United Nations Environment Programme **NOWPAP**

Northwest Pacific Action Plan

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Northwest Pacific Action Plan
Pollution Monitoring Regional Activity Center

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Workplan and budget for the Development of regional NOWPAP EcoQO targets aligned with SDG indicators. Phase 1

Regional Seas

1. Background

After adoption of sustainable development goals (SDGs) by the UN General Assembly in December 2015, NOWPAP activities related to Ecological Quality Objectives (EcoQOs) for the northwest Pacific also have to be aligned with the SDG indicators.

The 22nd NOWPAP Intergovernmental Meeting (IGM) has approved the Programme of Work for 2018-2019 biennium, including an activity "Development of regional EcoQO targets aligned (where possible) with SDG indicators (phase 1)". During the implementation of EcoQOs activity in 2016-2017, national experts agreed that six NOWPAP EcoQO indicators could be applied in their countries. Agreed indicators are as follows:

3.1.1. Nutrients concentration in the water column (possible SDG indicator 14.1.1)
3.1.2. Nutrient ratios (silica, nitrogen and phosphorus)
3.2.1. *Chlorophyll a* concentration in the water column (possible SDG indicator 14.1.1)
3.2.3. Harmful algal blooms (HABs)
4.1.1. Concentration of the contaminants in sediments, water and organisms
5.1.1. Trends in the amount and composition of litter washed ashore (possible SDG indicator 14.1.1)

These indicators are related to eutrophication (first four of them), concentrations of contaminants (though in some countries data are only available for bottom sediments and living organisms while in other countries only for water and sediments), and marine litter (washed ashore).

At this stage, certain SDG-14 indicators related to *Chlorophyll a* concentrations and marine litter (though those indicators are still under development) might be taken into account while comparing approaches of NOWPAP member states in setting up numerical targets for each EcoQO indicator. During this process, NOWPAP member states could align the regional goals/objectives/indicators/targets with the relevant SDGs and associated indicators.

From the experience of other Regional Seas programmes (such as MAP, HELCOM and OSPAR) as well as the MSFD, the logical steps to achieving the Good Environmental Status of the Regional Seas are as follows. First, countries agree on common regional Ecological Quality Objectives (EcoQOs). Second, they agree on operational criteria (more detailed than EcoQOs). Third, countries agree on common indicators to be applied (taking into account geographical differences). Finally, numerical targets are set (taking into account geographical differences and other factors). After several years, the whole system of EcoQOs, operational criteria, indicators and targets is reviewed and necessary adjustment are made.

2. Aim

Though at a regional level the work on EcoQOs and related indicators has started just recently, each NOWPAP member state has already in place the routine marine environment monitoring system (or systems) and applicable national standards. **Therefore, the aim of this project is to analyze the national numerical targets (where they exist) on the NOWPAP EcoQO indicators and suggest (and then discuss) possible regional EcoQO targets aligned to the extent possible with the above mentioned SDGs indicators.**

3. Main tasks

Each of the above mentioned SDG indicators has different background, availability of information, and implementation potential in each NOWPAP country. Obviously different experts from all NOWPAP countries and all NOWPAP RACs should be brought together for the project implementation. For each indicator the following aspects should be studied and presented:

1) Scientific background including analysis of advantages and limitations of indicator, taking into account international knowledge and experience within the NOWPAP region;
2) Availability of relevant information, including international and national official sources;
3) Assessment of possibility of applying each indicator, taking into account existing national legislation.

The preparation of National Inputs with information on above mentioned 3 aspects for each of the above mentioned SDG indicators will be a core of this project. The template (proposed structure) of National Inputs is prepared by POMRAC Secretariat and presented in Annex 1.

4. Expected outcomes and future direction

The regional synthesis prepared after an analysis of these National Inputs (and preferably after a regional workshop) will be the main output of this project. This synthesis report will be reviewed by NOWPAP RACs, RCU, NFPs, and then published and circulated between relevant stakeholders. In 2019, a regional workshop is planned where national inputs will be discussed and possibility of setting up regional targets (to be suggested by POMRAC Secretariat) will be explored.

5. Schedule

Time		**Actions**	**Main body**
2018	Q1-Q2	Nomination of experts and signing MoUs	POMRAC, POMRAC FPs
	Q3-Q4	Preparation of National Inputs	POMRAC, POMRAC Experts

2019	Q1	Workshop to discuss possible regional targets and Finalization of National Inputs	POMRAC, POMRAC Experts
	Q2-Q3	Compilation of National Inputs and preparation of draft regional synthesis (report)	POMRAC, POMRAC Experts
	Q4	Finalization and publication of Regional Overview	POMRAC

6. Budget

Contract	Timing	Output	To be completed	Counterpart	Budget (US$)
Preparation of National Inputs	2018, Q3-Q4 2019, Q1	National Inputs on	2018, December, 30 - Draft 2019, March, 1 - Final	Expert(s) in China	4,000*
				Expert(s) in Japan	4,000*
				Expert(s) in Korea	4,000*
				Expert(s) in Russia	4,000*
Workshop to discuss possible regional targets and to finalize National Inputs	2019, Q1	Workshop report	2019, March, 1	POMRAC	18,000
Compilation of National Inputs and preparation of draft regional synthesis (report)	2019, Q2-Q3	Regional report	2019, September, 30	POMRAC, hired Consultant/Expert	5,000*
Finalization and publication of Regional report	2019, Q4	Publication of Regional Overview	2019, November, 30	POMRAC	4,000

* - through the DINRAC SSFA

Annex 1

Structure of expected input from national experts

Indicators for the EcoQO 3: Eutrophication adverse effects are absent:

3.1.1. Nutrients concentration in the water column (possible SDG indicator 14.1.1)

1. Please analyze advantages and limitations of this indicator taking into account existing national standards and experience within and beyond the NOWPAP region.
2. Please describe availability of relevant data and information, including official sources and scientific publications.
3. Please assess possibility of applying this indicator taking into account national legislation and existing national standards.
4. Please provide national numerical standards (targets) related to this indicator. Examples are given in the tables below.

Table 1. National standards of China for nutrient and COD concentrations in sea water (maximum permissible concentration, mgN/L, or mgO/L)

Indicator	First level	Second level	Third level	Fourth level
DIN	≤0.20	0.20<x ≤0.30	0.30<x ≤0.40	0.40<x ≤0.50
DIP	≤0.015	0.015<x ≤0.030		0.030<x ≤0.045
COD	≤2	2<x ≤3	3<x ≤4	4<x ≤5

Table 2. National standards of Japan for nutrient concentrations in sea water (maximum permissible annual average, mgN/L, and mgP/L)

Indicator	Class I	Class II	Class III	Class IV
TN	≦0.2	≦0.3	≦0.6	≦1.0
TP	≦0.02	≦0.03	≦0.05	≦0.09

Class I - Conservation area
Class II - Bathing, good catch of wide variety of fish species
Class III - Good catch of most fish species except some demersal fish species
Class IV - Industrial water, catch of fishes tolerant to pollution

Table 3. National standards of Russia for nutrient concentrations in sea water (maximum permissible concentration, mgN/L, mgP/L)

Water types:	Waters for fishery purposes			Bathing waters
Indicator	Oligotrophic waters	Mesotrophic waters	Eutrophic waters	
DIN	<9.42	<9.42	<9.42	<12.7
DIP	≤0.050	< 0.150	<0.200	<1.14

3.1.2. Nutrient ratios (silica, nitrogen and phosphorus)

1. Please analyze advantages and limitations of this indicator taking into account existing national standards and experience within and beyond the NOWPAP region.
2. Please describe availability of relevant data and information, including official sources and scientific publications.
3. Please assess possibility of applying this indicator taking into account national legislation and existing national standards.
4. Please provide national numerical standards (targets) related to this indicator.

3.2.1. *Chlorophyll a* concentration in the water column (SDG indicator 14.1.1)

1. Please analyze advantages and limitations of this indicator taking into account existing national standards and experience within and beyond the NOWPAP region.
2. Please describe availability of relevant data and information, including official sources and scientific publications.
3. Please assess possibility of applying this indicator taking into account national legislation and existing national standards.
4. Please provide national numerical standards (targets) related to this indicator.

3.2.3. Harmful algal blooms (HABs)

1. Please analyze advantages and limitations of this indicator taking into account existing national standards and experience within and beyond the NOWPAP region.
2. Please describe availability of relevant data and information, including official sources and scientific publications.
3. Please assess possibility of applying this indicator taking into account national legislation and existing national standards.
4. Please provide national numerical standards (targets) related to this indicator.

Indicators for the EcoQO 4: Contaminants cause no significant impact on coastal and marine ecosystems and human health:

4.1.1. Concentration of the contaminants in sediments, water and organisms

1. Please analyze advantages and limitations of this indicator taking into account existing national standards and experience within and beyond the NOWPAP region.
2. Please describe availability of relevant data and information, including official sources and scientific publications.
3. Please assess possibility of applying this indicator taking into account national legislation and existing national standards.
4. Please provide national numerical standards (targets) related to this indicator.

The total list of hazardous substances which could be recommended to the observation in the NOWPAP region might cover substances included in the Stockholm Convention on Persistent Organic Pollutants as well as toxic and radioactive elements (Pb, Cd, Hg, Ni, Cu, Zn, Cr, As, Cs-137), PAH, organotin compounds and petroleum hydrocarbons. Stockholm Convention List includes aldrin, chlordane, DDT, dieldrin, toxaphene, mirex, endrin, heptachlor, hexachlorobenzene (HCB), chlordecone, pentachlorobenzene, lindane (γ-HCH), α-HCH, β-HCH, endosulfann, bromodiphenyl ethers (tetraBDE, pentaBDE, hexaBDE and heptaBDE), pentachlorobenzene (PeCB), perfluorooctanesulfonic acid (PFOS) and its salts, hexabromocyclododecane (HBCD), polychlorinated biphenyls (PCBs), dioxins and dibenzofurans. Some of them (aldrin, chlordecone, dieldrin, endrin, heptachlor, toxaphene) are not relevant for the NOWPAP Region because recent studies in China, Japan and Korea have shown that these substances either are not found in the marine environment or are present in trace amounts and tend to decrease in concentrations compared with previous decades, see e.g. (NOWPAP POMRAC 2015. Regional overview of PTS and POPs issues of ecological concern in the NOWPAP region).

Examples of the national standards for some contaminants are given in the tables below.

Table 4. National standards of China for contaminants in sea water (maximum permissible concentration, μg/L)

Contaminant	First level	Second level	Third level	Fourth level
Hg	0.05	0.2		45
Cd	1	5	10	
Pb	1	5	10	50
Cr^{6+}	5	10	20	50
Total Cr	50	100	200	500
As	20	30	50	
Cu	5	10	50	
Zn	20	50	100	500
Se	10	20	50	
Ni	5	10	20	50
Cyanide	5		100	250
Sulfide	20	50	100	250
Volatile phenol	5		10	50

Petroleum	50		300	500
Hexachlorocyclohexane	1	2	3	5
DDTs	0.05	0.1		
Benzopyrene	2.5			

Table 5. National standards of Korea for contaminants in sea water (maximum permissible concentration, µg/L)

Contaminant	Acute	Chronic
Cu	3.0	1.2
Pb	7.6	1.6
Zn	34	11
As	9.4	3.4
Cd	19	2.2
Cr^{6+}	200	2.8
Hg	1.8	1.0
Ni	11	1.8

Table 6. National standards of Japan (human health-related) for contaminants in sea water (maximum permissible concentration, mg/L)

Contaminant	Standard
Se	0.01
Pb	0.01
As	0.01
Cd	0.003
Cr^{6+}	0.05
Total mercury	0.0005
Alkylmercury	Undetected
Dichloromethane	0.02
PCB	Undetected
1,2-Dichloroethane	0.004
Cis-1,2-Dichloroethylene	0.04
1,1,2-Trichloroethane	0.006

Tetrachloroethylene	0.01
Carbon tetrachloride	0.002
1-1-Dichloroethylene	0.02
1,1,1-Trichloroethane	1.0
Trichloroethylene	0.01
1,3-Dichloropropene	0.002
Total cyanide	Undetected
Benzene	0.01

Table 7. National standards of Russia for contaminants in sea water (maximum permissible concentration, µg/L)

Water types:	**Waters for fishery purposes**		**Bathing waters**
Contaminant	**Sea water**	**Fresh water**	
As	10	50	10
Cu	5	1	1,000
Pb	10	6	10
Ni	10	10	20
Zn	50	10	1,000
Cd	10	5	1
Cr^{6+}	20	20	50
Hg	0.1	<0.01	<0.01
Cyanide	50	50	35
DDTs	0.01	0.01	2
HCHs	0.01	0.01	20

Table 8. National food safety standards of China for contaminants in aquatic organisms (maximum permissible concentration, mg/kg wet weight)

Contaminant	Fish	Crustacean	Molluscs	Other animals	Algae
Pb	0.5	0.5	1.5	1.0	1.0 (dry weight)
Cd	0.1	0.5	2.0 (muscle)	2.0 (muscle)	—
Hg (methyl mercury)	1.0 (carnivorous fish)	0.5	0.5	0.5	0.5
As (inorganic arsenic)	0.1	0.5	0.5	0.5	1.5 (dry weight)
Cr	2.0	2.0	2.0	2.0	—
PCBs	0.5	0.5	0.5	0.5	2.0 (dry weight)
HCBs	0.1	0.1	0.1	0.1	0.1
DDTs	0.5	0.5	0.5	0.5	0.5

Table 9. National food safety standards of Russia for contaminants in aquatic organisms (maximum permissible concentration, mg/kg wet weight)

Contaminant	Fish	Mollusks and other invertebrates
As	1.0*-5.0	5
Pb	1.0	10
Pb (tuna, swordfish, sturgeons)	2.0	
Cd	0.2	2.0
Hg	0.3*-0.5	0.2
Hg (tuna, swordfish, sturgeons)	1.0	
Cu	10	30
Zn	40	200
HCHs	0.03*-0.2	
DDTs	0.2 (fresh meat), 3.0 (liver)	
DDTs (sturgeons, salmon, herring and other fat fish)	2.0	

*freshwater fish species

Indicators for the EcoQO 5: Marine litter does not adversely affect coastal and marine environments:

5.1.1. Trends in the amount and composition of litter washed ashore (SDG indicator 14.1.1)

1. Please analyze advantages and limitations of this indicator taking into account existing national standards and experience within and beyond the NOWPAP region.
2. Please describe availability of relevant data and information, including official sources and scientific publications.
3. Please assess possibility of applying this indicator taking into account national legislation and existing national standards.
4. Please provide national numerical standards (targets) related to this indicator.