



SYMPOSIUM IN NAGASAKI, JAPAN

Human Impacts on Oceanic Environment, Ecosystem, and Fisheries

Supported by

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Research Initiative for Adaptation to Future Climate Change (長崎大学重点研究課題)

Graduate School of Fisheries Science and Environmental Studies (水産・環境科学総合研究科)

Center for International Collaborative Research (国際連携研究戦略本部)

Date: November 11-12, 2014

Venue: Hotel Sainthill Nagasaki

Official language: English

LOCAL ORGANIZING COMMITTEE

Atsushi Ishimatsu, Kiyoshi Soyano, Shigenobu Takeda, and Atsushi Hagiwara

Graduate School of Fisheries Science and Environmental Studies, Nagasaki University

OBJECTIVE

The objective of the symposium is to provide an opportunity to discuss research priority areas on human impacts on the oceans, in particular of Asian and Oceanian regions. The symposium consists of four sessions; “Critical ocean issues in Asia and Oceania”, “Impacts of ocean pollution in Asia and Oceania”, “Impacts of climate change on the oceans in Asia and Oceania”, and “Impacts of human activities on fisheries in Asia and Oceania”. In the afternoon of November 12, a special talk will be given on “How science communities could help secure marine ecosystem and fisheries production in Asian and Oceanian countries” (tentative) by a special guest from Japan International Cooperation Agency (JICA). Oceans and their services mean much to Asian and Oceanian countries where the people rely heavily upon fish and shellfish as protein source, and the cultures are tightly linked with the oceans. It is therefore very unfortunate that some of these countries suffer from serious pollution problems of the coasts, and several are predicted to be highly vulnerable to future oceanic environmental alterations, such as climate change. Nevertheless, not much effort has been given to project potential alterations of ocean environment and ecosystem, and consequent impacts on fishery production of the regions. Adaptation measures against negative human impacts require accurate understanding of how marine environment

will be affected, how marine ecosystem will respond, and how fishery production could be optimized under predicted conditions. Our goal is to identify the most pressing issues on the oceanic environment, ecosystem and fisheries of the regions, to contribute to elaborating adaptation measures, and thereby to help protect livelihood of the people living in the regions.

PROGRAM

November 11

Morning

Opening remarks (President of Nagasaki University)

Aim of the symposium (Atsushi Ishimatsu)

Session 1 (chair Atsushi Hagiwara): Critical ocean issues in Asia and Oceania: Overview

Afternoon

Session 2 (chair Kiyoshi Soyano) Impacts of ocean pollution in Asia and Oceania

November 12

Morning

Session 3 (chair Shigenobu Takeda) Impacts of climate change on the oceans in Asia and Oceania

Afternoon

Session 4 (chair Yoshiaki Matsushita) Impacts of human activities on fisheries in Asia and Oceania

Special talk from Japan International Cooperation Agency (JICA)

“How science communities could help secure marine ecosystem and fisheries production in Asian and Oceanian countries (tentative)” by Dr. Shunji Sugiyama

Concluding remarks (Atsushi Ishimatsu)

November 13

Excursion: A bus tour to Mt. Unzen and Shimabara City (visit to a volcano, a memorial park of an eruption, hot spring and old Japanese castle). Takes a whole day. Please contact the secretariat as soon as possible if you like to join the tour.

CALL FOR PAPERS

Participants willing to give a presentation on their recent research are cordially invited to submit an abstract according to the following instructions. Only oral presentations are expected.

ABSTRACT SUBMISSION

All authors of oral presentations must submit an abstract to the Secretariat by email by **October**

10th, 2014. Abstracts will appear in an abstract book to be distributed during the symposium.

Please prepare an abstract of A4 size paper (one page) in both MS Word and PDF formats. The abstract should contain title of the presentation (Arial 12 pt), name(s) of author(s) (Times New Roman 10 pt), affiliation, e-mail address of the presenter (Times New Roman 10 pt), the abstract text and three keywords (Times New Roman 10 pt). All abstracts should be prepared following the attached example in the last page.

PRESENTATION

Presentation language is English. The allotted time for each presentation is 20-30 min including the time for questions and discussion. Both Windows and Macintosh computers will be available for your presentation. If you bring your own notebook computer, please note that Japan operates on 100 volts for electrical appliances, with a cycle of 60 Hz in Nagasaki. The plug type in Japan is A with two flat blades.

REGISTRATION

No registration fee is required.

TRANSPORTATION

Our staff will meet all attendees upon their arrival in Fukuoka or Nagasaki Airport. Trip from Fukuoka to Nagasaki takes 2.5 hours by limousine bus.

Enquiries

Please contact the secretariat below for more information:

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Effects of Carbon Dioxide on Macroalgal Communities: A Mesocosm Experiment

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Data on the effect of ocean acidification have been rapidly accumulating from single-species experiments, but far less is known about how marine communities respond to elevated CO₂ levels. To fill this knowledge gap, we exposed macroalgal communities consisting of a brown alga (*Sargassum siliquastrum*) and its epifauna (predominantly, a gastropod *Barleeia* sp.) to the ambient and elevated CO₂ conditions for 10 weeks (from October 8 through December 24, 2012), and investigated their responses. Five algal communities were stocked in each of four 500 L tanks, of which two were supplied (1 L/min) with aerated natural seawater and the other two with seawater acidified by CO₂ bubbling. Seawater temperature was not controlled and decreased from 23°C in October to 8-12°C in December. Seawater pH fluctuated daily in both conditions, ranging from 8.0-8.8 in the control tanks and from 7.3- 8.4 in the high CO₂ tanks in October, which attenuated with time. The alga remained upright in the high CO₂ tanks until week 10 but it had already withered and lain on the bottom of the control tanks. Dry weight of the gastropod was significantly smaller in the high CO₂ tanks than in the control tanks at weeks 8 and 10 but with no difference in shell height. The gastropod's shell became bleached after 4 weeks of CO₂ exposure. Microstructure and mechanical strength of the gastropod's shell are being analyzed.

Key words: macroalgal communities, mesocosm experiment, ocean acidification