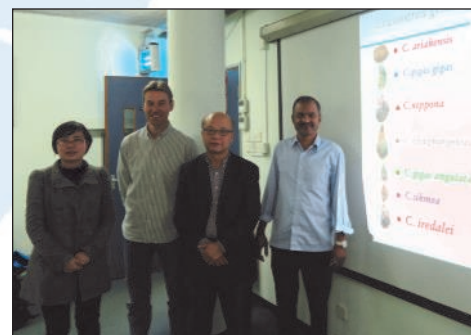




The Swire Institute of Marine Science

太古海洋科學研究所



**Annual Report**

2016



*Gray with Ricardo Coutinho, Ronaldo Christofolotti and Stuart Jenkins in Brazil*

## Director's Foreword

In 2016 SWIMS new Strategic Development Plan (SSDP) was endorsed by the Faculty of Science and SWIMS also underwent a formal University review, conducted by a panel of overseas and local experts, which has recommended a series of administrative and academic developments to strengthen SWIMS position both locally and internationally. We have also been finalizing the remaining small details of the SWIMS expansion, and are awaiting final Government approval after which the expansion can finally start. SWIMS is, therefore, in an excellent position to look forward to the new expansion, with a holistic development strategy and strong University support.

This year saw an increased focus on marine biodiversity, not just for SWIMS, but Hong Kong in general. The release of Hong Kong SAR Government's Biodiversity Strategy Action Plan (BSAP) opens new opportunities for collaboration between SWIMS and HK Government Departments to help protect and conserve Hong Kong's biodiversity. This is one of the main goals of SWIMS SSDP. As part of this initiative SWIMS has been leading the ECF funded Tingkok+ project involving six local institutions to assess the biodiversity of the Tolo Harbour area and importantly, at the end of the year, a SWIMS team led by Terence Ng announced the findings of a comprehensive biodiversity assessment which revealed that Hong Kong, although having only 0.03% of the Chinese coastline, supported ~25% of the species found there. This finding received a great deal of media attention in local and overseas press, and shows that Hong Kong has a rich biodiversity worthy of our protection.

Finally it has, as ever, been a pleasure to have so many international colleagues and friends coming to SWIMS to work and interact with our scientists and researchers. I mentioned in the 2015 report that it is the people who work and are involved at SWIMS which make it such a success. This year, as in other years, we have seen a great number of visiting scientists, especially during summer. Next year will not be as easy as, in 2017, we shall start the expansion, and building work will begin. This period will be challenging, but I am sure, with the positive attitude of staff and students we can make the best of this time, knowing that by 2018 we shall have a new, world-class research facility.

*Best wishes from the staff and students of SWIMS.*

Gray A Williams

## International Collaborations

As in previous years SWIMS played host and formed strong collaborations with a great variety of international organizations/scientists. A number of collaborators visited SWIMS as part of teaching exchanges (University of Adelaide) to discuss collaborative projects (e.g. Conservation International); or to conduct research, including the return of Prof Laurent Seuront (Centre National de la Recherche Scientifique) and Prof Mark Davies (Sunderland University) and a new visitor, Prof Emilio Rolan-Alvarez (University of Vigo) to work with Terence and Gray on high shore littorinids; Dr Aline Martinez worked with Terence on a new method to measure intertidal biofilms whilst Dr Monthon Ganmanee (King Mongkuts Institute for Technology, Ladkrabang) returned with his students to continue work on high-shore oysters and was joined by Guodong Han (Xiamen University) as part of a joint grant with Gray.

Prof Euan Nisbet and his team (Royal Holloway College, London) also returned to install a methane monitoring system to measure emissions from China. In October, Dr Michael Eitel (Ludwig-Maximilian University, Munich) visited to continue his work on Placozoans, and Ms Sarah Rolfes (Tierärztliche Hochschule, Hannover) stayed to continue these collections. We were also joined for longer term, student-exchanges by Mr Joao da Silva (Universidade Federal de Sao Paulo) and Mr Dominic McAfee (as an Endeavour Scholar, Macquarie University) working with Gray and Mr Stefan Husa (Abo Akademi University) working with David.

This year we have been able to hold a variety of small, focused workshops on specific topics of interest to SWIMS scientists. As part of their Visiting Professorships, Prof Jeremy Jackson (Scripps Institution for Oceanography) and Nancy Knowlton (Smithsonian Institution) held an informal strategic development workshop with SWIMS staff. In March, Prof Curtis Deutsch (University of Washington) held a workshop entitled “Physiological tolerance and implications for species ranges: integrating across marine and terrestrial systems” co-organized between SWIMS and Dr Tim Bonebrake (SBS, HKU). A variety of overseas visitors gave research seminars, including Dr Aline Martinez (Sydney University), Dr Anthony Chariton (CSIRO), Dr Pablo Munguia (Adelaide University), Prof Emilio Rolan-Alvarez, Mr Jesse McNichol (MIT-WHOI) as well as in-house seminars by Camilla Campanati, Tommy Hui, Stefan Husa and Dom McAfee. A particular highlight was the special seminar by Prof Leo Tan (National University of Singapore) held at HKU campus on ‘A comprehensive marine biodiversity survey’.



*Gray working at Cape d'Aguilar with Emilio Rolan-Alvarez*



*Susana Enriquez and Roberto Iglesias-Prieto enjoy dinner with Visiting Research Professors Nancy Knowlton and Jeremy Jackson and members of the Baker lab*



*Terence working with Guodong Han in Thailand*



*Gray, Bayden and Terence with Hunt Willard, Director of the Marine Biological Laboratory*

As part of longer-term collaborations between research institutions SWIMS welcomed visits from Prof Do-Hyung Kang and his team from the Korea Institute of Ocean Science and Technology (KIOST) to work with Daves group. Prof Guofan Zhang, Dr Li Li and their team from the Institute of Oceanology, Chinese Academy of Sciences (IOCAS), Qingdao also visited to discuss links on oyster aquaculture and ecology involving Bayden, Gray and Rajan which culminated in the signing of a Memorandum of Understanding between SWIMS and IOCAS at Rajan's IOCASS meeting. Exchange visits between Prof Hunt Willard (Director, The Marine Biological Laboratory, Woods Hole, Chicago University) to SWIMS and Gray, Terence and Bayden to The Marine Biological Laboratory also took place to help develop the newly signed Memorandum of Understanding between HKU and Chicago University, further expanding our relationships with overseas institutions and mainland collaborators.



*UCAS group photo in Taipei, Taiwan*

## **The 8<sup>th</sup> UCAS Postgraduate Symposium: Aquatic Systems: Ecology, Conservation, and Challenges**

The 8<sup>th</sup> UCAS Postgraduate Symposium was successfully held during 7-11 March 2016 in Taipei. Hosted by the committee members from the National Taiwan Ocean University, more than 50 participants joined the symposium, including staff and students from the University of Hong Kong, Xiamen University, University of Florence and National Taiwan Ocean University.



*Students actively participated in the UCAS seminars*

Students from the three universities presented and shared their research on aquatic ecosystems, and engaged in active discussions regarding management and conservation issues. Staff mentors delivered stimulating keynote lectures, covering diverse topics including taxonomy, evolutionary ecology and aquaculture. During the symposium, we visited the National Museum of Marine Science & Technology in Keelung, and had a better understanding of Taiwan's oceanography and marine heritage. Apart from academic exchanges, participants also toured around Tamshui and Keelung, enjoyed good food and experienced popular Taiwan culture. Overall the symposium was very well conceived with encouraging and positive feedback from the participants.

The next symposium will be here in Hong Kong! We will be incorporating new elements into our growing UCAS series - please visit our facebook (<https://www.facebook.com/ucas.postgrad/>) for news and updates!

## International Conferences and Workshop

In 2016, SWIMS scientists organised a number of international meetings and focused workshops at SWIMS and, for the larger events, at campus at HKU. In particular Kenny Leung was incredibly productive and chaired and organised four meetings in this year!

### Symposium on Environmental Health and Food Safety

In January, Kenny hosted the International Symposium on Environmental Health and Food Safety with the aim to develop research collaboration in environmental health issues amongst staff of the School of Biological Sciences and Faculty of Medicine as well as researchers from other local sister universities and overseas.

### Light and Photosynthesis Workshop

On 3-4 November, SWIMS hosted the Light and Photosynthesis Workshop led by Roberto Iglesias-Prieto and Susana Enriquez (Pennsylvania State University and the Institute of Marine Sciences and Limnology (ICML) of the Universidad Nacional Autónoma de México). Students, staff, and faculty of HKU, CUHK, Baptist University, and SKLMP gathered to learn about the application of Pulse Amplitude Modulated (PAM) fluorometry.

Normally this workshop is held every year in Puerto Morelos, Mexico, to learn techniques to measure the effects of environmental stressors on the photosystems of marine plants and symbiotic fauna such as corals. The workshop at SWIMS was a condensed version of this intense three-week workshop.

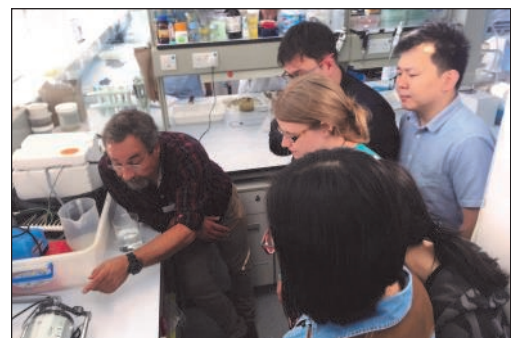
During the workshop, participants were given an in-depth instruction on the relevant proteins, energy transfer and chemical processes involved with chlorophyll fluorometry, which were later demonstrated during practical exercises with several types of PAM fluorometers (diving-PAM & imaging-PAM). Experiments were performed to examine performance and recovery patterns using terrestrial plants and corals exposed to different light levels. A group from SKLMP even brought their own cultures of benthic dinoflagellates and analyzed the efficiency of their photosystems. It was a great opportunity to connect and collaborate between research labs!



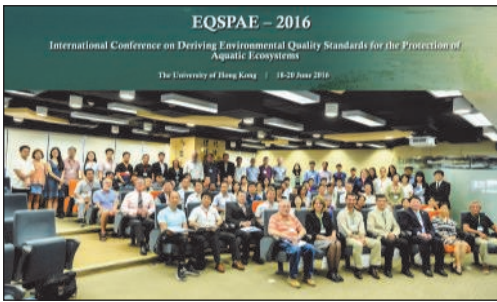
*Participants at the Symposium on Environmental Health and Food Safety*



*Group photo of participants at the Light and Photosynthesis Workshop at SWIMS*



*Roberto Iglesias-Prieto demonstrates how to use the PAM-Fluorometer*



*Participants at the EQSPA-2016*



*Participants at the ICMPE-8*



*Participants at the Eco-shoreline Designs for Sustainable Coastal Development*

## The 2<sup>nd</sup> International Conference on Deriving Environmental Quality Standards for the Protection of Aquatic Ecosystems

## The 8<sup>th</sup> International Conference on Marine Pollution and Ecotoxicology

In June, Kenny held two international conferences in sequence, namely the 2<sup>nd</sup> International Conference on Deriving Environmental Quality Standards for the Protection of Aquatic Ecosystems (EQSPA-2016), and the 8<sup>th</sup> International Conference on Marine Pollution and Ecotoxicology (ICMPE-8) at HKU. The EQSPA-2016 attracted 128 participants from 17 countries while there were over 200 delegates from 16 countries joining the ICMPE-8. The opening of ICMPE-8 was officiated by Mr Wong Kam-sing, JP, Secretary for the Environment of the Hong Kong SAR Government; Mr Stephen Adrian Ross, Executive Director of United Nations' Partnerships in Environmental Management for the Seas of East Asia (PEMSEA), and Prof Peter Mathieson, HKU Vice-Chancellor and President. These two conferences jointly invited over 20 renowned scientists from overseas to share their experience and latest discoveries on topics related to water and sediment quality management, and advanced methods for pollution detection, diagnosis, impact assessment, control and remediation.

## International Workshop on Eco-shoreline Designs for Sustainable Coastal Development

SWIMS continued to support the Hong Kong SAR Government's green initiative on implementation of eco-shorelines on existing artificial seawalls and new reclamation sites, to enhance habitat complexity, and promote marine biodiversity and fisheries resources. In addition to conducting feasibility studies to trial various eco-shoreline designs, Kenny organised the International Workshop on Eco-shoreline Designs for Sustainable Coastal Development in November 2016, with 100 participants from government, the engineering sector and academia with the support from the Hong Kong Institution of Engineers. The opening of the workshop was officiated by Dr SF Leung, JP, Director of AFCD; Ir. Keith Tang, Deputy Head of CEO (Port and Land) of CEDD and Prof Matthew Evans, HKU Dean of Science. The workshop featured keynote lectures from Professor Brian Morton (Founding Director of SWIMS); Dr Perkol-Finkel Shimrit (CEO and Chief Scientist of EConcrete Tech Ltd., Israel), Dr Jon Miller (Research Associate Professor, Stevens Institute of Technology, USA) and Dr Peter Todd (Assistant Professor, National University of Singapore, Singapore), and eight invited talks from local marine scientists. There were also a field trip visiting various potential sites for the trial run, and a forum on refining eco-shoreline designs for Hong Kong's coastlines.

## 2<sup>nd</sup> Interdisciplinary Symposium on Ocean Acidification and climate Change

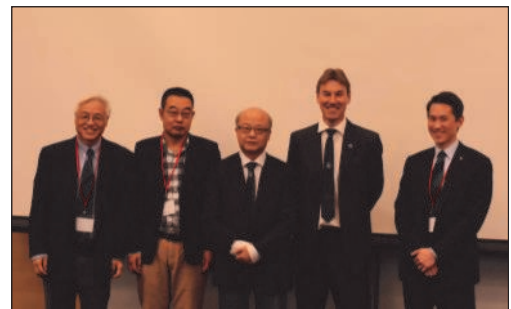
SWIMS and the School of Biological Sciences successfully organized the 2<sup>nd</sup> Interdisciplinary Symposium on Ocean Acidification and Climate Change (2<sup>nd</sup> ISOACC) from 5-9 Dec 2016 with support from the Environment and Conservation Fund (ECF), the Faculty of Science and e-SRT (Earth as a Habitable Planet). The symposium attracted >125 participants from >17 countries and four faculties (science, engineering, biomedical and materials science). This 2<sup>nd</sup> ISOACC brought ecologists, engineers and molecular biologists under one umbrella to refresh collaborations and to establish synergies to utilize new research tools from molecular biology, biomedical sciences and mechanical engineering in ocean acidification studies. Importantly the group identified research gaps through a series of “small group discussions” that can be addressed by multidisciplinary collaborations. Finally the idea to establish an “Interdisciplinary Laboratory for Oyster Research (ILOR)” to model climate change impacts on oyster aquaculture was discussed, and most importantly, it was agreed to set up an international and interdisciplinary team to study multiple stressors and ocean acidification in this part of the world.

### MoU between SWIMS and IOCAS

In the past years research collaboration between SWIMS and the Institute of Oceanography, Chinese Academy of Sciences (IOCAS) has been increasing in topics related to climate change, molecular biology and coastal aquaculture. To facilitate this academic link a Memorandum of Understanding was signed on 6<sup>th</sup> Dec, 2016 during the opening ceremony of the 2<sup>nd</sup> ISOACC meeting in the presence of Professor Paul Tam (Provost and Deputy Vice-Chancellor), Prof John Kao (Vice-President and Pro-Vice-Chancellor) and Professor Baozhong Liu of IOCAS. This MoU will boost and strengthen research collaboration, student exchange, and joint-projects between the institutes.



*Participants at the close of the 2<sup>nd</sup> ISOACC meeting*



*MoU with IOCAS signing during the 2<sup>nd</sup> ISOACC*



*The opening reception of the ISOACC meeting with guests and officials*



*Corals are fragmented and tied to a mesh in a coral breeding programme in Hainan Island, China*



*Underwater transect survey monitoring coral coverage off Hainan Island*



*Arthur and USSP students with researchers from South China Sea Institute of Tropical Marine Biology and Disease, in Xishan Islands, China*



*The research team from the Ren Min University of China and USSP students*

## SWIMS and Ocean Park Conservation Foundation Hong Kong

For the 12<sup>th</sup> consecutive year, the University Student Sponsorship Programme (USSP) funded by the Ocean Park Conservation Foundation Hong Kong (OPCFHK) offered unique and inspiring conservation research experience to undergraduate students who are passionate about biodiversity conservation. Initiated in a partnership with HKU more than a decade ago, the programme currently involves undergraduate students from across all universities in Hong Kong. This year, four HKU students participated in marine and terrestrial conservation research projects with established research teams in China.

In late June, Cathy Lee (Wanyi), Roy Cheung (Shun Chi) and Yvonne Yau (Yu Yan) from HKU participated in research conducted by a team from Ren Min University of China, investigating the pattern of micro-habitat use and breeding success of Alpine musk deer (*Moschus chrysogaster sifanicus*), and their relation with climate change. The students joined the field surveys to collect faeces of Alpine musk deer to study their population status, and visited a musk deer farm to gain a better understanding of the threats this species is facing. They also conducted a series of questionnaire surveys with members of the local community to investigate the impacts of eco-tourism.

Together with partners from the Chinese University of Hong Kong and City University of Hong Kong, Arthur Chung (Yan Chi) joined a coral breeding and conservation programme based in Hainan Island, China, in late June. Students were given the opportunity to conduct coral and biodiversity surveys in two of the Coral Protected Areas near Sanya: Yalong Bay and Luhuitou. They also worked with local researchers on managing the giant clam and coral seedlings within the research centres.

These valuable and exceptional opportunities provided by OPCFHK will continue to inspire young conservationists to further contribute in the field of conservation science.

We thank OPCFHK for their great support in providing our students with these opportunities.



## Staff Research

### Gray A Williams

As well as continuing his work in Brazil, investigating thermal tolerance of rocky and mangrove shore crabs, Gray's work on thermal responses in intertidal species has continued with a new project in Thailand. Together with co-workers from long term collaborators Monthon Ganmanee and Yunwei Dong's groups, this team worked on Si Chang Island to investigate the thermal tolerance of the rock oyster, *Isognomon nucleus*. This oyster lives in the extreme high shore and survives rock surface temperatures  $> 50^{\circ}\text{C}$  on a daily basis. Initial results show that this species has evolved an extreme form of metabolic depression, lowering its heart rate when out of water in the sun, which may explain its survival in this extreme environment.



*Gray with Monthon Ganmanee and Guodong Han and students working in Thailand*

### Kenny Leung

To support the initiative of Hong Kong SAR Government, Kenny Leung and his team embarked on a feasibility study of eco-shoreline establishment, and fruitfully organized the International Workshop on Eco-shoreline Design for Sustainable Coastal Development in 2016. Apart from protecting the shoreline, eco-shorelines are designed to enhance marine biodiversity and ecosystem function on artificial seawalls, and provide architectural landscape for recreation and education purposes. A trial study has been conducted in Taishan, Mainland China. In 2016, Kenny was conferred with the Outstanding Research Student Supervisor Award by HKU, and his co-authored article in the journal *Comparative Biochemistry and Physiology C* was recognized as 'Highly Cited Research' by Elsevier.



*Kenny having a gathering with his students and Professor John Giesy*

### Leszek Karczmarski

Four Ph.D. students in Leszek's Lab graduated, with topics ranging from delphinid population ecology to predator-prey dynamics in terrestrial mammalian systems. Two new projects, one investigating island-associated delphinids in the Philippines and another quantifying social behaviour of African elephants made considerable progress. Our ongoing work on Chinese white dolphins expanded to include: foraging ecology and ontogenetic shifts through stable isotope analyses, and acoustic ecology in the context of marine soundscapes and anthropogenic noise. Notable publications included the genetic demography of Chinese white dolphins in the Pearl River Delta region, their reproduction in eastern Taiwan Strait, and spatial relationships between dolphin distribution and habitat integrity.



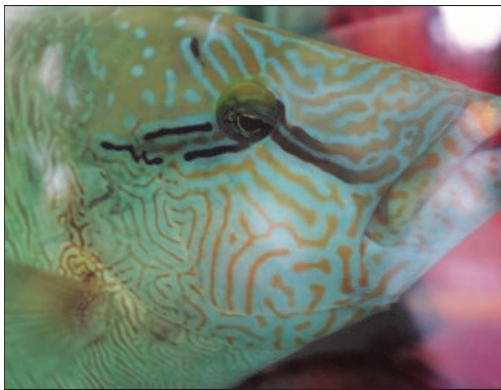
*Leszek with a group of students conducting an experiential field course in central Philippines*



*Rajan with the naturally recruited oyster seeds in Qingdao, China*

## V. ThiyagaRajan

Utilizing Hong Kong's challenging, subtropical climate and its indigenous oyster aquaculture industry as a model system, our interdisciplinary collaborative team is progressing well to develop solutions to the impact of ocean acidification (OA) on aquaculture. At the same time, we have also quantified the interaction between shell calcification and biomechanics of oyster shells in response to OA – to explore the development of oyster-derived biostructures as adhesive construction materials, pollutant adsorbents and scaffolds for bone regeneration. This year, our primary goal was to understand how OA and warming will impact the fitness of several oyster species along the China coast – which will help identify OA tolerant species/strain and develop new hatchery technology to ensure oyster production and quality in a future ocean.



*Napoleon head profile showing distinctive natural patterns used as 'fingerprints' to track individuals*

## Yvonne Sadovy

The Napoleon wrasse was listed on the Convention on International Trade in Endangered Species (CITES) in 2004 largely due to its unsustainable international trade as luxury live seafood. Hong Kong is the global trade hub for this species and is obligated to ensure that its imports and exports are legal and hence do not result in biologically unsustainable exploitation. Despite protection, however, Napoleons leak uncontrolled into the city, many now illegally on sale. Yvonne developed a simple and non-invasive, method, using complex face markings as 'fingerprints' to distinguish individual fish and support government efforts to minimize laundering of this species.



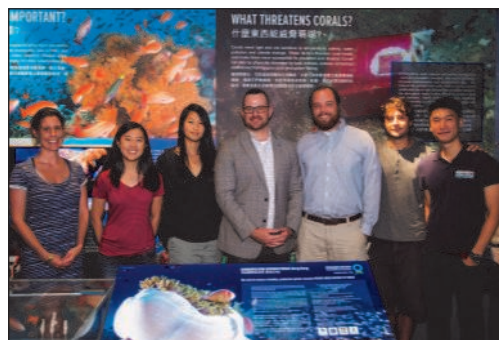
*Moriaki with Heike Lotze and Derek Tittensor at Dalhousie University*

## Moriaki Yasuhara

Moriaki continues his research on paleoecology and macroecology. He published his new results on biodiversity and ecosystem functioning relationships in long-term time series datasets in Royal Society Transactions B as well as a comprehensive review paper on deep-sea temperature-biodiversity relationships in Biological Reviews. A collaborative paper on Hong Kong coral diversity with SWIMS Baker Lab was also published. Moriaki has been working with several global networks, and some outcomes are published this year as a part of the First Global Integrated Marine Assessment (World Ocean Assessment I, United Nations) and a non-governmental scientific perspective on seven marine research issues of G7 interest.

## David Baker

The Baker Lab welcomed 2 new PhD students (Jon & Vicki) and 2 research assistants (Vriko & Chloe) to join exciting projects, including new grants to study historical coral communities, innovative 3D printing and conservation forensics. We published in *Global Change Biology* on coral diversity in Hong Kong. Martin Wong became the first graduate of the lab with a thesis chapter published in *Environmental Science & Technology*. We hosted visitors from KIOST and went to Guam, Okinawa, S. Africa, and Taiwan. Jeremy Jackson and Nancy Knowlton made their second of three visits to HKU-SWIMS with generous support from Cathay Pacific, Swire Properties and the HKU Visiting Research Professorship Scheme.



*The Baker team launched “Corals: Our Underwater Living Treasure” with Conservation International, AFCD and the HK Maritime Museum*

## Stefano Cannicci

In 2016, I started my field work in the mangroves of Hong Kong, collaborating with the SWIMS team working in a joint-university project aimed at studying the coastal marine ecology and biodiversity of Tolo Harbour. We were able to understand how rich the crab biodiversity of Hong Kong mangroves is, and we found, and described, a new species of tree climbing micro-crabs, *Haberma tingkok*. I also had the opportunity to visit the mangroves of Sao Paulo state, Brazil, and to establish a fruitful research collaboration on crab behaviour and physiology with the group of Tania Marcia Costa, of the Universidade Estadual Paulista.



*Stefano exploring Setiu mangroves, Malaysia, with friends*

## Bayden Russell

The Marine Futures Lab continued to grow in 2016, with the addition of PhD students Rhyn Cheung and Jake Dytnerski, and Kate Rider on exchange from Plymouth University. With five of us in the group, experiments to identify the effects of elevated CO<sub>2</sub> (ocean acidification) and temperature on the physiology of subtidal gastropods, urchins, algae, and their trophic relationships, expanded substantially. Bayden also continued ocean acidification work at CO<sub>2</sub> seeps in New Zealand with collaborators from the University of Adelaide. Boosted by some successful funding applications, the research and group continues to grow!



*Bayden visiting an oyster farm in Qingdao with researchers from the Institute of Oceanology, CAS*



*Stefano and Benoit started a collaboration on sediment dynamics in Hong Kong's mangroves*

## Benoit Thibodeau

My group focus on marine biogeochemistry and the use of stable isotopes to tackle relevant environmental issues and we officially joined SWIMS this year. We welcomed Shannon Hanson to our team this year, she started a PhD and looks at the coral holobiont and how it cycles nitrogen under different environmental conditions. We are already involved with some collaborative projects at SWIMS to develop a holistic view of the nitrogen cycling within coral ecosystems and investigate the dynamics of nutrients and their role in eutrophication and hypoxia in Hong Kong waters with Dave. There will be more to come in 2017 with notably multiple collaborations with Stefano on the sedimentary regime and food-web in Hong Kong's mangroves and mudflats.

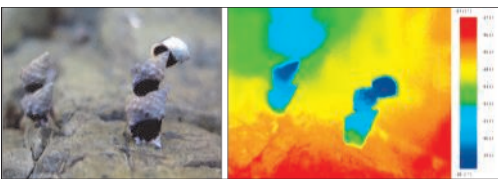


*Christelle during a beach clean-up jointly organised by students from the Society of Environmental Science and the Civil Engineering Society*

## Christelle Not

My group is currently working on 2 projects related to the HK marine environment. The first project aims to use the geochemistry of ostracode shells and more precisely their trace element content to reconstruct environmental parameters (temperature, salinity, oxygenation etc.) of HK waters. The second project intends to quantify the microplastics content and its composition of HK coastal waters. This project is a collaboration with a local NGO, Plastic Free Seas. This year my group started to collaborate with Stefano and Gray in measuring heavy metal concentrations in sediment and crabs from Hong Kong mangroves.

## Post Doctoral Fellows



*High-shore snails performing towering behaviour to maintain thermoregulatory lower temperatures as compared to the rock surface*

## Terence Ng

The past few years have witnessed an explosion of climate change studies but not many have considered animal behaviour. In an ongoing GRF project, Terence has brought new insights showing how high-shore species are behaviourally well-adapted to live in thermally stressful environments. This group of organisms, which were initially predicted to be the early victims of climate change do not suffer from the mass mortalities seen in many lower shore species. Males of these species also prefer to mate with larger females which are thermally more tolerant. These results suggest that animal behaviour can be crucial in determining which species will be “winners” or “losers” when temperatures continue to rise.

## Nicolas Duprey

Nicolas Duprey has dedicated most of his time to two main projects: 1) Sedimentary records of historical coral diversity and distribution in the South China Sea, and 2) Determining the sources of nitrogen to the coral skeletal organic matrix. The first project has involved intense field work with the collection of sediment cores at 20 locations throughout Hong Kong and the exploration of fossil tomboles through excavation pits. Meanwhile, Nicolas has designed and constructed an experimental set up at SWIMS to perform isotopic labelling of coral nubbins. Nicolas has also been involved in public outreach activities at the HKMM and organized the Ocean Odyssey Workshop.



*Nicolas during a Baker Lab dive in Hawaii*

## Kevin Ho

Since October 2015, Kevin has been coordinating a multi-institutional project investigating the spatial and temporal coastal biodiversity patterns in Tolo Harbour and Channel. With his team members, he organized a series of intensive surveys to various coastal habitats, which involved >40 university students and green groups. The team was able to document a number of species which are new to Hong Kong and/or to science. As project outreach and knowledge exchange, Kevin also presented the overall design and preliminary results in various meetings and conferences. It is hoped that the data generated from this study can contribute to produce a complete species inventory for scientific, conservation and educational purposes.



*Kevin and his team members conducting field surveys at Lai Chi Chong*

## Briony Mamo

Briony's research interests have always focused on the varying and novel application of microfossils to both modern- and palaeo-related problems, particularly where quantitative data can be coupled and enhanced with taxonomic knowledge. In Hong Kong, her investigations focus on the benthic communities stretching from the north-eastern areas bordering with mainland China to the Pearl River Estuary in the west. Previous work by colleagues has shown a stark water quality gradient heading west across Hong Kong waters and Briony seeks to discern benthic ecosystem health across this region and coping strategies employed to accommodate Hong Kong's environmental change.



*Briony working aboard the vessel Joides Resolution on the International Ocean Discovery Program*

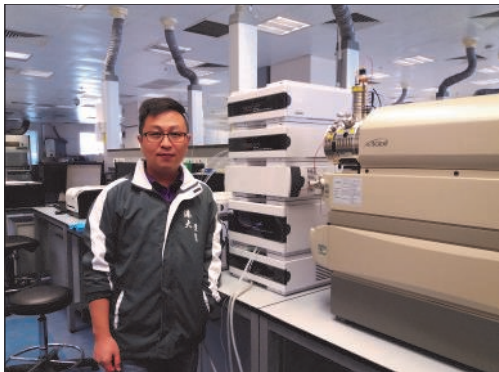




*Habitat tiles being used to test if provision of microhabitats can enhance biodiversity on seawalls*

## Matthew Perkins

Matthew continued his research to identify signs of ecosystem recovery in subtidal benthic habitats in response to Hong Kong's territory-wide ban on trawl fishing. This research has an emphasis on understanding the effects of life-history traits upon recovery and the application of stable isotope techniques to quantify food web structure. As part of the World Harbour Project, he has also deployed 'habitat tiles' onto two seawalls within Hong Kong with view to providing insights into mechanisms that make microhabitats suitable for intertidal organisms to survive in man-made habitats. It is hoped such 'ecological engineering' will sustain Hong Kong's marine biodiversity in the face of urbanisation.



*Dr Zhou working with the HPLC-MS/MS*

## Guang-Jie Zhou

Marine environments of densely populated and urbanized coastal cities often suffer from contamination by chemical pollutants. Endocrine disrupting chemicals (EDCs) and retinoic acids (RAs), which pose health risks to marine organisms, are commonly found in treated sewage effluent discharged from sewage treatment plants (STPs). Zhou Guang-Jie has been investigating the removal efficiency of EDCs and RAs in several STPs in Hong Kong that apply either activated sludge process or iron-enhanced primary treatment process, and assessing their ecological risks to local marine ecosystems. This project also aims to develop a better treatment process to enhance the removal of these micro-pollutants.



*JC working on rocky intertidal communities*

## Juan Carlos Astudillo

Juan Carlos continues his research 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 to determine the distribution and abundance of invasive species and their interaction with environmental and biological factors. He found that invasive species benefit from environments under human disturbances, whereas their abundances respond to seasonality accordingly to their original distribution.

## Shelby Mcilroy

Shelby began her work on the GRF funded project: Clash of the dinoflagellates! Nitrogen competition among coral-hosted symbionts. This ongoing work has resulted in the first species-specific measures of nitrogen uptake in the presence and absence of competition for symbionts in culture. She is now translating this experimental design from culture work to in-hospite systems to understand how eutrophication affects coral health. Shelby's expertise in molecular ecology is shared with the SWIMS and HKU community through seminars as well as collaboration on population genetics studies of Hong Kong's invertebrates. She has represented SWIMS at several outreach events including public talks and community engagements through the HK Maritime Museum, and hosting student groups at SWIMS.



*Shelby working with algal cultures to understand their ecology both inside and outside of their coral host*

## Edward Lau

Edward rejoined the SWIMS family in October 2016 as a post-doctoral fellow. Together with Dr. Mana Yung, Edward has been devoted to develop measures to ameliorate biodiversity of degraded artificial shorelines in Hong Kong and in China. He is also managing the World Harbour Project, which is an international collaboration initiated by the Sydney Institute of Marine Science to test the effectiveness of some ecological engineering designs on seawalls across the globe. The ultimate goal of these studies is to achieve a win-win situation where the needs of both humans and nature are taken care of in future, sustainable, coastal developments.



*Edward collecting environmental data in Taishan, China*

## Mana Yung

Apart from continuing her research in ecotoxicology of engineered nanomaterials, Mana Yung has recently embarked on exploring ecological engineering solutions to improve biodiversity and ecosystem functions on manmade seawalls. By incorporating ecological concepts and habitat complexity into the design of the seawalls, it is possible to enhance marine biodiversity and ecosystem function (e.g. bio-filtration). With funding support from the Civil Engineering and Development Department, Mana and the research team are currently conducting a trial study on various eco-shoreline designs in Taishan, Mainland China.



*Mana surveying a mangrove wetland*





*Simon with lab-mates at the China Conservation Expo 2016 in Beijing*

## Postgraduate Research

### **Anthropogenic impacts on Chinese white dolphins in Hong Kong: The spatial scale matters**

Simon Wong completed his Ph.D. study that quantified the response of Chinese white dolphins to large long-term and short-term chronic anthropogenic impacts, and documented how various human activities affect the dolphins' daily behaviour and habitat selection in Hong Kong waters. Simon's study points out that the conservation actions currently in place in Hong Kong are ineffective in protecting the dolphins from man-caused threats and not effective in preserving their habitat in the long-term. Simon highlights considerable ecological concerns and an urgent need for science-based and habitat-oriented conservation strategy.



*Circle sampling with the Environmental Protection Department*

### **Hong Kong shallow marine ecosystem history: conservation paleoecology using microfossil ostracods**

Ostracods (microcrustaceans) are an ideal model for long-term quantitative paleoecological analyses because of their small size, high abundance and excellent fossil record. In total, 151 species of modern marine benthic ostracods belong to 74 genera were discovered and identified in Hong Kong. Circle Hong studies the ostracod faunal distributions and their controlling factors quantitatively using rigorous statistical modeling. Then, she investigates fossil ostracods in sediment cores to understand natural and anthropogenic impacts on Hong Kong shallow marine ecosystems, especially in Tolo Harbour, Deep Bay and offshore Lantau Island.



*The Red Sea spinner dolphin leaping out of the water*

### **Population ecology of spinner dolphins in the Red Sea**

Amina Cesario completed her Ph.D. thesis on the population ecology of spinner dolphins at Samadai reef, an offshore reef and dolphins' resting habitat in the Egyptian Red Sea. Using underwater photo-ID data and mark-recapture analyses, Amina quantified demographic parameters of a dolphin population of ~200 adult individuals, indicating high survival rates, low temporary emigration, low female dispersal and highly seasonal reproduction, with significantly lower reproductive success of younger females. Underwater photogrammetry shows that adults are sexually dimorphic; and, interestingly, the Red Sea spinner dolphins display pigmentation features unique to the region, possibly indicating a regional eco-form.



## Biology of seabreams in Hong Kong and juvenile fish assemblages in Tolo area

Calton Law recently completed his studies on the reproduction, growth, trophic ecology and fisheries of seabreams in Hong Kong. The results suggested that most seabreams are overfished with some of their biological characteristics making them vulnerable to unmanaged fisheries. Calton then joined the Ting Kok biodiversity survey team and investigated the inshore juvenile fish assemblages in the Tolo area. Preliminary results showed that the area is an important nursery ground with abundance and species diversity high in most of the surveyed sites. Species of conservation concern (e.g. the Yellow seahorse *Hippocampus kuda*) were found. There is a clear need for appropriate management to achieve sustainable fisheries and marine conservation in Hong Kong.



*Calton conducting a beach seine survey with his colleagues for inshore juvenile fishes*

## Behavioural responses of prey to the introduction of predators

Sze-Wing completed her Ph.D. study on predator-prey behavioural dynamics, the so-called “landscape of fear” where prey adjust its behaviour as an anti-predator response. To investigate this phenomenon, Sze-Wing focused on African herbivores and large felids, the lions. Satellite tracking data indicated that the post-release movement of lions stabilised by the end of the first year. To quantify their space use, Sze-Wing examined their home range utilisation and resource selection. She then quantified species-specific differences in the vigilance behaviour of prey in response to different levels of predation risk and found that responses differ between prey species, indicating that it is important to monitor multiple species to quantify effects of predator reintroductions.



*Sze-Wing at the 16<sup>th</sup> Congress of the International Society for Behavioral Ecology*

## Social and spatial ecology of Chinese White Dolphins in the Pearl River Estuary

Carmen Or completed her Ph.D. study of socio-spatial ecology of Chinese white dolphins in Hong Kong and the eastern Pearl River Estuary (PRE). Her analyses quantify the dolphin's fission-fusion social system with a dynamic community structure as a coping strategy for the changing environment. In Hong Kong, dolphins form multiple, closely interacting social clusters that have different core areas but overlapping ranges. Carmen's study shows that conservation priority must be given to protecting the integrity of the core dolphin habitats and maintaining the connectivity between these areas; a thorough revision to the marine protected area design in the PRE is urgently needed.



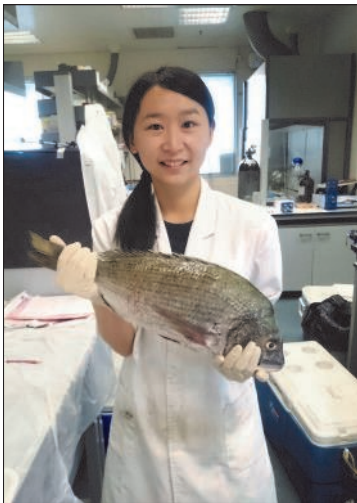
*Carmen conducting photographic identification with collaborators from Sun Yat-Sen University*



*Ginger presenting at the AFCD Marine Parks and Marine Ecological Resources Public Seminar 2016*

### **Chinese oyster survival in a changing climate**

Ginger Ko's previous studies and others results collectively show that aquaculture production of different Chinese oysters could be declining in the near future due to ocean acidification, global warming and freshening. This year, she further investigated the molecular mechanisms behind such multiple stressor effects using quantitative shotgun proteomics, i.e. LC MS/MS and iTRAQ labeling approaches. Mechanisms such as energy, recruitment and signaling related mechanisms were found to be negatively affected. This multiple stressors and relatively long-term exposure study convincingly shows how climate change factors may interact to synergistically affect oyster production in Chinese coastal areas.



*Yanny sorting fish*

### **Effects of trawl-ban on demersal fish communities in Hong Kong**

Yanny Mak has been investigating if the trawl-ban implemented on 31 December 2012 in Hong Kong would rehabilitate the depleted fisheries resources and conserve marine biodiversity in local waters. Her results reveal that initial signs of recovery were only detected at eastern waters during the dry season and in western waters during the wet season after three years of the trawl-ban. Such slow recoveries may be partly due to other anthropogenic factors such as hypoxia associated with eutrophication, illegal trawling, expansion of non-trawling fishing efforts, coastal development and reclamation.



*Ruby identifying the ostracods found in the western North Atlantic*

### **Shallow-marine latitudinal diversity gradients in the western North Atlantic**

In Ruby Chiu's study, ostracods are used as the model system to investigate the long-term impacts of climate change on large-scale shallow-marine diversity patterns. Results reveal that present species diversity decreases from the tropics to the Arctic, showing the conventional latitudinal diversity gradient. Regression models and model-averaging results showed significant relationships between bottom water temperature and diversity. Differences in diversity patterns between the present and warmer periods are revealed by comparing the modern latitudinal diversity patterns with Pliocene data. These results suggest that future climate change may alter large-scale biodiversity patterns.

## Behavioural thermoregulation of the sand-bubbler crab *Scopimera intermedia*

Tommy Hui investigates the thermal biology of the deposit-feeding crab *Scopimera intermedia*, and how behaviours of the crab can ameliorate rapid body temperature fluctuations during tidal emersion. Tommy found that the air temperature above the sediment surface often exceeds the crab's critical thermal maximum. To survive the heat, the crab sponges, lowering its body onto the sediment surface to uptake water, which can reduce body temperature by  $\sim 3$  °C. Tommy is summarizing these empirical results and constructing a model to predict behavioural thermoregulation of the crabs under different environmental temperatures.



*Tommy presenting his findings on crab foraging in ISBE 2016*

## Demographic processes and long-term viability of Indo-Pacific humpback dolphins in Hong Kong and the Pearl River Estuary

Stephen Chan continued his fieldwork collecting photo-ID data across the entire Pearl River Estuary (PRE). With mark-recapture modelling techniques, he quantified population size, survival rates and movement patterns of humpback dolphins (*Sousa chinensis*) in Hong Kong waters. His findings highlight the population demographic connectivity across the PRE, and the critical importance of western Hong Kong waters as dolphin habitats. Stephen was also involved in a study that quantified the threshold of long-term survival of humpback dolphins in the PRE with the application of population viability analysis, which indicated the population vulnerability to withstand further environmental degradation of the PRE.



*Stephen conducting a Photo-Identification Database Management workshop at Flinders University, Australia*

## Effects of the trawling ban on benthic crustacean diversity

Lily Tao investigated whether the diversity, size based metrics and mean trophic level of benthic marine crustaceans would gradually increase after the trawling ban. She found that the community structures of crustaceans differed between before and after the trawling ban. Mean weight of three dominant mantis shrimps were significantly increased three years after the trawl-ban in western waters of Hong Kong. Results of stable isotope analysis suggested that trophic niche width of the crustacean community in 2015 was generally higher than that of 2012. Hence, there are signs of ecosystem recovery.



*The trawling group working in the lab after trawl surveys*



*Yuan attending ISOACC in Hong Kong with experts in biomineralization*

### **Chinese oysters are producing mechanically weaker shells in response to ocean acidification**

China is well-known for rich oyster species biodiversity and contributing >90% of world shellfish food production. However, global warming and ocean acidification (OA) are posing a great threat to these oysters. Particularly, oyster shells are expected to be directly affected by OA. Therefore, in Yuan Meng's PhD research, she is intensively examining the impact of OA on shell structural mechanics of Chinese oysters. So far, her research clearly shows that the majority of Chinese oysters are producing softer and weaker shells in response to OA. Currently, she is using a variety of mechanical engineering and material science tools to further our knowledge on the impacts of OA on marine shells.



*Richard was awarded the Best Oral Presentation in the 2<sup>nd</sup> Meeting of Asian Ostracodologists*

### **Revisiting the taxonomy of ancient Taiwanese marine Ostracoda**

Richard Cheung's study aims to better understand the taxonomy of Plio-Pleistocene Taiwanese marine Ostracoda using outcrop sediment samples. The latest ostracode identification reference in Taiwan does not meet the standard of modern scanning electron microscopy (SEM) images. Some researchers also suggested a number of new species erected in it were likely synonyms of previously described species. Taiwan is connected to East China Sea, South China Sea and Indo-Australian Archipelago (IAA), and results of this study will provide insights into origins of some extant ostracode species and hint at their migration dynamics within the East Asia region since ancient times.



*Anna meeting fellow paleoclimatologists at the conference's icebreaker party in Utrecht, NL*

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

Anna Joest is currently finishing her PhD thesis, looking at the controlling factors of deep-sea benthic meiofauna from recent times, as well as from past glaciations and interglaciations (362 to 593 ka). Her study organisms are fossilized seed-shrimps (Crustacea: Ostracoda) from the sub-polar North Atlantic. Her statistical results revealed surface productivity to be a major driver of meiobenthic life in the deep sea. This delivers an important message: even a place as remote as the deep sea will not be spared from the rapid changes this planet is currently subjected to at the sea surface.

### **Warmer climate, a friend or foe for the green mussel, *Perna viridis*?**

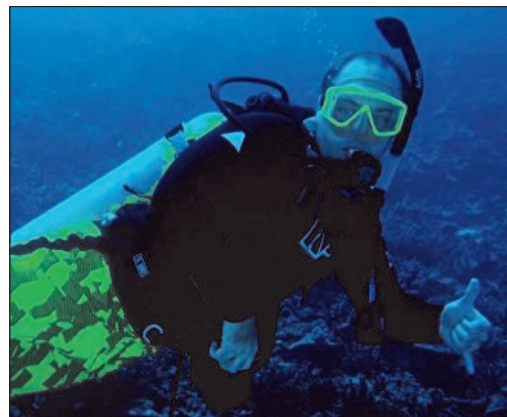
Martin Cheng is studying the physiology of a commercially and ecologically important mussel, *Perna viridis*, and then applying this knowledge to build up a bioenergetic model, the Dynamic Energy Budget model, to depict the energy expenditure of this mussel. Based on the model prediction, increasing seawater temperature will be more favourable for this mussel species with enhanced growth and reproductive output. Martin's study may, therefore, provide useful information for aquaculture management of how this species can be cultivated under changing climate conditions.



*Martin measuring the heart beats of *Perna viridis**

### **Hong Kong's coral population genetics and symbiotic plasticity under temperature stress and eutrophication**

Coral genetic connectivity is poorly understood within the South China Sea. Phil Thompson is testing the genetic connectivity of the corals within Hong Kong and other coastal communities in the region such as Thailand and Taiwan. Phil has also been monitoring coral lipid storage, photophysiology of *Symbiodinium*, and net productivity of coral fragments growing at SWIMS during one full year to examine their metabolic adaptations during seasonal temperature extremes. Data suggests that some coral species exhibit less of a symbiotic reliance on *Symbiodinium* than others during periods of temperature stress. Seasonal variations in metabolic strategies may be the result of site specific adaptation within Hong Kong.



*Phil diving in Guam for collaborative fieldwork*

### **Nitrate assimilation varies across the diversity of *Symbiodinium* - setting the stage for nutrient competition**

Successions of *Symbiodinium* were observed for many horizontally transmitted corals through juvenile to adult stages, seasonal variation of symbiont communities were also observed for some adult corals. Jane Wong hypothesized ecological competition played a role in shaping *Symbiodinium* community structure, and the dominant algae exclude others by their superior ability to acquire nutrients. Thus, she characterized nitrate uptake kinetics and carbon fixing abilities of 5 different strains of *Symbiodinium* with the use of dual stable isotope labelling techniques. Significant differences between maximum uptake rate and affinity for nitrate were observed among different *Symbiodinium* strains, which indicated varied strategies and/or trade-offs in acquiring nitrogen for maintenance and growth.



*Jane, Chloe, Inga and Briony (left to right) digging for corals on a tombolo somewhere around Tolo Harbour*



*Spiny Saccostrea cucullata oysters on Tai Tam rocky shores, Hong Kong*

### Is the “echinata” morph an inducible defense?

Camilla Campanati is interested to understand the impact of ocean acidification (OA) on a rocky-shore predator-prey interaction. The oysters (the prey in the interaction) bear calcified spines on the upper valve of their shells, though it is still currently unknown whether this represents a morphological trait inducible by the predators. Spine production among different oyster size classes, tidal heights and predator abundance were first investigated. Results suggest that smaller individuals, with greater proportion of growth squamae, bear more spines. Independent of size, the highest percentages of spiny oysters occurred in the mid-shore, possibly related to oyster density and/or predation pressures. In the coming year, Camilla will focus on this predator-prey interaction under OA.



*Alicia and Gray with collaborators from Italy and Qingdao at the ISOACC conference*

### Climate change’s winner? A case study of an invasive mussel, *Mytilopsis sallei*

To be able to predict the possible impacts of climate change on the distribution of *Mytilopsis sallei* and *Crassostrea gigas*, and hence develop better mitigation and management strategies, Alicia Tan has been constructing Dynamic Energy Budget (DEB) models to simulate performance of these bivalves under changing environmental conditions. In Alicia’s work, the future life history traits (e.g. maximal size, sexually maturity period and reproductive events) of *M. sallei* were predicted from the DEB model and revealed enhancement of *M. sallei*’s performance under climate change scenarios which are likely to facilitate its distribution and increase its bioinvasion threat northwards along the China coast.



*Ronia with other professionals at the SETAC Asia/Pacific meeting*

### Bioaccumulation of triphenyltin compounds in marine fishes

Ronia Sham’s research focuses on the bioaccumulation of highly toxic triphenyltin (TPT) compounds in marine organisms. They are ubiquitous in the marine environment due to their extensive usage as biocides in antifouling paints on ship hulls and fish cages, and as pesticides and fungicides. Ronia investigated the bioaccumulation of TPT compounds in local marine fishes and found that the accumulation pattern was species- and tissue-dependent, in which TPT was preferentially bound to fish livers. To test the hypothesis that TPT compounds can be biomagnified through the marine food chain, she is currently studying their bioaccumulation profiles among various marine organisms, including molluscs, crustaceans, fishes and dolphins.

## Nutrient acquisition in Hong Kong's coral communities

This past year, Inga Conti-Jerpe has begun to conduct stable isotope tracer experiments to determine which nutrient sources different species of soft corals and black corals can access. By exposing corals to labeled inorganic and organic nutrients, Inga has been able to demonstrate that most soft and black coral species can absorb dissolved organic nutrients. Inga used these data to design an ongoing experiment that will determine which nutrient sources (dissolved nutrients or particulate food) soft corals and black corals use to construct their skeleton. This will enable historical nutrient data extracted from coral skeleton growth rings to be interpreted accurately.



*Inga describing some of the fauna visitors can see in the Hoi Ha Wan marine park during an eco-tour*

## Linking sewage impacts to ecosystem decline in a human impacted marine environment

Hong Kong discharges  $\sim 3 \times 10^6 \text{m}^3$  of wastewater into the ocean everyday and this has a strong negative impact on the biodiversity of foundational species. Yet, there is little evidence to directly link sewage discharge with ecosystem decline. Thus, Archana Anand utilized stable isotope analysis to resolve the average  $\delta^{15}\text{N-NO}_3$  of sewage effluents and to determine major point-sources of pollution in seawater. Following this, she used assays of ecosystem function to link sewage impacts to ecosystem decline in four sites in Tolo Harbour. Archana's work showed there was no overall effect of treatment type on wastewater effluent  $\delta^{15}\text{N-NO}_3$  and sewage was the dominant source of N pollution.



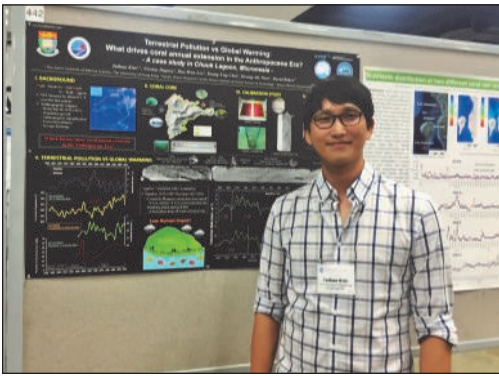
*Archana deploying squidpops to assess predation pressure in Tung Ping Chau*

## Distribution of yellowtail clownfish in Hong Kong eastern waters

Yellowtail clownfish or Clark's anemonefish, *Amphiprion clarkii*, are widely distributed in Hong Kong nearshore waters, but little is known of its preferred habitat. In 2016, 53 dive sites in Hong Kong eastern waters were surveyed by Gomen See, covering most popular dive sites which are those that have relatively good visibility and include habitats of clownfish visited by local divers. The clownfish was found in 42 sites, from shallow sandy bay to offshore submarine mountains, between 3-14m deep, and was found associated with only two host anemone species (*Entacmaea quadricolor* and *Macroactyla dorensis*). Large numbers of clownfish, more than 100 individuals, were only found at 3 sites.



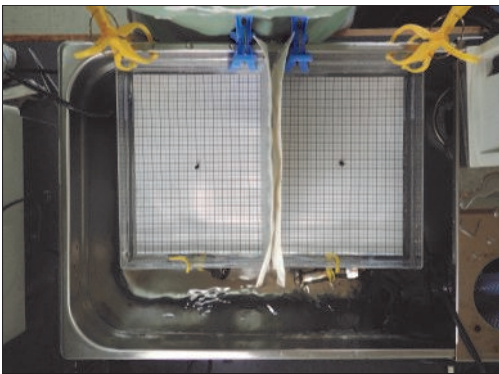
*A yellowtail clownfish with its host anemone (*Entacmaea quadricolor*)*



*Taihun presenting his poster in the International Coral Reef Symposium in Hawaii*

### **How does global change affect fatty acid profiles in *Symbiodinium* and their coral host?**

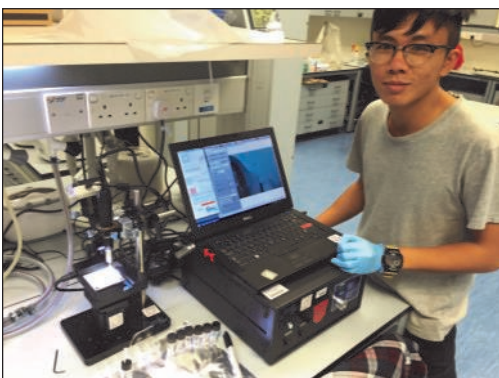
Taihun Kim is doing his PhD on the physiological and biochemical interaction between coral symbiotic relationships under environmental change. Specifically, he is analyzing fatty acid profiles to investigate the metabolic flow between corals and their associated symbionts. His preliminary data shows that different coral species have different fatty acid profiles. In addition, he found that each coral species exchanges fatty acids with symbionts at different rates, depending on their specific feeding behaviour. His future aims are to reveal how corals compensate for the negative effects of global warming and eutrophication in respect to feeding strategies and, by doing so, gaining insight into the fatty acid profiles involved in coral metabolism.



*Arenas to control environmental temperatures and monitor snail locomotion rates*

### **Tropical high shore species: winners or losers to climate change?**

*Echinolittorina* snails are among the very few that can survive in the high shore of the rocky intertidal zone – where the rock temperature reaches almost 60°C. Despite their renowned exceptional capability in tackling thermal stress, many researchers have suggested that these snails will be the first victims of climate warming as they may have very limited adaptive capacity. To test this, Sarah Lau has started to look at the snails' thermal performance from both the physiological and behavioural perspective, including their oxygen consumption rate and locomotor functioning with temperature.



*Derek working at micro-milling dolphin teeth dentine samples*

### **Dolphin weaning age study using stable isotope analysis**

Derek Ho uses teeth of Indo-Pacific humpback dolphins (*Sousa chinensis*) to study their foraging ecology and the environmental nitrogenous input in the Pearl River Estuary (PRE). Annual deposition in growth layer groups in dolphin's teeth provides a temporal archive of the annual nitrogenous input in the environment. Derek works with the smallest cetacean tooth ever used for such study and uses a micro-drill to obtain material from each annual deposition layer. His current results suggest that the weaning age of humpback dolphins is notably longer than previously thought. Derek's further work will include samples from across the PRE for regional analyses of nitrogenous input.



## Learning benthic biotic changes on a millennial time scale and from a microscopic view

May Huang studies the relationship between environmental changes and the benthic ecosystem, focusing on the long-term relationship and the microscopic scale. Her research topic is Cenozoic paleoceanography and paleoecology in the western Pacific Ocean based on paleoenvironmental reconstruction by microfossil ostracods. She has been working on the Quaternary Sea of Japan paleoceanography with samples collected by the International Ocean Drilling Program Expedition-346 Asian Monsoon as a part of her PhD study. She has presented the results in the 2016 International Conference on Paleoceanography and 2016 American Geophysical Union Fall Meeting.



*May's oral presentation in the 2016 AGU Fall Meeting in San Francisco*

## Ecotoxicology of zinc oxide nanoparticles to marine organisms

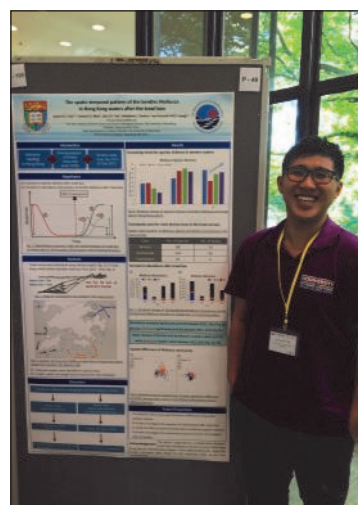
High production volume and wide application of zinc oxide nanoparticles (ZnO-NPs) in various commercial products like sunscreens inevitably result in an increased release of these particles into the marine environment. However, their toxicity and impacts to marine organisms are still largely unknown. Racliffe Lai's PhD research aims to fill this knowledge gap through conducting laboratory experiments, while considering the potential influential factors like surface coatings, temperature and salinity. His preliminary results with marine copepods show that ZnO-NPs with hydrophobic coatings are more toxic than those with hydrophilic coatings, and their toxicity generally increases with increasing temperatures and decreasing salinities.



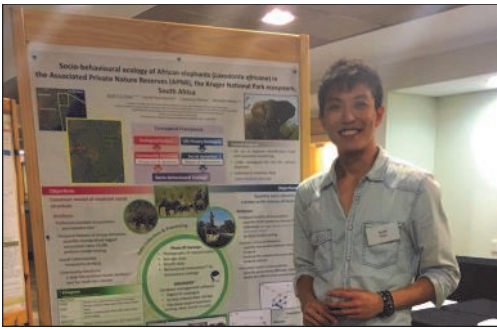
*Racliffe presenting in the 8<sup>th</sup> International Conference on Marine Pollution and Ecotoxicology*

## Biodiversity and ecology of marine benthic mollusc after the trawling ban in Hong Kong

Trawling is regarded as a major disturbance to benthic ecosystems as it exerts serious physical damage to benthic habitats and causes overfishing. To sustain local fishery resources, the Hong Kong SAR Government has imposed a territory-wide trawl ban since 31 December 2012. Jason Yau's study aims to evaluate the effectiveness of the trawl ban on recovery of benthic mollusc communities in local waters. By comparing the benthic mollusc community structures before and after the trawl ban, he observed a slight decline in the number of scavengers and an increase in the number of predators (e.g. *Amphioctopus aegina*) indicating an initial sign of ecosystem recovery.



*Jason's first poster presentation in The 8<sup>th</sup> International Conference on Marine Pollution and Ecotoxicology*



*Scott giving a poster presentation at the 14<sup>th</sup> Annual International Savanna Science Network Meeting, South Africa*

## **Socio-behavioural ecology of African savannah elephants**

The social dynamics of African elephants are among the most complex in mammals, yet our understanding of their social behaviours leaves much to be answered. Scott Chui continued his study of elephants in Pilanesberg National Park, South Africa, a population that ~30 years ago has undergone a major behavioural trauma. Using photo-ID techniques, Scott records the patterns of group memberships to investigate the resilience and plasticity of elephant societal structures. He found that after young-adult males leave their natal groups, they preferentially associate with certain mature males, which may lead to their long-term companionship. Scott will continue his research in Pilanesberg for another 3 years, to quantify and model the elephants social organisation.



*Jay measuring sea urchins for climate change experiments*

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

Coral reef ecosystems around the globe are suffering large-scale degradation due to climate change, with rising temperatures and CO<sub>2</sub> causing ecological shifts towards algal dominated ecosystems. However, stability of coral ecosystems has been demonstrated through maintenance of grazing. Jay Minuti is investigating whether grazing can keep pace with increased primary production under forecasted climate change by assessing the metabolic responses of sea urchins and gastropods to ocean acidification and temperature. Predictions can then be made on how different grazers may adapt to future conditions created by climate change and the potential affect on the wider reef habitat.



*Laura with crab burrow casts at Tung Chung*

## **The mysteries that lie beneath: burrow architecture of mangrove crabs and its ecological consequences**

Laura Augusto's PhD studies aim at unveiling the ecological impacts of mangrove crab burrows on ecosystem health, with an eye on their role in mangrove restoration. Mangrove crabs play a key role in maintaining a healthy mangrove ecosystem. The bio-engineering potential of their burrows relates to their shape and dimension, which are species-specific and highly variable. However, in order to analyse how burrows impact the ecosystem, we must first obtain knowledge of the burrows' structural characteristics. In this first research chapter, Laura is exploring the use of low cost 3D techniques to visualize and analyse some known and unknown crab burrow morphologies within Hong Kong mangroves.

## Investigating the Nitrogen cycle within the coral holobiont

Corals have evolved to live in low nutrient (oligotrophic) conditions, and therefore, have developed many adaptations to survive in these conditions. However, many reefs now face high nutrient (eutrophic) conditions and are exposed to nitrogen pollution. The main sources of this pollution are from agricultural run-off and poor sewage management. In her first semester Shannon Hanson conducted experiments to study how much nitrogen corals were taking up over a 6-hour period using isotopically labelled nitrogen compounds. In addition, she conducted experiments, again, using stable isotopes to determine if nitrogen is incorporated into the coral skeleton.



*The four corals species Shannon has been studying in Hong Kong*

## Ocean acidification and oyster metamorphosis

Ocean acidification (OA) is impacting all walks of marine life, but the majority of OA studies has only focused on larval or juvenile/ adult life stages. These studies often overlook metamorphosis, which is the key process in linking the pelagic and benthic life phases. Using oysters as a model, Michele Mei, a first-year graduate research student, is planning to study the effects of OA on metamorphic success as well as the proteins and signaling pathways which control it. She plans to compare multiple oyster species in order to establish future winners and losers. Currently, she is working on a review paper on metamorphic and stress signaling pathways in oysters under OA impact.



*Michele at the 2<sup>nd</sup> ISOACC dinner with friends and colleagues*

## How ocean acidification might affect the oyster shell proteome?

The growth of oyster shell microstructure and their mechanical strength are directed and determined by the occluded small percentage of organic matrix proteins (OMPs). This complex shell formation process and its structural mechanics is expected to be affected by ocean acidification (OA) because of the impaired production of OMPs. In her PhD thesis research, Kanmani Rajan will test this hypothesis using the genome sequenced model species, i.e. Chinese oysters, and a variety of modern proteomics techniques.



*Kanmani with Dr Michio Suzuki, expert in shell protein research from The University of Tokyo, Japan*



Rebekah at Yung Shue O mangrove stand in Sai Kung District

## Investigating the influence of human impacts on critical mangrove fauna of Hong Kong and beyond

Mangrove forests are disappearing at an alarming rate due to numerous human activities, so far research and conservation efforts have focused on human impacts to the mangrove flora with little consideration of crucial mangrove fauna. Rebekah Butler's PhD aims to understand the influence of human impacts on mangrove crabs that are essential to maintaining the health of mangrove ecosystems by enhancing nutrient and oxygen in sediments through their burrowing activities. Studying the red claw crab (*Perisesarma bidens*) Rebekah has recently investigated the potential influence of heavy metal pollution on the physiological performance of crabs around Hong Kong with preliminary results suggesting differences between heavily polluted and lightly polluted areas.



Jake took a quick break & selfie during an urchin density survey

## What's for dinner? Long-spined sea urchin food sources throughout the year

Jake Dytnerki is interested in how energy moves through the marine ecosystem and how that may shift under predicted climate change scenarios. To address these questions here in Hong Kong, Jake will investigate grazing behaviours of the long-spined sea urchin, *Diadema setosum*. Using fatty acid and stable isotope analysis, Jake hopes to determine the various food sources of juvenile and adult *Diadema*, in both the summer and winter season. Predictions for future ocean conditions include increased temperatures and CO<sub>2</sub> concentrations, which have been shown to benefit algal growth; Jake will investigate if the increase in food can counteract the negative effects of a warming and acidifying ocean on *Diadema*.



Rhyn measuring photosynthetic yield of the macroalga *Ulva* at SWTMS

## Algal distribution along the Chinese Coast

Cooler temperatures in Hong Kong's waters during winter allows ephemeral macroalgae to survive and grow, marking Hong Kong as their southern range limit. Rhyn Cheung is interested in the phenology of *Sargassum* species and their physiology in response to the increasing ocean temperature and carbon dioxide concentration in the future oceans. By determining their physiological performance across their range in the East China Sea Rhyn intends to understand their future geographical distribution and related effects on other marine organisms that are dependent on *Sargassum*. In his first academic year, Rhyn attended the 2<sup>nd</sup> Interdisciplinary Symposium on Ocean Acidification and Climate Change.

## Chaos and complexity in marine ecosystems

Vicki Sheng is interested in nonlinear dynamics, particularly chaos and critical transitions. Her current research uses 3D-printed coral skeletons as well as metagenomics to understand how structural complexity affects biodiversity in marine ecosystems. Previously, she helped establish HKU's conservation forensics lab and provided DNA identification for wildlife trade specimens seized in Hong Kong. Vicki was the delegate representative for Hong Kong at RhoDIS (Rhino DNA Indexing System) forensic workshop in South Africa in June 2016.



*Vicki diving with oceanic whitetips*

## Can oysters provide climate refugia for coastal biodiversity?

Dominic McAfee spent 6 months conducting research at SWIMS on an Australian Government Endeavour Research Fellowship Award. To help development management strategies that assist the adaptation of coastal biodiversity to climate change, Dominic's PhD (Macquarie University, Australia) investigates the capacity of intertidal oysters to provide refuge habitat to invertebrates from extreme temperatures. Dominic described the biodiversity associated with Hong Kong oyster habitat, and how this association becomes increasingly important for biodiversity to endure hot summer climates. A laboratory mesocosm experiment at SWIMS identified specific structural configurations of oyster habitat that reduce climate stress for associated animals. This knowledge can help improve oyster conservation and restoration projects aimed at climate adaptation.



*Dominic investigating ecological communities associated with oysters in Hong Kong*

## Physiological and behavioural responses of Hong Kong fiddler crabs to temperature: possible implications of global warming

Crabs have crucial functions for estuarine ecosystems. Some species inside this group, such as the fiddler crabs, change the characteristics of the environment through bioturbation, making it more suitable for other organisms. Fiddler crab species are exposed to high temperature stress, and are being threatened by global warming. Pedro Jimenez's PhD project aims to study the physiological stress caused by temperature and the tolerance limits to this factor of some fiddler crab species, and also to investigate how temperature can impact the crabs' behaviour and bioturbation activities, thus to understand how these possible impacts may reflect on estuarine ecosystems.



*Pedro discussing crabs with SWIMS mangrove research group in Singapore*



*Nicolas and Jon after a successful push-coring excursion around Hong Kong*

### **Using paleoecology methods to tell the story of Hong Kong's corals**

Paleoecology is the study of past ecosystems through the fossils and sub-fossils left behind. Jonathan Cybulski will employ various methods to collect these ecological footprints around Hong Kong to attempt to piece together the story of the region's marine habitat. His initial project is a continuation of work done by Stefan Husa and Nico Duprey, where a team collected 3-m deep marine sediment push-cores from around Hong Kong, which contain coral and other marine fragments for ecological analysis. His main question focuses on how the local coral ecosystem has changed over time. In the future, he plans to incorporate historical ecology, as well as expand his focus to the broader Southeast Asian region.



*João ready to dig for crabs at Tai Tam mangrove*

### **The role of the plant compartment on the dynamics of heavy metals and its influence on food preference of primary consumers**

Mangroves represent a highly diverse and functional intertidal habitat and are subject to strong impacts from anthropogenic waste. João Silva assessed the role of mangrove trees in the transfer of heavy metals to consumers at polluted and non-polluted sites in Hong Kong by evaluating their concentration in sediments, leaves from trees and the soft tissues of crabs. Feeding preference experiments showed interactions between heavy metal content of leaves and crab choices, with sesarmid crabs (*Perisesarma bidens*) consuming more polluted leaves from *Avicennia marina* when given a choice. João is performing the same analysis in Brazil, where he conducts his PhD studies.



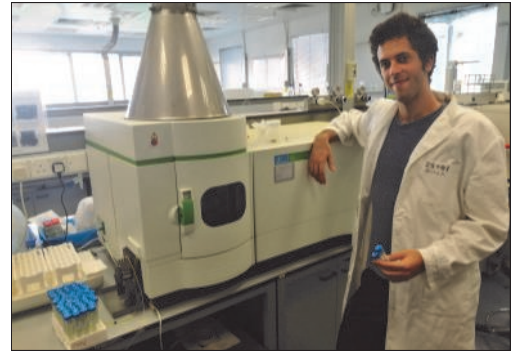
*Angelico (Likko) and Derek Ho during photo-ID fieldwork in central Philippines*

### **Ecology of co-existence: sympatric delphinids in Tañon Strait Protected Seascape, the Philippines**

Very little is known of the spatio-behavioural dynamics of island-associated cetaceans, and even less so about multi-species communities. Declared as a protected seascape in 1998, the Tañon Strait, Philippines is a semi-enclosed body of water characterized by a narrow coastal zone and considerable depths close to shore. The spinner dolphin and the Indo-Pacific bottlenose dolphin are the two most abundant species of the diverse cetacean fauna in the strait. With the application of photo-ID techniques, geographically-referenced data, and focal behaviour sampling, Angelico Tiongson investigates the patterns of sympatric co-occurrence of island-associated delphinids in this area of high conservation importance.

## Heavy metals in Hong Kong oysters

The increased urbanization and industrialization around the oyster producing areas of Hong Kong and the Pearl River Delta region account for heavy metal contamination of commercial and edible oyster species of Hong Kong. During Paolo Guttuso's research training period, he has developed and optimized protocols for various heavy metal analyses in oyster samples by using inductively coupled plasma optical emission spectrometry (ICP-OES). Now, he is testing the hypothesis that oysters purchased by Hong Kong growers from mainland seed producing and growing areas are contaminated by heavy metals before they were exposed to Hong Kong waters for fattening.



*Paolo running heavy metal analysis with ICP-OES*

## Revitalization of pearl cultivation in Hong Kong

Wa-Tat Yan has been investigating the history and economy of local pearl cultivation, and explores new technologies for farming pearl oysters (e.g. *Pinctada fucata*). Dating back to Nan Han Dynasty (905-971 A.D.), over 2000 soldiers were stationed at Tolo Harbour in Hong Kong to monitor the pearl hunting business. In the 1950s, Hong Kong Government was interested in developing the pearl cultivation industry. The Pearl Culture (Control) Ordinance was introduced to manage the industry in 1958. Yan will examine the reasons for the failure of the industry in the 1960s and find ways to solve the problems that may still exist today.



*Yan is working on Pearl-harvesting in Hong Kong*

## Community Outreach

Outreach continued to play an important role in SWIMS portfolio with more than 500 school children and groups visiting SWIMS in 2016. In general, due to the new expansion plans, we have started to reduce the number of school groups we accommodate, but still in 2016 we were host to students from Island School; South Island School; West Island School; Kellet School; TWGHs Wong Fut Nam College and the Harbour School. SWIMS was also able to host a variety of other parties including Swire Management Trainees; Swire Hong Kong Staff Association; Swire Beverages; Police officers from the Marine Outer Waters District and young ambassadors from the Council for Sustainable Development. A variety of undergraduate classes were able to visit SWIMS, including two Junior Science Institute workshops; BSc students from HKU and also students from the University of Adelaide. David's group hosted a visit from HK Maritime Museum and advised and participated in an extremely successful display at the Museum entitled 'Corals: our underwater living treasures'; including demonstrating corals to the general public.



*Jon demonstrating coral skeletons to prospective marine biologists*



*Group photo from the Tsitsikamma, South Africa, field course*

SWIMS was also able to host visiting undergraduate students from other institutions. This year we twice hosted regular exchange-visiting students from the Tokyo University of Marine Science and Technology (TUMSAT) in collaboration with the School of Biological Sciences at HKU. As in previous years we also held an exchange of both undergraduate and postgraduate students on reciprocal fieldcourses between HKU and the University of Johannesburg (South Africa) as well as postgraduates and SWIMS staff teaching on another course coordinated by the South African Institute for Aquatic Biodiversity (SAIAB). We also hosted internship students from HAS University (Netherlands); Dalhousie University (Canada); Abo Akademi University (Finland); King Mongkuts Institute of Technology, Ladkrabang (Thailand); Plymouth University (UK); University College (UK); Ulster University (UK); University of Washington (US); UC San Diego (USA); Brown University (USA) and University of Basel (Switzerland) as well as numerous students from HKU and other institutions in Hong Kong.

## Conservation

### SWIMS and IUCN



*Grouper Workshop Team - Azores; November 2016.  
Photo: Athila Bertoncini*

The International Union for Conservation of Nature (IUCN) is best known for its internationally respected 'Red List of Threatened Species', the global gold standard for species conservation status assessments. These must be conducted at least once per decade. Among the first-ever full taxon assessments for marine species, all 163 groupers (Epinephelidae) assessments were completed in Hong Kong in 2007. Led by co-Chair Yvonne Sadovy and using funding from the Ocean Park Conservation and Mohammed bin Zayed Foundations, reassessments were kicked off by GWSG members during a workshop in the Azores in November 2016; completion is scheduled for 2017.

### SWIMS and Reef Check



*SWIMS 2016 Reef Check team*

The SWIMS team has been monitoring Siu Long Ke, which had about 40% coral coverage for 16 years. This year, we had more than thirty volunteers with the support from Post-Docs, postgraduates, alumni, summer interns, and affiliates. We conducted surveys for the reef fishes, benthic composition, and invertebrates. This year, we found a yellow seahorse along the transect and a great diversity of invertebrates associated with the healthy reef system. Reef Check provides not only a chance for us to contribute to coral conservation in Hong Kong but also a platform for SWIMer's reunion! We hope to see you all and more newcomers in 2017!



## 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.

## 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.



*Seine netting as part of the Ting Kok+ Project*



- Albright R, Alongi D, Anthony KRN, Baird M, Beeden R, Byrne M, Collier C, Dove S, Fabricius KE, Hoegh-Guldberg O, Kelly RP, Lough J, Mongin M, Munday PL, Pears R, Russell BD, Tilbrook B, Abal E (2016) Ocean acidification: linking science to management solutions using the Great Barrier Reef as a case study. *Journal of Environmental Management* **182**: 641-650
- Anand A, Li L, Kao SJ, Thibodeau B, Baker DM (2016) Variations in nitrogen isotope composition of wastewater effluents by treatment type in Hong Kong. *Marine Pollution Bulletin* **111**: 143-152
- Astudillo JC, Leung KMY, Bonebrake TC (2016) Seasonal heterogeneity provides a niche opportunity for ascidian invasion in subtropical marine communities. *Marine Environmental Research* **122**: 1-10
- Boero F, Yasuhara M (2016) Marine ecosystem degradation. Eds., Williamson, P., Smythe-Wright, D., Burkill, P., Future of the Ocean and its Seas: a non-governmental scientific perspective on seven marine research issues of G7 interest, 44-47
- Chan BKK, Lima FP, Williams GA, Seabra R, Wang H-Y (2016) A simplified biomimetic temperature logger for recording intertidal barnacle body temperatures. *Limnology and Oceanography: Methods* **14**: 448-455
- Chang WL, Karczmarski L, Huang S-L, Gailey G, Chou L-S (2016) Reproductive parameters of the Taiwanese humpback dolphin (*Sousa chinensis taiwanensis*). *Regional Studies in Marine Science* **8**: 459-465. DOI: 10.1016/j.rsma.2016.08.001
- Chariton AA, Sun MY, Gibson J, Webb JA, Leung KMY, Hickey CW, Hose GC (2016) Emergent technologies and analytical approaches for understanding the effects of multiple stressors in aquatic environments. *Marine and Freshwater Research* **67**: 414-428
- Cheng INY, Chan JKY, Kong SSY, Leung KMY (2016) Effectiveness and obstacle of using Facebook as a tool to facilitate student-centred learning in higher education. *Asia-Pacific Forum of Science Learning and Teaching* **17**(2): Article 3
- Chiu WTR, Yasuhara M, Iwatani H, Kitamura A, Fujita K (2016) An enigmatic Holocene podocopid ostracod from a submarine cave, Okinawa, Japan: 'living fossil' or adaptive morphotype? *Journal of Systematic Palaeontology* **14**: 643-652
- Di Lorenzo T, Cannicci S, Spigoli D, Cifoni M, Baratti M, Galassi DMP (2016) Bioenergetic cost of living in polluted freshwater bodies: respiration rates of the cyclopoid *Eucyclops serrulatus* under ammonia-N exposures. *Fundam. Appl. Limnol.* **188**: 147-156
- Dineshran R, Chandramouli K, Ginger KWK, Zhang H, Qian PY, Ravasi T, Thiyagarajan V (2016) Quantitative analysis of oyster larval proteome provides new insights into the effects of multiple climate change stressors. *Global Change Biology* **22**: 2054-2068
- Duprey NN, Yasuhara M, Baker DM (2016) Reefs of tomorrow: eutrophication reduces coral biodiversity in an urbanized seascape. *Global Change Biology* **22**: 3550-3565
- Falkenberg LJ, Russell BD, Connell SD (2016) Design and performance evaluation of a mesocosm facility and techniques to simulate ocean acidification and warming. *Limnology & Oceanography: Methods* **14**: 278-291
- Fratini S, Ragionieri L, Cannicci S (2016) Demographic history and reproductive output correlates with intraspecific genetic variation in seven species of Indo-Pacific mangrove crabs. *PLoS ONE* **11**: e0158582. DOI:10.1371/journal.pone.0158582
- Fratini S, Ragionieri L, Deli T, Harrer A, Marino IAM, Cannicci S, Zane L, Schubart CD (2016) Unravelling population genetic structure with mitochondrial DNA in a notional panmictic coastal crab species: sample size makes the difference. *BMC Evolutionary Biology* **16**: 150. DOI: 10.1186/s12862-016-0720-2
- Freeman CJ, Easson CG, Baker DM (2016) Niche structure of marine sponges from temperate hard-bottom habitats within Gray's Reef National Marine Sanctuary. *Journal of the Marine Biological Association of the UK* **96**: 559-565
- Freeman CJ, Stoner EW, Easson CG, Matterson KO, Baker DM (2016) Carbon and nitrogen metabolism by symbionts within *Cassiopea xamachana*. *Marine Ecology Progress Series* **544**: 281-286
- Fusi M, Beone GM, Suci NA, Sacchi A, Trevisan M, Capri E, Daffonchio D, Din N, Dahdouh-Guebas F, Cannicci S (2016) Ecological status and sources of anthropogenic contaminants in mangroves of the Wouri River Estuary (Cameroon). *Marine Pollution Bulletin* **109**: 723-733
- Fusi M, Cannicci S, Daffonchio D, Mostert B, Pörtner H-O, Giomi F (2016) The trade-off between heat tolerance and metabolic cost drives the bimodal life strategy at the air-water interface. *Scientific Reports* **6**: 19158
- Giomi F, Mandaglio C, Ganmanee M, Han G-D, Dong Y-W, Williams GA, Sarà G (2016) The importance of thermal history: costs and benefits of heat exposure in a tropical, rocky shore oyster. *Journal of Experimental Biology* **219**: 686-694. DOI:10.1242/jeb.128892
- Gui D, Karczmarski L, Yu R, Plön S, Chen L, Tu Q, Cliff G, Wu Y (2016) Profiling and spatial variation analysis of persistent organic pollutants in South African delphinids. *Environmental Science and Technology* **50**: 4008-4017. DOI: 10.1021/acs.est.5b06009
- Guo F, Li B, Yang Y, Deng Y, Qiu JW, Li XD, Leung KMY, Zhang T (2016) Impacts of human activities on distribution of sulfate reducing prokaryotes and antibiotic resistance genes in marine coastal sediments of Hong Kong. *FEMS Microbiology Ecology* **92**: fiw128
- Hall-Spencer JM, Lauenstein GG, Leung KMY (2016) Research highlights from Regional Studies in Marine Science. *Regional Studies in Marine Science* **6**: A1-A4
- Hawkins SJ, Mieszkowska N, Firth LB, Bohn K, Burrows MT, Maclean MA, Thompson RC, Chan BKK, Little C, Williams GA (2016) Looking backwards to look forwards: the role of natural history in temperate reef ecology. *Marine and Freshwater Research* **67**: 1-13
- Heldt KA, Connell SD, Anderson K, Russell BD, Munguia P (2016) Future climate stimulates population out-breaks by relaxing constraints on reproduction. *Scientific Reports* **6**: 33383
- Ho KKY, Leung KMY (2016) Imposed status associated with organotin contamination in *Reishia clavigera* after reciprocal transplantation between clean and polluted sites in Hong Kong. *Regional Studies in Marine Science* **8**: 480-486
- Ho KKY, Zhou GJ, Xu EGB, Wang X, Leung KMY (2016) Long-term spatio-temporal trends of organotin contaminations in the marine environment of Hong Kong. *PLoS ONE* **11**: e0155632. DOI: 10.1371/journal.pone.0155632
- Ingels J, Clark MR, Vecchione M, Perez JAA, Levin LA, Priede IG, Sutton T, Rowden AA, Smith CR, Yasuhara M, Sweetman AK, Soltwedel T, Santos R, Narayanaswamy BE, Ruhl HA, Fujikura K, Amaral Zettler L, Jones DOB, Gates AR, Snelgrove P, Bernal P, Van Gaever S (2016) Chapter 36F. Open Ocean Deep Sea. The First Global Integrated Marine Assessment, World Ocean Assessment I, United Nations, pp. 37
- Ip JCH, Leung PTY, Ho KKY, Qiu JW, Leung KMY (2016) De novo transcriptome assembly of the marine gastropod *Reishia clavigera* for supporting toxic mechanism studies. *Aquatic Toxicology* **178**: 39-48
- Karczmarski L, Huang S-L, Or CKM, Gui D, Chan SCY, Lin W, Porter L, Wong W-H, Zheng R, Ho Y-W, Chui SYS, Tiongson AJC, Mo Y, Chang W-L, Kwok JHW, Tang RWK, Lee ATL, Yiu S-W, Keith M, Gailey G, Wu Y (2016) Humpback dolphins in Hong Kong and the Pearl River Delta: status, threats and conservation challenges. *Advances in Marine Biology* **73**: 27-64
- Karczmarski L, Huang S-L, Wong W-H, Chang W-L, Chan SCY, Keith M (2016) Distribution of a coastal delphinids under the impact of long-term habitat loss: Indo-Pacific humpback dolphins off Taiwan's west coast. *Estuaries and Coasts* **40**: 594-603. DOI: 10.1007/s12237-016-0146-5
- Katsuki K, Yang DY, Seto K, Yasuhara M, Takata H, Otsuka M, Nakanishi T, Yoon Y, Um IK, Cheung RCW, Khim BK, Kashima K (2016) Factors controlling typhoons and storm rain on the Korean Peninsula during the Little Ice Age. *Journal of Paleolimnology* **55**: 35-48
- Kim BM, Kim JB, Choi IY, Raisuddin S, Au DWT, Leung KMY, Wu RSS, Rhee JS, Lee JS (2016) Omics of the marine medaka *Oryzias melastigma* and its relevance to marine environmental research. *Marine Environmental Research* **113**: 141-152

- Koper RP, Karczmarski L, du Preez D, Plön S (2016) Sixteen years later: occurrence, group size, and habitat use of humpback dolphins (*Sousa plumbea*) in Algoa Bay, South Africa. *Marine Mammal Science* **32**: 490-507. DOI: 10.1111/mms.12279
- Lai WS, Perkins MJ, Ho KKY, Astudillo JC, Yung MMN, Russell BD, Williams GA, Leung KMY (2016) Hong Kong's marine environments: history, challenges and opportunities. *Regional Studies in Marine Science* **8**: 259-273
- Lathlean J, Seuront L, McQuaid CD, Ng TPT, Zardi G, Nicastro K (2016) Cheating the locals: invasive mussels steal and benefit from the cooling effect of indigenous mussels. *PLoS ONE* **11**: e0152556
- Lathlean J, Seuront L, McQuaid CD, Ng TPT, Zardi G, Nicastro K (2016) Size and position matter: small-scale patterns of heat-stress associated with two co-occurring mussels with different thermoregulatory behaviour. *Marine Biology* **163**: 189
- Leung KMY, Hui JHL, Chan KYK, Kwok KWH (Eds.) (2016) The First International Conference on Biodiversity, Ecology and Conservation of Marine Ecosystems (BECOME 2015). *Regional Studies in Marine Science* **8**: 371-522
- Leung KMY, Hui JHL, Chan KYK, Kwok KWH (2016) A special issue of the First International Conference on Biodiversity, Ecology and Conservation of Marine Ecosystems (BECOME 2015). *Regional Studies in Marine Science* **8**: 371-372
- Li C, Meng Y, He C, Chan VBS, Yao H, V Thiyagarajan (2016) Mechanical robustness of the calcareous tubeworm *Hydroides elegans*: warming mitigates the adverse effects of ocean acidification. *Biofouling* **32**: 191-204
- Lin W, Karczmarski L, Xia J, Zhang X, Yu X, Wu Y (2016) Increased human occupation and agricultural development accelerates the population contraction of an estuarine delphinid. *Scientific Reports* **6**: 35713. DOI: 10.1038/srep35713
- Mamo BL (2016) Benthic Foraminifera from the Capricorn Group, Great Barrier Reef, Australia. *Zootaxa* **4215**: 1-123
- McSkimming C, Connell SD, Russell BD, Tanner JE (2016) Habitat restoration: early signs and extent of faunal recovery relative to seagrass recovery. *Estuarine Coastal and Shelf Science* **171**: 51-57
- McSkimming C, Russell BD, Tanner JE, Connell SD (2016) A test of metabolic and consumptive responses to local and global perturbations: enhanced resources stimulate herbivores to counter expansion of weedy species. *Marine & Freshwater Research* **67**: 96-102
- Nagelkerken I, Russell BD, Gillanders BM, Connell SD (2016) Ocean acidification alters fish populations indirectly through habitat modification. *Nature Climate Change* **6**: 89-93
- Ng TPT, Cheng MCF, Ho KKY, Lui GCS, Leung KMY, Williams GA (2016) Hong Kong's rich marine biodiversity: the unseen wealth of South China's megalopolis. *Biodiversity and Conservation*. **26**: 23-36. DOI:10.1007/s10531-016-1224-5
- Ng TPT, Davies MS, Stafford R, Williams GA (2016) Fighting for mates: the importance of individual size in mating contests in rocky shore littorinids. *Marine Biology*. **163**: 50. DOI 10.1007/s00227-016-2824-z
- Ng TPT, Johannesson K (2016) No precopulatory inbreeding avoidance in the intertidal snail, *Littorina saxatilis*. *Journal of Molluscan Studies* **82**: 213-215
- Ng TPT, Williams GA, Davies MS, Stafford R, Rolan-Alvarez E (2016) Sampling scale can cause bias in positive assortative mating estimates: the first evidence in two intertidal snails. *Biological Journal of the Linnean Society* **119**: 414-419
- Sadovy de Mitcheson Y (2016) Mainstreaming fish spawning aggregations into fishery management calls for truly precautionary approach. *BioScience* **66**: 295-306
- Seuront L, Ng TPT (2016) Standing in the sun: infrared thermography reveals distinct thermal regulatory behaviours in two tropical high-shore littorinid snails. *Journal of Molluscan Studies* **82**: 336-340
- Stein F, Wong JCY, Sheng V, Law SWC, Schröder B, Baker DM (2016) First genetic evidence of illegal trade in endangered European eel (*Anguilla anguilla*) from Europe to Asia. *Conservation Genetics Resources* **8**: 533-537
- Steinberg PD, Airoidi L, Banks J, Leung KMY (Eds.) (2016) Special issue on the World Harbour Project – Global harbours and ports: different locations, similar problems? *Regional Studies in Marine Science* **8**: 217-370
- Steinberg PD, Airoidi L, Banks J, Leung KMY (2016) Introduction to the special issue on the World Harbour Project. *Regional Studies in Marine Science* **8**: 217-219
- Strotz LC, Mamo BL, Dominey-Howes D (2016) Effects of cyclone-generated disturbance on a tropical reef foraminifera assemblage. *Scientific Reports* **6**: 24846
- Tanaka H, Yasuhara M (2016) A new deep-sea hydrothermal vent species of Ostracoda (Crustacea) from the western Pacific: implications for adaptation, endemism, and dispersal of ostracodes in chemosynthetic systems. *Zoological Science* **33**: 555-565
- Tiongson AJC, Karczmarski L (2016) The Indo-Pacific bottlenose dolphin (*Tursiops aduncus*) in Tañon Strait, central Philippines. *Marine Biodiversity Records* **9**: 85. DOI: 10.1186/s41200-016-0088-4
- Tuuli CD, Sadovy de Mitcheson Y, Ng W-C (2016) Molecular identification of croaker dried swim bladders (maw) on sale in Hong Kong using 16S rRNA nucleotide sequences and implications for conservation. *Fisheries Research* **174**: 260-269
- Upadhyay A, Thiyagarajan V, Tong Y (2016) Proteomic characterization of oyster shell organic matrix proteins (OMP). *Bioinformatics* **12**: 266-278
- Urriago JD, Wong JCY, Dumont CP, Qiu JW (2016) Reproduction of the short-spined sea urchin *Heliocidaris crassispina* (Echinodermata: Echinoidea) in Hong Kong with a subtropical climate. *Regional Studies in Marine Science* **8**: 445-53
- Wang W, Hui JHL, Williams GA, Cartwright SR, Tsang LM, Chu KH (2016) Comparative transcriptomics across populations offers new insights into the evolution of thermal resistance in marine snails. *Marine Biology* **163**: 92. DOI 10.1007/s00227-016-2873-3
- Wang Z, Meador JP, Leung KMY (2016) Metal toxicity to freshwater organisms as a function of pH: A meta-analysis. *Chemosphere* **144**: 1544-1552
- Williams GA, Helmuth BS, Russell BD, Dong Y-W, Thiyagarajan V, Seuront L (2016) Meeting the climate change challenge: pressing issues in southern China and SE Asian coastal ecosystems. *Regional Studies in Marine Science* **8**: 373-381
- Wong JCY, Thompson P, Xie JY, Qiu JW, Baker DM (2016) *Symbiodinium* clade C generality among common scleractinian corals in subtropical Hong Kong. *Regional Studies in Marine Science* **8**: 439-44
- Wu J, Sadovy de Mitcheson Y (2016) Humphead (Napoleon) Wrasse *Cheilinus undulatus* trade into and through Hong Kong. Traffic IUCN Joint Report, pp. 34
- Xie JY, Wong JCY, Dumont CP, Goodkin N, Qiu JW (2016) Bore-hole density on the surface of living *Porites* corals as an indicator of sedimentation in Hong Kong. *Pergamon* **108**: 87-93
- Xu EGB, Ho PWL, Tse Z, Ho SL, Leung KMY (2016) Revealing ecological risks of priority endocrine disrupting chemicals in four marine protected areas in Hong Kong through an integrative approach. *Environmental Pollution* **215**: 103-112
- Yasuhara M, Danovaro R (2016) Temperature impacts on deep-sea biodiversity. *Biological Reviews* **91**: 275-287
- Yasuhara M, Doi H, Wei CL, Danovaro R, Myhre SE (2016) Biodiversity-ecosystem functioning relationships in long-term time series and palaeoecological records: deep sea as a test bed. *Philosophical Transactions of the Royal Society B*. DOI:10.1098/rstb.2015.0282
- Yeung JWY, Zhou GJ, Leung KMY (2016) Sub-lethal effects of cadmium and copper on the RNA/DNA ratio and energy reserves in the green-lipped mussel *Perna viridis*. *Ecotoxicology and Environmental Safety* **132**: 59-67
- Yi AXL, Han JH, Lee JS, Leung KMY (2016) Toxicity of triphenyltin chloride to the rotifer *Brachionus koreanus* across different levels of biological organisation. *Environmental Toxicology* **31**: 13-23
- Yiu S-W, Parrini F, Karczmarski L, Keith M (2016) Home range establishment and utilization by reintroduced lions (*Panthera leo*) in a small South African wildlife reserve. *Integrative Zoology*. DOI: 10.1111/1749-4877.12243
- Zardi GI, Nicastro KR, McQuaid CD, Ng TPT, Lathlean J, Seuront L (2016) Cool parasites: positive effects of endolithic parasitism on intertidal mussels. *Scientific Reports* **6**: 3141316
- Zheng R, Karczmarski L, Lin W, Chan SCY, Chang W-L, Wu Y (2016) Infanticide in the Indo-Pacific humpback dolphin (*Sousa chinensis*). *Journal of Ethology* **34**: 299-307. DOI: 10.1007/s10164-016-0475-7

## Other Contributions from SWIMS

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Councillor, The International Society for Reef Studies

### 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  
Visiting Researcher, Universidade Estadual Paulista  
Member, Italian Union of Zoologists  
Member, Italian Society of Ethology  
Editorial Board, Hong Kong Register of Marine Species, WoRMS, [www.marinespecies.org/hkrms](http://www.marinespecies.org/hkrms)

### Leszek Karczmarski

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  
Associate Editor, *Journal of Experimental Marine Biology and Ecology*

### Kenny Leung

Member, International Evaluation Committee and Living Earth Scientific Evaluation Committee for the 2015/2016 call of the French National Research Agency (ANR) Research Grant Proposals  
Chairman, Fisheries Enhancement Fund Management Committee  
Member, Steering Committee for the Marine Ecology and Fisheries Enhancement Funds  
Member, Town Planning Appeal Board Panel  
Chairman, Marine Parks Committee  
Member, Country and Marine Parks Board  
Member, Board of Directors of the Ocean Park Corporation  
Trustee, Ocean Park Conservation Foundation Hong Kong  
Member, Advisory Council on Food and Environmental Hygiene  
Chairman, Marine Mammal Conservation Working Group  
Member, Red Tide/Harmful Algal Blooms Expert Advisory Group  
Member, Genetic Modified Organisms (Control of Release) Expert Group  
Member, Endangered Species Advisory Committee  
Member, The Outstanding Young Persons' Association  
Coordinator, Joint University Consortium on Biodiversity, Ecology and Conservation of Marine Ecosystems (BECOME), Hong Kong  
Chairman, The 1<sup>st</sup> International Symposium on Environmental Health and Food Safety (SEHFS-2016)  
Chairman, The 2<sup>nd</sup> International Conference on Deriving Environmental Quality Standards for the Protection of Aquatic Ecosystems (EQSPA-2016)  
Chairman, The 8<sup>th</sup> International Conference on Marine Pollution and Ecotoxicology (ICMPE-8)  
Chairman, International Workshop on Eco-shoreline Design for Sustainable Coastal Development  
Executive Committee, Hong Kong Register of Marine Species, WoRMS, [www.marinespecies.org/hkrms](http://www.marinespecies.org/hkrms)  
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### Bayden Russell

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Scientific Committee, Third Xiamen Symposium on Marine Environmental Sciences  
Academic Editor, *PLoS ONE* Journal  
Academic Editor, *Journal of Experimental Marine Biology and Ecology*, Special Issue

### 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, Steering Committee of the IUCN Species Survival Commission  
Co-Chair, Marine Conservation Sub-Committee of the IUCN Species Survival Commission  
Board Member, Gulf and Caribbean Fisheries Institute  
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*

### Benoit Thibodeau

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

### V ThiyagaRajan

Council Member, Hong Kong Proteomics Society  
Academic Editor, *PLoS ONE* Journal  
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, 7-11 March, University of Johannesburg, South Africa  
Scientific Committee, 11<sup>th</sup> International Temperate Reef Symposium  
Executive Committee, Hong Kong Register of Marine Species, WoRMS, [www.marinespecies.org/hkrms](http://www.marinespecies.org/hkrms)  
Editorial Board Member: *Journal of Thermal Biology*  
Subject Editor, *Zoological Studies*

### Moriaki Yasuhara

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)  
Editorial Board, Hong Kong Register of Marine Species, WoRMS, [www.marinespecies.org/hkrms](http://www.marinespecies.org/hkrms)  
Editorial Board Member, *Global and Planetary Change*  
Associate Editor, *Paleontological Research*  
Editor, *Plankton and Benthos Research*

## Conferences and Workshops

### Juan Carlos Astudillo

Oral Presentation; The 8<sup>th</sup> University Consortium on Aquatic Sciences (UCAS 2016), 7-11 Mar 2016, Jinshan, Taiwan.

### David Baker

Oral Presentation; 13<sup>th</sup> International Coral Reef Symposium, 21 Jun 2016, Honolulu, Hawaii.

## Stefano Cannicci

Oral Presentation; The 8<sup>th</sup> University Consortium on Aquatic Sciences (UCAS 2016), 7-11 Mar 2016, Jinshan, Taiwan.  
Participant; The 8<sup>th</sup> International Conference on Marine Pollution and Ecotoxicology (ICMPE-8), 20-24 Jun 2016, HKU, Hong Kong.  
Invited Oral Presentation; International Workshop on Eco-shoreline Design for Sustainable Coastal Development, 16-18 Nov 2016, HKU, Hong Kong.  
Participant; 2<sup>nd</sup> Interdisciplinary Symposium on Ocean Acidification and Climate Change (ISOACC), 5-9 Dec 2016, HKU, Hong Kong.

## Nicolas Duprey

Oral and Poster Presentation; 13<sup>th</sup> International Coral Reef Symposium, 19-24 Jun 2016, Honolulu, Hawaii.

## Kevin Ho

Participant; Mini-workshop on Benthic Crustaceans, 13 May 2016, HKU, Hong Kong.  
Poster Presentation; International Conference on Deriving Environmental Quality Standards for the Protection of Aquatic Ecosystems (EQSPA-2016), 18-20 Jun 2016, HKU, Hong Kong.  
Oral and Poster Presentations; The 8<sup>th</sup> International Conference on Marine Pollution and Ecotoxicology (ICMPE-8), 20-24 Jun 2016, HKU, Hong Kong.  
Oral Presentation; The 2016 SETAC Asia/Pacific Conference, 16-19 Sep 2016, National University of Singapore, Singapore.  
Participant; International Workshop on Eco-shoreline Designs for Sustainable Coastal Development, 16-18 Nov 2016, HKU, Hong Kong.

## Leszek Karczmarski

Panel Member; 1<sup>st</sup> Workshop on Hong Kong Marine Biodiversity Hotspots, WWF-Hong Kong, 26 Jan 2016, Hong Kong.  
Oral and Poster Presentation; 14<sup>th</sup> Savanna Science Network Meeting by South African National Parks, 13-17 Mar 2016, Kruger National Park, South Africa.  
Keynote; 1<sup>st</sup> Workshop on Chinese White Dolphin (*Sousa chinensis*) Population Viability Analysis by Conservation Breeding Specialist Group (CBSG) of the IUCN Species Survival Commission (SSC) and Ocean Park Conservation Foundation Hong Kong (OPCFHK), 30 Mar-1 Apr 2016, Hong Kong.  
Panel Member; 2<sup>nd</sup> Workshop on Hong Kong Marine Biodiversity Hotspots, WWF-Hong Kong, 27 Apr 2016, Hong Kong.  
Participant; 3<sup>rd</sup> Workshop on Hong Kong Marine Biodiversity Hotspots, WWF-Hong Kong, 5 Jul 2016, Hong Kong.  
Invited Keynote Speaker; China Conservation Expo 2016 by Conservation Leadership Programme (CLP), 23-24 Jul 2016, Beijing, China.  
Poster Presentation; 16<sup>th</sup> Congress of the International Society for Behavioral Ecology, 28 Jul-2 Aug 2016, University of Exeter, United Kingdom.  
Oral Presentation; Australia/New Zealand Student Chapter of the Society for Marine Mammalogy (ANZSCSMM), 25-26 Nov 2016, Adelaide, Australia.

## Edward Lau

Session Chair; International Workshop on Eco-shoreline Designs for Sustainable Coastal Development, 16-18 Nov 2016, HKU, Hong Kong.

## Kenny Leung

Chairman and Speaker; Symposium on Environmental Health and Food Safety, 14 Jan 2016, HKU, Hong Kong.  
Invited Keynote Speaker; The 2<sup>nd</sup> International Symposium on Environmental Health, 15-16 Feb 2016, Graduate School of Public Health of Seoul National University, Seoul, Korea.  
Invited Speaker; The Joint School Staff Development Day of the Yuen Long District for 500 school teachers and principals, 4 Mar 2016, Lions Clubs International Ho Tak Sum Primary School, Tin Shui Wai, Hong Kong.  
Invited Keynote Speaker; The International Workshop on Health Risk Assessment, Intervention and Collaboration, 16-17 Apr 2016, Shantou University, Shantou, China.  
Invited Speaker; The EuroMarine and World Harbour Project Joint Workshop on Developing Ecosystem-based Solutions for Resilient European Harbours and Coastal Waterfronts (ECORES), 4-6 May 2016, Bologna, Italy.  
Keynote Speaker, The 2<sup>nd</sup> International Conference on Deriving Environmental Quality Standards for the Protection of Aquatic Ecosystems (EQSPA-2016), 18-20 Jun 2016, HKU, Hong Kong.  
Keynote Speaker, The 8<sup>th</sup> International Conference on Marine Pollution and Ecotoxicology (ICMPE-8), 20-24 Jun 2016, HKU, Hong Kong.  
Invited Plenary Speaker; The Society of Environmental Toxicology and Chemistry Asia/Pacific 2016 Conference, 16-19 Sep 2016, National University of Singapore, Singapore.

## Briony Mamo

Participant; Editorial Committee Workshop Integrated Ocean Discovery Program Expedition 356, 10-19 Feb 2016, Texas A&M University, College Station, USA.  
Participant; Light and Photosynthesis Workshop, 3-4 Nov 2016, The Swire Institute of Marine Science, Hong Kong.  
Head Session Convenor and Poster Presentation; American Geophysical Union Fall Meeting, 12-17 Dec 2016, Moscone Centre, San Francisco.

## Shelby Mcilroy

Oral Presentation; 13<sup>th</sup> International Coral Reef Symposium, 19-24 Jun 2016, Honolulu, Hawaii.  
Invited Seminar; Building Blue Networks: Measuring and conserving biodiversity, 9 Jul 2016, Hong Kong Maritime Museum, Hong Kong.  
Invited Seminar; Big Data Workshop, Big Data Research Cluster, 7 Dec 2016, HKU, Hong Kong.

## Terence Ng

Oral Presentation; The 16<sup>th</sup> Congress of the International Society for Behavioral Ecology, 28 Jul-3 Aug 2016, University of Exeter, United Kingdom.  
Invited Speaker; Marine Parks and Marine Ecological Resources Public Seminar 2016 by Agriculture, Fisheries and Conservation Department, Hong Kong SAR Government, 20 Aug 2016, Hong Kong Cultural Centre, Hong Kong.

## Christelle Not

Invited Speaker; State Key Laboratory of Marine Geology, Tongji University, 21 Nov 2016, Shanghai, China.  
Poster Presentation; Goldschmidt Conference, 26 Jun-1 Jul 2016, Yokoyama, Japan.  
Invited Speaker; The Chinese University of Hong Kong, 6 May 2016, Hong Kong.

## Matthew Perkins

Oral Presentation; The 8<sup>th</sup> International Conference on Marine Pollution and Ecotoxicology (ICMPE-8), 20-24 Jun 2016, HKU, Hong Kong.  
Oral Presentation; 5<sup>th</sup> International EcoSummit, 29 Aug-1 Sep 2016, Montpellier, France.  
Organising Team Member; International Workshop on Eco-shoreline Designs for Sustainable Coastal Development, 16-18 Nov 2016, HKU, Hong Kong.

## Bayden Russell

Oral Presentation; 4<sup>th</sup> International Symposium on the Ocean in a High-CO<sub>2</sub> World, 3-6 May 2016, Hobart, Australia.  
Oral Presentation; The International Temperate Reefs Symposium, 26-30 Jun 2016, Pisa, Italy.  
Invited Lecture; University of Adelaide International Field Course, 12 Jul 2016, Australia.  
Invited Seminar; Institute of Oceanology Chinese Academy of Sciences, 25-27 Aug 2016, Qingdao, China.  
Invited Seminar; International Workshop on Eco-shoreline Designs for Sustainable Coastal Development, 16-18 Nov 2016, HKU, Hong Kong.  
Chairperson; 2<sup>nd</sup> Interdisciplinary Symposium on Ocean Acidification and Climate Change (ISOACC), 5-9 Dec 2016, HKU, Hong Kong.

## Yvonne Sadovy

Organizer; IUCN Red List Reassessments for Epinephelidae, 16-21 Nov 2016, Horta, The Azores Islands.

## V ThiyagaRajan

Poster Presentation; 4<sup>th</sup> International Symposium on the Ocean in a High-CO<sub>2</sub> World., 3-6 May 2016, Hobart, Tasmania, Australia.  
Invited Speaker; The 8<sup>th</sup> International Conference on Marine Pollution and Ecotoxicology (ICMPE-8), 20-24 Jun 2016, HKU, Hong Kong.  
Invited Keynote Lecture; 19<sup>th</sup> International Congress of UNITAS MALACOLOGICA (UM) World Congress of Malacology 2016, 18-24 Jul 2016, Penang, Malaysia.  
Organizing Chair; 2<sup>nd</sup> Interdisciplinary Symposium on Ocean Acidification and Climate Change (ISOACC), 5-9 Dec 2016, HKU, Hong Kong.

## Gray A Williams

Invited Seminar; Kong Mongkut's Institute of Technology, 12 May 2016, Ladkrabang, Thailand.  
Session Chair and Oral Presentation; 11<sup>th</sup> International Temperate Reef Symposium 26 Jun-2 Jul 2016, Pisa, Italy.  
Co-organizer; Bi-lateral Workshop; Living on the Fringes: Ecological Responses of Intertidal Organisms to Marginal Habitats, 22-23 Aug 2016, UNIFESP, Santos, Brazil.  
Invited Oral Presentation; International Workshop on Eco-shoreline Designs for Sustainable Coastal Development, 16-18 Nov 2016, Hong Kong.  
Postgraduate Seminar Series Talk; Universidade Estadual Paulista, UNESP Campus do Litoral Paulista, 19 Aug 2016, Brazil.  
Invited Seminar; The Marine Biological Laboratory, 25 Oct 2016, Woods Hole, MA, USA.  
Session Chair; 2<sup>nd</sup> Interdisciplinary Symposium on Ocean Acidification and Climate Change (ISOACC), 5-9 Dec 2016, HKU, Hong Kong.

## Moriaki Yasuhara

Invited Lectures and Workshop; Historical Ecology and Conservation Paleobiology in University of Vienna, 18-29 Apr 2016, Vienna, Austria.  
Workshop; World Ostracoda Database, WoRMS (World Register of Marine Species) in Flanders Marine Institute (VLIZ), 17-20 May 2016, Oostende, Belgium.  
Workshop; GO2NE (Global Ocean Oxygen Network) in UNESCO HQ, 7-9 Sep 2016, Paris, France.  
Oral Presentation; Geological Society of America Annual Meeting, 25-28 Sep 2016, Denver, USA.  
Invited Lecture; University of Wisconsin-Madison, 3 Oct 2016, Wisconsin, USA.  
Invited Lecture; Dalhousie University, 6 Oct 2016, Halifax, Canada.  
Invited Lecture; Woods Hole Oceanographic Institution, 11 Oct 2016, Woods Hole, USA.  
Invited Lecture; Yale University, 12 Oct 2016, New Haven, USA.  
Invited Lecture; National Museum of Natural History, Smithsonian Institution, 17 Oct 2016, Washington DC, USA.  
Invited Lecture; US Geological Survey, 18 Oct 2016, Reston, USA.  
Workshop and Panel Discussion; Future Earth Oceans Knowledge-Action Network Workshop, 4-5 Dec 2016, Kiel, Germany.  
Poster Presentation; American Geophysical Union Fall Meeting, 12-16 Dec 2016, San Francisco, USA.

## Mana Yung

Poster Presentation; The 2<sup>nd</sup> International Conference on Deriving Environmental Quality Standards for the Protection of Aquatic Ecosystems (EQSPA-2016), 18-20 Jun 2016, HKU, Hong Kong.  
Oral and Poster Presentation; The 8<sup>th</sup> International Conference on Marine Pollution and Ecotoxicology (ICMPE-8), 20-24 Jun 2016, HKU, Hong Kong.  
Oral Presentations; Society of Environmental Toxicology and Chemistry Asia/Pacific, 16-19 Sep 2016, Singapore.  
Session Chair; International Workshop on Eco-shoreline Designs for Sustainable Coastal Development, 16-18 Nov 2016, HKU, Hong Kong.

## GJ Zhou

Poster Presentation; Symposium on Environmental Health and Food Safety (SEHFS), 14 Jan 2016, HKU, Hong Kong.  
Poster Presentation; The 2<sup>nd</sup> International Conference on Deriving Environmental Quality Standards for the Protection of Aquatic Ecosystems (EQSPA-2016), 18-20 June 2016, HKU, Hong Kong.  
Oral Presentation; The 8<sup>th</sup> International Conference on Marine Pollution and Ecotoxicology (ICMPE-8), 20-24 Jun 2016, HKU, Hong Kong.  
Participant; The 9<sup>th</sup> Asia-Pacific Landfill Symposium-Integrated Waste Management and Sustainable Landfilling (APLAS-2016), 9-11 Nov 2016, HKU, Hong Kong.  
Participant; Light and Photosynthesis Workshop, 3-4 Nov 2016, The Swire Institute of Marine Science, Hong Kong.  
Participant; International Workshop on Eco-shoreline Designs for Sustainable Coastal Development, 16-18 Nov 2016, HKU, Hong Kong.

## Postgraduates

### Laura Augusto

Oral Presentation; The 8<sup>th</sup> University Consortium on Aquatic Sciences (UCAS 2016), 7-11 Mar 2016, Jinshan, Taiwan.  
Participant; Mangrove and Macrobenthos Meeting, 18-22 Jul 2016, St. Augustine, USA.  
Participant; International inTEnsve Southern training proGRAMme and network Development for marine and lacustrine scientists, 1-12 Aug 2016, Zanzibar, Tanzania.

### Rebekah Butler

Participant; International Workshop on Eco-Shoreline Designs for Sustainable Coastal Development, 16-18 Nov 2016, HKU, Hong Kong.  
Participant; 2<sup>nd</sup> Interdisciplinary Symposium on Ocean Acidification and Climate Change (ISOACC), 5-9 Dec 2016, HKU, Hong Kong.

### Camilla Campanati

Oral Presentation; 4<sup>th</sup> International Symposium on the Ocean in a High CO<sub>2</sub> World, 3-6 May 2016, Hobart, Australia.  
Oral Presentation; The 8<sup>th</sup> International Conference on Marine Pollution and Ecotoxicology (ICMPE-8), 20-24 Jun 2016, Hong Kong.  
Organizing Committee and Poster Presentation; 2<sup>nd</sup> Interdisciplinary Symposium of Ocean Acidification and Climate Change (ISOACC), 5-9 Dec 2016, HKU, Hong Kong.

### Stephen Chan

Participant; 1<sup>st</sup> Workshop on Hong Kong Marine Biodiversity Hotspots, WWF-Hong Kong, 26 Jan 2016, Hong Kong.  
Oral Presentation; The 14<sup>th</sup> Savanna Science Network Meeting by South African Nation Parks, 13-17 Mar 2016, Kruger National Park, South Africa.  
Participant; Workshop on Chinese White Dolphin (*Sousa chinensis*) Population Viability Analysis by Conservation Breeding Specialist Group (CBSG) of the IUCN Species Survival Commission (SSC) and Ocean Park Conservation Foundation Hong Kong (OPCFHK), 30 Mar-1 Apr 2016, Hong Kong.  
Participant; 2<sup>nd</sup> Workshop on Hong Kong Marine Biodiversity Hotspots, WWF-Hong Kong, 27 Apr 2016, Hong Kong.  
Participant; 3<sup>rd</sup> Workshop on Hong Kong Marine Biodiversity Hotspots, WWF-Hong Kong, 5 Jul 2016, Hong Kong.  
Keynote Speaker; China Conservation Expo 2016 by Conservation Leadership Programme (CLP), 23 - 24 Jul 2016, Beijing, China.  
Primary Workshop Instructor; Photo-Identification Data Management System Workshop: DISCOVERY, 23 Nov 2016, Adelaide, Australia.  
Oral Presentation; Australia/New Zealand Student Chapter of the Society for Marine Mammalogy (ANZSCSMM), 25-26 Nov 2016, Adelaide, Australia.

### Richard Cheung

Oral Presentation; The 8<sup>th</sup> University Consortium on Aquatic Sciences (UCAS 2016), 7-11 Mar 2016, Jinshan, Taiwan.  
Oral Presentation; The 2<sup>nd</sup> meeting of Asian Ostracodologists, 27-30 Jun 2016, Yunnan, China.

### Ryan Cheung

Participant; Light and Photosynthesis Workshop, 3-4 Nov 2016, The Swire Institute of Marine Science, Hong Kong.  
Participant; 2<sup>nd</sup> Interdisciplinary Symposium on Ocean Acidification and Climate Change (ISOACC), 5-9 Dec 2016, HKU, Hong Kong.

### Ruby Chiu

Oral Presentation; Ocean Sciences Meeting, 21-26 Feb 2016, New Orleans, USA.  
Oral Presentation; GSA Annual Meeting, 25-28 Sep 2016, Denver, USA.  
Poster Presentation; AGU Fall Meeting 2016, 12-16 Dec 2016, San Francisco, USA.

### Scott Chui

Poster Presentation; 14<sup>th</sup> Annual International Savanna Science Network Meeting, 13-18 Mar 2016, Skukuza, Kruger National Park, South Africa.

### Inga Conti-Jerpe

Oral Presentation; 10<sup>th</sup> International Conference on Applications of Stable Isotope Techniques to Ecological Studies, 3-8 April 2016, Tokyo, Japan.  
Oral Presentation; 13<sup>th</sup> International Coral Reef Symposium, 19-24 Jun 2016, Honolulu, Hawaii.  
Participant; International Soft Coral Taxonomy Workshop 2016, 25-27 Jul 2016, Kaohsiung Taiwan.

### Jake Dytnercki

Participant; 2<sup>nd</sup> Interdisciplinary Symposium on Ocean Acidification and Climate Change (ISOACC), 5-9 Dec 2016, HKU, Hong Kong.  
Participant; Application of Mass Spectrometry in Lipidomics, 20 Oct 2016, HKU, Hong Kong.

### Derek Ho

Participant; 1<sup>st</sup> Workshop on Hong Kong Marine Biodiversity Hotspots, WWF-Hong Kong, 26 Jan 2016, Hong Kong.  
Participant; Workshop on Chinese White Dolphin (*Sousa chinensis*) Population Viability Analysis by Conservation Breeding Specialist Group (CBSG) of the IUCN Species Survival Commission (SSC) and Ocean Park Conservation Foundation Hong Kong (OPCFHK), 30 Mar-1 Apr 2016, Hong Kong.  
Participant; 2<sup>nd</sup> Workshop on Hong Kong Marine Biodiversity Hotspots, WWF-Hong Kong, 27 Apr 2016, Hong Kong.  
Participant; EAST Program by Tokyo University of Marine Science and Technology, 21-30 Oct 2016, Tokyo, Japan.

### Tommy Hui

Oral Presentation; The 8<sup>th</sup> University Consortium on Aquatic Sciences (UCAS 2016), 7-11 Mar 2016, Jinshan, Taiwan.  
Oral Presentation; 16<sup>th</sup> Congress of the International Society for Behavioral Ecology, 28 Jul-2 Aug 2016, Exeter, the United Kingdom.

### May Huang

Oral Presentation; The 8<sup>th</sup> University Consortium on Aquatic Sciences (UCAS 2016), 7-11 Mar 2016, Jinshan, Taiwan.  
Poster Presentation; 12<sup>th</sup> International Conference on Paleoclimatology (ICP12) in Utrecht, 28 Aug-2 Sep 2016, Utrecht, Netherlands.  
Oral Presentation; American Geophysics Union, 12-16 Dec 2016, San Francisco, USA.  
Participant; EAST Program by Tokyo University of Marine Science and Technology, 21-30 Oct 2016, Tokyo, Japan.

### Pedro Jimenez

Oral Presentation; II International Symposium of Ecology, 16-19 Aug 2016, São Paulo, Brazil.  
Poster Presentation; IX Congresso Brasileiro sobre Crustáceos, 6-9 Nov 2016, CE, Brazil.

### **Anna Joest**

Participant; 12<sup>th</sup> International Conference on Paleoclimatology (ICP12), 28 Aug-2 Sep 2016, Utrecht, Netherlands.

### **Taihun Kim**

Poster Presentation; International Coral Reef Symposium, 19-24 Jun 2016, Honolulu, Hawaii.

### **Ginger Ko**

Oral Presentation; Scientific 4<sup>th</sup> International Symposium on the Ocean in a High-CO<sub>2</sub> World, 3-6 May 2016, Hobart, Australia.  
Oral Presentation; World Congress of Malacology 2016, 18-24 Jul 2016, Penang, Malaysia.  
Group Discussion Co-chair; 2<sup>nd</sup> Interdisciplinary Symposium on Ocean Acidification and Climate Change (ISOACC), 5-9 Dec 2016, HKU, Hong Kong.

### **Racliffe Lai**

Oral Presentation; The 8<sup>th</sup> University Consortium on Aquatic Sciences (UCAS 2016), 7-11 Mar 2016, Jinshan, Taiwan.  
Poster Presentation; The 2<sup>nd</sup> International Conference on Deriving Environmental Quality Standards for the Protection of Aquatic Ecosystems (EQSPA-2016), 18-20 Jun 2016, HKU, Hong Kong.  
Oral Presentation; The 8<sup>th</sup> International Conference on Marine Pollution and Ecotoxicology (ICMPE-8), 20-24 Jun 2016, HKU, Hong Kong.  
Oral Presentation; Society of Environmental Toxicity and Chemistry Asia-Pacific 2016 Conference, 16-19 Sep 2016, Singapore.

### **Edward Lau**

Session Chair; International Workshop on Eco-shoreline Designs for Sustainable Coastal Development, 16-18 Nov 2016, HKU, Hong Kong.

### **Sarah Lau**

Oral Presentation; The 8<sup>th</sup> University Consortium on Aquatic Sciences (UCAS 2016), 7-11 Mar 2016, Jinshan, Taiwan.  
Oral Presentation; The 11<sup>th</sup> International Temperate Reefs Symposium, 26-30 Jun 2016, Pisa, Italy.

### **Yanny Mak**

Oral Presentation; The 8<sup>th</sup> International Conference on Marine Pollution and Ecotoxicology (ICMPE-8), 20-24 Jun 2016, HKU, Hong Kong.  
Oral Presentation; ESA Annual Meeting 2016, 7-12 Aug 2016, Fort Lauderdale, USA.

### **Michele Mei**

Group Discussion Co-chair; 2<sup>nd</sup> Interdisciplinary Symposium on Ocean Acidification and Climate Change (ISOACC), 5-9 Dec 2016, HKU, Hong Kong.

### **Yuan Meng**

Participant; Gordon Research Conference: Biomineralization, 14-19 Aug 2016, Spain.  
Group Discussion Co-chair; 2<sup>nd</sup> Interdisciplinary Symposium on Ocean Acidification and Climate Change (ISOACC), 5-9 Dec 2016, HKU, Hong Kong.

### **Shannon Hanson**

Poster; 2<sup>nd</sup> Interdisciplinary Symposium on Ocean Acidification and Climate Change (ISOACC), 5-9 Dec 2016, HKU, Hong Kong.

### **Alicia Tan**

Oral Presentation; The 11<sup>th</sup> International Temperate Reef Symposium, 26-30 Jun 2016, Pisa, Italy.

### **Kanmani Rajan**

Group Discussion Co-chair; 2<sup>nd</sup> Interdisciplinary Symposium on Ocean Acidification and Climate Change (ISOACC), 5-9 Dec 2016, HKU, Hong Kong.

### **Ronia Sham**

Poster Presentation; Symposium of Environmental Health and Food Safety, 14 Jan 2016, HKU, Hong Kong.  
Poster Presentation; 5<sup>th</sup> SETAC Young Environmental Scientist Meeting, 28 Feb-2 Mar 2016, Gainesville, FL, USA.  
Oral Presentation; The 8<sup>th</sup> University Consortium on Aquatic Sciences (UCAS 2016), 7-11 Mar 2016, Jinshan, Taiwan.  
Poster Presentation; The 2<sup>nd</sup> International Conference on Deriving Environmental Quality Standards for the Protection of Aquatic Ecosystem (EQSPA-2016), 18-20 Jun 2016, HKU, Hong Kong.  
Oral Presentation; The 8<sup>th</sup> International Conference on Marine Pollution and Ecotoxicology (ICMPE-8), 20-24 Jun 2016, HKU, Hong Kong.  
Participant; Summer School on Marine Environmental Health and Safety, 4-15 Jul 2016, Xiamen, China.  
Poster Presentation; 2016 SETAC Asia/Pacific Conference, 16-19 Sep 2016, National University of Singapore, Singapore.

### **Lily Tao**

Participant; The 8<sup>th</sup> International Conference on Marine Pollution and Ecotoxicology (ICMPE-8), 20-24 Jun 2016, HKU, Hong Kong.

### **Phil Thompson**

Oral Presentation; 13<sup>th</sup> International Coral Reef Symposium, 19-24 Jun 2016, Honolulu, Hawaii.  
Organizer; Light and Photosynthesis Workshop, 3-4 Nov 2016, The Swire Institute of Marine Science, Hong Kong.

### **Jane Wong**

Oral Presentation; The 8<sup>th</sup> University Consortium on Aquatic Sciences (UCAS 2016), 7-11 Mar 2016, Jinshan, Taiwan.  
Oral Presentation; 13<sup>th</sup> International Coral Reef Symposium, 19-24 Jun 2016, Honolulu, Hawaii.  
Co-organizer; Light and Photosynthesis Workshop, 3-4 Nov 2016, The Swire Institute of Marine Science, Hong Kong.

### **Simon Wong**

Participant; Workshop; Chinese White Dolphin (*Sousa chinensis*) Population Viability Analysis by Conservation Breeding Specialist Group (CBSG) of the IUCN Species Survival Commission (SSC) and Ocean Park Conservation Foundation Hong Kong (OPCFHK), 30 Mar-1 Apr 2016, Hong Kong.  
Oral Presentation; Seminar on Fostering Chinese Talents in Nature Conservation; China Conservation Expo 2016 by Conservation Leadership Programme (CLP), 23-24 Jul 2016, Beijing, China.

### **Sze Wing Yiu**

Oral Presentation; 14<sup>th</sup> Savanna Science Network Meeting, 13-18 Mar 2016, Kruger National Park, South Africa  
Poster Presentation; 16<sup>th</sup> congress of the International Society for Behavioral Ecology, 28 Jul-3 Aug 2016, University of Exeter, U.K.

### **Jason Yau**

Oral Presentation; The 8<sup>th</sup> University Consortium on Aquatic Sciences (UCAS 2016), 7-11 Mar 2016, Jinshan, Taiwan.  
Participant; The 2<sup>nd</sup> International Conference on Deriving Environmental Quality Standards for the Protection of Aquatic Ecosystems (EQSPA-2016), 18-20 Jun 2016, HKU, Hong Kong.  
Poster Presentation; The 8<sup>th</sup> International Conference on Marine Pollution and Ecotoxicology (ICMPE-8), 20-24 Jun 2016, HKU, Hong Kong.  
Participant; International Workshop on Eco-shoreline Designs for Sustainable Coastal Development, 16 Nov 2016, HKU, Hong Kong.



## Visitors to SWIMS

Prof. Andy Hor (Vice President & Pro-VC (Research))  
Ms. Laura Lau (The Swire Group Charitable Trust)  
Mr. Alex Lee (The Swire Group Charitable Trust)  
Prof. Do-Hyung Kang (Korea Institute of Ocean Science & Technology)  
Dr. Soo-Jin Heo (Korea Institute of Ocean Science & Technology)  
Dr. Hyun-Sung Yang (Korea Institute of Ocean Science & Technology)  
Mr. Taeho Kim (Korea Institute of Ocean Science & Technology)  
Prof. W. John Kao (Vice-President & Pro-VC (Global))  
Prof. Y.S. Chan (School of Biomedical Sciences, Li Ka Shing Faculty of Medicine, HKU)  
Prof. N. Mok (Department of Mathematics, HKU)  
Prof. P.Y. Qian (Division of Life Science, HKUST)  
Prof. K.H. Chu (School of Life Sciences, CUHK)  
Mr. J.B. Rae-Smith (Swire Pacific Limited)  
Dr. Sarah Liao (The Kadoorie Institute, HKU)  
Prof. Craig Young (Oregon Institute of Marine Biology, University of Oregon, USA)  
Mrs. A. Tsang (Faculty of Science, HKU)  
Prof. Hunt Willard (Marine Biological Laboratory, Woods Hole, University of Washington, USA)  
Prof. Leo Tan (National University of Singapore)  
Prof. Laurent Seuront (Centre National de la Recherche Scientifique, CNRS, France)  
Prof. Curtis Deutsch (University of Washington, USA)  
Dr. Yunwei Dong (Xiamen University, China)  
Prof. Emilio Rolán-Alvarez (University of Vigo, Spain)  
Prof. Euan Nisbet (Royal Holloway, University of London, UK)  
Mr. Jerry Morris (Royal Holloway, University of London, UK)  
Ms. Rebecca Brownlow (Royal Holloway, University of London, UK)  
Dr. Aline Martinez (The University of Sydney, Australia)  
Prof. Mark Davies (The University of Sunderland, UK)  
Mr. Mathias Lanoiselle (Royal Holloway, University of London, UK)  
Prof. Jeremy Jackson (Scripps Institute for Oceanography, USA)  
Prof. Nancy Knowlton (Smithsonian Institution, USA)  
Dr. Monthon Ganmanee (King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand)  
Dr. Gianluca Sara (University of Palermo, Italy)  
Dr. Pablo Munguia (University of Adelaide, Australia)  
Prof. Bronwyn Gillanders (University of Adelaide, Australia)  
Prof. Guofan Zhang (Chinese Academy of Sciences, Qingdao, China)  
Dr. Kai Song (Chinese Academy of Sciences, Qingdao, China)  
Mr. Wei Wang (Chinese Academy of Sciences, Qingdao, China)  
Mr. Ao Li (Chinese Academy of Sciences, Qingdao, China)  
Ms. Li Li (Chinese Academy of Sciences, Qingdao, China)  
Dr. Marc Rius (The University of Southampton, UK)  
Mr. Davy Ho (Senior Swire Retiree)  
Mr. Alan Wong (Senior Swire Retiree)  
Mr. Victor Ho (Senior Swire Retiree)  
Mr. James Tam (Senior Swire Retiree)  
Mr. Laiman Tam (Senior Swire Retiree)  
Mr. Victor Hughes (Senior Swire Retiree)  
Mr. Chris Pooley (Senior Swire Retiree)  
Mr. Paul Bayne (Island School)  
Mr. Roger Wan (Life Front-Line Sailing Ministry / Floating Classroom)  
Dr. June Leung (AFCD)  
Ms. Kathy Li (AFCD)  
Mr. Jesse McNichol (MIT-Woods Hole Oceanographic Institution, USA)  
Ms. Rosanna Neuhausler (UC Berkeley, USA)  
Ms. Joyce Fok (HKU)  
Prof. David Paterson (University of St. Andrew, UK)

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## Staff Training

Ms. Sylvia Yiu attended training on HKUVPN on 19 Feb 2016 (PM).  
Mr. Wong Kam Kin attended the electricity course and renew the certificate on 26 Aug 2016 (PM).  
Ms. Sylvia Yiu attended OF Project Workshop on 13 (AM), 14 (AM), 16 (AM) & 19 (AM) Dec 2016.

## Group Visits

20 UGS from Experimental Intertidal Ecology Class, HKU, Jan 2016  
17 staff and students from Island School, Feb 2016  
20 participants of JSI Workshop, Mar 2016  
25 members of The Council for Sustainable Development, Apr 2016  
80 staff and students from South Island School, Apr 2016  
24 staff and students from West Island School, May 2016  
14 staff and students from The Harbour School, Jun 2016  
23 UGS from SCNC2121, HKU, Jun 2016  
31 member of The Marine Outer Waters District, The HK Police Force, Jun 2016  
17 staff and students from University of Adelaide, Australia, Jul 2016  
11 staff and students from Kellett School, Sep 2016  
35 members of Management Trainees of Swire Group, Sep 2016  
53 members of Hong Kong Maritime Museum, Nov 2016  
20 participants of JSI Workshop, Nov 2016  
90 members and family members from Swire Hong Kong Staff Association, Nov 2016  
40 staff and students from TWGHs Wong Fut Nam College, Dec 2016

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## Student Graduations

### Ph.D

**Yung, Man Na Mana** (2016) - Influences of temperature and salinity on the physicochemical properties and toxicities of zinc oxide nanoparticles to microalgae.

**Li, Chaoyi** (2016) - Nano-structural and nano-mechanical projection on biomineral properties in a changing climate.

### M.Phil

**Cheng, Chun Fai Martin** (2016) - The influence of temperature acclimation and food on the physiology and dynamic energy budget of *Perna viridis*.

**Ip, Chi Ho** (2016) - Establishing transcriptomic platforms for two common marine molluscan biomonitoring species.

**Upadhyay, Abhishek** (2016) - Proteomic characterization of oyster shell organic matrix proteins.

**Wong, Tak Lung** (2016) - Ecology and biodiversity of benthic marine molluscs before and after the 2012 trawling ban in Hong Kong.

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