOI: 10.1080/13504622.2023.2211752

Costello MJ, Corkrey R, Bates AE, Burrows MT, Chaudhary C, Edgar GE, Stuart-Smith RD, Yasuhara M, Wei C-L (2023) The universal evolutionary and ecological significance of 20ºC. *Frontiers of Biogeography* **15**: e61673

Chu RWC, Yasuhara M, Myrvang Riise K, Asahi H, Cotton LJ, Hong Y, Rasmussen TL (2023) Late Quaternary paleoceanography of Vestnesa Ridge, Fram Strait: Ostracode species as a potential indicator of cold seep activity. *Geology* **51**: 758-762

Cybulski JD, Duprey NN, Thibodeau B, Yasuhara M, Geeraert N, Leonard N, Vonhof HB, Martínez-García A, Baker DM (2023) Coral carbonate-bound isotopes reveal monsoonal influence on nitrogen sources in Southeastern China's Greater Bay Area from the mid-Holocene until the Anthropocene. *Marine Pollution Bulletin* **197**: 115757

Cybulski JD, Leung KS, Leung CON, Baker DM, Lee TKW (2023) Protocol to track the biosynthesis of cholesterol in cultured HCC cells using 13C compound-specific stable isotopic tracers. *STAR Protocols* **4**: 102506

Dahms C, Killen SS (2023) Temperature change effects on marine fish range shifts: A meta-analysis of ecological and methodological predictors. *Global Change Biology* **29**: 4459-4479

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Fernández P, Labbé B, Gaitán-Espitia JD, Paine E, Hurd C, Willis A, Sanderson C, Buschmann A (2023) The influence of ammonium to nitrate ratio on the thermal responses of early life stages of the giant kelp *Macrocystis pyrifera*. *Algal Research* **72**: 103114

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He Y, Rehman AU, Xu M, Not C, Ng AMC, Djurišić AB (2023) Photocatalytic degradation of different types of microplastics by TiOx/ZnO tetrapod photocatalysts. *Heliyon* **9**: e22562

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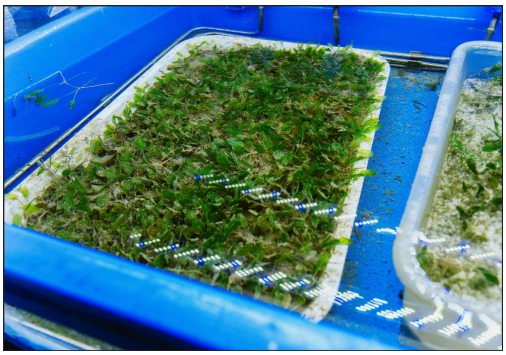
Khan and Chanaka testing out different seagrass transplantation techniques

The traditional toothpick-waterdrop approach to identify the sex of oysters at Zhanjiang



Indoor seagrass culturing system at SWIMS

Phil and Calvin visited Xiamen University to collaborate with their education team

Other Contributions from SWIMS

Bayden Russell

Editor-in-Chief, *Oceanography and Marine Biology: An Annual Review*
Editorial Advisory Board Member, *Global Change Biology*
Associate Editor, *Frontiers in Marine Science*
Funding Review College Member, British Ecological Society
Funding Reviewer, Ocean Park Conservation Foundation
Finance Committee Member, Association for the Sciences of Limnology & Oceanography (ASLO)
Member, British Ecological Society (BES)

Celia Schunter

Associate Editor, *Proceedings of the Royal Society B*
Associate Editor, *Scientific Data (Nature)*

Christelle Not

Board advisor, GREEN Hospitality
Associate Editor, *Limnology and Oceanography*
Management Committee Member, Common Core
Lead of the Science, Engineering and Big Data Area of Inquiries of the Common Core Program
Advisor for the Zero Plastic league (ZLP) from G.T. (Ellen Yeung) College

David Baker

Director, HKU Stable Isotope Ratio Mass Spectrometry Laboratory (SIRMS)
Director, MarineGEO-Hong Kong
Associate Director, Knowledge Exchange Office
Associate Editor, *Limnology and Oceanography*
Associate Editor, *Proceedings of the Royal Society B*

Gray A Williams

Adjunct Professor, Xiamen University
Visiting Professor, The University of Florence
Chairman, International Advisory Committee of the Dongshan Swire Marine Station (D-SMART), Xiamen University
External Advisory Board, CIM, University of Vigo, Spain
Board Member, Ocean Park Corporation
Trustee, Ocean Park Conservation Foundation, Hong Kong
Editorial Board Member, *Journal of Thermal Biology*
Editorial Board Member, *Marine Ecology*
Subject Editor, Zoological Studies

Moriaki Yasuhara

Member, SKLMP
Past Chair, International Research Group on Ostracoda (IRGO)
Co-lead, Deep Ocean Stewardship Initiative, Climate Change
Scientific Committee member, bioDISCOVERY
Member, GO2NE (Global Ocean Oxygen Network) IOC-UNESCO
Associate Editor, *Paleontological Research*
Editor, *Plankton and Benthos Research*
Editorial Board Member, *Global and Planetary Change*
Editorial Board Member, *Open Quaternary*
Associate Editor, *Marine Biodiversity*
Editorial Board Member, *Marine Micropaleontology*
Associate Editor, *Palaeoworld*
Associate Editor , *Journal of Paleontology*
Editor, *Journal of Micropalaeontology*
Associate Editor , *Global Ecology and Biogeography*

JD Gaitán-Espitia

Associate Editor, *Proceeding of the Royal Society B: Biological Sciences*
Associate Editor, *Journal of Thermal Biology*
Associate Editor, *Journal of Evolutionary Biology*

Nicole Khan

Editorial Board Member, *Communications Earth & Environment*
Editorial Advisory Board Member, *Quaternary Science Reviews*
Editorial Board Member, *Global and Planetary Change*
Second Vice Chair, the Marine and Coastal Geoscience Division of the Geological Society of America

Paolo Momigliano

Reviewer, La Caixa Foundation Fellowship Program

V ThiyagaRajan

Assistant Dean (Experiential Learning), Faculty of Science, HKU
RGC Panel member, Biology and Medicine Panel for Competitive Research Funding Schemes for the Local Self-financing Degree Sector (APSF)
Academic Member, State Key Laboratory for Marine Pollution
Council Member, Hong Kong Proteomics Society
Academic Editor, *PLoS ONE, Public Library of Science*
Editor (Review), *Aquatic Biology*, *Inter-Research Journal*
Editorial Board Member, *Global Change Biology*
Contributing Editor, *Aquaculture Environment Interactions*, *Inter-Research Journal*
Editorial Board Member, *Global Change Biology*

Sarah presenting at the ISOLBE conference Vila do Conde, Porto University

Conferences and Workshops

Bayden Russell

Speaker; The International Temperate Reef Symposium, 8-12 Jan 2023, Tasmania, Australia.
Speaker; Japan Geoscience Union Conference, 21-26 May 2023, Chiba, Japan.
Speaker; The 5th Asia-Pacific Coral Reef Symposium, 19-23 Jun 2023, Singapore.
Invited workshop seminar and pannellist; Heart of the Ocean Global Symposium, 25 Jul 2023, MISC headquarters, Kuala Lumpur, Malaysia
Invited Talk; International Symposium on Oyster Reef Conservation and Restoration, 23-25 Aug 2023, The Nature Conservancy Shenzhen headquarters, Shenzhen, China.
Plenary Talk & Speaker; South China Sea Annual Meeting, 3-5 Nov 2023, Kuala Lumpur, Malaysia.

Celia Schunter

Invited Speaker; European Molecular Biology Laboratory (EMBL) Symposium, 25-28 Apr 2023, Heidelberg, Germany.
Invited Speaker; Indo-Pacific Fish conference (IPFC), 20-24 Nov 2023, Auckland, New Zealand.

Christelle Not

Invited Seminar; Goldschmidt Conference, 9-14 Jul 2023, Lyon, France.

David Baker

Speaker; ASLO Aquatic Sciences Meeting, 4-9 Jun 2023, Mallorca, Spain.
Keynote Speaker, The 5th Asia-Pacific Coral Reef Symposium, 19-23 Jun 2023, Singapore.
Participant; Global Marine Economy Forum, 23-24 Nov 2023, Shenzhen, China.
Participant; Marine GEO meeting, 2023, Smithsonian Environmental Research Center, Edgewater, Maryland, United States.

Gray A Williams

Speaker; The International Temperate Reef Symposium, 8-12 Jan 2023, Tasmania, Australia.
Panelist; Harbour Circle Symposium Future of a Blue Planet: cross-sector efforts in marine conservation, 8 Feb 2023, Hong Kong Maritime Museum, Hong Kong.
Participant and SWIMS Leader; Colloquium on Environmental Sustainability and Education, 4 May 2023, SWIMS, HKU.
Plenary Talk; International Symposium for Littorinid Biology and Evolution, 24-27 Jul 2023, Portugal.

JD Gaitán-Espitia

Invited Participant; The 5th Asia-Pacific Coral Reef Symposium, 19-23 Jun 2023, Singapore.
Invited participant; The 6th World Conference on Marine Biodiversity series, 4-7 Jul 2023, Penang, Malaysia.

Moriaki Yasuhara

Invited Speaker; Shimane University, 19 Jan 2023, Shimane, Japan.
Invited Speaker; Estuaries Open Seminar, 20 Jan 2023, EsReC Estuary Research Center, Japan.
Invited Speaker/Panelist; Marine Economy Summit Series – Frontier Research, 23 Mar 2023, The Hong Kong University of Science and Technology, Hong Kong.
Invited Speaker; The Natural History Museum at the University of Oslo, 13 Apr 2023, Oslo, Norway.
Speaker/Convenor; The 5th International Symposium, 17-19 April 2023, Bergen, Norway.
Invited Talk/Speaker/Roundtable Discussion; The 6th World Conference on Marine Biodiversity. 4-7 July 2023, Penang, Malaysia
Plenary Keynote; The 2nd Asian Palaeontological Congress, 7 Aug 2023, University of Tokyo, Japan.
Speaker; Geological Society of America Annual Meeting, 17 Oct 2023, Pittsburgh, USA.
Speaker/Panellist; DOSI 10th Anniversary Webinar Series, 8 Nov 2023 (Online).
Invited Speaker; National Chung Cheng University, 15-16 Nov 2023, Chiayi, Taiwan.
Invited Speaker; National Taiwan University, 17 Nov 2023, Taipei, Taiwan.
Speaker; Ecology & Biodiversity seminar, 24 Nov 2023, University of Hong Kong, Hong Kong.
Invited Speaker; MARUM, University of Bremen, 29 Nov 2023, Breman, Germany.
Invited Speaker; Alfred-Wegener-Institute, 1 Dec 2023, Bremerhaven, Germany.
Invited Participant; Biogeography of Tropical Asia Symposium, 13-15 Dec 2023, National University of Singapore, Singapore.
Symposium Organizer/Speaker; The 3rd AsiaEvo Conference, 16-18 Dec 2023, National University of Singapore, Singapore.

Nicole Khan

Invited Speaker; Blue Carbon workshop, Croucher Foundation Advanced Studies Institute, 12-14 Apr 2023, Hong Kong University of Science & Technology, Hong Kong.
Invited Instructor; Glacial-Isostatic Adjustment Training School, 3-7 Jul 2023, Gavle, Sweden.
Session Convener; International Quaternary Association congress, 14-20 Jul 2023, Rome, Italy.
Plenary Talk; 2023 Mangrove Conference, Asia-Pacific Network for Global Change Research, 17-18 Oct 2023, Zhejiang University, China Research Zhoushan, China

Philip Li

Invited Participant; China Gut Conference 2023, 23-25 May 2023, Beijing, China.
Invited Participant; The 5th Mycology Symposium and The 3rd Microbial Pharmaceuticals Academic Conference, 21-24 Jul 2023, Nanning, China.
Invited Participant; The 6th Asian Chemical Biology Conference, 20-23 Aug 2023, Jeju, Korea.
Invited Participant; ICCEOCA-16, 1-4 Dec 2023, Singapore.
Invited Participant; NSFC-RGC Frontier in Chemical Biology Symposium, 4-5 Dec 2023, Shenzhen, China.

Paolo Momigliano

Invited Speaker; The 6th EMBRIO International Symposium, 6-7 Nov 2023, IPB University, Indonesia.
Invited Talk; The 3rd AsiaEvo Conference, 16-18 Dec 2023, Singapore.

Research Staff

Chanaka Premarathne

Oral Presentation; The 15th University Consortium of on Aquatic Science (UCAS), 7 Jun 2024, Hong Kong.

Lau LY Sarah

Oral Presentation; International Temperate Reefs Symposium (ITRS), 8-12 Jan 2023, Australia.

Oral Presentation; International Symposium on Littorinid Biology and Evolution, 24-27 Jul 2023, Vila do Conde, Portugal.

Lucrezia Celeste Bonzi

Oral Presentation; The 11th Indo-Pacific Fish Conference (IPFC) and Annual Conference of the Australian Society for Fish Biology, 20-24 Nov 2023, University of Auckland, New Zealand.

Marcelo Eduardo Lagos Orostica

Participant; The 6th World Conference on Marine Biodiversity, 2-5 Jul 2023, Penang, Malaysia.

Pedro Julião Jimenez

Oral Presentation; The 6th World Conference on Marine Biodiversity, 2-5 Jul 2023, Penang, Malaysia.

Oral Presentation; The 2nd Asian Paleontological Congress, 3-7 Aug 2023, The University of Tokyo, Japan.

Rhian Evans

Oral Presentation; The International Temperate Reef Symposium, 8-12 Jan 2023, Tasmania, Australia.

Oral Presentation; South China Sea Annual Meeting, 3-5 Nov 2023, Kuala Lumpur , Malaysia.

Award: Runner-up for Best Early Career Researcher Presentation, South China Sea Annual Meeting, 3-5 Nov 2023, Kuala Lumpur , Malaysia.

Wu Chuk-ho

Speaker; The 21st FishBase/SeaLifeBase Symposium, 4 Sep 2023, Tervuren, Belgium.

Yau Ricca

Award: Best Poster Award, 6th World Conference on Marine Biodiversity (WCMB 2023), 2-5 Jul 2023, Penang, Malaysia.

Postgraduates

Chiu Sung Yau Benjamin

Oral Presentation; The International Temperate Reef Symposium, 8-12 Jan 2023, Tasmania, Australia.

Debora Desantis

Poster Presentation; The EMBO, EMBL Symposium, 25-28 Apr 2023, Heidelberg, Germany.

Participant; Single-cell RNAseq Data Analysis; 6-9 Nov 2023, Norwich, UK.

Gu Yifei

Oral Presentation; The International Temperate Reef Symposium, 8-12 Jan 2023, Tasmania, Australia.

Oral Presentation; The 15th University Consortium of on Aquatic Science (UCAS), 7 Jun 2024, HKU, Hong Kong.

Oral Presentation; The 4th International Symposium on Coastal Resources and Environment (CORE), 27-28 Nov 2023, Guangzhou China.

Howard Yu

Poster Presentation; The 20th Annual Meeting, Asia Oceania Geosciences Society, 30 Jul-04 Aug 2023, Singapore.

Jade Mathilde Sourisse

Participant; The 11th Indo-Pacific Fish Conference, 20-24 Nov 2023, The University of Auckland, New Zealand.

Jackson Lau

Oral Presentation; The International Temperate Reef Symposium, 8-12 Jan 2023, Tasmania, Australia.

Khan Cheung

Participant; The 6th World Conference on Marine Biodiversity, 2-5 Jul 2023, Penang, Malaysia.

Laetitia Allais

Oral Presentation; ASLO Aquatic Sciences Meeting 2023, Resilience and Recovery in Aquatic Systems, 4-9 June 2023, Palma de Mallorca, Spain.

Meriadec Le Pabic

Participant; The XXI INQUA Congress, 14-20 Jul 2023, Sapienza University of Rome, Italy.

Xin Dang

Oral Presentation; The 115th Annual Meeting of the National Shellfisheries Association, 26-30 Mar 2023, Baltimore, USA

Oral Presentation; The 6th World Conference on Marine Biodiversity, 2-5 Jul 2023, Penang, Malaysia.

Participant; Marine Economy Summit Series Frontier Research, 23 Mar 2023, HKUST, Hong Kong.

Zhong Kaile

Oral Presentation; The 6th World Conference on Marine Biodiversity (WCMB 2023), 2-7 Jul 2023, Universiti Sains Malaysia, Penang, Malaysia.

Visitors to SWIMS

Official Visitors:

Mr. Michael Fong (CEDD)
Mr. Harry Ma (CEDD)
Mr. Jacky Wu (CEDD)
Mr. Raymond Ip (CEDD)
Mr. Louie Lau (CEDD)
Mr. Leo Lam (CEDD)
Prof. Qiang Zhou (FoS, HKU)
Prof. Minhan Dai (CAS, XMU)
Dr. Kringpaka Wangkulangkul (Prince of Songkhla University, Thailand)
Prof. Monica Medina (PennState University, USA)
Prof. Daniel Pauly (University of British Columbia, Canada)
Mrs. Sandra Pauly (University of British Columbia, Canada)
Prof. Yvonne Sadovy (IUCN/SCRFA)
Prof. Emilio Rolan-Alvarez (University of Vigo, Spain)

Visitors:

Mr. Ho-Wang Chung (HKU)
Mr. Chak-Shing Cheung (HKU)
Mr. Wai-Man Chan (HKU)
Dr. Jason Aus (HKU)
Dr. Junfeng Chen (Nagoya University, Japan)
Mr. Ying-Keung Lah (RTHK)
Dr. Haiwei Luo, Ms. Xie Mei, Dr. Nan Xiang & Dr. Ah Chu (CUHK)
Dr. Edward Wong (CUHK)
Mr. Philip Chow (Audacy Ventures)
Mr. Timothy Ng & Ms. Joe Cheung (Ocean Park Corporation)
Ms. Annie Yu (HKU)
Mr. Cliff Ip (PTP)
Ms. Jenny, Ms. Bo Huang & Ms. Stephanie Wong (Phoenix TV)
Mr. David O'Dwyer (Living Seas)
Ms. Anita Gidumal & Mr. Andrew Clements (Abercorn)
Dr. Colin Luk & Mr. Philip Chow (HKU)
Mr. Victor Wong, Ms. Carman Ng & Ms. Chloe Wong (vfxNova)
Mr. Chris Hatherill (Parley for the Oceans)
Mr. TS Firsen (CPAO)
Mr. George Miller, Mr. M Gribdin, & Mr. N Dimana (IMG Media Ltd)
Mr. S. Powell
Dr. Tim Wong, Ms. Carol Pak, Mr. Tom Xu & Ms. Wendy Chan (Basis Int'l School)
Dr. Elisa Bone (The University of Melbourne, Australia)
Dr. Mark Wells (University of Maine, USA)
Prof. Susan Bridges (HKU)
Prof. Peter Renshaw (University of Queensland, Australia)
Dr. Suzanne Pratt (Teachers College, Columbia University, NY, USA)
Mr. Victor Sit (Labway Biotechnology Ltd)
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Mr. Poppy Blackburn & Mrs. Susie Blackburn (Swire Group)
Prof. Julian Tanner (Common Core Office, HKU)
Prof. Jack Tsao (Common Core Office, HKU)
Dr. David Edwards (University of Glasgow, UK)
Mr. Jack Robb (University of Exeter, UK)
Mr. Sjoerd Hoekstra & Mr. Hoi-Chi Ng (Design for Culture Ltd)
Prof. Benny Chan (Academia Sinica, Taiwan)
Ms. Susie Hunt (Museum for the UN)
Ms. Natalie Man (Archireef)
Dr. Ladd Johnson (Laval University, Canada)
Dr. Kevin Geoghegan (PolyU)
Ms. Annie Hui (South Island School)
Mr. Kenny Tang (Variety HK)
Ms. Divya Daryanani (PennState University, USA)
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Ms. Cynthy Tang (Science Faculty, HKU)
Ms. Tina Chan & Ms. Nicole Trantallis (Swire Group)
Mr. Sze-Wai Chau (Fukien Secondary School)
Mr. Chris Fung (Liaison Office, HKU)
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Dr. Ann Jost (Hanyang University, S Korea)
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Dr. Jason Brockwell & Mr. Jon Brockwell (Asia Medical Specialists)
Dr. HM Wong (HKU)
Ms. Tatia Lam, Mr. Win Lun, Mr. William Wong, Mr. Shermen Leung & Ms. Jennifer Zuo (Sun Media Ltd)
Prof. Rudolf Wu (EduU, HK)
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Ms. Amy Chen (Shenzhen Institute of Research & Innovation, China)
Mr. Mike Sakid (ECHK)
Ms. Joanna Bergon (Island School)
Prof. Jerome Hui, Mr. Franco Au & Mr. Ho-Yin Yip (CUHK)
Dr. Susanne Trumpf (Department of Architecture, HKU)
Prof. Leonid Moroz (University of Florida, USA)
Ms. Jane Wong (The Harbour School)
Prof. Richard Greenfield (University of Johannesburg, S Africa)
Mr. Siu-Kei Hui (CCCSS)
Mr. Shengyao Sun, Ms. Guanfei Wang & Dr. Bicheng Chen (XiamenU, China)
Prof. Sophie St-Hilaire, Dr. Zhang Ju, Mr. Jeffrey Yuen, Mr. Dawsun Cholowers & Ms. Aualan Berrg (CityU HK)
Ms. Christina Choy (National University of Singapore)
Mr. Jacky Leung (University of Southampton, UK)
Dr. Penghui Zhang (Hokai University, China)
Dr. He Wang (SBS, HKU)
Mr. Hill Mok, Mr. Hoylu Law, Mr. Hon-Lam Chan, Mr. Kelvin Tsang, Mr. Ka-Kit Chu, Mr. Cheung-Lung Tsang, Ms. Yuen-Yi Wong, Ms. Ho-Yi Lai & Mr. Deming Zhong (Epicentro Digital Ltd)
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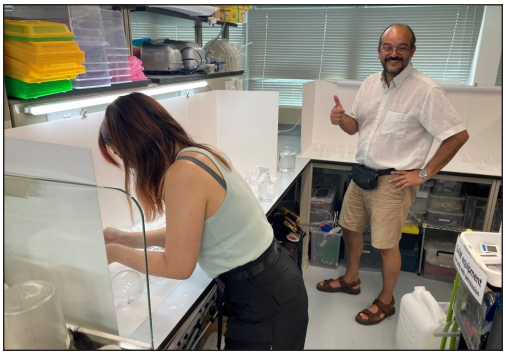
Ms. Christy Cheng (Swire Group)
Dr. Brent Valentine & Kellev Kramer (UC Davis, USA)
Mr. Philip Chou, Ikecla Kojiro, Asakura Shota & Mai Yokote (Zen Foods Co, Ltd)
Ms. Natalie Char, Mr. Ivan Chan, Ms. Emmy Lau, Ms. Ellen Mok, Ms. Agnes Yeung & Mr. Ding Tong (Swire Group)
Mr. Gomen See (HKMM)
Ms. Jenny Chan (SCCHK)
Ms. Betty Tai (Swire Group)
Mr. Andrew Yu (HKU)

Phil sharing rocky shore ecology knowledge to students from the French International School

Rhian won runner-up in best talk at the South China Seas Annual Meeting, Kuala Lumpur, Malaysia



Emilio Rolan-Alvarez working with Sarah on mate choice in rocky shore snails

JD, Simon and Chanaka demonstrating how health of leaves can be measured to high school students

Group Visits:
22 staff and students from The Harbour School, Jan 2023
30 staff and students from CUHK , Jan 2023
16 staff and students from BIOL3318 HKU, Jan 2023
6 staff from Civil Engineering and Development Department, Feb 2023
5 staff from Faculty of Science, HKU, Mar 2023
28 staff from AFCD Staff Association, Mar 2023
23 staff and students from SCNC2121, HKU, Jun 2023
25 staff and students from Basis International School, Shenzhen, China, Jul 2023
37 staff and students from Admission office, HKU, Jul 2023
25 staff and students from Wong Fun Ling College, Jul 2023
12 staff and students from Liaison Office, HKU, Jul 2023
6 staff from Fukien Secondary School, Jul 2023
33 staff and students from Faculty of Architecture, HKU, Jul 2023
25 staff and students from Variety HK, Aug 2023
6 staff from SZ Qianhai Management Authority, Aug 2023
41 staff and students from Architecture Department, HKU, Sep 2023
20 staff and students from Island School, Sep 2023
28 staff and students from Yan Chai Hospital Wong Wha San Secondary School, Sep 2023
8 Staff from HK Marine Protection Alliance, Sep 2023
11 staff and students from The Harbour School, Oct 2023
20 staff and students from Cheng Chek Chee Secondary School of Sai Kung and Hang Hau District, Oct 2023
8 staff and students from Ho Koon Nature Education cum Astronomical Centre, Oct 2023
5 staff and students from National University of Singapore, Nov 2023
46 staff and students from Fukien Secondary School, Nov 2023
20 staff and Mainland Delegates from AFCD, Dec 2023
24 staff and students from West Island School, Dec 2023
27 staff and students from Malvern College, Dec 2023
4 staff from Swire Public Affairs, Dec 2023

Workshops/Symposiums:
9-20 Jan 2023
MarineGEO Collaboration Meeting
29 May-2 Jun 2023
MarineGEO Collaboration Meeting
14 Jun 2023
Coastal Ocean Under Intensifying Human Activities and Changing Climate: from Science to Sustainability Lecture
1 Aug 2023
Demonstrate Biodiversity Module during DMB Lecture
26 Sep 2023
Connecting the dots: a standardized and quality-assured marine biodiversity database for Hong Kong Workshop
17 Oct 2023
e-DNA fieldwork
27 Oct 2023
The 15th University Consortium on Aquatic Sciences Symposium
28 Oct 2023
Oyster Hatchery Project Meeting
11 Nov 2023
Swire's TrustTomorrow Funfair Workshop

Student Graduations

Ph.D

Bovern, Arromrak - Understanding the principles and mechanisms underpinning microbial dynamics in changing environments.
Chu, Cheryl King Ching - The present and future role of sea cucumbers in benthic nutrient cycling in subtropical ecosystems
Kevin, Geoghegan - The present and prospective ecology of a rocky shore predator: foraging, physiology and their microbiome.
Lo, Chi Chiu - Ecological restoration of artificial seawalls via ecological engineering approaches and the potential impact of global warming on a desirable ecosystem function
Tian, Yunshu - Cenozoic dynamics of shallow marine biodiversity.
Wong, Tsz Chun Adrian - The survival strategies of the high shore limpet *Lottia dorsuosa* to withstand summer in Hong Kong: the interplay of physiology and behaviour.
Xin, Dang - Mechanistic understanding of immunological responses of oysters to ocean acidification.
Yeung, Katie - Occurrence, degradation, ecotoxicity, and ecological risk of retinoic acids in urbanized coastal marine environments.

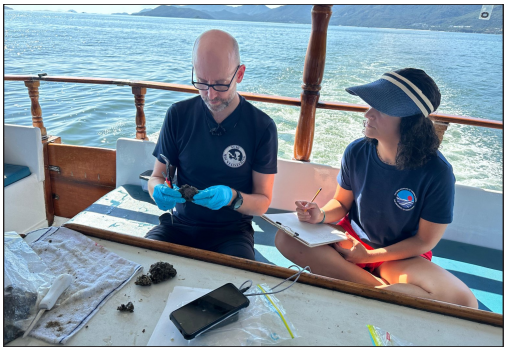
M.Phil

Chan, Hing Sang Hamsun - Composition and metabolic potential of microbial communities from marine plastic biofilms.
Cheung, Ka Hei Coco - Impacts of extreme weather events on microplastic distribution in coastal environments.
Lui, Lok Ching Angela - Exploring the role of emotions and immersive virtual reality in environmental science educatio
Ng, Ho Tun Greenie – Ecological and adaptive physiological responses of seagrasses to heavy metal pollution in highly urbanized areas.
So, Wing Kwan Mandy - Fate of plastics in Hong Kong mangroves: from macro to micro.

Staff Training

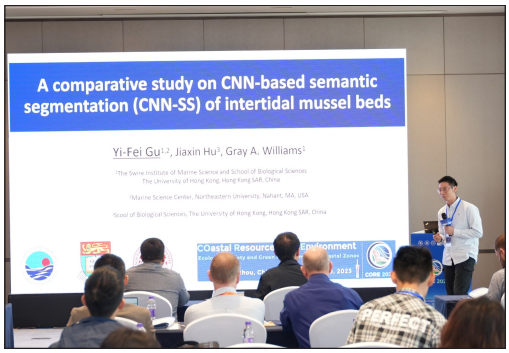
17-18 October 2023
Phil & Calvin visited Xiamen University, China
7-22 August 2023
Alan attended the course of TNC Scientific Diver Qualification Course
1 November 2023
CPR & Automated External Defibrillation Course by HK Fire Services Department
13, 15, 20 & 22 December 2023
Yale attended the course of "Certificate in First Aid" Course (FA) to be conducted by Hong Kong St. John Ambulance

Chanaka and Leo preparing for sediment sampling



Kevin and Rhian attending a scientific diving course

Mandy and Bovern setting up a sediment corer to collect sediment samples from seagrass bed sediment



Yi-Fei presenting his work at CORE 2023

Dr. Daniel Pauley, Prof. Yvonne Sadovy and Ms. Tina Chan from Swire Trust visiting SWIMS

CPR and AED course held by Fire Services Department

Acknowledgements

Mr. Guy Bradley and Ms. Tina Chan, The Swire Group of Companies
Prof. Xiang Zhang, President and Vice-Chancellor, HKU
Prof. RYC Wong, Provost and Deputy Vice-Chancellor, HKU
Prof. Wei Pan, Acting Executive Vice-President, HKU
Prof. Peng Gong, Vice-President and Pro-Vice-Chancellor, HKU
Prof. IM Holliday, Vice-President and Pro-Vice-Chancellor, HKU
Prof. Max Shen, Vice-President and Pro-Vice-Chancellor, HKU
Ms. Jeannie Tsang , Registrar , HKU
Prof. VWW Yam and Prof. Qiang Zhou and staff, Faculty of Science, HKU
Prof. Alice Wong and staff, School of Biological Sciences, HKU
Mr. Jeffrey Sy, Director, Estates Office, HKU
Ms. Eva Tam, Associate Director, Estates Office, HKU
Mr. SK Lau and HC Man, Estates Office, HKU
Ms. Annie Yu and Mr. Lawrence Lee, Estates Office, HKU
Dr. Paul Hunt and staff, Safety Office, HKU
Mr. Tony Lo and staff, Finance and Enterprises Office, HKU
Ms. Shirley Lo, Ms. Janet Chung and Ms. Monica Wong and staff, Development and Alumni Affairs Office, HKU
Directors and staff, WWF HK
Dr. SF Leung, Director, AFCD
Mr. Alan Chan, AFCD
Ms. Samual Chui, Director, EPD
Mr. Cheng and staff, PCCW Cape d'Aguilar Station

For donations to research at SWIMS:
The Swire Group and Swire Trust
Faculty of Science, HKU
School of Biological Sciences, HKU

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