



The Swire Institute of Marine Science

太古海洋科學研究所



Annual Report

2012



Gray conducting field work outside SWIMS with Prof Mark Davies

Honorary Director's Foreword

In 2012 SWIMS as always, looks to the future, with a feasibility study to investigate options for expansion and also the ground-breaking ceremony for our sister laboratory at Dongshan Swire Marine Laboratory, Xiamen University. The number of researchers at SWIMS has been steadily growing since its last renovation in 2003 and we now have almost twice as many people working at SWIMS in 2012. Obviously this is putting ever more pressure on space, but there is also a need to improve and update facilities with new laboratories and aquaria. To investigate the potential to expand, The Swire Philanthropic Committee, and the HKU Estates Office explored different options to determine the costs and feasibility. Priority areas were identified, including a new Biodiversity Centre, improved 'clean' laboratories, and expansion of the aquarium facilities. Based on the proposed designs we are now actively seeking funding.

The proposed new Marine Centre at Dongshan has already gone past this stage, again generously funded by the Swire Group. Prof Minhan Dai and his team have considered various architectural options and secured the necessary permissions for land etc, and in December the official ground breaking ceremony took place in Dongshan. SWIMS staff have been able to use their experience to offer advice on many aspects of the design. The close collaboration between SWIMS and MEL at Xiamen University has also continued with postgraduate exchanges (including the extremely important UCAS meetings), as well as workshops, such as the recent climate change meetings held in Xiamen and SWIMS.

Again, SWIMS staff and students have been able to attract substantial research funding and support; notably we have been awarded grants to start a biodiversity inventory for Hong Kong's marine life; as well as funding for research work on ocean acidification; etc. SWIMS has also maintained its role in local outreach, and international collaborations, and hosted a series of regional workshops. All in all, as can be seen from this year's report, SWIMS is continuing to grow and play an increasingly important role within the region. We look forward to further success in 2013. Finally, our best wishes go to our colleague JD Gu who is recovering from a long illness - we look forward to his return to full duty!

Best wishes from the staff and students of SWIMS.

Gray A Williams

International Collaborations

In terms of international collaborations, this year saw SWIMS host many workshops on issues ranging from estimating Dynamic Energy Budget (DEB) models, ways to measure the impacts of ocean acidification and how to write and publish scientific papers, to various techniques to monitor populations of marine mammals. These workshops all serve the similar goal of trying to build regional capacity and bring together colleagues to collaborate on research projects.

As in other years, SWIMS was packed with visiting scientists during the year and especially during the summer months. Following Prof Gianluca Sarà's workshop on DEB models in January, Valeria Montalto and Alessandro Rinaldi (all University of Palermo, Italy) visited SWIMS to work with Michelle Luk to help formulate a DEB model for the local mussel, *Septifer*. Prof Mark Davies (Sunderland University, UK) teamed up with Sara Hintz-Saltin (Gothenburg University, Sweden) over the summer to work with Terence and Gray on the mating behaviour and sexual selection in *Echinolittorina* snails on the shores of Cape d'Aguilar. Muthu Kumar (Bharathidasan University, India) joined Rajan's research group in the late summer for 5 months, and long-term collaborators Howard Browman and Anne Skiftvesik (Institute of Marine Research, Norway) worked with Rajan in December. Glenn Gailey (Texas A&M, USA) spent time with Leszek working on the development of their new DISCOVERY software and Dr. Shiang-Lin Huang (National Taiwan Ocean University) visited in February-March 2012 to work with Leszek on demographic analyses of the Chinese White Dolphins in the Pearl River Delta and Taiwan.

A number of visitors paid short-term visits to SWIMS including Felix Mark and Anneli Strobe (AWI; Germany), Tom Garrison (Orange Coast College, USA), and Ron Noseworthy (Jeju International University, Japan). Many visitors also gave seminars, such as on sea surface temperature variations in the southwest Pacific by Nicolas Duprey (University of Paris, France); the proteomics of high shore littorinids by Cynthia Yee Man Wong (Nanyang Technological University, Singapore) as well as a special seminar by David Marshall (Universiti Brunei Darussalam, Brunei), who visited SWIMS to work with Gray and Christopher McQuaid, on thermal stress responses in ectotherms.

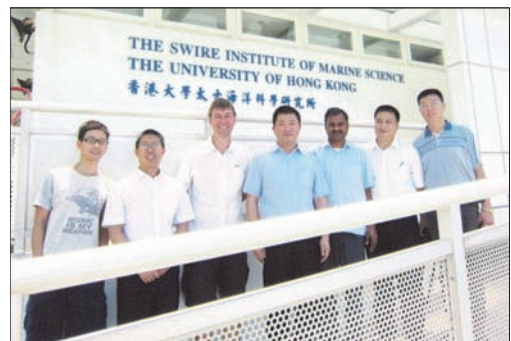
SWIMS also hosted a number of seminars at HKU campus including one on seagrasses by Jeanine Olsen (University of Groningen, Netherlands) and one on physiological adaptations of polar fishes by Felix Mark (AWI, Germany).



Participants at the DEB Workshop



Steve and Gray working with Kee Alfian & students in Malaysia



Delegation from QingDao University



The University of Three Gorges visiting group





Group photo of UCAS participants at Xiamen University

International collaborations (cont'd)

SWIMS hosted delegations from various universities, including the College of Environmental Sciences and Engineering (Peking University, China), Three Gorges University (China) and the University of Macau (China), as well as visits by representatives from Bangor University (UK), and Campos do Mar (Portugal) to discuss potential future collaborations. Further opportunities to develop MoUs were also explored with Brian Helmuth's group at Northeastern University (USA) and Kazuhiko Fujita and colleagues (University of the Ryukus, Japan).

The 4th UCAS Postgraduate Symposium: Understanding and Managing our Aquatic Environment



Students preparing for the group debate

The UCAS Postgraduate Symposium series continues to bring together postgraduates from different backgrounds to communicate ideas, exchange knowledge and foster collaborations. The 4th symposium was held at Xiamen University (XMU) from 5-9 March, 2012 and attracted 43 young scientists from seven universities including HKU, XMU, The Chinese University of Hong Kong, Baptist University of Hong Kong, National Taiwan Ocean University (NTOU), Nanjing University and Nanjing University of Technology, making this the largest and most international symposium to date for UCAS.

Students presented their research work on various topics including ecology and biodiversity, ecotoxicology, fisheries and aquaculture, biochemistry and environmental risk assessment and management and were also involved in other learning opportunities such as group debates on controversial environmental issues and a local heritage tour to traditional Chinese Tulou. All of the participants were very enthusiastic in sharing their research experience, learning to collaborate with each other and enjoying the cultural exchange.

The student organizers also expanded the UCAS network and influence by co-organizing a public education programme with the Centers for Ocean Sciences Education Excellence (COSEE) of China to engage HKU undergraduates and postgraduates in real-life conservation education during the summer.



HKU and XMU students participating in environmental education programme in Xiamen

The symposium series will reach another milestone in 2013, the 5th year of UCAS establishment, as NTOU has already agreed to hold the next symposium in Keelung, Taiwan. For details of the symposium series, please visit: <http://mel.xmu.edu.cn/ucas/index/index.asp>.

Field course exchange with the University of Johannesburg

This year, Vera Chan, Andy Yi Xianliang, Elvis Xu Genbo and Kevin Ho were the lucky students who participated in the annual field course offered in the collaborative exchange between the SWIMS and the Zoology Department, The University of Johannesburg (UJ). The two-week marine ecology excursion took place in Tsitsikamma National Park which is one of the largest coastal marine reserves in the world. At the site, students live in tents, which are also used as classrooms for lectures, and go down to the shore to conduct small projects and field studies. SWIMS students joined the BSc Marine Biology course and, in their second week, the MSc field excursion focusing on estuary ecosystems. The exchange was made possible from generous support from the Department of Zoology of UJ, HKU's Faculty of Science and SWIMS. In October, staff and postgraduates from UJ will join HKU students at the Ecology and Evolution field course, to continue this rewarding academic and cultural exchange.



The lucky students took a picture with Prof Gray Williams (middle) at the Tsitsikamma shore (from left to right: Kevin, Andy, Elvis and Vera)

Dynamic Energy Budget models help predict how organisms can respond to changing conditions

In January 2012 Prof Gianluca Sarà (University of Palermo, Italy) presented a workshop on “Dynamic Energy Budget Models in Marine Ecosystems” at SWIMS. Dynamic Energy Budget (DEB) theory presents simple mechanistic rules that describe the uptake and use of energy and nutrients by an organism and the subsequent consequences for physiological organisation throughout an individual's life cycle and therefore allow predictions of individual performance under different scenarios of food availability, environmental conditions etc. The workshop was attended by over 30 participants, including colleagues from Malaysia, Thailand, South Africa, China, Italy, Germany and Taiwan as well as local HK institutions. The workshop included theoretical lectures led by Gianluca Sarà, as well as hands-on sessions on measuring oxygen consumption, heart rates and environmental temperatures contributed by Folco Giomi, Maurizio De Pirro and Yunwei Dong, respectively. The fundamental principles of the DEB approach are now being incorporated in our strategy to monitor how organisms can respond to climate change.

As a follow up to this event two of Gianluca's students, Valeria Montalto and Alessandro Rinaldi, visited SWIMS in the summer to help Michelle Luk in her project to derive a DEB model for the mussel, *Septifer virgatus*.



Prof Sarà lecturing on the DEB workshop held at SWIMS



Hands-on demonstration of O₂ measurements by Folco Giomi



Archer and Matthew setting off to work with local researchers in Sri Lanka



Joke and Leo promoting conservation in a local school in Indonesia



Bill helping with marking the dragon



Derek carrying a big trap to capture the dragon

SWIMS and Ocean Park Conservation Foundation Hong Kong

As in the last seven consecutive years, HKU undergraduate students participated in the University Student Sponsorship Programme (USSP) sponsored by Ocean Park Conservation Foundation Hong Kong (OPCFHK).

In mid-January, Archer Wong and Matthew Tam participated in a project surveying the oceanographic profile off southern Sri Lanka and the Dondra submarine canyon and assisted in collecting data on the density and distribution of blue whales and investigating the population status of the largest marine mammal in the northern Indian Ocean.

For two weeks in February/March, Joke Kwong and Leo Tong joined a conservation project on Java, assisting in the rehabilitation and reintroduction of slow loris. This endangered small primate is severely threatened by unregulated pet markets and illegal animal trafficking in Indonesia.

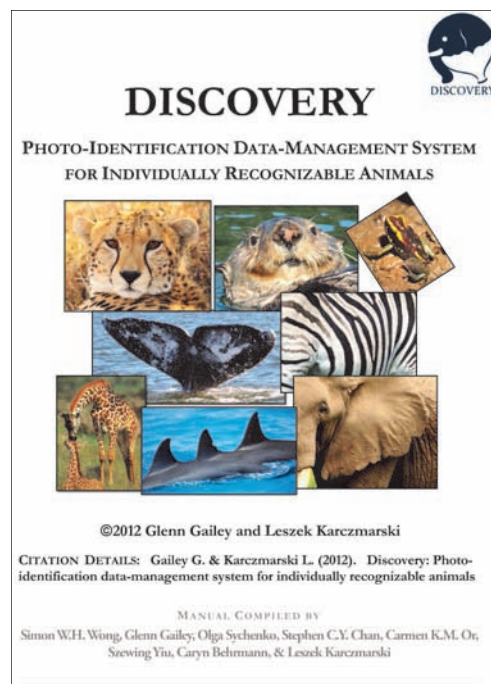
In mid to late-June, Bill Ho and Derek Ho participated in research assessing the population status of Komodo dragons and promoting community awareness initiatives on the Island of Flores, Indonesia. They spent many days in a remote part of Wae Wuul Reserve where they were helping in a capture-release programme monitoring the dragon populations and studied the abundance and diversity of the dragon's prey species.

All students recorded their experience via online blogs, and after returning to Hong Kong gave project presentations to invited guests, fellow students and OPCFHK stakeholders at the 'USSP graduation ceremony'. We wish to acknowledge OPCFHK for providing such unique and valuable opportunities for our students.

In terms of research and regional capacity building, OPCFHK provided partial support for another two training workshops in the series of South East Asian Training Workshops in Marine Mammal Research Techniques, coordinated by Leszek through SWIMS's Cetacean Ecology Lab. This productive series of workshops has been very well received by colleagues and students in Southeast Asia and has helped foster regional cooperation and knowledge exchange.

DISCOVERY: New data-management computer software for mark-recapture studies

Jointly with Glenn Gailey of Texas A&M University, Leszek and his students have designed and tested a new computer software, DISCOVERY, that provides a user-friendly computerized platform to assist researchers with complex data management and analyses of photographic mark-recapture records. Photographic identification (photo-ID) mark-recapture techniques, is a powerful and non-intrusive approach to study animals' behavioural and population ecology and has been applied across species and habitats, both marine and terrestrial, to help estimate population parameters, group dynamics, social behaviour, geographic range, movement patterns etc. The DISCOVERY data-management system can be used to centralize a database for multiple species and multiple study areas and is particularly useful for maintaining a single database for research projects.



Operation manual for the new software - DISCOVERY

South-East Asian Training Workshops in Marine Mammal Research Techniques

Leszek continued his efforts to expand a collaborative research network across South-East Asia and the Western Pacific, and to promote modern quantitative research techniques in field studies of marine mammals by hosting two regional workshops, the 5th SE Asian Workshop: Ecological Niche Modelling (2-5 January 2012) and the 6th SE Asian Workshop: Principles of Remote Sensing (7-10 January 2012). The workshops gathered 25 participants (students and researchers) and 3 observers (NGO representatives) from across six nations in South-East Asia. This time, the workshops covered home range analyses with GIS techniques, ecological niche modeling, and habitat relationship assessment with remote sensing.



Participants learning the new software



Participants with OPCF representative, Ms. Suzanne Gendron (second from right) at the 6th SE Asian training workshop in Marine Mammal Research techniques



As part of ISOACC, Dr Howard Bronman and Dr Paul Taylor ran a paper writing workshop



Some ISOACC participants having fun during the closing dinner party

Interdisciplinary Symposium on Ocean Acidification and Climate Change (ISOACC)

Climate change and ocean acidification (OA) are threatening coastal organisms, aquaculture and fisheries. A multidisciplinary team approach is required to evaluate these threats and to understand the mechanisms and physiological processes behind these threats. The lack of multidisciplinary team work, especially in Asia, is limiting our ability to understand these devastating climate change associated threats. To meet this challenge, SWIMS hosted an “Interdisciplinary Symposium on Ocean Acidification and Climate Change (ISOACC)” on December 11-14, 2012, led by Rajan and his group and including leading international and regional marine scientists to discuss the OA problem, explore potential solutions and to form an “International and Multidisciplinary Group for OA research”.

Through ISOACC we have (1) brought ecologists, economists, engineers and molecular biologists to establish collaborations and to use ecophysiology, material science and “omics” tools in climate change studies, (2) identified research gaps that could be addressed by our multidisciplinary collaboration, and finally (3) formed an international and interdisciplinary collaborative research team for OA and climate change studies which includes experts in oceanography, marine biology, economics, and engineering from China, Norway, Ireland, Australia, New Zealand, Malaysia, Sweden, United Kingdom, Japan, Philippines and the United States. After this exciting 1st ISOACC meeting, members have decided to continue the ISOACC symposium series (see <http://www.biosch.hku.hk/ecology/isoacc/index.htm>).



Guests of honour, including Prof Paul Tam (PVC Research); invited speakers and student organizers at the Opening Ceremony of ISOACC

Staff Research

Gray A Williams

The ecology and physiology of littorinid snails were the focus for my research this year. The RGC project investigating latitudinal gradients of thermal stress in these snails (with Prof KH Chu, Chinese University) kicked off, and Steve and I visited Malaysia to work with Kee Alfian and his students to establish the initial protocols for this project. In the summer, I teamed up with Sara Hintz-Saltin (Gothenburg University); long term collaborator Mark Davies (Sunderland University) and Terence Ng to investigate sexual selection in rocky shore littorinids. Research into the thermal ecology of these snails will continue next year, in collaboration with Yunwei Dong (Xiamen University) and George Somero (Stanford University) on the transcriptomic expression of these animals under heat stress.



Gray with Mark and Sara on Kau Pei Chau

Kenny Leung

Revealing genomes of marine organisms enables us to study how they respond to anthropogenically and/or naturally driven stresses at the molecular level, and hence elucidate the mechanism of the stress and determine response thresholds. This year I, in collaboration with Dr. Priscilla Leung, successfully secured two major external grants (General Research Fund from Research Grants Council, and Seed Collaborative Research Fund from the State Key Laboratory in Marine Pollution) to establish transcriptomes of the whelk *Thais clavigera* and the mussel *Perna viridis*. With these genomic databases, we will further investigate why and how organotins cause imposex in the whelk, and identify pollutant-specific genetic and protein markers in the mussel for pollution monitoring.



Kenny receiving the Outstanding Alumni Award from the Vocation Training Council Chairman

V. ThiyagaRajan

If the impact of high CO₂ and warming on highly sensitive marine invertebrate larval forms goes unnoticed, we will not only lose our precious marine biodiversity, but also our valuable shellfish resources. My group is using an interdisciplinary team approach to evaluate high CO₂ and climate change impacts on metamorphosing larvae to understand the mechanisms and physiological processes behind these impacts. The team includes engineering, biochemistry, biotechnology, larval biology and ecology graduate students and scientists. My team has successfully established that high CO₂ suppresses larval metamorphosis, affects early calcification and results in the formation of excessive amorphous calcium carbonate, fatally weakening the protective armour of marine invertebrates.



Rajan's team members have created a unique research culture, thanks to their international and interdisciplinary collaboration



Leszek conducting field work off the Cape Town coast with South African TV crew

Leszek Karczmarski

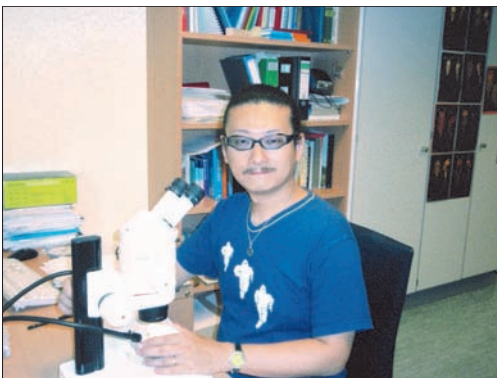
Another year of research into the population ecology of Chinese White Dolphins across the Pearl River Delta strengthened our collaboration with researchers from mainland China and Taiwan. This year we used a demographic modeling approach to quantify population status and trends. Our results paint a grim picture for the dolphins, as research indicates a major decline in population numbers. The austral summer of 2012 was also our last research season of a multi-year study of Heaviside's dolphins inhabiting the Benguela coastal system of SW Africa which included approximately half of the geographic range of this endemic species. Another achievement was the completion of the software 'DISCOVERY', which is a new computational tool for mark-recapture data management.



Searching reef passage for aggregating groupers

Yvonne Sadovy

This year involved studies around the world on grouper spawning aggregations, a core part of my biological and conservation work. 2012 was also the last of a multi-year project in Fiji, studying an aggregation off the small Fijian island of Kadavu. Our work is helping to reveal the dynamics of this interesting breeding habit in groupers, which are very important for food and the livelihoods in many parts of the Pacific. Our work also involves education, documentary film-making and collaboration with governments to move towards sustainable management. A second study in the Bahamas to search for the first grouper aggregation ever recorded scientifically, sadly showed that it has long since disappeared, further highlighting the urgent need for protection.



Moriaki observing deep-sea samples in German Centre of Marine Biodiversity Research, Germany

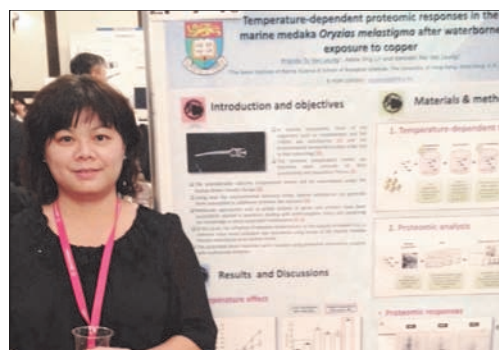
Moriaki Yasuhara

I continue to work on climatic and anthropogenic impacts on marine ecosystems and biodiversity using paleoecological methods in collaboration with various colleagues in the US, Japan, Germany, Iceland, and other countries. The long-term goal of my research is to integrate large spatial-scale (macroecological) and long-term time-series (paleoecological) approaches for a better, comprehensive understanding of marine biodiversity patterns. My research group is growing and my postgraduates are working on a variety of projects including human-induced ecological degradation in Hong Kong; a paleoecological study of submarine caves; deep-sea benthic community and species diversity; and Tropical western Pacific marine paleo-biodiversity.

Post Doctoral Fellows

Priscilla Leung

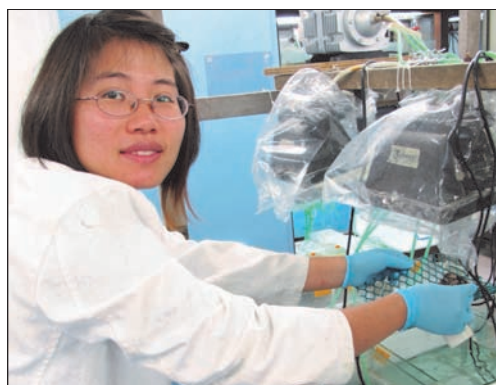
Priscilla's research interest primarily focuses on how marine organisms respond to environmental stresses at the molecular level. She has studied the combined effects of temperature and chemical pollutants (e.g. copper and DDT) on marine fishes and diatoms using genomic and proteomic analyses. In collaboration with Kenny Leung, she is also developing *de novo* transcriptomic databases for the mussel *Perna viridis* and the whelk *Thais clavigera* which will provide unique platforms for ecotoxicological and environmental genomic studies. Moreover, Priscilla is coordinating an investigation on the juvenile fish diversity in three Marine Parks which will provide baseline information for managing fish resources therein.



Priscilla presenting her poster at the SETAC Asia / Pacific 2012 Annual Meeting

Vivien Wei Wei Bao

In the past year, Vivien has been involved in an ECF project investigating the effect of antibiotic residues and microbial antibiotic resistant genes in fish ponds and marine culture zones. She then transitioned into looking at the effects of thermal stress on intertidal organisms, focusing on enzyme activities in *Echinolittorina* spp. as part of a larger RGC funded project looking at stress responses over latitudinal scales and seasons. In the coming year, she will continue this work, but also collaborate to investigate a range of species, and their ability to acclimatize, or not, to temperature increases as a response to global warming.



Vivien working in the SWIMS aquarium

Michael Eitel

Michael continued his studies on biodiversity within the enigmatic animal phylum Placozoa as a German Academic Exchange Service postdoctoral fellow. With year-round sampling in various habitats, Michael isolated the largest number of placozoan specimens that has ever been collected in one locality. The molecular genetic characterization of these isolates is promising to yield a high number of different genetic lineages that may represent undescribed species. Michael is also identifying the eco-physiological parameters and morphological characters that separate the various genetic lineages to erect new taxa and establish a robust taxonomy of this phylum.



Placozoan traps set at the Cape d'Agnular Marine Reserve (left) and Michael searching for his favourite animals (right)



Steve demonstrating mussels attach strongly on waveswept shores, whereas scientists do not

Stephen Cartwright

Running a marathon requires training over a long period and individuals can achieve this at different rates; some train harder, some faster, some will falter and fail. This analogy applies to climate change and increasing environmental temperatures - some species can cope with changes, some may even benefit, but likely many will perish. Stephen is interested in long term experiments using realistic thermal regimes, to investigate the responses of intertidal organisms to elevated temperatures, to see whether some species will be able to acclimatise to higher temperatures, which ones will be able to cope with extreme events, and importantly which will not and may have to shift their distribution patterns or may become locally extinct.



Joy with the LC-MS/MS Mass spectrometer instrument (AB Sciex Triple TOF 5600 system) dedicated for the proteomics laboratory

Joy Mukherjee

The emerging impacts of climate change are a great concern to society, and especially for aquatic species. Rising CO₂ levels and decreases in oxygen levels in coastal waters are affecting most marine invertebrates. Calcifying marine invertebrates are particularly at risk to these stressors. There is a clear knowledge gap to understand how the highly sensitive process of larval metamorphosis may respond to these environmental stressors. Joy is using his proteomics and bioinformatics expertise, to investigate the responses of metamorphosing marine invertebrate larvae to climate change. Using the highly sensitive TripleTOF-5600 mass spectrometer, several proteins have been identified that might play an important role for larval acclimation and adaption to climate change.



Terence and his research collaborators Prof. Mark Davies (UK) and Sara (Sweden)

Terence Ng

It has been a rewarding year for Terence, as he finished his PhD and has now shifted his role from a student to a Post Doctoral position at SWIMS. Terence's PhD investigated sexual selection of 'lower animals' using mangrove littorinid snails as models. By showing that not only advanced animals (mammals, birds and insects) but also 'simple' snails have the ability to compete for or choose mates, Terence's thesis makes an important contribution to the field of sexual selection. Terence was also the winner of the HKU Three Minute Thesis Competition (3MT™) and went on to represent HKU at an international competition in Brisbane, Australia. Terence has now started a project to build up a marine biodiversity database in Hong Kong for better monitoring of local marine ecosystems.

Stella Wong

Since July 2012, Stella has been conducting a large scale survey of marine benthic biodiversity using a shrimp trawler to sample 12 sites across the northeastern, southern and western waters of Hong Kong. The catches are brought back to the laboratory for species identification and measurements of growth parameters (e.g. length and weight). Stella has shown that species' composition and abundances vary significantly among different regions. The results of this baseline survey will enable the study team to test if benthic biodiversity will recover after the implementation of the trawling ban on 31st December 2012.



Helpers sorting benthic samples on board the shrimp trawler

Postgraduate Research

Evaluating calcified products of marine invertebrates under multiple climatic stressors

Ocean acidification, more floods and global warming will simultaneously reduce pH, salinity, and increase seawater temperature. Vera Chan is testing the combined effect of these climatic challenges on economically and ecologically important organisms such as the edible oyster and the biofouling tubeworm. Early juvenile stages were subjected to treatments using a three-level factorial experiments and biominerals made under various treatments examined using X-ray powder diffraction, Fourier transform infrared spectroscopy (FTIR), inductively coupled plasma optical emission spectrometry spectroscopy (ICP-OES), scanning electron microscope (SEM) and nanoindentation.



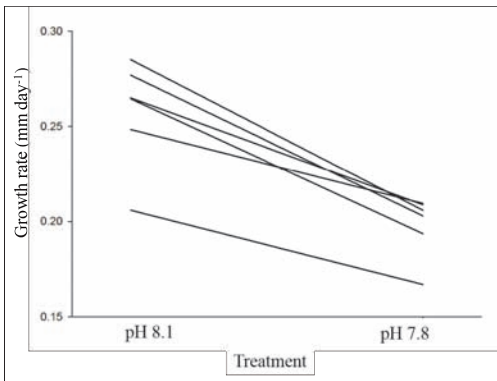
Vera imaging a shell specimen with scanning electron microscopy

Augmented chemical toxicity to marine organisms under thermal extremes

Adela Li has been studying the interacting effect of temperature and chemical exposure to marine fish, copepods and rotifers. Her results show that toxicities of chemicals, like copper and DDT, often increased at higher and lower temperatures beyond the normal thermal tolerance range, and such synergistic effects can be temporarily buffered by increased enzymatic activities and heat shock protein expression. To further investigate how marine species respond to combined stresses at different latitudes, Adela is currently comparing the responses of the copepod *Tigriopus japonicus* from tropical Hong Kong and temperate Korea.



Adela with groupmates during SETAC Asia Pacific 2012 Meeting in Kumamoto, Japan



Each line represents the performance of one family to two pH treatments. The different slopes and variation in performance at either pH are due to the different fathers of each group

Evolution and climate change: how existing variation may enable adaptation

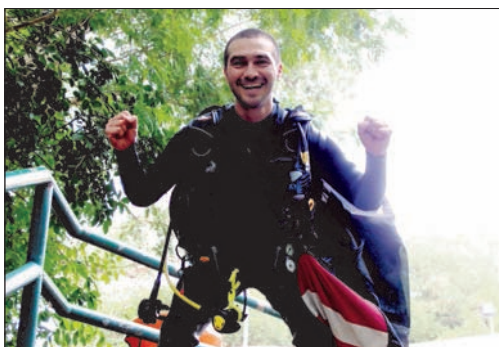
In the face of imminent change in seawater caused by CO₂ emissions (e.g. lower pH, higher temperature, lower salinity, etc.) marine ecosystems will change. Extinction and range shifts are likely consequences of these changes. However adaptation to the new environment may also occur and species may evolve and become tolerant. Ackley Lane presented his research at the High CO₂ Symposium in Monterey, USA showing that different groups of siblings perform differently, as did different families depending on the father of that group. This indicates that there is heritable (genetically determined) variation in tolerance, meaning that species may adapt to changes in the ocean environment through the process of selection.



Dinesh casting a SDS-PAGE gel for Proteomic analysis

Are Oysters in deep trouble in future coastal oceans?

Early life-stages of oysters are particularly vulnerable to elevated CO₂-driven low pH because their shell is made of the highly soluble form of calcium carbonate, aragonite. Ramadoss Dineshram with his long term CO₂ perturbation experiments, examines the effect of pH on the protein expression patterns of Hong Kong oysters. Using 2D gel based proteomics, Dinesh demonstrated that proteins involved in larval energy metabolism and calcification are down-regulated in response to low pH, whereas production of cell motility and cytoskeletal proteins increased. His current study involves quantitative shotgun proteomic analysis using high precision LC MS/MS approaches.



The happiness of Juan Carlos after finishing field work

Distribution of non-native marine invertebrates in Hong Kong

Juan Carlos Astudillo is working on non-native marine invertebrates in Hong Kong. In the first part of his research he conducted a spatio-temporal survey (supported by ECF) of six reported non-native species in 31 fouling communities in both the wet and dry seasons. The main finding of this survey indicates that non-native species are not a common component of marine communities in Hong Kong, and seem to be restricted to areas with intensive human activities where water quality is poor, such as the polluted Kwun Tong typhoon shelter in Victoria Harbor. Juan Carlos is currently working on his first manuscript and conducting experiments to determine the factors that limit the invasion of non-native species in Hong Kong.

Organotins in our marine environment

Organotins (OTs), such as triphenyltin (TPT), have caused widespread adverse effects on marine organisms ever since their wide application as antifouling biocides in the 1960s. Humans can potentially uptake OTs via consumption of contaminated seafood, and high levels of OTs present in our bodies may lead to health problems. Kevin Ho measured the tissue OT concentrations in some common seafood species in Hong Kong and found both the Babylon shell *Babylonia areolata* and tongue sole *Paraplagusia blochi* had high concentrations of TPT. Evidently, OTs are still threatening our marine environments and appropriate management actions are necessary to control their use and release in the region.



Kevin conducting a survey of Thais on a rocky shore

Toxic effect of triphenyltin to marine organisms

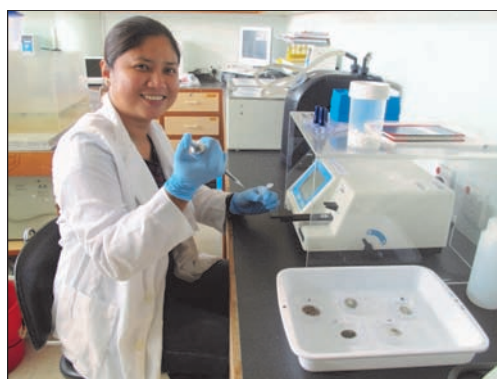
Triphenyltin (TPT) is widely used as a biocide in antifouling paints and agriculture production. Recently, elevated concentrations of TPT have been found in the tissues of local marine gastropods and fishes. Andy Yi is investigating the toxic effects of TPT to selected marine species and has discovered that TPT can inhibit the growth of diatoms and reduce photosynthesis efficiency. Using proteomic techniques, Andy showed that oxygen evolving enhancer related proteins were interrupted by TPT. Currently, toxicity studies are being conducted for rotifer, copepods and fish at various levels of biological organisation (i.e., from molecular to population levels).



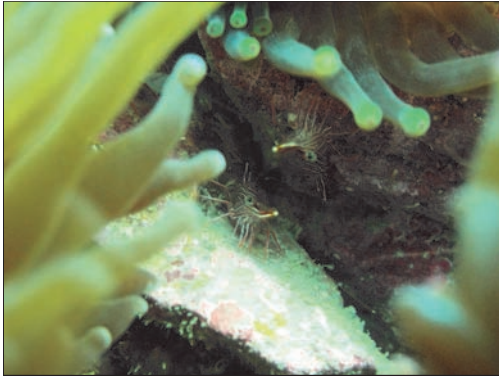
Andy giving an oral presentation at the SETAC Asia / Pacific Meeting in Japan

Physiological responses of the limpet *Cellana toreuma* to heat stress

Many intertidal species suffer from heat stress during summer in Hong Kong. Long emersion periods during afternoon spring low tides impact the physiology of many of these organisms. Karen Villarta is investigating the physiological responses of the limpet *Cellana toreuma* to heat stress and has been testing whether limpet body size has an effect on metabolism and overall thermal tolerance. Results show that smaller limpets have higher heart rates as well as greater water loss and blood osmotic concentrations as compared with larger individuals. Karen's study attempts to link how these results may explain cases of mass mortalities during the summer and can be applied to larger-scale patterns of the population dynamics of this limpet.



Karen measuring limpet blood osmotic concentration



Hinge-beak shrimps, Rhynchocinetes brucei, associated with anemones on a subtidal rocky reef

Direct and indirect effects of predation, mediated by habitat structure, on predator-prey interactions

Nicolas Ory's PhD examines the effects of predation and habitat structure on the distribution and abundance of small mesoconsumers in coral and rocky reefs of temperate and tropical waters. During the present year, he examined the association between the hinge-beak shrimp *Rhynchocinetes brucei* and its potential urchin and anemone hosts in subtidal reefs of Hong Kong. Field observations and laboratory experiments revealed that shrimps actively associated with these hosts, with a preference for urchins over anemones. These studies provide evidence that interspecific associations may reduce the impact of predators upon their prey and therefore may influence the structure of subtidal benthic communities.



Lenin surveying dolphins in Costa Rica

Ecology of sympatric dolphins in Costa Rica

Lenin Oviedo continued his study of sympatric bottlenose dolphins (*Tursiops truncatus*) and pantropical spotted dolphins (*Stenella attenuata*) in Golfo Dulce, Costa Rica. He noted seasonal differences in habitat selection of spotted dolphins, a pattern that seems to be driven by coastal bathymetry and the distribution of preferred prey species. Bottlenose dolphins, on the other hand, have more rigid patterns, with clearly defined communities that occupy specific parts of the coast. This pattern makes them more susceptible to coastal degradation and anthropogenic impacts, as observed in one of the communities that developed a skin disease due to harmful anthropogenic pollutants.



Elvis deploying the monitoring buoy in the Cape d'Aguilar Marine Reserve

Risk assessment framework for safeguarding the Marine Reserve

This year, Elvis Xu investigated various aspects of environmental risks being faced by the Cape d' Aguilar Marine Reserve. Elvis identified key environmental factors that can influence seawater quality (e.g. levels of nutrients and faecal contamination) in the reserve, and discovered high levels of various endocrine disrupting chemicals in the effluents released from adjacent sewage treatment plants and in the seawater from the reserve. With funding from the Swire Educational Trust, Elvis successfully installed a sophisticated telemetry-based monitoring system which can provide real-time measurements of multiple water quality parameters in the reserve.

Risso's dolphins of La Herradura Bay, Chile

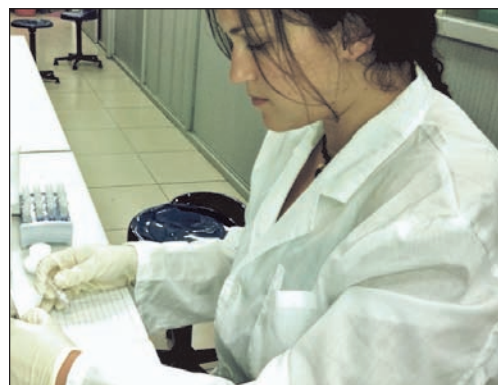
Macarena Bravo finished her research project in Chile where she studied the occurrence, group dynamics and population parameters of Risso's dolphins (*Grampus griseus*). Her study was based in La Herradura Bay, which functions as a resting and socializing place for the dolphins, after their night-time foraging in deeper waters offshore. Macarena's work indicates that even though the grouping pattern of this wide-ranging species is very dynamic, there is a notable site fidelity for at least part of the population, which indicates a preferential use of certain regions within a larger home range. As Macarena's project was the first such study of this species off the Chilean coast, it provides valuable information for future research.



Macarena on her photo-ID survey in Chile

Heavy metal bioaccumulation in Benguela dolphins

Julie Serot has nearly completed her M.Phil. project investigating heavy metal bioaccumulation in Benguela dolphins, also known as Heaviside's Dolphins (*Cephalorhynchus heavisidii*), a coastal species endemic to southwest Africa. The study covered a large part of the species range, from southernmost reaches of South Africa to the middle of the Namibian coast. Apart from establishing baseline bioaccumulation data, Julie's work indicates that concentration levels vary between locations, reflecting the specific hydro-chemistry of the region and suggesting that dolphin movement might be locally restricted. This finding will be tested further through ongoing genetic and mark-recapture studies undertaken by other students.



Julie conducting labwork on tissues of Benguela dolphins

Sustainable management of sea urchin fisheries

The only edible sea urchin in Hong Kong waters is *Anthocidaris crassispina* which has been overexploited for >30 years. Juan Diego Urriago is using a matrix model to identify a sustainable way to exploit this resource. His one and a half years of field experiments in two protected and two non-protected areas will examine the effects of establishing Marine Parks and Marine Reserves on the sea urchin population. Preliminary results show that the size frequency distribution of the urchin is below the recommended fishery size and that densities and abundance at the fully protected Cape d'Aguilar Marine Reserve are almost double those at three other sites.



JD using an airlift to collect juvenile sea urchins



Michelle taking photoquadrats at Shek O

Dynamic energy budget models of *Septifer virgatus*

In Hong Kong, the mussel *Septifer virgatus* experiences heavy mortality in the summer when aerial and rock surface temperatures exceed 30°C and 50°C respectively. Michelle Luk found that at the start of summer the cover of the upper mussel band decreased from 82 to 27% and mussel density decreased from 1654 to 216 inds/m² in one month. To investigate the cause of this mortality, Michelle is measuring variation in the mussels' heartbeat and respiratory responses under heat stress, as well as how *S. virgatus* allocates its energy using a Dynamic Energy Budget model, in collaboration with Prof Gianluca Sarà (Palermo University, Sicily), to predict the success of the species under different environmental conditions.



Simon collecting field data in South Africa

Behaviour and ecology of coastal delphinids

Simon Wong studies various aspects of the behavioural ecology of coastal dolphins that can be applied for effective management plans. His current work involves fine scale analyses of movement and patterns of behavioural disturbance due to anthropogenic activities; long-term cumulative impacts due to habitat alteration; and analyses of population parameters for application in status assessment. To gain a broader exposure to conservation issues, Simon uses data from several locations including Hong Kong and South Africa, and hopes to expand his work into the western Pacific in the upcoming field season.



Marielle tagging a sea cucumber by injection of a fluorochrome solution

Use of fluorochromes to tag sea cucumbers for growth measurements

Assessing sea cucumbers' growth for fishery management is challenging due to their great plasticity. Mark-recapture techniques are one way to assess growth, however, tagging these animals is difficult as physical external or internal tags are usually expelled by the holothurians. Marielle Dumestre is investigating ways to mark the endo-skeleton of a local species of sea cucumber by staining calcareous spicules and ossicles with fluorochromes. Calcein marks have been detected on spicules of adult *Holothuria leucospilota* two months after tagging. Further work will examine the efficacy and durability of tagging using different fluorochromes.

Shallow marine ecological degradation in Hong Kong: a paleoecological approach using ostracods

Little is known about the long-term history of human-induced marine degradation in Hong Kong. Circle Hong uses microfossil ostracods as a model system and compares their diversity and abundance from grab samples and sediment cores. Preliminary results show differences between the top-1-cm and the rest of the core and whole assemblages are larger in urban than rural sites. Furthermore, species diversity of Holocene background assemblages are much higher than in grab samples. These results clearly indicate serious ecological degradation during the past several decades.



A common ostracod, Neomonoceratina delicata

Demographic model of spinner dolphins from an offshore reef in the Red Sea

The spinner dolphin (*Stenella longirostris*) is a pantropical species with a global distribution. It has been studied in some detail in the Pacific and south Atlantic, but very little is known of this species in the Red Sea. As part of her PhD study, Amina Cesario is investigating the population parameters, site fidelity, connectivity and socio-behavioural dynamics of spinner dolphins frequenting a small offshore protected area, Samadai Reef, Egypt. Amina applies a photo-ID mark-recapture technique, but in contrast to most other similar studies, she collects her data exclusively underwater, which allows her to collect rare socio-behavioural, demographic, and early postnatal developmental data.



Amina with spinner dolphins during her underwater research at Samadai Reef, Egypt

Paleoecological study using submarine cave sediments from Okinawa, Japan

Ostracoda (small bivalve Crustacea) in sediment cores are an ideal model system to understand long-term temporal dynamics of marine benthic ecosystems, because they are sensitive to environmental changes and well preserved in sediment cores. Ruby Chiu Wing Tung is now examining fossil ostracod assemblages in a Holocene sediment core from a submarine cave in Okinawa, Japan. Through this ostracod record, she tries to understand whether submarine cave ecosystems and biodiversity are affected by changes in temperature and other factors. Also, she will be able to explore how vulnerable this isolated ecosystem is to climate change and other environmental changes.



Ruby picking ostracods from sediments of an Okinawa submarine cave



Edward receiving the award for Excellence in Teaching Assistant from the Vice-Chancellor, Prof T sui

Multi-stressor effects on amphibians

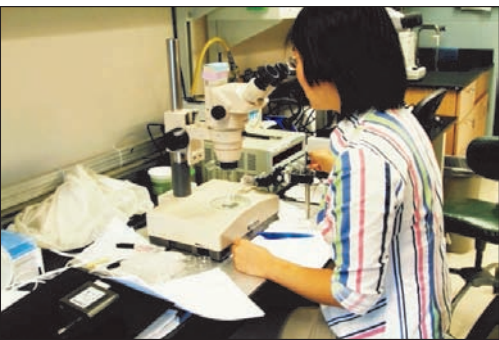
Many threats, such as biological invasion, pollution and global warming, are contributing to amphibian declines, yet, we know little about the importance of synergistic effects among these stressors. Edward Lau has been investigating the combined effects of temperature and pesticides on the physiological responses and predator-prey interactions between larvae of three local frog species and their invasive predator, the mosquito fish. Using molecular biology facilities at SWIMS, Edward is quantifying various physiological parameters to shed light on the interacting effects of these multiple stressors on the amphibians.



Calton conducting fisherman interviews to collect seabream fisheries data

Reproductive biology and fisheries of seabreams in Hong Kong

Calton Law continues his research on the reproductive biology of 3 seabream species (Sparidae: *Acanthopagrus schlegelii*, *Erynnis cardinalis* and *Pagrus major*) and their local fisheries. Many seabreams have diverse sexual patterns including hermaphroditism (i.e. adult sex change). Sex change can make the species particularly susceptible to fisheries and requires specific fisheries management. Preliminary results show that seabreams mainly spawn during the winter-spring period. Hermaphroditism was found in *A. schlegelii* while *E. cardinalis* exhibits gonochorism. Market surveys revealed considerable numbers of juveniles on sale, suggesting the fisheries might not be sustainable.



Mana testing the strength of chorion

Ecotoxicities of zinc oxide nanoparticles to a marine diatom

Zinc oxide nanoparticles (nZnO), which are commonly incorporated in sunscreens, have been shown to be toxic to marine diatoms, crustaceans and fishes. In commercial applications, the surface of nZnO is usually modified by coatings. Mana Yung's PhD aims to investigate whether different coatings on nZnO can influence their aggregation size distribution, ion dissolution rate and hence their toxicity. Interestingly, her results indicate that nZnO coated with long carbon chains was less toxic to the marine diatom *Thalassiosira pseudonana* than those modified with a positively charged surface or the bare nZnO itself.

Sustainability of coral trout fisheries in the Philippines and Indonesia

This year Xueying continued her investigation on the sustainability of coral trout (*Plectropomus leopardus*) fisheries in the Philippines and Indonesia. Based on the data she collected by sampling fish size distribution and interviewing fishermen, as well as production data provided by one major trader, she constructed initial models to assess the stock status. Preliminary results show that in the Philippines the current fishing level is higher than sustainable levels. Growth and spawning potential may have been negatively affected. If true, this suggests that reduction in fishing pressure is necessary to sustain the stock, of which Hong Kong is a major beneficiary in the luxury restaurant trade, in the long term.



Xueying and a staff member from WWF-Philippines interviewing fishermen in Palawan, Philippines

Comparison of temperate and tropical saltwater species' acute sensitivities to chemicals

Due to a lack of toxicity data for tropical saltwater species, data from temperate countries are often used for deriving marine water quality guidelines in the tropics. To evaluate the adequacy of such an extrapolation, Zhen Wang conducted a meta-analysis to compare temperate and tropical species' sensitivities towards 11 chemicals. He found that temperate species tend to be slightly more sensitive to un-ionized ammonia, tributyltin and non-essential metals whereas tropical species are slightly more sensitive to copper, zinc, mercury, pentachlorophenol and phenol. Overall, the maximum difference in toxicological responses between the two groups is only 2-fold.



Wang Zhen attending the SETAC Asia Pacific Conference in Japan

Behavioural ecology of group-living mammals

Destruction of natural habitats and species removal threaten both terrestrial and marine mammals. Species reintroduction, although still in its infancy in aquatic habitats, is frequently used in terrestrial ecosystems to aid ecosystem restoration. In collaboration with the Centre for African Ecology, University of the Witwatersrand, Sze Wing Yiu investigates the post-release behavioural and spatial ecology of predator-prey interactions in a newly established nature reserve in South Africa. She focuses on movement, home range establishment and space use of reintroduced lions, and the vigilance behaviour and space use of their prey, Burchell's Zebra and Blue Wildebeest, to provide insights into the comparative ecology between terrestrial and marine mammalian systems.



Sze Wing Yiu conducting a vegetation survey with her co-supervisor Dr. Mark Keith



Carmen taking water temperature and depth readings off western Lantau Island

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

The population of Indo-Pacific humpback dolphins (*Sousa chinensis*) inhabiting the Pearl River Estuary is estimated to be the largest in the species' range but has been subject to anthropogenic threats for many decades. Previous studies have focused on population trends, habitat use, life history and eco-toxicology while socio-ecology has been a neglected aspect in both research and the conservation of this species. In collaboration with Sun Yat Sen University, China, Carmen Or is studying the social dynamics, movement patterns and habitat use of this species in Hong Kong and the Pearl River Estuary.



Roy chairing a session in the symposium and introducing two keynote speakers

Impact of ocean acidification on shells: an engineer's perspective

Roy Li is looking at the effect of ocean acidification or high $p\text{CO}_2$ on minerals or hard structures built by marine invertebrates from an engineering angle. For his PhD, Roy is using multidisciplinary approaches ranging from mechanical engineering and crystallography to environmental science. So far, he found that high $p\text{CO}_2$ dramatically weakens the adhesive force and strength of the biofouling worm, *Hydroides elegans*. Eventually, he will develop a finite-element computational model to determine the means and mechanism of crystal assemblage and structure in marine invertebrate shells.



Ginger and a 28cm long Hong Kong Oyster!

Interdisciplinary study of the response of evolutionary related oyster species to synergistic stressors

Ginger Ko's research idea is to examine the effect of synergistic stressors (ocean acidification, global warming and high precipitation), which are expected in future climate change scenarios on three evolutionary closely related oyster species that are commonly cultured in China – *Crassostrea gigas* which is located at the northern coast of China; *Crassostrea angulata* located at the central coast of China, and *Crassostrea hongkongensis* located at the southern coast of China including Hong Kong. Multiple measurements will be used to examine the potential effect of stressors on these oyster species.

Effects of the trawl-ban on demersal fisheries resources in Hong Kong

Fishery resources in Hong Kong have been over-exploited since the 1970s due to overfishing. Before the end of 2013, there were ~400 trawlers operating in local waters, which non-selectively caught marine organisms of all sizes, while exerting severe physical damage to the seabed. To mitigate overfishing and trawling problems, the Government has imposed a trawling ban across Hong Kong waters as of 31 December 2012. Yanny Mak has taken up the challenge to investigate whether the trawl-ban policy is effective to allow recovery of benthic biodiversity and demersal fishery resources by comparing the condition before and after the trawl-ban.



Yanny and colleagues sorting the catch on a shrimp trawler

Sara Hintz-Saltin

Sara Hintz-Saltin, a PhD student from the University of Gothenburg (Sweden), spent four weeks of the summer at SWIMS, collaborating with Terence Ng, Gray Williams and Mark Davies. The theme of the project was mate choice in the littorinid snails (*Echinolittorina* spp.) that can be found on Hong Kong rocky shores. Besides measuring copulation behaviour in the field, Sara and the rest of the team also studied the behaviour of trail following; whereby male snails track females prior to copulation. Experiments were conducted in the laboratory to investigate whether male snails can differentiate between male and female mucus trails, and also whether males could recognise their own species trails from those of other species.



Mark and Sara observing snail behavior at Cape d'Aguilar

Nick Burnett

Nick Burnett came from the University of South Carolina, USA to spend the summer at SWIMS trying to describe the grazing behaviour of the intertidal limpet *Cellana grata*. During his stay he constructed a microphone that could be attached to the shell of the limpet and which records the sounds of the limpet's radula scraping the substratum. Limpet grazing was recorded at Cape d'Aguilar over full tidal cycles, with some recordings lasting over 15 hours and the technique was also tested on rocky shores in Malaysia. These recordings provide insights into the grazing patterns of limpets and can give greater predictive power to models estimating the energy intake of these intertidal grazers.



Nick researching limpets' rasping behaviour on the shore in Malaysia



Students surveying the shore

Community Outreach

This year SWIMS set another record with nearly 900 school children, alumni and interested groups visiting and touring our facilities. School groups included various secondary schools, which came to tour our facilities or to conduct part of their fieldwork including Chinese International, King George V, West Island School and South Island School as well as a first visit from Australian International School.



Swire Hong Kong Staff Association visited SWIMS

Other groups included Swire's Hong Kong Staff Association, Tai Po Environmental Association as well as HKU's Earth Science Department, Science Outreach Team and Faculty of Education. Terence was also able to work with Vickie Yau to prepare and give talks to local primary school children at the Tai Tam Tuk Foundation centre based next to the mangroves in Tai Tam.



Terence giving a talk to local school children for the Tai Tam Tuk Society

We were also able to provide training and internship opportunities for numerous students, including local students (from Hong Kong secondary schools and local tertiary institutions) and students from Malaysia, Sweden, France, UK, USA and Canada, as well as for our own local undergraduate students carrying out their project work.

SWIMS work was highlighted in the local and international media (see examples below) including a programme on Yvonne's spawning aggregation work ("Spawning for Survival" <http://www.youtube.com/watch?v=Za6v_Zddd2Q>) and Marine Conservation in Hong Kong – ET (2012) <http://resources.hkedcity.net/resource_detail.php?rid=1298411486> <http://resources.hkedcity.net/resource_detail.php?rid=1298411486>.



SWIMS outreach activities highlighted in the media

Conservation

SWIMS and IUCN

The IUCN (International Union for Conservation of Nature) Specialist Group of Groupers & Wrasses that Yvonne co-Chairs continues its many years of work on the Napoleon fish (Humphead wrasse), *Cheilinus undulatus*. We have also published a global assessment of the conservation status of all groupers in the world showing that 13% are threatened with extinction if the *status quo* continues. The publication highlights the challenges of keeping healthy populations of groupers, and the outcome of our analysis is serious given that most countries where these fishes are important for fisheries and food have very little management or protection. To assist governments in determining sustainable catch rates, we are working with a major fish trader and an NGO to make recommendations to governments in Southeast Asia. We are also trying to seek ways to reduce illegal international trade for the CITES (Convention on International Trade in Endangered Species)-listed Napoleon fish, which is compromising attempts by Indonesia and Malaysia to manage this species sustainably. Unfortunately much of the problem with illegal fishing involves Hong Kong and Mainland China vessels and we have found that almost all of the Napoleon fish in Mainland China is illegally traded. Discussions are underway to see what can be done about this important issue.



Napoleon wrasse in French Polynesia curious about the photographer



Napoleon fish being sold illegally in Beijing

SWIMS and Reef Check

Reef Check was successfully conducted on 21st July 2012 hours before the typhoon Vicente arrived Hong Kong that evening. It was a popular event joined by SWIMS postgraduates, post-docs, alumni, summer internship helpers and affiliates to conduct a SCUBA diving survey and to promote marine conservation in Hong Kong. As with the past seven years, the team visited Siu Long Ke to monitor local coral communities. Team members were divided into sub-groups to count the abundance and diversity of designated indicator species (fish, invertebrates and corals) to assess the health of the coral community. This year we recorded 42% coral coverage, similar to the previous year. Little natural damage was observed, but the team collected some litter along the transect. Indicator fish such as a moray eel and a few invertebrates such as *Diadema* sea urchins and sea cucumbers were sighted. Non-indicator species such as the long spined urchin (*Diadema*) were abundant, and there were sightings of a butterfly ray within the area.



SWIMers in the 2012 Reef Check team



The declining Chinese white dolphin - mother and calf

Declining trend of Chinese white dolphins in the Pearl River Delta

Recent demographic analyses that involved Leszek, Dr. Alex Shiang-Lin Huang of National Taiwan Ocean University, Prof. Yuping Wu of Sun Yat-sen University and several students, indicate that the Chinese White Dolphin population in the Pearl River Estuary (PRE) is declining at an alarming rate of 2.46% annually. This translates to about 60 dolphins per year, and the demographic trend suggests that if the estimated rate of decline remains constant, the current population will be diminished by 74% after only three generations (< 60 years). Further analyses suggest that the conservation status of the dolphins in the Pearl River Delta, which is believed to be the world's largest population for this species, should be classified as Endangered under the IUCN Red List classification.

Leszek hosted Dr. Mark Keith and Dr. Barend Erasmus of the University of Witwatersrand, South Africa, in his ongoing collaboration on the spatial ecology of Chinese White Dolphins in the Pearl River Delta and mammalian range-use analyses.



Felix Mark and Anneli Strobe (AWI, Germany) demonstrating O₂ respirometry techniques

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 Hon. 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 program which requires the completion of an internship may also contact us to discuss how we can facilitate that requirement. Interested students should contact Ms Sylvia Yiu.



SWIMS at sunset

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 please contact Ms Sylvia Yiu.

Student Graduations

Ph.D

Jiang Xiwen (2012) - Proteomics analysis of toxin-producing dinoflagellates and toxins-contaminated marine organisms.

Leung Ngo Hei (2012) - Spatial dispersion patterns of *Planaxis sulcatus*: patterns and consequences.

Wong Wing Yu (2012) - Ecotoxicological effects of selected engineered nanomaterials to aquatic organisms, in relation to their physiochemical characteristics.

M.Phil

Li Hoi Ting Kathy (2012) - Thermal tolerance of *Echinolittorina* species in Hong Kong: implications for their vertical distributions.



Kathy and June celebrating their graduations



SWIMS staff, students and friends celebrating at the SWIMS X'mas Party

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- Thiagarajan V, Ko WK Ginger (2012) Larval growth response of the Portuguese oyster (*Crassostrea angulata*) to multiple climate change stressors. *Aquaculture* **370**: 90-95
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- Wang LY, Li W, Mbadinga SM, Liu JF, Gu JD and Mu BZ (2012) Methanogenic microbial community composition of oily sludge and its enrichment amended with alkanes incubated for over 500 days. *Geomicrobiology Journal* **29**: 716-726.
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- Yeung ACY, Williams GA (2012) Small scale temporal and spatial variability in foraging behaviour of the mid-shore gastropod, *Nerita yoldii* on seasonal, tropical, rocky shores. *Aquatic Biology* **16**: 177-188
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- Zhou L, Li KP, Mbadinga SM, Yang SZ, Gu JD, Mu BZ (2012) Analyses of n-alkanes degrading community dynamics of a high-temperature methanogenic consortium enriched from production water of a petroleum reservoir by a combination of molecular techniques. *Ecotoxicology* **21**: 1680-1691
- Zhang R, Pan L, Zhao Z, Gu JD (2012) High incidence of plasmids in marine *Vibrio* species isolated from Mai Po Nature Reserve of Hong Kong. *Ecotoxicology* **21**: 1661-1668
- Zhao ZY, Chu YL, Gu J-D (2012) Distribution and sources of polycyclic aromatic hydrocarbons in sediments of the Mai Po Inner Deep Bay Ramsar Site in Hong Kong. *Ecotoxicology* **21**: 1743-1752
- Zhao ZY, Zhuang YX, Gu J-D (2012) Abundance, composition and vertical distribution of polycyclic aromatic hydrocarbons in sediments of the Mai Po Inner Deep Bay of Hong Kong. *Ecotoxicology* **21**: 1734-1742

Staff Training

- Mr. Cheung Ming has attended The 2012 Navigational Safety Seminar on 11 January 2012 (PM).
- Ms. Chan Kit Ping has attended General Safety Training for Cleaners on 6 March 2012 (AM).
- Mr. Patrick Chan has attended the Safety Training for Artisan on 24 April & 11 May 2012.
- Mr. Patrick Chan has attended the Refresher First Aid course and exam on 4 & 18 May 2012.
- Mr. Cheung Ming Hong has attended the Refresher First Aid course and exam on 4 & 18 May 2012.
- Mr. Cheung Ming has attended the Refresher First Aid course and exam on 2 & 16 May 2012.
- Ms. Sylvia Yiu has attended the HCMS course on 9 November 2012 (PM).

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Juan Carlos Astudillo, Vivien Bao, Macarena Bravo, Nick Burnett, Stephen Cartwright, Amina Cesario, Vera Chan, Ruby Chiu, Ramadoss Dineshran, Marielle Dumestre, Michael Eitel, Michael Fabinyi, Ji-Dong Gu, Kevin Ho, Yuanyuan Hong, Leszek Karczmarzski, Ginger Ko, Ackley Lane, Calton Law, Cecily Law, Edward Lau, Kenneth Leung, Priscilla Leung, Adela Li, Roy Li, Michelle Luk, Yanny Mak, Joy Mukherjee, Terence Ng, Carmen Or, Nicolas Ory, Lenin Oviedo, Yvonne Sadovy de Mitcheson, Sara Hintz-Saltin, Julie Serot, V Thiagarajan, Juan Diego Urriago, Karen Villarta, Zhen Wang, Gray Williams, Simon Wong, Stella Wong, Elvis Xu, Moriaki Yasuhara, Andy Yi, Xueying Yin, Sze Wing Yiu, Mana Yung

Other Contributions from SWIMS

Ji-Dong Gu

Assistant Editor-in-Chief, *Frontiers in Microbial Ecotoxicology and Bioremediation*
Associate Editor, *Ecotoxicology, Environmental Geochemistry and Health, International Biodeterioration & Biodegradation, International Journal of Environmental Science and Technology*
Editorial Board Membership of *Journals, Biodegradation, Journal of Polymers and the Environment, The Open Proteomics Journal*
Ambassador, *International Society of Microbial Ecology*

Leszek Karczmarski

Member, IUCN World Conservation Union Specialist Group: Small Cetaceans
Member, IUCN Species Survival Commission
Member, Society for Marine Mammalogy
Member, Marine Mammal Conservation Working Group, HKSAR Government
Member, Scientific Advisory Committee - Ocean Park Conservation Foundation Hong Kong (OPCFHK)
Member, Scientific Advisory Committee - Sirenian International, Inc.
Postgraduate Advisor, National Taiwan University, Taiwan
Postgraduate Advisor, Sun Yat-sen University, P.R. China
Associate Research Fellow, Mammal Research Institute, University of Pretoria, South Africa
Research Associate, Division of Forestry and Wildlife, State of Hawaii, USA

Kenny Leung

President, the Asia-Pacific Geographical Unit of the Society of Environmental Toxicology and Chemistry (SETAC)
Subject Editor and Founding Editorial Board Member, *Integrated Environmental Assessment and Management*
Member of Editorial Board, *Marine Pollution Bulletin, Integrative Zoology, Canadian Journal of Zoology, Toxicology and Environmental Health Sciences, Ocean Science Journal*
Member, Environment and Conservation Fund (ECF) Research Projects Vetting Subcommittee, HKSAR Government
Member, Marine Mammal Conservation Working Group, HKSAR Government
Member, Endangered Species Advisory Committee, HKSAR Government
Member, Red Tide/Harmful Algal Bloom Expert Advisory Group, HKSAR Government
Co-opt Member, Marine Parks Committee, HKSAR Government
Member, The Outstanding Young Persons' Association

Yvonne Sadovy

Co-Chair (and founder), IUCN World Conservation Union Specialist Group of Groupers and Wrasses (www.humpheadwrasse.info)
Director (and co-founding member), Society for the Conservation of Reef Fish Aggregations (www.scrfa.org)
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
Invited Chair, CFMC/WECAFC/OSPESCA/CRFM Working Group on Spawning Aggregations
Member, Board of Directors, Ocean Park Hong Kong
Chair, Education Advisory Committee, Ocean Park Hong Kong
Member, Executive Committee, World Wide Fund for Nature Hong Kong
Chair, Conservation Advisory Committee, World Wide Fund for Nature Hong Kong
Invited Panel Member, The Harbour Area Treatment Scheme Stage 2B Review
Invited EIA Technical Briefing Group, Marine Ecology & Fisheries for Three-Runway System at Hong Kong International Airport

V Thiyagarajan

Editor (review), *Aquatic Biology*
Editor (review), *Aquaculture Environment Interactions*
Council Member, Hong Kong Proteome Society

Gray A Williams

Postgraduate Advisor, King Mongkut's Institute of Technology Ladkrabang, Thailand
Postgraduate Advisor, Palermo University, Sicily, Italy
Guest Professor, Xiamen University, China
Editorial Committee, *The living species and their illustrations in China's Seas (Parts I and II)*, Ocean Press, China
Editorial Board Member, *Journal of Thermal Biology*

Moriaki Yasuhara

Associate Editor, *Paleontological Research*
Member of Scientific Committee, 17th International Symposium on Ostracoda

Conferences and Workshops

Stephen Cartwright

Oral Presentation; *Climate Change and intertidal communities: an integrated approach to monitor species responses at the physiological, individual and community level towards a long-term monitoring system at a marine station*, 26-29 June 2012, Xiamen, China.

Leszek Karczmarski

Invited Speaker; *Strategic Workshop of the Taiwan Strait Humpback Dolphin Conservation Task Force*; National Taiwan University, 11-13 May 2012, Taipei, Taiwan.
Invited seminar; *University of the Witwatersrand*, 5 Mar. 2012, Johannesburg, South Africa.
Chair and Organiser; *6th South-East Asian Training Workshop in Marine Mammal Research Techniques: Principles of Remote Sensing*, 7-10 Jan. 2012, Hong Kong.
Chair and Organiser; *5th South-East Asian Training Workshop in Marine Mammal Research Techniques: Ecological Niche Modelling*, 2-5 Jan. 2012, Hong Kong.

Kenny Leung

National Institute for Minamata Disease (NIMD) Forum, *Minamata Disease Archives*, 27-28 Sept. 2012, Kumamoto, Japan.
Co-chair; *Oral & Poster Presentation; Society of Environmental Toxicology and Chemistry (SETAC) Asia/Pacific Meeting*, 24-27 Sept. 2012, Kumamoto, Japan.
Session Chair, *Oral & Poster Presentation; The 6th Society of Environmental Toxicology and Chemistry (SETAC) World Congress*, 20-24 May 2012, Berlin, Germany.

Priscilla Leung

Oral & Poster Presentations; *Society of Environmental Toxicology and Chemistry (SETAC) Asia/Pacific Meeting*, 24-27 Sept. 2012, Kumamoto, Japan.

Joy Mukherjee

Interdisciplinary Symposium of *Ocean Acidification and Climate Change*, 11-14 Dec. 2012, The University of Hong Kong, Hong Kong.
Oral Presentation; *Marine Environmental Research and Innovative Technology meeting*, 5-6 Jan. 2012, The University of Hong Kong, Hong Kong.

V Thiagarajan

Organizer & Keynote Speaker; 1st Interdisciplinary Symposium on Ocean Acidification and Climate Change (ISOACC), 12-14 Dec. 2012, The University of Hong Kong, Hong Kong.
Keynote Speaker; 10th International Larval biology Symposium, 29 July-4 Aug. 2012, Berkeley, USA.

Yvonne Sadovy

Speaker; Gulf and Caribbean Institute Annual Meeting, 5-9 Nov. 2012, Santa Marta, Colombia.
Organizer; Workshop on Napoleon Fish, 18-19 Sept. 2012, Jakarta, Indonesia.
Chair Speaker; International Seafood Summit, 6-8 Sept. 2012, Hong Kong.
Organizer; Mini-symposium at the International Coral Reef Symposium, 9-13 July 2012, Cairns, Australia.

Gray A Williams

Invited Speaker & Panel Member; Marine Conservation and Philanthropy Forum, 5 Sept. 2012, Hong Kong.
Co-Organizer & Final Discussion coordinator; Climate change and intertidal communities Workshop, 26-29 June 2012, Xiamen University, China.
Guest lecture with Dr Colin Little, Lough Hyne; What can we learn from a Marine Reserve?, 9 Apr. 2012, Xiamen University, China.
Visiting Lecturer; Zoology Fieldcourse to Tsitsikamma Marine Reserve, 26 Mar.-3 Apr. 2012, University of Johannesburg, South Africa.
Organizer; Workshop on Dynamic Energy Budget Models in Marine Ecosystems (given by G Sara), 16-19 Jan. 2012, SWIMS, HK.

Stella Wong

National Institute for Minamata Disease (NIMD) Forum, Minamata Disease Archives, 27-28 Sept. 2012, Kumamoto, Japan.
Oral & Poster Presentation; SETAC Asia / Pacific 2012 Meeting, 24-27 Sept. 2012, Kumamoto, Japan.
Oral Presentation; Area of Excellence (AoE) Symposium, 5-6 Jan. 2012, City University of Hong Kong, Hong Kong.

Moriaki Yasuhara

Chairperson & Speaker; 13th Deep-Sea Biology Symposium, 3-7 Dec. 2012, The Museum of New Zealand, Te Papa Tongarewa, Wellington, New Zealand.
Invited Lecture; IceAGE workshop 4: genetic results, 11-15 Sept. 2012, German Centre of Marine Biodiversity Research (DZMB), Wilhelmshaven, Germany.
Invited Lecture; Korea Institute of Geoscience and Mineral Resources (KIGAM), 16 July 2012, KIGAM, Korea.
Session Organizer & Speaker; ASLO Aquatic Sciences Meeting, 8-13 July 2012, Otsu, Shiga, Japan.
Invited Lecture; CLIDEEP workshop at Friday Harbor Labs, 12-15 May 2012, University of Washington, USA.

Postgraduates

Macarena Bravo

Living whales in the Southern Ocean: Advances in methods for non-lethal cetacean research, 27-29 Mar. 2012, Puerto Varas, Chile.

Amina Cesario

Poster Presentation; 26th European Cetacean Society Annual Conference, 26-28 Mar. 2012, Galway, Ireland.

Vera Chan

Oral Presentation; Interdisciplinary symposium on ocean acidification and climate change, 12-14 Dec. 2012, The University of Hong Kong, Hong Kong.

Ramadoss Dineshram

Interdisciplinary symposium on ocean acidification and climate change, 12-14 Dec. 2012, The University of Hong Kong, Hong Kong.
Travel grant award - Third Symposium on The Ocean in a High CO₂ World, 23-27 Sept. 2012, Monterey, California, USA.
FEBS Youth Travel Fund award - High Performance Proteomics, 19-24 Aug. 2012, Brixen, Italy.

Kevin Ho

Oral Presentation; The 7th AoE Annual Symposium, 5-6 Jan. 2012, The University of Hong Kong, Hong Kong.
Short Course on "Statistical Methods in Ecotoxicology Using R", 20 May 2012, Berlin, Germany.
Oral Presentation; The 6th SETAC World Congress, 20-24 May 2012, Berlin, Germany.
Oral Presentation; Society of Environmental Toxicology and Chemistry (SETAC) Asia/Pacific Meeting, 24-27 Sept. 2012, Kumamoto, Japan.

Ginger Ko

Interdisciplinary symposium on ocean acidification and climate change, 12-14 Dec. 2012, The University of Hong Kong, Hong Kong.
CeMEB Advanced Course 2012: Marine evolution under climate change, 19-23 Nov. 2012, University of Gothenburg, Kristineberg, Sweden.

Ackley Lane

CeMEB Advanced Course 2012: Marine evolution under climate change, 19-23 Nov. 2012, University of Gothenburg, Kristineberg, Sweden.
Oral Presentation; The 3rd Annual High CO₂ Symposium, 24-27 Sept. 2012, Monterey, CA, USA.

Edward Lau

6th SETAC World Congress, 20-24 May 2012, Berlin, Germany.
Best Poster Presentation Award; Society of Environmental Toxicology and Chemistry (SETAC) Asia/Pacific Meeting, 24-27 Sept. 2012, Kumamoto, Japan.
Award of Excellence by Teaching Assistant, Faculty of Science, The University of Hong Kong.

Adela Li

National Institute for Minamata Disease (NIMD) Forum, Minamata Disease Archives, 27-28 Sept. 2012, Kumamoto, Japan.
Oral & Poster Presentation; Society of Environmental Toxicology and Chemistry (SETAC) Asia/Pacific Meeting, 24-27 Sept. 2012, Kumamoto, Japan.

Calton Law

10th International Seafood Summit; 6-8 Sept. 2012; Hong Kong.

Yanny Mak

Society of Environmental Toxicology and Chemistry (SETAC) Asia/Pacific Meeting, 24-27 Sept. 2012, Kumamoto, Japan.

Terence Ng

Champion and People's Choice Award, Three Minute Thesis Competition (3MT), HKU. See <http://www.ke.hku.hk/hku3mt/index.php/competition/2012/2012-videos-of-finalists-and-awardees/>
Best Presentation Award, The 4th UCAS Postgraduate Symposium: Understanding and Managing our Aquatic Environment.

JD Urriago

Oral Presentation; 14th International Echinoderm Conference, 20-24 Aug. 2012, Brussels, Belgium.

Invited Speaker; Sea Urchins: Behavioral Ecology, Fisheries and Conservation. 19-22 Mar. 2012, Bangkok, Thailand.

Invited Speaker; Sea urchins, Biology, Fisheries and Conservation. Seminar on coastal management in the East and S.E. Asian regions, 30 July 2012, Hong Kong Baptist University. Hong Kong.

Zhen Wang

Society of Environmental Toxicology and Chemistry (SETAC) Asia/Pacific Meeting, 24-27 Sept. 2012, Kumamoto, Japan.

Elvis Xu

Persistent Organic Pollutants (POPs) Management Symposium – New Developments and Challenges in the Implementation of the Stockholm Convention, 10-11 Apr. 2012, Hong Kong Baptist University, Hong Kong.

Marine Ecology Field-course of the Department of Zoology, 29 Mar.-10 Apr. 2012, University of Johannesburg, South Africa.

Andy Yi

Best Oral Presentation; Society of Environmental Toxicology and Chemistry (SETAC) Asia/Pacific Meeting, 24-27 Sept. 2012, Kumamoto, Japan.

Sze Wing Yiu

Southern African Wildlife Management Association (SAWMA) Symposium - Responsible Biodiversity Research and Wildlife Management, 16-19 Sept. 2012, Bela Bela, Limpopo, South Africa.

Mana Yung

Oral Presentation; Society of Environmental Toxicology and Chemistry (SETAC) Asia/Pacific Meeting, 24-27 Sept. 2012, Kumamoto, Japan.

Joint Universities Summer Teaching Laboratory (JUSTL) program, June-July 2012, Marine Biological Laboratory, Woods Hole, USA.

5th South-East Asia Training Workshop in Marine Mammal Research Techniques: Ecological Niche Modelling, 2-5 Jan. 2012, Tai O, Hong Kong

From University of the Witwatersrand:

Dr. Barend Erasmus

From Nanjing Normal University; Rimba, Lake Kenyir Terengganu, Malaysia; National Taiwan University; WWF-Cambodia; Sun Yat-sen University; University Malaysia Sabah; Nagasaki University; Institute of Environmental and Marine Sciences, Philippines:

Dr. Bing-yao Chen, Mr. Paul Henry, Dr. Shiang-lin Huang, Mr. Keavuth Hui, Mr. Yu-Pu Kuo, Dr. Peng Li, Mr. Tzu-Hao Lin, Mr. Weizhi Lin, Ms. Hairul Masrini Muhamad, Ms. Miki Nishita, Ms. Edna Sabater, Ms. Jyh-Huey Yeh, Ms. Hsin-yi Yu & Mr. Ruiqiang Zheng

From The Chinese University of Hong Kong:

Ms. Wei Li

From SWIMS:

Dr. Leszek Karczmarski, Mr. Simon Wong, Ms. Sze Wing Yiu, Ms. Carmen Or, Mr. Stephen Chan, Ms. Wei-lung Chang & Mr. Lenin Oviedo

From HKU:

Ms. Nathalie Mauroo & Dr. Tak-Cheung Wai

Workshop on Dynamic Energy Budget Models in Marine Ecosystems, 16-19 Jan. 2012, The Swire Institute of Marine Science, Hong Kong

Invited Keynote Speaker

Dr. Gianluca Sara (University of Palermo, Italy)

Overseas Participants

Prof. Christopher McQuaid, Dr. Maui De Pirro, Dr. Yunwei Dong, Dr. Monthon Ganmanee, Mr. Kee Alfian, Prof. Mazlan Abd Ghaffar, Dr. Zaidi Che Cob, Dr. Folco Giomi, Mr. Guodong Han & Ms. Hsin-Ying Li

From Baptist University & City University

Dr. Jian-Wen Qiu & Dr. SG Cheung

From SWIMS

Prof. Gray Williams, Dr. V Thiagarajan, Dr. Stephen Cartwright, Dr. Priscilla Leung, Ms. Michelle Luk, Mr. Kevin Ho, Ms. Vera Chan, Mr. JD Urriago, Mr. Andy Yi, Ms. Karen Villarta, Ms. Xueying Yin, Mr. Edward Lau, Ms. Adela Li, Mr. R Dineshram, Ms. Jane Wong & Ms. Marielle Dumestre

From HKU

Mr. Alex Yeung, Mr. Ken Chan & Ms. Teresa Ma

The 4th UCAS Postgraduate Symposium on Understanding and Managing Our Aquatic Environment, 5-9 Mar. 2012, Xiamen University, Xiamen, China

From XMU; Nanjing University; Nanjing University of Technology; National Taiwan Ocean University; Biodiversity Research Center, Academia Sinica:

Prof. Minhan Dai, Prof. Yunwei Dong, Prof. Shuh-Ji Kao, Dr. Min Liu, Prof. I-Shiung Chen & Prof. Kwang-Tsao Shao

Ms. Jiayi Xu, Ms. Di Cao, Mr. Yudong Cui, Ms. Tina Lu Yang, Ms. Marie Rosine Mugeni, Ms. Yanru Cai, Ms. Lulu Yang, Ms. Yifan Chen, Mr. Rongyuan Chen, Mr. Joy Jianlong Li, Ms. Qingru Jiang, Ms. Emily King Huei, Mr. Xiaowei Zheng, Ms. Sharon Xiaoyin Zhang, Mr. Leo Bin Huang, Mr. Shuai Xu, Ms. Kylie Ying Wang, Ms. Weiwan Yang, Ms. Ningxin Wang, Ms. Xu Xu, Mr. Shih-Pin Huang, Mr. Chern-Yun Lee & Mr. Han-Yang Lin

From The Chinese University of Hong Kong:

Mr. Ming Him Chow & Mr. Ho Leung Tsang

From SWIMS:

Dr. Cynthia Yau & Dr. Michael Eitel

Mr. Terence Ng, Mr. Kevin Ho, Mr. Wang Zhen, Ms. Michelle Luk, Mr. Calton Law, Mr. Edward Lau, Mr. Elvis Xu, Ms. Ginger Ko, Mr. Juan Diego Urriago, Mr. Andy Yi, Ms. Xueying Yin, Ms. Karen Villarta, Ms. Mana Yung & Mr. Roy Li

From SBS, HKU:

Mr. Alex Yeung, Mr. Kwok Chuen Chow, Mr. Yuan Wang & Mr. Samuel Wang

One Day Workshop on “How to Write and Publish Brilliant Research Papers”, 11 Dec. 2012, SWIMS, Shek O, Hong Kong

From SWIMS:

Dr. V Thiagarajan, Dr. Michael Eitel, Ms. Vera Chan, Mr. Kevin Ho, Mr. Wang Zhen, Mr. Simon Wong, Ms. Adela Li, Mr. R. Dineshram, Ms. Circle Hong, Ms. Xueying Yin, Mr. Calton Law, Mr. JD Urriago, Ms. Karen Villarta, Ms. Adela Li, Ms. Michelle Luk, Mr. Edward Lau, Ms. Ruby Chiu, Ms. Mana Yung, Ms. Marielle Dumestre, Dr. Nicolas Duprey, Ms. Weilung Chang, Ms. Carmen Or & Mr. Zhen Wang

From HKU:

Mr. Samuel Wang, Ms. Shannon Shuang Xing, Ms. Akala Teng Li, Ms. Aung Moe Zaw, Ms. Elaine Yuen, Mr. Ping Han, Mr. Juan Bai, Mr. Anthony Lau, Mr. Hein Min Tun, Mr. Alex Yeung, Ms. Xue Jiang, Mr. Guangfu Hu, Mr. Chi Hoi Tse, Mr. Quan Jiang, Mr. Shuang Chen, Mr. Matthew Wong, Ms. Diane Chung, Mr. Guo-ming Weng, Mr. Chunzhen Yang & Mr. Albert Voskanyan

1st Interdisciplinary Symposium on Ocean Acidification and Climate Change (ISOACC), 12-14 Dec. 2012, The University of Hong Kong, Hong Kong

From Clemson University, US; Bigelow Laboratory for Ocean Sciences, US; Austevoll Research Station, Norway; Norwegian Institute for Water Research, Norway; University College Cork, Ireland; University of Plymouth, UK; Natural History Museum, London; The University of Auckland; University of Western Sydney, Australia; The University of Sydney, Australia; Universidade do Algarve, Portugal; University of Gothenburg, Sweden:

Prof. David Sheehan, Dr. Andrew Mount, Dr. Anne Skiftesvik, Dr. Caroline Durif, Dr. Howard Browman, Dr. Jason Hall-Spencer, Dr. Mary Sewell, Dr. Paul Taylor, Dr. Pauline Ross, Dr. Richard Bellerby, Dr. Rommel Maneja, Dr. Sam Dupont, Dr. Wentao Hu, Ms. Reidun Bjelland, Ms. Shawna Foo & Mr. Steven Shema

From Universiti Sains Malaysia, Nagasaki University, Japan; Xiamen University, China; University of the Philippines; Tsinghua University, China; Southwest University of Science and Technology, China; South China Sea Institute of Oceanology, China:

Prof. Atsushi Ishimatsu, Prof. Dalin Shi, Prof. Minhan Dai, Prof. Ziniu Yu, Dr. Aileen SH Tan, Dr. Rui Zhang, Dr. Shiyong Sun, Dr. Xiaoshan Zhu, Dr. Yongli Gao, Ms. Gabrielle Mendoza & Mr. Wei Li

From City University of Hong Kong; The Hong Kong Polytechnics University; Hong Kong Baptist University; The Hong Kong University of Science and Technology; The Chinese University of Hong Kong:

Prof. Pei Yuan Qian, Dr. Alice Chan, Dr. Doris Au, Dr. Haimin Yao, Dr. Jian Wen Qiu, Dr. Jill Chiu, Dr. Paul Shin, Dr. Put Ang, Jr., Dr. Rajkumar Ramalingam, Dr. Ammayappan Selvam, Dr. SG Cheung, Dr. Stanley Lau, Dr. Yun Wah Lam, Mr. Chan Hao, Ms. Fatemeh Babaei, Ms. Haoyu Zhang, Ms. Huawei Mu, Mr. Sun Jin, Ms. Karsten Berning, Mr. Leslie Shen, Mr. Ryan KY Lau, Ms. Tweety Tang, Ms. Wingyin Tong & Mr. Yimin Liang

From SWIMS:

Prof. Gray Williams, Dr. Ji-Dong Gu, Dr. Kenneth Leung, Dr. V Thiyagarajan, Dr. Leszek Karczmarski, Dr. Joy Mukherjee, Dr. Priscilla Leung, Mr. Ackley Lane, Ms. Camilla Campanati, Mr. Dennis Choi, Mr. R Dineshram, Ms. Ginger Ko, Ms. Jessie Lai, Ms. Karen Villarta, Mr. Kevin Ho, Ms. Mana Yung, Ms. Marielle Dumestre, Ms. Michelle Luk, Ms. Sophie Hou, Mr. Terence Ng, Ms. Tracy Wong, Ms. Vera Chan & Ms. Xueying Yin

From HKU:

Prof. Paul Tam, Prof. Sun Kwok, Prof. Rudolf Wu, Prof. David Dudgeon, Prof. Yvonne Sadovy, Dr. Alice Wong, Dr. David Thomson, Dr. Timothy Bonebrake, Dr. Herman Lam, Dr. Ivan Chu, Dr. Cynthia Yau, Dr. Kaimin Shih, Dr. Karen Yuen, Dr. Luke Brander, Dr. Tong Zhang, Dr. Yuanyuan Tang, Ms. Beverly Po, Mr. Changzhong Liao, Ms. Christine Chan, Ms. Hattie Zhao, Ms. Ivy Lau, Mr. Kelvin Wong, Ms. Laura Wong, Mr. Nick Sullens, Ms. Quan Quan, Mr. Ricky Ng, Mr. Roy Chao, Mr. Sam Li, Mr. Samuel Wang, Ms. Xingwen Lu & Ms. Xiuqing Lu

From Others:

Ms. Debbie KY Ho, Ms. Laura Lau, Ms. Nicola Cheung, Ms. Patricia Taylor, Ms. Shau-Ghee Tan

Visitors to SWIMS

Prof. Christopher McQuaid (Rhodes University, S. Africa)
Dr. Gianluca Sara (University of Palermo, Italy)
Dr. Maurizio de Pirro (Academy of Environmental and Sea, Italy)
Dr. Folco Gioni (Alfred Wegener Institute for Polar and Marine Research, Germany)
Prof. Monthon Ganmanee (KMUTT, Thailand)
Dr. Yunwei Dong (Xiamen University, China)
Mr. Kee Alfian (National University of Malaysia)

Prof. Mazlan Abd. Ghaffar (National University of Malaysia)
Dr. Zaidi Che Cob (National University of Malaysia)
Mr. Guodong Han (Xiamen University, China)
Ms. Hsin-Ying Li (Research Centre for Biodiversity, Academia Sinica, Taiwan)
Dr. Jian-Wen Qiu (Baptist University, Hong Kong)
Dr. SG Cheung (City University of Hong Kong)
Mr. Philippe Lacamp and family (Swire Group)
Mr. Stuart Davies (Centre for Tropical Forest Science, Panama)
Mr. Eldredge Bermingham (The Smithsonian Tropical Research Institute, Panama)
Mr. Alastair McEvan (University of Queensland, Australia)
Prof. Roland Chin (Deputy Vice-Chancellor and Provost, HKU)
Ms. Laura Lau (JSSHK)
Ms. Sophie LeClue (ADM Capital Foundation)
Ms. Wayne Leung (John Swire & Sons)
Mr. Adam Nelson (Yeh Family Philanthropy)
Mr. Nick Westwood (Lund University, Sweden)
Ms. Cynthia Wong (Nanyang Technological University, Singapore)
Mr. Nick Burnett (University of South Carolina, USA)
Dr. Martha Crago (Dalhousie University, Canada)
Dr. Howard Browman (Institute of Marine Research, Norway)
Dr. Anne Skiftesvik (Institute of Marine Research, Norway)
Dr. Andrew Mount (Clemson University, South Carolina, USA)
Dr. Anneli Strobe (Alfred Wagner Institute for Polar Research, Germany)
Dr. Felix Mark (Alfred Wagner Institute for Polar Research, Germany)
Dr. Mark Keith (University of the Witwatersrand, S. Africa)
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Mr. Dong Woodring (Ocean Recovery Alliance)
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Visitors to SWIMS (Cont'd)

Mr. Wei Wong (Chinese University Hong Kong)
Ms. Emily Lou Yue (Seoul National University, S. Korea)
Dr. Sam Dupont (University of Gothenburg, Sweden)
Dr. Neil Hutchinson (JCU Singapore)
Mr. Richard Deng (Campus do Mar)
Prof. Emilio Fernandez (Campus do Mar, Portugal)
Prof. Alberto Gonzalez-Garces (Campus do Mar)
Mr. Sidney Wong (Radio Television Hong Kong)
Dr. Mackenzie Zippay (University of South Carolina, USA)
Ms. Alli Matzelle (University of South Carolina, USA)
Dr. Nancy Karraker (School of Biological Sciences, HKU)
Mr. Shouxin Han (Qingdao Ocean-based R&D Core Area, China)
Mr. Xuedong Wang (Qingdao Ocean-based R&D Core Area, China)
Mr. Mousong Cheng (Qingdao Ocean-based R&D Core Area, China)
Mr. Maojian Li (Qingdao Ocean-based R&D Core Area, China)
Mr. Eddie Yiu (Estates Office, HKU)
Ms. Vickie Yau (Tai Tam Tuk Foundation)
Prof. J.M. Gibson (Northeastern University, Boston, USA)
Dr. Edward McCauley (University of Calgary, Canada)
Dr. Tom Garrison (Orange Coast College, USA)
Mr. Charles Goddard (The Economist)
Dr. Tim Wong (The Hong Kong University of Science & Technology)
Ms. Teresa Ma (City University of Hong Kong)
Dr. Warren Allmon (Cornell University, New York, USA)
Prof. John Hughes (Bangor University, UK)
Dr. David Williams (Bangor University, UK)
Dr. Xinyu Wu (Bangor University, UK)
Mr. Vincent Lai (Ecosystems Ltd)
Dr. Alan Chan (AFCD)
Mr. Patrick Lau (AFCD)
Dr. Cynthia Yau (HKU)
Ms. Jessie Lai (School of Biological Sciences, HKU)
Ms. Lily Lam (School of Biological Sciences, HKU)
Dr. Robert Lowndes (Northeastern University, USA)
Prof. Wytze Stem (University of Groningen, The Netherlands)
Prof. Jeanine Olsen (University of Groningen, The Netherlands)
Ms. Jeslie Wong (External Relations Office, Vocational Training Council)
Mr. James Hui (HK)
Mr. Lloyd Lynch (University of Johannesburg, South Africa)
Dr. Andrew Trites (University of British Columbia, Canada)
Dr. Paul Taylor (Natural History Museum, London, UK)
Mr. Simon Lee (University of Macau)
Mr. Vincent Lam (University of Macau)
Mr. Brian Tang (Tai Po Environmental Association)
Dr. Caroline Durif (Institute of Marine Research, Bergen, Norway)
Dr. Reidun Bjelland (Institute of Marine Research, Bergen, Norway)
Dr. Steven Shema (Bigelow Laboratory for Ocean Sciences, Maine, USA)

Group Visits

22 SWIMS alumni, Feb. 2012
88 staff and students from Chinese International School (in 2 days), Mar. 2012
87 staff and students from South Island School (in 2 days), Mar. 2012
20 staff from Faculty of Education, HKU, Apr. 2012
90 members from Swire Hong Kong Staff Association, Apr. 2012
35 members & children from Swire Group with Evangel Children Home, May 2012
45 students from HKU Science Outreach Team, July 2012
48 staff from HKU SPACE with China Three Gorges University, July 2012
50 staff and students from Australian International School (in 2 days), Aug. 2012
32 staff and student from Earth Science, HKU with secondary school students, Sept. 2012
56 staff and students from West Island School (in 2 days), Sept. 2012

14 staff from College of Environmental Sciences and Engineering, Peking University, China, Oct. 2012
41 UGS from Environmental Life Science, HKU, Oct. 2012
90 members from Swire Hong Kong Staff Association, Nov. 2012
126 staff and students from King George V (in 3 days), Nov. 2012
22 staff from University of Macau with secondary school teachers, Dec. 2012
24 members from Tai Po Environmental Association, Dec. 2012

Acknowledgements

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Mr. Philippe Lacamp, The Swire Group of Companies, Hong Kong
Ms. Laura Lau, The Swire Group of Companies, Hong Kong
Prof. Lap-Chee Tsui, Vice-Chancellor, HKU
Prof. Roland T. Chin, Deputy Vice-Chancellor, HKU
Prof. Paul Tam, Pro-Vice-Chancellor, HKU
Prof. Sun Kwok and staff, Faculty of Science, HKU
Prof. Rudolf Wu and staff, School of Biological Sciences, HKU
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Mr. KS Wong, Assistant Director, Estates Office, HKU
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