

STATUTORY INSTRUMENTS.

S.I. No. 77 of 2019

EUROPEAN UNION ENVIRONMENTAL OBJECTIVES (SURFACE WATERS) (AMENDMENT) REGULATIONS 2019

S.I. No. 77 of 2019

European Union Environmental Objectives (Surface Waters) (Amendment) Regulations 2019

I, EOGHAN MURPHY, Minister for Housing, Planning and Local Government, in exercise of the powers conferred on me by section 3 of the European Communities Act 1972 (No. 27 of 1972) and for the purpose of giving effect to Directive 2013/39 EU¹ of the European Parliament and of the Council of 12 August 2013 amending Directives 2000/60/EC and 2008/105/EC as regards priority substances in the field of water policy; Commission Implementing Decision (EU) 2018/229² of 12 February 2018 establishing, pursuant to Directive 2000/60/EC of the European Parliament and of the Council, the values of the Member State monitoring system classifications as a result of the intercalibration exercise and repealing Commission Decision 2013/480/EU, and Commission Implementing Decision (EU) 2018/840³ of 5 June 2018 establishing a watch list of substances for Union-wide monitoring in the field of water policy pursuant to Directive 2008/105/EC of the European Parliament and of the European Parliament and of the field of water policy pursuant to Directive 2008/105/EC of the European Parliament policy pursuant to Directive 2008/105/EC of the European Parliament and of the field of water policy pursuant to Directive 2008/105/EC of the European Parliament and of the field of water policy pursuant to Directive 2008/105/EC of the European Parliament and of the Council and repealing Commission Implementing Decision (EU) 2015/495, hereby make the following Regulations:

1. These Regulations may be cited as the European Union Environmental Objectives (Surface Waters) (Amendment) Regulations 2019.

2. In these Regulations –

"the 2009 Regulations" means the European Communities Environmental Objectives (Surface Waters) Regulations 2009 (S.I. No 272 of 2009);

"the 2015 Regulations" means the European Union Environmental Objectives (Surface Waters (Amendment) Regulations) 2015 (S.I. No. 386 of 2015).

3. The 2009 Regulations are amended in Schedule 5 by the substitution of the following Tables for Tables 8 and 9:

¹ O.J. No. L226/1, 24 August 2013

² O.J. No. L47/1, 20 February 2018

³ O.J. No. L141/9, 7 June 2018

"Table 8 - Biological quality elements

RIVERS (All types)

Biological Quality Element	Classification System	River Type	Ecological Quality Ratio	
Liciicii			High-good boundary	Good - moderate boundary
Macroinvertebrates	Quality Rating System (Q-value)	All	0.85	0.75
Phytobenthos	Revised form of Trophic Diatom Index (TDI)*		0.93	0.78
Fish	Fish Classification Scheme 2 Ireland (FCS2)	All	0.845	0.540

Note: *To be used only in rivers with alkalinity less than 150mg/l CaCO³

LAKES

Biological Quality	Classification System	Lake Type	Ecological Quality Ratio		
Element			High-good boundary	Good- moderate boundary	
Phytoplankton	IE Lake Phytoplankton Index	All	0.80	0.60	
	Phytoplankton biomass ⁽¹⁾ (Chlorophyll)	Type 1, 2, 3, 4, 13 ⁽²⁾	0.50	0.29	
	Phytoplankton biomass ⁽¹⁾ (Chlorophyll)	Type 5, 6, 7, 8, 9, 10, 11, 12 ⁽²⁾	0.55	0.32	
Fish	FIL2	All	0.76	0.53	
Phytobenthos	Lake Trophic Diatom Index (IE)	High and moderate alkalinity ⁽³⁾	0.90	0.63	
	Lake Trophic Diatom Index (IE)	Low alkalinity ⁽³⁾	0.90	0.66	
Macrophytes	Free Macrophyte Index	All	0.90	0.68	

 Phytoplankton biomass can be used with caution for assessing lake ecological and trophic status when zebra mussels are present

(2) Type 1: Low altitude, low alkalinity, shallow and small lakes Type 2: Low altitude, low alkalinity, shallow and large lakes Type 3: Low altitude, low alkalinity, deep and small lakes Type 4: Low altitude, low alkalinity, deep and large lakes Type 5: Low altitude, moderate alkalinity, shallow and small lakes Type 6: Low altitude, moderate alkalinity, shallow and small lakes Type 7: Low altitude, moderate alkalinity, deep and small lakes Type 8: Low altitude, moderate alkalinity, deep and small lakes Type 9: Low altitude, moderate alkalinity, deep and large lakes Type 9: Low altitude, high alkalinity, shallow and large lakes Type 10: Low altitude, high alkalinity, shallow and large lakes Type 11: Low altitude, high alkalinity, deep and large lakes Type 12: Low altitude, high alkalinity, deep and large lakes Type 13: Lakes >200m altitude

Where

Low altitude: ≤200m High altitude: >200m

Low alkalinity lakes: ≤20 mg/l CaCO₃ Moderate alkalinity lakes: 20-100 mg/l CaCO₃

4 [77]

High alkalinity lakes: $\geq 100 \text{ mg/l CaCO}_3$

Shallow lakes: <4 metres mean depth Deep lakes: ≥4 metres mean depth

Small lakes: <50 hectares Large lakes: ≥50 hectares

(3) Specific to the Phytobenthos BQE Low alkalinity lakes <10 mg/l CaCO₃ Moderate alkalinity lakes 10-50 mg/l CaCO₃ High alkalinity lakes >50 mg/l CaCO₃

COASTAL WATERS (All types with the exception of coastal water lagoons)

Biological Quality Element	Classification System	Ecological Quality Ratio		
		High-good boundary	Good- moderate boundary	
Macroalgae	RSL - Rocky shore reduced species list	0.80	0.60	
	OGA Tool - Opportunistic Green Macroalgal Abundance	0.80	0.60	
Angiosperms	Intertidal Seagrass tool	0.80	0.61	
	SMAATIE - Saltmarsh Angiosperm Assessment Tool for Ireland	0.80	0.60	
Phytoplankton	Phytoplankton biomass ⁽¹⁾ (Chlorophyll)	0.82	0.60	
	Phytoplankton composition	0.80	0.60	
Benthic invertebrate fauna	IQI — Infaunal Quality Index	0.75	0.64	

(1) Growing season March to September

TRANSITIONAL WATERS (All types with the exception of transitional water lagoons)

Biological Quality Element	Classification System	Ecological Quality Ratio	
		High-good boundary	Good- moderate boundary
Macroalgae	OGA Tool — Opportunistic Green Macroalgal Abundance	0.80	0.60
Angiosperms	Intertidal Seagrass tool	0.80	0.61

Phytoplankton	Phytoplankton biomass ⁽¹⁾ (Chlorophyll)	0.80	0.60
	Phytoplankton composition	0.80	0.60
Fish	TFCI — Transitional Fish Classification Index	0.81	0.58
	EMFI — Estuarine Multi- Metric Fish Index	0.92	0.65
Benthic invertebrate fauna	IQI — Infaunal Quality Index	0.75	0.64

(2) Growing season March to September

Table 9

Physico-chemical conditions supporting the biological elements

PART A: General conditions

THERMAL CONDITIONS

Thermal conditions	River water body	Lake water body	Transitional water body	Coastal water body
Temperature	Not greater than a	1.5°C rise in ambient	temperature outside	the mixing zone

OXYGENATION CONDITIONS (BIOCHEMICAL OXYGEN DEMAND)

Oxygenation	River water body	Lake water	Transitional	Coastal
conditions		body	water body	water body
Biochemical	High status ≤ 1.3 (mean ⁽¹⁾) or ≤ 2.2		High status	
Oxygen	(95%ile)		≤ 3.0	
Demand			(95%1le)	
(BOD)			Good status	
$(\text{mg O}_2/1)$	Good status ≤ 1.5 (mean ⁽¹⁾) or ≤ 2.6		≤ 4.0	
			(95%ile)	

(1) The calculation of the arithmetic mean and the analytical method used must be in accordance with the technical specifications for chemical monitoring and quality of analytical results to be adopted in accordance with Directive 2000/60/EC of the European Parliament and of the Council, including how to apply an EQS where there is no appropriate analytical method meeting the minimum performance criteria.

Oxygenation	River	Lake water	Transitional water body	Coastal water body
conditions	water	body	(Summer)	(Summer)
	body			
	-			
Dissolved			High status	High status
oxygen			$(0-17 \text{ psu}^{(1)})$	(>17-35 psu ⁽²⁾)
lower limit	95%ile >80	% saturation	95%ile >80%	95%ile>80-85%
			saturation	saturation
			Good status	Good status
			(0-17 psu)	$(>17-35 \text{ psu}^{(2)})$
			95%ile >70%	95%ile >70-80%
			saturation	saturation
Disculated			II: -h -t-t	II: -h -t-t
Dissolved			High status $(0, 17 \text{ max})$	High status $(> 17, 25, \text{max}^{(2)})$
oxygen upper	050/ :1-	<1200/	(0 - 17 psu)	(>1/-35 psu [×])
IIIIIIt	95%1le	<120%	95%118 <120%	95%11e <115-120%
	satur	ation	saturation	saturation
			Good status	Good status
			(0 - 17psu ⁽¹⁾)	(>17-35 psu ⁽²⁾)
			95%ile <130%	95%ile <120-130%
			saturation	saturation

OXYGENATION CONDITIONS CONTINUED (DISSOLVED OXYGEN)

ACIDIFICATION STATUS

Acidification	River water	Lake water body	Transitional	Coastal water
Status	body		water body	body
pH (Individual values)	Soft ⁽³⁾ Water 4 Hard ⁽⁴⁾ Water	4.5< pH < 9.0 6.0< pH < 9.0		

- (1) psu: The Practical Salinity Unit defines salinity in terms of a conductivity ratio of a sample to that of a solution of 32.4356g of KCL at 15°C in 1kg of solution. A sample of seawater at 15°C with a conductivity equal to this KCL solution has a salinity of exactly 35 practical salinity units.
- (2) Linear interpolation to be used to establish the limit value for water bodies between these salinity levels based on the median salinity of the water body being assessed.
- (3) Water hardness 100 mg/1 CaCO₃
- (4) Water hardness > 100 mg/1 CaCO₃

NUTRIENT CONDITIONS

Nutrient conditions	River water body	Lake	Transitional water body (winter and summer)		Coastal water body (winter and summer)	
Total Ammonia (mg N/l)	High status ≤ 0.040 0.090 (959 Good status ≤ 0.065 0.140 (959	(mean) and \leq %ile) (mean) and \leq %ile)				
Dissolved Inorganic Nitrogen (mg N/l)					$\begin{array}{l} \text{High status} \\ (0 \text{ psu}^{(1)}) \\ \leq \overline{1.0} \end{array}$	$\begin{array}{c} \text{Good status} \\ (0 \text{ psu}^{(1)}) \\ \leq \overline{2.6} \end{array}$
					High status $(34.5 \text{ psu}^{(1)}) \le 0.17$	Good status (34.5 $psu^{(1)}$) ≤ 0.25
Molybdate Reactive Phosphorus (MRP)	High status \leq 0.025 (mean) and \leq 0.045 (95% ile)		High Status (0-17 psu $^{(1)}$) ≤ 0.030 (median)	Good Status (0-17 psu $^{(1)}$) ≤ 0.060 (median)		
(mg P/l)	Good status \leq 0.035 (mean) and \leq 0.075 (95% ile)		$(>17-35psu^{(1)})$ $\leq 0.030-0.025$ (median)	$(>17-35psu^{(1)})$ $\leq 0.060-0.040$ (median)		
Total Phosphorus (mg P/l)		High status \leq 0.010 (mean)Good status \leq 0.025(mean)				

(1) Linear interpolation to be used to establish the limit value for water bodies between these salinity levels based on the median salinity of the water body being assessed."

4. The 2009 Regulations are amended in Schedule 6 by the substitution of the following Table for Table 12 as inserted by the 2015 Regulations:

"Table 12

The environmental quality standards (EQS) for priority hazardous substances to apply for the purpose of assigning chemical status

PRIORITY HAZARDOUS SUBSTANCES

AA: annual average¹

MAC: maximum allowable concentration

Unit: [µg/l]

 $[\mu g/kg wet weight]$ for column (8)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
No	Name of	Chemical	AA-EQS ²	AA-EQS ²	MAC-EQS ⁴	MAC-EQS ⁴	EQS Biota ⁵
	substance	Abstracts	Inland	Other	Inland	Other	
		Service	surface	surface	surface	surface	
		number	waters ³	waters	waters ³	waters	
(1)	Anthracene ⁶	120-12-7	0.1	0.1	0.1	0.1	
(2)	Brominated diphenylether ^{6, 7}	32534-81-9			0.14	0.014	0.0085
(3)	Cadmium and its	7440-43-9	0.08	0.2	0.45	0.45	
	compounds		(Class 1)		(Class 1)	(Class 1)	
	(depending on		0.08 (Class		0.45 (Class	0.45 (Class	
	water hardness		2)		2)	2)	
	classes) ⁸		0.09 (Class		0.6 (Class 3)	0.6 (Class 3)	
			3)		0.9 (Class 4)	0.9 (Class 4)	
			0.15 (Class		1.5 (Class 5)	1.5 (Class 5)	
			0.25 (Class 5)				
(4)	C10-13 Chloroalkanes ⁹	85535-84-8	0.4	0.4	1.4	1.4	
(5)	Di(2-ethylhexyl)-	117-81-7	1.3	1.3	not	not	
	phthalate (DEHP)				applicable	applicable	
(6)	Endosulfan	115-29-7	0.005	0.0005	0.01	0.004	
(7)	Hexachlorobenzene	118-74-1			0.05	0.05	10
(8)	Hexachlorobutadiene	87-68-3			0.6	0.6	55
(9)	Hexachlorocyclohexane	608-73-1	0.02	0.002	0.04	0.02	
(10)	Mercury and its compounds	7439-97-6			0.07	0.07	20
(11)	Nonylphenol (4-Nonylphenol)	84852-15-3	0.3	0.3	2.0	2.0	

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
No	Name of Substance	Chemical Abstracts Service number	AA-EQS ² Inland surface waters ³	AA-EQS ² other surface waters	MAC-EQS ⁴ Inland surface waters ³	MAC-EQS ⁴ Other surface waters	EQS Biota ⁵
(12)	Pentachloro-	608-93-5	0.007	0.0007	not	not	
	benzene				applicable	applicable	
(13)	Polyaromatic	not	not	not	not	not	
	hydrocarbons (PAH) _{6,9}	applicable	applicable	applicable	applicable	applicable	
	Benzo(a)pyrene	50-32-8	1.7 x 10 ⁻⁴	1.7 x 10 ⁻⁴	0.27	0.027	5
	Benzo(b)fluor-	205-99-2	see footnote	see footnote	0.017	0.017	see footnote
	anthene		10	10			10
	Benzo(k)fluor-	207-08-9	see footnote	see footnote	0.017	0.017	see footnote
	anthene		10	10			10
	Benzo(g,h,i)-	191-24-2	see footnote	see footnote	8.2 x 10 ⁻³	8.2 x 10 ⁻⁴	see footnote
	perylene		10	10			10
	Indeno(1,2,3-cd)-	193-39-5	see footnote	see footnote	not	not	see footnote
	pyrene		10	10	applicable	applicable	10
(14)	Tributyltin compounds (Tributhyltincation)	36643-28-4	0.0002	0.0002	0.0015	0.0015	
(15)	Trifluralin	1582-09-8	0.03	0.03	not applicable	not applicable	
(16)	Dicofol ¹¹	115-32-2	1.3 x 10 ⁻³	3.2 x 10 ⁻⁵	not applicable ¹²	not applicable ¹²	33
(17)	Perfluoro-octane sulfonic acid and its derivatives (PFOS) ¹¹	1763-23-1	6.5 x 10 ⁻⁴	1.3 x 10 ⁻⁴	36	7.2	9.1
(18)	Quinoxyfen ¹¹	124495-18-7	0.15	0.015	2.7	0.54	
(19)	Dioxins and	see footnote			not	not	sum of
	dioxin-like	10 Annex X			applicable	applicable	PCDD+
	compounds ¹¹	to Directive					PCDF+PCB-
		2000/60/EC					DL 0.0065 μg.kg- 1 TEQ ¹³
(20)	Hexabromo-	see footnote	0.0016	0.0008	0.5	0.05	167
	cyclododecane	12 Annex X					
	(HBCDD) ¹¹	to Directive 2000/60/EC					
(21)	Heptachlor and	76-44-	2 x 10 ⁻⁷	1 x 10 ⁻⁸	3 x 10 ⁻⁴	3 x 10 ⁻⁵	6.7 x 10 ⁻³
	heptachlor epoxide ¹¹	8/1024-57-3					

- The calculation of the arithmetic mean and the analytical method used must be in accordance with the technical specifications for chemical monitoring and quality of analytical results to be adopted in accordance with Directive 2000/60/EC of the European Parliament and of the Council, including how to apply an EQS where there is no appropriate analytical method meeting the minimum performance criteria.
 This parameter is the Environmental Quality Standard expressed as an annual average value (EQS-AA).
- (2) This parameter is the Environmental Quality Standard expressed as an annual average value (EQS-AA) Unless otherwise specified, it applies to the total concentration of all isomers.
- (3) Inland surface waters encompass rivers and lakes and related artificial or heavily modified water bodies.
- (4) This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (EQS-MAC). Where the MAC-EQS are marked as "not applicable", the AA EQS values are considered

protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acute toxicity.

- (5) Unless otherwise indicated, the biota EQS relate to fish. An alternative biota taxon, or another matrix, may be monitored instead, as long as the EQS applied provides an equivalent level of protection. For PAHs, the biota EQS refers to crustaceans and molluscs. For the purpose of assessing chemical status, monitoring of PAHs in fish is not appropriate. For Dioxins and dioxin-like compounds, the biota EQS relates to fish, crustaceans and molluscs, in line with section 5.3 of the Annex to Commission Regulation (EU) No. 1259/2011 of 2 December 2011 amending Regulation (EC) No. 1881/2006 as regards maximum levels for dioxins, dioxin-like PCBs and non-dioxin-like PCBs in foodstuffs (O.J. L 320, 3.12.2011, p. 18)
- (6) The EQS for this substance shall take effect from 22 December 2015, with the aim of achieving good surface water chemical status in relation to these substances by 22 December 2021 by means of programmes of measures included in updates of river basin management plans produced in accordance with Article 13 of the 2003 Regulations.
- (7) For the group of priority substances covered by brominated diphenylethers listed in Decision 2455/2001/EC, an EQS is established only for congener numbers 28, 47, 99, 100, 153 and 154.
- (8) For Cadmium and its compounds the EQS values vary dependent upon the hardness of the water as specified in five class categories (Class 1: <40 mg CaCO₃/l, Class 2: 40 to <50 mg CaCO₃/l, Class 3: 50 to <100 mg CaCO₃/l, Class 4: 100 to <200 mg CaCO₃/l and Class 5: 200 mg CaCO₃/l).
- (9) No indicative parameter is provided for this group of substances. The indicative parameter(s) must be defined through the analytical method.
- (10) For the group of priority substances of polyaromatic hydrocarbons (PAH), the biota EQS and corresponding AA-EQS in water refer to the concentration of benzo(a)pyrene, on the toxicity of which they are based. Benzo(a)pyrene can be considered as a marker for the other PAHs, hence only benzo(a)pyrene needs to be monitored for comparison with the biota EQS or the corresponding AA-EQS in water.
- (11) The EQS for this substance shall take effect from 22 December 2018, with the aim of achieving good surface water chemical status in relation to this substance by 22 December 2027 and preventing deterioration in the chemical status of surface water bodies in relation to this substance.
- $(12)\;$ There is insufficient information available to set a MAC-EQS for these substances.
- (13) PCDD: Polychlorinated dibenzo-p-dioxins; PCDF: polychlorinated dibenzofurans; PCB-DL: dioxin-like polychlorinated biphynels; TEQ: toxic equivalents according to the World Health Organisation 2005 Toxic Equivalent Factors."

5. The 2009 Regulations are amended in Schedule 6 by the substitution of the following Table for Table 13 as inserted by the 2015 Regulations:

"Table 13

Watch list of substances for Union-wide monitoring as set out in Article 8b of Directive 2008/105/EC

Name of substance/group of substances	CAS number (1)	EU number (2)	Indicative analytical method (3) (4)	Maximum acceptable method detection limit (ng/l)
17-Alpha-ethinylestradiol (EE2)	57-63-6	200-342-2	Large-volume SPE – LC – MS-MS	0.035
17 - Beta-estradiol (E2), Estrone (E1)	50-28-2, 53-16-7	200-023-8	SPE – LC-MS-MS	0.4
Macrolide antibiotics (5)			SPE – LC-MS-MS	19
Methiocarb	2032 -65 -7	217-991-2	SPE – LC-MS-MS or GC-MS	2
Neonicotinoids (6)			SPE – LC-MS-MS	8.3

Metaflumizone	139968-49-3	604-167-6	LLE – LC-MS-MS or SPE – LC-MS- MS	65
Amoxicillin	26787-78-0	248-003-8	SPE – LC-MS-MS	78
Ciprofloxacin	85721-33-1	617-751-0	SPE – LC-MS-MS	89

(1) Chemical Abstracts Service.

 $(2) \quad European \ Union \ number - not \ available \ for \ all \ substances.$

(3) To ensure comparability of results from different Member States, all substances shall be monitored in whole water samples.

(4) Extraction methods:

LLE – liquid liquid extraction SPE – solid-phase extraction Analytical methods: GC-MS – Gas chromatography-mass spectrometry.

LC-MS-MS - liquid chromatography (tandem) triple quadrupole mass spectrometry.

- (5) Erythromycin (CAS number 114-07-8, EU number 204-040-1), Clarithromycin (CAS number 81103-11-9), Azithromycin (CAS number 83905-01-5, EU number 617-500-5).
- (6) Imidacloprid (CAS number 105827-78-9/ 138261-41-3, EU number 428-040-8), Thiacloprid (CAS number 111988-49-9), Thiamethoxam (CAS number 153719-23-4, EU number 428-650-4), Clothianidin (CAS number 210880-92-5, EU number 433-460-1), Acetamiprid (CAS number 135410-20-7/ 160430-64-8)."



GIVEN under my Official Seal, 26 February 2019.

EOGHAN MURPHY,

Minister for Housing, Planning and Local Government.

EXPLANATORY NOTE

(This Note is not part of the Instrument and does not purport to be a legal interpretation.)

These Regulations amend the European Communities Environmental Objectives (Surface Waters) Regulations 2009 (S.I. No. 272 of 2009), as amended by the European Communities Environmental Objectives (Surface Waters) (Amendment) Regulations 2012 (S.I. No. 327 of 2012) and the European Union Environmental Objectives (Surface Waters) (Amendment) Regulations 2015 (S.I. No. 386 of 2015).

The purpose of the Regulations is to give effect to Commission Implementing Decision (EU) 2018/229 of 12 February 2018 establishing, pursuant to Directive 2000/60/EC of the European Parliament and of the Council, the values of the Member State monitoring system classifications as a result of the intercalibration exercise and repealing Commission Decision 2013/480/EU; and Commission Implementing Decision (EU) 2018/840 of 5 June 2018 establishing a watch list of substances for Union-wide monitoring in the field of water policy pursuant to Directive 2008/105/EC of the European Parliament and of the Council and repealing Commission Implementing Decision (EU) 2015/495.

To ensure an acceptable level of comparability and consistency between Member States in the use of biological assessment methods and ecological quality ratios, a European-wide intercalibration exercise was undertaken. The results of these intercalibration exercises and intercalibrated values used in classification have been published as a series of Commission Decisions. The latest Decision contains a number of new intercalibrated methods and values for use in the classification of Irish surface waters, which are now given effect in these Regulations. The Regulations update existing environmental standards used in the assessment of ecological status, mainly by providing additional boundary values for existing environmental quality standards and the inclusion of a new environmental quality standard for total phosphorus in lakes and also correct some footnote errors.

The Regulations also provide for an updated watchlist to monitor concentrations of emerging pollutants and other substances of concern in the aquatic environment.

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