



## VOLUME 6, ISSUE 4 November 2010

### Xugan Wu

#### International Symposium on Fish Nutrition & Feeding Report

The 14th International Symposium on Fish Nutrition & Feeding (ISFNF 2010) was held from May 31-June 4, 2010 in the beautiful coastal city of Qingdao, China. The theme for the conference was "Quality, Safety and Sustainability".



*Xugan Wu presenting his talk*

The conference was attended by more than 600 participants from more than 30 countries around the world. There was a great mix of postgraduate students, post-doctoral researchers and distinguished scholars from academic, industry and government sectors, which provided a dynamic forum to share their experience, expertise and ideas. Many famous aquatic nutritionists attended this outstanding conference and some of them gave inspiring and insightful presentations, including Prof. John Halver from University of Washington, USA; Prof. Douglas Tocher from Stirling University, UK; Prof. Koshio Shunsuke from Kagoshima University, Japan.

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### About the AIMS@JCU Newsletter:

This newsletter is produced quarterly and distributed by e mail to all AIMS and JCU staff.

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The 105 orals and 359 posters were arranged in 11 exciting sessions: 1. Alternative feed protein and lipid sources; 2. Physiological metabolism; 3. Cellular and molecular nutrition; 4. Broodstock and larval nutrition; 5. Crustacean nutrition and metabolism; 6. Feed processing and feeding; 7. Nutrition and environment; 8. Nutrition and health; 9. Nutrition and quality; 10. Feed additives; 11. Nutrient requirements and availability. The diversity of talks formed an informative conference and enabled scientists from different disciplines to learn and interact with each other. The coffee breaks, poster sessions and banquets provided good chances to hunt down leading scientists and exchange ideas with colleagues. For me, it was a shock that more than 30% of talks related to lipid nutrition, which definitely suggested that lipid nutrition is a very important topic for animal health and its products' quality.

I attended ISFNF 2010 to present a talk entitled "Effects of dietary DHA/EPA ratios on the survival, growth and larval development of the blue swimmer crab and ornate rock lobster". The research was conducted both at AIMS and JCU. The results showed that the optimal DHA/EPA ratio can improve the larval survival and shorten the development time. Also, the early larvae of ornate rock lobster had higher DHA/EPA ratio requirements than the blue swimmer crab larvae. Therefore, optimization of the fatty acid composition of hatchery food will be an effective means to improve seed quality and quantity for both species.

Moreover, two conference highlights impressed me and provided me with more thoughts for future research. Firstly, a lot of new biotechnology means (e.g. RNAi, microarray, CO-IP) have been applied in aquaculture nutrition research, which could enhance our understanding for nutrition requirements and nutrigenomics. The aquatic nutritionists need to learn more biotechnology or cooperate with biochemists to accelerate our research. Secondly, the aquaculture nutritionists need to think more about the application for the industry. Most previous research for aquaculture nutrition and feeds were only conducted in aquaria. However, for industry, most of aquaculture was conducted in earth pond or sea-cages. Because of the different culture condition and management, it is hard to use the aquarium results for the industry. More and more scientists and industry stockholders are concerned with this issue. Prof. Allen Davis from Auburn University gave an exciting talk "Development and use of plant based diets for the production of the pacific white shrimp, *Litopenaeus vannamei*". Most of his experiments were conducted in earth ponds based on the scientific experiment design. The results are quite different and showed the lower requirements compared to the previous reports from indoor aquarium experiments. This presentation attracted a lot of discussion and questions. This is really a good starting point for aquaculture nutritionists to re-orientate "what we need to do and what should we be doing in the future".

Attending the ISFNF 2010 conference, for me, was not only a chance to present some of the findings from my PhD and receive constructive advice from the others, but it was also a good chance to meet outstanding researchers, exchange ideas and set up connections in my research cycle.

Summer Institute in Statistical Genetics 2010 Report

For two weeks at the end of June the Department of Biostatistics within the School of Public Health at the University of Washington (USA) held their 15th Annual Summer Institute in Statistical Genetics (SISG 2010) at their Seattle campus. The Institute consisted of "a series of two-and-a-half day workshops designed to introduce geneticists to modern methods of statistical analysis and to introduce statisticians to the statistical challenges posed by modern genetic data." The modules covered a diverse range of topics from basic probability and statistics to Genome-wide Association Studies, and included courses on population genetics and relationship inference, quantitative genetics, phylogenetics, proteomics, and R programming amongst others. As well as a large number of permanent faculty members from the University of Washington, the instructors for the Institute came from distinguished institutions in the United States, Canada and even one Australian. The attendees for the Institute also came from all over the world, including students and professionals from Australia, Europe, Africa and Asia, as well as a large US contingent.



*View from the University of Washington South Campus Center*

I attended two modules at the end of the first and beginning of the second weeks of the Institute that are especially relevant to my doctoral research: 1) Population Genetics: Theory and Methods; and, 2) Inference of Relationships and Relatedness. The two modules proved very different experiences as each module was taught by a different set of instructors and the content seemed to be largely determined by the expertise and interests of those instructors. The first module was taught by a group of UW biostatisticians that spoke more to the statisticians in the crowd than to the biologists. Moreover, much of their research focuses on human health issues and methods that are not necessarily relevant to ecological applications. Nevertheless, it was useful to revisit some of the more basic principles of population genetics and to review the underlying statistical laws. The instructors were also largely in favour of Bayesian rather than frequency-based analysis, and so a large proportion of the module was devoted to Bayesian theories and analysis.

## Patricia Warner Institute Report continued

The second module was presented from a more ecological perspective and included attendees from a range of disciplines, including conservation and population biology. Although I was the only participant studying tropical marine organisms, there were other marine researchers studying algae and pinnipeds, as well as many terrestrial ecologists. The instructors, Prof. Elizabeth Thompson and Dr. Eric Anderson, represented the disciplines of biostatistics and ecological genetics with each having experience in both fields. The course presented both theoretical and practical issues in relationship studies, and reconfirmed for me the technical problems of conducting such studies on hermaphroditic, colonial animals with the ability to self-fertilize (i.e. corals). However, it was also very helpful to take a hands-on approach to techniques previously only read about in published studies, as well as to assess the various strengths and weaknesses of specific methods.

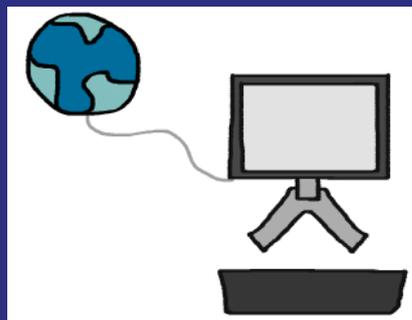
Overall SISG 2010 provided a valuable opportunity to review statistical principles and learn new methods for analysis of genetic data. Moreover, it brought together many researchers from a diverse range of fields and supplied a useful venue to interact with other scholars involved in genetic research. Although it did not answer all the many questions of data analysis for any particular study, the Institute presented a solid background of information to resolve issues and find answers to one's own research problems. I greatly appreciate my opportunity to travel to the US and attend these workshops and for the financial assistance of the AIMS@JCU travel funding.

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## Useful new tools & databases!

Google Earth can now be used to view National Oceanic and Atmospheric Administration (NOAA) Coral Reef Watch's satellite coral bleaching monitoring products:

<http://coralreefwatch.noaa.gov/satellite/ge/index.html>



ReefBase's Online Geographic Information System (ReefGIS) allows you to display coral reef related data and information on interactive maps. You can zoom, search and query datalayers, and save or bookmark the map:

[http://www.reefbase.org/global\\_database/default.aspx](http://www.reefbase.org/global_database/default.aspx)

## Ben Lawes

### New MARFU Manager

Ben Lawes was appointed manager of MARFU at JCU in August 2010. His previous appointment was managing GFB Fisheries Ltd at their Bowen site. In 7 years with GFB Ben covered a wide range of roles in Managing breeding facilities where GFB was the first to breed barramundi cod and cobia in Australia to managing a new cage farm in the central pacific at the Marshall Islands.

Ben has spent his career in commercial aquaculture since studying at Deakin University in Warrnambool. This has covered a range of freshwater species including eels, silver perch, yellowbelly, Murray cod and red claw as well as marine species including barramundi, estuary cod, giant grouper, coral trout, cobia, barramundi cod, tiger and banana prawns, although primarily managing marine finfish and prawn hatcheries.

Ben also has broad experience in agriculture growing up in dairy, sheep and broad acre cropping areas of southern Australia.

Ben hopes to bring a wide range of knowledge to MARFU facilitating development of research projects and the facility as a whole. A precinct plan is currently being developed for this area of the University and a very bright future is expected with expansion and upgrades of MARFU's capacities nominated as a high priority in the Faculties future plans.



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## Conference Calls for abstracts

International marine conservation congress (IMCC) 2011, Victoria BC 14-18 May 2011

<http://www.conbio.org/IMCC2011/>

The call for abstracts for oral, poster, and speed presentations will open on **15 October 2010** and close on **1 December 2010**.

International Coral Reef Symposium (ICRS) 2012 **9 – 13 July 2012 Cairns**

<http://www.icrs2012.com/ICRS.htm>

The Scientific Program Committee invites proposals to convene a Mini-Symposium at ICRS 2012. Final mini-symposium will be selected and advertised prior to the call for abstracts (July 1 2011).

International Congress for Conservation Biology (ICCB 2011) **28 November - 2 December 2011, Christchurch, New Zealand**

<http://www.conbio.org/Activities/Meetings/2011/register/proposals.cfm>

Proposals for symposia, workshops, and short courses will be welcomed beginning 1 September 2010. All proposals must be submitted by 10 December 2010. Decisions will be made by 1 February 2011.

## Where are they now?

Zoe Richards



Since completing my PhD in early 2010 I have continued to follow my passion for coral biodiversity research. I am particularly captivated by coral reef atolls (especially the steep wall drop-offs) so there was no better way to celebrate the completion of my PhD than with an expedition to the Marshall Islands. Backed up by fish

and macro-invertebrate surveyors and with financial support from NOAA, I recently completed a marine survey of Majuro Atoll. Given the majority of Marshallese people live in the capital of Majuro we were expecting to find these reefs would be more degraded than the pristine outer atoll reefs we had previously surveyed, however nothing could have prepared us for what we found. From the surface the Majuro lagoon is idyllic and enticing with its sparkling turquoise water; however what lies beneath is tragic. For the first time in my life I had no choice but to collect rubbish data along my belt and line-intercept transects. The amount and variety rubbish was truly shocking with cars, prams, chairs, televisions, construction material, cooking utensils, material and nappies just some of the items recorded. Fortunately I have the opportunity to work up this data in my new position as Chadwick Biodiversity Fellow at the Australian Museum (Sydney). In this one-year fellowship I will be focussing on writing papers that flow on from my PhD along with working on new ecological and phylogenetic data.



I am just about to go to the Eastern Kimberley's to document coral biodiversity for the Marine Life project (in collaboration with the West Australian Museum) and I will participate in a research expedition to Sulawesi in early 2011. Although no longer at JCU or AIMS I am just an email away so if you would like to contact me regarding coral research or marine conservation issues please do not hesitate.

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## Research Director's Report

The end of 2010 is nearly upon us and AIMS@JCU has had another strong, productive year of research and outputs. Thanks to all of our students and members for their continued high quality research and efforts on behalf of the joint venture. As some of you may know AIMS@JCU is going into a period of transition with a change in our funding structure. This will mean some functional changes in how the joint venture runs from an administrative perspective and some changes in current policy. We are currently working through how these changes will shape AIMS@JCU and what that means for all of you. Please be assured we will keep you as informed as possible and try to make the transition to new policies as smooth as possible. For many of you there will be few if any noticeable changes, but if you have questions or concerns please don't hesitate to contact the office.

As this will be the last newsletter for 2010 I'd like to pass on my wishes for Happy Holidays and a great New Year to all of our members.

Michelle

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Photographs in this publication were submitted by AIMS@JCU students/staff or have been sourced from the AIMS Long Term Monitoring Team.

