



**Northwest
Pacific
Action Plan**

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Northwest Pacific Action Plan
Pollution Monitoring Regional Activity Center

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**Report on the implementation of Regional Action Plan on
Marine Litter (RAP MALI) by NOWPAP Pollution Monitoring
Regional Activity Center (POMRAC) in 2016-2017**

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1. Introduction

Plastic contamination of the marine and coastal areas has become one of the most important aspects of marine litter issue around the world. The highest concern is raised about the microplastic, i.e. small-sized fragments or unfragmented items with size <5 mm (according to widely used classification approved at the International Research Workshop on the Occurrence, Effects and Fate of Microplastic Marine Debris (Arthur, C., Baker, J., & Bamford, H., Eds. Proceedings of the International Research Workshop on the Occurrence, Effects, and Fate of Microplastic Marine Debris. Sept 9-11, 2008. NOAA Technical Memorandum NOS-OR&R-30, 2009.)

The marine microplastic is currently argued as being harmful to the aquatic organisms and seabirds, through both direct ingestion (plastic particles, mistaken by food, may cause indigestion in adult individuals and underdevelopment in young organisms) and contamination with associated chemicals, such as POPs or plasticizers, involving these substances into the trophic chains. Therefore, understanding of the situation with microplastic pollution in the NOWPAP region, which is one of the most densely populated area in the world, is necessary. The coastal water condition is very important for near-shore fisheries and aquaculture. Also, finding probable sources, distribution patterns and structure of microplastic pollutants should be useful in raising concern in the study water areas.

The studies on microplastic pollution of the marine environment in the Russian part of the North-West Pacific region were initiated quite recently, and as of now the data of these studies are very scarce and incomplete. In order to study concentration, composition, size and ways of transition of the marine microplastics in the Peter the Great Gulf (Far Eastern Russia), it was decided to include this activity into the workplan of NOWPAP POMRAC. In acknowledgement of the problems imposed by marine litter in the region and recognizing that the issue of microplastic pollution is an urgent issue

in the region of NOWPAP, the Twentieth Intergovernmental Meeting of the Northwest Pacific Action Plan (Beijing, People's Republic of China 28-30 October 2015) has decided that in the biennium of 2016/2017 the Pollution Monitoring Regional Activity Center in cooperation with Maritime State University named after Nevelskoy will perform the Research on micro-plastics content and migration in the Peter the Great Gulf.

2. Goals of RAP MALI activities

- 1) To prepare the Research report on micro-plastics content and migration in the Peter the Great Gulf to promote for better understanding of marine litter pollution in the Russian part of the NOWPAP region.
- 2) To support the activity on Organization of 2016 NOWPAP ICC and Workshop on Marine Litter Management in Primorsky Kray, Russia

3. Main tasks

3.1. To reveal presence or absence of microplastic pollution in the specified plots of the water area, including tidal zone and coastal water. The area of survey include sites with various level of human press across the Peter the Great Gulf, i.e. sites adjoining to urban areas, river mouths, natural reservations, etc. The sampling of surface water is carried out by plankton net and by neuston net with mesh size of 0.1 mm. The collected samples are processed in the laboratory and undergo microscopic analysis for revealing microplastic particles and describing their size and fragment types.

3.2. To carry out Fourier Transform - infrared (FT-IR) spectroscopy of retrieved microplastic samples The FT-IR spectroscopy is needed for qualitative assessment of the retrieved specimens. This work is carried out in cooperation with other research institutions, including Korea Institute of Ocean Science and Technology (KIOST).

3.3. To map surface water pollution and hotspots of microplastic pollution.

3.4. To compile the Report on the microplastic content and migration in the Peter the

Great Gulf. The report should be compiled by POMRAC in cooperation with marine litter Focal Points of Russia.

4. Results

The water sampling using plankton net and neuston net was carried out in the selected sites in the tidal zone and in the coastal water of Peter the Great Gulf (Fig. 1); besides, water samples from two larger transboundary rivers (the Tumen River and the Razdolnaya River) and small rivers (Amba, Narva, Barabashevka, Partizanskaya, Kievka etc.) discharging into the sea area were collected using pump and neuston net. During this survey, spatial distribution and concentrations of microplastic (sized 0.1-5 mm) and mesoplastic fragments (5-25 mm) were considered (Fig. 1) together with polymeric structure of the retrieved pollutants (Fig.2).

The results of this survey are to be published as a technical report in December 2017 after disseminating the draft report among NOWPAP Marine Litter Focal Points and receiving their comments and suggestions. The draft report will be presented during the 14th Meeting of POMRAC Focal Points.

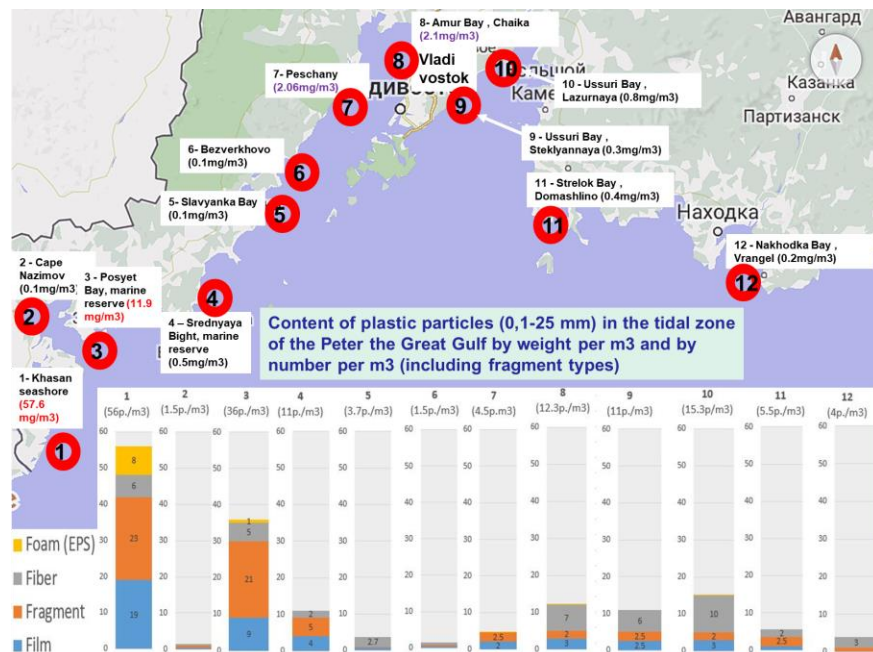


Fig. 1. Basic sampling locations and revealed concentrations of plastic particles by fragment type (quantitatively and by weight)

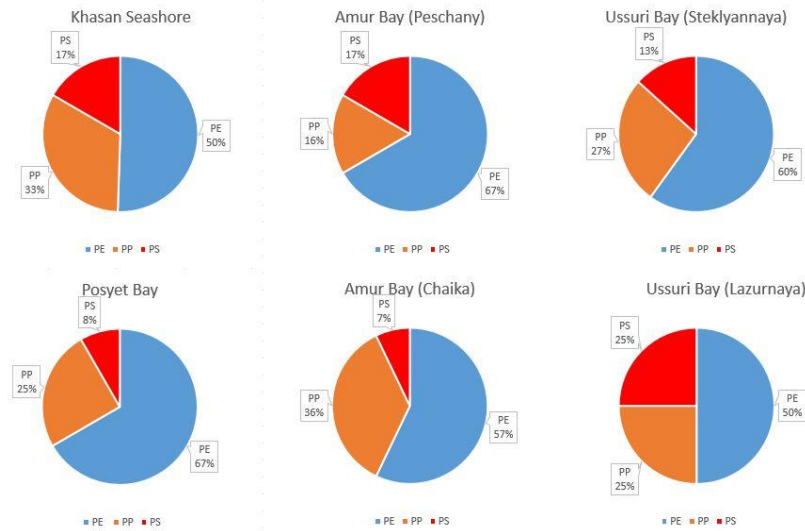


Fig. 2. Most frequent polymer types of micro (0.1-5 mm) and meso (5-25 mm) plastic fragments in the coastal area of the Peter the Great Gulf

4.1 The 2016 NOWPAP ICC and Workshop on Marine Litter Management was held in Slavyanka, Primorsky Krai, Russia on 23-24 September 2016. Representatives of administrative bodies, representatives of NGOs and researchers from four NOWPAP member countries (China, Japan, Korea and Russia) made their presentations concerning coastal waste management programs, studies of marine litter (macro-and micro-litter distribution), and cleanup actions organized by municipalities and local activists along river and marine coastal areas in their countries (Fig. 4, 5).



Fig. 4. Workshop on Marine Litter Management

After the RAP MALL working meeting, the ICC event was held at a beach near

Slavyanka settlement. Participants of the Workshop and Rap MALI meeting attended the event together with local high school students. The litter collected on the beach was weighed and categorized according to the standards applied in UNEP Regional Seas programmes.



Fig 5. 2016 NOWPAP ICC in Primorsky Kray, Russia

5. Budget

NOWPAP RAP MALI budget allocations for the 2016-2017 biennium provide US\$ 6,000 for implementation of RAP MALI activities by each Regional Activity Center, including POMRAC.

To support the activity on Organization of 2016 NOWPAP ICC and Workshop on Marine Litter Management in Primorsky Kray, Russia, POMRAC and UNEP signed SSFA

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B17-40PNL-11207-SB-004861.01.01 - 14AF0001 20 June 2016 (Total Cost: USD 20,000).