

TAIEX ECRAN WORKSHOP

Assessment methodologies and criteria used for water quality status classification

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***Regulation on waters quality classification and categorization
(Off p of Mne, No 02/07)***

- It is considers the surface and ground waters, including sea waters:
 - for flow rate non-regulated water courses: for month mean flow rate of 95% confidence level
 - for flow rate regulated water courses: for flow rates bigger than guaranteed low waters
 - for ground waters: for all flow rates and water levels
 - for lakes
 - for coastal waters
- Based on the usage, waters are divided on:
 - waters for drink and food industry
 - waters for fishery and mariculture
 - waters for bathing (except swimming pools)

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CLASSIFICATION OF WATERS

Waters for drink and food industry are classified as:

- Class A – Waters in natural state
- Class A1 – usage for drink after a simply physical processing and disinfection
- Class A2 - usage for drink after adequate conditioning (coagulation, filtration and disinfection)
- Class A3 - usage for drink after intensive physical chemical and biological treatment with extended disinfection, chlorination ie., coagulation, flocculation, decantation, filtration, absorption on active carbon and disinfection by ozone or chlorine
- Classification of water to one of these classes does on the base of limit values (LV) for each of the classes and each of parameters that are presented in the list within the Regulation
- 44 physical-chemical parameter, 4 microbiological parameters and 2 hydrobiological parameters are included by the list
- Analytical methodology (procedure) is done for each of parameters at the Annex I, as well as a minimal sampling frequency

Calculation of the class

- The class of water is calculated such that 95% of all values of parameters belong to this class, or, that 20% of all values of parameters are out of the referred class which cannot be dangerous for human health

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Waters for fishery and mariculture are classified in:

- Class S - waters for growth of salmonids
- Class Š - waters for shellfish
- Class C - waters for ciprinide farming
- Classes S and Š correspond to class A1, but class C corresponds to class A2, except for some particular parameters (10 physicochemical parameters listed in the Regulation with own LV)
- Reference methods and minimal sampling frequency are presented in Annexes II and III
- *Calculation of the class*
- If sampling frequency was one per month, the class of water is calculated such that 95% of all values of parameters: pH, BOD5, ammonia, nitrites, residual chlorine, zinc and cooper, belong to this class.
- If sampling frequency was less than monthly, the class is calculated taking into account each measuring value
- Temperature was not more of 2 % bigger than it is approved

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Waters for bathing are classified on (in-land and coastal waters):

- K1 – excellent
- K2 – satisfied
- Class K1 corresponds to class A1, but class K2 corresponds to class A2, except for some particular parameters (Intestinal enterococci and Escherichia coli with own LV)
- Reference methods and minimal sampling frequency are presented in Annex VI
- The water is satisfied for bathing if 95% of values for bacterial parameters, sampled before the touristic season and ones per two weeks during the season, were below the LV.
- Exception from this procedure - in the case of floods, other natural accidents and abnormal meteorological conditions

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CATEGORISATION OF WATERS

- In the aim to conserve or come to the good chemical and ecological status, water bodies are divided into three categories:
 - Category I – fresh waters of class A1, S and K1, and sea waters class Š in addition;
 - Category II – classes A2, C and K2;
 - Category III - class A3 as well as other waters which are out of class to other purposes.
- Rivers within DRB are categorized as:

Water body	Part of WB	Class	Category
Piva	downstream the Mratinje accumulation	A2, C, K2	II
Tara	the whole water course	A1, S, K1	I
Lim	upstream the Berane city	A1, S, K1	I
	downstream the Berane city	A2, C, K2	II
Čehotina	upstream the Pljevlja city	A1, S, K1	I
	downstream the Pljevlja city	A2, C, K2	II

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- Applying the requests of the Regulation only to the Black sea catchment area, was obtained:
- Ground water bodies responding to class A, intended to water supply and food industry, will be defined by RBMP
- Water bodies, which are tributaries of the main rivers and springs, divided into classes A1, S, K1 and category I.
- All natural lakes and ground waters, except ground waters within settlements divided into classes A1, S, K1 and category I.
- Ground waters at settlement's areas divided into classes A2, C, K2 and category II.

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Rivers	Station	pH	Cond	TSS	SAT	DO	BOD5	orto-P
Lim	Plav	A1	A	A, S		S, Š	A1	A3
	Andrijeвица	A1	A	A, S	A3	S, Š	A2	VK
	Skakavac	A	A	A2, C	VK	S, Š	A2	A3
	Zaton	A	A	A1, S	A1	S, Š	A1	A3
	Bijelo Polje	A	A	A, S	A3	S, Š	A2	VK
	Dobrakovo	A	A	A1, C	A3	S, Š	A3	VK
Grnčar	Gusinje	A	A1	A, S	A2	C, Š	A	VK
Kutska	Kuti	A	A	A, S	A3	S, Š	A1	A3
Tara	C. poljana	A1	A	A, S	A1	S, Š	A1	A3
	Kolašin	A1	A	A, S	A2	S, Š	A	VK
	Trebaljevo	A1	A	A, S	A1	S, Š	A	VK
	Mojkovac	A1	A	A, S	A1	S, Š	A1	VK
	Đurđ.Tara	A	A	A, S	A1	S, Š	A	A3
	Šćepan p.	A	A	A, S	A2	S, Š	A	A3
Piva	Šćepan p.	A	A	A, S	A1	S, Š	A1	A3
Čehotina	Rabitlja	A	A1	A1, S	A	S, Š	A	A3
	Pljevlja	A	A1	A1, S	A2	C, Š	A3	VK
	Vez. mouth	A	A1	A1, S	A2	S, Š	A3	VK
	Gradac	A	A1	A2, C	A2	S, Š	A1	VK
Vežišnica	Mouth	A1	A2	A3, VK	A2	C, Š	A1	VK

VK – Out of classes

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Rivers	Station	NH4	NO3	NO2	phenol	MPAS	TC	FC
Lim	Plav	A3, C	A	A3, C	A2, C	A1	A1, S, Š, K1	A2, Š, K2
	Andrijevića	A3, C	A	A3, C	A2, S	A2	A1, C, Š, K1	A2, Š, K2
	Skakavac	A3, C	A	A3, C	A1, S	A3	A2, C, VK, K2	A2, VK, K2
	Zaton	A3, C	A	A3, C	A2, C	A2	A1, S, Š, K1	A2, VK, K2
	Bijelo Polje	A3, C	A	VK, C	A1, S	A2	A3, VK, VK, K2	A3, VK, VK
	Dobrakovo	A3, C	A	A3, C	A1, S	A3	A2, C, VK, K2	A3, VK, VK
Grnčar	Gusinje	A3, C	A	A2, C	A2, S	A2	A1, S, Š, K1	A2, Š, K2
Kutska	Kuti	A1, S	A	A2, C	A1, S	A2	A1, S, Š, K1	A, Š, K1
Tara	C. poljana	A3, C	A	A2, C	A2, S	A2	A1, S, Š, K1	A2, Š, K2
	Kolašin	A3, C	A	A1, C	A1, S	A2	A2, C, VK, K2	A2, VK, K2
	Trebaljevo	A3, C	A	A2, C	A1, S	A2	A, S, Š, K1	A2, Š, K2
	Mojkovac	A3, C	A	A1, C	A, S	A2	A, S, Š, K1	A2, Š, K2
	Đurđ. Tara	A3, C	A	A1, C	A2, C	A1	A, S, Š, K1	A2, Š, K2
	Šćepan p.	A1, S	A	A1, C	A1, S	A1	A1, S, Š, K1	A2, Š, K2
Piva	Šćepan p.	A1, S	A	A1, C	A1, S	A1	A, S, Š, K1	A, Š, K1
Čehotina	Rabitlja	A3, C	A	A3, C	A2, C	A3	A1, S, Š, K1	A2, Š, K2
	Pljevlja	A3, C	A	VK, VK	A1, S	A3	A3, VK, VKVK	A3, VK, VK
	Vez. mouth	A3, C	A	VK, VK	A1, S	A3	A2, C, VK, K2	A2, VK, K2
	Gradac	A3, C	A	VK, VK	A2, C	A3	A2, C, VK, K2	A2, VK, K2
Vežišnica	Mouth	A3, C	A	VK, VK	A, S	A3	A2, C, VK, K2	A2, VK, K2

VK – Out of classes

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Lakes	pH	Cond	TSS	SAT	DO	BOD5	orto-P
Crno	A	A	A, S	A2	C, Š	A2	A3
Plavsko	A	A	A, S	A3	S, Š	A1	VK

Lakes	NH4	NO3	NO2	PHENOLS	MPAS	TC	FC
Crno	A1, S	A	A1, C	A2, C	A2	A1, S, Š, K1	A2, Š, K2
Plavsko	A3, C	A	A1, C	A2, S	A3	A, S, Š, K1	A1, Š, K1

VK – Out of classes