

The Fourth International Jellyfish Bloom Symposium

by Shin-ichi Uye and Richard Brodeur



The participants of the 4th International Jellyfish Bloom Symposium (June 5–7, 2013, Hiroshima, Japan).

Following the initial meeting in Alabama (U.S.A.) in 2000, and subsequent meetings in Gold Coast (Australia) in 2008 and Mar del Plata (Argentina) in 2010, the 4th International Jellyfish Bloom Symposium was held June 5–7, 2013, in Hiroshima, Japan. Given the importance of jellyfish blooms to the North Pacific, PICES served as a co-sponsor of this event through its established Working Group on *Jellyfish Blooms around the North Pacific Rim: Causes and Consequence* (WG 26) and provided logistical and financial support for the symposium.

The symposium was a great success, attracting over 120 scientists from 29 countries and 5 continents. Following opening remarks by the symposium organizer and WG 26 Co-Chairman, Dr. Shin-ichi Uye (Hiroshima University, Japan), Dr. Larry Madin (Woods Hole Oceanographic Institution, U.S.A.) presented a comprehensive overview of the major taxonomic groups comprising this diverse group, along with a history of the sampling and utilization of jellyfish over time. He noted the importance of understanding the beneficial services that jellyfish provide to humans that are often overlooked in the media.

A second keynote talk given by Dr. Rob Condon (Dauphin Island Sea Laboratory, University of South Alabama, U.S.A.) described some of the progress achieved by the international Global Jellyfish Group sponsored by the National Center for Ecological Synthesis (NCEAS, U.S.A.) which completed its formal activities this past year. A key product of this working group was the establishment of the Jellyfish Data Initiative (JEDI), which provides a repository

for most of the jellyfish historical abundance and distribution time series worldwide. Using this database, Rob led several studies examining the long-term trends in jellyfish blooms around the globe which not only indicate some recent increases in many regions, but also an underlying multi-decadal oscillation which inhibits drawing firm conclusions until the time series are suitably extended.

A final invited talk was provided by Dr. José Acuna (Oveido University, Spain) on the adaptations that jellyfish have evolved to make them efficient consumers in the marine environment on a similar scale as the fishes, despite being greater than 95% body water content. He also stressed the diversity of feeding modes in the gelatinous zooplankton that have allowed them to be so successful over time.



Plenary talk on gelatinous zooplankton by Larry Madin (Woods Hole Oceanographic Institute, U.S.A.).



At the Award Presentation Ceremony (from left to right): Christopher Mooney (Best Student Oral Presentation Award), Dr. Shin-ichi Uye, a grandmother of jellyfish study, Dr. Mary Arai (Lifetime Achievement Award), and Zhilu Fu (Best Student Poster Presentation Award).

The symposium also consisted of nine sessions dealing with such diverse topics as physiology, production, growth, reproduction, and feeding dynamics (<http://home.hiroshima-u.ac.jp/ijfs/program.html>). It culminated in a series of presentations highlighting the impacts that jellyfish blooms have on human enterprises including not only the negative aspects of preying on or competing with fish of ecological or commercial importance, but also stressing their beneficial aspects including their role in sequestering CO₂ to the deep ocean and provisioning of food resources to humans, especially within many PICES member countries.

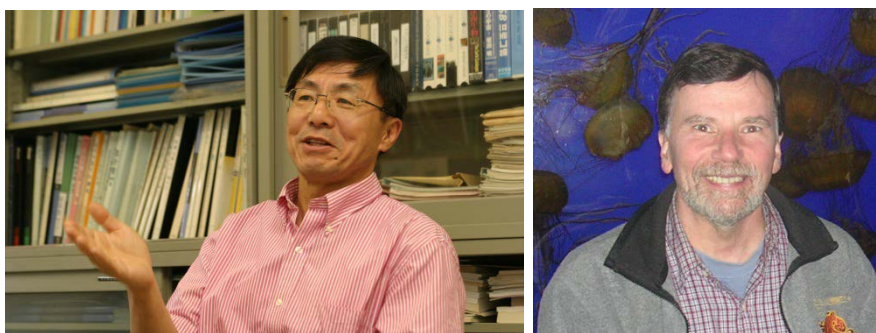
In addition to the scientific accomplishment of the symposium, the participants were able to enjoy the many local Japanese

cultural and culinary delights of the Hiroshima region, including a post-meeting excursion to Miyajima, a World Heritage site located nearby.

The Award Presentation Ceremony took place during the symposium reception which followed the field trip. A Lifetime Achievement Award was presented to Dr. Mary Arai (Department of Fisheries and Oceans, Canada; retired) for her outstanding contributions to the taxonomic and ecological body of knowledge available for the gelatinous taxa. Two Best Student Presentation Awards were given to Christopher Mooney (James Cook University, Australia) for his talk on “Experimental calibration of elemental incorporation into *Chironex fleckeri* statoliths resulting from changes in salinity” and to Zhilu Fu (Hiroshima University, Japan) for her poster on “Point-of-no-return in ephyrae of the moon jellyfish *Aurelia aurita*”.

The meeting was a complete success and the participants are already looking forward to the 5th International Jellyfish Bloom Symposium slated to be held in 2016, in Barcelona, Spain.

The symposium elevated the status of the PICES WG 26 worldwide. The Working Group also held a 1-day inter-session meeting in advance of the symposium (on June 4) to take advantage of the expertise coming to the meeting, to present reports on new topics and achievements in jellyfish bloom research in PICES member countries, and also move forward on the WG 26 final report. The draft of this report is expected to be completed by the end of this year.



Dr. Shin-ichi Uye (suye@hiroshima-u.ac.jp) is a Professor of biological oceanography at Hiroshima University. Shin-ichi is currently involved in two Japanese jellyfish research projects: Studies on Prediction and Control of Jellyfish Outbreak (STOPJELLY) and the China-Japan-Korea International Project on the Giant Jellyfish Bloom. He was former President of the Plankton Society of Japan (2001–2004) and former President of the World Association of Copepodologists (2005–2008). Shin-ichi was awarded the Oceanographic Society of Japan Prize in 2010 for his advancement of zooplankton research, particularly on their functional roles in coastal marine ecosystems. Shin-ichi now serves as a Co-Chairman of the PICES Working Group on Jellyfish Blooms around the North Pacific Rim: Causes and Consequence.

Dr. Richard Brodeur (Rick.Brodeur@noaa.gov) is a Research Fisheries Oceanographer working in the Fish Ecology Division of the Northwest Fisheries Science Center, NOAA Fisheries, and is based in Newport (Oregon, U.S.A.). Ric began his career working on early life history and recruitment dynamics of walleye pollock in the Gulf of Alaska and Bering Sea for the Alaska Fisheries Science Center and became interested in jellyfish following their dramatic increase in that ecosystem. He has published on a variety of topics ranging from satellite oceanography to fish bioenergetics to fisheries acoustics, but has focused much of his research on feeding and food web interactions in the pelagic ecosystem. Ric has been heavily involved in PICES, serving on several committees and expert groups and organizing a number of special sessions and workshops at past meetings. He serves now as a Co-Chairman of the PICES Working Group on Jellyfish Blooms around the North Pacific Rim: Causes and Consequence.