

Workshop on “Automated Visual Plankton Identification”

by Phil Culverhouse and Mark Benfield

A half-day workshop on “Automated visual plankton identification” was held on March 16, 2011, at the 5th International Zooplankton Production Symposium in Pucón, Chile. The workshop, co-convened by the authors of this article, was well attended by diverse range of users of *in situ* and laboratory automated systems and, perhaps more importantly, by people who are interested in adopting these new technologies.

The speakers gave a good introduction to current uses of the computer-based image analysis technologies, with three of the speakers comparing existing and new technologies and one highlighting the development of a new semi-automatic system for high volume processing of biological sample data using ZooScan that automatically output data for use of the ecological modelling community.

The co-convenors went through a demonstration of how one can use open source software and commercially available inexpensive hardware to semi-automatically process plankton samples. This live demonstration was well received, and one participant commented that he had

almost given up on the technology but was provided a new sense of purpose as a result of this workshop.

The main discussion topics were: (1) instrument inter-calibration and accuracies of systems, (2) producing a means of globally accessing analysed and labelled image data sets, and (3) the creation of standards for specimen preparation prior to image collection. The issue of training workshops and summer schools was high on the agenda, as delegates felt there was insufficient funding to support the demand for Ph.D. training in automated visual plankton identification. This type of new technology is best introduced through Ph.D. training, as students are often well placed to take up the challenges of new concepts and new work practices. It was suggested that this topic requires international support.

The workshop provided an opportunity to expand the membership in the international collaboration Research in Automated Plankton Identification (RAPID). We have started a Facebook page, but because it was made clear by some of the participants that social networking was not the preferred means of online collaboration, we will look into some alternatives.



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Dr. Mark Benfield (right; mbeffie@lsu.edu) is a Professor in the Department of Oceanography and Coastal Sciences at Louisiana State University (LSU) and a Guest Investigator in the Biology Department at the Woods Hole Oceanographic Institution, USA. His research interests include zooplankton ecology, particularly the use of *in situ* imaging systems combined with acoustics and nets to quantify zooplankton in fine spatial scales. He directs the Gulf SERPENT Project – a partnership between the oil and gas industry and LSU to study plankton and nekton in the mesopelagic and bathypelagic zones of the Gulf of Mexico. Mark is the current Chairman of the ICES Working Group on Zooplankton Ecology and Co-Chairman of SCOR Working Group 130 on Automatic Visual Plankton Identification. Mark received his B.Sc. from the University of Toronto, M.Sc. from the University of Natal, and a Ph.D. from Texas A&M University.