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**NOWPAP**



**Northwest  
Pacific  
Action Plan**



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**The Second Expert Meeting of The NOWPAP Special Project:  
“Monitoring and Assessment Methods for Microplastics Pollution”**

**Report of The Meeting**

For reasons of economy, this document is printed in a limited number. Delegates are kindly requested to bring their copies to meetings and not to seek additional copies.

**Regional  
Seas**

**List of Acronyms**

COBSEA	Coordinating Body on the Seas of East Asia
ECNU	East China Normal University
GESAMP	Group of Experts on the Scientific Aspects of Marine Environmental Protection
IOC-WESTPAC	Sub-Commission for the Western Pacific of the Intergovernmental Oceanographic Commission
KIOST	Korea Institute of Ocean Science and Technology
NOWPAP	Northwest Pacific Action Plan
RAC(s)	Regional Activity Center(s)
RCU	Regional Coordination Unit
PICES	North Pacific Marine Science Organization
SG-MMP	Study Group of Marine Microplastics
SSFA	Small-Scale Funding Agreement
UNEP	United Nations Environment Programme

1. The Second EXPERT MEETING OF THE NOWPAP SPECIAL PROJECT: “Monitoring and Assessment Methods for Microplastics pollution” was held in Dalian International Finance Center in Dalian, People’s Republic of China on 27 September 2019. The meeting was attended by microplastics experts nominated by NOWPAP Member States, Focal Points of Marine Litter, experts from China’s National Marine Environment Monitoring Center, Coordinating Body on the Seas of East Asia (COBSEA) of United Nations Environment Programme (UNEP), Our Sea of East Asia Network (OSEAN), representatives of NOWPAP Regional Activity Centers (RAC) and Regional Coordinating Unit (RCU). The participant list is attached as Annex 2.
2. Dr. Ning LIU, Programme Officer of NOWPAP Regional Coordinating, opened the meeting. He introduced that the meeting held in Busan, Korea in June 2018 agreed the major three components of the NOWPAP Special Project: Component (1): Adopt existing criteria and review current microplastics monitoring methods in four NOWPAP member states and develop a harmonized regional approach to microplastics monitoring in water, sediments, beaches and biota; Component 2: Review existing eco-toxicological studies assessing impacts of microplastics on the environment (exposure and impacts) with the aim to guide future common approach to microplastics ecological risk assessment; Component 3: Using tiered regional microplastics monitoring methodology developed in Component 1, undertake monitoring of microplastics contamination in selected sites of the NOWPAP region. Moreover, he highlighted that the 23<sup>rd</sup> NOWPAP Intergovernmental Meeting, which was held in October 2018 in Moscow, requested RCU to speed up the development of the project.
3. Professor Juying Wang, Deputy Director General, National Marine Environmental Monitoring Center of China, delivered a welcome remark. She briefed participants on the microplastic research of the National Marine Environmental Monitoring Center and wished to strengthen partnership and cooperation with experts from NOWPAP region in this field.
4. Dr. Ning LIU introduced the meeting agenda and chaired the meeting. The meeting agenda is attached as Annex 1. Workshop presentations are available on the NOWPAP website: [www.unenvironment.org/nowpap](http://www.unenvironment.org/nowpap)
5. Dr. Daoji Li, Director, Plastic Marine Debris Research Center, East China Normal University (ECNU), Professor, State Key Laboratory of Estuarine and Coastal Research, ECNU introduced that his team has set up 48 survey stations along the coastline in China. In July 2019, his team conducted a comprehensive microplastic study in Yangtze Estuary for the full tide and whole depth of the water. In August 2019, they expanded their research to 15 main estuaries in China. He pointed out there was little research on microplastic pollution in the deep ocean. Verified sampling methodologies and sample volume are very important.
6. He recommended to use Fourier Transform Infrared Spectrometer and Raman spectroscopy approaches to identify polymer nature for particles smaller than 1 mm in size, because both are nondestructive and straight-forward characterization techniques.
7. After Dr. Li’s presentation, the participants inquired the methodology in sampling microplastics in deep ocean, and discussed whether there is microplastics in tissue, unit (i.e. piece or weight) to use while researching microplastics, and contamination issue.
8. Dr. Atsuhiko Isobe, Research Institute for Applied Mechanics, Kyushu University, Japan, introduced the on-going research project on microplastic surveys in the oceans in Japan. He highlighted that based on the numerical particle tracking model for predicting microplastic abundance

in the Pacific after 50 years, due to the relatively calm oceanic conditions, and denser concentration than the Southern Hemisphere, high concentrations of microplastics will occur in the upper ocean in boreal summer in the Northern Hemisphere. He pointed out that if the plastic waste would not be managed properly, marine plastic pollution is likely to reach to a point of no return. There is a need to identify the threshold concentration of microplastic abundance.

9. After Dr. Isobe's presentation, the participants inquired the measurement of microplastics and the data for the particle tracking model.

10. Dr. Sang Hee Hong, Korea Institute of Ocean Science and Technology (KIOST) introduced the environmental risk assessment of microplastics in the Korean marine environment (2015 - 2020) which includes: Development of core techniques for assessing microplastic pollution and biological effects; Assessment of microplastic pollution in the Korean marine environment; Understanding of the environmental fate of microplastics; Assessment of the effects of microplastics on marine organism; Identification of the risk of microplastics in the Korean marine environment. She highlighted the following points should be observed for quality control: plastic materials cannot be used at all sampling and analysis steps; the researcher should wear cotton lab coats and latex gloves all the time; the samples should be processed in clean air facilities; covering containers with aluminum foil to avoid contamination by air; washing and rinsing all materials, equipment, and laboratory surfaces thoroughly before use; filtering all solutions by GF/F filter paper.

11. Mr. Nikolai KOZLOVSKII, Engineer, NOWPAP Pollution Monitoring Regional Activity Center (POMRAC), introduced that scientists in Russia have conducted research on microplastics in the Baltic Sea coastal area in Kaliningrad city and in the Far East. In 2014 and 2015, an initial assessment of microplastic concentration in the tidal zone was conducted along the urban coasts of the Muravyov-Amursky Peninsula (i.e. Vladivostok). He also introduced the project of microplastics abundance in river runoff and coastal waters of the NOWPAP region with a case study in the Russian part of NOWPAP area. The project is to compare existing data on microplastics quantity and composition in the coastal water within the NOWPAP region, and to assess the microplastics input from river runoff to the sea.

12. After Mr. Kozlovskii's presentation, the participants discussed the methods to monitor the migration of micro-plastics.

13. On behalf of the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP), Dr. Sang Hee Hong, Korea Institute of Ocean Science and Technology (KIOST), presented the Guidelines for the Monitoring and Assessment of Plastic Litter in the Ocean. She briefed the recommendations for each chapter of the Guideline.

14. On behalf of the Sub-Commission for the Western Pacific of the Intergovernmental Oceanographic Commission (IOC-WESTPAC) and the North Pacific Marine Science Organization (PICES), Dr. Daoji Li introduced the progress of microplastic research of these two organizations. He informed that the Second WESTPAC Workshop on Distribution, Source, Fate and Impacts of Marine Microplastics in Asia and the Pacific was organized on 15-17 October 2018 in Shanghai, China, and the Third Workshop will be held on 5-7 November 2019 in Shanghai China.

15. Dr. Li has also briefed on major meetings organized by PICES on microplastic research since 2017. He informed that on behalf of NOWPAP, he would attend the Session 7: "Environmental indicators of plastic pollution in the North Pacific" in the PICES 2019 Annual Meeting in October 2019,

Vitoria, BC, Canada. He also introduced that the survey results of the Study Group of Marine Microplastics (SG-MMP) of PICES.

16. Dr. Juying Wang, Marine Debris and Microplastics Research Center, National Marine Environmental Monitoring Center of China presented the progress and challenges of plastics and microplastics in marine environment in China. She informed that China has revised the “Environmental Protection Law”, “Marine Environmental Protection Law”, and “Law on Prevention and Control of Environmental Pollution by Solid Wastes”. China has also adopted the “Water Pollution Prevention and Control Action Plan”, “Soil Pollution Prevention and Control Action Plan”; “Bohai Pollution Prevention and Control Action Plan”; “Agriculture and Rural Pollution Prevention and Control Action Plan”; “Coast Pollution Prevention and Control Plan”, “Plan on Prevention and Control of Pollution from Ship and Ports (2015-2020)”. In 2017, a total 22.7591 million tons of waste plastics has been recycled, accounting for 30% of the annual plastics production in China.

17. After Dr. Wang’s presentation, the participants exchanged the views on microplastic concentration in China, the papers of Jambeck, and the monitoring data in estuaries in China.

18. Dr. Ruizhi LIU from the Chinese Research Academy of Environmental Sciences introduced the progress of the NOWPAP Special Project, “Monitoring and Assessment Methods for Marine Microplastics Pollution”. A proposal writing team was composed by the scientists from CRAES. Experts have been nominated by the NOWPAP Marine Litter Focal Points. A small-scale funding agreement (SSFA) has been submitted to the UNEP Headquarters for review. CRAES will sign MOUs with the nominated experts to review the proposal and provide national inputs.

19. After Dr. Liu’s presentation, Dr. Sanghee Hong commented the project was an intergovernmental approach, so it should be simplified. Dr. Isobe commented that if the project was just for harmonization of monitoring and assessment methods, the proposed 1 million USD budget was too big. Mr. Kozlovskii suggested to invite more experts in different fields to join this project. Dr. Sanghee Hong added that it was difficult to give comments without a drafted document. Dr. Isobe and Dr. Hong commented that it is difficult to conduct eco-toxicological studies. They suggested that the project writing team to circulate the draft proposal among the Marine Litter Focal Points and the microplastic experts. They would nominate or recommend experts based on the draft proposal.

20. After discussion, it was agreed the followings:

- Chinese Research Academy of Environmental Sciences will revise the draft proposal and circulate it among the participants before 30 November 2019;
- Marine Litter Focal Points and micro-plastics experts will review the revised proposal and provide their comments before 31 December 2019;
- Maine litter Focal Points, in consultation with micro-plastics experts, will nominate experts to work on this special project before 21 January 2020.
- RCU will revise the SSFA by extending the end date to 30 November 2020.

21. The meeting was closed on 27 September 2019 at 17:00.

## Annex 1. Agenda

<b>Opening Session</b>	
9:00 – 9:20	Opening Remarks: - Dr. Ning LIU, NOWPAP Regional Coordinating Unit Welcoming remarks Professor Juying Wang, Director General, National Marine Environmental Monitoring Center of China
<b>Session 1: Monitoring and assessment method for microplastic pollution</b>	
9:20 – 10:00	Widely accepted monitoring and assessment method for microplastic pollution in P.R. China - Dr. Daoji LI, Professor, State Key Laboratory of Estuarine and Coastal Research East China Normal University
10:00 – 10:40	Widely accepted monitoring and assessment method for microplastic pollution in the Republic of Korea -Dr. Sang Hee HONG, Principal Research Scientist, Korea Institute of Ocean Science and Technology (KIOST)
10:40 – 11:00	Coffee Break
11:00 – 11:40	Widely accepted monitoring and assessment method for microplastic pollution in Japan - Dr. Atsuhiko ISOBE, Professor, Research Institute for Applied Mechanic Center for Oceanic and Atmospheric Research Ocean Dynamics Group, Kyushu University
11:40 – 12:20	Widely accepted monitoring and assessment method for microplastic pollution in the Russian Federation -Dr. Nikolai KOZLOVSKII, Junior researcher, Center for Landscape Environmental Studies/ Pollution Monitoring Regional Activity Center (POMRAC)
12:20 – 14:00	Lunch
<b>Session 2: Updates of international approaches in microplastics researches</b>	
14:00 – 14:30	Guidelines for the Monitoring and Assessment of Plastic Litter in the Ocean -Dr. Sang Hee Hong, Principal Research Scientist, Korea Institute of Ocean Science and Technology (KIOST) (TBC)
14:30 – 15:00	Latest Development of PICES and WESTPAC in Microplastics Research - Dr. Daoji LI, Professor, State Key Laboratory of Estuarine and Coastal Research East China Normal University
15:00 – 15:30	Distribution of micro-plastics in the marine environment in China -Professor Juying WANG, Director General, National Marine Environmental Monitoring Center of China
<b>Session 3: Development of NOWPAP Special Project</b>	
15:30 – 16:00	Introduction of the NOWPAP Special Project “Monitoring and Assessment Methods for Microplastics pollution” -Dr. Ruizhi LIU, Chinese Research Academy of Environmental Sciences
16:00 – 17:00	Discussion of the Project Development (Timeline, MoU with experts, inputs of member states, funding opportunities)
17:00 – 17:10	Closure of the meeting

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