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STATUTORY RULES OF NORTHERN IRELAND

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**2011 No. 10**

**ENVIRONMENTAL PROTECTION**

**The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2011**

*Made - - - - 21st January 2011*

*Coming into operation 14th February 2011*

The Department of the Environment being a Department designated (1) for the purposes of section 2(2) of the European Communities Act 1972 (2) in relation to the Environment acting in exercise of the powers conferred upon it by that section and by Article 5 of the Water (Northern Ireland) Order 1999(3) makes the following Regulations:

**Citation and commencement**

1. These Regulations may be cited as the Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2011 and shall come into operation on 14 February 2011.

**Interpretation**

2.—(1) In these Regulations—

“the 2003 Regulations” means the Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2003(4);

“biological boundary value” in respect of biological quality elements means the classification boundaries for ecological status as set out in Annex V of the Water Framework Directive;

“the Department” means the Department of the Environment;

“the Directive” means Directive 2008/105/EC of the European Parliament and of the Council of 16 December 2008 on environmental quality standards in the field of water policy(5);

“mixing zone” means an area designated in accordance with Article 4 of the Directive;

“river basin district” has the same meaning as in the 2003 Regulations and, for the purposes of these regulations, shall include “international river basin district” as also defined in the 2003 Regulations;

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(1) [S.I. 2008/301](#)

(2) [1972 c.68](#)

(3) [1999 \(N.I. 6\)](#)

(4) [S.R. 2003 No. 544](#)

(5) [O.J. No. L348, 16.12.2008, p.84](#)

“river basin management plan” means a plan prepared in accordance with regulation 12 of the 2003 Regulations;

“the Water Framework Directive” means 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, as amended (6)

(2) Words and expressions used in these Regulations which are also used in the Directive or in the Water Framework Directive shall have the same meaning as in those Directives.

(3) The Interpretation Act (Northern Ireland) 1954 (7) shall apply to these Regulations as it applies to an Act of the Northern Ireland Assembly.

### **Typology and Environmental Standards**

3.—(1) The Department, in exercising the functions listed in paragraph (2) shall in respect of rivers, lakes, transitional waters and coastal waters—

- (a) assign a Type or Types in accordance with Part 1 of Schedule 1; and
- (b) apply environmental standards and biological boundary values to each river, lake, transitional water and coastal water, or part thereof, according to its assigned Type or Types, as, in accordance with Part 2 and Part 3 of Schedule 1.

(2) The functions listed in paragraph (1) are—

- (a) analysis and review of the characterisation of each river basin district in accordance with regulation 5(2) of the 2003 Regulations;
- (b) monitoring of the status of the water environment in each river basin district in accordance with regulation 9 of the 2003 Regulations;
- (c) setting of environmental objectives for each body of surface water in each river basin district in accordance with regulation 11(1)(a) of the 2003 Regulations; and
- (d) preparing programmes of measures to achieve those objectives in accordance with regulation 11(1)(b) of the 2003 Regulations.

### **Environmental standards for priority substances and other dangerous substances**

4.—(1) Subject to paragraph (2), the Department shall apply, the standards for priority substances and other dangerous substances in Table 38 and Table 39 of Part 2 of Schedule 1 to surface waters or parts thereof.

(2) The Department may apply the standards for sediment or for biota or for both sediment and biota to the standards in Table 38 of Part 2 of Schedule 1 in certain categories of surface water. If the Department applies this option:

- (a) it shall apply any single standard or combination of standards from the following: for mercury and its compounds, a standard of 20 µg/kg, for hexachlorobenzene, a standard of 10 µg/kg, for hexachlorobutadiene, a standard of 55 µg/kg, these standards being for prey tissue (wet weight), choosing the most appropriate indicator from among fish, molluscs, crustaceans and other biota;
- (b) it shall ensure that the standards applied for sediment and biota offer at least the same level of protection as the standards for water set out in Table 38 of Part 2 of Schedule 1; and

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(6) O.J. No. L237, 22.12.2000, p.1; amended by Decision [2455/2001/EC](#) of the European Parliament and of the Council of 20 November 2001 establishing the list of priority substances in the field of water policy and amending Directive [2000/60/EC](#) (O.J. No. L331, 15.12.2001, p.1)

(7) [1954 c.33](#) (N.I.)

- (c) it shall monitor biota and sediment at least annually, unless technical knowledge and expert judgment justify a different interval.

### **Classification of surface waters**

5.—(1) Subject to paragraph (2), the Department shall classify each body of surface water identified for the purposes of regulation 5 of the 2003 Regulations according to its ecological status, or its ecological potential as the case may be, and its chemical status.

(2) The Department shall classify—

- (a) the ecological status of bodies of surface water in accordance with Part 1 of Schedule 2;
- (b) the chemical status of bodies of surface water in accordance with Part 2 of Schedule 2;
- (c) the ecological potential of heavily modified and artificial bodies of surface water in accordance with Part 3 of Schedule 2.

(3) The results of classification in accordance with paragraph (1) and paragraph (2) shall be reported within each river basin management plan as follows—

- (a) a map for the relevant river basin district illustrating the classification of the ecological status for each body of surface water, colour-coded in accordance with Table 1 of Schedule 4;
- (b) a map for the relevant river basin district illustrating the classification of the ecological potential of each body of surface water designated as artificial or heavily modified, colour-coded in accordance with Table 2 of Schedule 4;
- (c) a black dot on the relevant map produced under sub-paragraphs (a) and (b) to indicate each body of surface water where failure to achieve good status or good ecological potential is due to non-compliance with one or more of the environmental quality standards that have been established for relevant specific pollutants;
- (d) a map for the relevant river basin district illustrating the classification of chemical status for each body of surface water, colour-coded in accordance with Table 3 of Schedule 4.

(4) The overall status of bodies of surface water shall be determined in accordance with Part 5 of Schedule 2.

(5) The Department shall review the classification required by paragraph (1) at least once in every six years in accordance with the requirements of the Water Framework Directive.

### **Classification of Groundwater**

6.—(1) The Department shall classify each body of groundwater identified for the purposes of regulation 5 of the 2003 Regulations according to its chemical status in accordance with regulation 9 of the Groundwater Regulations (Northern Ireland) 2009.**(8)**

(2) The Department shall classify each body of groundwater identified for the purposes of regulation 5 of the 2003 Regulations according to its quantitative status in accordance with Schedule 3.

(3) The results of classifications in accordance with paragraph (1) and paragraph (2) shall be reported within each river basin management plan as follows—

- (a) a map for the relevant river basin district illustrating the classification of the chemical status for each body of groundwater, colour-coded in accordance with Table 4 of Schedule 4;

(b) a map for the relevant river basin district illustrating the classification of the quantitative status for each body of groundwater, colour-coded in accordance with Table 5 of Schedule 4.

(4) The Department shall review the classification required by paragraph (1) and paragraph (2) at least once in every six years in accordance with the requirements of the Water Framework Directive.

### **Designation of Mixing Zones**

7.—(1) The Department may designate mixing zones adjacent to points of discharge.

(2) Concentrations of one or more substances listed in Table 38 of Part 2 of Schedule 1 may exceed the relevant standards within mixing zones if they do not affect the compliance of the rest of the body of surface water with those standards.

(3) The extent of any mixing zone shall be restricted to the proximity of the point of discharge and shall be proportionate, having regard to concentrations of pollutants at the point of discharge and any conditions contained within the discharge consent or permit.

(4) The Department shall include information about designated mixing zones in river basin management plans. This information shall include a description of:

- (a) the approaches and methodologies applied to define mixing zones;
- (b) measures taken with a view to reducing the extent of mixing zones in the future

### **Inventory of emissions, discharges and losses**

8.—(1) The Department shall establish an inventory, including maps if available, by 31 December 2012 of emissions, discharges and losses of all substances listed in Table 38 of Part 2 of Schedule 1 for each river basin district or part of a river basin district including their concentrations in sediment and biota, as appropriate.

(2) The reference period for the estimation of pollutant values to be entered in the inventories referred to in paragraph 1 shall be one year between 2008 and 2010, with the exception of priority substances and pollutants covered by Directive 91/414/EEC(9), where the entries may be calculated as the average of the years 2008, 2009 and 2010.

(3) The Department shall communicate the inventories established in accordance with paragraph 1, including the respective reference periods, to the European Commission within three months of the date of their publication.

(4) The Department shall update the inventories as part of the review of the analyses specified in Article 5(2) of the Water Framework Directive, and shall publish the updated inventories in the corresponding river basin management plan.

(5) The reference period for the establishment of values in the inventories referred to in paragraph 4 shall be the year before that analysis is to be completed, with the exception of priority substances or pollutants covered by Directive 91/414/EEC, where the entries may be calculated as the average of the three years before the completion of that analysis.

### **Revocations**

9. The Surface Waters (Dangerous Substances) (Classification) Regulations (Northern Ireland) 1998(10) are revoked.

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(9) OJ No L 230 19.8.1991 concerning the placing of plant protection products on the market

(10) S.R. 1998 No. 397

Sealed with the Official Seal of the Department of the Environment on 21 January 2011.



*Denis McMahon*  
A senior officer of the Department of the  
Environment

## SCHEDULE 1

### PART 1

#### Criteria for identifying the types of river, lake or transitional water to which the environmental standards specified in Part 2 of this Schedule apply

1. Subject to paragraph 2, to determine the dissolved oxygen, ammonia and biochemical oxygen demand standards applicable to a river or any part thereof, the Department shall assign to that river or part thereof the Type specified in Table 1 below which corresponds with the applicable site altitude and applicable alkalinity range specified in that Table.

2. Having assigned a Type in accordance with Table 1, the Department shall assign the subsequent Type in accordance with column 1 of Table 2.

3. To determine the reactive phosphorus standards applicable to a river or any part thereof, the Department shall assign to that river or part thereof the Type specified in Table 3 below which corresponds with the applicable site altitude and applicable alkalinity range specified in that Table.

4. To determine the morphological conditions applicable to a river or part thereof, the Department shall assign to that river or part thereof the Type specified in Table 4 below which corresponds with the applicable descriptions in that Table.

5. To determine the river flow standards applicable to a river or any part thereof, the Department shall assign the Type specified in column 1 of Table 5 below which corresponds to the applicable descriptions in specified in columns 2, 3 and 4 of that Table.

6. To determine the dissolved oxygen standards applicable to a lake or any part thereof, the Department shall assign to that lake or part thereof the Type specified in Table 6 below which corresponds with the applicable description specified in that Table.

7. To determine the total phosphorus standards to apply to a lake or any part thereof, the Department shall assign to that lake or part thereof the appropriate geological category, depth category and colour category specified in Tables 7, 8 and 9 respectively.

8. To determine the lake water level standards and morphological conditions applicable to a lake or any part thereof, the Department shall assign—

- (a) the physical characteristics of the lake or part thereof specified in column 1 of Table 10 below into the categories specified in column 3 of that Table which correspond to the applicable measurements specified in column 3;
- (b) the geological characteristics of the lake or part thereof as being of the category specified in column 1 of Table 11 below which corresponds to the applicable descriptions or measurements specified in columns 2, 3, 4 and 5 of that Table, and
- (c) the hydromorphological characteristics of the lake or part thereof as being of the type specified in column 1 of Table 12 below which corresponds to the applicable measurements specified in columns 3 and 4 of that Table.

**Table 1**

**Criteria for identifying the types of river to which the dissolved oxygen, ammonia and biochemical oxygen demand standards for rivers apply**

<i>Site Altitude</i>	<i>Alkalinity (as mg/l CaCO<sub>3</sub>)</i>				
	Less than 10	10 to 50	50 to 100	100 to 200	Over 200

Under metres	80	Type 1	Type 2	Type 3	Type 5	Type 7
Over metres	80			Type 4	Type 6	

**Table 2**

<i>Final typology for dissolved oxygen, ammonia and biochemical oxygen demand in rivers</i>	
Column 1	Column 2
Upland and low alkalinity	Types (1+2), 4 and 6
Lowland and high alkalinity	Types 3, 5 and 7

**Table 3**

**Criteria for identifying types of river to which the reactive phosphorus standards for rivers apply**

<i>Altitude</i>	<i>Annual mean alkalinity (as mg/l CaCO<sub>3</sub>)</i>	
	< 50	≥ 50
Under 80 metres	Type 1n	Type 3n
Over 80 metres	Type 2n	Type 4n

**Table 4**

**Criteria for identifying types of river to which morphological conditions apply**

<i>Type</i>	<i>Characteristics</i>			
Bedrock channel	Normally high altitude	Channel cuts down laterally	May have waterfalls and/or cascades	Bedrock substrate
Cascade Step Pool	Normally high altitude	Channel cuts down	Both turbulent and tranquil flows	Cobble and boulder substrate
Pool-riffle-glide	Normally medium altitude	Often not confined within a valley	Slightly meandering	Pebble and cobble substrate
Meandering	Normally low altitude	Flow laminar and would naturally interact with floodplain	Meandering	More fines than other substrates

**Table 5**

**Criteria for identifying types of river to which the river flow standards apply**

Col 1	Col 2	Col 3	Col 4
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*Status: This is the original version (as it was originally made). Northern Ireland Statutory Rules are not carried in their revised form on this site.*

<i>Type</i>	<i>Standard Average Annual Rainfall mm (period 1961-1990)</i>	<i>Base Flow Index (BFI)</i>	<i>Catchment area (km<sup>2</sup>)</i>	
A1	< 810.5	< 0.715	Any	
		≥ 0.715	≥ 251.8	
A2	< 810.5	≥ 0.715	< 251.8	≤ 100 (A2 headwaters) > 100 (A2 downstream)
			≥ 810.5 and < 1413	≥ 0.7495
B1	≥ 810.5 and < 1155	≥ 0.3615 and < 0.7495	< 267.4	
B2	≥ 810.5 and < 1413	≥ 0.3615 and < 0.7495	< 267.4	
C2	≥ 1155 and < 1413	≥ 0.3615 and < 0.7495	< 267.4	
	≥ 1413	≥ 0.3615	≥ 32.33	
D2	≥ 1413	≥ 0.3615	< 32.33	
	≥ 810.5	< 0.3615	Any	

**Table 6**

**Categories to which dissolved oxygen standards for lakes apply**

<i>Type</i>	<i>Description</i>
Salmonid	Freshwater lakes which would naturally support populations of salmonid fish
Cyprinid	Freshwater lakes in which populations of salmonid fish do not occur naturally

**Table 7**

**Geological categories to which total phosphorus standards for lakes apply**

<i>Geological category</i>	<i>Annual mean alkalinity (micro-equivalents per litre)</i>
Low alkalinity	< 200



Moderate alkalinity	200 – 1000
High alkalinity	> 1000
Marl	

**Table 8****Depth categories to which total phosphorus standards for lakes apply**

<i>Depth category</i>	<i>Mean depth (metres)</i>
Very shallow	< 3
Shallow	3 – 15
Deep	> 15

**Table 9****Colour categories to which total phosphorus standards for lakes apply**

<i>Colour category</i>	<i>Platinum (mg/l)</i>
Humic	> 30
Non humic	≤ 30

**Table 10****Physical characteristics used to identify lake types to which lake water level standards apply**

Column 1	Column 2	Column 3	
<i>Characteristics</i>	<i>Unit</i>	<i>Categories</i>	
Mean depth	Metres	Shallow < 3	Deep ≥ 3
Altitude	Metres	Low < 200	Mid ≥ 200 < 800 High ≥ 800
Size (lake area)	Hectares	Small < 50	Large ≥ 50
Basin form	$V_d = 3D_{\text{mean}} / D_{\text{max}}$  where D = depth of lake in metres, $D_{\text{mean}}$ = mean depth and $D_{\text{max}}$ = maximum depth	V  $V_d < 0.67$	L  $V_d \geq 0.67$

**Table 11**

**Geological characteristics used to identify lake types to which lake water level standards apply**

Column 1	Column 2	Column 3	Column 4	Column 5
<i>Categories</i>	<i>Solid geology of catchment</i>	<i>Alkalinity</i>	<i>Conductivity</i>	<i>Colour</i>
	% of catchment	Micro-equivalents per litre	Micro Siemens per centimetre	Platinum (mg/l)
Peat	> 75% peat	n/a	n/a	> 30
Low Alkalinity	> 90% siliceous	< 200	≤ 70	≤ 30
Moderate Alkalinity	> 50% siliceous and ≤ 90% siliceous	200 – 1000	> 70 and ≤	
High Alkalinity	> 50% calcareous	> 1000	> 250 and ≤ 1000	
Marl	> 65% limestone			
Brackish	Any	n/a	> 1000	

**Table 12**

**Hydromorphological characteristics used to identify lake types to which morphological conditions apply**

Column 1	Column 2	Column 3	Column 4
<i>Type</i>	<i>Lake-MImAS(II) code</i>	<i>Mean Depth</i>	<i>Alkalinity</i>
Low Alkalinity Very Shallow	P/L-vS	<4m	< 20 mgI <sup>-1</sup> CaCO <sub>3</sub>
Low Alkalinity Shallow/Deep	P/L-ShD	>4m	< 20 mgI <sup>-1</sup> CaCO <sub>3</sub>
Moderate Alkalinity Very Shallow	MA-vS	<4m	20 – 100 mgI <sup>-1</sup> CaCO <sub>3</sub>
Moderate Alkalinity Shallow/Deep	MA-ShD	>4m	20 – 100 mgI <sup>-1</sup> CaCO <sub>3</sub>
High Alkalinity Very Shallow	HA/M-vS	<4m	> 100 mgI <sup>-1</sup> CaCO <sub>3</sub>
High Alkalinity Shallow/Deep	HA/M-ShD	>4m	> 100 mgI <sup>-1</sup> CaCO <sub>3</sub>

## PART 2

### Environmental Standards

#### **Environmental standards for river water quality**

1. Once the Department has, in accordance with paragraphs 1 and 2 of Part I of this Schedule, assigned to a river or any part thereof a Type—

- (a) specified in column 1 of Table 1 below, it shall apply, as applicable, the “high”, “good”, “moderate”, “poor” or “bad” dissolved oxygen standard specified in columns 2, 3, 4, 5 and 6 respectively of that Table to that river or part thereof;
- (b) specified in column 1 of Table 2 below, it shall apply, as applicable, the “high”, “good”, “moderate”, “poor” or “bad” ammonia standard specified in columns 2, 3, 4, 5 and 6 respectively of that Table to that river or part thereof;
- (c) specified in column 1 of Table 3 below, it shall apply, as applicable, the “high”, “good”, “moderate”, “poor” or “bad” biochemical oxygen demand standard specified in columns 2, 3, 4, 5 and 6 respectively of that Table to that river or part thereof.

2. The Department shall apply the “high”, “good”, “moderate”, “poor” or “bad” biochemical oxygen demand standard specified in Table 3 below only for the purpose of deciding action to meet the standard for dissolved oxygen.

3. Once the Department has, in accordance with paragraph 3 of Part I of this Schedule, assigned to a river or part thereof a Type specified in column 1 of Table 4 below, it shall apply, as applicable, the “high”, “good”, “moderate”, “poor” or “bad” reactive phosphorus standard specified in columns 2, 3, 4, 5 and 6 respectively of that Table to that river or part thereof.

4. The Department shall, as applicable, apply the “high”, “good”, “moderate”, “poor” or “bad” acid condition standards specified in columns 1, 2, 3, 4 and 5 respectively of Table 5 below to any river or part thereof.

#### **Environmental standards for river flows**

5.—(1) Once the Department has, in accordance with paragraph 6 of Part I of this Schedule, assigned to a river or part thereof a Type specified in column 1 of Tables 6, 7, 8, 9 or 10 below, it shall apply, as applicable, the “high”, “good”, “moderate”, “poor” or “bad” river flow standards as specified by the boundary values in those Tables to that river or part thereof.

(2) The result of this classification shall be used only to determine “high” status in accordance with Part 1 of Schedule 2.

#### **Environmental standards for lake water quality**

6. Once the Department has, in accordance with paragraph 7 of Part I of this Schedule, assigned to a lake or part thereof the Type “salmonid” or “cyprinid”, it shall apply, as applicable, the “high”, “good”, “moderate”, “poor” or “bad” dissolved oxygen standard specified in Table 11 below to that lake or part thereof.

7. The Department shall apply the “good” salinity standard specified in Table 12 below to all lakes or parts of such lakes.

8. Once the Department has, in accordance with paragraph 8 of Part I of this Schedule, assigned to a lake or part thereof a geological category, depth category and colour category specified in Tables 7, 8 and 9 in that Part, it shall apply, as applicable, the “high”, “good”, “moderate”, “poor” or “bad” total phosphorus standard to that lake or part thereof, calculated in accordance with the formulae specified in columns 1, 2, 3, 4 and 5 respectively of Table 13 below, where in relation to those formulae—

“R” represents the annual mean total phosphorus concentration expected for the lake in the absence of more than very minor phosphorus inputs to the lake resulting from human activities and, where a reliable estimate of ‘C’ is available, shall have the value given by the formula:  $\text{Antilog}_{10} [1.36 - (0.09 \times A) + (0.24 \times B)]$  for non-humic lakes; and  $\text{Antilog}_{10} [1.62 - (0.09 \times A + (0.24 \times B))]$  for humic lakes;

“A” =  $\text{Log}_{10}$  of the altitude in metres above mean sea level of the lake;

“B” =  $\text{Log}_{10} (C \div D)$ ;

“C” = the mean alkalinity of the lake in milli-equivalents per litre estimated for the lake;

“D” = the mean depth of the lake in metres;

“H” =  $0.755 + (0.012 \times C) - (0.001 \times D)$ ; or 0.7, whichever is larger value; and

“G” =  $0.506 + (0.023 \times C) - (0.002 \times D)$ ; or 0.46, whichever is the larger value.

9. If the Department does not have the necessary data to calculate the total phosphorus standard applicable to a lake or part thereof in accordance with paragraph 8, it shall apply, as applicable to the lake or part thereof, the “high”, “good”, “moderate”, “poor” or “bad” total phosphorus standard specified in column 2, 3, 4, 5 and 6 respectively, of Table 14 below which corresponds with the combination of geological category and depth categories specified in column 1 of that Table that is applicable to the lake or part thereof.

#### **Environmental standards for protection of inland lake water levels**

10. Once the Department has assigned the characteristics of a lake or part thereof, in accordance with paragraph 9 of Part I of this Schedule, it shall apply, as applicable, to the lake or part thereof the “good” lake standard specified in columns 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 or 14 of Table 15 below which, in accordance with Table 15, applies to that lake or part thereof with the combination of characteristics applicable to the lake or part thereof.

#### **Environmental standards for transitional and coastal water quality**

11. The Department shall apply, as applicable, the dissolved oxygen standards for “high”, “good”, “moderate”, “poor” or “bad” specified in Table 16 and Table 17 below to transitional or coastal waters or parts thereof.

12. The Department shall apply, as applicable, the dissolved inorganic nitrogen standards for “high”, “good”, “moderate”, “poor” or “bad” specified in Table 18 below to transitional or coastal waters or parts thereof.

#### **Environmental standards for specific pollutants**

13. The Department shall apply, as applicable, the standards for specific pollutants given in Tables 19 to 37 below to surface waters or parts thereof.

## Environmental Standards for River Water Quality

**Table 1****Standards for dissolved oxygen in rivers**

<i>Dissolved oxygen (percent saturation)</i> (10-percentile)					
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Type <sup>(i)</sup>	High	Good	Moderate	Poor	Bad
Upland and low alkalinity	80	75	64	50	< 50
Lowland and high alkalinity	70	60	54	45	< 45

- (i) Where a lowland, high alkalinity river is a salmonid river (as designated by Directive 2006/44/EC 'on the quality of freshwaters needing protection or improvement in order to support fish life') the standards for the upland, low alkalinity type will apply.

**Table 2****Standards for ammonia in rivers**

<i>Total ammonia (mg/l)</i> (90-percentile)					
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Type	High	Good	Moderate	Poor	Bad
Upland and low alkalinity	0.2	0.3	0.75	1.1	> 1.1
Lowland and high alkalinity	0.3	0.6	1.1	2.5	> 2.5

**Table 3****Standards for Biochemical Oxygen Demand in rivers**

<i>Biochemical oxygen demand (mg/l)<sup>(i)</sup></i> (90-percentile)					
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Type <sup>(ii)</sup>	High	Good	Moderate	Poor	Bad
Upland and low alkalinity	3	4	6	7.5	> 7.5
Lowland and high alkalinity	4	5	6.5	9	> 9

- (i) The standard for Biochemical Oxygen Demand shall be used when deciding action to meet the standard for dissolved oxygen.
- (ii) Where a lowland, high alkalinity river is a salmonid river (as designated by Directive 2006/44/EC 'on the quality of freshwaters needing protection or improvement in order to support fish life') the standards for the upland, low alkalinity type will apply.

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**Table 4****Standards for reactive phosphorus in rivers**

<i>Reactive phosphorus (ug/l)</i>					
(annual mean)					
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Type	High	Good	Moderate	Poor	Bad
1n	30	50	150	500	> 500
2n	20	40	150	500	> 500
3n+4n	50	120	250	1000	> 1000

**Table 5****Standards for acid conditions in rivers**

<i>pH</i>				
Column 1	Column 2	Column 3	Column 4	Column 5
High	Good	Moderate	Poor	Bad
(5 and 95 percentile)		(10 percentile)	(10 percentile)	(10 percentile)
≥ 6 to ≤ 9		4.7	4.2	< 4.2

**Table 6****High environmental standards for river flows**

<i>Permitted abstraction per day as a percentage of the natural mean daily flow(Qn)<sup>(1)</sup></i>		
High		
Column 1	Column 2	Column 3
	Maximum permitted % abstraction at Qn exceeding Qn95 <sup>(2)</sup>	Maximum permitted % abstraction at Qn <b>not</b> exceeding Qn95
A1, A2 (downstream), A2 (headwaters), B1, B2, C2, D2	10	5

(1) 'Qn' is the naturalized mean daily flow for a specified period of record

(2) 'Qnx' is the Qn that is expected to be exceeded by 'x' percent of the naturalized mean daily flows within a specified period of record

**Table 7****Good environmental standards for river flows**

<i>abstraction per day as a percentage of the natural mean daily flow(Qn)</i>
Good

Column 1		Column 2	Column 3	Column 4	Column 5
River type		Maximum % abstraction at Qn exceeding Qn60	Maximum % abstraction at Qn exceeding Qn70	Maximum % abstraction at Qn exceeding Qn95	Maximum % abstraction at Qn exceeding Qn95 <b>not</b>
A1	April-Oct	30	25	20	15
	Nov-Mar	35	30	25	20
A2 (downstream), B1, B2	April-Oct	25	20	15	10
	Nov-Mar	30	25	20	15
A2 (headwaters), C2, D2	April-Oct	20	15	10	7.5
	Nov-Mar	25	20	15	10

Table 8

#### Moderate environmental standards for river flows

<i>abstraction per day as a percentage of the natural mean daily flow(Qn)</i>					
Moderate					
Column 1		Column 2	Column 3	Column 4	Column 5
River type		Maximum % abstraction at Qn exceeding Qn60	Maximum % abstraction at Qn exceeding Qn70	Maximum % abstraction at Qn exceeding Qn95	Maximum % abstraction at Qn exceeding Qn95 <b>not</b>
A1	April-Oct	55	50	45	40
	Nov-Mar	60	55	50	45
A2 (downstream), B1, B2,	April-Oct	50	45	40	35
	Nov-Mar	55	50	45	40
A2 (headwaters), C2, D2	April-Oct	45	40	35	32.5
	Nov-Mar	50	45	40	35

Table 9

#### Poor environmental standards for river flows

<i>abstraction per day as a percentage of the natural mean daily flow(Qn)</i>					
Poor					
Column 1		Column 2	Column 3	Column 4	Column 5

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River type		Maximum % abstraction at Qn exceeding Qn60	Maximum % abstraction at Qn exceeding Qn70	Maximum % abstraction at Qn exceeding Qn95	Maximum % abstraction at Qn exceeding Qn95 <b>not</b>
A1	April-Oct	80	75	70	65
	Nov-Mar	85	80	75	70
A2 (downstream), B1, B2,	April-Oct	75	70	65	60
	Nov-Mar	80	75	70	65
A2 (headwaters), C2, D2	April-Oct	70	65	60	57.5
	Nov-Mar	75	70	65	60

Table 10

#### Bad environmental standards for river flows

<i>abstraction per day as a percentage of the natural mean daily flow(Qn)</i>					
Bad					
Column 1		Column 2	Column 3	Column 4	Column 5
River type		Maximum % abstraction at Qn exceeding Qn60	Maximum % abstraction at Qn exceeding Qn70	Maximum % abstraction at Qn exceeding Qn95	Maximum % abstraction at Qn exceeding Qn95 <b>not</b>
A1	April-Oct	>80	>75	>70	>65
	Nov-Mar	>85	>80	>75	>70
A2 (downstream), B1, B2,	April-Oct	>75	>70	>65	>60
	Nov-Mar	>80	>75	>70	>65
A2 (headwaters), C2, D2	April-Oct	>70	>65	>60	>57.5
	Nov-Mar	>75	>70	>65	>60

#### Environmental Standards for Lake Water Quality

Table 11

#### Standards for dissolved oxygen in lakes

Status	Mean in July – August (mg/l)	
	Salmonid	Cyprinid
High	9	8



Good	7	6
Moderate	4	4
Poor	1	1
Bad	< 1	< 1

Table 12

### Salinity Standards for lakes with no natural saline influence

Status	Proposed Boundary
	Annual Mean (micro Siemens per centimetre)
Good	1000

Table 13

### Total phosphorus standards for lakes

Annual mean concentration of total phosphorous ( $\mu\text{g/l}$ )				
Column 1	Column 2	Column 3	Column 4	Column 5
High	Good	Moderate	Poor	Bad
$R \div H$ ; or 5, whichever value is the larger value	$R \div G$ ; or 8, whichever is the larger value	$(R \div G) \div 0.5$	$(R \div G) \div 0.25$	$> (R \div G) \div 0.25$

Table 14

### Type-specific total phosphorus standards for lakes where the standards specified in Table 13 above do not apply

Annual mean concentration of total phosphorus ( $\mu\text{g/l}$ )					
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Geological and depth category	High	Good	Moderate	Poor	Bad
High alkalinity; shallow	16	23	46	92	> 92
High alkalinity; very shallow	23	31	62	124	> 124
Moderate alkalinity; deep	8	12	24	48	> 48
Moderate alkalinity; shallow	11	16	32	64	> 64
Moderate alkalinity; very shallow	15	22	44	88	> 88

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Low alkalinity; deep	5	8	16	32	> 32
Low alkalinity; shallow	7	10	20	40	> 40
Low alkalinity; very shallow	9	14	28	56	> 56
Marl; shallow	9	20	40	80	> 80
Marl; very shallow	10	24	48	96	> 96

Table 15

**Good environmental standards for lake water levels**

Good Lake Standards <i>percentage reduction in mean daily inflow</i>														
Column 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14	
Geology	Altitude	Low				Mid				High				
	Size	Small		Large		Small		Large		Small		Large		
	Basin form	L	V	L	V	L	V	L	V	L	V	L	V	
	Depth													
Peat	Summer	Deep	15	15	15	10	15	15	15	10	15	15	15	10
		Shallow	15	10	10	10	15	10	10	10	15	10	10	10
	Winter	Deep	15	15	15	10	15	10	10	10	12	10	10	10
		Shallow	15	10	10	10	10	10	10	10	10	10	10	5
Low Alkalinity	Summer	Deep	30	25	25	25	30	25	25	25	30	25	25	25
		Shallow	25	25	25	25	25	25	25	25	25	25	25	25
	Winter	Deep	20	20	20	20	20	20	20	15	20	15	15	15
		Shallow	20	20	20	15	20	15	15	15	15	15	15	15
Medium Alkalinity	Summer	Deep	20	20	20	20	20	20	20	20	20	20	20	20
		Shallow	20	20	20	15	20	15	15	15	15	15	15	15
	Winter	Deep	20	20	20	20	20	20	20	15	20	15	15	15
		Shallow	20	20	20	15	20	15	15	15	15	15	15	15
High Alkalinity, Marl	Summer	Deep	30	25	25	25	30	25	25	25	30	25	25	25
		Shallow	25	25	25	25	25	25	25	25	25	25	25	25
	Winter	Deep	30	25	25	25	25	25	25	25	25	25	25	25
		Shallow	25	25	25	25	25	25	25	25	25	25	25	20

Brackish	Summer	Deep	20	20	20	20	20	20	20	20	20	20	20	20
		Shallow	20	20	20	15	20	20	20	15	20	20	20	15
	Winter	Deep	30	25	25	25	30	25	25	25	25	25	25	25
		Shallow	25	25	25	25	25	25	25	25	25	25	25	25

## Environmental Standards for Transitional and Coastal Water Quality

**Table 16**

**Dissolved oxygen standards for transitional and coastal waters with salinities normalised to 35**

	<i>Dissolved oxygen concentrations (mg/l) as 5-percentile values</i>
High	5.7
Good	4.0
Moderate	2.4
Poor	1.6
Bad	<1.6

**Table 17**

**Dissolved oxygen standards for transitional and coastal waters with salinities <35**

	<i>Dissolved oxygen concentrations (mg/l) as 5-percentile values</i>
High	$\geq 5.7$
Good	$\geq 4.0$ and $< 5.7$
Moderate	$\geq 2.4$ and $< 4.0$
Poor	$\geq 1.6$ and $< 2.4$
Bad	$< 1.6$

**Table 18**

**Dissolved inorganic nitrogen standards for coastal waters with salinities from 30-34.5 normalised to salinity of 32, and transitional waters with salinities < 30 normalised to a salinity of 25.**

	<i>Mean dissolved inorganic nitrogen concentration (micromoles per litre) during the period 1<sup>st</sup> December to 28<sup>th</sup> February</i>
High	12
Good	18
Moderate	30

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Poor	40.5
Bad	>40.5

Environmental Standards for Specific Pollutants

**Table 19**

**Environmental standards for 2,4-Dichlorophenoxyacetic acid (2,4-D)**

<i>Good standards for rivers and freshwater lakes</i>		<i>Good standards for transitional and coastal waters</i>	
Column 1	Column 2 <sup>(1)</sup>	Column 3	Column 4 <sup>(1)</sup>
Annual mean (µg/l)	95-percentile (µg/l)	Annual mean (µg/l)	95-percentile (µg/l)
0.3	1.3	0.3	1.3

(1) The standards for 2,4 D specified in Column 2 and Column 4 must not be used for the purpose of classifying the ecological status or potential of bodies of surface water.

**Table 20**

**Environmental standards for 2,4-Dichlorophenol**

<i>Good standard for rivers and freshwater lakes</i>	<i>Good standard for transitional and coastal waters</i>
Column 1	Column 2
Annual mean (µg/l)	Annual mean (µg/l)
20	20

**Table 21**

**Environmental standards for arsenic (dissolved)**

<i>Good standard for rivers and freshwater lakes</i>	<i>Good standard for transitional and coastal waters</i>
Column 1 <sup>(1)</sup>	Column 2 <sup>(1)</sup>
Annual mean (µg/l)	Annual mean (µg/l)
50	25

(1) The standard for arsenic refers to the dissolved fraction of a water sample obtained by filtration through a 0.45µm filter or any equivalent pre-treatment

**Table 22****Environmental standards for chlorine**

<i>Good standards for rivers and freshwater lakes</i>		<i>Good standard for transitional and coastal waters</i>
Column 1	Column 2 <sup>(1)</sup>	Column 3 <sup>(1)</sup>
Annual mean concentration (µg/l) of total available chlorine	95-percentile concentration (µg/l) of total available chlorine	95-percentile concentration (µg/l) of total residual oxidant <sup>(2)</sup>
2	5	10

- (1) The standards for chlorine specified in Column 2 and 3 must not be used for the purpose of classifying the ecological status or potential of bodies of surface water.
- (2) The term “total residual oxidants” refers to the sum of all oxidising agents existing in water, expressed as available chlorine.

**Table 23****Environmental standards for chromium VI**

<i>Good standard for rivers and freshwater lakes</i>	<i>Good standards for transitional and coastal waters</i>	
Column 1	Column 2	Column 3 <sup>(1)</sup>
Annual mean concentration (µg/l) of dissolved chromium VI	Annual mean concentration (µg/l) of dissolved chromium VI	95-percentile concentration (µg/l) of dissolved chromium VI
3.4	0.6	32

- (1) The standard for chromium VI specified in column 3 must not be used for the purpose of classifying the ecological status or potential of bodies of surface water.

**Table 24****Environmental standards for chromium III**

<i>Good standards for rivers and freshwater lakes</i>	
Column 1	Column 2 <sup>(1)</sup>
Annual mean concentration (µg/l) of dissolved chromium III	95-percentile concentration (µg/l) of dissolved chromium III
4.7	32

- (1) The standard for chromium III specified in column 2 must not be used for the purpose of classifying the ecological status or potential of bodies of surface water

**Table 25****Environmental standards for copper**

<i>Water hardness bands to which the corresponding river and freshwater lake standards in column 2 apply</i>	<i>Good standards for rivers and freshwater lakes</i>	<i>Good standards for transitional and coastal waters</i>
Column 1	Column 2	Column 3
Annual mean concentration of CaCO <sub>3</sub> (mg/l)	Annual mean concentration (µg/l) of dissolved copper	Annual mean concentration (µg/l) of dissolved copper
0 – 50	1	5
50 – 100	6	
100 – 250	10	
> 250	28	

**Table 26****Environmental standards for cyanide**

<i>Good standards for rivers and freshwater lakes</i>		<i>Good standards for transitional and coastal waters</i>	
Column 1	Column 2 <sup>(1)</sup>	Column 3	Column 4 <sup>(1)</sup>
Annual mean concentration (µg/l) of hydrogen cyanide	95-percentile concentration (µg/l) of hydrogen cyanide	Annual mean concentration (µg/l) of hydrogen cyanide	95-percentile concentration (µg/l) of hydrogen cyanide
1	5	1	5

(1) The standards for cyanide specified in column 2 and column 4 must not be used for the purpose of classifying the ecological status or potential of bodies of surface water.

**Table 27****Environmental standards for cypermethrin**

<i>Good standards for rivers and freshwater lakes</i>		<i>Good standards for transitional and coastal waters</i>	
Column 1	Column 2	Column 3	Column 4
Annual mean (ng/l)	0.1	Annual mean (ng/l)	0.1
95-percentile (ng/l) <sup>(1)</sup>	0.4	95-percentile (ng/l) <sup>(1)</sup>	0.41

(1) The 95-percentile standards for cypermethrin must not be used for the purpose of classifying the ecological status or potential of bodies of surface water.

**Table 28****Environmental standards for diazinon**

<i>Good standards for rivers and freshwater lakes</i>		<i>Good standards for transitional and coastal waters</i>	
Column 1	Column 2 <sup>(1)</sup>	Column 3	Column 4 <sup>(1)</sup>
Annual mean (µg/l)	95-percentile (µg/l)	Annual mean (µg/l)	95-percentile (µg/l)
0.01	0.02	0.01	0.1

(1) The standards for diazinon specified in column 2 and column 4 must not be used for the purpose of classifying the ecological status or potential of bodies of surface water.

**Table 29****Environmental standards for dimethoate**

<i>Good standards for rivers and freshwater lakes</i>		<i>Good standards for transitional and coastal waters</i>	
Column 1	Column 2 <sup>(1)</sup>	Column 3	Column 4 <sup>(1)</sup>
Annual mean (µg/l)	95-percentile (µg/l)	Annual mean (µg/l)	95-percentile (µg/l)
0.48	4.0	0.48	4.0

(1) The standards for dimethoate specified in column 2 and column 4 must not be used for the purpose of classifying the ecological status or potential of bodies of surface water.

**Table 30****Environmental standards for iron**

<i>Good standard for rivers and freshwater lakes</i>	<i>Good standard for transitional and coastal waters</i>
Column 1	Column 2
Annual mean concentration (mg/l) of dissolved iron	Annual mean concentration (mg/l) of dissolved iron
1	1

**Table 31****Environmental standards for linuron**

<i>Good standards for rivers and freshwater lakes</i>		<i>Good standards for transitional and coastal waters</i>	
Column 1	Column 2 <sup>(1)</sup>	Column 3	Column 4 <sup>(1)</sup>
Annual mean (µg/l)	95-percentile (µg/l)	Annual mean (µg/l)	95-percentile (µg/l)

(1) The standards for linuron specified in column 2 and column 4 must not be used for the purpose of classifying the ecological status or potential of bodies of surface water.

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0.5	0.9	0.5	0.9
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- (1) The standards for linuron specified in column 2 and column 4 must not be used for the purpose of classifying the ecological status or potential of bodies of surface water.

**Table 32**

**Environmental standards for mecoprop**

<i>Good standards for rivers and freshwater lakes</i>		<i>Good standards for transitional and coastal waters</i>	
Column 1	Column 2 <sup>(1)</sup>	Column 3	Column 4 <sup>(1)</sup>
Annual mean (µg/l)	95-percentile (µg/l)	Annual mean (µg/l)	95-percentile (µg/l)
18	187	18	187

- (1) The standards for mecoprop specified in column 2 and column 4 must not be used for the purpose of classifying the ecological status or potential of bodies of surface water.

**Table 33**

**Environmental standards for permethrin**

<i>Good standard for rivers and freshwater lakes</i>	<i>Good standard for transitional and coastal waters</i>
Column 1	Column 2
95-percentile (µg/l)	95-percentile (µg/l)
0.01	0.01

**Table 34**

**Environmental standards for phenol**

<i>Good standards for rivers and freshwater lakes</i>		<i>Good standards for transitional and coastal waters</i>	
Column 1	Column 2 <sup>(1)</sup>	Column 3	Column 4 <sup>(1)</sup>
Annual mean (µg/l)	95-percentile (µg/l)	Annual mean (µg/l)	95-percentile (µg/l)
7.7	46	7.7	46

- (1) The standards for phenol specified in column 2 and column 4 must not be used for the purpose of classifying the ecological status or potential of bodies of surface water.

**Table 35**

**Environmental standards for toluene**

<i>Good standards for rivers and freshwater lakes</i>	<i>Good standards for transitional and coastal waters</i>
---	---

- (1) The standards for toluene specified in column 2 and column 4 must not be used for the purpose of classifying the ecological status or potential of bodies of surface water.



Column 1	Column 2 <sup>(1)</sup>	Column 3	Column 4 <sup>(1)</sup>
Annual mean (µg/l)	95-percentile (µg/l)	Annual mean (µg/l)	95-percentile (µg/l)
50	380	40	370

(1) The standards for toluene specified in column 2 and column 4 must not be used for the purpose of classifying the ecological status or potential of bodies of surface water.

**Table 36**

**Environmental standards for zinc**

<i>Water hardness to which the corresponding river and freshwater lake standards in column 2 apply<sup>(1)</sup></i>	<i>Good standards for rivers and freshwater lakes</i>	<i>Good standards for transitional and coastal waters</i>
Column 1	Column 2	Column 3
Annual mean concentration of CaCO <sub>3</sub> (mg/l)	Annual mean concentration (µg/l) of total zinc	Annual mean concentration (µg/l) of dissolved zinc
0 – 50	8	40
50 – 100	50	
100 – 250	75	
> 250	125	

(1) The standards applicable to intermediate water hardness must be calculated by simple linear interpolation.

**Table 37**

**Environmental standards for un-ionised ammonia as nitrogen**

<i>Good standard for rivers and freshwater lakes</i>	<i>Good standard for transitional and coastal waters</i>
Annual mean (µg/l)	Annual mean (µg/l)
Not applicable	21

## Environmental Standards for Priority Substances and other Substances

Table 38

**Environmental quality standards for priority substances and other substances for which standards have been set at EU-level**

Name of substance	Chemical Abstracts Service number	All rivers and lakes		All transitional and coastal waters	
		Good		Good	
		Annual mean <sup>(i)</sup> (AA-EQS) (µg/l)	Maximum allowable concentration <sup>(ii)</sup> (MAC-EQS) (µg/l)	Annual mean <sup>(i)</sup> (AA-EQS) (µg/l)	Maximum allowable concentration <sup>(ii)</sup> (MAC-EQS) (µg/l)
Alachlor	15972-60-8	0.3	0.7	0.3	0.7
Anthracene	120-12-7	0.1	0.4	0.1	0.4
Atrazine	1912-24-9	0.6	2.0	0.6	2.0
Benzene	71-43-2	10	50	8	50
Brominated diphenylether <sup>(iii)</sup>	32534-81-9	0.0005	not applicable	0.0002	not applicable
Cadmium and its compounds (depending on water hardness classes) <sup>(iv)</sup>	7440-43-9	≤ 0.08	≤ 0.45	0.2	≤ 0.45
		(class 1)	(class 1)		(class 1)
		0.08	0.45		0.45
		(class 2)	(class 2)		(class 2)
		0.09	0.6		0.6
		(class 3)	(class 3)		(class 3)

- (i) This parameter is the Environmental Quality Standard expressed as an annual average value (AA-EQS). Unless otherwise specified, it applies to the total concentrations of all isomers of the pollutant concerned.
- (ii) This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS). 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.
- (iii) 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.
- (iv) For cadmium and its compounds the EQS values vary dependent upon the hardness of the water as specified in five class categories (class 1: <40mg CaCO<sub>3</sub>/l, class 2: 40 to <50mg CaCO<sub>3</sub>/l, class 3: 50 to <100mg CaCO<sub>3</sub>/l, class 4: 100 to <200mg CaCO<sub>3</sub>/l and class 5: ≥200mg CaCO<sub>3</sub>/l).
- (v) DDT total comprises the sum of the isomers 1,1,1-trichloro-2,2 bis (*p*-chlorophenyl) ethane (CAS number 50-29-3; EU number 200-024-3); 1,1,1-trichloro-2 (*o*-chlorophenyl)-2-(*p*-chlorophenyl) ethane (CAS number 789-02-6; EU number 212-332-5); 1,1-dichloro-2,2 bis (*p*-chlorophenyl) ethylene (CAS number 72-55-9; EU number 200-784-6); and 1,1-dichloro-2,2 bis (*p*-chlorophenyl) ethane (CAS number 72-54-8; EU number 200-783-0).
- (vi) If the Department does not apply standards for biota it shall introduce stricter standards for water in order to achieve the same level of protection as the standards for biota set out in regulation 4. The Department shall notify the European Commission of the reasons and basis for using this approach, the alternative standards used, the data and the methodology by which the alternative standards were derived and the categories of surface water to which they would apply.

Name of substance	Chemical Abstracts Service number	All rivers and lakes		All transitional and coastal waters	
		Good		Good	
		Annual mean <sup>(i)</sup> (AA-EQS) ( $\mu\text{g/l}$ )	Maximum allowable concentration <sup>(ii)</sup> (MAC-EQS) ( $\mu\text{g/l}$ )	Annual mean <sup>(i)</sup> (AA-EQS) ( $\mu\text{g/l}$ )	Maximum allowable concentration <sup>(ii)</sup> (MAC-EQS) ( $\mu\text{g/l}$ )
		0.15 (class 4)	0.9 (class 4)		0.9 (class 4)
		0.25 (class 5)	1.5 (class 5)		1.5 (class 5)
Carbon-tetrachloride	56-23-5	12	not applicable	12	not applicable
C10-13 Chloroalkanes	85535-84-8	0.4	1.4	0.4	1.4
Chlorfenvinphos	470-90-6	0.1	0.3	0.1	0.3
Chlorpyrifos (Chlorpyrifos-ethyl)	2921-88-2	0.03	0.1	0.03	0.1
Cyclodiene pesticides:					
Aldrin	309-00-2				
Dieldrin	60-57-1				
Endrin	72-20-8	$\Sigma=0.01$	not applicable	$\Sigma=0.005$	not applicable
Isodrin	465-73-6				

- (i) This parameter is the Environmental Quality Standard expressed as an annual average value (AA-EQS). Unless otherwise specified, it applies to the total concentrations of all isomers of the pollutant concerned.
- (ii) This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS). 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.
- (iii) 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.
- (iv) For cadmium and its compounds the EQS values vary dependent upon the hardness of the water as specified in five class categories (class 1: <40mg CaCO<sub>3</sub>/l, class 2: 40 to <50mg CaCO<sub>3</sub>/l, class 3: 50 to <100mg CaCO<sub>3</sub>/l, class 4: 100 to <200mg CaCO<sub>3</sub>/l and class 5:  $\geq$ 200mg CaCO<sub>3</sub>/l).
- (v) DDT total comprises the sum of the isomers 1,1,1-trichloro-2,2 bis (*p*-chlorophenyl) ethane (CAS number 50-29-3; EU number 200-024-3); 1,1,1-trichloro-2 (*o*-chlorophenyl)-2-(*p*-chlorophenyl) ethane (CAS number 789-02-6; EU number 212-332-5); 1,1-dichloro-2,2 bis (*p*-chlorophenyl) ethylene (CAS number 72-55-9; EU number 200-784-6); and 1,1-dichloro-2,2 bis (*p*-chlorophenyl) ethane (CAS number 72-54-8; EU number 200-783-0).
- (vi) If the Department does not apply standards for biota it shall introduce stricter standards for water in order to achieve the same level of protection as the standards for biota set out in regulation 4. The Department shall notify the European Commission of the reasons and basis for using this approach, the alternative standards used, the data and the methodology by which the alternative standards were derived and the categories of surface water to which they would apply.

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Name of substance	Chemical Abstracts Service number	All rivers and lakes		All transitional and coastal waters	
		Good		Good	
		Annual mean <sup>(i)</sup> (AA-EQS) (µg/l)	Maximum allowable concentration <sup>(ii)</sup> (MAC-EQS) (µg/l)	Annual mean <sup>(i)</sup> (AA-EQS) (µg/l)	Maximum allowable concentration <sup>(ii)</sup> (MAC-EQS) (µg/l)
DDT total <sup>(v)</sup>	not applicable	0.025	not applicable	0.025	not applicable
Para-para-DDT	50-29-3	0.01	not applicable	0.01	not applicable
1,2-Dichloroethane	107-06-2	10	not applicable	10	not applicable
Dichloromethane	75-09-2	20	not applicable	20	not applicable
Di(2-ethylhexyl)-phthalate (DEHP)	117-81-7	1.3	not applicable	1.3	not applicable
Diuron	330-54-1	0.2	1.8	0.2	1.8
Endosulfan	115-29-7	0.005	0.01	0.0005	0.004
Fluoranthene	206-44-0	0.1	1	0.1	1
Hexachlorobenzene	118-74-1	0.01 <sup>(vi)</sup>	0.05	0.01 <sup>(vi)</sup>	0.05
Hexachlorobutadiene	87-68-3	0.1 <sup>(vi)</sup>	0.6	0.1 <sup>(vi)</sup>	0.6
Hexachlorocyclohexane	608-73-1	0.02	0.04	0.002	0.02

- (i) This parameter is the Environmental Quality Standard expressed as an annual average value (AA-EQS). Unless otherwise specified, it applies to the total concentrations of all isomers of the pollutant concerned.
- (ii) This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS). 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.
- (iii) 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.
- (iv) For cadmium and its compounds the EQS values vary dependent upon the hardness of the water as specified in five class categories (class 1: <40mg CaCO<sub>3</sub>/l, class 2: 40 to <50mg CaCO<sub>3</sub>/l, class 3: 50 to <100mg CaCO<sub>3</sub>/l, class 4: 100 to <200mg CaCO<sub>3</sub>/l and class 5: ≥200mg CaCO<sub>3</sub>/l).
- (v) DDT total comprises the sum of the isomers 1,1,1-trichloro-2,2 bis (*p*-chlorophenyl) ethane (CAS number 50-29-3; EU number 200-024-3); 1,1,1-trichloro-2 (*o*-chlorophenyl)-2-(*p*-chlorophenyl) ethane (CAS number 789-02-6; EU number 212-332-5); 1,1-dichloro-2,2 bis (*p*-chlorophenyl) ethylene (CAS number 72-55-9; EU number 200-784-6); and 1,1-dichloro-2,2 bis (*p*-chlorophenyl) ethane (CAS number 72-54-8; EU number 200-783-0).
- (vi) If the Department does not apply standards for biota it shall introduce stricter standards for water in order to achieve the same level of protection as the standards for biota set out in regulation 4. The Department shall notify the European Commission of the reasons and basis for using this approach, the alternative standards used, the data and the methodology by which the alternative standards were derived and the categories of surface water to which they would apply.

Name of substance	Chemical Abstracts Service number	All rivers and lakes		All transitional and coastal waters	
		Good		Good	
		Annual mean <sup>(i)</sup> (AA-EQS) (µg/l)	Maximum allowable concentration <sup>(ii)</sup> (MAC-EQS) (µg/l)	Annual mean <sup>(i)</sup> (AA-EQS) (µg/l)	Maximum allowable concentration <sup>(ii)</sup> (MAC-EQS) (µg/l)
Isoproturon	34123-59-6	0.3	1.0	0.3	1.0
Lead and its compounds	7439-92-1	7.2	not applicable	7.2	not applicable
Mercury and its compounds	7439-97-6	0.05 <sup>(vi)</sup>	0.07	0.05 <sup>(vi)</sup>	0.07
Naphthalene	91-20-3	2.4	not applicable	1.2	not applicable
Nickel and its compounds	7440-02-0	20	not applicable	20	not applicable
Nonylphenol (4-Nonylphenol)	104-40-5	0.3	2.0	0.3	2.0
Octylphenol ((4-(1,1',3,3'-tetramethylbutyl)-phenol))	140-66-9	0.1	not applicable	0.01	not applicable
Pentachlorobenzene	608-93-5	0.007	not applicable	0.0007	not applicable
Pentachlorophenol	87-86-5	0.4	1	0.4	1
Benzo(a)pyrene	50-32-8	0.05	0.1	0.05	0.1

- (i) This parameter is the Environmental Quality Standard expressed as an annual average value (AA-EQS). Unless otherwise specified, it applies to the total concentrations of all isomers of the pollutant concerned.
- (ii) This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS). 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.
- (iii) 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.
- (iv) For cadmium and its compounds the EQS values vary dependent upon the hardness of the water as specified in five class categories (class 1: <40mg CaCO<sub>3</sub>/l, class 2: 40 to <50mg CaCO<sub>3</sub>/l, class 3: 50 to <100mg CaCO<sub>3</sub>/l, class 4: 100 to <200mg CaCO<sub>3</sub>/l and class 5: ≥200mg CaCO<sub>3</sub>/l).
- (v) DDT total comprises the sum of the isomers 1,1,1-trichloro-2,2 bis (*p*-chlorophenyl) ethane (CAS number 50-29-3; EU number 200-024-3); 1,1,1-trichloro-2 (*o*-chlorophenyl)-2-(*p*-chlorophenyl) ethane (CAS number 789-02-6; EU number 212-332-5); 1,1-dichloro-2,2 bis (*p*-chlorophenyl) ethylene (CAS number 72-55-9; EU number 200-784-6); and 1,1-dichloro-2,2 bis (*p*-chlorophenyl) ethane (CAS number 72-54-8; EU number 200-783-0).
- (vi) If the Department does not apply standards for biota it shall introduce stricter standards for water in order to achieve the same level of protection as the standards for biota set out in regulation 4. The Department shall notify the European Commission of the reasons and basis for using this approach, the alternative standards used, the data and the methodology by which the alternative standards were derived and the categories of surface water to which they would apply.

*Status: This is the original version (as it was originally made). Northern Ireland Statutory Rules are not carried in their revised form on this site.*

Name of substance	Chemical Abstracts Service number	All rivers and lakes		All transitional and coastal waters	
		Good		Good	
		Annual mean <sup>(i)</sup> (AA-EQS) ( $\mu\text{g/l}$ )	Maximum allowable concentration <sup>(ii)</sup> (MAC-EQS) ( $\mu\text{g/l}$ )	Annual mean <sup>(i)</sup> (AA-EQS) ( $\mu\text{g/l}$ )	Maximum allowable concentration <sup>(ii)</sup> (MAC-EQS) ( $\mu\text{g/l}$ )
Benzo(b)fluoranthene	205-99-2	$\Sigma=0.03$	not applicable	$\Sigma=0.03$	not applicable
Benzo(k)fluoranthene	207-08-9				
Benzo(g,h,i)perylene	191-24-2	$\Sigma=0.002$	not applicable	$\Sigma=0.002$	not applicable
Indeno(1,2,3-cd)-pyrene	193-39-5				
Simazine	122-34-9	1	4	1	4
Tetrachloroethylene	127-18-4	10	not applicable	10	not applicable
Trichloroethylene	79-01-6	10	not applicable	10	not applicable
Tributyltin compounds (Tributyltin-cation)	36643-28-4	0.0002	0.0015	0.0002	0.0015
Trichlorobenzenes	12002-48-1	0.4	not applicable	0.4	not applicable
Trichloromethane	67-66-3	2.5	not applicable	2.5	not applicable

- (i) This parameter is the Environmental Quality Standard expressed as an annual average value (AA-EQS). Unless otherwise specified, it applies to the total concentrations of all isomers of the pollutant concerned.
- (ii) This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS). 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.
- (iii) 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.
- (iv) For cadmium and its compounds the EQS values vary dependent upon the hardness of the water as specified in five class categories (class 1: <40mg CaCO<sub>3</sub>/l, class 2: 40 to <50mg CaCO<sub>3</sub>/l, class 3: 50 to <100mg CaCO<sub>3</sub>/l, class 4: 100 to <200mg CaCO<sub>3</sub>/l and class 5:  $\geq$ 200mg CaCO<sub>3</sub>/l).
- (v) DDT total comprises the sum of the isomers 1,1,1-trichloro-2,2 bis (*p*-chlorophenyl) ethane (CAS number 50-29-3; EU number 200-024-3); 1,1,1-trichloro-2 (*o*-chlorophenyl)-2-(*p*-chlorophenyl) ethane (CAS number 789-02-6; EU number 212-332-5); 1,1-dichloro-2,2 bis (*p*-chlorophenyl) ethylene (CAS number 72-55-9; EU number 200-784-6); and 1,1-dichloro-2,2 bis (*p*-chlorophenyl) ethane (CAS number 72-54-8; EU number 200-783-0).
- (vi) If the Department does not apply standards for biota it shall introduce stricter standards for water in order to achieve the same level of protection as the standards for biota set out in regulation 4. The Department shall notify the European Commission of the reasons and basis for using this approach, the alternative standards used, the data and the methodology by which the alternative standards were derived and the categories of surface water to which they would apply.

Name of substance	Chemical Abstracts Service number	All rivers and lakes		All transitional and coastal waters	
		Good		Good	
		Annual mean <sup>(i)</sup> (AA-EQS) (µg/l)	Maximum allowable concentration <sup>(ii)</sup> (MAC-EQS) (µg/l)	Annual mean <sup>(i)</sup> (AA-EQS) (µg/l)	Maximum allowable concentration <sup>(ii)</sup> (MAC-EQS) (µg/l)
Trifluralin	1582-09-8	0.03	not applicable	0.03	not applicable

- (i) This parameter is the Environmental Quality Standard expressed as an annual average value (AA-EQS). Unless otherwise specified, it applies to the total concentrations of all isomers of the pollutant concerned.
- (ii) This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS). 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.
- (iii) 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.
- (iv) For cadmium and its compounds the EQS values vary dependent upon the hardness of the water as specified in five class categories (class 1: <40mg CaCO<sub>3</sub>/l, class 2: 40 to <50mg CaCO<sub>3</sub>/l, class 3: 50 to <100mg CaCO<sub>3</sub>/l, class 4: 100 to <200mg CaCO<sub>3</sub>/l and class 5: ≥200mg CaCO<sub>3</sub>/l).
- (v) DDT total comprises the sum of the isomers 1,1,1-trichloro-2,2 bis (*p*-chlorophenyl) ethane (CAS number 50-29-3; EU number 200-024-3); 1,1,1-trichloro-2 (*o*-chlorophenyl)-2-(*p*-chlorophenyl) ethane (CAS number 789-02-6; EU number 212-332-5); 1,1-dichloro-2,2 bis (*p*-chlorophenyl) ethylene (CAS number 72-55-9; EU number 200-784-6); and 1,1-dichloro-2,2 bis (*p*-chlorophenyl) ethane (CAS number 72-54-8; EU number 200-783-0).
- (vi) If the Department does not apply standards for biota it shall introduce stricter standards for water in order to achieve the same level of protection as the standards for biota set out in regulation 4. The Department shall notify the European Commission of the reasons and basis for using this approach, the alternative standards used, the data and the methodology by which the alternative standards were derived and the categories of surface water to which they would apply.

### Application of the standards set out in Table 37

For any given surface water body, applying the AA-EQS means that, for each representative monitoring point within the water body, the arithmetic mean of the concentrations measured at different times during the year does not exceed the standard.

The calculation of the arithmetic mean, the analytical method used and, where there is no appropriate analytical method meeting the minimum performance criteria, the method of applying a standard must be in accordance with implementing acts adopting technical specifications for chemical monitoring and quality of analytical results, in accordance with the Water Framework Directive.

For any given surface water body, applying the MAC-EQS means that the measured concentration at any representative monitoring point within the water body does not exceed the standard.

However, in accordance with section 1.3.4. of Annex V to the Water Framework Directive, the Department may introduce statistical methods, such as a percentile calculation, to ensure an acceptable level of confidence and precision for determining compliance with the MAC-EQS.

With the exception of cadmium, lead, mercury and nickel (hereinafter “metals”) the standards set out in Table 37 are expressed as total concentrations in the whole water sample. In the case of metals the standards refer to the dissolved concentration i.e. the dissolved phase of a water sample obtained by filtration through a 0.45 µm filter or any equivalent pre-treatment.

The Department may, when assessing the monitoring results against the standards, take into account:

- natural background concentrations for metals and their compounds, if they prevent compliance with the standard; and
- hardness, pH or other water quality parameters that affect the bioavailability of metals.

Table 39

## Environmental Quality Standards for other dangerous substances

Name of Substance	Chemical Abstracts Service Number	All Rivers and Lakes	All transitional, coastal and relevant territorial waters <sup>(1)</sup>
		Annual Mean Concentration ( $\mu\text{g/l}$ )	Annual Mean Concentration ( $\mu\text{g/l}$ )
		<b>Good</b>	
Perchloroethylene <sup>(2)</sup>	127-18-4	10	10
Azinphos-methyl <sup>(3)</sup>	86-50-0	0.01	0.01
Demeton <sup>(3)</sup>	8065-48-3	0.5	0.5
Omethoate <sup>(3)</sup>	1113-02-6	0.01	Not determined
Triazophos <sup>(3)</sup>	24017-47-8	0.005	0.005
4-chloro-3-methylphenol <sup>(3)</sup>	59-50-7	40	40
Bentazone <sup>(3)</sup>	25057-89-0	500	500
Fenitrothion <sup>(3)</sup>	122-14-5	0.01	0.01
2-chlorophenol <sup>(3)</sup>	95-57-8	50	50
Biphenyl <sup>(3)</sup>	92-52-4	25	25
Malathion <sup>(3)</sup>	121-75-5	0.01	0.02
1,1,1-trichloroethane <sup>(3)</sup>	71-55-6	100	100
Chloronitrotoluenes <sup>(3)</sup>	89-60-1	10	10
Triphenyltin and its derivatives <sup>(3)</sup>	379-52-2	0.02 <sup>(4)</sup>	0.008 <sup>(4)</sup>
1,1,2-trichloroethane <sup>(3)</sup>	79-00-5	400	300

- (1) "relevant territorial waters" means the waters which extend seaward for 3 miles from the baselines from which the breadth of the territorial sea adjacent to Northern Ireland is measured.
- (2) The reference method of measurement shall be gas chromatography with electron capture detection after extraction by means of an appropriate solvent, or an alternative method that is at least as reliable. The limit of detection is 0.1  $\mu\text{g/litre}$ . The accuracy and precision of the method shall be plus or minus 50% at a concentration which represents twice the value of the limit of determination.
- (3) Where samples are taken from more than one sampling point in relation to the waters in question, the standard shall be satisfied in relation to the samples from each sampling point.
- (4) Maximum Allowable Concentration





3. The Department shall apply, as applicable, to any river or part thereof, the “high”, “good”, “moderate”, “poor” or “bad” aquatic macrophyte boundary value for rivers specified in Table 4 below.

#### **Boundary values for aquatic plants and animals in lakes**

4. The Department shall apply, as applicable, to any lake or part thereof, the “high”, “good”, “moderate”, “poor” or “bad” phytoplankton boundary values for lakes specified in columns 2, 3, 4, 5, 6, 7 and 8 of Table 5 and columns 2, 3 and 4 of Table 6 respectively.

5. The Department shall apply, as applicable, to any lake or part thereof, the “high”, “good”, “moderate”, “poor” or “bad” phytobenthos boundary value for lakes specified in Table 7 below.

6. The Department shall apply, as applicable, to any lake or part thereof, the “high”, “good”, “moderate”, “poor” or “bad” aquatic macrophyte boundary value for lakes specified in Table 8 below.

#### **Boundary values for aquatic plants and animals in transitional and coastal waters**

7. The Department shall apply, as applicable, to any transitional water, coastal water or part thereof, the “high”, “good”, “moderate”, “poor” or “bad” benthic invertebrate fauna boundary values for transitional and coastal waters specified in Tables 9 and 10 below.

8. The Department shall apply, as applicable, to any transitional water, coastal water or part thereof, the “high”, “good”, “moderate”, “poor” or “bad” aquatic angiosperm boundary value for transitional and coastal waters specified in Table 11 below.

9. The Department shall apply, as applicable, to any transitional water, coastal water or part thereof, the “high”, “good”, “moderate”, “poor” or “bad” phytoplankton boundary value for transitional and coastal waters specified in Table 12 below.

10. The Department shall apply, as applicable, to any transitional water, coastal water or part thereof, the “high”, “good”, “moderate”, “poor” or “bad” aquatic macroalgae boundary values for transitional and coastal waters specified in Tables 13 and 14 below.

11. The Department shall apply, as applicable, to any transitional water or part thereof, the “high”, “good”, “moderate”, “poor” or “bad” fish boundary value for transitional waters specified in Table 15 below.

**Table 1**

#### **Benthic invertebrate fauna boundary values (Average Score per Taxon) for rivers**

<i>Boundary values for the degree to which the annual mean sensitivity to disturbance of the observed taxa differs from the annual mean sensitivity of the taxa expected under reference conditions</i>	
	Ecological quality ratio
High	0.97
Good	0.86
Moderate	0.75
Poor	0.63
Bad	< 0.63

**Table 2****Benthic invertebrate fauna boundary values (Number of TAXA) for rivers**

<i>Boundary values for the degree to which the annual mean number of disturbance-sensitive taxa differs from the annual mean number of taxa expected under reference conditions</i>	
	Ecological quality ratio
High	0.85
Good	0.71
Moderate	0.57
Poor	0.47
Bad	< 0.47

**Table 3****Phytobenthos (Diatom) boundary values for rivers**

<i>Boundary values for the degree to which the relative annual mean abundances of nutrient-sensitive and nutrient-tolerant groups of diatom taxa differ from the relative annual mean abundances of these groups of taxa expected under reference conditions</i>	
	Ecological quality ratio
High	0.93
Good	0.78
Moderate	0.52
Poor	0.26
Bad	< 0.26

**Table 4****Macrophyte boundary values for rivers**

<i>Boundary values for the degree to which the annual mean abundances of disturbance-sensitive and disturbance-tolerant macrophyte taxa differ from the annual mean abundances of those taxa under reference conditions</i>	
	Ecological quality ratio
High	0.80
Good	0.60
Moderate	0.40
Poor	0.20
Bad	< 0.20

**Table 5****Phytoplankton boundary values for lakes – chlorophyll a**

<i>Boundary values for the degree to which the biomass of phytoplankton<sup>(1)</sup> taxa (as represented by the annual mean chlorophyll a concentration) differ from the biomass of those phytoplankton taxa (annual mean chlorophyll a concentration) expected under reference conditions</i>							
Ecological quality ratio							
Col 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8
Lake characteristics (ii)	Marl, shallow; and high alkalinity, shallow.	High alkalinity, very shallow.	Medium alkalinity, deep; medium alkalinity, shallow; low alkalinity, deep; and low alkalinity, shallow at mid-altitude. <sup>(2)</sup>	Medium alkalinity, very shallow.	Low alkalinity, shallow at low altitude <sup>(3)</sup> & with < 75 % by area of the soils in the catchment being peat.	Low alkalinity, shallow at low altitude <sup>(3)</sup> & with ≥ 75 % by area of the soils in the catchment being peat.	Low alkalinity, very shallow.
High	0.55	0.63	0.50	0.63	0.50	0.50	0.63
Good	0.32	0.30	0.33	0.34	0.29	0.30	0.33
Moderate	0.16	0.15	0.165	0.17	0.145	0.15	0.165
Poor	0.05	0.05	0.05	0.06	0.05	0.05	0.05
Bad	< 0.05	< 0.05	< 0.05	< 0.06	< 0.05	< 0.05	< 0.05

(1) The term phytoplankton refers to solitary and colonial unicellular algae and cyanobacteria that live in the water column, at least for part of their lifecycle.

(2) “mid altitude” means ≥ 200 – 800 metres above sea level.

(3) “low altitude” means < 200 metres above mean sea level.

**Table 6****Phytoplankton boundary values for lakes – percentage cyanobacteria**

<i>Boundary values for the degree to which the annual mean percentage of cyanobacteria differ from the annual mean percentage of cyanobacteria expected under reference conditions</i>			
Ecological quality ratio			
Column 1	Column 2	Column 3	Column 4

Geological characteristics	High alkalinity	Moderate alkalinity	Low alkalinity
High	0.97	0.95	0.97
Good	0.82	0.77	0.82
Moderate	0.61	0.61	0.61
Poor	0.15	0.15	0.15
Bad	< 0.15	< 0.15	< 0.15

Table 7

### Phytobenthos boundary values for lakes

*Boundary values for the degree to which the relative annual mean abundances of nutrient-sensitive and nutrient-tolerant groups of diatom taxa differ from the relative annual mean abundances of these groups of taxa expected under reference conditions*

	Ecological quality ratio	
Column 1	Column 2	Column 3
	Low alkalinity lakes	Moderate alkalinity lakes; high alkalinity lakes; and marl lakes
High	0.90	0.90
Good	0.63	0.66
Moderate	0.44	0.44
Poor	0.22	0.22
Bad	< 0.22	< 0.22

Table 8

### Aquatic macrophyte boundary values for lakes

*Boundary values for the degree to which the annual mean abundance of disturbance-sensitive macrophyte<sup>(1)</sup> taxa differ from the annual mean abundance of those taxa expected under reference conditions*

	Ecological quality ratio
Column 1	Column 2
High	0.90
Good	0.68
Moderate	0.42
Poor	0.33
Bad	< 0.33

(1) The term "macrophyte" refers to larger plants, typically including flowering plants, mosses and larger algae, but not including single-celled phytoplankton or diatoms.

**Table 9****Benthic invertebrate fauna boundary values for IMPOSEX in coastal waters**

*Boundary values for the degree to which the annual mean occurrence and degree of tributyl tin (TBT) -induced imposex in the common dog whelk, Nucella lapillus, differs from the annual mean occurrence and degree of imposex expected under reference conditions using the Vas Deferens Stage Index (VDSI) (UKTAG Method ISBN 978-1-906934-16-3)*

	Ecological quality ratio	Vas Deferens Stage Index (VDSI)
High	0.95	0.3
Good	0.33	4
Moderate	0.17	5

**Table 10****Benthic invertebrate fauna boundary values for the INFAUNAL Quality Index (IQI) for transitional and coastal waters**

*Boundary values relating to the degree to which the annual mean number of benthic invertebrate taxa in soft sediments, the diversity of taxa, and the ratio of disturbance-sensitive and disturbance-tolerant taxa differ from that expected under reference conditions (UKTAG Method ISBN 978-1-906934-13-2)*

	Ecological quality ratio
High	0.75
Good	0.64
Moderate	0.44
Poor	0.24
Bad	< 0.24

**Table 11****Aquatic angiosperm boundary values in transitional and coastal waters**

*Aquatic Angiosperm<sup>(1)</sup> Boundary values relating to the degree to which the annual mean shoot density, and spatial extent of sea grass beds, differ that expected under reference conditions (UKTAG Method ISBN 978-1-906934-14-9)*

	Ecological quality ratio
High	0.8
Good	0.6
Moderate	0.4
Poor	0.2

- (1) The term “angiosperm” refers to flowering plants. In transitional waters and coastal waters, angiosperms include sea grasses and the flowering plants found in salt marshes, salt marsh tools have not yet been developed.

Bad	< 0.2
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- (1) The term “angiosperm” refers to flowering plants. In transitional waters and coastal waters, angiosperms include sea grasses and the flowering plants found in salt marshes, salt marsh tools have not yet been developed.

**Table 12**

**Phytoplankton boundary values for transitional and coastal waters**

<i>Boundary values relating to the degree to which biomass, taxonomic composition, bloom frequency and bloom intensity for phytoplankton<sup>(1)</sup> differ from that expected under reference conditions (UKTAG Method ISBN 978-1-906934-12-5)</i>	
	Ecological quality ratio
High	0.8
Good	0.6
Moderate	0.4
Poor	0.2
Bad	< 0.2

- (1) The term “phytoplankton” refers to solitary and colonial unicellular algae and cyanobacteria that live in the water column, at least for part of their lifecycle.

**Table 13**

**Aquatic macroalgae boundary values in transitional and coastal waters**

<i>Boundary values relating to the degree to which mean species richness, proportion of red, green and opportunist seaweeds and ecological status group ratio on rocky intertidal areas differ from that expected under reference conditions (UKTAG Method ISBN 978-1-906934-17-0)</i>	
	Ecological quality ratio
High	0.8
Good	0.6
Moderate	0.4
Poor	0.2
Bad	< 0.2

**Table 14**

**Aquatic macroalgae boundary values in transitional and coastal waters**

<i>Boundary values relating to the degree to which opportunistic macroalgal<sup>(1)</sup> extent, biomass and entrainment differ from that expected under reference conditions (UKTAG Method ISBN978-1-906934-15-6)</i>	
	Ecological quality ratio
High	0.8

- (1) The term “macroalgae” refers to multicellular algae such as seaweeds and filamentous algae.

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Good	0.6
Moderate	0.4
Poor	0.2
Bad	< 0.2

(1) The term “macroalgae” refers to multicellular algae such as seaweeds and filamentous algae.

**Table 15**

**Fish boundary values for transitional waters**

<i>Boundary values relating to the degree to which the annual mean composition and abundance of disturbance-sensitive fish taxa differ from the annual mean composition and abundance of disturbance-sensitive fish taxa expected under reference conditions</i>	
	Ecological quality ratio
High	0.8
Good	0.6
Moderate	0.4
Poor	0.2
Bad	< 0.2

SCHEDULE 2

PART 1

Determining Ecological Status of Surface Waters  
that are not designated Heavily Modified or Artificial

1. The Department shall classify the ecological status of surface water bodies that are not designated as heavily modified or artificial in accordance with the following steps:

- (a) Estimate representative values of appropriate indicators of the condition of the relevant biological, physiochemical and hydromorphological quality elements from monitoring or modelling results. The appropriate indicators shall include:
  - (i) indicators of biological and other quality elements expected to be most sensitive to the pressures to which the water body is subject;
  - (ii) the values for physicochemical quality elements at risk of being so altered as to be failing a physicochemical standard ;
  - (iii) the concentrations of those specific pollutants likely to be in the water body in quantities that could cause a failure of a specific pollutant; and
  - (iv) the criteria for hydromorphological elements relevant to high status.
- (b) Compare the values of the appropriate indicators estimated from monitoring or modelling with the applicable standards and biological boundary values in Schedule 1 of these Regulations.



- (c) Classify the ecological status of the water body as “high” if the values of all the appropriate indicators of the biological, physicochemical and hydrological quality elements comply with the highest corresponding standards given in Schedule 1; the assessment of morphological condition carried out in accordance with Part 4 Table 1 of this Schedule reflects totally or nearly totally undisturbed conditions; and there is no evidence that a high impact alien species has become established and is having an ecological effect on the water body.
  - (d) Where a surface water body is not classified as “high” ecological status in accordance with paragraph 1(c), the Department shall classify the ecological status of the surface water body according to the lowest classed biological or physicochemical quality element. If the lowest classed quality element is a specific pollutant or other physicochemical quality element, the class assigned shall be no lower than “moderate” ecological status.
2. In this part, “high impact alien species” means a non-native species of plant or animal that has a detrimental effect on the aquatic ecology or environment.

## PART 2

### Determining Chemical Status of Surface Waters

1. The Department shall classify the chemical status of surface water bodies in accordance with the following steps:
- (a) Estimate from monitoring or modelling results the concentrations in the surface water body of appropriate priority substances and other dangerous substances listed in Schedule 1 of these Regulations. The appropriate substances shall include those likely to be in the surface water body in quantities that could cause a failure of the corresponding environmental quality standard.
  - (b) Compare the values of the appropriate substances estimated from monitoring or modelling with the applicable standards in Schedule 1.
  - (c) Classify the chemical status of the surface water body as good unless the standard for one or more priority substances or other dangerous substances is failed. If one or more is failed, classify as failing to achieve good chemical status.

## PART 3

### Determining Ecological Potential of Heavily Modified and Artificial Water Bodies

1. The Department shall classify a surface water body designated as heavily modified or artificial as—
- (a) “good or maximum ecological potential” if the following conditions are met:
    - (i) all applicable mitigation measures have been taken; and
    - (ii) the values of all the indicators of the quality elements not sensitive to hydromorphological pressures related to the heavily modified or artificial water body designation, including biology, specific pollutants and other physicochemical quality elements achieve the standards for “high” or “good”.
  - (b) “moderate ecological potential” if the following conditions are met:
    - (i) not all applicable mitigation measures have been taken and the values of one or more of the indicators of the quality elements not sensitive to hydromorphological pressures directly related to the heavily modified or artificial water body designation,

- including biology, specific pollutants and other physicochemical quality elements achieve the standards for “high”, “good” or “moderate”; or
- (ii) all applicable mitigation measures have been taken and the values of one or more of the indicators of the quality elements not sensitive to hydromorphological pressures directly related to the heavily modified or artificial water body designation, including biology, specific pollutants and other physicochemical quality elements achieve the standards for “moderate”.
  - (c) “poor ecological potential” if the values of one or more of the indicators of the biological quality elements not sensitive to hydromorphological pressures directly related to the heavily modified or artificial water body designation achieve the standards for “poor”.
  - (d) “bad ecological potential” if the values of one or more of the indicators of biological quality elements not sensitive to hydromorphological pressures directly related to the heavily modified or artificial water body designation achieve the standards for “bad”.
2. In order to determine how to classify surface water bodies designated as heavily modified or artificial in accordance with paragraph 1, the Department shall—
- (a) determine whether or not all practicable mitigation has been taken to improve the modified or artificial hydromorphological characteristics of the surface water body other than that which would have a significant adverse impact on:
    - (i) the use served by the modified or artificial characteristics; or
    - (ii) the wider environment.
  - (b) estimate representative values of indicators of the condition of the relevant biological and physicochemical quality elements from monitoring or modelling results. The indicators shall include:
    - (i) indicators of the biological quality elements which are not sensitive to the artificial or heavily modified characteristics of the water body;
    - (ii) the concentrations of those specific pollutants likely to be in the surface water body in quantities that could cause a failure of a specific pollutant standard; and
    - (iii) the values for those other physicochemical quality elements at risk of being so altered as to be failing a physicochemical standard.
  - (c) compare the values of the indicators estimated from monitoring or modelling with the applicable standards in Schedule 1 of these Regulations.
3. When determining whether all practicable mitigation has been taken, mitigation measures may be excluded which would contribute only a very minor improvement in the ecology of the water body.

## PART 4

### Determining High Status for Morphological Elements

1. The Department shall undertake detailed screening of morphological conditions to confirm that high status conditions are present within relevant water bodies.
- (a) Once the Department has, in accordance with paragraph 4 of Part 1 of Schedule 1, assigned a type to a river or part thereof, the Department shall consider both direct and indirect pressures on the physical character of rivers at local scale, water body scale and catchment scale. The physical character of a river includes the condition of the channel bed, banks and riparian zone, channel pattern and river continuity.

- (b) To assess the morphological condition of lake water bodies, the Department shall assign a type in accordance with paragraph 8(c) of Part 1 of Schedule 1. The morphological condition of High Status lakes must not be altered by more than 5%.
  - (c) To assess the morphological condition of transitional and coastal water bodies, the Department shall consider both direct and indirect pressures on the physical character of transitional and coastal waters at local scale, water body scale and catchment scale.
2. High Status morphological condition must not be assigned to
- (a) Any water body that has been identified as being at risk of failing to achieve good ecological status due to the extent of morphological pressures; or
  - (b) Any artificial or heavily modified water body.

## PART 5

### Determining Overall Status of Surface Water Bodies

1. The Department shall determine the overall status of a surface water body, other than those designated as heavily modified or artificial, by combining the classification of ecological status and chemical status in one of the following and alternative ways:

- (a) where the ecological and hydromorphological status of a surface water body is high and the chemical status of the surface water body is good, then the overall status of the surface water body is “high”.
- (b) where the ecological status is good and the chemical status is good, then the overall status is “good”.
- (c) where the ecological status is high, good or moderate, and the chemical status is failing to achieve good, then the overall status is “moderate”.
- (d) where the ecological status is moderate and irrespective of chemical status, then the overall status is “moderate”.
- (e) where the ecological status is poor or bad and irrespective of the chemical status, the overall status shall be the same classification as the ecological status, that is “poor” or “bad”.

## SCHEDULE 3

### Determining Quantitative status of Groundwater

1.—(1) The Department shall determine the quantitative status of a body of groundwater as follows—

- (a) by determining whether or not one or more of the indicators in Column 1 of Table 1 are applicable to the body of groundwater; and
  - (b) if any of those indicators are applicable, by carrying out appropriate investigations to determine whether or not the criteria in Column 2 of Table 1 corresponding to the applicable indicator or indicators for poor quantitative status are satisfied.
- (2) The body of groundwater shall be classified as—
- (a) “good groundwater quantitative status” where—
    - (i) none of the indicators set out in Column 1 of Table 1 are applicable, or

- (ii) one or more of those indicators are applicable but none of the corresponding criteria for poor groundwater status set out in Column 2 of Table 1 are satisfied; and
- (b) in any other case as “poor groundwater quantitative status”.

**Table 1**

**Risk indicators and classification criteria for groundwater quantitative status**

<i>Column 1</i>	<i>Column 2</i>
<p><b>Saline or other intrusions into a groundwater body:</b></p> <p>a) Failure of a threshold value i.e. electrical conductivity for groundwater as derived in accordance with the Groundwater Regulations (Northern Ireland) 2009; or</p> <p>b) Other indications of intrusions of poor quality water into the body of groundwater</p> <p>(Note: “intrusion” is interpreted to be intrusion of poor quality water into a groundwater body from another water body, rather than the movement of a plume of poor quality water within the body).</p>	<p>i) Significant and sustained upward trend in electrical conductivity indicating saline intrusion;</p> <p>ii) Significant and sustained upward trend in the concentration of other indicators of intrusion;</p> <p>iii) Existing evidence that a point of abstraction has been rendered unsuitable for use without prior treatment as a result of an intrusion.</p>
<p><b>Surface water:</b></p> <p>a) Flow conditions in an associated surface water body are unsatisfactory, and there is reason to suspect that groundwater abstraction impacts (on the surface water body) are a significant component of the failure to achieve flow standards.</p> <p>(Note: Flow conditions are considered unsatisfactory if they are failing to meet the appropriate WFD flow standards and in doing so, preventing the surface water body maintaining or achieving its target status class).</p>	<p>i) Flow conditions are preventing the surface water body maintaining or achieving the target status class and the reduction in river flow in the surface water body concerned (resulting solely from groundwater abstraction) represents <math>\geq 50\%</math> of the value of the allowable abstraction (based on the flow standards).</p>
<p><b>Groundwater Dependant Terrestrial Ecosystems (GWDTE):</b></p> <p>a) Indications of damage to a GWDTE caused by insufficient water availability identified through the departure from predefined environmental supporting conditions, including flow and groundwater level (or chemistry) which are required to maintain dependent communities in a favourable state.</p>	<p>i) A significant proportion of the departure from the predefined environmental supporting conditions can be attributed to anthropogenic quantitative pressures in the groundwater body, affecting groundwater availability to the GWDTE.</p>

<p><b>Water balance:</b></p> <p>a) Indications that the total annual volume of groundwater being abstracted from the groundwater body exceeds the long term annual average rate of recharge to the groundwater body (taking in to account an allowance where relevant for dependent ecosystems).</p>	<p>i) The annual average volume of groundwater abstracted from the groundwater body represents more than 20% of the long-term annual average rate of recharge to the groundwater body and there are sustained trends of long term falling groundwater levels within the groundwater body.</p>
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#### SCHEDULE 4

##### Presentation of monitoring results and classification

**Table 1**

##### Surface Water Ecological Status

<i>Ecological status classification</i>	<i>Colour code</i>
High	Blue
Good	Green
Moderate	Yellow
Poor	Orange
Bad	Red

**Table 2**

##### Heavily Modified / Artificial Water Bodies Ecological Potential

<i>Ecological classification</i>	<i>potential</i>		<i>Colour code</i>	
	Artificial water bodies	Heavily modified	Artificial water bodies	Heavily modified
Good and above	Equal green and light grey stripes	Equal green and dark grey stripes	Equal green and light grey stripes	Equal green and dark grey stripes
Moderate	Equal yellow and light grey stripes	Equal yellow and dark grey stripes	Equal yellow and light grey stripes	Equal yellow and dark grey stripes
Poor	Equal orange and light grey stripes	Equal orange and dark grey stripes	Equal orange and light grey stripes	Equal orange and dark grey stripes
Bad	Equal red and light grey stripes	Equal red and dark grey stripes	Equal red and light grey stripes	Equal red and dark grey stripes

**Table 3**

##### Surface Water Chemical Status

<i>Chemical status classification</i>	<i>Colour code</i>
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*Status: This is the original version (as it was originally made). Northern Ireland Statutory Rules are not carried in their revised form on this site.*

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Good	Blue
Failing to achieve good	Red

**Table 4**

**Groundwater chemical status**

<i>Groundwater chemical status</i>	<i>Colour code</i>
Good	Green
Poor	Red

**Table 5**

**Groundwater Quantitative Status**

<i>Groundwater quantitative status</i>	<i>Colour code</i>
Good	Green
Poor	Red

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**EXPLANATORY NOTE**

*(This note is not part of the Regulations)*

These Regulations implement Council Directive [2008/105/EC](#) on environmental quality standards in the field of water policy (O.J. No. L348, 24.12.2008 p.84) and set out the classification schemes used under the implementation of Directive [2000/60/EC](#) establishing a framework for Community action in the field of water policy (O.J. No. L327, 22.12.2000 p.60).

Regulation 3 and Schedule 1 require the Department to assign a type or types and to apply environmental standards and biological boundary values in respect of rivers, lakes, transitional and coastal waters.

Regulation 4 requires the Department to apply the standards for priority substances and other dangerous substances.

Regulation 5 and 6 and Schedule 2, 3 and 4 require the Department to classify surface waters and groundwaters and to report this classification in River Basin Management Plans.

Regulation 7 allows for the designation of mixing zones and regulation 8 requires the Department to establish an inventory in respect of priority substances.

Regulation 9 revokes the Surface Waters (Dangerous Substances) (Classification) Regulations (Northern Ireland) 1998.