



# SCIENCE@港理

## Scientists Addressing Environmental Challenges

Dear readers,

Environment and its protection are of great importance. HKU Science Faculty researchers have been working on various projects related to environment and its protection. In this issue of *Science@HKU*, they are going to report their findings in light pollution of Hong Kong, extinction of some popular species of groupers and napoleon fish, recent researches on marine ecosystems, pollution, ecotoxicology, freshwater biodiversity and tropical conservation.

*From The Editor*

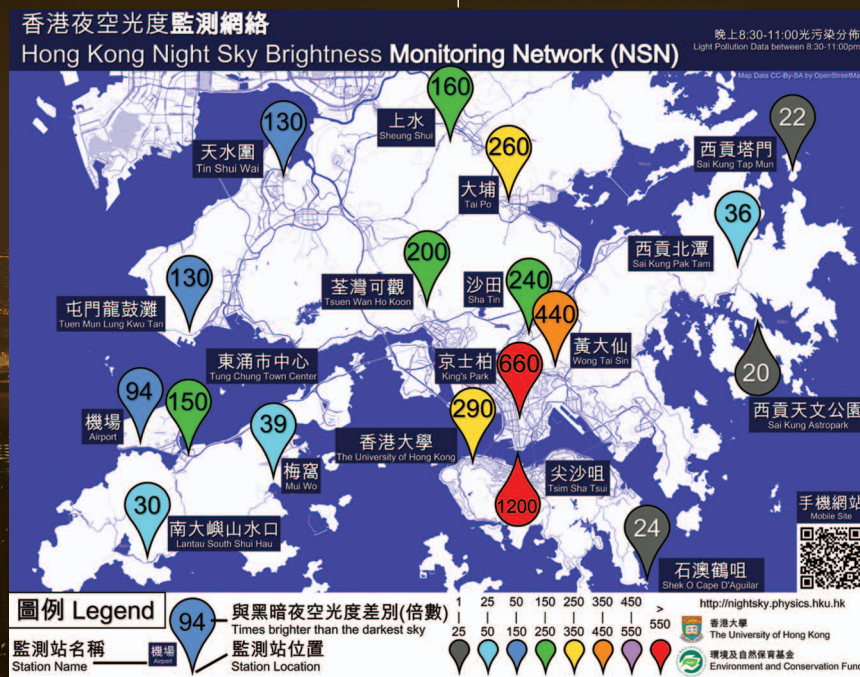
Yours sincerely,

Professor Hoi Fung Chau  
Chief Editor

## All that Glitters is Not Gold: Studying Light Pollution in Hong Kong

Chun Shing Jason Pun, Chu Wing So &  
Wai Yan Leung (Department of Physics,  
The University of Hong Kong)

HKU's "Hong Kong Night Sky Brightness Monitoring Network" (NSN) measures the night sky brightness continuously, helping the scientists to master the light pollution properties in Hong Kong. This map shows the location of monitoring stations, and their averaged night sky brightness during the period 8:30-11:00pm.



Deeply engrained in her image as the "Bright Pearl of the Orient," it is not stars that shine brightly in the night sky of Hong Kong but neon lights of the metropolitan's skyscrapers and illuminated sign boards. The night sky above Tsim Sha Tsui was found to be on average 1,200 times brighter than a normal dark sky, earning Hong Kong the notoriety of having one of the worst light pollution problem in the world.

Light pollution is a form of environmental degradation in which excessive artificial outdoor lightings affect the natural environment and the ecosystem. Poorly designed outdoor lighting not only wastes energy, money, and

Light Pollution Science Roadshow at the Avenue of Stars during Earth Hour 2013.



valuable Earth resources, but also robs us of our beautiful night sky. Excessive outdoor lightings may disorient physiological cycles and the movements of animals, or even influence the entire ecological balance of a local environment. The public is growing acutely aware of this issue as reflected from the increasing number of complaints to the authorities in the past few years.

Since 2003, our team has been conducting systematic studies of the night sky brightness, an environmental indicator of light pollution, in Hong Kong. With the support of an Environment and Conservation Fund of the Environmental Protection Department of the HKSAR Government, we established a network of automatic measuring stations, the first such network in the world, to provide long-term readings at 18 urban and rural locations across Hong Kong.

We recently completed a study with over 4.6 million night sky measurements collected from May 2010 to March 2013. The extent of sky glow was found to be severe the urban sky in Hong Kong was on average 33 times brighter than that in rural locations, likely due to the cumulative effects from nearby public, commercial, and residential facilities. In the worst case, the average night sky in Tsim Sha Tsui is 1,200 times brighter than the pollution-less standard established by the International Astronomical Union. Even in suburban area such as Tin Shui Wai, the night sky is still on average 130 times brighter than the standard, a figure that is actually higher than that measured at city centers of Berlin or Vienna.

We have also been active in spreading the message of dark sky to the public through lectures, workshops, and exhibition for secondary schools and various professional groups and stakeholders. With the support of a HKU Knowledge Exchange Impact Project funding, we (along with the Faculty of Science Outreach Team) organized a Science Roadshow at the Avenue of Star in Tsim Sha Tsui during Earth Hour 2013. Exterior lightings from thousands of public and private buildings throughout the city were turned off for one hour that night, providing a strong visual contrast of the impact of light pollution.

The pressure for action on reducing light pollution is starting to mount. The government had recently received recommendations from the Task Force on External Lighting and is considering proposals to restrict operation hours of external lighting. It is hoped that with concerted efforts from all stakeholders in the community, the wasteful glare of Hong Kong shooting directly to outer space could be reduced.

### Further Readings

① The HKU light pollution project webpage  
<http://nightsky.physics.hku.hk/> : a resource center for educational materials related to our research project and on light pollution in general.

② "Night-sky brightness monitoring in Hong Kong - A city-wide light pollution assessment" (Environmental Monitoring and Assessment, April 2012, Volume 184, Issue 4, pp 2537-2557) <http://dx.doi.org/10.1007/s10661-011-2136-1>

③ "Impact of Outdoor Lighting on Man and Nature" Health Council of the Netherlands. (Publication No. 2000/25E, 2000, 25E) <http://www.gezondheidsraad.nl/sites/default/files/00025E.PDF>

# Overfishing Groupers towards Extinction

by Professor Yvonne Sadovy, School of Biological Sciences



Photo courtesy: Eric Clua



At least 20 popular species of groupers accounting for 12% of all groupers globally are facing extinction, putting the livelihoods of hundreds of thousands of people around the world at risk, finds a report published by a research team led by HKU School of Biological Sciences in academic journal Fish and Fisheries in April, based on data accumulated by experts over a period of 20 years.

Several of these threatened species are food fishes found frequently on dinner tables in luxury restaurants of Hong Kong. They include the humpback, high fin or mouse grouper 老鼠斑 (*Cromileptes altivelis*), the well-known Hong Kong or red grouper 紅斑 (*Epinephelus akaara*), longtooth grouper 油斑 (*Epinephelus bruneus*), blacksaddled coral grouper 皇帝星 (*Plectropomus laevis*) and the giant grouper 龍躉 (*Epinephelus lanceolatus*). An additional 22 species (13%) are considered to be near-threatened, including the popular leopard coral trout 東星斑 (*Plectropomus leopardus*) and camouflage grouper 杉斑 (*Epinephelus polyphekadion*).

The overall percentage of threatened groupers could be higher as there are insufficient data for about thirty percent of the 163 species, according to The International Union for Conservation of Nature (IUCN) Red List of Threatened Species™.

Overfishing and the booming international luxury seafood trade are the major threats to the survival of some grouper species, and to the livelihoods of those who depend on them for food and income in the tropical countries that supply them. Over 90% of the live fish we see on sale in Hong Kong is imported into the city. Most groupers are not managed at all and their natural ability to reproduce cannot keep up with the ever-increasing demand. In fact, the declines in some grouper fisheries have become alarming.

More than 300,000 tons of groupers – or 90 million individuals – were caught globally in 2009 (Food and Agriculture Organization [FAO] figures), mostly in Asia, where they are particularly sought-after for the luxury restaurant trade. Groupers are the foundation of the US\$ 750 million (at least; much of the trade is undocumented) international live reef fish trade centered in Hong Kong and growing in Mainland China, where consumers are ready to pay over US\$ 200 per kilogram for some species. Although many of the fish imported into Hong Kong are eaten in the city, a large proportion is transshipped, often illegally, onwards into southern Mainland China.

Groupers are also important food fish in developing countries like Indonesia and the Philippines, where pressure to export reef fish for the Chinese market is growing. The massive international trade in live reef fishes, is seriously contributing to overfishing in Southeast Asia, particularly the Philippines, Malaysia and Indonesia, as well as previously in countries of the western Pacific such as Fiji and Palau, both of which have banned the trade. Although mariculture, or farming, of groupers

has increased in recent years in response to this trade, only a few of the 20 or so groupers commonly found in Hong Kong's live trade can be commercially cultured. Moreover, while farming increases the overall supply of grouper it does not address the overfishing threatening already some species. This is because we do not stop fishing when we start to culture, we do both!

Hong Kong is an important global trade centre for groupers. Regulations here however are outdated and fail to comply fully with international convention, accords and agreements. Instances of illegal trade in seafood are frequently noted. As just one example, one fish in the live reef fish trade of Hong Kong, a reef fish relative of the groupers, is the Humphead wrasse or Napoleon Fish 蘇眉 (*Cheilinus undulatus*). This is protected under international legislation on Appendix II of CITES (Convention on International Trade in Endangered Species) but fish continue to enter (and exit into the massive market of Mainland China) the city illegally due to the inadequate inspection of vessels that carry live seafood. The city does not manage its own grouper fisheries sustainably, a practice called for by the FAO Code of Conduct for Responsible Fishing, and we have no legislation that enables us to protect threatened marine fishes. Thus, the Government should step up measures to combat illegal trade and to promote sustainable sourcing and marketing practices and policies for conservation of the species. Suggestions can be viewed at: <http://www.scifac.hku.hk/news/comm/fish-facing-extinction>

Hong Kong depends on importing food to survive and is, therefore, connected to the rest of the world to supply it. If we, in Hong Kong, are to enjoy wild reef fishes in the future and leave enough fish for fishing communities in developing countries to eat and trade, grouper populations must be managed and its trade must be controlled to within biologically sustainable limits. As consumers we could be making better choices about the seafood we eat and opt for sustainably sourced options made possible by the WWF-Hong Kong Seafood Choice guide. Businesses, from supermarkets to restaurants, could also contribute by trading in sustainably sourced species. If consumers and traders don't change their eating and business habits, many of the species we enjoy will no longer be available for anybody, anywhere.

**The article "Fishing groupers towards extinction: a global assessment of threats and extinction risks in a billion dollar fishery" is available at:**

<http://onlinelibrary.wiley.com/doi/10.1111/j.1467-2979.2011.00455.x/abstract>

**Seafood Choice Guide may be found:**

<http://www.wwf.org.hk/en/whatwedo/footprint/seafood/sci/guide/>

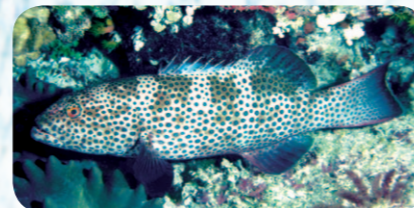
**For two recent RTHK programmes featuring our work on live seafood in Indonesia and Palau see:**

<http://programme.rthk.hk/rthk/tv/programme.php?name=tv/oceanbusiness>  
(see the episode of Aug 26, 2013)

## A Glance at Groupers



*Epinephelus akaara*  
Photo courtesy: Andy Cornish



*Plectropomus aeorolatus*  
Photo courtesy: Jack Randall



*Plectropomus laevis*  
Photo courtesy: Stan Shea



*Epinephelus polyphekadion*  
Photo courtesy: Professor Yvonne Sadovy

## Conservation of the Napoleon Fish

Professor Sadovy has also worked for almost 10 years on the conservation and management of the Napoleon Fish 蘇眉 (*Cheilinus undulatus*) She was involved in the CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora, also known as the Washington Convention) listing of the species in 2004, the first reef fish ever to be listed on the Convention, and has worked with the government of Indonesia, as well as FAO of United Nations to develop a sustainable export quota based on original field research, tighten implementation of the CITES listing by studies in demand centres for the species, Hong Kong and Mainland China, published scientific studies on the species and conducted numerous workshops to train field workers and fishery staff about the species and inform both importing and exporting countries regarding illegal trade. Her work in the International Union for Conservation of Nature (IUCN) involves this species as well as a range of marine conservation planning.

## Understanding the Marine Environment and Pollution

by Professor Rudolf Wu, Director of School of Biological Sciences

### The 7<sup>th</sup> International Conference on Marine Pollution and Ecotoxicology

Hong Kong has experienced major environmental perturbations in our marine environment over the past three decades. At the same time, rapid urban and industrial development in the Pearl River Delta, now well known as "the world's factory", as well as one of the world's largest electronic waste dumping sites, has a major impact on our coastal marine waters through the discharges of a diversity of contaminants, which poses a significant threat to both public and ecosystem health.

In June 2013, the School of Biological Sciences held the 7<sup>th</sup> International Conference on Marine Pollution and Ecotoxicology with the aim to advance our understanding of marine pollution of global importance, and the hope that such problems may be more easily solved in the future. This international signature event was attended by some 250 participants from 24 countries, and received sponsorship from United Nations Development Program, Global Environment Facility, the Partnerships in Environmental Management for the Seas of East Asia as well as the Office of Naval Research Global.



### The Area of Excellence Centre of Marine Environmental Research and Innovative Technology (MERIT) Joining a Mega Project Funded by United Nations

The Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) of the United Nations has recently invited the Centre for Marine Environmental Research and Innovative Technology (MERIT, an Area of Excellence) to collaborate and provide leadership in a 5-year regional project entitled "Scaling up the Implementation of the Sustainable Development Strategy for the Seas of East Asia". This mega project has been funded \$1,200 million by the Global Environment Facility, United Nations Development Program, PEMSEA and 11 member countries in the region, and will focus on studying the health and resilient of marine and coastal ecosystems, catalyzing actions to sustain their ecosystem services, and building a knowledge Platform for a sustainable ocean-based blue economy. Please visit the official website: <http://iwlearn.net/iw-projects/5405> for more details about this project.



Since 2008, MERIT has been designated as the 'Regional Centre of Excellence' in Marine Pollution by PEMSEA, and this was officially endorsed by 11 national partners. Therefore, MERIT has been playing a leading role in managing marine environments in the East Asian region through provision of regional training and advisory support over the past five years. It is exciting news that MERIT will further play a key role in the 5-year regional project. The HKU members of MERIT include Professor Rudolf Wu (Director of MERIT), Professor Kenneth Leung, Professor Wai Keung Li, Professor Xiao-yan Li and Dr Thiagarajan Vengatesen. To learn more about MERIT and its research, please visit the website: <http://www.biosch.hku.hk/merit/aboutus.html>

## How does the Trawling Ban Affect the Ecology and Biodiversity of Benthic Marine Ecosystems in Hong Kong Coastal Waters?

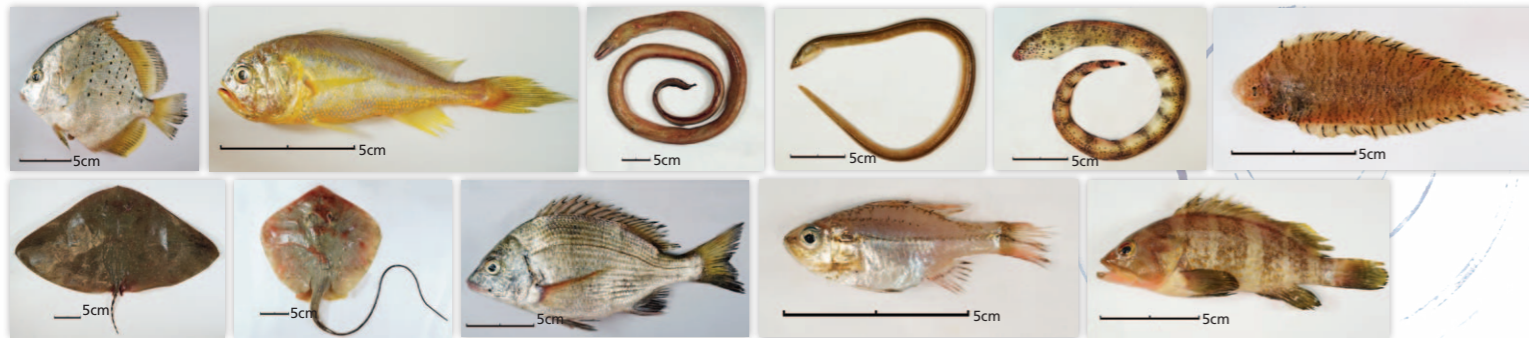
by Professor Kenneth Leung, School of Biological Sciences  
and Swire Institute of Marine Science



Fisheries resources in Hong Kong have been overexploited since the 1970s. Yet, approximately 400 bottom trawlers still operate in our coastal waters, accounting for 80% of the total fishing effort, nearly double the environmentally sustainable level. These bottom trawlers capture fishes, shrimps and crabs unselectively, irrespective of their commercial or ecological value, and have demonstrably overexploited many stocks. The process of bottom trawling also leads to severe and repeated physical damage to marine benthic ecosystems, with negative effects on biodiversity. To mitigate these impacts, the HKSAR Government has imposed a territory-wide ban on bottom trawling from 31 December 2012; this is intended to allow recovery of the seabed and associated marine resources.



A team from Faculty of Science, and members from sister institutions, led by Professor Kenneth Leung, has recently secured a \$7.3 million Collaborative Research Fund (CRF) from the University Grants Council to investigate the ecology and biodiversity of benthic marine ecosystems in our local waters after the implementation of the trawling ban. Team members of HKU also include Professors David Dudgeon, Wai Keung Li, Yvonne Sadovy and Gray Williams. This project has been commenced on 1 June 2013 and will be completed by 31 May 2016.



## Monitoring the Warming of South East Asia's Coastlines — a Limpet's Perspective

by Professor Gray Williams,  
Director of The Swire Institute of Marine Science

Coastal areas of South East Asia are predicted to be warming at one of the fastest rates in the world, and yet we have very few data to test whether these predictions are true, or what they mean to organisms living on our coasts. To address this, a 4-day workshop was held at the Swire Institute of Marine Science to establish a regional network of data loggers to record real-time, biologically relevant records of coastal temperatures. The workshop, entitled 'Biomimetic Sensors for Autonomous Temperature Logging in the Coastal Environment' was led by Fernando Lima (University of South Carolina, USA and Universidade do Porto, Portugal) and sponsored by the School of Biological Sciences and the Faculty of Science.

During the workshop, Fernando led over 25 participants from Malaysia, Thailand, South Africa, Brunei, Australia, Brazil, China, Italy and Taiwan as well as local HK institutions in techniques to make biomimetic sensors (i.e. sensors that mimic real animals, in this case 'Robolimpets') for on-shore temperature monitoring, and also the means to deploy and collect data from them so that a regional data gathering network could be established.

For details, please visit: <http://www.scifac.hku.hk/news/comm/swims-coastalwarming>

Participants of the Workshop



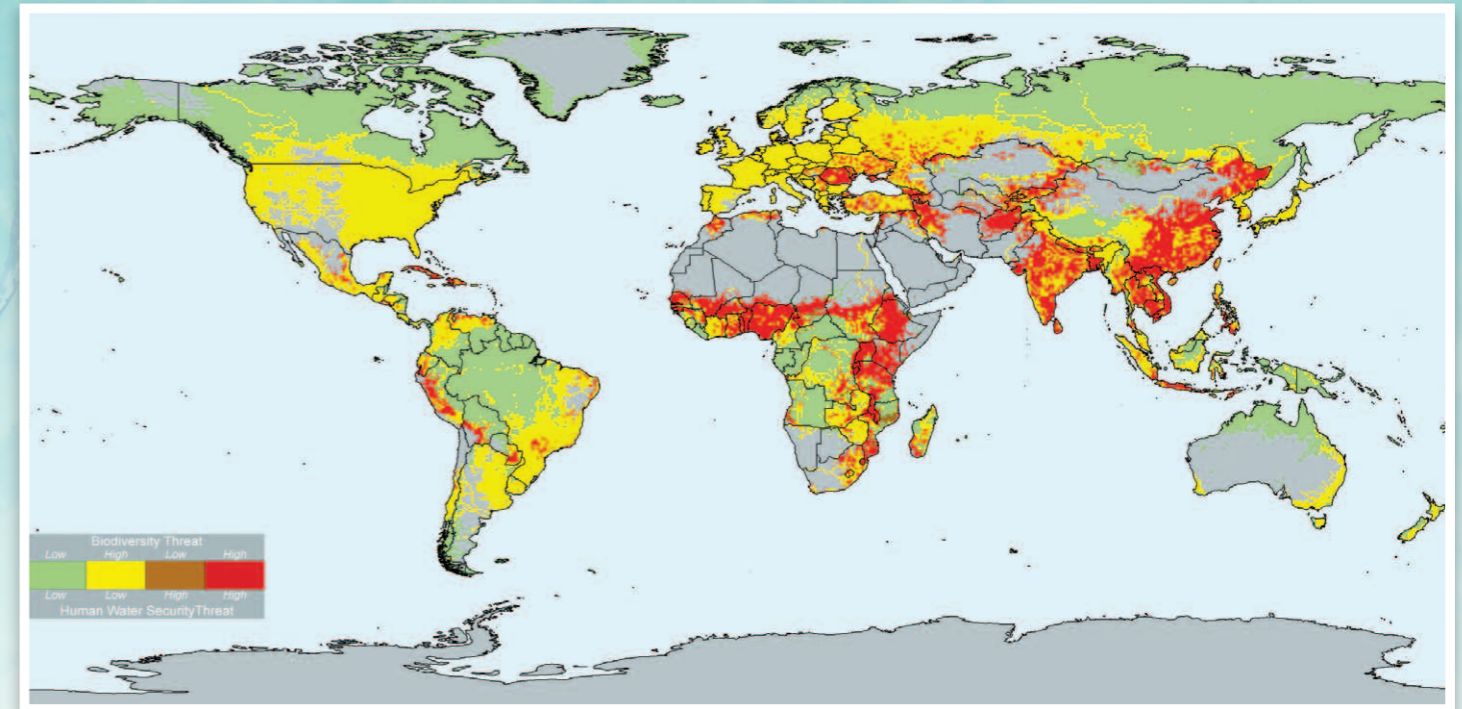
An example of the Robolimpet - a temperature datalogger



Workshop leader Dr Fernando Lima preparing to attach the Robolimpets onto the shore in Shek O

## Conservation of Freshwater Biodiversity: Snails Eating Frogs?

by Professor David Dudgeon, Chair of Ecology & Biodiversity, School of Biological Sciences



Chair Professor of Ecology & Biodiversity, David Dudgeon, has a long-standing interest in the ecology and conservation of freshwater biodiversity, and has been involved in international collaborations to document the extent of endangerment of freshwater biodiversity (Dudgeon et al. in *Biological Reviews*, ~900 citations since 2006), the geographic distribution of threats to biodiversity and water security (Vörösmarty et al. in *Nature*, >450 citations since 2010; see Figure above), and a recent (2012) paper of the effects of global climate change on stream metabolism in the Earth's main biomes (Boyer et al. in *Global Ecology & Biodiversity*)

These international collaborations have been paralleled by work on the effects of human-induced environmental change on freshwater animals in Hong Kong. With collaborator Dr Nancy Karraker, Dudgeon and his postgraduates have been researching how habitat fragmentation affects populations of the Hong Kong newt, and documenting the sensitivity of the eggs and larvae of several amphibian species to saline intrusion into low-lying wetlands (a syndrome arising from sea-level rise caused by climate change) and predation by non-native mosquito fish (a symptom of an increasingly-globalized world). That research, published in *Biological Conservation* (Karraker et al. 2010) provided some explanations for declines of amphibian populations in local wetlands. More recent investigations (Karraker & Dudgeon in *Biological Invasions*, 2013) have demonstrated that non-native golden apple snails – a major rice-field pest in Asia (and a further symptom of globalization) – feed on the eggs of 4 out of 5 amphibian species in Hong Kong wetlands, suggesting that this invader has the potential greatly alter community structure. The finding that supposedly herbivorous snails prey on amphibians is both surprising and alarming, as it could give rise to major shifts in food-web structure, causing trophic 'downgrading' through the extirpation of predatory adult amphibians, which would have important implications for ecosystem functioning. Snails eating frogs .....who knew?

Global patterns of threat to river biodiversity and human water security. The red areas show where joint threats are high, and the yellow areas indicate where threats to biodiversity alone are high; there are no places where human water security is high but threats to biodiversity are low, suggesting that wherever humans occur, river ecosystems are at imperiled. (Note the grey areas are places with little or no river flows. For more information, see [www.riverthreat.net](http://www.riverthreat.net).)

## Global Change and Tropical Conservation

by Dr Tim Bonebrake, School of Biological Sciences

Dr Tim Bonebrake and his research team have been active in the past months with field work in Cameroon, Vietnam and Hong Kong with a view to studying the relationship between global climate change and tropical biodiversity. In 2013, Tim has secured his first General Research Fund from the Research Grants Council to examine a project entitled "The relative vulnerability of temperate and tropical species to climate change: lessons from Hong Kong Lepidoptera". He has also recently published a review on the climate change and conservation implications of adaptation to tropical climates (Bonebrake, 2013 in *Journal of Biogeography* 40: 409-414). Furthermore, new projects are underway on urban ecology, comparative biogeography and global change modeling.



# The Synthesis of Structurally Complicated Daptomycin Sheds Light on the Development of New Antibacterial Drugs

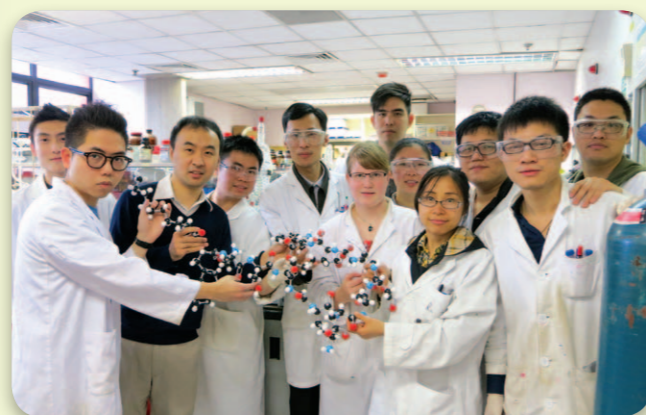
by Research Team of Dr Xuechen Li, Department of Chemistry

Bacterial infections used to plague mankind. Thanks to the emergence of antibacterial drugs, as antibiotics, bacterial infections become easily curable. However, bacteria can rapidly evolve to become resistant to the drug after treatment. Once an antibiotic enters widespread human therapeutic use, its effective life span becomes limited. Therefore, in the war against bacterial diseases, we are in danger of lacking antibiotics to treat bacterial infections, since the rate of increase of bacterial resistance is extremely high, as exemplified by the emergence of “super-bug” bacteria, which cannot be killed by any antibacterial drugs in the current market. Thus, the battle between the bacterial resistance and development of new drugs will never stop.

Led by Dr Xuechen Li of Chemistry Department, our research team has been searching for methods to synthesize daptomycin molecule over the past three years, in the hope of developing new antibacterial drugs. We invented a method to stitch peptides together to form proteins in a highly efficient manner, of which the findings were published in an internationally leading journal — *Proceedings of the National Academy of Sciences* of the United States of America. By using this method, we for the first time, chemically synthesized an antibacterial drug called daptomycin in our laboratory. The result was then published in the *Journal of The American Chemical Society*.

Daptomycin was isolated from the soil *Streptomyces roseosporus*, and then developed into a new antibacterial drug in 2003 (which is applied in curing skin infection). It is considered to be a drug of last resort. However, we have to face the fact that development of drug resistance to daptomycin in pathogenic bacteria is just the matter of time. Many researchers, including our team, are working on daptomycin derivatives as daptomycin-based next-generation antibiotics for additional clinical applications and in preparation for future waves of the development of bacterial resistance. As daptomycin is currently produced by fermentation, people cannot readily modify its structure. To overcome this problem, we are taking a chemical approach to prepare daptomycin analogues. Daptomycin is a structurally complex cyclic peptide, presenting hurdles for chemical synthesis. In particular, the difficult formation of the head-to-tail ring has challenged chemist’s efforts for its synthesis. After three years’ efforts, our team has finally made a breakthrough, in which our newly discovered method for stitching peptides makes the ring formation possible. Now we have developed an efficient strategy allowing us to chemically synthesize and modify the daptomycin molecule very easily.

With the capability to modify daptomycin molecule in hand now, we take steps forwards and we are planning to prepare dozens of daptomycin analogues aiming to search for daptomycin-based next-generation antibiotics. We expect that we will be able to develop new antibacterial drugs in the next few years.



Dr Xuechen Li (second from the left in the first row) and his research team



## The Papers

**“Protein Chemical Synthesis by Serine and Threonine Ligation”**  
at *Proceedings of the National Academy of Sciences*  
of the United States of America

<http://www.pnas.org/content/early/2013/04/04/1221012110.full.pdf+html>

**“Total Synthesis of Daptomycin by Cyclization via a Chemoselective Serine Ligation”**  
at *Journal of The American Chemical Society*

<http://pubs.acs.org/doi/abs/10.1021/ja4012468>

## Question

Coins have many uses apart from being a medium of payment to facilitate transactions. For instance, coin tossing is a simple and quick way of settling disputes in a civilized way or deciding between two options. To serve such purposes, the coin used has to be fair so that there is an equal chance of getting a head or a tail. Suppose a coin is given but we are not sure whether it is fair. What can we do? How can a possibly unfair coin be used “in a fair way”? You may assume that the tosser is “fair” in tossing the coin each time so that there is no correlation between the outcomes.

Please email your answer together with your name and school (for students), to [scinews@hku.hk](mailto:scinews@hku.hk). **FIVE** winners will be drawn randomly from the contestants who give the correct answer.

Prize: \$50 book coupon  
Deadline: December 31, 2013

## Question of last issue

While celebrating the Year of Snake, let’s see how much you know about snakes!

The species shown in the photos on the bottom are common snakes found in Hong Kong. Can you identify them and tell which is / are venomous?



Photo courtesy: School of Biological Sciences

### Answer:

From the left: Bamboo Snake *Trimeresurus albolabris* (venomous), Burmese Python *Python bivittatus* (non-venomous) and Many-banded Krait *Bungarus multicinctus* (venomous)

Winners of the last issue have been informed individually.

# Say Hi to the Lovely Marine Creatures An Once-in-a-lifetime Marine Experience in Vancouver

by Monica Soong,  
year 2 BSc student Major in Environmental Science



The Planet Earth abounds with rich biodiversity. Hong Kong, located at the Southwestern coast of Pacific Ocean, is famous of its tropical marine biodiversity; on the Northeastern side of ocean basin where Vancouver lays, is also a hotspot for temperate marine biodiversity. We, a group of 20 students from diverse Science disciplines, travelled 6,386 miles to Vancouver, joining the Summer Marine Field Course co-organized by HKU and University of British Columbia (UBC) from July 6 to 20, 2013. Studying marine science in a Northeastern Pacific perspective allowed us to make comparison with what we saw and learnt in Hong Kong.

The HKU-UBC Summer Marine Field Course is truly an once-in-a-lifetime experience a HKU undergraduate would have ever wished for. Stepping in the beautiful campus marked an awesome start of our journey. We learnt through lectures, tutorials, discussions, and most importantly daily field trips! Our four-day field trip at Bamfield served as a highlight, and touring around the city and museum simply added colours to our trip. Yes, we were all embraced into the city of Vancouver.

## Lectures

The lectures were delivered by different professors, focusing on specific topics of marine science. Our lecture topics ranged from oceanography, marine ecology, and to ocean services to human. As a marine science course, apart from lectures on Vancouver’s biodiversity, some lectures stressed on the hot issues of climate change and its effects on the ocean and the associated biodiversity. Topics including toxicology and ocean acidification had also been touched on. Students thus not alone learnt about marine biology on the west coast of Canada, but had also acquainted themselves how climate change is affecting marine species.

## Field trips

Field trips were arranged every day to a variety of spots, including rocky shore, seagrass-bed, salmon hatchery farm and more. In some of the field trips we even collected samples back to the labs at UBC to further examine them. Being out in the field is the most enjoyable part of the UBC marine science course as we got to really touch the marine organisms we have seen from textbooks. It is hard not to fall for the marine beauty when you have all the vivid marine biodiversity in front of your eyes.

## Bamfield Marine Station

What makes the marine field course most unique is our 4-day trip to the Bamfield Marine Research Centre on Vancouver Island! In Bamfield we truly immersed ourselves into life as a marine scientist with fieldwork and boat rides every day. We even tried trawling and other hands-on practices on the boat trip. We would never get the chance to stay in such a world class marine station without joining this summer programme. And most importantly, the cafeteria at Bamfield marine station served some of the best meals we had in Canada!

All in all, the HKU-UBC Summer Marine Field Course is indeed inspirational and pleasurable. Being out in the field with breeze sweeping through is the best marine experience one could ever have. Learning with HKU students from diverse disciplines, guidance by professors from both UBC and HKU, and making friends with student-buddies from UBC all together made this Experiential-Learning (EL) trip so enjoyable and unforgettable!

Bamfield sunset scenery

## About UBC Summer Course

The UBC Summer Course is a recurrent programme for science undergraduate students supported by the Faculty. Building on the positive feedback of the course on sustainable farming and food systems last year, the Faculty added a workshop on marine science this summer, providing hands-on marine experience to our students.



Monica Soong, Student Reporter of the UBC Marine Course

## Hear from Coordinator of UBC Summer Marine Course



Dr ThiyaRajan Vengatesen, School of Biological Sciences

“My colleagues and I were so impressed and happy to be the FIRST batch of this mind-blowing HKU-UBC Marine Course because it has nicely demonstrated temperate [COLD!] marine environment and biodiversity in the field which is essential for us to understand Hong Kong environment and to broaden our knowledge, and has got both HKU (School of Biological Sciences, Swire Institute of Marine Science, Department of Physics ), UBC (Zoology and Botany Departments), and Bamfield Marine Station – what an amazing diversity in teaching and learning.”

Reed Point Marine Centre: We Had never been so close to sea lions



A short hike to the salmon hatchery farm



Campfire on our last night at Bamfield



Students examining different marine creatures

# Appreciating Special Value of Natural World Minerals

by Dr Petra Bach, Curator of the Stephen Hui Geological Museum

The Stephen Hui Geological Museum together with the Mineralogy Society of Hong Kong organized the first in the territory Mineral Festival 2013 from April 27 to 30. Activities ranged from Special Exhibition, Mineral Fair, Talks, Workshops to Field Trip, together composing the largest mineral event of its kind ever held in Hong Kong. The Festival also marked the opening of the 4-month Special Exhibition "Mineral Treasures of China".

The exquisite samples of the "Mineral Treasure of China" exhibition were kindly provided by Dr Guanghua Liu, an internationally renowned enthusiast in collecting and preserving Chinese minerals. Although China has abundant mineral resources with a long mining history, mineral collecting has not been a tradition in China for long. Only recently beautiful mineral specimens from China have been emerging on the international mineral collector's market. Over 50 world-class mineral specimens are on display from the private collection of Dr Guanghua Liu representing the most spectacular mineral specimen finds from different mining areas throughout China in the last 30 years with some of them on public display for the first time. Visitors were able to get a glimpse into the world of china minerals such as the remarkable fluorite varieties from Hunan and Scheelite associations from Sichuan as well as the new discovered minerals Hubeite and Ottensite from Hubei and Guizhou respectively.

Given the large number of visitors and their positive feedback, the special exhibition has been extended for another 2 months until November 30, 2013.

The exquisite specimens on display reminded us to appreciate the natural world of minerals.



Visitors got a glimpse into the world of vivid and rare world-class China mineral specimens with many of them displayed to the public for the first time.



The amazing minerals in beautiful crystal forms were all formed naturally.

Opening Ceremony of special exhibition "Mineral Treasure of China"



## Achievements

### Teachers

**Professor Chi Ming CHE**, Dr Hui Wai-Haan Chair of Chemistry, was elected as the **Foreign Associate of National Academy of Sciences, United States**, in recognition of his distinguished and continuing achievements in original research. The National Academy of Sciences was established in 1863 to address the government's urgent need for an independent advisor on scientific matters.

Professor Che is also the recipient of 2013 RSC (Royal Society of Chemistry) Centenary Prize.



Professor C M Che (third from the right) and his guests at the celebration party.



**Professor Nagendra Prasad SHAH** from School of Biological Sciences received the **American Dairy Science Association (ADSA) Distinguished Service Award** for his significant contributions to the Australian and international dairy industries throughout his professional career.

Professor Shah's significant research contributions include the development of low-fat Mozzarella cheese and probiotic Cheddar cheese, as well as the improvement of viability and human health benefits of probiotic bacteria in dairy products such as yogurt.

**Dr Guosheng YIN**, Department of Statistics and Actuarial Science, has been named a **Fellow of the American Statistical Association (ASA)**, a preeminent professional statistical society in US. To be recognized as a 2013 ASA Fellow, each honoree must make outstanding professional contributions to and have exhibited leadership in the field of statistical science. Dr Yin was honored for outstanding methodological and collaborative research contributions to clinical trial design, survival analysis and Bayesian statistical methods; for exemplary service to the profession and the ASA.

ASA is the world's largest community of statisticians and the second-oldest continuously operating professional society in the United States.



Dr Yin (on the right) and Professor Marie Dividian, President of ASA

### Students

**Mr Kevin HO**, PhD student under the supervision of Professor K M Y Leung in School of Biological Sciences, was selected as the **Winner of "Young Scientist Poster Award"** at the Society of Environmental Toxicology and Chemistry Europe 23rd Annual Meeting, held in Glasgow, Scotland during 12-16 May 2013. This is one of the major annual meetings in the field of environmental toxicology and chemistry in the world, and has attracted over 1,700 abstracts and over 2,000 participants. The title of Kevin's winning poster was 'Organotin Contamination in Market Seafood and its Implication for Human Health Risk in Hong Kong'.

Kevin had also won the 2<sup>nd</sup> Runner Up in the recent 3 Minute Thesis (3MT) Competition at HKU. His presentation topic was "Ecological and Human Health Risks Associated with Organotin Contamination in the Marine Environment of Hong Kong". This research work is partially funded by AoE-MERIT.

**Mr Andy YI**, PhD student in School of Biological Sciences, won the **Best Poster Award** at the 17<sup>th</sup> Symposium on Pollutant Responses in Marine Organisms (PRIMO 17), held at the University of Algarve, Faro, Portugal during 5-8 May 2013. The important biannual symposium for marine ecotoxicologists was well attended by over 250 experts and research students in this specialised field for knowledge exchange and research networking. The title of Andy's winning poster was 'Photosynthetic and Proteomic Responses of the Marine Diatom *Thalassiosira Pseudonana* to Triphenyltin Exposure'. Andy is also under the supervision of Professor K M Y Leung.

**Miss Yuanyuan HONG**, PhD student of Dr Moriaki Yasuhara in School of Biological Sciences, won the **Sylvester-Bradley Award for Best Oral Presentation** in the 17<sup>th</sup> International Symposium on Ostracoda in Rome, Italy, 2013.

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