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EXPERT MEETING OF THE NOWPAP SPECIAL PROJECT:
"Monitoring and Assessment Methods for Microplastics pollution"
Busan, Republic of Korea
3 June 2018

Report of the Meeting

Regional Seas

1. The EXPERT MEETING OF THE NOWPAP SPECIAL PROJECT: “Monitoring and Assessment Methods for Microplastics pollution” was held in the Korean Ocean and Fisheries Human Resources Development Institute in Busan, Republic of Korea on 3 June 2018. The meeting was attended by microplastics experts nominated by NOWPAP Member States, representatives of NOWPAP Regional Activity Centers (RAC) and Regional Coordinating Unit (RCU).
2. Dr. Lev Neretin, Senior Coordinator of NOWPAP Regional Coordinating opened the meeting, and briefed the participants on the rationale for developing NOWPAP projects, reminded about technical criteria for project selection and operational criteria for selecting lead project agency. He introduced that the goals of the meeting are to share global, regional and national efforts on the development of microplastics monitoring methods and progress on research, including assessment of ecological risks; to identify regional challenges and gaps in monitoring and assessment of microplastics among four NOWPAP member states that are not currently addressed by the ongoing efforts; to discuss the main objectives and components/activities of the proposed NOWPAP Special Project; and to agree on specific responsibilities of project stakeholders. The meeting also held initial discussion about funding sources and necessary resource mobilization efforts, and discussed the timeline for project preparation and implementation. The meeting agenda and the list of workshop participants are attached as Annex 1 and Annex 2, respectively. Workshop presentations are available on the NOWPAP website: nowpap.org.
3. Dr. Atsuhiko Isobe, Research Institute for Applied Mechanics, Kyushu University, Japan, introduced recent and on-going activities on oceanic microplastic research in Japan. He emphasized the need to develop a global 2D or 3D maps of pelagic microplastics. An assimilation of the results from many laboratory-based studies by eco-toxicologists and environmental chemists could provide a more precise threshold for distinguishing microplastics particles in the ocean. Standardization and harmonization in the field of monitoring, primary data processing, and secondary data processing should be required to compare and synthesize the information about microplastics distribution and abundance. Cooperative microplastic surveys among the NOWPAP countries could provide globally important data and information (as the Seas of East Asia are the global “hot-spot” of microplastics pollution) and thus could be a pioneering work on marine plastic pollution research in the world.
4. 4. Dr. Guyu Peng, East China Normal University, delivered a presentation titled “Methodology for microplastic quantification in the ocean in China”. She summarized current methods for microplastic analysis in sediments, water and biota samples that is widely applied across

Chinese researchers. She also presented findings from the national microplastic project led by Professor Daoji Li. She raised the following research questions: (1) Can fibers be identified as microplastics? Why fibers are excluded in field sampling if they are actually the microplastics in the environment? (2) Microplastics ingestion experiments should be conducted with caution: New findings suggest that mussels may not ingest microplastics. (3) Units are hard to harmonize for different samples, or samples taken by different methods. Dr. Sang Hee HONG, Korea Institute of Ocean Science and Technology(KIOST), Republic of Korea introduced the research on microplastic monitoring and assessment in the R. Korea. She suggested two plans for possible joint research for the NOWPAP Special Project. Plan A is that members select a study area in their own country, and conduct microplastic monitoring survey by applying the harmonized method, integrate results, and prepare a joint research paper. Plan B is that member countries conduct a joint research on a coastal region or bay by dividing roles (e.g., environmental matrix), analyzing samples at each laboratory, integrate results, and prepare a joint research paper.

5. Mr. Nikolai KOZLOVSKII, Engineer, NOWPAP Pollution Monitoring Regional Activity Center (POMRAC), and Dr. Sergei MONINETS, Dean of the Department of Ecological Safety and Shelf Development, Maritime State University named after G.I. Nevelskoi, RUSSIA, presented the overview of ongoing research efforts with a special emphasis on microplastics monitoring and assessment in the Russian Federation. He suggested the following research questions/activities that would complement national efforts and bring an added value to regional cooperation among NOWPAP member states: joint toxicology studies, assessment of ecological risks of microplastics pollution, and a joint development of monitoring methods. He highlighted studies of nanoplastic contamination in the environment might be too difficult at this stage, but it may become an important area of research in the future. At this point, some consideration in the project should be made to nanoplastics contamination. He suggested the harmonization of monitoring methods also cover freshwater bodies, especially rivers with an emphasis on determining pollution sources. For example, inputs from the waste dump sites and agricultural fields should be considered. Russia would be interested in establishing the specific methodology for microplastics monitoring of sea ice samples.
6. RAC's representatives have introduced their activities on marine litter. In 2018/2019, Pollution Monitoring Regional Activity Center (POMRAC) will research microplastics abundance in river runoff and coastal waters of the NOWPAP region with a case study in the Russian part of the Far East. Data and Information Regional Activity Center (DINRAC) will manage Northwest Pacific Regional Node of the Global Partnership on Marine Litter; Special Monitoring & Coastal Environmental Assessment Regional Activity Centre (CEARAC) will collect

information on national efforts to address microplastics; Marine Environmental Emergency Preparedness and Response Regional Activity Centre (MERRAC) will implement the project titled “Understanding of Floating Marine Litter Sources and Flows”.

7. Dr. Kanako SATO, Deputy Director, Office of Marine Environment, Water Environment Division, Ministry of the Environment, presented national efforts in harmonization of microplastics monitoring. Japan organized an international expert meeting in December 2016 to discuss harmonizing monitoring methodologies of microplastics. The second expert meeting for standardization and harmonization was held in Tokyo, Japan on 27-28 February 2018. The experts discussed and revised “Recommendation on required parameters for microplastics monitoring in the ocean”, based on the results of inter-laboratory comparison to analyze a common standard sample for quality control. Moreover, the experts identified some key areas for future monitoring efforts, which include measuring microplastics in sediments, in organisms (seafood/human health), determining its vertical distribution in the subsurface layers (10m to 100m), development of new devices and sampling methods to collect microplastics particles in the sea ice and in the atmosphere.
8. On behalf of the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP), Dr. Won Joon SHIM, Korea Institute of Ocean Science and Technology(KIOST), R. Korea, presented progress in developing global guidelines for monitoring and assessment of marine litter and microplastics. He introduced that the guidelines will cover terminology and methodologies for the sampling and analysis of marine macro-plastics and microplastics.
9. On behalf of the Sub-Commission for the Western Pacific of the Intergovernmental Oceanographic Commission (IOC-WESTPAC), Dr. Won Joon SHIM introduced WESPAC’s activities supporting microplastics research programme that conducted the Inception Workshop on “Distribution, Source, Fate and Impacts of Marine Microplastic in Asia and the Pacific” held on 20-22 September 2017, Phuket, Thailand, and the ASEAN Conference on Marine Debris on 22-23 Nov 2017, Phuket.
10. On behalf of North Pacific Marine Science Organization (PICES), Dr. Won Joon SHIM introduced the Study Group of Marine Microplastics (SG-MMP) at PICES. The Group that is being established will identify knowledge gaps and establish research priority areas for assessing the impacts of microplastics and their associated chemicals on marine environment and biota.
11. Dr. Qingjia Meng, Associate Professor, Chinese Research Academy of Environmental Sciences, Ministry of Environmental Protection (MEP), presented an overview of the NOWPAP Special Project “Monitoring and Assessment Methods for Microplastics pollution”

including background, project's goals, implementation mechanism and the roadmap, proposed a work plan and budget. He highlighted the project is to understand and as far as feasible harmonize methods for monitoring microplastics in the marine environment in the NOWPAP region; to discuss approaches to performing aquatic toxicology of microplastics used by four members and for evaluating the ecological risks of microplastics pollution.

12. After the exchange of opinions and a long discussion, the participants agreed upon major three components of the future 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 (2018-2019); 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 (2019-2020); Component 3: Using tiered regional microplastics monitoring methodology developed in Component 1, undertake monitoring of microplastics contamination in selected sites of the NOWPAP region (2020-2021).
13. The meeting concluded on 3 June 2018 at 17:30.
14. The recommendations of the Expert Meeting on the focus of the special project were later endorsed by the 2018 Northwest Pacific Regional Action Plan on Marine Litter (RAP MALI) Meeting held on 5-6 June in Busan. The proposed Special Project is expected to be reviewed by NOWPAP member countries at the 23rd NOWPAP Intergovernmental Meeting (IGM) scheduled in Moscow, Russian Federation in October 2018.
15. Addressing the threat to the marine and coastal environment from microplastics is a priority of the NOWPAP Medium-term Strategy (MTS) 2018-2023. The MTS aims to support scientific evidence-based policymaking in NOWPAP member countries to protect the marine and coastal environment for present and future generations, a key goal of the global 2030 Sustainable Development Agenda.

Annex 1: Agenda

09:00 – 09:15	*Welcome remarks: Setting stage for a meeting* Dr. Lev Neretin, NOWPAP Senior Coordinator
SESSION 1. Ongoing research and monitoring programs in NOWPAP member States Note to all presenters: Presentations in this session are focusing on the research questions and gaps on microplastics monitoring and assessment in NOWPAP member states. The session aims to present an overview of the ongoing research programs and collaborations at the national level and result in the identification of specific monitoring and assessment issues that would require regional cooperation among NOWPAP member states to bring a value to these ongoing national projects.	
09:15 – 09:45	*Brief overview of ongoing research efforts with a special emphasis on microplastics monitoring and assessment in Japan. Proposal for issues/areas where NOWPAP Special Project could make a difference. Q&A -10 min* **Dr. Atsuhiko Isobe,** Research Institute for Applied Mechanics, Kyushu University, JAPAN Note to presenter: Overview of the ongoing research and monitoring activities addressing microplastics distribution in various media in Japan. Concluding 3-4 slides should provide several research questions/activities that could be taken up by the NOWPAP Special Project that would complement national efforts and bring an added value to regional cooperation among NOWPAP member states.
09:45 – 10:15	*Brief overview of ongoing research efforts with a special emphasis on microplastics monitoring and assessment in China. Proposal for issues/areas where NOWPAP Special Project could make a difference. Q&A -10 min* **Dr. Guyu Peng,** East China Normal University, Assistant of Prof. Daoji Li, CHINA Note to presenter: In addition to providing an overview of the ongoing research and monitoring activities addressing microplastics distribution in various media in China, the presentation would specifically touch upon the goals and expected results of the National Key Research and Development Project of China, Ministry of Science and Technology (2016-2020). Concluding 3-4 slides should provide several research questions/activities that could be taken up by the NOWPAP Special Project that would complement national efforts and bring an added value to regional cooperation among NOWPAP member states.
10:15 – 10:45	*Brief overview of ongoing research efforts with a special*

	emphasis on microplastics monitoring and assessment in South Korea. Proposal for issues/areas where NOWPAP Special Project could make a difference. Q&A -10 min **Dr. Sang Hee HONG**, Korea Institute of Ocean Science and Technology(KIOST), R. KOREA Note to presenter: In addition to providing an overview of the ongoing research and monitoring activities addressing microplastics distribution in various media in R. Korea, the presentation would specifically touch upon the goals and expected results of the National priority project "National Environmental Risk Assessment of Microplastics in Korean Coastal Waters (2015-2020)". Concluding 3-4 slides should provide several research questions/activities that could be taken up by the NOWPAP Special Project that would complement national efforts and bring an added value to regional cooperation among NOWPAP member states.
10:45 – 11:00	**Coffee break / Group Photo**
11:00 - 11:30	*Brief overview of ongoing research efforts with a special emphasis on microplastics monitoring and assessment in Russia. Proposal for issues/areas where NOWPAP Special Project could make a difference. Q&A -10 min* **Mr. Nikolai KOZLOVSKII,** Engineer, NOWPAP POMRAC **Dr. Sergei MONINETS**, Dean of the Department of Ecological Safety and Shelf Development, Maritime State University named after G.I. Nevelskoi, RUSSIA Note to presenter: In addition to providing an overview of the ongoing research and monitoring activities addressing microplastics distribution in various media in Russia, the presentation would specifically touch upon the goals and expected results of the ongoing efforts to establish microplastics research cluster in Vladivostok and the initial focus of these efforts. Concluding 3-4 slides should provide several research questions/activities that could be taken up by the NOWPAP Special Project that would complement national efforts and bring an added value to regional cooperation among NOWPAP member states.
11:30 - 12:00	Comments and suggestions from NOWPAP Regional Activity Centers Note to presenters: Brief overview by NOWPAP RACs representatives on their ongoing activities with respect to microplastics as approved by the 22nd NOWPAP IGM. Short 5-10 min presentations are expected from all four NOWPAP RACs (CEARAC, DINRAC, MERRAC and POMRAC).

12:00 – 12:30	Summary of the exchange, major focus of the NOWPAP project, list of priority issues identified during Session 1. Session will be moderated by NOWPAP RCU.
12:30 - 13:30	**Lunch**
Session 2: Preparing for the NOWPAP Special Project "Monitoring and Assessment Methods for Microplastics pollution"	
13:30 - 14:00	Brief overview of the two relevant ongoing global initiatives: 10 min presentation by **Dr. Kanako SATO,** MoE of Japan on the project aimed at harmonizing monitoring methodology on microplastics 10 min presentation by GESAMP on WG40 activities: **Dr. Won Joon SHIM**, Korea Institute of Ocean Science and Technology(KIOST), R. KOREA 10 min presentation by IOC-WESTPAC by Mr. **Dr. Won Joon SHIM**, on behalf of IOC Regional Office for the Western Pacific (WESTPAC Office) and PICES
14:00 - 14:30	*Presentation by the lead Special Project agency, CRAES: proposed focus of activities for the project, steps for project preparation, timeline, and budget ideas* **Dr. Ruizhi LIU**, Key Project Proponent
14:30 - 15:30	Roundtable discussion and suggestions for further development of project technical ideas. Moderated by RCU.
15:00 - 15:30	*Potential funding sources, strategy for project fundraising* Moderated by NOWPAP RCU Note to all workshop participants: The session aims as a first-approximation discussion about the available funding sources in the four NOWPAP member states to support NOWPAP Special project as well as additional funding ideas. All participants and RCU will be invited to provide their views/ideas on where to secure funding during project preparation and which donors could be contacted.
15:30 - 15:45	**Coffee Break**
15:45 - 17:00	*Timeline for project preparation, responsibilities, cooperation with external partners and RACs, deadlines* Moderated by Dr. Ruizhi LIU and NOWPAP RCU
17:00 - 17:30	*Other issues, discussion about the next steps, meeting closure*
18:00 - 20:00	**Dinner hosted by NOWPAP RCU**

Annex 2: Participant List

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