

The 5th Zooplankton Production Symposium

by Delphine Bonnet

The flyers and posters announcing the 5th International Zooplankton Production Symposium held March 14–18, 2011, in Pucón, Chile, were as majestic as the surroundings of the event. Despite the earthquake and tsunami which destroyed completely our colleagues' laboratory in Dichato and damaged the University of Concepción two years ago, Rubén Escribano, Chairman of the Local Organizing Committee, went ahead with the planning of the meeting and welcomed us to beautiful Pucón. This was the second Zooplankton Production Symposium convened outside Europe, after one in Hiroshima, Japan, in 2007. Unfortunately, the start of the symposium was overshadowed by news of the March 11 earthquake and tsunami in Japan, and Japanese colleagues were very much in the thoughts of the participants during the meeting.

A total of 293 scientists and students from 36 countries attended the symposium held at the Gran Hotel Pucón under the theme “*Population connections, community dynamics and climate variability*”. The major sponsors for the event were the North Pacific Marine Science Organization (PICES), International Council for the Exploration of the Sea (ICES), and Center for Oceanographic Research in the Eastern South Pacific (COPAS). Additional funding was provided by the Global Ocean Ecosystem Dynamics (GLOBEC) project, EUR-OCEANS Consortium (EUR-OCEANS), Fisheries and Oceans Canada (DFO), Intergovernmental Oceanographic Commission of UNESCO (IOC), Institut de Recherche pour le Développement (IRD), U.S. National Marine Fisheries Service (NMFS) of NOAA, North Pacific Research Board (NPRB) and the University of Concepción. The primary sponsors were represented by three convenors: Delphine Bonnet (ICES; France), Julie Keister (PICES; USA) and Rubén Escribano (COPAS; Chile). A Scientific Steering Committee (SSC) made up of Sanae Chiba (Japan), Catherine Johnson (Canada), Angel López- Urrutia

(Spain) and David Mackas (Canada) assisted with planning of scientific sessions and workshops, and recruitment of session convenors.



Artwork used in the 5th Zooplankton Production Symposium poster (painting courtesy of Alejandro Escribano, Chile).



Preparing registration in Gran Hotel Pucón.



The symposium venue – Gran Hotel Pucón (left) and the Pucón landmark – Villarica Volcano (right).

The Opening Session took place on the morning of Monday, the 14th, and included five excellent plenary talks:

- *Climate change and planktonic ecosystems: Detection, understanding and projection*, by Gregory Beaugrand (Université des Sciences et Technologies de Lille 1, France); presented by David Mackas, as Gregory Beaugrand could not attend;
- *Zooplankton role in biogeochemical cycles: Progress and prospects for the future*, by Deborah K. Steinberg (Virginia Institute of Marine Science, USA);
- *The giant jellyfish (*Nemopilema nomurai*) bloom in East Asian Seas: Causes, consequences and counter-measures*, by Shin-ichi Uye (Hiroshima University, Japan);
- *Modes of climate and food web variability in high latitude oceans*, by Kendra L. Daly (University of South Florida, USA);
- *Composition and succession of zooplankton communities: A global comparison*, by Torkel Gissel Nielsen (Technical University of Denmark).

On the evening of the first day, a welcome reception took place in the Ballroom of the Gran Hotel Pucón, a way of meeting many new or less new colleagues and for some others to share some old souvenirs.



Charlie Miller's former PhD students (from left to right): Jaime Gómez-Gutiérrez, Hal Batchelder, Bill Peterson and Peter Rothlisberg.

The symposium was composed of 9 theme sessions and 5 workshops. Two parallel sessions were run each day:

- **S1:** *Effects of climate variability on secondary production and community structure*, co-convened by Delphine Bonnet (France), Catherine Johnson (Canada), Angel López-Urrutia (Spain) and Anthony Richardson (Australia);
- **S2:** *Ecological interactions: Links to upper and lower trophic levels*, co-convened by Sanae Chiba (Japan) and Enric Saiz (Spain);
- **S3:** *Zooplankton life histories: Spatial connectivity, dormancy, and life cycle closure*, co-convened by Hans-Jürgen Hirche (Germany), Toru Kobari (Japan) and Jeffrey Runge (USA);
- **S4:** *Small-scale biological-chemical-physical interactions in the plankton*, convened by David Fields (USA);
- **S5:** *Zooplankton in upwelling and coastal systems*, co-convened by Jenny Huggett (South Africa) and Julie Keister (USA);
- **S6:** *Zooplankton in polar ecosystems and extreme environments*, co-convened by Carin Ashjan (USA) and Angus Atkinson (UK);
- **S7:** *Zooplankton physiology and bioenergetics*, co-convened by Maria Koski (Denmark) and Andrew Hirst (UK);
- **S8:** *The role of zooplankton in biogeochemical cycles*, co-convened by Hiroaki Saito (Japan) and Deborah Steinberg (USA);
- **S9:** *The diverse role of meroplankton in the biology and ecology of marine systems*, co-convened by Claudio DiBacco (Canada), Heidi L. Fuchs (USA) and Fabian Tapia (Chile).

The workshops were run concurrently in the morning of Day 3, and their summaries are included elsewhere in this issue:

- **W1:** *Zooplankton Individual Based Models*, co-convened by Harold Batchelder (USA) and Douglas C. Speirs (UK);
- **W2:** *Advances in genomic and molecular studies of zooplankton*, co-convened by Erica Goetze (USA),

Ryuji Machida (USA) and Katja Peijnenburg (The Netherlands);

- **W3:** *Updates and comparisons of zooplankton time series*, co-convended by David Mackas (Canada) and Martin Edwards (UK);
- **W4:** *Impacts of ocean acidification on zooplankton*, co-convended by So Kawaguchi (Australia) and M. Brady Olson (USA);
- **W5:** *Automated visual plankton identification*, co-convended by Mark Benfield (USA) and Phil Culverhouse (UK).

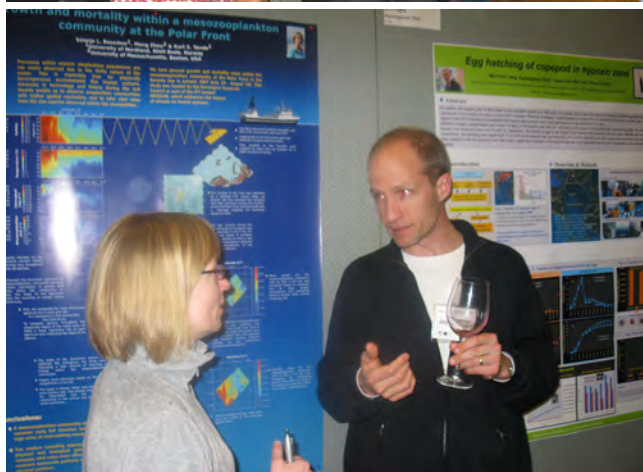
The symposium was intensive with 159 oral presentations, including 5 plenary and 14 invited talks. Topics which did not have the chance to be elected in a session were

illustrated in a General Poster Session. The 203 posters were on display during the entire symposium; two evening poster sessions were organized on Day 2 and Day 3, nicely arranged together with cheese and wine to enjoy and maximize the discussion. A last opportunity to see the posters was in the afternoon of Day 5, just before the Closing Session.

Exciting excursions were organized on Day 4 afternoon: visit of a volcano cave, canoeing, and thermal baths. The day concluded with a very enjoyable symposium dinner, which included a dramatic and colorful performance of traditional Chilean folk dances.



The symposium in session – an attentive audience.



Discussion around posters.

Some Australian colleagues enjoying the symposium dinner (top); a very enthusiastic audience for the Chilean folk dance show during the dinner (middle); Roger Harris exhibiting nimble footwork with one of the dancers (bottom).

One of the remarkable aspects of this meeting was the quality of the work of early career scientists, with some of them being honored at the Closing Ceremony. Four best talk awards were given to: Jeffrey G. Dorman (University of California at Berkeley, USA) for his presentation on “*Modeled krill distribution in the California Current from 1990–2005*”, Pierre Helauet (SAHFOS, UK) for his communication on “*Understanding populations changes in time due to niche requirements*”, Rana W. El-Sabaawi (University of Victoria, Canada) for her talk on “*Interannual variability in nitrogen dynamics and zooplankton structure in the northern range of the California upwelling system*”, and Sari L.C. Giering (National Oceanography Centre, UK) for her performance on “*Mesozooplankton demands exceed carbon flux in the twilight zone*”. The poster session awards went to local scientist, Cristian A. Vargas (Universidad de Concepción, Chile), for his work on “*How significant are allochthonous subsidies for zooplankton production in coastal areas?*”, and early career scientist, Geneviève J. Parent (Laval University, Canada), for her poster on “*Hybridization of *Calanus finmarchicus* and *Calanus glacialis* off the Canadian coast*”.



Roger Harris summarizes the outcomes from the symposium (with symposium convenors, Julie Keister, Delphine Bonnet and Rubén Escribano, looking on).

As at the previous meeting in Hiroshima, Roger Harris (Plymouth Marine Laboratory, UK) gave an overview of the science presented during the Pucón symposium at the Closing Session. He noted how the long history of Zooplankton Production Symposia, extending from the first 1961 ICES symposium in Charlottenlund, through subsequent events in Plymouth (1994), Gijón (2004), Hiroshima (2007) and Pucón (2011), demonstrated the vitality and strength of our research field. Reviewing the breadth and variety of the presentations in Pucón, Roger emphasized the benefits of international collaboration and free access to data. A focus on integration, synthesis and meta-analysis, and the comparative approach should lead to significant advances being reported at the 6th International Zooplankton Production Symposium planned for 2015.

A selection of papers from the symposium will be published as a special issue of the ICES *Journal of Marine Science* in 2012. The Lead Editor for this volume is Julie Keister, and the Guest Editors are Delphine Bonnet, Sanae Chiba, Catherine Johnson and David Mackas.



Rubén Escribano giving a toast to some of the members of the Local Organizing Committee at the Welcome Reception.

As one of the convenors of this Symposium, I will remember for a long time the diverse and exciting science which was presented during the meeting, the outstanding work of many early career scientists, the increasing number of women in marine sciences, the beautiful venue surroundings, with so many active volcanoes, and finally the wonderful and hard work the Local Organizing Committee (Rubén Escribano, Pamela Hidalgo, Carmen Eliana Morales Van De Wyngard and many students) who did so much to welcome us in Pucón. The PICES Secretariat is to be thanked for providing professional assistance in the planning, development, coordination and the smooth running of the Symposium. Special thanks go to Julia Yazvenko who was unable to attend the meeting, but contributed greatly by designing and maintaining the symposium website and the database, communicating with more than 300 scientists and preparing the Book of Abstracts.



Dr. Delphine Bonnet (delphine.bonnet@univ-montp2.fr) is a lecturer and zooplankton ecologist at the University of Montpellier 2, France. Her research focuses on climate effects on zooplankton and trophic ecology, particularly on copepods and more recently on gelatinous plankton. Delphine is currently a member of the ICES Working Group of Zooplankton Ecology.