QUESTIONNAIRE FOR EXISTING SAMPLING, LABORATORY AND EVALUATION METHODS

0.0. State your institution and country.

Geological Survey of Slovenia (GeoZS), Slovenia

0.1. State institution(s) from which you got data to fill this questionnaire.

Ministry of the environment and spatial planning, Slovenian Environment Agency (MOP-ARSO)
http://www.arso.gov.si/en/

Ministry of the environment and spatial planning
http://www.mop.gov.si/en/

I.LEGISLATIVE FRAMEWORK

I.1Enumeration of national or European legislation (laws, governmental orders, emergency ordinances) that regulates the concentrations of dangerous substances posing a risk to the health of the population or aquatic life, in soils, surface waters, drinking water, river sediments, marine sediments, sewage, therapeutic sludge, air and biota. [PLEASE, SUPPORT YOUR ANSWERS WITH REFERENCES (NATIONAL LEGISLATIVE DOCUMENTS AND/OR WEB LINKS)]

No	Title (in national language)	Title (in English)	Link	Country
1	Direktiva evropskega parlamenta in sveta 2000/60/ES 2008/105/ES 2013/39/EU	EU Water Framework Directive 2000/60/EC 2008/105/ES 2013/39/EU	https://eur-lex.europa.eu/legal-content/SL/TXT/PDF/?uri=CELEX:32013L0039&from=IT	SI
2	Zakon o vodah (Uradni list RS, št. 67/02, 2/04 – ZZdrI-A, 41/04 – ZVO-1, 57/08, 57/12, 100/13, 40/14 in 56/15)	Waters Act (Official Gazette of RS, Nos. 67/02 , 2/04 - ZZdrI-A 41/04 - ZVO-1, 57/08 , 57/12 , 100/13 , 40/14 and 56/15)	http://pisrs.si/Pis.web/pregledPredpisa?id=ZAKO1244	SI
3	Zakon o varstvu okolja (Uradni list RS, št. 39/06 – uradno prečiščeno besedilo, 49/06 – ZMetD, 66/06 – odl. US, 33/07 – ZPNačrt, 57/08 – ZFO-1A, 70/08, 108/09, 108/09 – ZPNačrt-A, 48/12, 57/12, 92/13, 56/15, 102/15, 30/16, 61/17 – GZ, 21/18 – ZNOrg in 84/18 – ZIURKOE)	The Environmental Protection Act (Official Gazette of RS, Nos. 39/06 - official consolidated text, 49/06 - ZMetD, 66/06 - odl. US, 33/07 - ZPNačrt, 57/08 - ZFO-1A, 70/08 , 108/09 , 108/09 - ZPNačrt-A, 48/12 , 57/12 , 92/13 , 56/15 , 102/15 , 30/16 , 61/17 - GZ, 21/18 - Norway and 84 / 18 - ZIURKOE)	http://pisrs.si/Pis.web/pregledPredpisa?id=ZAKO1545	SI
4	Uredba o mejnih, opozorilnih in kritičnih imisijskih vrednostih nevarnih snovi v tleh (Uradni list RS, št. 68/96 in 41/04 – ZVO-1)	Regulation the limit, warning and critical levels of hazardous substances in soil	http://pisrs.si/Pis.web/pregledPredpisa?id=URED114	SI

No	Title (in national language)	Title (in English)	Link	Country
5	Uredba o stanju površinskih voda (Uradni list RS, št. 14/09, 98/10, 96/13 in 24/16)	Decree on the status of surface waters (Official Gazette of RS, Nos. 14/09 , 98/10 , 96/13 and 24/16)	http://www.pisrs.si/Pis.web/pregledPredpisa?id=URED5010#	SI
6	Uredba o kakovosti površinskih voda za življenje sladkovodnih vrst rib (Uradni list RS, št. 46/02 in 41/04 – ZVO-1)	Decree on the quality required of surface waters supporting fresh-water fish life (Official Gazette of RS, Nos. 46/02 and 41/04 - ZVO-1)	http://pisrs.si/Pis.web/pregledPredpisa?id=URED2401	SI
7	Pravilnik o pitni vodi (Uradni list RS, št. 19/04, 35/04, 26/06, 92/06, 25/09, 74/15 in 51/17)	Rules on Drinking Water (Official Gazette of RS, Nos. 19/04 , 35/04 , 26/06 , 92/06 , 25/09 , 74/15 and 51/17)	http://pisrs.si/Pis.web/pregledPredpisa?id=PRAV3713	SI
8	Pravilnik o monitoringu stanja površinskih voda (Uradni list RS, št. 10/09, 81/11 in 73/16)	Rules on the monitoring of surface waters (Official Gazette of RS, Nos. 10/09 , 81/11 and 73/16)	http://pisrs.si/Pis.web/pregledPredpisa?id=PRAV9315	SI
9	Pravilnik o določitvi in razvrstitvi vodnih teles površinskih voda (Uradni list RS, št. 63/05, 26/06, 32/11 in 8/18)	Rules on the designation and classification of surface water bodies (Official Gazette of RS, Nos. 63/05 , 26/06 , 32/11 and 8/18)	http://pisrs.si/Pis.web/pregledPredpisa?id=PRAV6946	SI
10	Strategija preprečevanja kemijskega onesnaženja površinskih voda	Strategies against chemical pollution of surface waters	http://ec.europa.eu/environment/water/water-dangersub/index.htm	SI
11	Nacionalni program varstva okolja (Uradni list RS, št. 83/99 in 41/04 – ZVO-1)	National Environmental Action Plan (Official Gazette of RS, Nos. 83/99 and 41/04 - ZVO-1)	http://www.pisrs.si/Pis.web/pregledPredpisa?id=NACP5	SI
12	Uredba o kakovosti vode za življenje in rast morskih školjk in morskih polžev (Uradni list RS, št. 52/07)	Regulation of water quality for the life and growth of marine bivalves and gastropods (Official Gazette of RS, no. 52/07)	http://pisrs.si/Pis.web/pregledPredpisa?id=URED4401	SI
13	Pravilnik o monitoringu kakovosti površinske vode za življenje in rast morskih školjk in morskih polžev (Uradni list RS, št. 71/02 in 41/04 – ZVO-1)	Rules on the monitoring of surface water quality for the life and growth of marine bivalves and gastropods (Official Gazette of RS, Nos. 71/02 and 41/04 - ZVO-1)	http://pisrs.si/Pis.web/pregledPredpisa?id=PRAV4293	SI
14	Uredba o emisiji snovi in toplote pri odvajanju odpadnih voda v vode in javno kanalizacijo (Uradni list RS, št. 64/12, 64/14 in 98/15)	Decree on the emission of heat in the discharge of wastewater into public sewers and water (Official Gazette of RS, Nos. 64/12 , 64/14 and 98/15)	http://pisrs.si/Pis.web/pregledPredpisa?id=URED6070	SI
15	Uredba o odvajanju in čiščenju komunalne odpadne vode (Uradni list RS, št. 98/15 in 76/17)	Decree on separation and treatment of urban waste water (Official Gazette of RS, Nos. 98/15 and 76/17)	http://pisrs.si/Pis.web/pregledPredpisa?id=URED6951	SI
16	Uredba o varstvu voda pred onesnaževanjem z nitrati iz kmetijskih virov (Uradni list RS, št. 113/09, 5/13, 22/15 in 12/17)	Regulation on the protection of waters against pollution caused by nitrates from agricultural sources (Official Gazette of RS, Nos. 113/09 , 5/13 , 22/15 and 12/17)	http://www.pisrs.si/Pis.web/pregledPredpisa?id=URED5124	SI

I.2List of dangerous (hazardous) substances (metals, non-metals, PAHs, PCBs, other parameters) concentration levels, their significance (*definition of terms used for thresholds*) in waters, solids or biota, in accordance with the national legislative framework.

Alert threshold = concentrations of pollutants in air, water, soil or in emissions/discharges, which, when reached, warn the competent authorities on a potential impact on environment and trigger an additional monitoring and/or reduction of pollutant concentrations in emissions/discharges.
Intervention threshold = concentrations of pollutants in air, water, soil or in emissions/discharges, which, when reached, determine the competent authorities to order risk assessment studies and reduction of pollutant emissions from emissions/discharges.

Each country, please deliver the definition of specific terms in the respective law.

In the meaning of the Regulation the limit, warning and critical levels of hazardous substances in soil the definitions of the following terms will be used:

- The limit value (hereinafter threshold) is the density of specific hazardous substances in the soil, which constitutes a load floor to provide living conditions for plants and animals, and which does not impair the quality of groundwater and soil fertility. At this value, the effects or impacts on human health or the environment are acceptable.
- Signal Levels (hereinafter: the warning value) is the density of specific hazardous substances in the soil, which means on certain types of land use, the likelihood of adverse effects or impacts on human health or the environment.
- Critical Values (hereinafter referred to as critical value) is the density of specific hazardous substances in the soil, where due to adverse effects or impacts on humans and the environment contaminated soil is not suitable for the cultivation of crops intended for human or animal consumption and for retaining or filtering water.

In the meaning of the Decree on the status of surface waters, the definitions of the following terms will be used:

- The environmental quality standard is the concentration of a particular pollutant or group of pollutants in water, sediment or biota which should not be exceeded in order to protect human health and the environment. For the general physico-chemical parameters and specific pollutants the environmental quality standard limit value is set between the classes good and moderate ecological status.

Table 1 Metal trace elements in soils

Trace Element	Levels in soils (mg/kg)					
metals	A) Limit values (normal values*)		B) Signal levels (alert threshold)		C) Critical values (intervention threshold)	
Mercur (Hg)	0.8		2		10	
As	20		30		50	
Cd	1		2		12	
Cr	100		150		380	
Cu	60		100		300	
Ni	50		70		210	
Pb	85		100		530	
Zn	200		300		720	

Table 2 Metal trace elements in river water

NBL – natural background of chemical parameter – values are presented in table 10.;

Trace Element		Levels in river water (µg/l)					
metals and their compounds	Normal values Environmental quality standards (annual average)		alert threshold maximum allowable concentration		Limit values for ecological status for specific pollutants		
Values based on use category	A1 inland surface waters	A2 other surface waters	B1 inland surface waters	B2 other surface waters	Annual average	Environmental quality standards (annual average)	maximum allowable concentration
Mercury (Hg)			0,07 + NBL	0,07 + NBL			
As					0,7	7	21
Cd*	class.1: ≤ 0,08 + NBL class .2: 0,08 + NBL class .3: 0,09 + NBL class. 4: 0,15 + NBL class .5: 0,25 + NBL	0,2 + NBL	class .1: ≤ 0,45 + NBL class .2: 0,45 +NBL class .3: 0,6 +NBL class .4: 0,9 +NBL class .5: 1,5 +NBL	class .1: ≤ 0,45 + NBL class .2: 0,45 + NBL class .3: 0,6 +NBL class .4: 0,9 +NBL class .5: 1,5 +NBL			
Cr					1,2	0,3 + NBL	2,8 + NBL
Cu					1	8,2 + NBL	73 + NBL
Ni	4	8,6	34	34			
Pb	1,2	1,3	14	14			
Zn		40	Not applicable	Not applicable	4,2 (CaCO3 0-50 mg/l) 4,2 (CaCO3 50-100 mg/l) 4,2 (CaCO3 ≥100 mg/l)	7,8 (CaCO3 0-50 mg/l) 35,1 (CaCO3 50-100 mg/l) 52 (CaCO3 ≥100 mg/l)	78 (CaCO3 0-50 mg/l) 351 (CaCO3 50-100 mg/l) 520 (CaCO3 ≥100 mg/l)

**Values for Cd depend on water hardness (class 1: < 40 mg CaCO3 /l, class 2: 40 do < 50 mg CaCO3 /l, class 3: 50 do < 100 mg CaCO3 /l, class 4: 100 do < 200 mg CaCO3 /l and class 5: ≥ 200 mg CaCO3 /l).*

Table 3 Metal trace elements in drinking water

Trace Element	Levels in drinking water (µg/l)					
metals	A)normal values		B)alert threshold maximum		C)intervention threshold	
Mercur (Hg)			1,0			
As			10			
Cd			5,0			
Cr			50			
Cu			2,0			
Ni			20			
Pb			10			
Zn			/			

Table 4 Metal trace elements in soils

Trace Element	Levels in soils (mg/kg)					
Non-metals	Limit values (normal values*)		Signal levels (alert threshold)		Critical values (intervention threshold)	
F^-	450		825		1200	
Cl^-	/		/		/	
S^{2-}	/		/		/	
Br^-	/		/		/	
I^-	/		/		/	

Table 5 Non-metal trace elements in river water

Trace Element		Levels in river water (µg/l)					
metals and their compounds	Normal values Environmental quality standards (annual average)		alert threshold maximum allowable concentration		Limit values for ecological status for specific pollutants		
Values based on use category	A1 inland surface waters	A2 other surface waters	B1 inland surface waters	B2 other surface waters	Annual average	Environmental quality standards (annual average)	maximum allowable concentration
F^-					68	680	6800
Cl^-					/	/	/
S^{2-}					/	/	/
Br^-					/	/	/
I^-					/	/	/

Table 6 Non-metal trace elements in drinking water

Trace Element	Levels in drinking water (µg/l)					
Non-metals	A)normal values		B)alert threshold		C)intervention threshold	
F^-			1,5 mg/l			
Chloride			250 mg/l			
Sulphate			250 mg/l			
Bromates			10			
I^-						
Cyanides			50			
Selenium			10			
Iron			200			
Manganese			50			
Boron			1,0 mg/l			
nitrate			50 mg/l			
nitrite			0,5 mg/l			
ammonium			0,5 mg/l			
aluminium			200			
sodium			200 mg/l			

Table 7 Table of Polycyclic Aromatic Hydrocarbons –PAHs, Polychlorinated Biphenyls-PCBs and others in soil

Substance	Limit values mg/kg	Signal values mg/kg	Critical values mg/kg
PAH[1] (total)	1,0	20	40
PCB[2] (total)	0,2	0,6	1,0
total DDT, DDD and DDE[3]	0,1	2	4
Drines[4]	0,1	2	4
HCH [5]	0,1	2	4
Atrazine	0,01	3	6
Simazine	0,01	3	6
Petroleum Hydrocarbons (PHCs)	50	2500	5000
Volatile phenols	0,1	20	40
Benzene	0,05	0,5	1
Ethylbenzene	0,05	25	50
Toluene	0,05	65	130
Xylene	0,05	12,5	25

[1] the total PAH concentration is the sum of naphthalene, anthracene, phenanthrene, fluorantene, benzo(a)anthracene, chrysene, benzo(a)pyrene, benzo(ghi)perylene, benzo(k)fluorantene and indeno(1,2,3)pyrene.

[2] the total PCBs concentration is the sum of PCB 28, PCB 52, PCB 101, PCB 118, PCB 138, PCB 153 and PCB 180

[3] The total concentration is the sum of DDT, DDD and DDE

[4] The total concentration is the sum of aldrin, dieldrin and endrin

[5] The total concentration is the sum of α-HCH, β-HCH, γ-HCH in δ-HCH

Table 8 Table of Polycyclic Aromatic Hydrocarbons –PAHs, Polychlorinated Biphenyls-PCBs and others in river water

№	Name of priority substance	CAS number	Annual average Inland surface waters *Environmental quality standards*	Annual average Other surface waters *Environmental quality standards*	Max allowable concentration Inland *Environmental quality standards*	Max allowable concentration Other *Environmental quality standards*	Biota *Environmental quality standards*
1	Alachlor	15972-60-8	0,3	0,3	0,7	0,7	
2	Anthracene	120-12-7	0,1	0,1	0,1	0,1	
3	Atrazine	1912-24-9	0,6	0,6	2	2	
4	Benzene	71-43-2	10	8	50	50	
5	Brominated diphenylethers	32534-81-9			0,14	0,014	0,0085
6	Cadmium and its compounds (depending on water hardness)	7440-43-9	class.1: ≤ 0,08 + NBL class .2: 0,08 + NBL class .3: 0,09 + NBL class. 4: 0,15 + NBL class .5: 0,25 + NBL	0,2 + NBL	class .1: ≤ 0,45 + NBL class .2: 0,45 +NBL class .3: 0,6 +NBL class .4: 0,9 +NBL class .5: 1,5 +NBL	class .1: ≤ 0,45 + NBL class .2: 0,45 + NBL class .3: 0,6 +NBL class .4: 0,9 +NBL class .5: 1,5 +NBL	
6a	Tetrachloromethane Carbon-tetrachloride	56-23-5	12	12	Not applicable	Not applicable	
7	C10-13 Chloroalkanes	85535-84-8	0,4	0,4	1,4	1,4	
8	Chlorfenvinphos	470-90-6	0,1	0,1	0.3	0,3	
9	Chlorpyrifos (Chlorpyrifos-ethyl)	2921-88-2	0,03	0,03	0,1	0,1	
9a	Cyclodiene pesticides: Aldrin Dieldrin Endrin Isodrin	 309-00-2 60-57-1 72-20-8 465-73-6	Σ 0,01	Σ 0,005	Not applicable	Not applicable	

№	Name of priority substance	CAS number	Annual average Inland surface waters *Environmental quality standards*	Annual average Other surface waters *Environmental quality standards*	Max allowable concentration Inland *Environmental quality standards*	Max allowable concentration Other *Environmental quality standards*	Biota *Environmental quality standards*
9b	DDT total	Not applicable	0,025	0,025	Not applicable	Not applicable	
	Para-para- DDT	50-29-3	0,01	0,01	Not applicable	Not applicable	
10	1,2-Dichloroethane	107-06-2	10	10	Not applicable	Not applicable	
11	Dichloromethane	75-09-2	20	20	Not applicable	Not applicable	
12	Di(2-ethylhexyl)-Phthalate (DEHP)	117-81-7	1,3	1,3	Not applicable	Not applicable	
13	Diuron	330-54-1	0,2	0,2	1,8	1,8	
14	Endosulfan	115-29-7	0,005	0,0005	0,01	0,004	
15	Fluoranthene	206-44-0	0,0063	0,0063	0,12	0,12	30
16	Hexachloro-benzene	118-74-1			0,05	0,05	10
17	Hexachloro-butadiene	87-68-3			0,6	0,6	55
18	Hexachloro-cyclohexane	608-73-1	0,02	0,002	0,04	0,02	
19	Isoproturon	34123-59-6	0,3	0,3	1	1	
20	Lead and its compounds	7439-92-1	1,2	1,3	14	14	
21	Mercury and its compounds	7439-97-6			0,07 + NBL	0,07 + NBL	20
22	Naphthalene	91-20-3	2	2	130	130	
23	Nickel and its compounds	7440-02-0	4	8,6	34	34	
24	Nonylphenols (4-Nonylphenol)	84852-15-3	0,3	0,3	2	2	
25	Octylphenols (4-(1, 1',3,3'- tetramethyl-	140-66-9	0,1	0,01	Not applicable	Not applicable	

№	Name of priority substance	CAS number	Annual average Inland surface waters *Environmental quality standards*	Annual average Other surface waters *Environmental quality standards*	Max allowable concentration Inland *Environmental quality standards*	Max allowable concentration Other *Environmental quality standards*	Biota *Environmental quality standards*
	butyl)-phenol)						
26	Pentachloro-benzene	608-93-5	0,007	0,0007	Not applicable	Not applicable	
27	Pentachloro-phenol	87-86-5	0,4	0,4	1	1	
28	Polyaromatic hydrocarbons (PAH) (11)	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	
	Benzo(a)pyrene	50-32-8	$1,7x10^{-4}$	$1,7x10^{-4}$	0,27	0,027	5
	Benzo(b) fluoranthene	205-99-2	*	*	0,017	0,017	*
	Benzo(k) fluoranthene	207-08-9	*	*	0,017	0,017	*
	Benzo(g,h,i)-perylene	191-24-2-	*	*	$8,2x10^{-3}$	$8,2x10^{-4}$	*
	Indeno(1,2,3-cd)-pyrene	193-39-5	*	*	Not applicable	Not applicable	*
29	Simazine	122-34-9	1	1	4	4	
29a	Tetrachloro- ethylene	127-18-4	10	10	Not applicable	Not applicable	
29b	Trichloro- ethylene	79-01-6	10	10	Not applicable	Not applicable	
30	Tributyltin compounds (Tributyltin-cation)	36643-28-4	0,0002	0,0002	0,0015	0,0015	
31	Trichloro-benzenes	12002-48-1	0,4	0,4	Not applicable	Not applicable	
32	Trichloromethane	67-66-3	2,5	2,5	Not applicable	Not applicable	
33	Trifluralin	1582-09-8	0,03	0,03	Not applicable	Not applicable	

№	Name of priority substance	CAS number	Annual average Inland surface waters *Environmental quality standards*	Annual average Other surface waters *Environmental quality standards*	Max allowable concentration Inland *Environmental quality standards*	Max allowable concentration Other *Environmental quality standards*	Biota *Environmental quality standards*
34	Dicofol	115-32-3	$1,3x10^{-3}$	$3,2x10^{-5}$	Not applicable	Not applicable	33
35	Perfluorooctane sulfonic acid and its derivatives (PFOS)	1763-23	$6,5x10^{-4}$	$1,3x10^{-4}$	36	7,2	9,1
36	Quinoxyfen	124495-18-7	0,15	0,015	2,7	0,54	
37	Dioxins and dioxin-like compounds	**			Not applicable	Not applicable	Sum of PCDD+ PCDF+ PCB-DL 0,0065 $mg.kg^{-1}$ TEQ
38	Aclonifen	74070-46-5	0,12	0,012	0,12	0,012	
39	Bifenox	42576-02-3	0,012	0,0012	0,04	0,004	
40	Cybutryne	28159-98-0	0,0025	0,0025	0,016	0,016	
41	Cypermethrin	52315-07-8	$8x10^{-5}$	$8x10^{-6}$	$6x10^{-4}$	$6x10^{-5}$	
42	Dichlorvos	62-73-7	$6x10^{-4}$	$6x10^{-5}$	$7x10^{-4}$	$7x10^{-5}$	
43	Hexabromo-cyclododecane (HBCDD)	*	0,0016	0,0008	0,5	0,05	167
44	Heptachlor and heptachlor epoxide	76-44-8/ 1024-57-3	$2x10^{-7}$	$1x10^{-8}$	$3x10^{-4}$	$3x10^{-5}$	$6,7x10^{-3}$
45	Terbutryn	886-50-0	0,065	0,0065	0,34	0,034	

* For the PAH category (No. 28), the EQS for biota and the corresponding mean annual values (MAV-EQS) for water refer to the concentration of benzo (a) pyrene on which the toxicity is based. Benzo (a) pyrene may be considered as a marker for the other PAHs, therefore only benzo (a) pyrene needs to be monitored for comparison with the EQS for biota or the relevant MAV EQS for water.

** Total DDT includes the sum of isomers 1,1,1-trichloro-2,2 bis (p-chlorophenyl) ethane CAS number 50-29-3; EC number 200-024-3); 1,1,1-trichloro-2 (o-chlorophenyl) -2- (p-chlorophenyl) ethane CAS Number 789-02-6; EC number 212-332-5); 1,1-dichloro-2,2-bis (p-chlorophenyl) ethylene CAS No 72-55-9; EC number 200-784-6); and 1,1-dichloro-2,2 bis (p-chlorophenyl) ethane CAS-No. 72-54-8; EC number 200-783-0)

Table 10 Natural background levels for inland surface waters

Parameters	CAS no.	Natural background values in µg/l
Cadmium and its compounds	7440-43-9	0,04
Mercury and its compounds	7439-97-6	0,0025
Copper and its compounds	7440-50-8	1,0
Boron and its compounds	7440-42-8	30
Zinc and its compounds	7440-66-6	4,2
Cobalt and its compounds	7440-48-4	0,1
Antimony and its compounds	7440-36-0	0,6

Table 11 Threshold of ecological status for a specific pollutant

No.	Parameter	CAS No.	Unit	Limit value for ecological status		
				Excellent	Good	
				annual average	Annual average Quality standard	Max allowable concentration Quality standard
Synthetic pollutants						
1	1,2,4-trimethylbenzene	95-63-6	µg/L	0,2	2	20
2	1,3,5-trimethylbenzene	108-67-8	µg/L	0,2	2	20
3	bisfenol-A	80-05-7	µg/L	0,16	1,6	16
4	chlorotoluron (+ desmethyl chlorotoluron)	15545-48-9	µg/L	0,08	0,8	8
5	cyanide	57-12-5	µg/L	1	1,2	17
6	dibutylphthalate	84-74-2	µg/L	1	10	100

No.	Parameter	CAS No.	Unit	Limit value for ecological status		
				Excellent	Good	
				annual average	Annual average Quality standard	Max allowable concentration Quality standard
7	dibutilkositrov kation	ni določena	µg/L	0,002	0,02	0,21
8	epichlorhydrin	106-89-8	µg/L	1,2	12	120
9	fluoride	16984-48-8	µg/L	68	680	6800
10	formaldehyde	50-00-0	µg/L	13	130	1300
11	glyphosate	1071-83-6	µg/L	2	20	200
12	hexachloroethane	67-72-1	µg/L	2,4	24	240
13	xylene	1330-20-7	µg/L	19	185	1850
14	linear alkylbenzene sulfonates-LAS (C10-C13)	42615-29-2	µg/L	25	250	2500
15	n-hexane	110-54-3	µg/L	0,02	0,2	1,2
16	pendimethalin	40487-42-1	µg/L	0,03	0,3	3
17	phenol	108-95-2	µg/L	0,8	7,7	77
18	S-metolachlor	87392-12-9	µg/L	0,03	0,3	2,7
19	terbutylazine	5915-41-3	µg/L	0,05	0,5	5,3
20	toluene	108-88-3	µg/L	7,4	74	740
non-synthetic pollutants						
21	arsenic and its compounds	7440-38-2	µg/L	0,7	7	21
22	copper and its compounds	7440-50-8	µg/L	1	8,2 + NBL	73 + NBL
23	boron and its compounds	7440-42-8	µg/L	30	180 + NBL	1800 + NBL
24	zinc and its compounds	7440-66-6	µg/L	4,2 (CaCO3 0-50 mg/l) 4,2 (CaCO3 50-100 mg/l) 4,2 (CaCO3 ≥100 mg/l)	7,8 (CaCO3 0-50 mg/l) 35,1 (CaCO3 50-100 mg/l) 52 (CaCO3 ≥100 mg/l)	78 (CaCO3 0-50 mg/l) 351 (CaCO3 50-100 mg/l) 520 (CaCO3 ≥100 mg/l)
25	cobalt and its compounds	7440-48-4	µg/L	0,1	0,3 + NBL	2,8 + NBL

No.	Parameter	CAS No.	Unit	Limit value for ecological status		
				Excellent	Good	
				annual average	Annual average Quality standard	Max allowable concentration Quality standard
26	chromium and its compounds (expressed as total chromium)	7440-47-3	µg/L	1,2	12	160
27	molybdenum and its compounds	7439-98-7	µg/L	2,4	24	200
28	antimony and its compounds	7440-36-0	µg/L	0,6	3,2 + NBL	30 + NBL
29	selenium	7782-49-2	µg/L	0,6	6	72
Other specific pollutants						
30	nitrite		mg/L NO_2			not applicable
31	Chemical oxygen demend		mg/L O_2	10 - 20,9	13,6 - 29,9	not applicable
32	sulphate		mg/L SO_4	15	150	not applicable
33	mineral oils		mg/L	0,005	0,05	not applicable
34	Adsorbable organic halides (AOX)		µg/L	2	20	not applicable
35	polychlorinated biphenyls (PCB)		µg/L	0,003	0,01	not applicable

Table 12 Table of Polycyclic Aromatic Hydrocarbons –PAHs, Polychlorinated Biphenyls-PCBs and others in drinking water

Trace Element	Levels in drinking water (µg/l)					
Non-metals	A)normal values		B)alert threshold		C)intervention threshold	
Acrylamide			0,1			
Antimony			5,0			
Benzene			1,0			
Benzo(a)pyrene			0,01			
1,2-dichloroethane			3,0			
Epichlorohydrin			0,1			
Individual pesticide			0,1			
Pesticides total			0,5			
PAH			0,1			
Tetrachloroethene and trichloroethene			10			
Total of Trihalomethanes			100			
Vinyl chloride			0,5			

Table 13 Table of microbiological parameters for drinking water

Parameter	Concentration Colony Forming Units/ml
Escherichia coli	0/250 ml
Enterococci	0/250 ml
Pseudomonas aeruginosa	0/250 ml
Colonies (Microbe number) a 22º	100 per 1ml
Colonies (Microbe number) a 37º	20 per 1 ml
Clostridium perfringens	0/100 ml
Coliforms	0/100 ml

I.3Quality objectives for hazardous substances (please complete the tables of HSs according to national documents)

Table 14 Table of quality objectives for hazardous substances

Dangerous substance (HS)	Water quality objective (µg/l)	Quality target for sediment (mg/kg)	Quality objective for biocenosis (µg/kg)
Cadmium and its compounds (depending on water hardness)	class.1: ≤ 0,08 + NBL class .2: 0,08 + NBL class .3: 0,09 + NBL class. 4: 0,15 + NBL class .5: 0,25 + NBL		
Mercury and its compounds	0,07 + NBL		20
Anthracene	0,1		
Brominated diphenylethers	0,014		0,0085
C10-13 Chloroalkanes	0,4		
Di(2-ethylhexyl)-Phthalate (DEHP)	1,3		
Endosulfan	0,005		
Hexachloro-benzene	0,05		10
Hexachloro-butadiene	0,6		55
Hexachloro-cyclohexane	0,02		
Nonylphenols	0,3		
Pentachloro-benzene	0,007		
PAH total			
Tributyltin	0,0002		

Dangerous substance (HS)	Water quality objective (µg/l)	Quality target for sediment (mg/kg)	Quality objective for biocenosis (µg/kg)
compounds			
Trifluralin	0,03		
Dicofol	0,0013		33
Perfluorooctane sulfonic acid and its derivatives (PFOS)	0,00065		9,1
Quinoxyfen	0,15		
Dioxins and dioxin-like compounds			Sum of PCDD + PCDF + PCB-DL 0,0065 µg.kg $^{-1}$ TEQ
Hexabromo-cyclododecane (HBCDD)	0,0016		167

I.4 Listing of analytical standards (national analytics and international e.g. USEPA, ASTM, etc.) recommended in documents for chemical, physical, microbiological analyzes of samples

Table 15 Analytical methods, standards and measurement characteristics

Parameter	Measure principle	Reference	Unit	LOD	LOQ	Measurement uncertainty
WATER						
1,1,2,2-Tetrachloroethene	HS/GC/ECD	SIST EN ISO 10301:1998 (paragraph 3)	ug/L	0,03	0,06	17%
1,1,2,2-Tetrachloroethene	GC/MS/PT	ISO 15680	ug/L	0,05	0,1	30%
1,1,2-Trichloroethene	HS/GC/ECD	SIST EN ISO 10301:1998 (paragraph 3)	ug/L	0,05	0,2	14%
1,1,2-Trichloroethene	GC/MS/PT	ISO 15680	ug/L	0,05	0,1	30%
1,2,3-Trichlorobenzene	GC/ECD	SIST EN ISO 6468:1998-modif.	ug/L	0,0008	0,0028	48%
1,2,3-Trichlorobenzene	GC/ECD/PT	ISO 15680	ug/L	0,02	0,04	30%
1,2,4-Trichlorobenzene	GC/ECD	SIST EN ISO 6468:1998-modif.	ug/L	0,0022	0,0074	45%
1,2,4-Trichlorobenzene	GC/ECD/PT	ISO 15680	ug/L	0,02	0,04	30%
1,2-Dichloroethane	PT/GC/MSD-SIM	SIST EN ISO 15680:2004	ug/L	0,1	0,2	26%
1,2-Dichloroethane	GC/MS/PT	ISO 15680	ug/L	0,1	0,2	30%
1,3,5-Trichlorobenzene	GC/ECD	SIST EN ISO 6468:1998-modif.	ug/L	0,0005	0,0017	45%
1,3,5-Trichlorobenzene	GC/ECD/PT	ISO 15680	ug/L	0,02	0,04	30%
2,2',4,4',5,5'-HexaBDE(BDE-153)	HRGC/HRMS	EPA 1614	ug/L	0,00001	0,00005	20%
2,2',4,4',5,6'-HexaBDE(BDE-154)	HRGC/HRMS	EPA 1614	ug/L	0,00001	0,00005	20%

Parameter	Measure principle	Reference	Unit	LOD	LOQ	Measurement uncertainty
2,2',4,4',5-PentaBDE (BDE-99)	HRGC/HRMS	EPA 1614	ug/L	0,00001	0,00005	20%
2,2',4,4',6-PentaBDE(BDE-100)	HRGC/HRMS	EPA 1614	ug/L	0,00001	0,00005	20%
2,2',4,4'-TetraBDE(BDE-47)	HRGC/HRMS	EPA 1614	ug/L	0,00001	0,00005	20%
2,4,4'-TriBDE(BDE-28)	HRGC/HRMS	EPA 1614	ug/L	0,00001	0,00005	20%
Aklonifen	LC/MS/MS(on-line)	EN ISO 11369 modif.:1997	ug/L	0,01	0,02	19%
Aklonifen	LC-MS/MS	Laboratory method M 740_3	ug/L	0,003	0,009	25%
Alachlor	LC-MS/MS	Laboratory method M 740_3	ug/L	0,002	0,007	24%
Alachlor	LC/MS/MS(on-line)	DIN EN ISO 11369 modif.	ug/L	0,008	0,03	15%
Aldrine	GC/ECD	SIST EN ISO 6468:1998-modif.	ug/L	0,0004	0,0012	38%
Aldrine	GC/ECD	ISO 6468-modif.	ug/L	0,002	0,003	20%
alfa-HCH	GC/ECD	SIST EN ISO 6468:1998-modif.	ug/L	0,0004	0,0013	40%
alfa-HCH	GC/ECD	ISO 6468-modif.	ug/L	0,001	0,002	20%
Anthracene	HPLC	SIST EN ISO 17993: 2004	ug/L	0,002	0,005	7%
Anthracene	HPLC	ISO 17993-modif.	ug/L	0,001	0,004	37%
Atrazine	LC-MS/MS	Laboratory method M 740_3	ug/L	0,002	0,007	13%
Atrazine	LC/MS/MS(on-line)	DIN EN ISO 11369 modif.	ug/L	0,002	0,02	13%
Benzene	PT-GC-MS	SIST EN ISO 15680: 2004	ug/L	0,1	0,2	10%
Benzene	GC/MS/PT	ISO 15680	ug/L	0,1	0,2	30%
Benzo(a)pyrene	HPLC	SIST EN ISO 17993: 2004	ug/L	0,001	0,004	8%
Benzo(a)pyrene	HPLC	ISO 17993-modif.	ug/L	0,001	0,004	21%
Benzo(b)fluorantene	HPLC	SIST EN ISO 17993: 2004	ug/L	0,001	0,005	7%
Benzo(b)fluorantene	HPLC	ISO 17993-modif.	ug/L	0,001	0,004	9%
Benzo(g,h,i)perilene	HPLC	SIST EN ISO 17993: 2004	ug/L	0,001	0,004	14%
Benzo(ghi)perilene	HPLC	ISO 17993-modif.	ug/L	0,0002	0,004	12%
Benzo(k)fluorantene	HPLC	SIST EN ISO 17993: 2004	ug/L	0,001	0,004	7%
Benzo(k)fluorantene	HPLC	ISO 17993-modif.	ug/L	0,001	0,004	9%
beta-HCH	GC/ECD	SIST EN ISO 6468:1998-modif.	ug/L	0,0003	0,0005	14%
beta-HCH	GC/ECD	ISO 6468-modif.	ug/L	0,002	0,004	20%
Bifenox	LC/MS/MS(on-line)	EN ISO 11369 modif.:1997	ug/L	0,004	0,01	16%
Bifenox	LC-MS/MS	Laboratory method M 740_1	ug/L	0,003	0,009	25%
C10-13 chloroalkanes	GC/MS/NCI	IM/GC/MS/ECNi-MS	ug/L	0,01	0,04	30%
Cibutrin	LC/MS/MS(on-line)	EN ISO 11369 modif.:1997	ug/L	0,001	0,0025	25%
Cibutrin	LC-MS/MS	Laboratory method M 740_3	ug/L	0,001	0,0025	25%

Parameter	Measure principle	Reference	Unit	LOD	LOQ	Measurement uncertainty
Cypermethrin	HRMS	EPA METHOD 1699	ug/L	0,00005	0,0002	20%
cis-heptachlorine oxide	HRMS	EPA METHOD 1699	ug/L	0,00001	0,00005	20%
cis-heptachlorine oxide	GC-ECD	SIST EN ISO 6468: 1998-modif.	ug/L	0,0003	0,0011	35%
DDD (p,p)	GC/ECD	SIST EN ISO 6468:1998-modif.	ug/L	0,0003	0,0011	36%
DDD(p,p)	GC/ECD	ISO 6468-modif.	ug/L	0,002	0,004	20%
DDE(p,p)	GC/ECD	SIST EN ISO 6468:1998-modif.	ug/L	0,0003	0,0009	35%
DDE(p,p)	GC/ECD	ISO 6468-modif.	ug/L	0,002	0,004	20%
DDT (o,p)	GC/ECD	SIST EN ISO 6468:1998-modif.	ug/L	0,0003	0,0011	35%
DDT (p,p)	GC/ECD	SIST EN ISO 6468:1998-modif.	ug/L	0,0008	0,0027	33%
DDT(o,p)	GC/ECD	ISO 6468-modif.	ug/L	0,002	0,005	20%
DDT(p,p)	GC/ECD	ISO 6468-modif.	ug/L	0,002	0,003	25%
delta-HCH	GC/ECD	SIST EN ISO 6468:1998-modif.	ug/L	0,0005	0,0018	50%
delta-HCH	GC/ECD	ISO 6468-modif.	ug/L	0,002	0,004	20%
Di- (2-ethylhexyl) - phthalate (DEHP)	GC/MS-SIM	SIST EN ISO 18856:2005	ug/L	0,1	0,24	60%
Di- (2-ethylhexyl) - phthalate (DEHP)	GC/MS	SM 6410B	ug/L	0,05	0,1	30%
Dieldrin	GC/ECD	SIST EN ISO 6468:1998-modif.	ug/L	0,0005	0,0015	38%
Dieldrin	GC/ECD	ISO 6468-modif.	ug/L	0,002	0,003	20%
Diçhloromethane	HS/GC/ECD	SIST EN ISO 10301:1998 (paragraph 3)	ug/L	0,8	5	58%
Diçhloromethane (metilenchloride)	GC/MS/PT	ISO 15680	ug/L	0,2	2	30%
Dichlorvos	LC/MS/MS(on-line)	EN ISO 11369 modif.:1997	ug/L	0,0006	0,003	19%
Dichlorvos	LC-MS/MS	Laboratory method M 740_1	ug/L	0,0006	0,002	26%
Dicofol	GC/MS	ND-IV-NLZOH-OKAMB, ver 10	ug/L	0,0005	0,001	25%
Dicofol	GC/ECD	SIST EN ISO 6468:1998-modif.	ug/L	0,0004	0,001	30%
Diuron	LC-MS/MS	Laboratory method M 740_3	ug/L	0,002	0,007	19%
Diuron	LC/MS/MS(on-line)	DIN EN ISO 11369 modif.	ug/L	0,007	0,02	22%
Endosulfan (alfa)	GC/ECD	SIST EN ISO 6468:1998-modif.	ug/L	0,0003	0,0011	36%
Endosulfan (beta)	GC/ECD	SIST EN ISO 6468:1998-modif.	ug/L	0,0003	0,0011	36%
Endosulfan (alfa)	GC/ECD	ISO 6468-modif.	ug/L	0,001	0,002	20%
Endosulfan (beta)	GC/ECD	ISO 6468-modif.	ug/L	0,001	0,002	20%
Endrine	GC/ECD	SIST EN ISO 6468:1998-modif.	ug/L	0,0005	0,0016	33%
Endrine	GC/ECD	ISO 6468-modif.	ug/L	0,002	0,003	20%
Fluorantene	HPLC	SIST EN ISO 17993: 2004	ug/L	0,001	0,003	7%

Parameter	Measure principle	Reference	Unit	LOD	LOQ	Measurement uncertainty
Fluorantene	HPLC	ISO 17993-modif.	ug/L	0,002	0,004	17%
gama-HCH (Lindan)	GC/ECD	SIST EN ISO 6468:1998-modif.	ug/L	0,0004	0,0012	42%
gama-HCH (Lindan)	GC/ECD	ISO 6468-modif.	ug/L	0,002	0,003	20%
Hexachlorobenzene	GC/ECD	SIST EN ISO 6468:1998-modif.	ug/L	0,0003	0,001	41%
Hexachlorobenzene	GC/ECD	ISO 6468-modif.	ug/L	0,001	0,002	20%
Hexachlorobutadiene	GC/ECD	SIST EN ISO 6468:1998-modif.	ug/L	0,0003	0,0009	21%
Hexachlorobutadiene	GC/ECD/PT	ISO 15680	ug/L	0,01	0,03	30%
Heptachlor	HRMS	EPA METHOD 1699	ug/L	0,00001	0,00005	20%
Heptachlor	GC/ECD	SIST EN ISO 6468:1998-modif.	ug/L	0,0008	0,0027	33%
Indeno (1,2,3-c, d) pyrene	HPLC	SIST EN ISO 17993: 2004	ug/L	0,001	0,004	9%
Indeno (1,2,3-c, d) pyrene	HPLC	ISO 17993-modif.	ug/L	0,0002	0,005	20%
Isodrin	GC/ECD	SIST EN ISO 6468:1998-modif.	ug/L	0,0003	0,001	44%
Isodrin	GC/ECD	ISO 6468-modif.	ug/L	0,002	0,003	20%
Isoproturon	LC-MS/MS	Laboratory method M 740_3	ug/L	0,002	0,008	17%
Isoproturon	LC/MS/MS(on-line)	DIN EN ISO 11369 modif.	ug/L	0,004	0,02	13%
Cadmium	ICP-MS	SIST EN ISO 17294-2:2005	ug/L	0,008	0,02	13%
Cadmium	ICP/MS	ISO 17294-2	ug/L	0,008	0,01	20%
Chlorofenvinfos	LC-MS/MS	Laboratory method M 740_1	ug/L	0,0007	0,002	20%
Chlorofenvinfos	LC/MS/MS(on-line)	DIN EN ISO 11369 modif.	ug/L	0,009	0,03	15%
Chlorpyrifos ethyl	LC-MS/MS	Laboratory method M 740_1	ug/L	0,0007	0,002	28%
Chlorpyrifos ethyl	GC/MS	IM/GC-MSD/SOP034	ug/L	0,003	0,009	21%
Quinoxyfen	LC/MS/MS(on-line)	EN ISO 11369 modif.:1997	ug/L	0,003	0,01	33%
Quinoxyfen	LC-MS/MS	Laboratory method M 740_3	ug/L	0,003	0,009	25%
Naftalen	GC/MS-SIM	Laboratory method M710	ug/L	0,003	0,005	30%
Naftalen	HPLC	ISO 17993-modif.	ug/L	0,004	0,005	20%
Nickel	ICP-MS	SIST EN ISO 17294-2:2005	ug/L	0,03	0,1	15%
Nickel	ICP/MS	ISO 17294-2	ug/L	0,4	1	10%
Nonylphenols	GC-MS	ISO 18857-2:2009(E)	ug/L	0,04	0,1	37%
Nonylphenols	GC/MS/SIM	ISO 18857-2	ug/L	0,005	0,01	20%
Octylphenols	GC-MS	ISO 18857-2:2009(E)	ug/L	0,002	0,006	22%
Octylphenols	GC/MS/SIM	ISO 18857-2	ug/L	0,005	0,01	20%
Pentachlorobenzene	GC/ECD	ISO 6468-modif.	ug/L	0,001	0,002	20%
Pentachlorophenol	GC/MS	EPA METHOD 528 modif.	ug/L	0,01	0,05	20%
Pentachlorobenzene	GC/ECD	SIST EN ISO 6468:1998-modif.	ug/L	0,0003	0,0009	41%

Parameter	Measure principle	Reference	Unit	LOD	LOQ	Measurement uncertainty
Pentachlorophenol (PCP)	GC/MS-SIM	Laboratory method M 713/2	ug/L	0,02	0,06	30%
Simazine	LC-MS/MS	Laboratory method M 740_3	ug/L	0,003	0,009	23%
Simazine	LC/MS/MS(on-line)	DIN EN ISO 11369 modif.	ug/L	0,011	0,03	13%
Lead	ICP-MS	SIST EN ISO 17294-2:2005	ug/L	0,03	0,1	13%
Lead	ICP/MS	ISO 17294-2	ug/L	0,2	1	7%
Terbutrin	LC/MS/MS(on-line)	EN ISO 11369 modif.:1997	ug/L	0,002	0,01	5%
Terbutrin	LC-MS/MS	Laboratory method M 740_3	ug/L	0,004	0,013	19%
Tetrachloromethane	HS/GC/ECD	SIST EN ISO 10301:1998 (poglavje 3)	ug/L	0,01	0,2	38%
Tetrachloromethane (Tetrachlorocarbon)	GC/MS/PT	ISO 15680	ug/L	0,1	0,2	30%
trans-heptachlorine oxide	HRMS	EPA METHOD 1699	ug/L	0,00001	0,00005	20%
trans-heptachlorine oxide	GC-ECD	SIST EN ISO 6468: 1998-modif.	ug/L	0,0003	0,0011	37%
Tributyl tin compounds (TBT cation)	GC z MS v ISP	Validated method, mod. po ISO 17353	ug/L	0,00005	0,0002	5%
Trifluralin	GC-MS/MS	Laboratory method M 712/5	ug/L	0,01	0,03	40%
Trifluralin	GC/MS	IM/GC-MSD/SOP034	ug/L	0,001	0,009	29%
Trichloromethane	HS/GC/ECD	SIST EN ISO 10301:1998 (paragraph 3)	ug/L	0,2	2	14%
Trichloromethane	GC/MS/PT	ISO 15680	ug/L	0,05	0,1	30%
Mercury	AAS-amalgamiranje	SIST ISO 16590-point 4:2001	ug/L	0,009	0,015	24%
Mercury	AFS	SIST EN ISO 17852 mod.	ug/L	0,005	0,01	33%
BIOTA						
Dicofol (wet weight)	GC/MS	IM/GC-MSD/SOP 105: ver 9	µg/kg	10	20	50%
PFOS (wet weight)	LC/MS/MS	ND-IV-NLZOH-OKAMB-288:2018	µg/kg	3	6	20%
2,3,7,8-T4CDD (wet weight)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,00002	0,00005	20%
1,2,3,7,8-PCCDD (wet weight)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,00002	0,00005	20%
1,2,3,4,7,8-H6CDD (wet weight)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,00002	0,00005	20%
1,2,3,6,7,8-H6CDD (wet weight)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,00002	0,00005	20%
1,2,3,7,8,9-H6CDD (wet weight)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,00002	0,00005	20%
1,2,3,4,6,7,8-H7CDD (wet weight)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,00002	0,00005	20%
1,2,3,4,6,7,8,9-O8CDD (wet weight)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,00005	0,0001	20%
2,3,7,8-T4CDF (wet weight)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,00002	0,00005	20%
1,2,3,7,8-P5CDF (wet weight)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,00002	0,00005	20%

Parameter	Measure principle	Reference	Unit	LOD	LOQ	Measurement uncertainty
2,3,4,7,8-P5CDF (wet weight)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,00002	0,00005	20%
1,2,3,4,7,8-H6CDF (wet weight)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,00002	0,00005	20%
1,2,3,6,7,8-H6CDF (wet weight)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,00002	0,00005	20%
1,2,3,7,8,9-H6CDF (wet weight)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,00002	0,00005	20%
2,3,4,6,7,8-H6CDF (wet weight)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,00002	0,00005	20%
1,2,3,4,6,7,8-H7CDF (wet weight)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,00002	0,00005	20%
1,2,3,4,7,8,9-H7CDF (wet weight)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,00002	0,00005	20%
1,2,3,4,6,7,8,9-O8CDF (wet weight)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,00005	0,0001	20%
3,3´,4,4´-T4CB (PCB 77) (wet weight)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,00005	0,0001	20%
3,3´,4´,5-T4CB (PCB 81) (wet weight)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,00005	0,0001	20%
2,3,3´,4,4´-P5CB (PCB 105) wet weight)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,00005	0,0001	20%
2,3,4,4´,5-P5CB (PCB 114) (wet weight)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,00005	0,0001	20%
2,3´,4,4´,5-P5CB (PCB 118) (wet weight)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,00005	0,0001	20%
2,3´,4,4´,5´-P5CB (PCB 123) (wet weight)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,00005	0,0001	20%
3,3´,4,4´,5-P5CB (PCB 126) (wet weight)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,00005	0,0001	20%
2,3,3´,4,4´,5-H6CB (PCB 156) (wet weight)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,00005	0,0001	20%
2,3,3´,4,4´,5´-H6CB (PCB 157) (wet weight)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,00005	0,0001	20%
2,3´,4,4´,5,5´-H6CB (PCB 167) (wet weight)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,00005	0,0001	20%
3,3´,4,4´,5,5´-H6CB (PCB 169) (wet weight)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,00005	0,0001	20%
2,3,3´,4,4´,5,5´-H7CB (PCB 189) (wet weight)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,00005	0,0001	20%
alfa - HBCDD (wet weight)	LC/MS/MS	ND-IV-NLZOH-OKAMB-289:2018	µg/kg	25	50	20%
beta - HBCDD (wet weight)	LC/MS/MS	ND-IV-NLZOH-OKAMB-289:2018	µg/kg	25	50	20%
gama - HBCDD (wet weight)	LC/MS/MS	ND-IV-NLZOH-OKAMB-289:2018	µg/kg	25	50	20%
Heptachlor (wet weight)	GC/ECD	EN 1528/1-4 modif.:1996	µg/kg	1	2	50%
cis-heptachlorine oxide (wet weight)	GC/ECD	EN 1528/1-4 modif.:1996	µg/kg	1	2	50%
trans-heptachlorine oxide (wet weight)	GC/ECD	EN 1528/1-4 modif.:1996	µg/kg	1	2	50%
Mercury (wet weight)	DMA	EPA 7473	µg/kg	2	5	21%
Hexachlorobutadiene (wet weight)	GC/ECD	EN 1528/1-4 modif.	µg/kg	3	15	50%

Parameter	Measure principle	Reference	Unit	LOD	LOQ	Measurement uncertainty
Hexachlorobenzene (wet weight)	GC/ECD	EN 1528/1-4 modif.	µg/kg	1	3	50%
SEDIMENT						
Dicofol	GC/MS	IM/GC-MS/SOP 092: ver 8	µg/kg	30	70	25%
PFOS*	LC-MS-MS	Internal method, GLS OC 400:2013-12	µg/kg	0,0923 - 1,04	1,43 - 3,11	20%
Quinoxyfen	GC/MS	IM/GC-MS/SOP 092: ver 8	µg/kg	5	30	25%
2,3,7,8-T4CDD	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,0002	0,0005	20%
1,2,3,7,8-P5CDD	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,0002	0,0005	20%
1,2,3,4,7,8-H6CDD	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,0002	0,0005	20%
1,2,3,6,7,8-H6CDD	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,0002	0,0005	20%
1,2,3,7,8,9-H6CDD	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,0002	0,0005	20%
1,2,3,4,6,7,8-H7CDD	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,0002	0,0005	20%
1,2,3,4,6,7,8,9-O8CDD	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,0002	0,0005	20%
2,3,7,8-T4CDF	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,0002	0,0005	20%
1,2,3,7,8-P5CDF	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,0002	0,0005	20%
2,3,4,7,8-P5CDF-	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,0002	0,0005	20%
1,2,3,4,7,8-H6CDF	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,0002	0,0005	20%
1,2,3,6,7,8-H6CDF	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,0002	0,0005	20%
1,2,3,7,8,9-H6CDF	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,0002	0,0005	20%
2,3,4,6,7,8-H6CDF	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,0002	0,0005	20%
1,2,3,4,6,7,8-H7CDF	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,0002	0,0005	20%
1,2,3,4,7,8,9-H7CDF	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,0002	0,0005	20%
1,2,3,4,6,7,8,9-O8CDF	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,0002	0,0005	20%
3,3´,4,4´-T4CB (PCB 77)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,0002	0,0005	20%
3,3´,4´,5-T4CB (PCB 81)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,0002	0,0005	20%
2,3,3´,4,4´-P5CB (PCB 105)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,0002	0,0005	20%
2,3,4,4´,5-P5CB (PCB 114)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,0002	0,0005	20%
2,3´,4,4´,5-P5CB (PCB 118)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,0002	0,0005	20%
2,3´,4,4´,5´-P5CB (PCB 123)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,0002	0,0005	20%
3,3´,4,4´,5-P5CB (PCB 126)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,0002	0,0005	20%

Parameter	Measure principle	Reference	Unit	LOD	LOQ	Measurement uncertainty
2,3,3´,4,4´,5-H6CB (PCB 156)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,0002	0,0005	20%
2,3,3´,4,4´,5´-H6CB (PCB 157)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,0002	0,0005	20%
2,3´,4,4´,5,5´-H6CB (PCB 167)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,0002	0,0005	20%
3,3´,4,4´,5,5´-H6CB (PCB 169)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,0002	0,0005	20%
2,3,3´,4,4´,5,5´-H7CB (PCB 189)	HRGC/HRMS	EPA 1613B, EPA 1668C:2010	µg/kg	0,0002	0,0005	20%
alfa - HBCDD*	LC-MS-MS	Internal method, GLS OC 210:2013-10	µg/kg	0,011 - 0,202	0,0322 - 0,0725	15%
beta - HBCDD*	LC-MS-MS	Internal method, GLS OC 210:2013-10	µg/kg	0,011 - 0,202	0,0322 - 0,0654	50%
gama - HBCDD*	LC-MS-MS	Internal method, GLS OC 210:2013-10	µg/kg	0,011 - 0,202	0,0322 - 0,071	30%
Heptachlor	GC/ECD	ISO 10382 modif.:2002	mg/kg	0,005	0,01	20%
cis-heptachlorine oxide	GC/ECD	ISO 10382 modif.:2002	mg/kg	0,005	0,01	20%
trans-heptachlorine oxide	GC/ECD	ISO 10382 modif.:2002	mg/kg	0,005	0,01	20%
2,2',4,4',5,5'-HexaBDE	HRGC/HRMS	EPA 1614:2010	µg/kg	0,05	0,1	20%
2,2',4,4',5,6'-HexaBDE	HRGC/HRMS	EPA 1614:2010	µg/kg	0,05	0,1	20%
2,2',4,4',5-PentaBDE-	HRGC/HRMS	EPA 1614:2010	µg/kg	0,05	0,1	20%
2,2',4,4',6-PentaBDE	HRGC/HRMS	EPA 1614:2010	µg/kg	0,05	0,1	20%
2,2',4,4'-TetraBDE	HRGC/HRMS	EPA 1614:2010	µg/kg	0,05	0,1	20%
2,4,4'-TriBDE	HRGC/HRMS	EPA 1614:2010	µg/kg	0,05	0,1	20%
alfa - HCH	GC/ECD	ISO 10382 modif.:2002	mg/kg	0,005	0,01	20%
Anthracene	GC/MS	IM/GC MSD/SOP 055: ver 5	mg/kg	0,005	0,01	21%
Benzo (a) pyrene	GC/MS	IM/GC MSD/SOP 055: ver 5	mg/kg	0,005	0,01	26%
Benzo (b) fluorantene	GC/MS	IM/GC MSD/SOP 055: ver 5	mg/kg	0,005	0,01	18%
Benzo (ghi) perilene	GC/MS	IM/GC MSD/SOP 055: ver 5	mg/kg	0,005	0,01	17%
Benzo (k) fluorantene	GC/MS	IM/GC MSD/SOP 055: ver 5	mg/kg	0,005	0,01	16%
beta - HCH	GC/ECD	ISO 10382 modif.:2002	mg/kg	0,005	0,01	20%
C10-13 chloroalkanes	GC/MS/NCI	IM/GC MSD:ver 1	µg/kg	0,2	0,5	30%
Di (2-ethylhexyl) phthalate (DEHP)	GC/MS	ISO 13913:2014	µg/kg	20	50	25%
Dibutyl tin compounds	GC/MS/MS	ISO 17353:2004	µg DBT/kg	0,5	1	20%
Fluorantene	GC/MS	IM/GC MSD/SOP 055: ver 5	mg/kg	0,005	0,01	15%
gama - HCH (Lindan)	GC/ECD	ISO 10382 modif.:2002	mg/kg	0,005	0,01	20%
Hexachlorobenzene	GC/ECD	ISO 10382 modif.:2002	mg/kg	0,003	0,005	20%
Hexachlorobutadiene	GC/ECD	ISO 10382 modif.:2002	mg/kg	0,01	0,02	20%
Heptachlor	GC/ECD	ISO 10382 modif.:2002	mg/kg	0,005	0,01	20%
Indeno (1,2,3-cd) pyrene	GC/MS	IM/GC MSD/SOP 055: ver 5	mg/kg	0,005	0,01	19%
Cadmium	ICP/MS	ISO 17294-2, modif.:2016	mg/kg	0,01	0,1	19%

Parameter	Measure principle	Reference	Unit	LOD	LOQ	Measurement uncertainty
Naftalen	GC/MS	IM/GC MSD/SOP 055: ver 5	mg/kg	0,01	0,05	42%
Pentachlorobenzene	GC/ECD	ISO 10382 modif.:2002	mg/kg	0,005	0,01	20%
Lead	ICP/MS	ISO 17294-2, modif.:2016	mg/kg	2	5	16%
Tributyl tin compounds	GC/MS/MS	ISO 17353:2004	µg TBT/kg	0,5	1	20%
Mercury	CV-AAS	EPA 7473:2007	mg/kg	0,01	0,05	21%

I.5. List of chronic or acute toxicity tests and determination of bioaccumulation or persistence in biota according to the specificity of the dangerous substance in the trophic chain (Ex: Microtox test - The potential ecological impacts of anaerobic degradation of vegetable oil on freshwater sediments; Hyalella Azteca etc).

We do not do toxicity test and determination of bioaccumulation.

I.6List of national, and international guides of techniques on the design of sampling, transport, storage, samples preparation (sieving, fraction extraction, separation, etc.) recommended in documents

Table 16 List of national, and international guides of techniques on the design of sampling, transport, storage, samples preparation

Nr		sediment	soil	water
1	sampling	SIST ISO 5667 – 12:1996; Water quality -- Sampling -- Part 12: Guidance on sampling of bottom sediments	SIST ISO 10381-1:2006. Soil quality -- Sampling -- Part 1: Guidance on the design of sampling programmes. SIST ISO 10381-2:2006. Soil quality -- Sampling -- Part 2: Guidance on sampling techniques	SIST ISO 5667-6: 2015; Water quality - Sampling - Part 6: Guidance on sampling of rivers and streams
2	Transport,storage	SIST ISO 5667 – 15: 2010; Water quality - Sampling - Part 15: Guidance on the preservation and handling of sludge and sediment		SIST EN ISO 5667-3: 2013; Water quality - Sampling - Part 3: Preservation and handling of water samples (ISO 5667-3:2012)

		samples (ISO 5667-15:2009)		

I.7 Specify the recommended remedy measures associated with the contents of the hazardous substances (alert threshold, intervention threshold)

No information.

II PRACTICES, EXPERIENCES

II.1.Significant national, European, finalized or ongoing projects related to geochemistry of waters, soils, sediments in the Danube basin

Table 17 List of significant national, European, finalized or ongoing projects

No.	Project title (national language, if available)	Project Title (EN)	Year	Country	Project coordinators, Partners
1	CAMARO-D	Cooperating towards Advanced Management Routines for land use impacts on the water regime in the Danube river basin	2017-2019	Slovenia, Austria, Romania, Bulgaria, Croatia, Czech Republic, Germany, Hungary, Serbia	

II.2. Significant scientific papers, books, related to geochemistry of waters, soils, sediments in the Danube basin

No.	Paper title (national language,if available)	Title (EN)	Year	Country	Authors

II.3Existent waterbodies and sampling sites (Ramsar, Natura2000 etc.) and current quality monitoring stations of the Danube River

Table 17 Danube River Quality Monitoring Stations for River water

RIVER	MONITORING SITE	GK X (WGS84)	GK Y (WGS84)
MURA	Ceršak	172726	550953
MURA	Trate	172906	560040
MURA	Gornja Radgona	170483	575477
MURA	Mele	168095	578281
MURA	Mota	154750	597638
MURA	Orlovšček	154124	602703
KUČNICA	Gederovci	170033	579598
ŠČAVNICA	Spodnji Ivanjci	161012	575107
ŠČAVNICA	Pristava	152410	594482
ŠČAVNICA	Veščica	152680	597207
LEDAVA	Sotina	187508	577734
LEDAVA	Sveti Jurij	183123	578776
LEDAVA	Gančani	166435	596743
LEDAVA	Čentiba	154571	613343
LEDAVA	Murska šuma	150799	617555
KOBILJANSKI POTOK	Kobilje	170494	607417
KOBILJANSKI POTOK	Mostje	161086	609728
KOBILJANSKI POTOK	Redič	163679	611103
VELIKA KRKA	Hodoš	185372	601696
DRAVA	Tribej	161110	498214
DRAVA	Ruše	154823	538966
DRAVA	Starše	147158	559124
DRAVA	Krčevina pri Ptuju	143305	564012
DRAVA	Kanal HE Zlatoličje - Prepolje	144507	558555
DRAVA	Kanal HE Formin - Gorišnica	139443	577902
DRAVA	Borl I	135796	576644
DRAVA	Ormož most	139483	588783
DRAVA	Grabe	137587	596437
MEŽA	Topla	145427	484173
MEŽA	nad tovarno TAB Črna	146742	488480
MEŽA	pod tovarno TAB Črna	147061	488726
MEŽA	pod tovarno TAB Žerjav	148027	490049
MEŽA	nad tovarno TAB Žerjav	147563	489748
MEŽA	pred Hudim Grebenom	148664	490269
MEŽA	pred tovarno Lek - Prevalje	154415	492571
MEŽA	pred ind. cono Ravne	154754	495129
MEŽA	za ind. cono Ravne	154771	497267
MEŽA	Podklanc	157330	501099
HELENSKI POTOK	Črna	146334	486270
JAVORSKI POTOK	Črna	146294	488577

RIVER	MONITORING SITE	GK X (WGS84)	GK Y (WGS84)
JAZBINSKI POTOK	Žerjav	148041	490080
MISLINJA	Mala vas	148930	508879
MISLINJA	Otiški vrh	157827	502098
MUTSKA BISTRICA	Karavla pri meji	166470	509250
MUTSKA BISTRICA	Podlipje	162270	510564
DRAVINJA	Loška gora	137757	528486
DRAVINJA	Prežigal	131299	535276
DRAVINJA	Videm pri Ptuju	135364	569469
LOŽNICA	Gladomes	137962	538144
LOŽNICA	Lokanja vas	135537	545867
LOŽNICA	Spodnja Ložnica	131701	550066
POLSKAVA	Lancova vas	135405	566028
ŽABNIK	pod KČN Rače	143108	552810
ŽABNIK	nad tovarno Albaugh Rače	145132	551187
PESNICA	Pesniški Dvor	160653	553153
PESNICA	Zamušani	140496	579551
SAVA DOLINKA	Moste	140146	432819
SAVA BOHINJKA	Bodešče	132416	433990
SAVA	Otoče pod mostom	128781	441150
SAVA	Struževo	122028	448114
SAVA	Prebačevo	117904	452940
SAVA	Dragočajna	113529	454795
SAVA	Medno	107785	456818
SAVA	Šentjakob	103471	467713
SAVA	Kresnice	105831	483168
SAVA	Podkraj	106308	509162
SAVA	HE Boštanj	96063	521777
SAVA	HE Blanca	93087	529513
SAVA	nad NEK Krško	87228	539105
SAVA	HE Krško	91410	537382
SAVA	Jesenice na Dolenjskem	78822	553720
SORA	Lipica	111724	449693
SORA	Medvode	109897	454280
KAMNIŠKA BISTRICA	Ihan	107950	469514
DRAVA	PTUJSKO JEZERO	137659	571263
KAMNIŠKA BISTRICA	Beričevo	103157	471129
MLINŠČICA	Dol pri Ljubljani	103557	472524
RAČA	Spodnja Krtina	110557	473157
BOBEN	Hrastnik izliv	107878	507209
PŠATA	Bišče	105064	470046
SOTLA	Rogaška Slatina	117959	549816
SOTLA	Rigonce	82284	553071
MESTINJŠČICA	Na drugem mostu v Bukovju	114696	546263

RIVER	MONITORING SITE	GK X (WGS84)	GK Y (WGS84)
KOLPA	Osilnica	42198	476689
KOLPA	Radenci	34623	507105
KOLPA	Radoviči (Metlika)	54777	527852
ČABRANKA	Sela	41395	476549
RINŽA	Kočevje nad KČN	53561	489493
RINŽA	Kočevje	52430	490090
LAHINJA	Geršiči	52277	520572
KRUPA	Klošter	52340	518608
LJUBLJANICA	Moste	100296	463964
GRUBERJEV PREKOP	Ljubljana	99840	464405
LJUBLJANICA	Zalog	102155	471790
IŠČICA	Ižanska cesta	94095	462698
GRADAŠČICA	Dvor	101349	449848
CERKNIŠČICA	Cerknica (Dolenja vas)	70236	448512
PIVKA	Postojna	70117	438116
UNICA	Hasberg	75304	442838
LOGAŠČICA	nad KČN Logatec	84749	440426
LOGAŠČICA	Jačka	84973	440452
SAVINJA	Luče	134547	479525
SAVINJA	Grušovje	128888	490919
SAVINJA	Medlog	120000	517343
SAVINJA	Brstnik	114343	518493
SAVINJA	Rimske Toplice	107684	515644
SAVINJA	Veliko Širje	104274	514877
PAKA	pod Gorenjem	134544	506888
PAKA	Šoštanj	135809	503716
PAKA	Skorno	135889	501818
VOGLAJNA	pod KČN Šentjur	117702	528475
VOGLAJNA	Celje	118653	520617
HUDINJA	Celje	119917	521419
SAVA	Vrhovo most integriran vzorec	99122	516685
KRKA	Soteska	69467	501502
KRKA	Otočec	76121	518519
KRKA	Krška vas	82217	544441
VIŠNJICA	Gorenja vas	85080	484972
ČRMOŠNJIČICA	Grič	64747	503660
TEMENICA	Gorenje Ponikve	82907	502975
TEMENICA	Grm	82368	503631
RADULJA	Grič pri Klevevžu	84067	517859
RADULJA	Mlake	80706	525477
PREČNA	Hidrološka postaja Prečna	73473	508454
PODLOMŠČICA	Malo Mlačevo	87193	473509

Table 18 Monitoring Stations of Slovenia in the international network of TNMN

RIVER	MONITORING SITE	GK X (WGS84)	GK Y (WGS84)
DRAVA	Ormož most	139483	588783
SAVA	Jesenice na Dolenjskem	78822	553720

Table 19 Danube River Quality Monitoring Stations for sediment

RIVER	MONITORING SITE	GK X (WGS84)	GK Y (WGS84)
MURA	Ceršak	172726	550953
LEDAVA	Murska šuma	150799	617555
VELIKA KRKA	Hodoš	185372	601696
DRAVA	Tribej	161110	498214
DRAVA	Starše	147158	559124
DRAVA	Borl I	135796	576644
DRAVA	Ormož most	139483	588783
MEŽA	Topla	145427	484173
MEŽA	Podklanc	157330	501099
SAVA DOLINKA	nad Hrušico	145293	421329
SAVA DOLINKA	Moste	140146	432819
SAVA	Prebačevo	117904	452940
SAVA	Jesenice na Dolenjskem	78822	553720
KAMNIŠKA BISTRICA	Beričevo	103157	471129
KOLPA	Radoviči (Metlika)	54777	527852
LAHINJA	Geršiči	52277	520572
KRUPA	Klošter	52340	518608
LJUBLJANICA	Zalog	102155	471790
SAVA	Vrhovo most	99122	516685
KRKA	Otočec	76121	518519

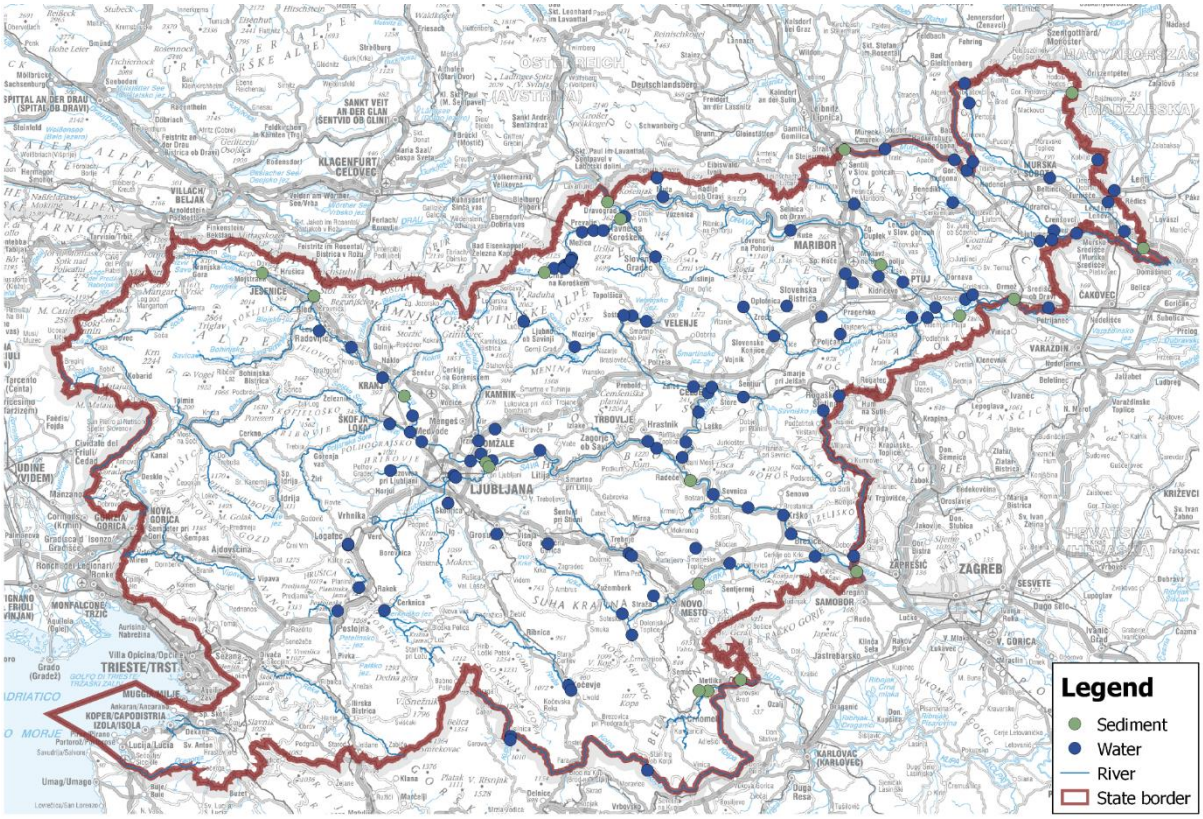

Figure 1 Sampling points for water and sediments in river waters.

II.4.Data and metadata availability (including information on ambient or natural concentrations of HSs for establishing intervention measures) The list of past or current economic polluters referring to the direct effect on the quality of sediment in the Danube (the HSs whose possible concentrations are likely to be exceeded), information on the HSs biological effects, evidence of impact of anthropogenic activities.

Results of chemical analyses (water, sediment, biota) can be downloaded from the Slovenian water quality database via http://www.arso.gov.si/vode/podatki/.

Sediment in the Drava river contains exceeded values of metals (values from 2016).

II.5.Problems of current monitoring procedures in DRB

Monitoring in Slovenia is carried out in accordance with the WFD.

III.INVENTORY OF SAMPLING METHODOLOGIES

The basic principles for monitoring and assessing the status of waters are laid down in Directive 2000/60 / EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (Water Framework Directive) as well as in some other water directives. The Water Framework

Directive sets out uniform principles for the monitoring and assessment of water status for all Member States of the European Union.

In Slovenia, the area of monitoring the status of waters is regulated by the Rules on Surface Water Surveillance (Official Gazette of the Republic of Slovenia, 10/2009, 81/2011). The criteria and method of assessing the status of waters are determined by the Decree on the Status of Surface Waters (Official Gazette of the Republic of Slovenia, 14/2009, 98/2010, 96/2013, 24/2016). in areas with special requirements, the monitoring of water quality is determined by some additional regulations.

Programs for monitoring are prepared by the Environmental Agency of the Republic of Slovenia, which is also responsible for their implementation, data control and assessment. The monitoring programs and water status reports that form part of the environmental information system of the Environmental Agency of the Republic of Slovenia are available on the Agency's website (http://www.arso.gov.si/en/water/).

The program for monitoring the status of waters for the period 2016 - 2021 has been prepared in accordance with national and European legislation in the field of water monitoring and in accordance with international conventions and interstate agreements with neighboring countries. When preparing the monitoring program, the assessment of the status of waters and the assessment of the likelihood of achieving environmental objectives, which are an integral part of the Water Management Plan 2016 – 2021.

III.1. Water

III.1.1. Sampling design strategy. How do you choose sampling locations,number of sites, sampling position within the national Danube sector, distance from confluence points, distance from point industry/agriculture polluters, distance from big cities, sampling depth, distance from the water course/bodies banks? How do you decide about temporal frequency of collecting samples?

The program for monitoring the status of waters for the period 2016 - 2021 has been prepared in accordance with national and European legislation in the field of water monitoring and in accordance with international conventions and interstate agreements with neighboring countries. When preparing the monitoring program, the assessment of the status of waters and the assessment of the likelihood of achieving environmental objectives, which are an integral part of the Water Management Plan 2016 – 2021.

Slovenia is involved in the Transnational Monitoring Network (TNMN) on the Danube tributaries, on the Sava and the Drava Rivers. These are the location on the border profiles with Croatia, which are also included in the national program and in the bilateral monitoring with Croatia. The TNMN biological monitoring program is adapted to the requirements of the Water Framework Directive (Directive 2000/60 / EC).

Under the Water Framework Directive there are 3 types of Monitoring:
Surveillance monitoring is carried out to ensure a comprehensive assessment of water status in the water area. The results of the surveillance monitoring are intended to assess long-term changes in natural conditions and long-term changes due to human activity and serve as support for the development of an operational monitoring program. The monitoring program includes all quality elements for the definition of the status of surface waters, which are carried out at a frequency of one time during the validity period of the water management plan.

Operational monitoring is designed to monitor the status of water bodies. The operational monitoring is also aimed at monitoring the situation in areas with special requirements such as water protection areas, bathing areas, vulnerable and vulnerable areas according to environmental protection regulations, areas important for the life and growth of sea shells and marine gastropods and protected areas according to preservation regulations nature, for which the water regime and water quality are important. Additional monitoring is carried out only in those protected areas beside of the criteria for good ecological and good chemical status some additional water quality requirements are determined as well. The operational monitoring is carried out with a minimum frequency, as foreseen in the Rules on Surface Water Monitoring, and the program includes those quality elements that best illustrate the individual loads of the water body. The operational monitoring will take place throughout the 2016-2021 period.

Investigative monitoring is established for the surface water bodies:

- if there are no known reasons for exceeding environmental quality standards or limit values for good ecological status,
- in order to ascertain the causes of a water body or water bodies failing to achieve the environmental objectives
- to ascertain the magnitude and impacts of accidental pollution (such as an environmental accidents).

Investigative monitoring under indents 1 and 2 is provided by the Environmental Agency of the Republic of Slovenia, and the investigative monitoring referred to the indent 3 is provided by the contracted state public service determined according to the regulations. The investigative monitoring has to establish a programme of measures for the achievement of the objective of investigative monitoring. The results of the investigation monitoring are used in the preparation of the programs of measures.

Measurements that describe the chemical state of water are performed at least monthly. For the pesticides, surveillance monitoring is performed on a monthly basis, in operational monitoring due to the expert assessment is provided during the months of their use (May, June, July, August) for three years in the period of the Water Management Plan, at least 12 results of analyses for the assessment of chemical status. Measurements of chemical state parameters in organisms are carried out at a frequency of once a year.

The network consists of measuring points which are defined as points on the individual river water body for sampling physico-chemical parameters, priority, preferably hazardous substances and special pollutants. In most cases in a single water body one measuring point is selected, and in some cases two measuring points. In order to monitor the impact of leakage from the municipal wastewater treatment plant on the status of water bodies, the existing measuring points were selected, but if they were not appropriate according to the expert assessment, new measuring points were found outside the mixing area.

III.1.2. Which parameters of water **quality**/**quantity** are measured ***in situ***?

In-situ air temperature, water temperature, pH, electrical conductivity (25^0C) and dissolved oxygen are measured. Also, water table (where the water meter or measuring line is located at the measuring point), the organoleptic determination of the color of the water, which is defined as "visible color" and "intensity of visible color"

according to Austrian standard ÖNORM M 6620 and description of observations in the filed with parameters of appearance, visible sewage, and the intensity of the odor.

III.1.3. Which **instruments** are used for ***in situ*** measurements (include manufacturer and type)?

For in situ measurements we use instruments:
WTW MULTI 3430, WTW MULTI 3420, WTW MULTI 197i, pH meter- WTW pH 315i, conduction meter-WTW Cond. 315i, turbidimeter**,** WTW TURB 430

III.1.4. Please, describe **methodology** for ***in situ*** measurements.

In situ we measure water temperature, pH value, electrical conductivity, oxygen, turbidity, redox potential in accordance to different standards:

Water Temperature: standard SIST DIN 38404-4:2000, German Standard Methods for Analysing of Water, Waste Water and Sludge; Physical and Physical-chemical Parameters (Group C); Determination of Temperature (C4)

pH value: standard SIST EN ISO 10523:2012, Water quality – Determination of pH

Electrical conductivity: standard EN 27888:1993, Water quality - Method for the determination of electrical conductivity

Oxygen: standard ISO 17289:2014, Water quality - Determination of dissolved oxygen – Optical sensor method

Turbidity: standard ISO 7027-1: 2016, Water quality – Determination of turbidity – Part 1: Quantitative methods

Redox potential: standard DIN 38404-6:1984 German Standard Methods For The Examination Of Water, Waste Water And Sludge; Physical And Physico-Chemical Parameters (Group C); Determination Of The Oxidation Reduction (Redox) Potential (C 6)

III.1.5. Which **tools** are used for collecting samples for **laboratory** measurements (include manufacturer and type)?

Samples are taken according to standard SIST ISO 5667-3.

III.1.6 Sample preservation (samples chemical preservation according to their type and used analysis method).

SIST EN ISO 5667-3: 2013 Water quality - Sampling - Part 3: Preservation and handling of water samples

III.1.7 Please, describe a **methodology** for collecting samples

Water samples for chemical parameters in surface water should be sampled in accordance with international standard SIST ISO 5667-6: 2015 Water quality - Sampling - Part 6: Guidance on sampling of rivers and streams

Samples of surface water are taken at a depth of 0.5 m as close as possible to the centre of the surface water. For waters, with depth bellow 1 m, samples are taken at half the depth. In lakes, reservoirs, and the sea, samples are taken with an integral sampler throughout the vertical profile.

III.2 Sediment

III.2.1. Which type(s) of sediment do you sample/measure **bottom**, **suspended**, **floodplain**?

Bottom sediments

III.2.2. Sampling design strategy. How do you choose sampling locations?

For the general chemical status in Slovenia, sediments are monitored at most surveillance measuring points; In addition, they are also monitored at sites where pollution loads are detected (eg PCBs in Krupa, Lahinja, Kolpa).

How do you decide about temporal frequency of collecting samples?

Sediments are monitored due to trends every 3 years, in accordance with Directive 2008/105/EU, Decree on the status of surface waters and the Rules on the monitoring of surface waters.

III.2.3. Which parameters of sediment **quality**/**quantity** are measured ***in situ***?

None.

III.2.4. Which appropriate sampling devices (e.g. GRAIFER, CAROTIER etc.) and instruments are used for ***in situ*** measurements (include manufacturer and type)?

/

III.2.5. Please, describe **methodology** for ***in situ*** measurements.

/

III.2.6. Which **tools** are used for collecting samples for **laboratory** measurements (include manufacturer and type)?

We use a shovel (from wood or stainless steel) or drill for manual drilling or Scissor grab. All equipment is from stainless steel. Sediment is stored in a glass (650 mL).

III.2.7. Please, describe a **methodology** for collecting samples for **laboratory** measurements.

Sediment samples for chemical parameters in surface water should be sampled in accordance with international standard SIST ISO 5667 – 12:1996 Water quality -- Sampling -- Part 12: Guidance on sampling of bottom sediments.

For the chemical analysis of the sediment, a granulation fraction with a grain size below 63 µm is used. The sediment sample is wetted sieved through sieves with a screen size of 200 µm and then 63 µm. Sieves are standardized, made of inert plastics. Water from the same surface water was used for sieving.

III.2.8. Please, describe a **transport** methodology for samples intended for laboratory measurements.

SIST ISO 5667 – 15: 2010 Water quality - Sampling - Part 15: Guidance on the preservation and handling of sludge and sediment samples.

III.2.9. Do you **archive** samples? If yes, please describe how.

No.

III.3 . **Biota**

III.3.1. Which type(s) of **biota** do you sample/measure: **flora**, **fauna** (name species)?

In inland waters we sample fauna (fish, crustaceans and molluscs) according to Decree on the status of surface waters. Priority species for the determination of HSs in inland waters are Salmo marmoratus and Brown Trout.

III.3.2. Sampling design strategy. How do you choose sampling locations?

How do you decide about temporal frequency of collecting samples?

Frequency of collecting samples is determined with Decree on the quality required of surface waters supporting fresh-water fish life and Rules on the monitoring of surface water quality for the life and growth of marine bivalves and gastropods.

The period for the collection of fish samples is July, August and September. However, the period for the sampling of crustaceans and molluscs is not specified.

III.3.3. Which parameters of biota **quality**/**quantity** are measured ***in situ***?

Length and weight of fish.

III.3.4. Which **instruments** are used for ***in situ*** measurements (include manufacturer and type)?

Libra.

III.3.5. Please, describe **methodology** for ***in situ*** measurements.

The total length of the body to millimetre precisely and weigh to the gram precisely for each taken fish (fish) are measured. To determine the age of the fish up to 20 scales is used, which are taken with non-metallic supplies.

III.3.6. Which **tools** are used for collecting samples for **laboratory** measurements (include manufacturer and type)?

Sampling of fish with electricity.

III.3.7. Please, describe a **methodology** for collecting samples for **laboratory** measurements.

Fish:
Sampling of fish for the determination of the levels of hazardous substances in biota should be carried out by electro-picking in accordance with the standards:

- SIST EN 14011:2003 Water quality. Sampling of fish with electricity
- SIST EN 14962:2006 Water quality – Guidance on the scope and selection of fish sampling methods

Age analysis of the fish is done prior to the analysis of hazardous substances. To identify hazardous substances in inland waters, 9 specimens of the same species should be taken, or the total weight of fish should exceed 900 g (or 5 specimens with a total weight of more than 500 g). The weight of each specimen must exceed 100 g, and the length must correspond to the prescribed lengths.

The specimens must not be touched with hands, the use of protective gloves is necessary. Also, metal contamination must be prevented in a way that any contact with metal objects is prevented.

Sampling of fish in performed with electricity, rarely by trunking from the land or from a boat.

With non-metallic supplies, a specimen of up to 20 scales is used to determine the age. Each removed specimen shall be appropriately marked to enable traceability. If necessary, after each sampling, all the equipment used is disinfected or discarded.

Crustaceans and molluscs:
Recommended mass of the specimen is > 5 g and the number of specimens is > 170.

Approximately 170 adult specimens with a total weight of more than 5 g should be taken to identify hazardous substances. The specimens must not be touched with hands, the use of protective gloves is necessary. Also, metal contamination must be prevented in a way that any contact with metal objects is prevented.

Adult specimens with an approximate size of 9 mm or more and an approximate weight of 30 mg or more shall be collected. The composite sample is weighed to the 0,1 g precisely. If necessary, after each sampling, all the equipment used is disinfected or discarded.
The shells are sampled manually and stored in polythene bags.

III.3.8. Please, describe a **transport** methodology for samples intended for laboratory measurements.

Fish:
The sampled specimens are stored individually in PP, PE or FEP bags, which must be appropriately marked for traceability. Within 24 hours of sampling, the samples should be deep-frozen at -20 ° C, where they are stored on ice for further processing.

Crustaceans and molluscs:
The sampled specimens are stored together in a PP, PE or FEP bags. Bags with samples are kept cold (ice). Due to traceability, the bags must be properly marked. Within 24 hours of sampling, samples should be deep-frozen at -20 ° C. The samples are kept on ice until further processing.

III.3.9. Do you **archive** samples? If yes, please describe how.

No.

[PLEASE, SUPPORT YOUR ANSWERS WITH REFERENCES (NATIONAL LEGISLATIVE DOCUMENTS AND/OR WEB LINKS)]

IV.INVENTORY OF LABORATORY METHODOLOGIES CELOTNO POGLAVJE

For analysing water, sediment and biota samples, standardized analysis methods that are validated and documented in accordance with ISO / IEC 17025 standard and meet the minimum performance criteria for the analytical methods defined in Article 16 of the Rules on the monitoring of surface waters are used.

IV.1. How do you **mechanically prepare samples** for measurement (drying, sieving, grinding, homogenization, etc.)?

a) water
b) sediment
c) biota?

BIOTA:
Fish:
Frozen specimens are defrosted prior to the determination of organic compounds and mercury and divided into two sub-samples. For the determination of brominated diphenyleters, hexachlorobenzene, PFOS, dioxins and dioxin- compounds, heptachlor and heptacchorepoxide, only the non-skimmed muscle tissue of the defrosted specimens is used for further analysis. Muscle meat is merged into one sample, which is then homogenized. The number of fish used is 6 (minimum 3), the quantity of fish used is ≥ 600 g, the amount of tissue for the analysis ≥ 300 g.

For the determination of hexachlorbutadiene, mercury, dicofol and HBCDD, the whole specimens are milled and homogenized for further analysis. The number of fish used is 3, the quantity of fish used ≥ 300 g, the amount of tissue to be analysed ≥ 300 g.

The determination of organic compounds in the meat of fish muscles or in the whole fish includes homogenizations, lyophilization, organic solvent extraction, purification, fractionation and GC or LC separation and detection by mass detector.

Determination of mercury in the meat of fish muscles or in the whole fish includes homogenization, drying, degradation under pressure with acids, dilution and determination by HP-AAS.

Sampling and laboratory treatment of samples shall be in accordance with the SIST EN 14996: 2006 standard.

Crustaceans and molluscs:
The composite sample is defrosted prior to the determination of organic compounds. The frozen composite sample is milled, homogenized and the required quantity of the sample is taken away before analysing fluorantene and benzo (a) pyrene. The determination of these two parameters includes homogenization, lyophilization, organic solvent extraction, purification, fractionation and GC or LC separation, and detection from electron capture or fluorescence.

Sampling and laboratory treatment of samples shall be in accordance with the SIST EN 14996: 2006 standard.

SEDIMENT:
For the chemical analysis of the sediment, the sediment samples are prepared in the following way:
1. Homogenization of the sample
2. Seeding: the homogenized sample of the sediment is wet seated, through a sieve of 200 μm, and then through a sieve of 63 μm,
3. Decanting and drying part of the sample: leave the sieved sediment (through 63 μm) to stand for 24 hours, remove clear water above the sediment (for example, by suction with a water pump), the sieved sample of the sediment is homogenized and divided into a partial sample for the preparation of the dry test sample and a fresh test sample ready for analysis, in accordance to the requirements of the laboratory.

WATER:
In accordance to the standard ISO 5667-3:2018 the water is filtered on site if dissolved metals need to be analyzed and for analysis of cations, anions, PO4, ammonium in accordance to standard ISO 5667-3:2018. A filter pore size 0,45 um is used and also glass microfiber filter for DOC.

IV.2 Chemicals.
Granulometric analysis (information on the correlation of particle sizes and the absorption of toxic metals or metal compounds in sediments).

Analytical methods (including sample preparation: e.g. acid digestion, etc.) for the hazardous substance analyzed in agreement with the matrix in which it is being analyzed (water, sediment, sludge).

Type of analytical equipments.

Description of internal procedures

IV.2.1. Organic matter. What is the **procedure** for **organic matter** content determination in water and sediment?

We do not analyze organic matter in water and sediment.

IV.2.2. ICP-MS, ICP-AES systems
IV.2.2.1. Which system of analysis do you use (ICP-MS, ICP-AES, etc.)? Please, include manufacturer and type.

See table in the paragraph I.4.

IV.2.2.2. Which **elements (HSs)** do you measure by this system? Please, state **detection limits** for measured elements (HSs).

See table in the paragraph I.4.

IV.2.2.3. Please, describe **sample preparation and procedure** for these measurements (microwave acid digestion, another disintegration procedure, gas velocity, temperature of atomization, mirrors position, nebulizer type, excitation power, wavelengths etc.).

Sample preparation for sediment in accordance to standard ISO 11466.
Sample preparation for biota in accordance to standard SIST EN 13805.

IV.2.2.4. How do you calculate **accuracy and precision** (references)?
In accordance to a document "The Fitness for Purpose of Analytical Methods; A Laboratory Guide to Method Validation and Related Topics (ISBN 978-91-87461-59-0. Available from www.eurachem.org.)".

IV.2.3. AAS systems
IV.2.3.1. Please, state manufacturer and type of AAS(F-AAS,GF-AAS) instrument you use.
IV.2.3.2. Which **elements (HSs)** do you measure by AAS? Please, state **detection limits** for measured elements (HSs).
IV.2.3.3. Please, describe **sample preparation and procedure** for AAS measurements (dissolution, radiation source, source temperature, wavelengths, etc.).
IV.2.3.4. How do you calculate **accuracy and precision** (references)?

NO

IV.2.4. XRF
IV.2.4.1. Please, state manufacturer and type of XRF(EDXRF,WDXRF) instrument you use.
IV.2.4.2. Which **elements and/or compounds** (HSs) do you measure by **XRF**? Please, state **detection limits** for measured elements and/or compounds (HSs).
IV.2.4.3. Please, describe **preparation of the sample and procedure** for XRF measurements.

IV.2.4.4. How do you calculate **accuracy and precision** (references)?

NO

IV.2.5 DC-arc –AES

IV.2.5.1. Please, state manufacturer and type of instrument you use (type of detectors etc.).
IV.2.5.2. Which **elements and/or compounds** (HSs) do you measure by **DC-arc-AES**? Please, state **detection limits** for measured elements and/or compounds (HSs).
IV.2.5.3. Please, describe **preparation of the sample and procedure** for DC-arc-AES measurements.
IV.2.5.4. How do you calculate **accuracy and precision** (references)?

NO

IV.2.6. Radionuclides

IV.2.6.1. **Which instrumental method(s)** you use to detect radionuclides in water, sediment and/or biota? Please, state manufacturer and type of radionuclide detection instrument you use.
IV.2.6.2. **Which radionuclides** do you measure? Please, state **detection limits** for measured radionuclides.
IV.2.6.3. How do you calculate **accuracy and precision** (references)?

NO

IV.2.7. Organic compounds (HSs)

IV.2.7.1. **Which instrumental method(s)** you use to detect organic compounds (HSs) in water, sediment and/or biota?

See table in the paragraph I.4.

IV.2.7.2. **Which organic compounds (HSs)** do you measure?

See table in the paragraph I.4.

Please, state **detection limits** for measured organic compounds (HSs).

See table in the paragraph I.4.

IV.2.7.3. How do you calculate **accuracy and precision** (references)?

IV.2.8. XRD

IV.2.8.1. Please, state manufacturer and type of XRD instrument you use.
IV.2.8.2. Do you use **XRD for sediment analysis**?
IV.2.8.3. Please, describe **preparation of the sample and procedure** for XRD measurements

NO

IV.3 Inventory of national laboratories where dangerous substances are analyzed, specifying whether they have accreditations on the quality of analyzes (certificate issued by the national body attesting the quality of the analyzes), price and time of analyses.

Sampling and most of the analyzes are performed by external laboratory (contractor), the Slovenian Environment Agency (ARSO) only carries out analyzes of heavy metals in water. External laboratory has accreditation for sampling, it has also accredited most of the analytical methods that it performs for the ARSO, all in accordance with ISO 17025. The ARSO also has ISO 17025 accreditation to perform heavy metal analysis in water.

IV.4 Description of "good practices" in laboratory and “in situ” analysis. For example, ways to convert analytical data obtained from sediment analysis to water quality assessments (taking into account the high cost of water analysis compared to the sediment).

The concentrations obtained from sediment analysis are not converted to water quality assessment. Water quality assessment is done with accordance to the Decree on the status of surface waters.

IV.5 Description of protocols for intercomparison and intercalibration between laboratories. List of national and internationals projects which had developed the Protocols.

For the parameters for which external laboratory and ARSO carry out analyzes, also cooperation in interlaboratory comparative schemes is required. For the parameters for which the laboratory has accreditation, the laboratory also participates in interlaboratory comparative schemes. They are mostly international comparative schemes, for example, Aquacheck, Aglae, QualcoDanube, Quasimeme, .. At the national level for natural waters there are no such schemes.

[PLEASE, SUPPORT YOUR ANSWERS WITH REFERENCES (NATIONAL LEGISLATIVE DOCUMENTS AND/OR WEB LINKS)]

V .INVENTORY OF EVALUATION METHODS

V.1. How **threshold values** for HSs are set in each type of media (sediment, water, biota)? (e.g. average of the last measured values, average with the treatment of outliers, average of the values measured in areas without anthropogenic influence, enrichment factor, conservative **elements** for normalization, etc.).

The environmental quality standards are defined as the maximum permissible concentration that protects against acute poisoning and as an average annual value that protects against chronic influenza according to WFD.

V.2. Are **threshold values fixed or variable** and do they depend on the sample form, drainage basin lithology, time of the year, etc.?

The environmental quality standards are generally fixed. Some metals also taking into account the natural background (Cd, B, Hg, Cu, Zn, Co, Sb) and bioaccumulation (Ni and Pb).

V.3. Do you use **corrections for threshold values**? (amount of **quartz**, **organic matter** etc.).

No.

V.4 The environmental quality objectives are based on measuring the total metal concentration and / or some dangerous compounds of that metal in different valence states?

For most metals, the total metal concentration is measured. For some elements such as Cd, Cu, Zn, environmental quality standards vary depending on the water hardness.

V.5 How the legislation reflects the phenomenon of "bioaccumulation"? Is the type of biota correlated with the ecosystem?

For Ni and Pb, the environmental quality standards relate to biologically available concentrations of substances as dictated by Directive 2013/39 / EU and instructions prepared at EU level. In Slovenia it is studied in expert documents.

V.6. Does your national legislative find **categories of environment quality** based on deviations from threshold values?

The limit values for the ecological status of rivers and lakes, expressed as a ratio of ecological quality, are determined in the Decree on the status of surface waters (Annex 6). There are 5 classes defined: excellent, good, moderate, bad, and very bad ecological status. For chemical status of water there are 2 classes defined: good and excellent.

V.7. Can these categories be **defined by quality of more than one medium?**

For the chemical status of surface waters the environmental quality standards are defined for water and for biota.

V.8. Please, describe **algorithm** for **defining** these **categories**? (e.g. weight coefficients).

Evaluation of the ecological status and definition of categories is done according to WFD and Decree on the status of surface waters.

V.9. How does your legislative framework define **difference** between **contamination** and **pollution**?

Environmental Protection Act:

Environmental pollution, directly or indirectly, of substances or energy into the air, water or land or causing waste and a result of human activities that may harm the environment or human health or interfere with the right of ownership to damage or destroy proprietary or interfere with its the enjoyment of the right to use the environment.

Environmental pollution (obremenitev okolja) is the result of any intervention or interference in the environment, which is exclusively or simultaneously cause or causes environmental pollution, environmental risk, environmental damage or the use of natural resources.

V.10. Do you **relate specific HSs** with **sources of contamination and pollution** and how?

Yes, based on the data of emissions and research monitoring. In the case of exceeding a parameter at a given measuring point, the pollutants and their emissions are examined in their influence area. A research monitoring is then set up to determine where the source is.

V.11. Please, describe **actions** in case of contamination and pollution.

ARSO checks the emission status, if necessary they carry out research monitoring and inform the inspection of the problem.

V.12. How do you **present results** in your **reports**, e.g. do you use complex representation for scientific community or simple representation for target groups? Does the report include methodology, full results, QA/QC, models? Are these results public or can be obtained by request?

The results of monitoring are available in the web site of Slovenian Environment Agency (MOP-ARSO). http://www.arso.gov.si/en/. The original data (concentrations) are available in MS Excel files also in the web site: http://www.arso.gov.si/vode/podatki/arhiv/kakovost_arhiv2018.html

V.13. Do you have a method for **space-time risk assessment** after determination of contamination and/or pollution?

No.

[PLEASE, SUPPORT YOUR ANSWERS WITH REFERENCES (NATIONAL LEGISLATIVE DOCUMENTS AND/OR WEB LINKS)]

VI. SELECTED REFERENCES:

National Legislative documents – see above

Ministry of the environment and spatial planning, Slovenian Environment Agency (MOP-ARSO), Program monitoringa kemijskega in ekološkega stanja voda, Program za obdobje 2016-2021.
http://www.arso.gov.si/vode/poro%C4%8Dila%20in%20publikacije/Program%202016%20do%202021_SPLET_kon%C4%8Dna.pdf

Ministry of the environment and spatial planning, Slovenian Environment Agency (MOP-ARSO), Status and assesssment report for river waters in Slovenia. Report for years 2014 and 2015.
http://www.arso.gov.si/vode/reke/publikacije%20in%20poro%c4%8dila/Poro%c4%8dilo%20REKE%20_2014%20in%202015_SPLET%20kon%c4%8dna.pdf

Monitoring and assessment of surface water and groundwater in Slovenia.
http://www.arso.gov.si/vode/poro%C4%8Dila%20in%20publikacije/Monitoring%20in%20ocenjevanje%20stanja%20voda%20v%20Sloveniji.pdf

The supplementary monitoring program for new priority substances in Directive 2008/105/EU.
http://www.arso.gov.si/vode/poro%C4%8Dila%20in%20publikacije/Dopolnilni%20program%20monitoringa%20nove%20PS%202018.pdf

Expert bases for taking into account and evaluating the bioavailability of metals in water:
http://www.arso.gov.si/vode/reke/PR14ARSO_Pril7.pdf

Expert bases for monitoring of biota:
http://www.arso.gov.si/vode/reke/PR15_ARSO_Pril5.pdf

http://www.mop.gov.si/fileadmin/mop.gov.si/pageuploads/podrocja/voda/nuv_II/program_ukrepov_upravljanja_voda.pdf