



Northwest Pacific Action Plan

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Northwest Pacific Action Plan
Pollution Monitoring Regional Activity Center

The Eighteenth NOWPAP POMRAC Focal Points Meeting
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On-line conference

Report on the implementation of activity “Microplastics abundance in river runoff of the NOWPAP region”

Background.

The land-based sources of plastic contamination of the marine environment require thorough consideration. It is widely known that basic sources of plastic entering the sea are improperly managed landfills, unauthorized dumping sites in the river basins and in the coastal areas, sewage and stormwater, and rivers. It is possible to discuss impacts of some point sources by analyzing morphological composition of microplastic particles in various segments of coastal water areas and learning some regularities of their distribution. However, it is difficult to assess share of each source in the total inflow of plastics to the ocean without more detailed data. POMRAC activity “Microplastics abundance in river runoff and coastal waters of the NOWPAP region” was approved by the 21 IGM in 2017 as part of the activities on WG2 – River and Direct inputs of contaminants into the marine environment of the NOWPAP region. Its basic idea is to assess inflow of microplastic particles with rivers discharging into the marine area of NOWPAP and finding relationships with plastic contamination in the adjoining coastal waters.

Since 2016-2017 biennium, NOWPAP POMRAC collected data related to an urgent topic of microplastic contamination via rivers after publishing a case study of microplastic contamination in the coastal marine water area in the Russian part of NOWPAP region under the RAP MALI activity (UNEP/NOWPAP/POMRAC/FPM 15/Inf.4: “Microplastic Pollution in the coastal water of the Peter the Great Gulf: content and distribution. The first stage of survey”). During the biennium of 2018-2019, it was decided to carry out a case study in the Russian part of NOWPAP region due to absence of relevant available data. The activity also suggests collection of primary information from all member countries of NOWPAP describing current data availability on microplastic contamination in rivers, methodologies for microplastic contamination assessment in freshwater environment and importance of these assessment measures. Therefore, suggested second stage of this activity should include development of the Regional overview. Besides, lacking data on the Amur/Heilong River that has a strong impact on North and Northwest Pacific should be collected for including into the overview.

Goal. All available data on microplastic contamination in rivers of the NOWPAP region, related assessment methodologies, national programs and future prospective should be summarized as national inputs for combining into the regional overview. Another goal of this project is to obtain information on the distribution of different kinds of microplastics in the rivers within Russian part of the NOWPAP region, and to trace possible impact of river runoff on microplastics quantity and composition in the coastal waters.

Tasks.

The following steps were supposed to achieve the objectives of this activity:

- 1) To obtain data on the concentrations of microplastics in the rivers of the Russian part of the NOWPAP region including Amur/Heilong R.
- 2) To collect similar existing data from other NOWPAP countries for the estimation of the role of river runoff in the microplastics transport.
- 2) To assess and analyze current methods of sampling microplastics in the seawater and fresh water and the sample treatment protocols applied in the NOWPAP countries, considering possible development of general guidelines/recommendations for microplastic monitoring in NOWPAP;
- 3) To compare existing data on microplastics quantity and composition in the coastal water within the NOWPAP region, including further collection of the background information on the quantity and composition of plastic particles in the coastal water of the Russian part of the NOWPAP region.

The project were implemented by National Experts nominated by POMRAC FPs and a hired consultant in accordance with ToRs (Annex 1, 2). The nominated experts in accordance with agreed structure (Annex 3) should prepare national Inputs. Regional overview should be prepared by compilation and synthesis of National reports Inputs by the hired consultant in accordance with agreed overall structure (Annex 4).

Activities.

1. National experts have been nominated in time during Q3 2020, and expert from Japan Mr. Fujio Kojima has agreed to prepare Regional Overview. Structure of National inputs and Regional overview were discussed and agreed by correspondence. ToRs (Terms of References) for the implementation of this activity have been prepared as well with timing of submission of draft National inputs by 31 March 2021 with finalization by 15 October 2021. Unfortunately, due to delay of the contracting process in the Nairobi HQ experts have not signed contracts until now (5 November 2021). In such circumstance POMRAC could not demand strongly the implementation of the work related to the preparation of National inputs. Some experts have kindly submitted draft reports by 1 September 2021, and drafts of all National inputs have been submitted by the middle of October. POMRAC Secretariat deeply appreciate kind agreement of experts to work in advance. For the time being drafts National inputs are under finalization process by Mr. Kojima.
2. In accordance with goals and tasks of this project seasonal surveys of microplastic pollution of rivers within Russian part of the NOWPAP areas were carried out. Relatively low population density in the Russian part of the NOWPAP region does not set the waste management issue as a priority over other environmental issues, however constant accumulation of microplastic particles in the natural environment due to their small sizes may result in further aggravation of the situation in various ecosystems, including freshwater and

marine. Besides, transboundary factor may also be important by the example of such rivers as Tumen and Razdolnaya/Suifen due to the economic importance and high concentration of population of their basins. Rivers flowing in less populated but urbanized areas are still considerable source of contamination, however the numbers of microplastic particles are much lower there than in larger rivers covering wide areas. The rivers flowing in almost unpopulated areas and crossing protected natural areas are noted for absence of registered contamination, at least within the lowest size range applied in this survey (100 micrometers).

3. The Amur River, considering its partial influence on the NOWPAP region, is evidently a large source of microplastic for the marine environment, however no specific data of microplastic distribution in its estuary are not yet available. Higher amount of particles smaller than 0.1 mm were registered there, especially during a flood period in summer 2019, and it may pose another considerable threat to the environment of North Pacific and NOWPAP.

Expected Outcomes.

Regional Overview on the assessment of contamination of rivers within NOWPAP region by microplastic will be major output of this project. The comparison and harmonization of the sampling and analysis methods will be an important part of this Regional Overview. The microplastic inputs with river runoff to the coastal sea will be evaluated as well as possible impact of river runoff on microplastics quantity and composition in the coastal waters.

Budget

Contract	To be completed	Counterpart	Original Budget (US\$)	Expend. by 15.11.21	Planned expend. up to 30.06.22
Preparation and finalization of National Inputs on the river runoff of microplastics to the marine and coastal environment of the NOWPAP region	September, 2021 – draft, January 2022, - final	Expert(s) from China	4,000*	-	4,000*
		Expert(s) from Japan	4,000*	-	4,000*
		Expert(s) from Korea	4,000*	-	4,000*
		Expert(s) from Russia	4,000*	-	4,000*
Seasonal surveys of microplastic transport with river runoff including Amur/Heilong	March 31, 2021	POMRAC	13,000	12,000	1,000
Synthesis of national Inputs and preparation of the draft Regional Overview	March 31, 2022	POMRAC with hired Consultant	5,000*	-	5,000*
Finalization and publication of the Regional Overview	June 30, 2022	POMRAC	4,000	2,000	2,000
subtotal			38,000	14,000	24,000

* - through the direct contracts with Nairobi HQ

Terms of Reference (ToR)

National Expert: Preparation of National Report on Microplastics abundance in river runoff of the NOWPAP region

(Home-based)

Request for: Consultant Individual contractor

Organizational Unit ECOSYSTEMS DIVISION /NOWPAP

1. Purpose (justification for request)

1.1 Explain the requirement for a consultant / individual (*Box 1(a) of P.104/A*):
(*summary of why consultant is needed*)

The United Nations Environment Programme (UNEP) is the leading environmental authority that sets the global environmental agenda, promotes the coherent implementation of environmental dimension of sustainable development within the United Nations system and serves as an authoritative advocate for the global environment.

The Action Plan for the Protection, Management and Development of the Marine and Coastal Environment of the Northwest Pacific Region (NOWPAP) is one of the Regional Seas Programmes and Action Plans (RSPAPs) of UNEP and was adopted by the four Member States (P.R. China, Japan, R. Korea, and the Russian Federation) in 1994 (<https://www.unenvironment.org/nowpap/>). The overall goal of the NOWPAP is "the wise use, development and management of the coastal and marine environment so as to obtain the utmost long-term benefits for the human populations of the region, while protecting human health, ecological integrity and the region's sustainability for future generations".

The major focus of the NOWPAP Medium-Term Strategy (MTS) 2018-2023 adopted in June 2018 is on the coordination of the regional implementation of the ocean-related Sustainable Development Goals (SDGs), particularly SDG 14 "Life Below Water" using the NOWPAP inter-governmental mechanism. NOWPAP will play this leading role, by focusing on the three pillars: (i) an Ecosystem-Based Management Approach (EBMA) to sustainable development of marine and coastal areas to achieve the Ecological Quality Objectives (EQOs)¹; (ii) monitoring and reporting on progress towards SDG 14 and its targets, and (iii) strengthening partnerships with relevant global and regional institutions.

Focusing on target SDG 14.1, NOWPAP will strengthen implementation of its two Regional Action Plans – the Regional Oil and HNS Spill Contingency Plan and the Regional Action on Marine Litter, increasingly focusing on microplastics. NOWPAP is expected to strengthen efforts assessing microplastics pollution and its impacts through assessments, methodology development and capacity

¹ NOWPAP EQOs include: (i) Biological and habitat diversity are not changed significantly due to anthropogenic pressure; (ii) Alien species are at levels that do not adversely alter the ecosystems; (iii) Eutrophication adverse effects are absent; (iv) Contaminants cause no significant impact on coastal and marine ecosystems and human health; (v) Marine litter does not adversely affect coastal and marine environments.

building.

To promote better understanding of impact of land-based sources on plastic pollution of the regional marine environment, The activity ‘Microplastics abundance in river runoff of the NOWPAP region’ is launched under NOWPAP/POMRAC WG2 – River and Direct inputs of contaminants into the marine environment of the NOWPAP region. The activity suggests collection of primary information from all member countries of NOWPAP describing current data availability on microplastic contamination in rivers, methodologies for microplastic contamination assessment in freshwater environment and importance of these assessment measures.

The overall objective of the activity is to prepare national reports on microplastic contamination in rivers of the NOWPAP region. The consultant will work with the NOWPAP Regional Coordinating Unit (RCU) and NOWPAP Pollution Monitoring Regional Activity Center (POMRAC).

1.2 Qualifications / special skills or knowledge *(box 1(a) of P.104/A)*

Education: Advanced university degree in marine-related science with the focus on marine environment, marine pollution, or a related field. First university degree in combination with five additional years of qualifying experience may be accepted in lieu of the advanced degree.

Experience: A minimum of five years of progressively responsible professional work experience in the field of marine environment, marine chemistry, marine pollution, or related marine sciences filed, of which some should be at the international level.

1.3 Ultimate result of services *(box 1(b) of P.104/A):* *(Describe the final output briefly)*

A National Report on Microplastics abundance in river runoff of the NOWPAP region.

1.4 Legislative authority reference *(box 1(c) of P.104/A): (e.g. GC or GA decision, if applicable)*

Resolution 1: PROGRAMME OF WORK FOR THE 2020-2021 BIENNIUM approved during inter-sessional consultations with the NOWPAP Member States via email.

1.5 Title and identification number of programme / project

NOWPAP PoW 2020-2021: Preparation of the National Report on the river runoff of microplastics to the coastal zone of the NOWPAP region

1.6 Duration

1 November 2020 – 15 October 2021

2. Funding

2.1 Source of Funds Regular Budget Extra-budgetary

2.1 Allotment Account / Budget Line

B21-40PNL-11207-SB-004861.01.05-14AF0001

2.3 Indicative level of remuneration

- *terms of payment (lump-sum, installments, travel included) – box 1(e) of P.104*
- *indicative level of remuneration (e.g. P5) - box 1(e) of P.104/A*
- *any cost of travel and any DSA payable –box 5 of P.104/A*

Level B – 10 working days with daily rate of USD 400.

Payment schedule – upon submission of the agreed milestones (see below).

3. Travel involved – (box 7 of P.104/A) (Indicate the required travel itinerary, if applicable)

Travel is not necessary for this activity. Participation in the regional workshop will be covered separately.

Travel will be organized by Substantive Office Selected candidate

4. Workplan

Under the direct supervision of the NOWPAP Coordinator and Programme Officer and in close cooperation with the NOWPAP POMRAC, consultant will be responsible for the following tasks:

Task 1: Collect data on social and economic aspects relevant to land-based plastic and microplastic pollution during recent years in the NOWPAP region.

Task 2: Describe national monitoring and assessment activities (National monitoring program(s) and other initiatives) related to river and inland microplastic contamination with a brief overview of related national policies and laws.

Task 3: Summarize all available data on **microplastic contamination in the rivers of the NOWPAP area**, including development of sampling and analytic methodologies, collected information on amounts and characteristic features of contaminants registered in the rivers, and possible impacts of the contamination on the coastal marine environment affected by the surveyed river basins.

Task 4: Attend the regional workshop for the discussion of the Draft Report.

Task 5: Compile the results of Tasks 1-3 in the National Report and submit to the NOWPAP RCU and POMRAC for comments.

Results/Deliverables and the timeline:

The first draft of National Report prepared and submitted by 31 March 2021;

The response to the comments on the draft of National Report prepared and finalization of the draft by 31 July 2021, where RCU and POMRAC comments are properly addressed (100% payment).

The consultant will work closely with the NOWPAP RCU and POMRAC; they will provide overall coordination of work.

Annex 2

Terms of Reference (ToR)**Preparation of National Report from Japan on “Microplastics abundance in river runoff of the NOWPAP region” and Regional Overview “Assessment of river runoff of microplastics to the marine and coastal environment of the NOWPAP region”****(Home-based)**Request for: Consultant Individual contractor **Organizational Unit** ECOSYSTEMS DIVISION /NOWPAP**1. Purpose (justification for request)**1.1 Explain the requirement for a consultant / individual (*Box 1(a) of P.104/A*):
(*summary of why consultant is needed*)

The United Nations Environment Programme (UNEP) is the leading environmental authority that sets the global environmental agenda, promotes the coherent implementation of environmental dimension of sustainable development within the United Nations system and serves as an authoritative advocate for the global environment.

The Action Plan for the Protection, Management and Development of the Marine and Coastal Environment of the Northwest Pacific Region (NOWPAP) is one of the Regional Seas Programmes and Action Plans (RSPAPs) of UNEP and was adopted by the four Member States (P.R. China, Japan, R. Korea, and the Russian Federation) in 1994 (<https://www.unenvironment.org/nowpap/>). The overall goal of the NOWPAP is "the wise use, development and management of the coastal and marine environment so as to obtain the utmost long-term benefits for the human populations of the region, while protecting human health, ecological integrity and the region's sustainability for future generations".

The major focus of the NOWPAP Medium-Term Strategy (MTS) 2018-2023 adopted in June 2018 is on the coordination of the regional implementation of the ocean-related Sustainable Development Goals (SDGs), particularly SDG 14 “Life Below Water” using the NOWPAP inter-governmental mechanism. NOWPAP will play this leading role, by focusing on the three pillars: (i) an Ecosystem-Based Management Approach (EBMA) to sustainable development of marine and coastal areas to achieve the Ecological Quality Objectives (EQOs)²; (ii) monitoring and reporting on progress towards SDG 14 and its targets, and (iii) strengthening partnerships with relevant global and regional institutions.

² NOWPAP EQOs include: (i) Biological and habitat diversity are not changed significantly due to anthropogenic pressure; (ii) Alien species are at levels that do not adversely alter the ecosystems; (iii) Eutrophication adverse effects are absent; (iv) Contaminants cause no significant impact on coastal and marine ecosystems and human health; (v) Marine litter does not adversely affect coastal and marine environments.

Focusing on target SDG 14.1, NOWPAP will strengthen implementation of its two Regional Action Plans – the Regional Oil and HNS Spill Contingency Plan and the Regional Action on Marine Litter, increasingly focusing on microplastics. NOWPAP is expected to strengthen efforts assessing microplastics pollution and its impacts through assessments, methodology development and capacity building.

To promote better understanding of impact of land-based sources on plastic pollution of the regional marine environment, the activity ‘Microplastics abundance in river runoff of the NOWPAP region’ is launched under NOWPAP POMRAC WG2 – River and Direct inputs of contaminants into the marine environment of the NOWPAP region. The activity suggests collection of primary information from all member countries of NOWPAP describing current data availability on microplastic contamination in rivers, methodologies for microplastic contamination assessment in freshwater environment and importance of these assessment measures.

The overall objectives of the activity within this ToR are: 1) to prepare national report on microplastic contamination in Japanese rivers within the NOWPAP region, and b) to prepare Regional Overview “Assessment of river runoff of microplastics to the marine and coastal environment of the NOWPAP region” based on the national inputs from China, Japan, ROK, and Russia. The abovementioned reports should be arranged in accordance with the Workplan and structure prepared by POMRAC (Annex 1). The consultant will work with the NOWPAP Regional Coordinating Unit (RCU) and NOWPAP Pollution Monitoring Regional Activity Center (POMRAC).

1.2 Qualifications / special skills or knowledge (*box 1(a) of P.104/A*)

Education: Advanced university degree (PhD preferred) in marine-related science with the focus on marine environment, marine pollution, or a related field. First university degree in combination with five additional years of qualifying experience may be accepted in lieu of the advanced degree.

Experience: A minimum of five years of progressively responsible professional work experience in the field of marine environment, marine chemistry, marine pollution, or related marine sciences filed, of which some should be at the international level. Familiarity with the UN system and/or NOWPAP would be an advantage.

Language: English and French are the working languages of the United Nations Secretariat. For the post advertised, fluency in oral and written English is required. Knowledge of at least one additional language of the region is desirable (Russian, Chinese, Korean, Japanese).

1.3 Ultimate result of services (*box 1(b) of P.104/A*): (*Describe the final output briefly*)

1.3.1. A National Report on “Microplastics abundance in river runoff of Japan within the NOWPAP region”.

1.3.2. A Regional Overview “Assessment of river runoff of microplastics to the marine and coastal environment of the NOWPAP region” based on the national inputs from China, Japan, ROK, and Russia.

1.4 Legislative authority reference (*box 1(c) of P.104/A*): (*e.g. GC or GA decision, if applicable*)

Resolution 1: PROGRAMME OF WORK FOR THE 2020-2021 BIENNIUM approved during inter-sessional consultations with the NOWPAP Member States via email.

1.5 Title and identification number of programme / project

NOWPAP PoW 2020-2021: POMRAC activity “Microplastics abundance in river runoff of the NOWPAP region”

1.6 Duration

1 March 2021 – 15 October 2021 for the preparation of the National report “Microplastics abundance in river runoff of Japan within the NOWPAP region”.

1 November 2021 – 31 January 2022 for the preparation of Regional Overview “Assessment of river runoff of microplastics to the marine and coastal environment of the NOWPAP region”

2. Funding

2.1 Source of Funds Regular Budget Extra-budgetary

2.1 Allotment Account / Budget Line

B21-40PNL-11207-SB-004861.01.01-14AF0001 - TBC

2.3 Indicative level of remuneration

- *terms of payment (lump-sum, installments, travel included) – box 1(e) of P.104*
- *indicative level of remuneration (e.g. P5) - box 1(e) of P.104/A*
- *any cost of travel and any DSA payable –box 5 of P.104/A*

Level B – 10 working days with daily rate of USD 400, and 10 working days with daily rate of USD 500

Payment schedule – upon submission of the agreed milestones (see below).

3. Travel involved – (box 7 of P.104/A)

(Indicate the required travel itinerary, if applicable)

Travel is not necessary for this activity. Participation in the regional workshop will be covered separately.

Travel will be organized by Substantive Office Selected candidate

4. Workplan

Under the direct supervision of the NOWPAP RCU and in close cooperation with the NOWPAP POMRAC, consultant will be responsible for the following tasks at the preparation of national report from Japan on microplastic in rivers:

Task 1: Collect data on social and economic aspects relevant to land-based plastic and microplastic pollution during recent years in the Japan provinces within NOWPAP region.

Task 2: Describe national monitoring and assessment activities (National monitoring program(s) and other initiatives) related to river and inland microplastic contamination with a brief overview of related national policies and laws.

Task 3: Summarize all available data on microplastic contamination in the Japan rivers within the NOWPAP area, including development of sampling and analytic methodologies, collected information on amounts and characteristic features of contaminants registered in their rivers, and possible impacts of the contamination on the coastal marine environment affected by the surveyed river basins.

Task 4: Compile the results of Tasks 1-3 in the National Report and submit to the NOWPAP RCU and POMRAC for comments.

Task 5: Participate in the on-line or off-line workshop for the discussion of the National reports.

Under the direct supervision of the NOWPAP RCU and in close cooperation with the NOWPAP POMRAC, consultant will be responsible for the following tasks at the preparation of Regional Overview:

Task 1: Compile the data from the National Reports on social and economic aspects relevant to land-based plastic and microplastic pollution within NOWPAP region.

Task 2: Briefly describe national monitoring and assessment activities related to river and inland microplastic contamination with a brief overview of related national policies and laws based on the National Reports.

Task 3: Summarize all available data on microplastic contamination in the rivers within the NOWPAP area, including development of sampling and analytic methodologies, collected information on amounts and characteristic features of plastic contaminants.

Task 4. Assess the river runoff of microplastics as a source of contamination of the marine and coastal environment of the NOWPAP region.

Results/Deliverables and the timeline:

The first draft of National Report prepared and submitted by 31 August 2021;

The response to the comments on the draft of National Report prepared and finalization of the draft where RCU and POMRAC comments are properly addressed, by 15 October 2021 (100% payment - 4,000 USD).

The first draft of Regional Overview prepared and submitted by 15 December 2021;

The response to the comments on the draft of Regional Overview and finalization of Regional Overview by 31 January 2022 (100% payment - 5,000 USD).

The consultant will work closely with the NOWPAP RCU and POMRAC; they will provide overall coordination of work.

Draft Structure of National Inputs of the POMRAC activity

“Microplastics abundance in river runoff of the NOWPAP region”

Executive Summary

Introduction (goals, brief general information on river input of microplastic pollution, geographical scope)

Social and economic situation in 2001-2019 (short overview of relevant social and economic aspects related to microplastic contamination)

National monitoring and assessment activities (related to microplastic contamination, including main features of national policies and laws)

National monitoring program(s) including features and changes in methodologies and procedures

Present situation of river contamination with microplastics (based on the most recent available data)

Conclusions

Annex 4

Draft Structure of Regional Overview of the POMRAC activity

“Assessment of river runoff of microplastics to the marine and coastal environment of the NOWPAP region”

Executive Summary

Introduction (goals, brief general information on river input of microplastic pollution, geographical scope)

Social and economic aspects related to the contamination of environment by micropastic

National monitoring and assessment activities in the NOWPAP member states (related to microplastic contamination, including main features of policies and laws)

Major features in methodologies and procedures at the monitoring of microplastic contamination of rivers

Present situation of river contamination with microplastics in the NOWPAP region (based on the most recent available data)

Assessment of the river runoff of microplastics as a source of contamination of the marine and coastal environment of the NOWPAP region

Conclusions

Data sources (publications, websites and other information sources)