

**Annual Meeting Report (2015) of Working Group 30 on Assessment of Marine
Environmental Quality of Radiation around the North Pacific**

The Working Group on *Assessment of Marine Environmental Quality of Radiation around the North Pacific* (WG 30/WG-AMR) gathered on October 16, 2015, from 14:00 to 18:00, in Qingdao, China. Co-Chairs Prof. Yusheng Zhang (China) and Prof. Kathryn Higley (USA) welcomed the members and observers and provided the opening address. Twenty two participants, including seven WG members from five member countries (Canada, China, Japan, Korea and USA) and two invited delegates from IAEA attended the meeting (*shown in the figure*). The work progresses related to the WG 30 work plan of each member country in the past year were presented. Next, the latest research results were discussed and summarized. And then the working focus of 2016 was discussed and drew up. Finally, the related issues about PICES-2016 annual meeting were discussed. With the joint efforts of all participants, the meeting achieved full success.



Participants of the 2015 annual meeting of WG 30.

AGENDA ITEM 2

Overview and update of WG 30

Professor Zhang provided an overview and update of the WG 30 since its second meeting held during the PICES-2014 annual meeting (Yeosu, Korea) and noted the changes of that Dr. Tsuneo Ono as a new WG 30 Member.

AGENDA ITEM 3

Country reports

Each member country of the WG 30 provided an overview of the research that they had conducted in the past year following the WG work plan. The following are the brief information about the country reports, please find more details in the Appendix I.

Canada

Dr. John Smith gave a presentation of that Fukushima inputs during 2012-2015 resulted in a factor of 5 increase in the fallout background for ^{137}Cs in seawater on Line P off the Canadian coastline. He concluded that this increase in seawater concentrations will likely result in an increment in ^{137}Cs throughout the various components of the ecosystem. Models predict that ^{137}Cs levels will continue to increase on the Canadian continental shelf for the next few years, before they level off at levels of ^{137}Cs between 5 and 10 Bq/m³ and begin to decline in about 2017-2018. Despite the dramatic rise in ^{137}Cs concentrations, this will only return eastern North Pacific waters to fallout ^{137}Cs concentrations that prevailed in the 1980s. DFO monitoring on Line P is currently planned for missions in February and August, 2016

in order to observe the continued increase and subsequent leveling off in the Fukushima signal which is expected to occur by 2017. The present results will be used to plan the frequency of future monitoring activities in 2017-2018. Currently, the DFO monitoring program for seawater is the only continuous monitoring program for Fukushima radioactivity in the Eastern North Pacific.

China

Dr. Jianhua He presented what China's WG members has done in 2015, including (1) Two marine radioactivity monitoring cruises in northwestern Pacific; (2) Discussion on the transporting pathway of radioactive release from Fukushima Nuclear Accident; (3) Radiological dose assessment for the nekton species in northwestern Pacific; (4) Effects of external gamma irradiation on growth of *Phaeodactylum tricornutum*.

Japan

Dr. Tomowo Watanabe provided an overview of the ongoing research about FRA in the past year, including monitoring activities for marine environmental radioactivity, status of FDNPP accident to marine environment in the area near FDNPP and researches in marine environmental radioactivity related to the FDNPP accident in Japan.

Korea

Dr. Kyung Tae Jung presented the marine radioactivity monitoring activities carried out in Korean waters. It has been found that there are considerable amount of difference in the biological concentration factors between the values analyzed by KIOST and recommended by IAEA. Further investigation is obviously needed on this

matter possibly through the cooperation, for example, between TIO (Third Institute of Oceanography), China and KIOST, Korea. Development of a marine biota model with the pelagic and benthic food webs is very much encouraging. The model might be an essential component of the decision supporting system for the future accident in the Northwestern Pacific region. Along with the biota model an advanced modeling system of predicting the marine radioactivity transport for the Yellow Sea and East China Sea are underway. It is expected that its more detailed results can be reported in 2016.

United States

Professor Kathryn Higley provided an overview of the ongoing research in her laboratory at Oregon State University (OSU). The Oregon State University continues to develop accurate 3D models for dosimetry calculations in biota. Work has also begun on the development of a 3D voxel model representing *Thunnus alalunga*, known in English as Albacore tuna. They also have conducted sampling of marine organisms along the US West Coast, as well as water samples. In addition, they are engaged in a cell-level radiation damage simulation using Geant4 to better understand dose distribution as well as the bystander effect.

AGENDA ITEM 4

Work Plan

The components of the work plan were discussed by the WG 30 members. The group reached consensus that broad goals should be maintained for the Working Group, and the plan would not be modified at this point.

The main goals of the WG 30 in 2016 are to:

1. Write a technical paper on radionuclides in the marine environment in the North Pacific as a PICES publication. The outline of the paper should be finished by November, 2015 and the first manuscript should be finished in 2016;
2. Hold a workshop on marine radioactivity at the PICES-2016 annual meeting during November 1–13, 2016, San Diego, USA;
3. Continue research by each member country in relevant areas following the work plan.

AGENDA ITEM 5

Workshop proposal for the PICES-2016 annual meeting and financial support

The WG 30 members discussed the content and format of a proposed ½-day workshop on “*Distribution and risk analysis of radionuclides in the North Pacific*” to be held in conjunction with the PICES-2016 annual meeting. It was suggested that two experts from SCOR, IAEA or ICRP would be invited to this workshop;

The WG 30 will request \$5.0 k to be allocated for fund travel costs associated with the two external participants.

AGENDA ITEM 6

Discussion about applying for one year extension of WG30

The members discussed the necessity of one-year extension of WG 30 and reached consensus that WG 30 should be prolonged by the end of 2017 and submit an relevant application during the PICES-2016 annual meeting.

AGENDA ITEM 7

Outline of WG 30 annual report

Participants compared the WG 30 terms of reference and work plan with the works accomplished to date and agreed this will form the basis of the group's annual report.

WG 30 Endnote 1

WG 30 participation list

Members:

John Smith (Canada)

Wen Yu (China)

Yusheng Zhang (China, Co-Chair)

Tomowo Watanabe (Japan)

In-Seong Han (Korea)

Kyung Tae Jung (Korea)

Kathryn Higley (USA, Co-Chair)

Observers:

Robin Brown (Canada)

Jianhua He (China)

Wu Men (China)

Daeji Kim (Korea)

Jung Hyup Lee (Korea)

Seokwon Choi (Korea)

Delvan Neville (USA)

WG 30 Endnote 2

WG 30 business meeting agenda of 2015

1. Revision and adoption of the draft Meeting Agenda
2. Overview and update of the WG-AMR/WG 30
3. Country report presentations
4. Discussion about Work Plan for 2016
5. Workshop proposal for the PICES-2016 annual meeting and financial support
6. Discussion about the application for the one-year extension of WG30
7. Outline of WG 30 annual meeting report of 2015