The Swire Institute of Marine Science

太古海洋科學研究所

Annual Report

2017

The celebration gathering for the start of SWIMS expansion

Director's Foreword

The 28th of April 2017 was literally a ground-breaking date for SWIMS as we celebrated the start of the expansion programme. The gestation period for this has not been easy, with numerous hold ups because of various regulations, bureaucracy and financial constraints. Finally, however, the Contractors, Architects, Ms Laura Lau (Swires Philanthropy Committee) joined members of HKU including Mr KL Tam, John Sung, KB Wong (Estates Office); the Dean of Science, Prof Matthew Evans, and Prof YS Chan (Head of the SWIMS Project Group) and friends from AFCD in a gathering to celebrate the event.

The expansion project has already had an impact on our work; resulting in fewer visitors this year and a coordinated, running-down of operations. The greatest impact has been our migration back to HKU where we have an office area for our students, and small aquarium and laboratory areas. This move was a mammoth project, ably directed by Cecily and supported by Ming, Simon, Ping and Kau. Obviously, this is a huge disruption on our students and research, but is an inevitable consequence of expansion, and so a pain we have to bear.

Despite all this, 2017 was another good year for SWIMS. As always, we were very pleased to host both old and new collaborators. We held numerous workshops and meetings including hosting this year's UCAS symposium. Importantly, we achieved excellent grant success bringing in nearly HK$24 million; as well as increasing both the quantity and quality of our publications with a third in the top 10% of journals in their field. The metrics are all incredibly positive and improving continually. This success is also reflected by a 10% increase in our staff and postgraduate numbers, including the appointment of Dr Juan Diego Gaitán-Espitia who will arrive in 2018 and Bayden and Stefano as Associate Directors at SWIMS. The need for an expansion, therefore, is actually a necessity if we are to maintain this momentum.

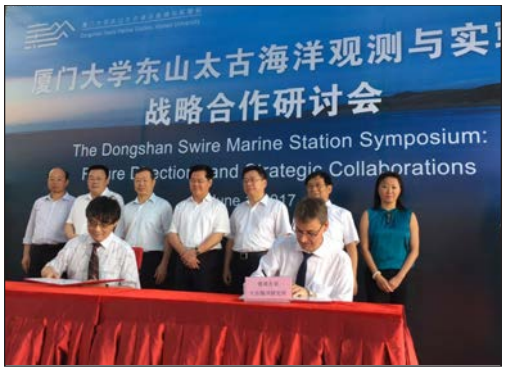
Clearly there is still much work to do but it is vital we push forward. Following the press interest in the SWIMS biodiversity assessment of Hong Kong at the end of 2016, revealing our incredibly high species richness, there is clearly much to protect and many threats to counteract. Our mission to safeguard the integrity of coastal biodiversity is, therefore, even more relevant, and with our growing research impetus and soon state-of-the-art new facilities, we shall be in an excellent position to lead this initiative within the SE Asia region.

Best wishes from the staff and students of SWIMS.

Gray A Williams

International Collaborations

This year was an important year for SWIMS collaborations as it saw the opening of its sister institute, the Dongshan Swire Marine Science Station (D-SMART, Xiamen University). Developing collaborative links between SWIMS and China's marine community is a strategic goal for SWIMS and the opening of D-SMART unlocks a number of opportunities for strong collaborations in the future. As part of this initiative, SWIMS re-signed its MoU with Xiamen University and was a co-sponsor of the IIIrd XMAS conference at Xiamen University. Gray is also Chairman of the D-SMART International Advisory Committee, and a number of SWIMS scientists have strong links with D-SMART staff.



Gray and Prof Minhan Dai sign a MoU between D-SMART and SWIMS

Due to the disruption of moving out from SWIMS for the expansion, this year's collaborations were disrupted by our preparations to move. Despite this, SWIMS still welcomed a wealth of international colleagues and students to work or conduct seminars / workshops. In terms of seminars, a number of informal talks were hosted at SWIMS including Dr Brendon Dunphy (University of Auckland, NZ); Prof James Crabbe (Oxford University, USA); Dr Kiho Kim (American University, USA) and a seminar by Dr Tullio Rossi for postgraduates to explain how to animate their science and improve scientific communication. A number of more formal talks were hosted by SWIMS on the HKU campus, including Dr Branwen Williams (Claremont McKenna Colleges, USA); Prof Mark Denny (Stanford University, USA); Dr Mary Alice Coffroth and Dr Howard Lasker (both University of Buffalo, USA) and Drs David Combosch and Sarah Lemer (University of Guam, USA).

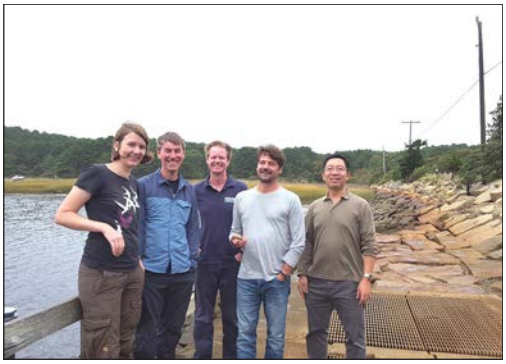
View of the new D-SMART research station at Dongshan

The World Harbour Project is growing strongly, with >30 member cities worldwide. In 2017, Xiamen University, led by Professor Yunwei Dong, organized the 2nd WHP Global Partners Meeting from 26-28 September 2017 to update progress and plan for new projects. SWIMS, led by Kenny, has completed the green engineering project on seawalls with eco-tiles and oysters, and will embark on new projects related to development of novel methods for monitoring pathogens and a global comparison of harbour water and sediment quality. As part of the WHP initiative, SWIMS will co-organize the 2nd International Workshop on Eco-shoreline Designs for Sustainable Coastal Development at HKU in June 2018.

Kenny at the WHP meeting with colleagues in Xiamen

Another major international collaborative project related to the MarineGEO-Hong Kong initiative was led by Dave, bringing in experts from the Smithsonian and Florida Museum of Natural History and University of Florida to direct the Hong Kong team in their first recovery of the MarineGEO ARMS; as well as long-term collaborators Drs Kang Do-Hyung, Yang Hyun-Sung and Mr Kim Tae-Ho (KIOST, Korea) who will be the next group to stage this project in SE Asia.

Priscila working with Martin Cheng and Monthon Ganmanee's students in Thailand



Gray, Bayden & Stefano visiting the MBL in Woods Hole

Participants at the 1st Singapore-Hong Kong hard shore ecology workshop

In terms of visitors, our strong collaboration with Brazil continued with visiting students Ms Priscila Granado and Mr Fernando Grande (Sao Paulo State University) and Ms Nara Oliveira (State University of Santa Cruz) working with Gray, Stefano and Dave, respectively. Other international students included Ms Guilia Puntin (on the TROPIMUNDO programme, EU); Mr Alessandro Iannucci (Florence University, Italy); Ms Shelley Chan (National University of Singapore) and Ms Natasha Mundell (Plymouth University, UK). As in previous years Profs Mark Davies (Sunderland University, UK) and Rick Stafford (Bournemouth University, UK) stayed at SWIMS to conduct research with Gray and Sarah.

The relationship between SWIMS and the Marine Biological Laboratory (University of Chicago) developed with a research exchange led by Stefano to investigate blue carbon sequestration. Dave and Gray also joined a delegation to Nanyang Technological University (Sinagpore) aimed at developing postgraduate exchange programmes. As part of their on-going research project, Gray led a group of students to work in Sri Chang Island with Dr Monthon Ganmanee's research group (King Mongkuts Institute of Technology, Thailand) together with Prof Yunwei Dong and his students (Xiamen University, China) and, in exchange, Ms Sutthirat Panchakhan visited SWIMS.

Sadly, over the next year many of these collaborations will have to be transferred back to HKU main campus as we undergo building works for the expansion.

International Conferences and Workshops

SWIMS hosted, or was co-host or organizer, of a variety of conferences and workshops. Many were small-scale training workshops aimed at capacity building within the region and held at SWIMS, whereas the larger international meetings were held at HKU campus or sometimes at other institutions (e.g. the IIIrd XMAS Symposium on Marine Environmental Sciences, at Xiamen University, with SWIMS as a co-sponsor).

1st Singapore-Hong Kong Hard Shore Ecology Workshop

This first workshop was jointly hosted in November between SWIMS and Dr Peter Todd's group (National University of Singapore) and involved over 20 scientists, including a guest talk by Prof Yunwei Dong (Xiamen Univerity). It is planned that this exchange will become a regular event as part of a research programme between these two groups. After the workshop Ms Shelley Chan stayed to work with Gray's group to learn techniques to monitor thermal stress in intertidal invertebrates.

Ecological Modelling and Marine Mammal Training Workshops

Leszek continued his series of interdisciplinary training workshops and organised two exciting events that were attended by researchers and students from across the SE Asian region and beyond. The first was the 9th South-East Asian Training Workshop in Marine Mammal Research Techniques: Quantitative Socio-Behavioural Analyses using SOCPROG (5-10 January 2017), conducted with Dr. Shannon Gowans (Eckerd College, Florida, USA). This 6-day workshop was followed by a 3-day Analytical Training Colloquium (13-15 January) focused on Large Socio-Behavioural Datasets, coordinated jointly by both Shannon Gowans and Leszek, using data from Hong Kong, Mainland China, Philippines, Japan, Taiwan and South Africa.

Participants of the SOCPROG workshop

Next was the 1st Regional Training Workshop in Computational Behavioural Ecology: Quantitative Ecology and Population Modelling using the NOVA Computational Platform (1-5 May 2017), conducted with Prof. Wayne Getz (University of California, Berkeley) and Prof. Richard Salter (Oberlin College, Ohio, USA). Apart from our HKU students, participants also included researchers and students from Chinese University of Hong Kong, HK Baptist University, Sun Yat-sen University in PR China and other countries such as Japan, Taiwan, Philippines, Thailand, Malaysia, Columbia, South Africa, and the USA.

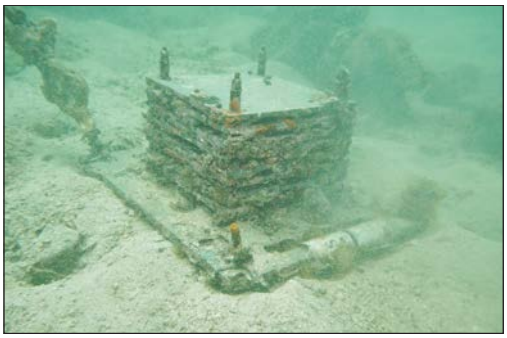
Prof Salter discusses the concept of ecological modelling during the NOVA ecological modelling workshop

Training Workshop for Sustainable, Safe and Clean Oyster Farming in Hong Kong

Rajan organized a "Shellfish Safety Training Worskhop" from 12-13 June 2017, in close collaboration with HKU's Engineering Faculty (Prof Tong Zhang). Over 50 participants, including students of HKU, officers from AFCD, and oyster growers from Lau Fu Shan, took part in the workshop which explained the water quality in Hong Kong's oyster aquaculture zone and the international standards for oyster food safety.

Participants learning the bacterial testing procedures which they can apply to local oysters

We also organized a lecture forum in this workshop, bringing together experts to discuss the current status of water quality and bacterial contamination and the future of Hong Kong's tasty white meat oyster. The workshop also presented new ideas for sustainable and commercially viable oyster aquaculture in Deep Bay. As a result, decision makers, researchers and the general public were able to sit together and discuss the opportunities, challenges and options for sustainable and safe oyster culture.



ARMS settlement structure deployed in Tung Ping Chau for 2 years, which can house >200 mobile species

Taihun desmonstrating ARMS platephotography

MarineGEO-Hong Kong: Towards an Understanding of Marine Biodiversity and Ecosystem Function - Autonomous Reef Monitoring Structure (ARMS) Retrieval

International biodiversity experts Dr Gustav Paulay (Florida Museum of Natural History), Ms Jenna Moore (University of Florida), and Dr Laetitia Plaisance (Smithsonian Institution) joined with a team from SWIMS and School of Biological Sciences for an intensive, 10-day marine life survey through some of Hong Kong's most disturbed and pristine marine environments. From the heavily impacted inner Tolo Harbour to the more isolated, coral rich Tung Ping Chau, we identified over a thousand specimens of fish, crabs, snails, bivalves and worms representing 200 species from 15 Phyla. The team worked to collect representatives of each species and document them through museum vouchers, high resolution photography, and genetic characterization, or barcoding.

In addition to identifying all of these organisms, SWIMS scientists will use the latest technologies in genetic identification to detect organisms that are too small to be recognized by the naked eye. As well as providing a baseline biodiversity assessment, through time, this legacy project will allow scientists and governments to better evaluate human impacts on the marine environment and which interventions are most efficient at preserving biodiversity.

To find out more and keep track of ongoing projects, visit the website at https://marinegeo.si.edu/hong-kong-china.

Yvonne awarding the SCRFA student award at the Gulf and Caribbean Fisheries Institute meeting in Mexico

70th Annual Gulf and Caribbean Fisheries Institute - Reef Fisheries and Spawning Aggregations

The mini-symposium 'Reef Fisheries and Spawning Aggregations' was co-sponsored by Science and Conservation of Fish Aggregations led by Yvonne (www.SCRFA.org) and the Gulf and Caribbean Fisheries Institute. There were seven speakers focusing on management, ecology, stock assessment, climate change and conservation aspects, including the use of novel technologies for measuring sound production on aggregations in relation to snapper and grouper reef fish spawning aggregations across the Caribbean and tropical Western Atlantic. One of the speakers was a SCRFA Award winner and other speakers came from the USA, Bermuda, Belize and Puerto Rico.

Workshop to Improve Scientific Writing

With the rapid growth in SWIMS' researchers, we have increased our focus on the quality of the papers we publish. To help develop this, we were lucky enough to host Dr Zoe Doubleday and Prof Sean Connell (University of Adelaide, Australia) to run a writing workshop to share methods to write papers to communicate more effectively with scientists and the broader community. Sean and Zoe challenged us with hands-on and fun methods to publish our papers in top journals; techniques which have already been taken up by our students!

Zoe and Sean giving feedback on evolving student papers

The 9th UCAS Postgraduate Symposium: Understanding the Aquatic Environment from a Multidisciplinary Perspective: What Can Young Scientists Do?

The annual UCAS Postgraduate Symposium has returned to Hong Kong after two successful symposia in Xiamen and Taiwan in 2015 and 2016, respectively. The symposium engaged over 50 postgraduate students and academic staff members from five universities within the Greater China Region, including the University of Hong Kong (HKU), the Hong Kong University of Science and Technology (HKUST), Xiamen University (XMU), National Taiwan Ocean University (NTOU), and National Sun Yat-sen University (NSYSU).

With the goal to promote knowledge exchange among students, and between students and staff members, the 9th UCAS symposium was scheduled with a series of academic and socializing activities. Three insightful keynote presentations on multi-stress studies, fish biology, and biogeochemistry, as well as a special presentation on heavy-metal toxicology, were delivered by staff members from HKU, NTOU, XMU, and NSYSU, respectively. Student participants also shared their research on different disciplines of aquatic sciences, ranging from biology to social environmental issues. Moreover, for the first time in UCAS symposium, we incorporated a series of workshops so as to equip young scientists with essential skills in performing data analyses, career planning, and science communication. Apart from academic activities, two concurrent eco-tours were arranged for participants to either enjoy the beauty of nature along the famous Dragon's Back hiking trail, or learn about the biodiversity of mangroves and rocky shores at Tai Tam.

The symposium was well-received with overwhelmingly positive feedback from the participants. The next symposium will be the 10th anniversary UCAS meeting at Xiamen - please visit our Facebook for news and updates!

Ecotour at Tai Tam mangrove

Statistics workshop held during the 9th UCAS symposium

Maggie & Rain worked on the Chinese White Dolphin project

Martin & Louis in Nusa Lembongan, Indonesia

Martin & Louis worked on Manta Rays in Denpasar, Indonesia

Cecilia & Vivienne at Busuanga Island, Philippines

香港海洋公園保育基金
Ocean Park Conservation Foundation Hong Kong

SWIMS and Ocean Park Conservation Foundation Hong Kong

Our undergraduate students were again very lucky to take part in the University Student Sponsorship Programme run by Ocean Park Conservation Foundation. This programme offers undergraduates the opportunity to experience, first hand, conservation projects and be involved in real conservation initiatives. Pairs of HKU students teamed with colleagues from other tertiary institutes to join a variety of exciting projects.

Rain, Chan Lok Yin and Maggie, Mang Hiu Ying joined a project to investigate the community structure, population parameters and age structure of the Chinese white dolphin population in Neilingding waters. Their work involved boat surveys, photo ID and sonar assessments in the Zhuhai and Neilingding seas with researchers based at Sun Yat-sen University.

Anson Ma Tsz Hin joined Vincent Chan Wing Sing (Baptist University) to work with the Turtle Survival Alliance on the project "Strengthening participatory turtles conservation along the Ghaghra-Sarju river system" in Terai Arc, North India. Working in two river basins they carried out population assessments of red-crowned roof and three-striped roofed turtles; provision of alternative livelihoods to minimize the damage of villagers to the river; and worked in the Kukrail Gharial and Turtle Rehabilitation centre.

Louis Lo Kai Hang and Martin Li Ming Yeung worked on a very topical project, looking at microplastics and megafauna: implications of their ingestion by threatened manta ray populations with the Marine Megafauna Foundation in Indonesia. To achieve this, the students assessed the abundance of marine debris and microplastics in manta ray feeding areas.

The final project involved Dugong conservation. In conjunction with Community Centred Conservation (C3) Philippines, Cecillia Wong Sze Wai and Vivienne Ho Yin Man conducted boat-based dugong observation surveys, seagrass and habitat assessment as well as assisted to improve dugong watching activities.

As ever, we are extremely grateful to OPCF for providing our students with such excellent opportunities, and we are sure that many will be inspired by these experiences to go into conservation related employment in the future.

Staff Research

Gray A Williams

The supposed vulnerability of high shore species to thermal stress continued to be a focus for Gray's work. Research concentrated on high shore littorinids (with colleagues in Hong Kong and overseas) and the oyster, *Isognomon* in Thailand (with Monthon Ganmanee, King Mongkuts Institute for Technology and Yunwei Dong, Xiamen University). Despite the fact that rock temperatures exceed 60°C and these species are out of water for long periods in the tropical sun; they both exhibit strong behavioural (littorinids) and physiological adaptations (both species) which are more than adequate to ensure their survival in this extreme environment; casting doubt on the paradigm that these species are likely to be early victims of climate warming.

The high shore survivors: the oyster Isognomon *and snail* Echinolittorina

Kenny Leung

In 2017, Kenny gladly received several external grants to investigate the ecological risk of retinoic acids to marine organisms (RGC GRF); study the marine biodiversity and ecology of western waters of Hong Kong (CLP Power Ltd) and expand his eco-shoreline study in Taishan, China (CEDD). Kenny luckily made a hat-trick to receive the Outstanding Research Student Supervisor award (HKU), the 19th Biwako Prize for Ecology (Ecological Society of Japan) and the SETAC Fellows Award (Society of Environmental Toxicology and Chemistry). Since December, he has been serving as a columnist in Mingpao (a local newspaper) to promote science education and environmental awareness.

Kenny Leung's column 'Theatre of Professor Ball Ball' in Mingpao

Leszek Karczmarski

Leszek's research group continued several research projects, such as the multi-year study of the population structure and connectivity of Chinese white dolphins in the Pearl River Estuary (PRE), including the first-ever quantitative assessment of the demographic structure and socio-dynamics of the dolphins in the far-western PRE; soundscape and acoustic ecology of Hong Kong cetaceans; sympatric ecology of island-associated delphinids in the Philippines; and comparative socio-ecological study of African elephants. Notable publications include the first comprehensive mark-recapture analyses of Chinese white dolphins in Hong Kong waters, population and habitat viability analysis of the PRE dolphin population, long-term anthropogenic impacts on dolphin habitats off Taiwan, and global phylogeography of the finless porpoise.

Leszek in discussion with undergraduate students during a field course in South Africa

Kanmani and Michele working on oyster culture under OA at the hatchery in Zhanjiang, China

V. ThiyagaRajan

Over 85% of the world's oysters are produced in China using natural seed. This natural shellfish resource, however, is under unprecedented threat due to the impacts of multiple stressors from global environmental changes such as ocean acidification and warming. After establishing the underlying molecular mechanisms over the past five years, in 2017, Rajan's group observed an intensified "summer oyster mortality" in the region, especially when increasing summer temperature effects are exacerbated by acidification. Now, we are using epigenetics in conjunction with physiological and transcriptomics data to identify inheritable molecular traits that are critical for oysters to survive in future oceans with microbial contaminants, acidification and warming.

Large volumes of poor quality feed fish before being sorted for mariculture zones. Mainland China

Yvonne Sadovy

A recently completed study on trawl catches in the East and South China Seas, led by Yvonne and funded by the Swire Group and ADM Capital Foundation determined that about 50% of the catch is used to supply feed to the domestic mariculture sector. Trawlers are a major fishing gear so a significant proportion of domestic catch goes to feed fish rather than humans. Commonly cultured marine fish include higher value groupers and croakers. Given poor feed conversion rates from fish feed to farmed fish, and the contribution of this feed fishery to declines in coastal fisheries, there is a need to manage these activities to ensure food equity and ecosystem health into the future.

Moriaki with bioDISCOVERY members at Zurich

Moriaki Yasuhara

Moriaki continues his research on paleoecology, macroecology, and biogeography. He published his new results on the Cenozoic western Pacific biogeography in *Journal of Biogeography* as well as a comprehensive review paper on the paleoecology-macroecology integration in *Biological Reviews*. Three PhD students: Circle, Ruby, and Anna published their research results in Marine *Micropaleontology*, *Paleobiology*, and *Deep-Sea Research I*. Moriaki was elected as the chair of the International Research Group on Ostracoda (IRGO) and PhD student Anna obtained the Sylvester Bradley Award in the 18th International Symposium on Ostracoda at UC Santa Barbara. Briony, a postdoc fellow in Moriaki's Lab, co-organized the Indo-Pacific paleoclimatology session in the American Geophysical Union Fall Meeting.

David Baker

2017 was a busy year for the Baker lab. Martin Wong finished his MPhil, winning the HKU Outstanding Postgraduate Research Award in the process. We welcomed new staff, including Dr. Till Rothig who joins the MarineGEO-Hong Kong team. That project is fully underway with a major ARMS sampling in October, which brought together friends from the Smithsonian, The Florida Natural History Museum, and KIOST. We undertook two major contract research projects involving coral and gorgonian restoration, and were awarded a major grant from ECF and OPCFHK.

David and Inga share a moment with visiting Profs Mary Alice Coffroth and Howie Lasker (U Buffalo)

Stefano Cannicci

It was definitely an important year for Stefano's Mangrove Lab. The team grew, welcoming Dr Aline F Quadros (Brazil, SRA), Yu -Ying Luo (MPhil) and Christine LY Cheng (RA), and continued the study of the role of crabs within the impacted mangrove systems of Hong Kong and South East Asia. We were also awarded an ECF Project aimed at surveying and assessing the ecological status of Hong Kong mangrove forests. On top of this, we had our 'fifteen minutes of fame' when we discovered a new species for science, a mangrove tree climbing crab endemic to Hong Kong, which was named and published as *Haberma tingkok*.

Stefano searching for crabs in mangroves

Bayden Russell

This year saw more expansion of Bayden's Marine Futures Laboratory. In addition to ongoing PhD projects, Natasha Mundell (exchange from Plymouth University) ran a summer project on temperature tolerance of subtidal gastropods, Sally Lau identified the seasonal recruitment and survival of HK oysters in collaboration with The Nature Conservancy, and Bayden extended his ocean acidification research at CO_2 seeps in Japan with collaborators from the Shimoda Marine Research Institute. Finally, the group extended its physiology research into the intertidal with the addition of Kevin Geoghegan, who started his PhD on the thermal physiology of intertidal crabs.

Bayden and Gray discussing research with Prof Chen at the National Sun Yat-Sen University, Taiwan

Benoit speaking about the nitrogen cycle in the Arctic ocean, Xiamen, China

Benoit Thibodeau

This year Benoit welcomed John Doherty to his team, who started a PhD on the paleoceanography of the past warm period of Earth's history, to develop reasonable near-future climate scenarios. There were major publications; specifically an agenda-setting paper on the impact (or lack of) of freshwater discharge near sites of deepwater formation in the polar North Atlantic and an article stressing the need to include organic nitrogen in the Arctic nutrient budget. Benoit also chaired a session on past oceanic circulation at the Ocean Science Meeting in Portland and presented his results at the Aquatic Science Meeting in Honolulu and at the Goldschmidt in Paris.

Christelle at a sharing session about plastic pollution with HK Institute of Chartered Secretaries

Christelle Not

Christelle continues her work on reconstructing paleoclimate and more particularly on temperature reconstruction using Mg/Ca ratio in ostracodes and particle fluxes reconstruction using U-Th -Pa isotopes. In addition, this year Christelle extended her research on microplastics. Her group is working on investigating the quantity and the type of microplastics in Hong Kong surface waters, fish and coastal areas and her work on microplastics was covered by the HKU Bulletin in September.

Post Doctoral Fellows

Kevin presenting an overview of Phase 1 of the "Ting Kok+" project

Kevin Ho

Kevin continues to manage the multi-institutional "Ting Kok+" project which assesses the ecology and biodiversity of Tolo Harbour and Channel. This project has entered into Phase 2. Until now, Kevin and his team have discovered around 1,000 species in the coastal Tolo area, and recorded the spatial and temporal changes of species abundance and distribution. This year, Kevin also delivered a number of seminars to engage environmentalists, government officials and the general public. Upon finishing this project in 2018, Kevin hopes to consolidate the results into important publications which can benefit marine biodiversity studies in Hong Kong.

Briony Mamo

Briony continued her work investigating Hong Kong's benthic ecosystems using microfossils, finding their increasing sensitivity and variability to Hong Kong's dynamic ecosystems of great interest. Her collaborations with the Integrated Ocean Discovery Program have taken her to Germany for invited talks and workshops investigating past marine settings based on microfossil assemblages, their associated biotopes and how sediment transport within submarine canyons obscures biostratigraphic signatures. In October, Briony welcomed her colleague Dr Marissa Betts to give a seminar and in December she convened a session at the American Geophysical Union meeting in New Orleans.

Briony speaking at Robert Black College as part of their evening seminar series

Guang-Jie Zhou

In August 2017, there was a serious accidental spill of palm stearin in Pearl River Delta due to a collision between a chemical tanker and a container ship; over 100 tonnes of palm stearin reached the south coasts of various islands in Hong Kong. To study the ecological impact of palm stearin, Zhou Guang-Jie has been examining the concentrations of palm oil in seawater, sediment and marine organisms along the coast of Hong Kong, and testing its toxicity to microalgae, copepods and fish. The results will provide evidence for informed decision-making in management of similar palm oil pollution incidents.

Zhou working on copepod toxicity experiments

Juan Carlos Astudillo

Juan Carlos' research focuses on assessing the marine biodiversity and ecology of Tolo Harbour and the ecology of invasive marine species in Hong Kong. Currently, JC is working on rocky intertidal communities to determine the biodiversity of Tolo Harbour, a highly human disturbed environment, and to understand the spatial and seasonal changes in biodiversity. His research also extends determining the distribution and abundance of invasive species on natural and artificial habitats. He found that invasive species benefit from environments under human disturbance, whereas their abundance responds to seasonality accordingly to their original distribution ranges.

JC enjoying his field work in Tai Tam

Shelby and Chloe building ARMS biodiversity samplers for deployment across Hong Kong

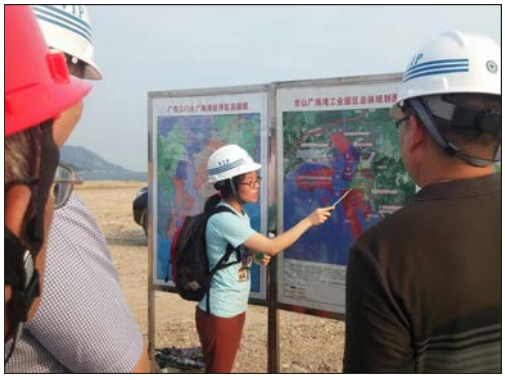
Shelby McIlroy

This year, Shelby helped to launch MarineGEO-Hong Kong, a global initiative to quantify coastal marine biodiversity. She helped to lead an international team in retrieving the first settlement plates across the Tolo Harbour area to assess species diversity, from microbes to invertebrates to fish, with genetics and traditional taxonomy. Meanwhile, Shelby also continued her research on the coral-algal symbiosis including a collaboration with the University of California, Santa Barbara, which brought her student Jane Wong to Mo'orea, French Polynesia, to look at how eutrophication affects coral health. Shelby is also an active member of the HKU Women in Science group.

Edward doing monitoring surveys for the WHP on a rainy day

Edward Lau

Edward's research aims to develop measures for enhancing biodiversity and ecosystem function on artificial seawalls. He is managing an eco-shoreline project in Taishan, China, and the World Harbour Project (WHP). The Taishan project is the first of its kind in China, which serves as a trial for subsequent eco-shoreline implementation in other parts of China as a mitigation measure for coastal development. The WHP is an international project being conducted over four continents to develop ecologically friendly structures on vertical artificial seawalls. Preliminary results of the WHP are highly positive and the project is expected to be completed by early 2018.



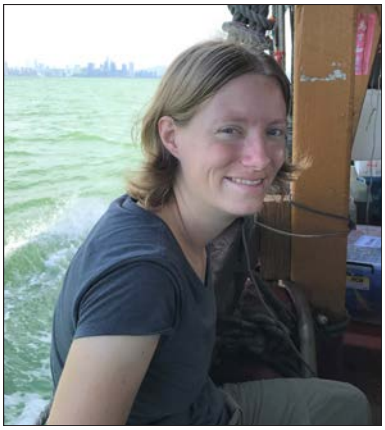
Mana introduces the eco-shoreline designs to government officials of Taishan and Beijing

Mana Yung

In 2017, Mana published her research on ecotoxicity of zinc oxide nanoparticles as two articles in *Scientific Reports* which were also featured in the SCMP. She helped manage consultancy project studying the marine biodiversity and ecology in western waters of Hong Kong through a comprehensive monthly survey programme. Concurrently, Mana also worked on a pilot trial of various eco-shoreline designs (e.g. mangrove plantation, oyster baskets and tidal pools) at Taishan in Mainland China which was supported by the Civil Engineering and Development Department. It has been a productive year for Mana who is going to have her second baby.

Naomi Geeraert

Naomi joined SWIMS in May 2017 to work on the OCEAN-HK project. This project investigates the formation of hypoxic zones in the Pearl River Estuary and the waters around Hong Kong. Naomi is using stable nitrogen isotopes to detect the origin and dynamics of the nitrate in the sea water. In the summer of 2017, she joined a cruise to collect water samples at 60 sites around Hong Kong. Afterwards she went to Xiamen University for the analysis of the samples and is looking forward to the arrival of the new mass spectrometer so that next year's samples can be measured in-house.



Naomi cruising on the boat to the next sampling site

Sam Crickenberger

Sam's research interests focus on studying the distribution and abundance of marine invertebrates at both large and small spatial scales. At large spatial scales, Sam has studied local adaptation of marine invertebrate larvae, distributional limits of invasive species, and how climate change has driven shifts in the distribution of species over the past century. At SWIMS, Sam is studying how sexual selection and behaviour may interact to affect the susceptibility of rocky intertidal snails to climate change over spatial scales as fine as a few meters. Sam has also begun to study how climate shapes physiological performance with collaborators at the National University of Singapore.

Sam showing his son Luca around some field sites in Hong Kong

Aline Quadros

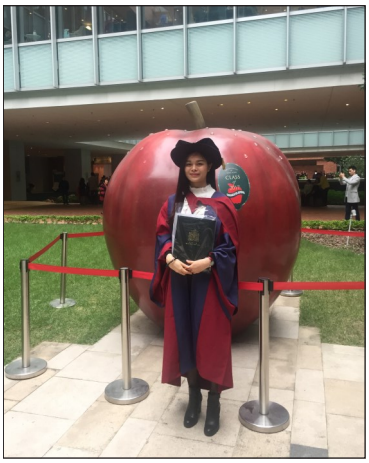
Aline joined SWIMS in July to coordinate a project to inventory the diversity of crabs, gastropods, insects, and vegetation of the mangroves of Hong Kong. A few representatives of each species are being incorporated into SWIMS' scientific collection and used to create a DNA bank of the marine fauna of mangroves. She recently published an open-access dataset compiling more than 2300 records of traits of mangrove vegetation, which will hopefully will be used to improve our understanding of their functional diversity. Aline is also interested in the functional ecology of crabs and how they contribute to nutrient cycling in mangroves.

Aline undertaking research at the mangrove sites

Simon presenting his research at the 22nd Biennial Conference on the Biology of Marine Mammals

Simon Wong

Simon Wong has completed his PhD study of anthropogenic impacts affecting Chinese white dolphins in Hong Kong. He quantified dolphins' behavioural responses to long-term and large -scale environmental change and short-term but frequent behavioural disturbance. The outcomes of his work are not optimistic and the conservation actions currently in place in Hong Kong appear ineffective in protecting the dolphins from man-made threats and will not preserve their habitat in the long-term. There are likely serious consequences of the current state of the environment, and the need for science-based and habitat-oriented conservation strategies is more urgent than ever before.



Yuanyuan at the 198th Congregation, at The University of Hong Kong

Yuanyuan Hong

Hong Kong shallow-marine ostracods include many species widely distributed in Asian coastal regions. Yuanyuan's study presented a statistical evaluation of the autoecology of common species in Asia, and thus, provides important baseline for ostracod-based shallow-marine paleoenvironmental reconstructions in Asia. Also, her studies revealed the ecological degradation of the marine system in Hong Kong in recent decades by comparing the differences in "live-dead" ostracod assemblages and discussed the main environmental stressors that drive such assemblage changes.

Calton sampling 'trash fish' at a landing site in Hainan, China

Calton Law

Full utilisation of low-value catches from bottom trawlers, sometimes inappropriately referred to as 'trash fish', is common in China, Malaysia, Thailand and Vietnam to generate revenue by supplying fish feed to aquaculture and raw materials for seafood products. Calton participated in a collaborative project to describe the utilisation of trawl catches and the implications of the fisheries for ecosystems and food supply, through interviews (in China and Vietnam), literature review and field sampling. Results showed that 'trash fish' occupy more than half of the catches in bottom trawls and involve over a hundred species. Variability between countries was found due to other factors such as freshness and local culture. Recommendations for future steps were made and key data gaps identified.

Ginger Ko

This is a special year for Ginger, as she successfully defended her PhD thesis and graduated from the "oyster" laboratory of SWIMS. Thanks SWIMS! Ginger is excited to continue her career in oyster aquaculture where she is focusing on seafood safety issues in Hong Kong, especially microbial contamination of oysters. She has provided hands-on training for Hong Kong oyster growers to monitor bacterial contamination in their aquaculture area and products by themselves. The "Shellfish Safety Training Workshop" gave her confidence that she can transfer knowledge to local oyster growers and, with this solid training, Ginger is now ready to better serve the oyster aquaculture industry.

Ginger providing a seafood safety workshop to local oyster growers, AFCD officers and HKU students

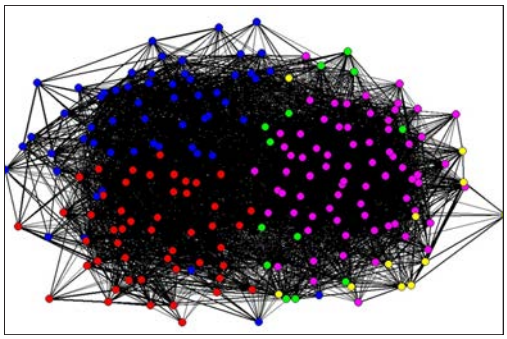
Till Röthig

Till joined Dr Baker's lab in November 2017. His work will focus on coral reef biodiversity and is integrated in the MarineGEO – Hong Kong team. With a strong background in microbiome research, Till will contribute to the molecular analysis including metabarcoding and metagenomics sequencing. He is further interested in coral functioning and resilience to anthropogenic and environmental stress. For this work Hong Kong provides particularly interesting habitats with pronounced gradients in general water quality, in particular salinity and nitrogen levels.

Till doing fieldwork in his favourite 'office'

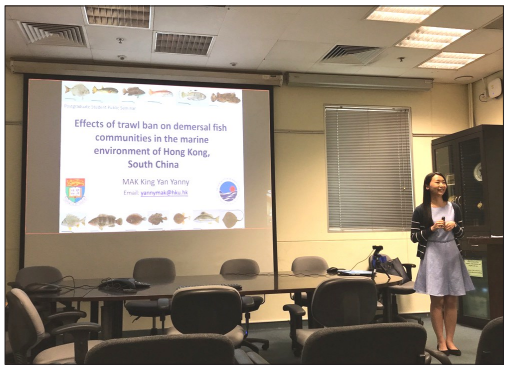
Carmen Or

Carmen Or has completed her PhD research which assessed the area utilisation pattern and social dynamics of Chinese white dolphins in Hong Kong and the eastern Pearl River Estuary. Her study revealed that the dolphins form multiple, closely interacting social clusters that have different core areas but overlapping ranges. She also found that socio-spatial dynamics of dolphins in Hong Kong waters have been affected by the construction of the Hong Kong–Zhuhai–Macau Bridge and fisheries practices such as the introduction of the ban on trawling. With the application of spatial modelling, she identified dolphins' core areas and used these findings to propose a Marine Protected Area based on the behavioural ecology of the dolphins.



Network diagram of social dynamics of Chinese white dolphins seen in Hong Kong waters

Postgraduate Research



Yanny presenting her findings in a school public seminar

Effects of the trawl ban on demersal fish communities in Hong Kong

Yanny Mak has been investigating if the trawl ban implemented in Hong Kong on 31 December 2012 can facilitate recovery of local demersal fish communities. After three years of the ban, initial signs of recovery were only detected in eastern and western waters (closer to the Pearl River estuary). Other anthropogenic impacts, including illegal trawling, expansion of non-trawling fishing efforts, and land reclamation may account for the lack of obvious short-term recovery in the other communities, or recovery requires a longer period to establish. This study provided essential baseline information for assisting fisheries management in Hong Kong and the South China Sea.

Dr. Anna Beate Jöst after successfully defending her thesis

Recent and Quaternary deep-sea Ostracoda from the subpolar North Atlantic: paleoecological and paleoceanographical applications

Anna Jöst successfully finished her PhD degree this year. Her thesis presents the first findings on the in-sediment depth range of ostracods in deep-sea environments, revealing them to be either epifauna or shallow (0.5-2 cm) and very shallow (0-1 cm) infauna. Statistical regression models were applied to evaluate environmental parameters in their potential to control observed faunistic patterns in the deep sea. Anna's thesis also provides a detailed ostracod taxonomy, which established an essential baseline for detecting faunal change in the future.

Tommy investigating the sand-bubbler crab distribution in Shui Hau

Behavioural ecology of the sand-bubbler crab *Scopimera intermedia* in Hong Kong

Tommy Hui has been investigating the behavioural ecology of the sand-bubbler crab *Scopimera intermedia* for the past few years. He discovered that the crab employ a suite of thermoregulatory behaviours to survive on thermally challenging high shore sediments. By analysing behaviours of the crab in their natural habitats, Tommy found that the crab waves after sponging (taking up water from sediments) more than expected if these behaviours were random events. Tommy postulates a multifunctional role of waving in thermoregulation, in addition to the usual function of courtship commonly seen in deposit-feeding crabs.

Demography and connectivity of Indo-Pacific humpback dolphins in the Pearl River Estuary

It was a productive year for Stephen Chan's research on the demographic ecology of Indo-Pacific humpback dolphins in the Pearl River Estuary (PRE). He quantified the demographic structure, socio-dynamics and connectivity of humpback dolphins in the far-western PRE; a first such study in that region. He is currently testing the application of meta-population theorem across the entire PRE. Stephen has published results of his mark-recapture study of Hong Kong dolphins in *PLoS ONE*, and co-authored a population and habitat viability analysis of the PRE dolphin population in *Scientific Reports*. He was awarded the *Best Doctoral Poster Presentation* in a premier international marine mammal conference in Halifax, Canada.

Stephen presenting his poster at the 22nd Biennial Conference on the Biology of Marine Mammals

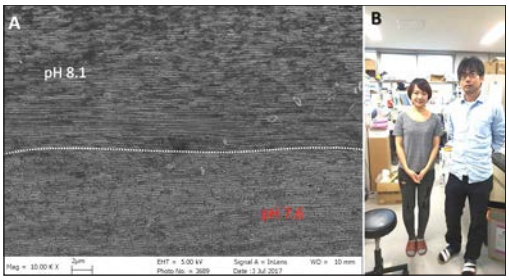
Effects of trawling ban on crustacean communities

As part of the CRF project led by Kenny Leung, Lily Tao has been investigating whether the diversity, size-based metrics and mean trophic level of marine benthic crustaceans will gradually increase after the trawling ban. She found that the effects of the trawl-ban on the crustacean community were site-specific. Initial signs of recovery of benthic crustacean communities were only observed in eastern and western waters only three years after the trawl-ban. However, a deteriorating situation was recorded in southern waters around Lamma Island. This study established a baseline for studying the long-term effectiveness of the trawl-ban as a management intervention.

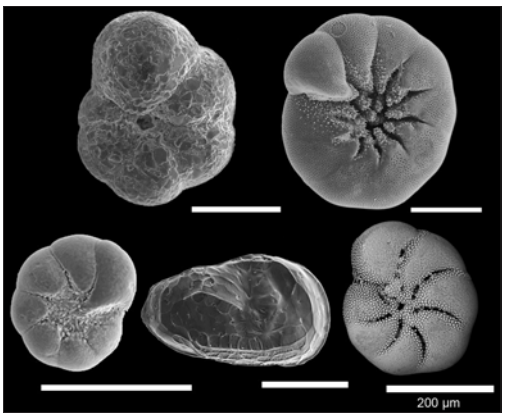
Lily giving a public seminar on her project

Mineralization processes in Pacific oysters is resilient to ocean acidification

Aquaculture production of oysters in China accounts for more than 85% of the world edible oyster production. Therefore, Yuan Meng has been comparing the vulnerability to ocean acidification of the three most commercially productive species of oysters in China using a variety of mechanical and structural engineering tools. Her target is the end-product of the mineralization process, the calcareous shell, its structure and mechanics. Among the three species, the globally important aquaculture species, the Pacific oyster, appears to be more resilient to near-future levels of ocean acidification.



(A) Interface of shell microstructure of C. gigas *shells under ambient and low pH condition. (B) Yuan at BIOMINXIV in Japan with Dr Michio Suzuki, Tokyo University*



Scanning Electron Microscopy images of key foraminieral and ostracode species

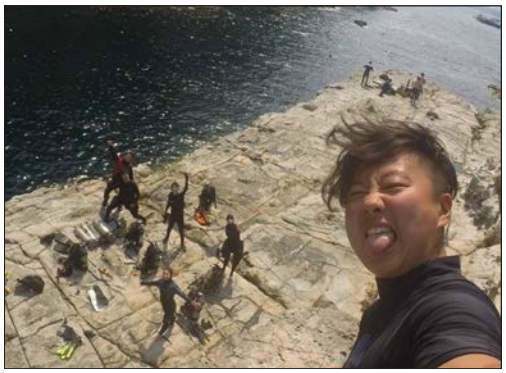
East Asian Summer Monsoon variability over the past millennium from Korean brackish lake sediments

Richard Cheung investigated decadal to centennial-scale East Asian Summer Monsoon (EASM) dynamics over the past millennium. Time-series abundance data of benthic foraminiferal and ostracode species from a Korean brackish lake shows four distinct EASM strengthening events. By comparing his proxy record with other continental and oceanic proxies, he suggests that Event 1 (1250 CE) and Event 4 (1900 CE) may be pervasive events of the Asian Monsoon system, while Event 2 (1450 CE) and Event 3 (1550 CE) seem restricted to oceanic locations. Hence, oceanic/continental setting is important in understanding spatial EASM dynamics over the last millennium.

Phil diving in Guam

Physiological responses of symbiosis to seasonality in five species of coral in Hong Kong

When corals become exposed to extreme fluctuations in temperature, high light, sedimentation, and nutrient pollution they bleach and eventually die. Curiously, the corals that exist in Hong Kong challenge this established paradigm. Hong Kong's marine environment experiences significant annual temperature variation (14-30° C), high turbidity, estuarine sedimentation, and unprecedented nutrient pollution, yet more coral species have persisted in Hong Kong than are currently present in the Caribbean and Red Sea. For over a year Phil Thompson monitored photochemistry, productivity, and energy storage in five coral species within mesocosms at SWIMS to learn how coral physiology responds to environmental stressors such as seasonal temperature and light variation.



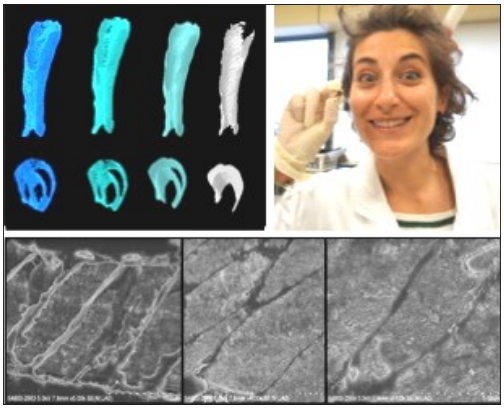
Jane undertaking field work at Jeju Island, Korea

Functional diversity of resource acquisition traits between *Symbiodinium*

Shifting of symbionts has been observed on rare occasions, in which hosting the 'right' symbiont has promoted performance and survival of the host, yet little is known of the mechanism that regulates the association between the two partners. The 'host as a habitat' theory for corals, serves as a foundation for explaining changes in symbiont communities via succession over time through resource competition. Jane has characterized nutrient acquisition strategies of different genotypes of cultured *Symbiodinium*, in order to capture trade-offs with fitness between growth and resource acquisition abilities and has shown they express differences in nitrogen and light acquisition, suggesting relative abundances could be shaped by their competitiveness to colonize and dominate intracellular niches.

Will ocean acidification affect the defence strategy of *Saccostrea cucullata*?

Camilla Campanati used lab-simulated- acidified intertidal conditions to explore the indirect effect of a predator-prey association. The physiology and putative defense structures (i.e. spines) were investigated in the prey, the oyster *Saccostrea cucullata*, under the presence or absence of its predator, *Reishia clavigera*. The whelks maintained their feeding activity, metabolism and shell density under acidification. The oyster physiological responses were stage-specific, with only the juveniles increasing their metabolism under acidification and in the presence of the predators. MicroCT analyses revealed a stratified mineral density of the oyster spines, suggesting overall strong protection against acidification-driven dissolution.



Camilla investigates Saccostrea cucullata *spine density through micro-CT (left) and ultrastructure SEM (bottom)*

Characterizing reproduction and survival of the Pacific oyster under global warming

Significant summer mortality events have occurred globally in the Pacific oyster, *Crassostrea gigas*. The dynamics of such mortality events are multifactorial and result from the interaction of environmental factors, the condition of the oysters and pathogens. Alicia Tan has been investigating the functional consequences of thermal acclimation on molecular and physiological responses of *C. gigas* to thermal stress during reproduction. Alicia's results will enhance our understanding of the interactions between thermal stress and reproduction and the physiological and molecular mechanisms invoked by oysters, and provide insights into the potential acclimation of oysters to climate change, to inform effective management practices for oyster aquaculture in the future.

Alicia cutting the shell of Crassostrea gigas *to reveal growth rings*

Bioaccumulation of triphenyltin compounds in marine organisms

Ronia Sham studies the accumulation of triphenyltin (TPT) compounds in marine organisms. She has been comparing biomagnification profiles along the marine food chain between the western and southern waters of Hong Kong through quantifying TPT concentrations in sediments and biota samples. Her preliminary results indicated a concentration gradient from the more-contaminated western waters to the less-contaminated southern waters. Her forthcoming results on whether TPT can be biomagnified in higher trophic organisms will further shed light on its biomagnification potential at higher food chain levels with consideration of its lipophilicity and octanol-water partition coefficient.

Ronia (right) at the Croucher Summer School on Climate Change and Marine Ecosystems

Inga entering the water on a field excurse in Jeju, Korea

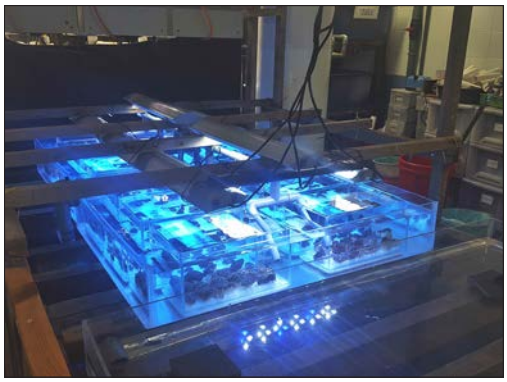
Nutrient acquisition in Hong Kong's coral communities

This year, Inga Conti-Jerpe processed samples from a stable isotope tracer experiment run in 2016, demonstrating that soft corals from Hong Kong can assimilate nitrate, something that animals are typically unable to do without microbial symbionts. To investigate these findings further, Inga ran a second experiment where samples were preserved for genetic analysis of the microbial communities associated with these corals. The results from this experiment will identify which microbes, if any, help soft corals use nitrate as a nutrient source.

Archana after deploying tea bags to measure carbon breakdown in marine sediments at Bluff Island

What does global change mean for carbon degradation in human-impacted marine sediments?

Microbial degradation of organic matter in coastal sediments is a critical ecosystem function. However, human activities can have detrimental effects on microbial community interactions and the transport and cycle of organic matter. In 2017, Archana Anand compared microbial taxonomy and function in sediments across a water quality gradient in Hong Kong. Archana used high-throughput sequencing and correlated the taxonomic and functional diversity of bacterial communities to geochemical data, as well as quantifying carbon degradation rates. Strikingly, she observed higher carbon degradation and more abundant decomposers in urbanized sites suggesting functional differences between human-impacted and other sites.



Taihun's coral pulse-chase experiment in SWIMS

Responses of coral species-specific fatty acid profiles under eutrophication

Taihun Kim is analyzing biochemical compounds, specifically fatty acid profiles, to investigate metabolic changes between corals and their associated symbionts under environmental change. Fatty acids were analyzed from four different genera (*Acropora*, *Favites*, *Platygyra* and *Turbinaria*) from sites with distinctly different water quality. His data showed varying concentrations of total lipid and fatty acid profiles due to the coral's dietary sources at the different sites. Additionally, he carried out a pulse-chase experiment targeting carbon specific compounds, to examine how much of photosynthetically fixed carbon is incorporated in fatty acids, and consistently translocated from symbionts to the coral host.

Tropical high shore species: first victims to climate warming?

Tropical high shore species live close to their upper thermal limits, and are suggested to be more vulnerable under climate warming than lower shore species. To investigate the performance of high-shore littorinids under different temperatures, Sarah Lau has been measuring the change in physiological (oxygen consumption) and behavioural (locomotor activity) performance indicators with temperature in three differently zoned snail species. From these thermal performance curves, Sarah has built an energy balance model to determine if adopting lower oxygen consumption rates at high temperatures can serve as a potential energy saving mechanism, and hence enhance survival of the higher shore species.

Sarah monitoring the diel activity of snails by performing a 24-hour survey

Biochemical and acoustic study of Hong Kong dolphins

Derek Ho's project uses teeth of Indo-Pacific humpback dolphins (*Sousa chinensis*) to study their foraging ecology and ontogenetic shifts, and the environmental nitrogenous input in the Pearl River Estuary (PRE). Results of stable isotope analyses indicate that the dolphins' weaning age is longer than previously thought, and work is currently underway to assess the regional nitrogenous input across the PRE. Derek also conducts underwater acoustic recordings to investigate spatiotemporal patterns of dolphin activity and their essential soundscape. The project is expected to collect over 30TB of acoustic data, revealing diurnal soundscape patterns, and Derek will use machine learning algorithms to map the acoustic topography of Hong Kong waters.

Derek presented his weaning age analysis at the 22nd Biennial Conference on Marine Mammals

Exploring the earth's new continent Zealandia under water

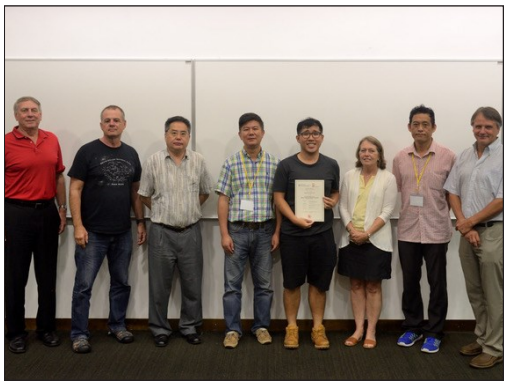
May Huang participated in the *International Ocean Discovery Program Expedition 371 Tasman Frontier Subduction Initiation and Paleogene Climate* (27 July-26 September 2017) as a micropaleontologist. During the expedition, she studied ostracods in marine sediment cores sampled from Zealandia to reconstruct the paleoenvironment. Zealandia is a submerged continent that remains mostly unexplored. Her preliminary survey during the cruise discovered exciting new evidence that improves our understanding about the paleogeography of the region. She then attended the post-cruise subsampling party in Gulf Core Repository in Texas to obtain more samples for further investigations.

May introducing the shipboard paleontology lab to college students

Racliffe presenting his findings at UCAS 2017

Ecological risk of zinc oxide nanoparticles

Zinc oxide nanoparticles (ZnO-NPs) are widely applied in various commercial products such as sunscreens and paints, and can be released into the marine environment. Consequently, marine organisms may be at potential risk of exposure to ZnO-NPs. However, their influences to marine organisms are still largely unknown. Racliffe Lai found that temperature and salinity can affect the physicochemical characteristics of ZnO-NPs, including ion dissolution, particle size and surface charge, and thus alter the toxicity of ZnO-NPs towards marine organisms such as the copepod *Tigriopus japonicus*. Racliffe has also published a comprehensive review on current regulations of manufactured nanoparticles around the world.



Jason completed the Croucher Summer Course on Climate Change and Marine Ecosystems

Mollusc communities as indicators for ecosystem recovery

Since 31 December 2012, the Hong Kong SAR Government has imposed a territory-wide trawl ban with a view to facilitating recovery of fishery resources. Jason Yau's study uses the benthic mollusc community as a bio-indicator for assessing the effectiveness of the trawl ban during early stages (within 4 years of the ban). By comparing community structure before and after the trawl ban, he observed a slight decline in the number of scavengers, but an increase in the number of predators (e.g. *Amphioctopus aegina*) and a longer food chain length. These results jointly indicate an initial sign of ecosystem recovery.

Scott attending the workshops held in January 2017

Socio-spatial ecology of African elephants

Kruger National Park in South Africa is one of the largest fence-free ecosystems; and provides valuable opportunity to study the movement ecology of long-lived and wide-ranging animals. Scott Chui is currently analysing 7 years of satellite tracking data of African elephants. He uses spatial modelling techniques to identify core habitats, parametrise their movement, and quantify environmental correlates of habitat selection. In a complementary project in Pilanesberg National Park, he investigates the socio-demography of an elephant population that has been subject to major anthropogenic behavioural trauma. As such, Scott's research contributes to comparative mammalian behavioural ecology, a leading theme of SWIM's Cetacean Ecology Lab.

Resistance of subtidal reefs to change under future conditions: the role of benthic grazers

Jay Minuti investigates whether grazing can keep pace with increased primary-production in line with current forecasts for climate change, by assessing metabolic responses of sea urchins and gastropods to ocean acidification and temperature. Jay has found that heat-waves significantly reduce mobility of urchins and elevate respiration, though individuals can recover. She has also discovered that feeding and metabolic rates are suppressed by the combined elevation of CO_2 & temperature. Preliminary data have also shown altered grazer performance in response to these conditions, posing concern for their future roles within the ecosystem. Her current work focuses on acclimation ability and long-term effects of these stressors.

Jay's sea urchin and gastropod species

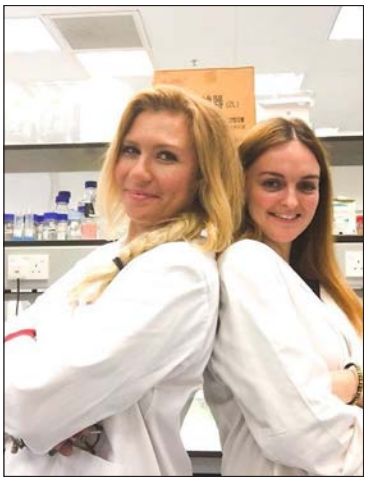
Mangrove crabs, a vital link in mangrove ecosystems

Mangroves are rarely described without crabs, which can reach high abundances within the forest and occupy a central position within the mangrove food web. This year Laura Agusto is focusing on their role within mangrove food webs using recently described stable isotope techniques to disentangle the complex food web links associated with omnivorous mangrove crabs. Preliminary results show a high degree of omnivory and support the use of the new technique. Laura will further investigate potential impacts of nitrogen pollution on the stability of mangrove food webs throughout Hong Kong. In the upcoming summer she will assess the role of burrowing crabs in salt marsh greenhouse gas release in collaboration with the Marine Biological Laboratory (MBL), University of Chicago.

Laura ankle deep in one of the beautiful mangrove forests along the west coast of Hong Kong

Ocean acidification and its effect on the nitrogen cycle within corals

Shannon Hanson is interested in the effects ocean acidification (OA) has on the nitrogen cycle, specifically in corals. To investigate this, she travelled to Japan where she conducted experiments at a natural CO_2 seep in Shikine-Jima, Japan, with researchers from the Shimoda Institute of Marine Science. Using incubation experiments and natural isotope abundance data the team found OA does affect the nitrogen cycle within corals. In the future Shannon aims to carry out metagenomic work to see if OA has an effect on the bacterial communities within the corals from Japan.



Shannon and Jay in the lab

Kanmani with lab-mates and collaborator Prof Ziniu Yu (SCSIO, Guangzhou) working at Zhanjiang

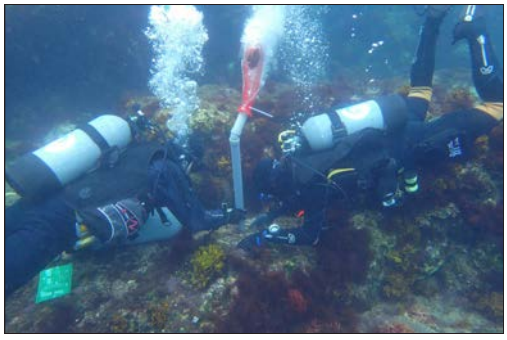
Ocean acidification weakens oyster shells by changing the organic matrix proteins?

Oyster shell microstructure is highly controlled by organic matrix proteins (OMPs) that provide the framework for biomineralisation. The shell microstructure is proven to be affected by ocean acidification (OA) and Kanmani Rajan hypothesizes that this microstructure change is due to adverse changes happening to the quality of OMPs. To answer this, she conducted a three month OA experiment in an oyster hatchery in Zhanjiang (China) using *Crassostrea hongkongensis*. There were no changes observed in the quantity of OMPs detected by Fourier Transform Infrared spectroscopy analysis. To confirm this, she will investigate the mantle transcriptome and further assess the quality of OMPs such as post translational modifications.

A large male fiddler crab (Tubuca arcuata)*, Ting Kok, Hong Kong*

Investigating the extent and variation of heavy metal pollution in Hong Kong mangroves

The loss of mangroves worldwide is associated with numerous anthropogenic activities. Hong Kong mangroves are particularly vulnerable to pollution due to the proximity of densely populated urban and coastal areas as well as contaminated freshwater input from the Pearl River Delta. Rebekah Butler is investigating the influence of heavy metal pollution on mangrove crabs, which are essential to the health of mangroves. Preliminary findings from respirometry experiments suggest polluted populations suffer thermal stress before those from pristine areas. Ongoing work will assess the extent and variation of heavy metal pollution in Hong Kong mangroves by comparing sediment, plant and animal samples from four mangroves.



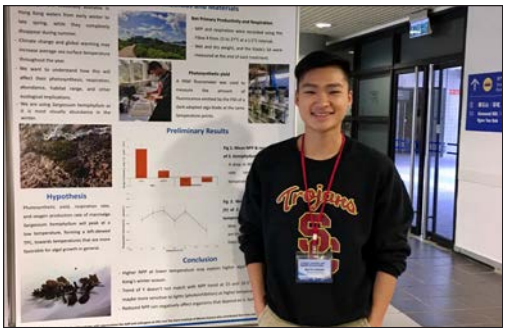
Jake and a colleague collecting algae and invertebrate samples in Japan

Maintaining subtidal ecosystem functionality and community composition through herbivory

The long-spined sea urchin (*Diadema setosum*) is one of the most abundant herbivores in Hong Kong and can have a large influence on algal community composition. Jake Dytnerski investigated if the urchins graze macroalgae discriminately and found that they consumed more *Sargassum* (the most abundant genus of algae present in Hong Kong during the winter) than other algae available in the system. Furthermore, Jake found that eating *Sargassum* resulted in the greatest growth in urchins. Next, Jake will use stable isotopes to investigate if there is a seasonal trophic shift in the urchins, resulting from a change in food availability.

Will climate change affect our underwater garden?

Energy enters the ecosystem through primary producers. In the intertidal, macroalgae serves as food source and habitat. While warm temperature has been shown to impact algal forests negatively, multiple factors (CO_2 level, light intensity) can affect them synergistically. Rhyn Cheung is interested in relating the photophysiology of *Sargassum hemiphyllum* to these climate change stressors. He also studies the microbial diversity and functions that accompany the algal detritus. In 2017, Rhyn participated in the 9th UCAS Symposium and presented at the Croucher Summer Course on climate change. He also led the SWIMS team at the AFCD Reef Check to promote coral conservation!



Rhyn presenting his research at the Croucher Summer Course at HKUST

A link to the past: the story of Hong Kong's coral assemblages through time

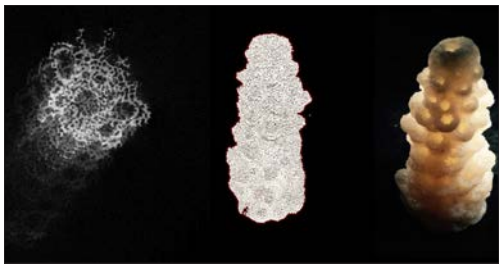
Regional anthropogenic and global climate stressors are degrading coral ecosystems worldwide. Conservation efforts can benefit from the creation of historical baselines, which illustrate the diversity and persistence of an ecosystem through time. Jonathan Cybulski's work is the first paleoecological study to investigate coral assemblages in Hong Kong. His community baseline results show that composition change, generic diversity decline, and sedimentation fluxes have shaped the story of Hong Kong's corals for the past 5000 years. Jon's work shows that there are significant shifts in coral assemblages through time, resulting in decreased rugosity and habitat structure which are likely linked to past anthropogenic stressors such as increased sedimentation and pollution. Jon is currently a Swire Scholar at Robert Black College and also won a National Geographic Young Explorer Award.

Jon preparing his samples for duel-inlet isotope analysis during IsoCamp at the University of Utah, USA

Effects of temperature on the physiology and behaviour of bioturbating crabs and the possible implications of global warming

Fiddler crabs are important intertidal organisms, changing properties of the soil through their bioturbation activities, and often, species from this group of crabs are exposed to high thermal stress in their habitats. Pedro Jimenez studies the effects of temperature on the physiology and behaviour of fiddler crabs. Data suggest that the temperature the fiddler crabs experience in their natural environment can impose a high physiological stress and can exceed their thermal limits, with those crabs having to rely on thermoregulation mechanisms to cope with the temperature. Further increases in global temperatures could have major impacts on the fiddler crabs' life traits.

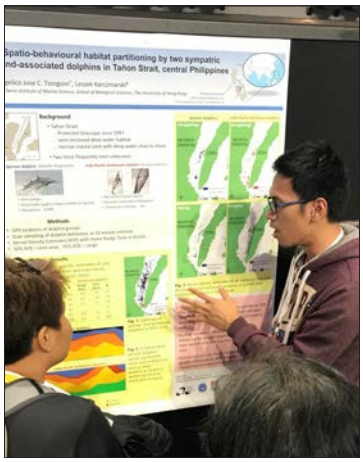
A splendid crab: Paraleptuca splendida



Design and 3D-printing process for coral skeleton (Acropora species)

Deep learning for shark species identification

Vicki Sheng is developing novel techniques for forensic analysis, including training a deep learning network to automatically identify shark species. The neural network was able to distinguish between six species with high accuracy. Current priorities are to increase sampling and create a more robust neural network, as well as further explore stable isotope methods to determine provenance. Vicki is further continuing her work on 3D-printed reefs in collaboration with HKU's Departments of Architecture and Mechanical Engineering. In 2017, Vicki was selected to attend a complexity science workshop at the Nanyang Technological University in Singapore and the Complex Systems summer program at the Santa Fe Institute in New Mexico.



Angelico presented his results at the 22nd Biennial Conference on Marine Mammals

Sympatric delphinids in a tropical protected seascape, Philippines

Angelico Tiongson has been continuing his M.Phil. study of island -associated delphinids in Tañon Strait, a semi-enclosed protected area in central Philippines. Very little is known of the ecological dynamics that shape the coexistence of multi-species cetacean communities, and even less so in the case of island-associated species. Angelico's study is the first comprehensive population ecology research in this region, and contributes to an ongoing effort by local authorities to establish a management plan for this area which has Marine Protected Status under the Philippine law. Sadly, this year's fieldwork, however, was interrupted by a violent terrorist rebellion in the southern Philippines.

Yan working on the fish raft

Pearl cultivation in Hong Kong: past, present and future

Wa-Tat Yan's PhD study has two parts. First, he investigates the history of harvesting of wild pearl oysters and pearls, and the history of their farming in the marine environment of Hong Kong. Second, he is conducting a pilot study to see how science, technology and socioeconomic analysis can help revitalization of the local pearl industry. After a year of cultivation in two local fish farms, Yan harvested a total of 52 pearls (>7mm) from grafted oysters, with a yield of about 20%. Their quality is considered to be good according to pearl experts, and Yan's preliminary results suggest that pearl farming in Hong Kong is feasible.

Predator-prey interactions in a warming and acidifying ocean

Ocean acidification (OA) and warming are two major threats to marine species and healthy ecosystem function; however, the effects of these stressors on many species is still unclear. Further, the combined effects of stressors such as OA and temperature, and their influence on animal physiology, behaviour, and their interactions, determine the ability of ecosystems to maintain function as climate change accelerates. Kevin Geoghegan will use a multi-stressor approach to test the combined effects of OA and temperature on animal physiology, behaviour and trophic interactions, using the predatory rocky shore crab *Eriphia ferox* and the mussel *Septifer virgatus* as a model system.

Kevin running crab respiration experiments

Quantifying anthropogenic marine debris in the mangroves

Anthropogenic marine debris, or rubbish, is a growing issue in marine ecosystems. Any visitor to a mangrove in Hong Kong will not be able to miss the sheer amount of rubbish there. Unlike other coastal habitats such as beaches, rubbish in the mangroves is rarely removed and is very understudied. In the coming year, Ying Luo aims to quantify the rubbish that can be found in Hong Kong mangroves, to understand the types and amounts of rubbish that can be found there and its influence on mangrove systems.

Ying with some rubbish (large styrofoam box) typical found in the mangroves

Upper-ocean structure variability in the Nordic Seas and the Atlantic meridional overturning circulation

John Doherty's project is focused on understanding changes in the Atlantic meridional overturning circulation (AMOC) during interglacial analogues of near-future climate change. John's research incorporates stable isotope analyses of planktonic foraminifera with numerical modelling in an effort to better characterize the AMOC's response to freshwater forcing in the Nordic Seas. Currently, he is working on a meta-analysis of surface water properties throughout the North Atlantic during marine isotope stage 11, 424,000 to 374,000 years ago. He has been invited to publish this work in *Frontiers in Earth Science* for a special topics issue.

John collecting benthic foraminifera samples in Guam

Katie collecting water samples in Tung Lung Chau

Ecological risk assessments of retinoic acids in urbanized coastal marine ecosystems

As main metabolites of vitamin A, retinoic acids (RAs), are critical for physiological development of vertebrates. However, teratogenic effects have been observed in amphibians, zebra fish embryos, Japanese flounder and mammals at elevated levels of RAs. RAs can be excreted from animals and also released by microalgae and cyanobacteria especially during algal blooms. Therefore, Katie Yeung aims to investigate their environmental fate and ecological impacts in the local marine environment. Toxic effects of different types of RAs on larvae of copepods, barnacles and gastropods will be determined for assessing their ecological risks.

Huang Qi and her team with Dr. Wang Ying from the Chinese Research Academy of Environmental Sciences

Diversity and functional capacity of fish gut microbiomes

Gut microbiomes can significantly affect the hosts' metabolism process, growth and reproduction. Fish gut microbiomes may be regulated by host diet and developmental stage, and water quality. Using high-throughput sequencing technology and bioinformatics analysis, Huang Qi's PhD investigates the diversity and functional capacity of gut microbiomes in marine fishes of different trophic levels and in laboratory fishes upon exposure to micropollutants such as antibiotics. In October 2017, Huang Qi received the '*2017 Annual National Excellent Undergraduate Graduation Thesis of Environmental Specialty*' from the Chinese Society for Environmental Sciences for her outstanding undergraduate research.

Juvenile humphead wrasse being sold in local seafood markets among other live reef food fishes

Twelve years later: outcomes, enforcement challenges and novel solutions for the Humphead wrasse

The Humphead (Napolean) wrasse is particularly vulnerable to unmanaged fishing pressure being large, slow-growing, long-lived and a protogynous hermaphrodite. Due to heavy demand in China and Hong Kong, this species fetches some of the highest prices in the live reef food fish trade, which involves considerable illegal, unmonitored, unregulated fishing and trade. Consequently, it was listed on the IUCN Red List (Endangered) and CITES Appendix II in 2004. Loby Hau is reviewing the effectiveness of trade management and enforcement in relation to the CITES listing and developing new solutions to assist with techniques in individual facial recognition and tissue stable isotope analysis.

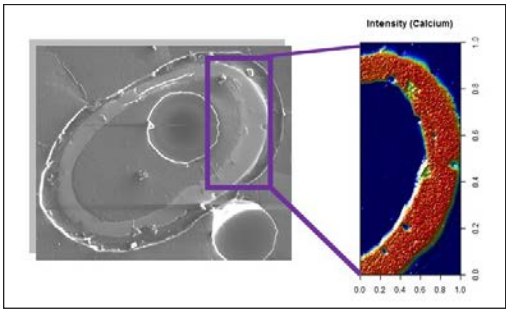
Oceanographic and climatic conditions of the Arctic Ocean during the last 400,000 years: a contribution from radiogenic isotopes

Arctic particle fluxes are highly impacted by ice conditions. Oliver Xu's study aims to reconstruct the particle fluxes with $^{231}Pa/^{230}Th$ ratio in the Arctic Ocean over the last 400,000 years and its implication for the presence of sea ice cover and the ice shelf. Both ^{230}Th and ^{231}Pa are particle-reactive radionuclides produced uniformly in seawater at a constant initial $^{231}Pa/^{230}Th$ ratio of 0.093. The differential oceanic residence times of ^{231}Pa and ^{230}Th strongly impact the $^{231}Pa/^{230}Th$ deposition ratio on a basin-wide scale. By analysing ^{230}Th and ^{231}Pa in Arctic sediments, it should be possible to gain knowledge of Arctic oceanographic and climatic changes.

Oliver running samples on the MC-ICPMS to measure U-Th isotopes

Ostracod chemistry as a tool to estimate ocean parameters

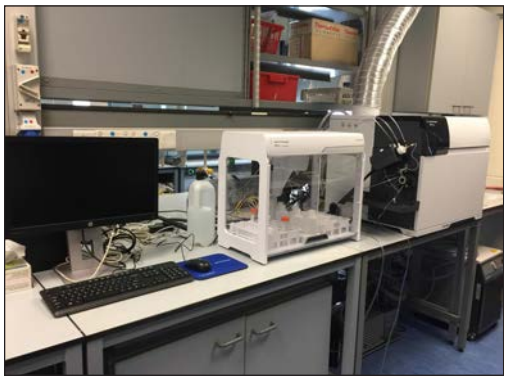
Marine shells have been used in the last decades to reconstruct the marine environment of different locations. An ostracod is a micro -crustacean that calcifies it's shell, which can be used to study the past conditions of oceans. However, it is not well understood how the chemistry of ostracod shells relates with the ocean. In this project, Max Rodriguez is measuring the shell chemistry of shallow marine species to better understand its link with ocean parameters, such as temperature and oxygen. The result of this study will help to develop more precise paleoenvironmental reconstructions.



Calcium distribution map of an ostracod shell through EPMA (Electron Probe Micro Analyzer)

Reconstruction of bottom water temperature in the deep Canadian Basin of Arctic Ocean over the last 100,000 years using Mg/Ca ratio of ostracod shells

The Arctic Ocean is impacted today by climate change as observed by the decline of sea ice and increase in surface seawater temperature. However, the variability of these changes in the past is still unclear at high latitudes. It is, thus, important to acquire a more comprehensive understanding of oceanic parameters (i.e. deep ocean temperature) in the Arctic Ocean. Hilary Man's research aims to reconstruct bottom water temperatures in the Canadian Basin of the Arctic Ocean for the past 100,000 years by using the Mg/Ca ratio of ostracod shells. Tracing back bottom water temperature and its impact on ocean stratification will help us to understand the sensitivity of the Arctic Ocean to future climate variability.



ICP-MS used for trace element measurement in ostracods

Christelle with members of thee HKU Ditch Disposable Campaign and the plastics collected at Lap Sap Wan

JC demonstrating biodiversity survey methodologies to school teachers in Tai Tam

Students from four universities on the South African Nearshore Ecology field course

Community Outreach

Due to the disruption associated with moving SWIMS facilities and researchers back to campus we were unable to be as actively engaged in hosting outreach activities this year. As a result, SWIMS hosted fewer school groups and NGOs / professional groups. To address these issues SWIMS staff and students visited schools to give talks and seminars, as well as invited talks (e.g. at Café Scientifique, Rotary Club). We were able to continue some visits, such as the Swire Management traineees; and welcome new groups such as the HK Institute of Planners. One initiative led by Christelle involved the HKU Ditch Disposable campaign which involved a very ambitious beach clean up at Lap Sap Wan!

The results of the Tingkok+ project to identify the biodiversity of Tolo Harbour and Channel were shared at numerous events such as AFCD's Hong Kong Marine Biodiversity Roving Exhibition by Dr Kevin Ho, keeping various groups such as the Tai Po District Council up to date on developments on this mega-project which involves 24 PIs from six Hong Kong tertiary institutes. As part of this project a series of small scale biodiversity survey training workshops were held to share best practice methodologies with local undergraduate students and NGOs.

SWIMS staff and students were also regularly approached for expert comments in the local and international media. Perhaps most exciting of these was the public interest in the discovery of a new species to science, a mangrove-tree climbing crab named *Haberma tingkok* discovered by Stefano's group which attracted intense local and international press coverage (see front cover).

Our annual exchange with Tokyo University of Marine Science and Technology (Japan) saw four undergraduates work at SWIMS twinned with students from the School of Biological Sciences, HKU. The annual exchange of students on fieldcourses between The University of Johannesburg (South Africa) and SWIMS/SBS continued. This course in South Africa now involves students and teachers from four different universities (HKU, two from South Africa and one from the USA) and this year students from Exeter University (UK) joined the Hong Kong field course. We were also able to host a variety of intern students/student helpers from Plymouth University (UK), King Mongkut's Institute of Technology Ladkrabang (Thailand), TROPIMUNDO, The University of California, San Diego (USA), University College London (UK), University of Sheffield (UK) & Dalhouise University (Canada) as well as numerous HKU students and students from other Hong Kong institutions (e.g. Baptist University).

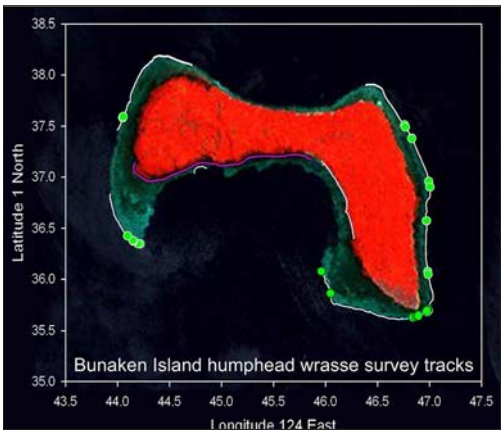
As in previous years SWIMS played a leading role in supporting the Tai Tam BioBlitz 2017 organized by the Tai Tam Tuk Eco Education Centre, led by Stefano and the TingKok+ team with Dr Kevin Ho. SWIMS scientists led teacher training trips on mangrove ecology during the first day and were part of the ecological surveys (the BioBlitz) during the second day, assisting citizen scientists, where SWIMS scientists led biodiversity surveys in intertidal habitats (rocky/sandy shore, mangrove) and helped in the underwater survey. This year's event attracted more than 350 people and recorded about 500 marine and terrestrial flora and fauna (http://taitamtuk.org/hkbioblitz-2017-info-page/).

Kevin giving talks at the BioBlitz

Conservation

SWIMS and IUCN

The multi-year survey project of Napoleon wrasse, *Cheilinus undulatus*, in Indonesia finished in 2017. The results from 6 locations that were surveyed 2-3 times within 7 years clearly showed declines in abundance of this protected species where fishing had continued, stability where not fished, and an increase where protection was introduced after the first survey. However, the species is now uncommon to rare across the country with hardly any males (larger-sized fish). Recommendations are to reduce substantially or eliminate exports of wild fish (much of which are illegal) and only export ranched (grown from wild-sourced post-larvae) animals.

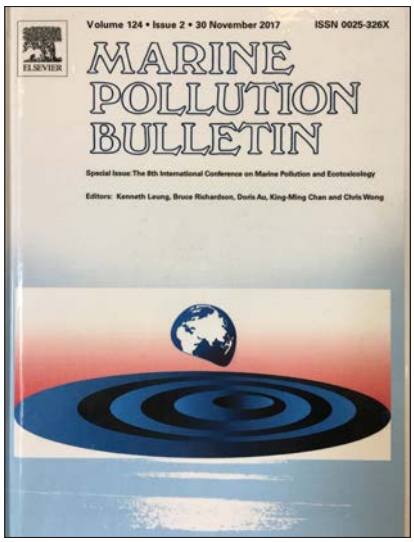


Survey to detect location of Humphead wrasse in Bunaken MPA, Indonesia

SWIMS and Reef Check

Continuing with SWIMS' effort to promote marine conservation and outreach, we gathered 30 volunteers at our 17th participation of the Reef Check program run by AFCD. With the financial support from SWIMS and passion from our students, we conducted surveys on coral coverage and fish abundance at Siu Long Ke. Coral coverage here has increased for 5 years in a row, and we recorded 42.5% coverage. Thanks to Reef Check, we were able to contribute to coral conservation in Hong Kong, and many thanks to all the hard work our volunteers put in. We look forward to seeing you all in 2018 with SWIMS Reef Check team.

Reef Check - 17 years and going strong!



Conference proceedings of the 8th International Conference on Marine Pollution and Ecotoxicology published in November 2017 which was edited by Kenny Leung and other members of the conference organizing committee

Research Opportunities

Research Visitors

The Swire Institute of Marine Science offers three major sources of funding to support researchers wanting to visit SWIMS to undertake research. For enquiries, please contact the Director, Gray A Williams.

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.

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.

View from the Residence to SWIMS, with Waglan Island behind

Accommodation

SWIMS residential blocks are situated on top of the Cape d'Aguilar cliffs. Accommodation at the Residence is available for students, researchers and visitors working at SWIMS. Those interested in booking the accommodation should contact SWIMS Secretary, Ms Sylvia Yiu.

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Thibodeau B, Migon C, Dufour A, Poirier A, Mari X, Legendre L (2017) Sedimentary accumulation of trace metals inhibited by low downward export of organic matter in Hudson Bay, northern Canada. *Biogeochemistry* **136**: 279-291

Wang Z, Leung KMY, Li X, Zhang T, Qiu JW (2017) Macrobenthic communities in Hong Kong waters: comparison between 2001 and 2012 and potential link to pollution control. *Marine Pollution Bulletin* **124**: 694-700

Williams B, Thibodeau B, Chikaraishi Y, Ohkouchi N, Walnum A, Grottoli A, Colin P (2017) Consistency in coral skeletal amino acid composition offshore of Palau in the western Pacific warm pool indicates no impact of decadal variability in nitricline depth on primary productivity. *Limnology & Oceanography* **62**: 399-407

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Yasuhara M, Ando A, Iba Y (2017) Past emergent phase of Shatsky Rise deep-marine igneous plateau. *Scientific Reports* **7**: 15423. DOI: 10.1038/s41598-017-15684-z
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Yi AXL, Leung KMY (2017) Assessing the toxicity of triphenyltin to different life stages of the marine medaka *Oryzias melastigma* through a series of life-cycle based experiments. *Marine Pollution Bulletin* **124**: 847-855
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Yung MMN, Kwok KWH, Djurišić AB, Giesy JP, Leung KMY (2017) Influences of temperature and salinity on physicochemical properties and toxicity of zinc oxide nanoparticles to the marine diatom *Thalassiosira pseudonana*. *Scientific Reports* **7**: 3662
Zeng LX, Lam JCW, Chen H, Du BB, Leung KMY, Lam PKS (2017) Tracking dietary sources of short- and medium-chlorinated paraffins in marine mammals through a subtropical marine food web. *Environmental Science and Technology* **51**: 9543-9552
Zeng LX, Lam JCW, Horii Y, Li XL, Chen WF, Qiu JW, Leung KMY, Yamashita N, Lam PKS (2017) Spatial and temporal trends of short - and medium-chain chlorinated paraffins in sediments off the urbanised coastal zones in China and Japan: a comparison study. *Environmental Pollution* **224**: 357-367

Other Contributions from SWIMS

David Baker

Councillor, The International Society for Reef Studies
Associate Editor, *Frontiers in Ecology & Evolution; Coevolution*

Stefano Cannicci

Member, IUCN SSC Mangrove Specialist Group
Fellow, Royal Institute of Navigation
Member, Biodiversity Strategy and Action Plan (BSAP) Marine Biodiversity Working Group, HKSAR
Member, Mai Po Management Committee, HKSAR
Member, Italian Union of Zoologists
Member, Italian Society of Ethology

Kevin Ho

Chief Editor, Hong Kong Register of Marine Species, www.marinespecies.org/hkrms

Leszek Karczmarski

Associate Editor: *Journal of Experimental Marine Biology and Ecology; Estuarine, Coastal and Shelf Science*
Subject Editor: *Mammalian Biology*
Academic Editor: *PLoS ONE*; *Scientific Reports*; *Sustainability*
Member, IUCN Species Specialist Group: Small Cetaceans
Member, IUCN Species Survival Commission
Member, Society for Marine Mammalogy
Member, Scientific Advisory Committee - Ocean Park Conservation Foundation Hong Kong (OPCFHK)
Postgraduate Advisor, National Taiwan University, Taiwan
Postgraduate Advisor, Sun Yat-sen University, China
Postgraduate Advisor, University of Pretoria, South Africa
Associate Research Fellow, Mammal Research Institute, University of Pretoria, South Africa

Kenny Leung

Co-Editor-in-Chief, *Regional Studies in Marine Science*
Subject Editor and Founding Editorial Board Member, *Integrated Environmental Assessment and Management*
Subject Editor, *Environmental Science and Pollution Research*
Member of Editorial Board, *Marine Pollution Bulletin*, *Canadian Journal of Zoology*, *Toxicology and Environmental Health Sciences*, *Ocean Science Journal* and *PeerJ*
Member, Academic Committee, the State Key Laboratory of Environmental Criteria and Risk Assessment, Chinese Research Academy of Environmental Sciences, Beijing, China
Group Leader and Member, the World Harbour Project (http://www.worldharbourproject.org/)
Member, Advisory Council on the Environment, HKSAR Government
Member, Advisory Council on Food and Environmental Hygiene, HKSAR Government
Chairman, Marine Mammal Conservation Working Group, HKSAR Government
Chairman, Marine Parks Committee, HKSAR Government
Members, Country and Marine Parks Board, HKSAR Government
Member, Board of Directors of the Ocean Park Corporation
Trustee, Ocean Park Conservation Foundation Hong Kong
Chairman, Fisheries Enhancement Fund Management Committee, Airport Authority Hong Kong
Member, Steering Committee for the Marine Ecology and Fisheries Enhancement Funds, Airport Authority Hong Kong
Member, Town Planning Appeal Board Panel, HKSAR Government
Member, Red Tide/Harmful Algal Bloom Expert Advisory Group, HKSAR Government
Member, The Outstanding Young Persons' Association, Hong Kong
Coordinator, Joint University Consortium on Biodiversity, Ecology and Conservation of Marine Ecosystems (BECoME), Hong Kong
Member, Management Committee of the Partner State Key Laboratory in Marine Pollution, Hong Kong
Founding Fellow and Examiner, The Hong Kong Institute of Qualified Environmental Professionals, Hong Kong

Bayden Russell

Academic Editor, *PLoS ONE*
Academic Editor, *Journal of Experimental Marine Biology and Ecology*
Affiliate Senior Lecturer, The University of Adelaide, Australia
Scientific Committee, Third Xiamen Symposium on Marine Environmental Sciences

Yvonne Sadovy

Co-Chair (and founder), IUCN World Conservation Union Specialist Group of Groupers and Wrasses
Director (and co-founding member), Science and Conservation of Reef Fish Aggregations
Member, Executive Committee, World Wide Fund for Nature Hong Kong
Chair, Conservation Advisory Committee, World Wide Fund for Nature Hong Kong
Board Member, Luc Hoffmann Institute
Editorial Board, *Fish and Fisheries*, *Reviews in Fish Biology* and *Fisheries*

Benoit Thibodeau

Editorial Board member, *Frontiers in Marine Science: Biogeochemistry*

V ThiyagaRajan

Council Member, Hong Kong Proteomics Society
Academic Editor, *PLoS ONE*
Editor (Review), *Aquatic Biology, Aquaculture Environment Interactions*

Gray A Williams

Guest Professor, The University of Xiamen
Chairman, Advisory Committee of the Dongshan-Swire Marine Research Station
Special Visiting Research Fellow, National Council for Scientific and Technological Development, Brazil
Visiting Lecturer, Zoology Fieldcourse to Tsitsikamma Marine Reserve, 6-10 March 2017, University of Johannesburg, South Africa
Editorial Board Member: *Journal of Thermal Biology*
Subject Editor, *Zoological Studies*
Organizing Committee 1st Singapore-Hong Kong Hard Shore Ecology Workshop, 27-29 November 2017, HKU
Education Committee, Hong Kong Maritime Museum

Moriaki Yasuhara

Chair, International Research Group on Ostracoda (IRGO)
Scientific Committee member, bioDISCOVERY
Member, Global Ocean Oxygen Network (GO2NE), IOC-UNESCO
Board Member, the Deep-Sea Biology Society
Podocopida (Ostracoda) editor, World Register of Marine Species (WoRMS)
Vice Chair, Society of Friends of IRGO (SF*IRGO)
Editorial Board Member, *Global and Planetary Change*
Associate Editor, *Paleontological Research*
Editor, *Plankton and Benthos Research*

Conferences and Workshops

David Baker

Oral Presentation; 1st International Forum on Coral Reefs, 8-15 Jan 2017, Hainan, China.
Oral Presentation; Corals Through Space and Time: Adventures in Symbiosis, 8 Mar 2017, Kunshan, China.
Invited Seminar; Climate Change Impacts on Corals: from Reef to Cell, 22 Mar 2017, National Sun Yat Sen University, Taiwan.
Oral Presentation; SECORE International Workshop, 18-23 Apr 2017, Guam, USA.
Oral Presentation; Gordon Research Conference: Marine Molecular Ecology, 23-28 Jul 2017, Hong Kong University of Science and Technology, Hong Kong.

Stefano Cannicci

Oral Presentation and Poster presentation; The 3rd Xiamen Symposium on Marine Environmental Sciences (XMAS-III), 9-11 Jan 2017, Xiamen China.
Organisation and Session Chair; The mangrove biodiversity enigma. European Conference of Tropical Ecology, 6-10 Feb 2017, Brussels, Belgium.
Invited Seminar; Department of Geography and Resource Management, 23 Feb 2017, The Chinese University of Hong Kong, Hong Kong
Keynote Speaker and Facilitator; Field-based course on coastal ecology. Organised by the South African Institute for Aquatic Biodiversity (SAIAB), 5-16 Mar 2017, Mngazana, Eastern Cape Province, South Africa.
Invited Presentation and Session Co-Chair; The 9th University Consortium on Aquatic Sciences, 27-31 Mar 2017, Hong Kong.

Sam Crickenberger

Oral Presentation; International Society for Littorinid Biology, 13-16 Aug 2017, Tjärnö, Sweden.

Kevin Ho

Oral Presentation; The 3rd Xiamen Symposium on Marine Environmental Sciences (XMAS-III), 9-11 Jan 2017, Xiamen University, China.
Oral Presentation; The 9th University Consortium on Aquatic Sciences, 27-31 Mar 2017, Hong Kong.

Circle Hong

Oral Presentation; 18th International Symposium on Ostracoda (ISO-18), 27-31 Aug 2017, University of California Santa Barbara, USA

Leszek Karczmarski

Organizer and Chair; 9th South-East Asian Training Workshop in Marine Mammal Research Techniques: Quantitative Socio-Behavioural Analyses using SOCPROG, 5-10 Jan 2017, Hong Kong.
Invited Talk and Panel Member; 2nd Chinese White Dolphin Population and Habitat Viability Assessment Workshop of IUCN Species Survival Commission (SSC) and Conservation Breeding Specialist Group (CBSG), 10-13 Jan 2017, Hong Kong.
Organizer and Chair; 1st Regional Training Workshop in Computational Behavioural Ecology: Quantitative Ecology and Population Modelling using NOVA Computational Platform, 1-5 May 2017, Hong Kong.
Oral and Poster Presentations; 22nd Biennial Conference on the Biology of Marine Mammals, 23-27 Oct 2017, Halifax, Canada.
Invited Speaker; Ocean and Coasts Symposium, Université Laval, 27 Oct 2017, Quebec, Canada.
Invited Speaker; Yale School of Forestry & Environmental Studies, Yale University, 2 Nov 2017, New Haven, USA.

Kenny Leung

Invited Speaker; Café Scientifique Hong Kong, 6 Mar 2017, Hong Kong Maritime Museum, Hong Kong.
Invited Speaker; Seminar Series of School of Life Science of the Chinese University of Hong Kong, 23 Mar 2017, Hong Kong.
Invited Participant; The Society of Environmental Toxicology and Chemistry (SETAC) Pellston Workshop on Advancing the Adverse Outcome Pathway Concept - An International Horizon Scanning Approach, 2-6 Apr 2017, Ontario, Canada.
Keynote Speaker; The 3rd Conference on Environmental Pollution and Health, 12-14 May 2017, Guangzhou, China.
Invited Speaker; Webinar Series of the World Harbour Project, 25 May 2017, via an Internet Platform (see http://www.worldharbourproject.org/communications/).
Invited Speaker; Global Marine Science Summit: Coastal Resilience and the Blue Economy, 5-8 Nov 2017, University of North Carolina Wilmington, USA.
Invited Speaker and Session Chair; Symposium on Hydro-environment Research for Smart Cities, 12-14 Dec 2017, Hong Kong University of Science and Technology, Hong Kong.

Briony Mamo

Poster Presentation; Japan Geophysical Union Meeting, 20-26 May 2017, Tokyo, Japan.
Participant; Integrated Ocean Discovery Program Expedition 356 Post -cruise Meeting, 17-21 Jul 2017, Bremen, Germany.
Invited Seminar; Max Planck Institute for Chemistry, 25 Jul 2017, Mainz, Germany.
Invited Seminar; ZMT Leibniz Centre for Tropical Marine Research, 28 Jul 2017, Bremen, Germany.
Session Convenor and Poster Presentation; American Geophysical Union Fall Meeting, 11-15 Dec 2017, New Orleans, USA.

Shelby Mcilroy

Participant; High-throughput amplicon sequencing Workshop, 11-15 Aug 2017, University of Southern California, USA.
Participant; Genome-wide SNP genotyping with 2bRAD Workshop. 15-23 Aug 2017, University of Southern California, USA.

Christelle Not

Poster Presentation; ASLO Conference, 26 Feb-3 Mar 2017, Honolulu, Hawaii, USA.
Poster Presentation; Goldschmidt Conference, 13-18 Aug 2017, Paris, France.

Carmen Or

Participant; Chinese White Dolphin Population and Habitat Viability Assessment Workshop by Conservation Breeding Specialist Group (CBSG) of IUCN Species Survival Commission (SSC) and Ocean Park Conservation Foundation Hong Kong (OPCFHK), 10-13 Jan 2017, Hong Kong.
Oral Presentation; 22nd Biennial Conference on the Biology of Marine Mammals, 23-27 Oct 2017, Halifax, Canada.

Aline Quadros

Oral Presentation; IUCN-SSC Mangrove Specialist Group Mangrove Symposium 2017, 12-16 Sep 2017, Bremen, Germany.

Till Röthig

Oral Presentation; European Coral Reef Symposium 2017, 13-15 Dec 2017, Oxford, United Kingdom.

Bayden Russell

Oral Presentation; The 3rd Xiamen Symposium on Marine Environmental Sciences (XMAS-III), 9-11 Jan 2017, Xiamen, China.
Invited Talk; The 9th University Consortium on Aquatic Sciences, 27-31 Mar 2017, Hong Kong.
Invited Talk; South China Sea Science Conference 2017, 3-8 Jun 2017, National Sun Yat-sen University, Kaohsiung, Taiwan.
Invited Lecture; King Mongkut's Institute of Technology Ladkrabang, 20 Jun 2017, Bangkok, Thailand.
Workshop; Future Proofing Aquaculture in the Face of Global Climate Change, 17-20 Jul 2017, The University of Exeter, United Kingdom.
Session Chair; Marine Molecular Ecology at the Gordon Research Conference, 23-26 Jul 2017, The Hong Kong University of Science and Technology, HK.

Yvonne Sadovy

Organizer; 70th Annual Gulf and Caribbean Fisheries Institute - Reef Fisheries and Spawning Aggregations, 6-10 Nov 2017, Yucatan, Mexico.

Benoit Thibodeau

Oral Presentation; The 3rd Xiamen Symposium on Marine Environmental Sciences (XMAS-III), 9-11 Jan 2017, Xiamen, China.
Poster Presentation; ASLO Aquatic Sciences Meeting, 14-19 Feb 2017, Hawaii, USA.
Oral Presentation; Goldschmidt Conference, 13-18 Aug 2017, Paris, France.

V ThiyagaRajan

Workshop; Future Proofing Aquaculture in the Face of Global Climate Change, 17-20 Jul 2017, The University of Exeter, United Kingdom.
Keynote Lecture; The Gordon Research Conference: Impacts of Water Quality and Climate Change on Marine Life, 23-28 Jul 2017, Hong Kong.
Invited Talk; The 1st International conference on Genomics , 7-8 Sep 2017, Qingdao, China.

Gray A Williams

Oral Presentation; The 3rd Xiamen Symposium on Marine Environmental Sciences (XMAS-III), 9-11 Jan 2017, Xiamen China.
Invited Seminar; (with Yunwei Dong) Kings Mongkuts Institute for Technology, Ladkrabang, 16 May 2017, Bangkok, Thailand.
Oral Presentation; Mini-workshop: Can we develop a digital crystal ball to predicting the effect of warming and OA?, 31 May 2017, Xiamen University, Xiamen.
Keynote Speaker; South China Sea Science Conference 2017, 3-8 Jun 2017, National Sun Yat-sen University, Kaohsiung, Taiwan.
Oral Presentation; The 12th International Symposium on Littorinid Biology and Evolution (ISOLBE XII) and the *Littorina* genome workshop, 13-19 Aug 2017, Tjärnö, Sweden.
Participant; NTU-HKU Forum on Joint-Phd Research on 19-21 Nov 2017, NTU, Singapore.
Oral Presentation; 1st Singapore-Hong Kong Hard Shore Ecology Workshop, 27-29 Nov 2017, HKU.

Simon Wong

Participant; Chinese White Dolphin Population and Habitat Viability Assessment Workshop by Conservation Breeding Specialist Group (CBSG) of IUCN Species Survival Commission (SSC) and Ocean Park Conservation Foundation Hong Kong (OPCFHK), 10-13 Jan 2017, Hong Kong.
Participant; The International Society for Ecological Modelling Global Conference 2017, 16-17 Sep 2017, Jeju, South Korea.
Oral Presentation; 22nd Biennial Conference on the Biology of Marine Mammals, 23-27 Oct 2017, Halifax, Canada.

Moriaki Yasuhara

Oral Presentation; 8th Biennial Conference of the International Biogeography Society, 9-13 Jan 2017, Tucson, USA.
Invited Lecture; International Symposium: Frontiers in Biodiversity Conservation Science, 13 Mar 2017, Okinawa, Japan.
Invited Lecture; The 64th Annual Meeting of the Ecological Society of Japan, 14-18 Mar 2017, Waseda, Japan.
Invited Lecture; IceAGE (Icelandic Marine Animals: Genetics and Ecology) Workshop, 4-6 Apr 2017, Spała, Poland.
Workshop; bioDISCOVERY, 26-28 Apr 2017, Zürich, Switzerland.
Oral Presentation; 18th International Symposium on Ostracoda, 27-31 Aug 2017, Santa Barbara, USA.
Workshop; GO2NE (Global Ocean Oxygen Network), 11-13 Sep 2017, Monterey, USA.
Invited Lecture; An Invited Lecture at the Academia Sinica, 24 Nov 2017, Taipei, Taiwan.

Postgraduates

Archana Anand

Poster Presentation; Gordon Research Conference: Marine Molecular Ecology, 23-28 Jul 2017, Hong Kong University of Science and Technology, Hong Kong.

Laura Agusto

Poster Presentation; The mangrove biodiversity enigma. European Conference of Tropical Ecology, 6-10 Feb 2017, Brussels, Belgium.

Rebekah Butler

Oral Presentation; The 9th UCAS Postgraduate Symposium, 27-31 Mar 2017, Hong Kong.

Participant; 2nd Annual Marine Conservation Network Meeting, 26 July 2017, University of Exeter's Centre for Ecology and Conservation, United Kingdom.

Participant; 1st Singapore-Hong Kong Hard Shore Ecology Workshop, 27 Nov 2017, The University of Hong Kong, Hong Kong.

Stephen Chan

Organizing Committee and Participant; 9th South-East Asian Training Workshop in Marine Mammal Research Techniques: Quantitative Socio-Behavioural Analyses using SOCPROG, 5-10 Jan 2017, Hong Kong.

Participant; 2nd Chinese White Dolphin Population and Habitat Viability Assessment Workshop of IUCN Species Survival Commission (SSC) and Conservation Breeding Specialist Group (CBSG), 10-13 Jan 2017, Hong Kong.

Organizing Committee and Participant; 1st Regional Training Workshop in Computational Behavioural Ecology: Quantitative Ecology and Population Modelling Using NOVA Computational Platform, 1-5 May 2017, Hong Kong.

Participant; The International Society for Ecological Modelling Global Conference 2017, 16-17 Sep 2017, Jeju, South Korea.

Best Poster Presentation; 22nd Biennial Conference on the Biology of Marine Mammals, 23-27 Oct 2017, Halifax, Canada.

Participant; Workshop of Bayesian and Hierarchical Bayesian Models for Capture-Recapture: Introduction to Theory and Practical Learning in R & BUGS, 29 Oct 2017, Halifax, Canada.

Invited Speaker; DISCOVERY: Photo-Identification Data Management System for Wildlife Research at Yale School of Forestry & Environmental Studies, Yale University, 1 Nov 2017, New Haven, USA.

Rhyn Cheung

Oral Presentation; The 9th UCAS Postgraduate Symposium, 27-31 Mar 2017, Hong Kong.

Poster Presentation; The Croucher Summer Course on Climate Change and Marine Ecosystems, 17-21 July 2017, Hong Kong University of Science and Technology, Hong Kong.

Inga Conti-Jerpe

Oral Presentation; 2bRAD Sequencing Workshop 2017, 15-23 Aug 2017, California, USA.

Jon Cybulski

Oral Presentation; 1st Annual Coral Reef Symposium, 9-13 Jan 2017, Sanya, Hainan.

Participant; IsoCamp Isotope Ecology course selection and attendance, 9-22 Jun 2017, University of Utah, USA.

Jake Dytnerski

Oral Presentation; The 9th UCAS Postgraduate Symposium, 27-31 Mar 2017, Hong Kong.

Oral Presentation; Analysis of Genetic and Community Diversity with High-throughput Sequencing: High Throughput Amplicon Sequencing and Genome-wide SNP Genotyping with 2bRAD, 11 Aug 2017, Catalina Island, USA.

Kevin Geoghegan

Oral Presentation; The 9th UCAS Postgraduate Symposium, 27-31 Mar 2017, Hong Kong.

Derek Ho

Participant; 9th South-East Asian Training Workshop in Marine Mammal Research Techniques: Quantitative Socio-Behavioural Analyses using SOCPROG, 5-10 Jan 2017, Hong Kong.

Participant; 1st Regional Training Workshop in Computational Behavioural Ecology: Quantitative Ecology and Population Modelling Using NOVA Computational Platform, 1-5 May 2017, Hong Kong.

Participant; Publication Consultation Meeting for the Proposed IWMF Marine Park, 21 Aug 2017, Environmental Protection Department, HKSAR, Hong Kong.

Participant; The International Society for Ecological Modelling Global Conference 2017, 16-17 Sep 2017, Jeju, South Korea.

Oral Presentation; 22nd Biennial Conference on the Biology of Marine Mammals. 23-27 Oct 2017. Halifax, Canada.

Participant; Workshop of Distance Sampling: Conventional and Hierarchical Methods for Abundance in R, 29 Oct 2017, Halifax, Canada.

Tommy Hui

Oral Presentation; The 9th UCAS Postgraduate Symposium, 27-31 Mar 2017, Hong Kong.

Shannon Hanson

Poster Presentation; The 3rd Xiamen Symposium on Marine Environmental Sciences (XMAS-III), 9-11 Jan 2017, Xiamen China.

Anna Jöst

Best Oral Presentation; 18th International Symposium on Ostracoda (ISO18), 28 Aug-1 Sep 2017, Los Angeles, USA.

Racliffe Lai

Oral Presentation; The 9th UCAS Postgraduate Symposium, 27-31 Mar 2017, Hong Kong.

Sarah Lau

Oral Presentation; The 12th International Symposium on Littorinid Biology and Evolution (ISOLBE XII) and the *Littorina* genome workshop, 13-19 Aug 2017, Tjärnö, Sweden.

Yuan Meng

Oral Presentation; 14th International Symposium on Biomineralization (BIOMINXIV), 9-13 Oct 2017, Tsukuba, Japan.

Jay Minuti

Oral Presentation; The 9th UCAS Postgraduate Symposium, 27-31 Mar 2017, Hong Kong.

Kanmani Rajan

Participants; The other side of scientific writing: increasing reader engagement and readership, 6 Dec 2017, The University of Hong Kong, Hong Kong.

Ronia Sham

Oral Presentation; The 9th UCAS Postgraduate Symposium, 27-31 Mar 2017, Hong Kong.

Poster Presentation; The Croucher Summer Course on Climate Change and Marine Ecosystems, 17-21 July 2017, Hong Kong University of Science and Technology, Hong Kong.

Vicki Sheng

Oral Presentation; NTU Winter School, Introduction to Complexity Science, 9-15 Mar 2017, Singapore.

Participant; Santa Fe Institute, Complex Systems Summer School, 11 Jun-7 Jul 2017, New Mexico, USA.

Lily Tao

Oral Presentation; Ecological Society of America Annual Meeting, 5-10 Aug 2017, Portland, USA.

Phil Thompson

Poster Presentation; Gordon Research Conference: Marine Molecular Ecology, 23-28 Jul 2017, Hong Kong University of Science and Technology, Hong Kong.

Angelico Tiongson

Poster Presentation; 22nd Biennial Conference on the Biology of Marine Mammals, 23-27 Oct 2017, Halifax, Canada.

Jane Wong

Oral Presentation; 1st International *Cassiopea* Workshop, 13-17 May 2017, Key Largo Marine Research Laboratory, USA.

Jason Yau

Poster Presentation; The Croucher Summer Course on Climate Change and Marine Ecosystems, 17-21 July 2017, Hong Kong University of Science and Technology, Hong Kong.

Katie Yeung

Oral Presentation; The 19th International Symposium on Pollutant Responses in Marine Organisms (PRIMO 19), 30 Jun-3 Jul 2017, Matsuyama, Japan. (Student Travel Award).

Participant; The Croucher Summer Course on Climate Change and Marine Ecosystems, 17-21 Jul 2017, Hong Kong University of Science and Technology, Hong Kong.

Shellfish Safety Training Workshop, 12-13 June 2017

AFCD: Mr. Henry Chow Yun Chung, Ms. Katy Yu Cheuk Yan, Ms. Carrie Chan Ka Wai & Ms. Stephanie Cheung Chui Shan

Lau Fau Shan Oyster Growers: Mr. Chan Shu Fung, Mr. Chan Hok Sun, Mr. Chan Kwong Lik, Mr. Chan Kwok Leung & Mr. George Ng

HKU Students: Mr. Hamsun Chan Hing Sang , Ms. Cheng Lok Yi, Mr. Jeffrey Chan Chi Him, Mr. Choi Kin Hang, Ms. Chu Wai Ching, Ms. Rebecca Fung Hiu Yan, Ms. Jamie Fung, Ms. Lam Yuen Ying, Ms. Lau Yik Tung, Ms. Gloria Leung Hoi Ting, Mr. Li Chung Hoi, Ms. Leung Yee Man, Mr. Calvin Leung Tsz Kin, Mr. Ma Chun Ning, Ms. Tse Pui Ying, Ms. Tsang Ngai Yung, Mr. Wan Ka In, Ms. Wan Chun Hei & Ms. Wong Ka Yee

MarineGEO-Hong Kong: towards an understanding of marine biodiversity and ecosystem function - Autonomous Reef Monitoring Structure (ARMS) Retrieval, 22-31 October 2017

Visiting Participants: Dr. Gustav Paulay (Florida Museum of Natural History), Dr. Laetitia Plaisance (Smithsonian Institution), Ms. Jenna Moore (University of Florida), Dr. Do-Hyung Kang (Korean Institute of Ocean Science and Technology, KIOST), Dr. Hyun-Sung Yang (KIOST), Dr. Sujin Heo (KIOST), Mr. Taeho Kim (KIOST)

HKU Participants: Dr. David Baker, Dr. Till Roethig, Dr. Shelby McIlroy, Ms. Archana Anand, Mr. Rinaldi Goetma, Mr. Arthur Chung, Mr. Johnny Richards, Mr. Phil Thompson, Ms. Rainbow Hin Hung Tsang, Mr. Chase Liuwei Wang, Ms. Jane CY Wong, Mr. Taihun Kim, Dr. Sam Crickenberger, Mr. Tommy Hui, Mr. Jonathan Cybulski, Ms. Inga Conte-Jerpe, Ms. Vicki Sheng, Ms. Chloe Webster, Mr. Jake Dytnerski, Mr. Jiarui Chen, Mr. Kevin Geoghegan, Dr. Naomi Geeraert, Ms. Yu-ying Luo, Ms. May Huai-Hsuan Huang, Mr. Rhyn Cheung & Ms. Shannon Hanson

Visitors to SWIMS

Prof. Mark Davies (Sunderland University, UK)
Dr. Rick Stafford (Bournemouth University, UK)
Dr. Laurent Seuront (Flinders University, Australia)
Dr. Neil Hutchinson (James Cook University, Singapore)
Prof. Richard Greenfield (University of Johannesburg, S. Africa)
Dr. Yunwei Dong (Xiamen University, China)
Dr. Monthon Ganmanee (King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand)
Prof. Peter Mathieson (President and VC, HKU)
Mrs. Tina Mathieson (Hong Kong)
Dr. Harry Blow (UNHCR)
Dr. Stella Wong (Ex-SWIMer)
Mr. Chow Chor Tim (Home Affairs Department)
Ms. Jelly Wong (Home Affairs Department)
Ms. Tenny Lau (Home Affairs Department)
Ms. Cindy Lo (Home Affairs Department)
Ms. Rhea Leung (Communication Office, HKU)
Dr. Brendon Dunphy (The University of Auckland, New Zealand)
Ms. Tina Chan (HSBC Trustee)
Ms. Shilo & Gail Russell (from Australia)
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Ms. Patra Klerken (Witt/Kieffer Ccentric (Hong Kong))
Prof. Guido Chelazzi (Università di Firenze, Italy)

Many thanks to all the following for their cheerful and excellent help: Mr. Max Kwan, Mr. Kazushige Okai, Mr. Haruki Sekino, Ms. Moe Hosoi, Ms. Xiaochen Wang, Ms. Natasha Mundell, Ms. Sutthirat Panchakhan, Ms. Giulia Puntin, Ms. Ng Ka Hei, Mr. Lee Tak Yung, Ms. Angel Lau, Ms. Ho Put Shan, Mr. Lau Kwan Lok, Ms. Leung Ka Kiu, Ms. Charlene Lai, Mr. Lee Ting Yat Marco, Ms. Rikako Tanaka, Ms. Moeka Matsue, Ms. Mayu Yamanushi & Ms. Rina Saeki

Group Visits
9 UGS from Experimental Intertidal Ecology Class, HKU, Jan 2017
48 UGS from ENVS1301, HKU, Feb 2017
14 staff and students from Island School, Feb 2017
13 participants of JSI Workshop, March 2017
40 participants of Ditch Disposable, HKU, March 2017
12 UGS from BIOL3322, HKU, May 2017
30 UGS from SCNC2122, HKU, Jun 2017
18 staff and students from Kellett School , Sep 2017
30 members of The Hong Kong Institute of Planners, Sep 2017
23 members of Management Trainees of Swire Group, Sep 2017

Student Graduations

Ph.D

Cesario, Amina (2017) - Population ecology of spinner dolphins (*Stenella longirostris*) in an offshore resting habitat in the Red Sea.

Chiu, Wing Tung (2017) - Assessing shallow marine biodiversity patterns and climate change using micropaleontological records.

Dumestre, Marielle (2017) - Biological and economic characteristics associated with the body size of commercially important aspidochirotide sea cucumbers.

Hong, Yuanyuan (2017) - Hong Kong shallow marine benthic ecosystem history: conservation paleoecology approach based on microfossil ostracods.

Ko, Wai Kuen (2017) - Oyster larvae living in a multi-stressor world: vulnerabilities and potential for persistence.

Law, Sui Wai (2017) - The biology and fisheries status of seabreams (family: Sparidae) in Hong Kong and adjacent waters.

Mak, King Yan Yanny (2017) - Effects of trawl-ban on the diversity and ecology of demersal fishes in Hong Kong.

Or, Ka Man (2017) - Socio-spatial ecology of Indo-Pacific humpback dolphins (*Sousa chinensis*) in Hong Kong and the pearl river estuary.

Yiu, Sze Wing (2017) - Ecology of wildlife reintroduction: habitat selection of reintroduced lions (*Panthera leo*) and behavioural responses of their prey.

M.Phil

Shin, Caren (2017) - Cenozoic ostracode biodiversity in the Indo-Pacific.

Wong, Cheong Wai Martin (2017) - Anthropogenic nitrogen inputs in marine environments: identifying sources, revealing variation, and assessing impacts.

Staff Training

Mr. Kong Chi Kau has attended the first-aid course at HKU from 12 Jun-14 Aug 2017 (WD) (every Monday, 10 classes).

Ms. Cecily Law has attended the ISDM Policy Implementation course at HKU on 23 Jun 2017 (PM).

Mr. Cheung Ming Hong has attended the AED & CPR course at HKU on 25 Jul 2017 (WD).

Ms. Cecily Law has attended the AED & CPR course at HKU on 1 Aug 2017 (WD).

Mr. Cheung Ming has attended the AED & CPR course on 11 Aug 2017 (WD).

Ms. Sylvia Yiu has attended the ISDM Training Programme on 18 Oct 2017 (2:30-4:30pm).

Ms. Sylvia Yiu & Ms. Cecily Law have attended the ISDM Departmental Data Asset Storage (DDAS) on 22 Nov 2017 (2:30-4:00pm).

Ms. Sylvia Yiu has attended the Information Session on Oracle Financials System Upgrade Project on 30 Nov 2017 (2:30-4:30pm).

Acknowledgements

Sir Adrian Swire, John Swire and Sons Ltd
Mr. Martin Cubbin and Ms. Laura Lau, The Swire Group of Companies
Mr. Davy Ho, Swire Properties
Prof. Peter Mathieson, President and Vice Chancellor, HKU
Prof. PKH Tam, Provost and Deputy Vice-Chancellor, HKU
Dr. SJ Cannon, Executive Vice-President, HKU
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Prof. Andy Hor, Vice-President and Pro-Vice-Chancellor, HKU
Prof. Matthew Evans and staff, Faculty of Science, HKU
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Mr. Donald Tong, Director, EPD
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Mr. Shun Chi-Ming and staff, the Hong Kong Observatory
Ms. Suzanne Gendron and staff, Ocean Park Conservation Foundation Hong Kong

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