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STATUTORY RULES OF NORTHERN IRELAND

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**2015 No. 351**

**ENVIRONMENTAL PROTECTION**

**The Water Framework Directive (Classification,  
Priority Substances and Shellfish Waters)  
Regulations (Northern Ireland) 2015**

*Made* - - - - *2nd October 2015*

*Coming into operation* *23rd October 2015*

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 (Classification, Priority Substances and Shellfish Waters) Regulations (Northern Ireland) 2015 and shall come into operation on 23 October 2015.

**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 and as agreed following the EU intercalibration exercise(5);

“biota taxon” means a particular aquatic taxon within the taxonomic rank “sub-phylum”, “class” or their equivalent;

“cyprinid waters” means a type of lake or river which, in the Department’s judgement, would support a sustainable fish population dominated by cyprinid species;

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(1) [S.I. 2008/301](#)  
(2) [1972 c.68](#)  
(3) [S.I. 1999/662 \(N.I. 6\)](#)  
(4) [S.R. 2003 No.544](#)  
(5) [EU Commission Decision 2013/480/EU](#)

“Directive 2009/90/EC” means Commission Directive [2009/90/EC](#) laying down, pursuant to Directive [2000/60/EC](#) of the European Parliament and of the Council, technical specifications for chemical analysis and monitoring of water status<sup>(6)</sup>;

“existing obligations” means the obligations (on environmental quality standards in the field of water policy) under Directive [2008/105/EC](#) of the European Parliament and of the Council<sup>(7)</sup> (“the original Directive”) before it was amended by Directive 2013/39/EU of the European Parliament and of the Council<sup>(8)</sup> including, in particular, the achievement of good surface water chemical status in relation to the substances and the associated environmental quality standards listed in the original Directive;

“matrix” means a compartment of the aquatic environment, namely water, sediment or biota;

“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;

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

“salmonid waters” means a type of lake or river which, in the Department’s judgement, would support a sustainable fish population dominated by salmonid species;

“shellfish waters” means any shellfish water classified under the 2003 Regulations;

“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<sup>(9)</sup> as amended by Directive 2013/39/EU of the European Parliament and of the Council<sup>(10)</sup>;

“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<sup>(11)</sup> as last amended by Commission Directive 2014/101/EU<sup>(12)</sup>.

(2) Any word or expression used in these Regulations and the Directive, the Water Framework Directive, Directive 2009/90/EC, or the 2003 Regulations and not otherwise defined in these Regulations shall have the same meaning for the purposes of these Regulations as it has for the purposes of the applicable Directive or Regulations.

(3) The Interpretation Act (Northern Ireland) 1954<sup>(13)</sup> applies to these Regulations as it applies to an Act of the Assembly.

## Typology and Environmental Standards

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

(a) assign a Type or Types in accordance with Part 1 of Schedule 1; and

(6) OJ L201, 1.8.2009, p.36

(7) OJ L348, 16.12.2008, p.84

(8) OJ L226, 24.8.2013, p.1

(9) OJ L348, 16.12.2008, p.84

(10) OJ L226, 24.08.2013, P.1

(11) OJ L327, 22.12.2000, p.1-73; as amended by Decision [2455/2001/EC](#) (OJ L331, 15.12.2001, p.1), Directive [2008/32/EC](#) (OJ L81, 20.3.2008, p.60), Directive [2008/105/EC](#) (OJ L348, 24.12.2008, p.84), Directive [2009/31/EC](#) (OJ L140, 5.6.2009, p.114), Directive 2013/39/EU (OJ L226, 24.8.2013, p.1) and Commission Directive 2014/101/EU (OJ L311, 31.10.2014, p.32).

(12) OJ L311, 31.10.2014, p.32

(13) [1954 c.33 \(N.I.\)](#)

- (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, 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)(b) 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**

4. Without prejudice to existing obligations and subject to regulation 5, the Department must apply the environmental quality standards set out in Part 2 of Schedule 1 for the priority substances numbered 1-33 in Table 47 of Part 2 of Schedule 1 to surface waters or parts thereof.

5. For the priority substances numbered 2, 5, 15, 20, 22, 23 and 28 in Table 47 of Part 2 of Schedule 1, with the aim of achieving good surface water chemical status in relation to those substances by 22 December 2021 by means of the programme of measures included in the river basin management plans (or an update of them), the environmental quality standards that apply are those applicable on the dates set out in column 4 of that Table. For all other priority substances numbered 1-33, the environmental quality standard set out in Table 47 of Part 2 of Schedule 1 applies from the date these Regulations come into force.

6. Without prejudice to existing obligations, for the priority substances numbered 34 to 45 in Table 47 of Part 2 of Schedule 1, with the aim of achieving good surface water chemical status in relation to those substances by 2027 and preventing deterioration in the chemical status of surface water bodies in relation to those substances, the Department must—

- (a) from 22 December 2018, apply the environmental quality standards set out in Table 47 of Part 2 of Schedule 1 for those substances;
- (b) by 22 December 2018, establish and submit to the Commission a supplementary monitoring programme and a preliminary programme of measures covering those substances;
- (c) establish a final programme of measures for those substances by 22 December 2021; and
- (d) make the final programme of measures fully operational as soon as possible after 22 December 2021, and not later than 22 December 2024.

7. Subject to regulation 8—

- (a) for the priority substances numbered 5, 15, 16, 17, 21, 28, 34, 35, 37, 43 and 44 in Table 47 of Part 2 of Schedule 1 the Department must apply the biota environmental quality standards laid down in column 9 of that Table;
- (b) for all other substances numbered in Table 47 of Part 2 of Schedule 1, the Department must apply the water environmental quality standards in accordance with that Table.

8.—(1) Subject to the conditions in paragraphs (2) and (3), the Department may, in relation to one or more categories of surface water, apply an environmental quality standard for a matrix other than the matrix specified in column 9 of Table 47 of Part 2 of Schedule 1 or, if applicable, an environmental quality standard for a biota taxon other than those specified in that Table.

- (2) The first condition is that the Department applies either—
- (a) the relevant environmental quality standard laid down in Table 47 of Part 2 of Schedule 1; or
  - (b) if there is no relevant environmental quality standard laid down in that Table for the alternative matrix or biota taxon, an environmental quality standard that offers at least the same level of protection as that provided by an environment quality standard established for a matrix or biota taxon—
    - (i) in Table 47 of Part 2 of Schedule 1; and
    - (ii) according to technical knowledge and expert judgement, is equivalent to the alternative matrix or biota taxon.
- (3) The second condition is that the Department’s method of analysis for the chosen matrix or biota taxon fulfils the minimum performance criteria laid down in Article 4 of Directive 2009/90/EC. Where those criteria are not met for any matrix, the monitoring must be carried out using the best available techniques not entailing excessive costs and the method of analysis for the relevant substance must perform at least as well as that available for the matrix specified in regulation 7.

## Monitoring

**9.** Where a potential risk to, or via, the aquatic environment from acute exposure to one of the substances listed in Table 47 of Part 2 of Schedule 1 has been identified as a result of measured or estimated environmental concentrations or emissions, and where a biota or sediment environmental quality standard is being applied, the Department must—

- (a) monitor the surface water; and
- (b) where such environmental quality standards have been established, apply the MAC-EQS laid down in that Table.

**10.** Where, pursuant to Article 5 of Directive 2009/90/EC, the calculated mean value of a measurement, when carried out using the best available technique not entailing excessive costs, is referred to as “less than limit of quantification”, and the limit of quantification of that technique is above the environmental quality standard, the Department must not use the result for the substance for the purposes of assessing the overall chemical status of that water body.

**11.** For substances for which an environmental quality standard for sediment and/or biota is applied, the Department must, unless regulation 12 applies, monitor the substance in the relevant matrix at least once every year, unless technical knowledge and expert judgement justify another interval.

**12.** The Department may monitor the substances numbered 5, 21, 28, 30, 35, 37, 43 and 44 in Table 47 of Part 2 of Schedule 1 less intensively than is required for priority substances under regulation 11 and Annex V to the Water Framework Directive, provided that the monitoring—

- (a) is representative and a statistically robust baseline is available regarding the presence of those substances in the aquatic environment; and
- (b) takes place for each of the substances at least every three years, unless technical knowledge and expert judgment justify another interval.

**13.—(1)** On the basis of monitoring of surface water status carried out in accordance with Article 8 of the Water Framework Directive, the Department must conduct a long-term trend analysis of concentrations of those priority substances listed in Table 47 of Part 2 of Schedule 1 that tend to accumulate in sediment and/or biota, giving particular consideration to the substances numbered 2, 5, 6, 7, 12, 15, 16, 17, 18, 20, 21, 26, 28, 30, 34, 35, 36, 37, 43 and 44.

(2) The Department must take measures aimed at ensuring, subject to Article 4 of the Water Framework Directive, that such concentrations do not significantly increase in sediment and/or relevant biota.

**14.** The Department must carry out monitoring under regulation 13(1) in sediment and/or biota so as to provide sufficient data for a reliable long-term trend analysis. The monitoring should take place every three years, unless the Department's technical knowledge and expert judgement justify another interval.

### **Watch List**

**15.**—(1) The Department must, within the deadlines set out in paragraph (3), monitor each substance in the watch list produced by the Commission (**14**) under Article 8b (1) and (2) of the Directive.

(2) The monitoring referred to in paragraph (1) must be carried out—

- (a) at selected monitoring stations over at least a 12-month period; and
- (b) in accordance with any Commission guidance published for these purposes under Article 8b of the 2008 Directive.

(3) The Department must select at least one monitoring station.

(4) The 12-month monitoring period must—

- (a) for each substance included in the watch list as first established by Commission Implementing Decision (EU) 2015/495(**15**), commence on 24th October 2015; and
- (b) for each substance included in subsequent lists, commence within six months of its inclusion in the list.

(5) In selecting representative monitoring stations, and the monitoring frequency and timing for each substance, the Department must—

- (a) take into account the use patterns and possible occurrence of the substance; and
- (b) ensure that monitoring is carried out at each station at least once per year.

**16.** The Department may opt not to undertake additional monitoring under the watch list mechanism for a particular substance if—

- (a) the Department has sufficient, comparable, representative and recent monitoring data for the substance from existing monitoring programmes or studies; and
- (b) the substance was monitored using a methodology that satisfies the requirements of the technical guidelines developed by the Commission in accordance with Article 8b(5) of the Directive.

**17.**—(1) The Department must report the results of the monitoring carried out pursuant to regulation 15 to the Commission in accordance with the following deadlines—

- (a) for the first watch list, within 21 months of the establishment of the watch list; and every 12 months thereafter while the substance is kept on the list.
- (b) for each substance included in subsequent lists, within 21 months of the inclusion of the substance in the watch list, and every 12 months thereafter while the substance is kept on the list.

(2) The reports referred to in paragraph (1) must include information on the representativeness of the monitoring stations and monitoring strategy.

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(14) Commission Implementing Decision 2015/495. OJ L 78, 24.3.2015, p40

(15) OJ L78, 24.3.2015, p40

### **Intermittent Standards**

18. The Department must apply the standards for intermittent discharges specified in Part 4 of Schedule 1.

### **Standards for shellfish waters**

19.—(1) The Department must apply the standards for shellfish waters specified in Table 1 of Part 1 of Schedule 5 and endeavour to respect the guideline standard for salinity in Table 2 of Part 1 of Schedule 5.

(2) The Department must endeavour to respect the guideline values and comments specified in Part 2 of Schedule 5.

### **Classification of surface waters**

20.—(1) Subject to paragraph (2), the Department must 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 must 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) must 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 must be determined in accordance with Part 5 of Schedule 2.

(5) The Department must 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**

21.—(1) The Department must 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(16).

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

### **Designation of Mixing Zones**

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

(2) Concentrations of one or more substances listed in Table 47 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 must be restricted to the proximity of the point of discharge and must 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 must include information about designated mixing zones in river basin management plans. The information must 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**

**23.**—(1) The Department must continue to maintain an inventory, including maps if available, of emissions, discharges and losses of all substances and pollutants listed in Table 47 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 Department must continue to update the inventories as part of the review of the analyses specified in Article 5(2) of the Water Framework Directive, and must publish the updated inventories in the corresponding river basin management plan.

(3) The reference period for the establishment of values in the inventories referred to in paragraph 1 must 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.

### **Transboundary Pollution**

**24.**—(1) If the Department is found to be in breach of its obligations under the Directive as a result of the exceedance of an environmental quality standard it shall be a defence for the Department if it can demonstrate that—

- (a) the exceedance was due to a source of pollution outside its jurisdiction;

- (b) it was unable as a result of such transboundary pollution to take effective measures to comply with the relevant environmental quality standard; and
- (c) it had applied the coordination mechanisms set out in Article 3 of the Water Framework Directive and, as appropriate, taken advantage of the provisions of Article 4(4), (5) and (6) of that Directive for those water bodies affected by transboundary pollution.

(2) The Department must provide evidence to the Commission that it has taken measures to address the issue of transboundary pollution and must record these measures in the relevant river basin management plan.

### Coordination

**25.**—(1) Where the result of assessments undertaken by the Commission, in accordance with Article 7a of the Directive, show that additional measures may be necessary to facilitate compliance with the Water Framework Directive in relation to a particular substance approved pursuant to Regulation (EC) No 1107/2009 of the European Parliament and of the Council<sup>(17)</sup> as amended from time to time or Regulation (EU) No 528/2012 of the European Parliament and of the Council<sup>(18)</sup> as amended from time to time, the competent authority must apply—

- (a) Article 44 of Regulation (EC) No 1107/2009; or
- (b) Article 48 of Regulation (EU) No 528/2012,

as appropriate, to that substance, or any product containing that substance.

(2) In applying the provisions of the relevant Regulations referred to in Article 7a of the Directive, the competent authority must take into account any risk evaluations and socio-economic or cost-benefit analyses required under those Regulations, including as regards the availability of alternatives.

(3) The competent authority for the purposes of this regulation is the authority defined—

- (a) in respect of Regulation (EC) No 1107/2009, under regulation 3 of the Plant Protection Products Regulations (Northern Ireland) 2011<sup>(19)</sup>;
- (b) in respect of Regulation (EU) No 528/2012, under regulation 5 of the Biocidal Products and Chemicals (Appointment of Authorities and Enforcement) Regulations (Northern Ireland) 2013<sup>(20)</sup>.

### Information to be included in River Basin Management Plan

**26.**—(1) The Department must include the following information in the updated river basin management plans produced in accordance with Article 13(7) of the Water Framework Directive—

- (a) a table presenting the limits of quantification of the methods of analysis applied, and information on the performance of those methods in relation to the minimum performance criteria in Article 4 of Directive 2009/90/EC;
- (b) for the substances for which the option in regulation 8 is used—
  - (i) the reasons and basis for using that option;
  - (ii) where relevant, the alternative environmental quality standard established evidence that those environmental quality standards would offer at least the same level of protection as the environmental quality standards laid down in Table 47 of Part 2 of

<sup>(17)</sup> OJ L309, 24.11.2009, p.1, as amended by Council Regulation (EU) No 518/2013 (OJ L158, 10.6.2013, p.72) and Regulation (EU) No 652/2014 of the European Parliament and of the Council (OJ L189, 27.6.2014, p.1)

<sup>(18)</sup> OJ L167, 27.6.2012, p.1, as last amended by Regulation (EU) No 334/2014 of the European Parliament and of the Council (OJ L103, 5.4.2014, p.22)

<sup>(19)</sup> S.R. 2011 No.295

<sup>(20)</sup> S.R. 2013 No.206



Schedule 1, including the data and methodology used to derive the environmental quality standards, and the categories of surface water to which they would apply;

(iii) for comparison with the information referred to in paragraph (a), the limits of quantification of the methods of analysis for the matrices specified in Table 47 of Part 2 of Schedule 1, including information on the performance of those methods in relation to the minimum performance criteria laid down in Article 4 of Directive 2009/90/EC.

(c) justification for the frequency of monitoring applied in accordance with regulations 11 and 12, if monitoring intervals are longer than one year.

(2) The Department must take measures to ensure that the updated river basin management plans, containing the results and impact of the measures taken to prevent chemical pollution of surface water, and the interim report describing progress on the implementation of the planned programme of measures in accordance with Article 15(3) of the Water Framework Directive, are provided through a central portal which is accessible to the public electronically in accordance with Article 7(1) of Directive [2003/4/EC](#) of the European Parliament and of the Council on public access to environmental information<sup>(21)</sup>.

### **Revocations and Savings**

**27.** The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2011<sup>(22)</sup> are revoked.

**28.** The Water Framework Directive (Priority Substances and Classification) (Amendment) Regulations (Northern Ireland) 2012<sup>(23)</sup> are revoked.

**29.** The Water Framework Directive (Priority Substances and Classification) (Amendment) Regulations (Northern Ireland) 2015<sup>(24)</sup> are revoked.

Sealed with the Official Seal of the Department of the Environment on 2nd October 2015.



*Dave Foster*  
A senior officer of the Department of the  
Environment

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(21) OJ L41, 14.2.2003, p.26

(22) [S.R. 2011 No.10](#)

(23) [S.R. 2012 No.442](#)

(24) [S.R. 2015 No.45](#)

*Status: This is the original version (as it was originally made).*

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 must 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 must assign the subsequent Type in accordance with column 1 of Table 2 below.
3. To determine the morphological conditions applicable to a river or part thereof, the Department must assign to that river or part thereof the Type specified in Table 3 below which corresponds with the applicable descriptions in that Table.
4. To determine the river flow standards applicable to a river or any part thereof, the Department must assign the Type specified in column 1 of Table 4 below which corresponds to the applicable descriptions specified in columns 2, 3 and 4 of that Table.
5. To determine the total phosphorus standards to apply to a lake or any part thereof, the Department must assign to that lake or part thereof the appropriate geological category, depth category and colour category specified in Tables 5, 6 and 7 below respectively.
6. To determine the lake level standards applicable to a lake or any part thereof, the Department must assign the Type specified in Columns 1 and 2 of Table 8.
7. To determine the morphological conditions applicable to a lake or any part thereof, the Department must assign the hydromorphological characteristics of the lake or part thereof as being of the type specified in column 1 of Table 9 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 80 metres	80	Type 1	Type 2	Type 3	Type 5	Type 7
Over 80 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

<i>Final typology for dissolved oxygen, ammonia and biochemical oxygen demand in rivers</i>	
Lowland and high alkalinity	Types 3, 5 and 7

**Table 3**

**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 4**

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

Column 1	Column 2	Column 3	Column 4	
<i>Type</i>	<i>Standard 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	Any	≤ 100 (A2 headwaters) > 100 (A2 downstream)
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	

**Status:** This is the original version (as it was originally made).

Column 1	Column 2	Column 3	Column 4
<i>Type</i>	<i>Standard Annual Rainfall mm (period 1961-1990)</i>	<i>Base Flow Index (BFI)</i>	<i>Catchment area (km<sup>2</sup>)</i>
	≥ 1413	≥ 0.3615	≥ 32.33
D2	≥ 1413	≥ 0.3615	< 32.33
	≥ 810.5	< 0.3615	Any

**Table 5**

**Geological categories to which total phosphorus, phytoplankton and phytobenthos 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 6**

**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 7**

**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 8**

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

<i>Categories</i>	
Column 1	Column 2
<i>Peat</i>	<i>Non-Peat</i>
mean water colour ≥90 hazen units; or	mean water colour <90 hazen units; or

<i>Categories</i>	
Column 1	Column 2
<i>Peat</i>	<i>Non-Peat</i>
≥75% of solid catchment area comprised of peat	<75% of solid catchment area comprised of peat

**Table 9**

**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<sup>(1)</sup> code</i>	<i>Mean Depth</i>	<i>Alkalinity</i>
Low Alkalinity Very Shallow	P/L-vS	<4m	< 20 mg <sup>l</sup> <sup>-1</sup> CaCO <sub>3</sub>
Low Alkalinity Shallow/ Deep	P/L-ShD	>4m	< 20 mg <sup>l</sup> <sup>-1</sup> CaCO <sub>3</sub>
Moderate Alkalinity Very Shallow	MA-vS	<4m	20 – 100 mg <sup>l</sup> <sup>-1</sup> CaCO <sub>3</sub>
Moderate Alkalinity Shallow/Deep	MA-ShD	>4m	20 – 100 mg <sup>l</sup> <sup>-1</sup> CaCO <sub>3</sub>
High Alkalinity Very Shallow	HA/M-vS	<4m	> 100 mg <sup>l</sup> <sup>-1</sup> CaCO <sub>3</sub>
High Alkalinity Shallow/ Deep	HA/M-ShD	>4m	> 100 mg <sup>l</sup> <sup>-1</sup> CaCO <sub>3</sub>

(1) Morphological Impact Assessment System

## 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 must 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 must 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 must 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.

*Status: This is the original version (as it was originally made).*

2. The Department must 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. The Department must apply, as applicable, the “high”, “good”, “moderate”, “poor” or “bad” reactive phosphorus standard to that river or part thereof, calculated in accordance with the formula specified in sub paragraph (a)—

(a) 
$$\text{RP standard} = 10^{((1.0497 \times \log_{10}(A)+1.066) \times (\log_{10}(\text{reference condition RP}) - \log_{10}(3,500)) + \log_{10}(3,500))};$$

(b) In relation to the above formula—

“RP standard” is the annual mean concentration of reactive phosphorus in ug/l estimated for the lower class boundary of high, good, moderate and poor ecological status, depending on the value of “A” used;

“A” has the value 0.702 when calculating the standard for high; 0.532 when calculating the standard for good; 0.356 when calculating the standard for moderate; and 0.166 when calculating the standard for poor;

“reference condition RP” =  $10^{(0.454 (\log_{10}\text{alk}) - 0.0018 (\text{altitude}) + 0.476)}$  and represents the annual mean concentration of reactive phosphorus at near natural conditions. If the predicted value of reference condition RP is <7ug/l, reference condition RP is set to 7ug/l;

“log<sub>10</sub>alk” means log<sub>10</sub>(alkalinity), where alkalinity is the concentration of CaCO<sub>3</sub> in mg/l. For sites with an alkalinity greater than 250, alkalinity is set to 250. For sites with an alkalinity less than 2, it is set to 2;

“altitude” means the site’s altitude above sea level in metres. For sites with an altitude greater than 355 metres, altitude is set to 355 metres.

4. The Department must apply, as applicable, the “high”, “good”, “moderate” or “poor” temperature standards specified in columns 2, 3, 4 and 5 respectively of Table 4 below.

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

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

6.—(1) Once the Department has, in accordance with paragraph 4 of Part 1 of this Schedule, assigned to a river or part thereof a Type specified in column 1 of Tables 6, 7, 8 or 9 below, it must apply, as applicable, the “high”, “good”, “moderate” or “poor” river flow standards as specified by the boundary values in those Tables to that river or part thereof.

(2) The Department may, when assessing the water balance results against the “high”, “good”, “moderate” and “poor” boundary values, take into account the spatial extent of the river flow standard based upon the contiguous length or percentage length of the river water body.

(3) 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**

7. The Department must apply, as applicable, the “high”, “good”, “moderate”, “poor” or “bad” dissolved oxygen standard specified in Table 10 below to all lakes or parts of such lakes.

8. The Department must apply the “good” salinity standard specified in Table 11 below to all lakes or parts of such lakes.

9. Once the Department has, in accordance with paragraph 5 of Part 1 of this Schedule, assigned to a lake or part thereof a geological category, depth category and colour category specified in Tables 5, 6 and 7 in that Part, it must 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 12 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.

10. 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 must 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 13 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**

11. Once the Department has assigned the characteristics of a lake or part thereof, in accordance with paragraph 7 of Part I of this Schedule, it must apply, as applicable, to the lake or part thereof the “high”, “good”, “moderate” or “poor” lake standards specified in columns 1, 2, 3 and 4 of Table 14.

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

12. The Department must apply, as applicable, the dissolved oxygen standards for “high”, “good”, “moderate”, “poor” or “bad” specified in Table 15 and Table 16 below to transitional or coastal waters or parts thereof.

13. The Department must apply, as applicable, the dissolved inorganic nitrogen standards for “high”, “good”, “moderate”, “poor” or “bad” specified in Table 17 below to transitional or coastal waters or parts thereof.

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

14. The Department must apply, as applicable, the standards for specific pollutants given in Tables 18 to 47 below to surface waters or parts thereof.  
Environmental Standards for River Water Quality

**Status:** This is the original version (as it was originally made).

**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>(1)</sup>	High	Good	Moderate	Poor	Bad
Upland and low alkalinity	80	75	64	50	< 50
Lowland and high alkalinity	70	60	54	45	< 45

(1) Where a lowland, high alkalinity river is a salmonid water the standards for the upland, low alkalinity type will apply.

**Table 2**

**Standards for ammonia in rivers**

<i>Total ammonia<sup>(1)</sup> (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

(1) Note that Ammonia is a Specific Pollutant and considered as such for compliance. It is included in this section as it is commonly assessed alongside the other inorganic chemistry elements.

**Table 3**

**Standards for Biochemical Oxygen Demand in rivers**

<i>Biochemical oxygen demand (mg/l)<sup>(1)</sup></i>					
(90-percentile)					
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Type <sup>(2)</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

(1) The standard for Biochemical Oxygen Demand shall be used when deciding action to meet the standard for dissolved oxygen.

(2) Where a lowland, high alkalinity river is a salmonid water the standards for the upland, low alkalinity type will apply.



**Table 4**

**Standards for temperature in rivers**

<i>Temperature (°C) as an annual 98th percentile standard</i>				
<i>Column 1</i>	<i>Column 2</i>	<i>Column 3</i>	<i>Column 4</i>	<i>Column 5</i>
Type	High	Good	Moderate	Poor
Salmonid waters	20	23	28	30
Cyprinid waters	25	28	30	32

**Table 5**

**Standards for acid conditions in rivers. Either pH or Acid Neutralising Capacity (ANC) or both may be used**

<i>Column 1</i>	<i>Clear waters<sup>(1)</sup></i>		<i>Humic waters<sup>(2)</sup></i>	
	<i>Column 2</i>	<i>Column 3</i>	<i>Column 4</i>	<i>Column 5</i>
	Annual mean			
	pH	ANC <sup>(3)</sup>	pH	ANC <sup>(3)</sup>
High	6.60 <sup>(4)</sup>	80	5.10 <sup>(4)</sup>	80
Good	5.95	40	4.55	50
Moderate	5.44	15	4.22	10
Poor	4.89	-10	4.03	5

(1) Waters with a Dissolved Organic Carbon Value of 10mg/l or less

(2) Waters with a Dissolved Organic Carbon Value of greater than 10mg/l

(3) As assessed by the Cantrell method

(4) A 95% upper limit of 9 also applies

**Table 6**

**High environmental standards for river flows**

<i>Permitted abstraction per day as a percentage of the natural mean daily flow(Q)<sup>(1)</sup></i>		
High		
Column 1	Column 2	Column 3
	Maximum permitted % abstraction at Q exceeding Q <sub>95</sub> <sup>(2)</sup>	Maximum permitted % abstraction at Q <b>not</b> exceeding Q <sub>95</sub>

(1) 'Q' is the mean daily flow for a specified period of time

(2) 'Qx' is the Q that is expected to be exceeded by 'x' percent for a specified period of time

Status: This is the original version (as it was originally made).

<i>Permitted abstraction per day as a percentage of the natural mean daily flow(Q)<sup>(1)</sup></i>		
A1, A2 (downstream), A2 (headwaters), B1, B2, C2, D2	10	5

- (1) 'Q' is the mean daily flow for a specified period of time
- (2) 'Qx' is the Q that is expected to be exceeded by 'x' percent for a specified period of time

**Table 7**

**Good environmental standards for river flows**

<i>Permitted abstraction per day as a percentage of the natural mean daily flow(Q)</i>				
<i>Good</i>				
Column 1	Column 2	Column 3	Column 4	Column 5
River type	Maximum % abstraction at Q exceeding Q <sub>60</sub>	Maximum % abstraction at Q exceeding Q <sub>70</sub>	Maximum % abstraction at Q exceeding Q <sub>95</sub>	Maximum % abstraction at Q <b>not</b> exceeding Q <sub>95</sub>
A1	35	30	25	20
A2 (downstream), B1, B2	30	25	20	15
A2 (headwaters), C2, D2	25	20	15	10

**Table 8**

**Moderate environmental standards for river flows**

<i>Permitted abstraction per day as a percentage of the natural mean daily flow(Q)</i>				
<i>Moderate</i>				
Column 1	Column 2	Column 3	Column 4	Column 5
River type	Maximum % abstraction at Q exceeding Q <sub>60</sub>	Maximum % abstraction at Q exceeding Q <sub>70</sub>	Maximum % abstraction at Q exceeding Q <sub>95</sub>	Maximum % abstraction at Q <b>not</b> exceeding Q <sub>95</sub>
A1	70	50-70 <sup>(1)</sup>	50	45
A2 (downstream), B1, B2,	70	45-70 <sup>(1)</sup>	45	40
A2 (headwaters), C2, D2	70	40-70 <sup>(1)</sup>	40	35

- (1) incremental increase in allowable take at flows <Q<sub>60</sub> to ≥ Q<sub>90</sub>

**Table 9**

**Poor environmental standards for river flows**

<i>Permitted abstraction per day as a percentage of the natural mean daily flow(Q)</i>				
Poor				
Column 1	Column 2	Column 3	Column 4	Column 5
River type	Maximum % abstraction at Q exceeding Q <sub>60</sub>	Maximum % abstraction at Q exceeding Q <sub>90</sub>	Maximum % abstraction at Q exceeding Q <sub>95</sub>	Maximum % abstraction at Q <b>not</b> exceeding Q <sub>95</sub>
A1	Q <sub>x</sub> less 25% of Q <sub>90</sub>	Q <sub>x</sub> less 25% of Q <sub>90</sub>	75	70
A2 (downstream), B1, B2,	Q <sub>x</sub> less 30% of Q <sub>90</sub>	Q <sub>x</sub> less 30% of Q <sub>90</sub>	70	65
A2 (headwaters), C2, D2	Q <sub>x</sub> less 35% of Q <sub>90</sub>	Q <sub>x</sub> less 35% of Q <sub>90</sub>	65	60

Environmental Standards for Lake Water Quality

**Table 10**

**Standards for dissolved oxygen in lakes**

<i>Status</i>	<i>Mean in July – August (mg/l)</i>	
	Salmonid waters	Cyprinid waters
High	9	8
Good	7	6
Moderate	4	4
Poor	1	1
Bad	< 1	< 1

**Table 11**

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

<i>Status</i>	<i>Proposed Boundary</i>
	<i>Annual Mean (micro Siemens per centimetre)</i>
Good	1000

**Status:** This is the original version (as it was originally made).

**Table 12**

**Total phosphorus standards for lakes**

<i>Annual mean concentration of total phosphorous (µg/l)</i>				
Column 1	Column 2	Column 3	Column 4	Column 5
High	Good	Moderate	Poor	Bad
$R \div H$ ; or 5, whichever 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 13**

**Type-specific total phosphorus standards for lakes where the standards specified in Table 12 above do not apply**

<i>Annual mean concentration of total phosphorus (µg/l)</i>					
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
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 14**

**Environmental standards for lake water levels**

<i>Daily maximum % reduction in the habitable zone lake surface area for 99% of the days in any year</i>			
Column 1	Column 2	Column 3	Column 4
High	Good	Moderate	Poor
1	5	10	20

The habitable zone lake surface is dependent on whether the lake is considered to have the geological sub-type “Peat” or “Non-Peat”.

The habitable zone lake surface area means the proportion of the reference conditions<sup>(1)</sup> lake surface area from the shore to a depth 5 metres deeper than the depth to which light penetration to the lake bed would be sufficient to enable the growth of rooted plants (macrophytes) or bottom-living algae.

In the absence of field data to the contrary, the depth to which light penetration to the lake bed is sufficient to enable the growth of rooted plants (macrophytes) or bottom-living algae may be taken to be 2 metres for lakes with the geological sub-type of “Peat” and 7 metres for “Non-Peat” lakes. The lake habitable zone extends 5m below the level of light penetration to account for impacts on the aphotic habitat.

(1) The reference conditions lake surface area means the natural lake surface area in the absence of any abstractions, discharges or other man-made influences

Environmental Standards for Transitional and Coastal Water Quality

**Table 15**

**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 16**

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

	<i>Dissolved oxygen concentrations (mg/l) as 5-percentile values</i>
High	≥5.7

**Status:** This is the original version (as it was originally made).

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

**Table 17**

**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
Poor	40.5
Bad	>40.5

Environmental Standards for Specific Pollutants

**Table 18**

**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 19**

**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	Column 3	Column 4
Annual mean (µg/l)	95-percentile (µg/l)	Annual mean (µg/l)	95-percentile (µg/l)

**Status:** This is the original version (as it was originally made).

<i>Good standard for rivers and freshwater lakes</i>		<i>Good standard for transitional and coastal waters</i>	
4.2	140	0.42	6

**Table 20**

**Environmental standards for 3,4-Dichloroaniline**

<i>Good standard for rivers and freshwater lakes</i>		<i>Good standard for transitional and coastal waters</i>	
Column 1	Column 2	Column 3	Column 4
Annual mean (µg/l)	95-percentile (µg/l)	Annual mean (µg/l)	95-percentile (µg/l)
0.2	5.4	0.2	5.4

**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 benzyl butyl phthalate**

<i>Good standard for rivers and freshwater lakes</i>		<i>Good standard for transitional and coastal waters</i>	
Column 1	Column 2	Column 1	Column 2
Annual mean (µg/l)	95-percentile (µg/l)	Annual mean (µg/l)	95-percentile (µg/l)
7.5	51	0.75	10

**Table 23**

**Environmental standards for carbendazim**

<i>Good standards for rivers and freshwater lakes</i>	
Column 1	Column 2
Annual mean (µg/l)	95-percentile (µg/l)
0.15	0.7

**Status:** This is the original version (as it was originally made).

**Table 24**

**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 25**

**Environmental standards for chlorothalonil**

<i>Good standards for rivers and freshwater lakes</i>	
Column 1	Column 2
Annual mean (µg/l)	95-percentile (µg/l)
0.035	1.2

**Table 26**

**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 27**

**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>

- (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.



**Status:** This is the original version (as it was originally made).

<i>Good standard for rivers and freshwater lakes</i>	<i>Good standards for transitional and coastal waters</i>	
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 28**

**Environmental standards for copper**

<i>Good standards for rivers and freshwater lakes</i>	<i>Good standards for transitional and coastal waters<sup>(2)</sup></i>
Column 2	Column 3
Annual mean concentration (µg/l) of dissolved copper	Annual mean concentration (µg/l) of dissolved copper
1(bioavailable) <sup>(1)</sup>	3.76 µg/l dissolved, where DOC <sup>(3)</sup> ≤ 1 mg/l
	3.76 + (2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/l

- (1) bioavailable means the fraction of the dissolved concentration of copper likely to result in toxic effects as determined using the Metal Bioavailability Assessment Tool (also referred to as a PNEC Estimator) for copper.
- (2) The recommended salt water standard applies to the fraction of a water sample that passes through a 0.45-µm filter or that is obtained by any equivalent pre-treatment.
- (3) “DOC” means the annual mean concentration of dissolved organic carbon in mg/l.

**Table 29**

**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 ‘free’ cyanide (HCN and CN)	95-percentile concentration (µg/l) of ‘free’ cyanide (HCN and CN)	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.

**Status:** This is the original version (as it was originally made).

**Table 30**

**Environmental standards for cypermethrin**

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

- (1) Cypermethrin ceases to be a specific pollutant from 22 December 2018, when it shall be listed as a priority substance.
- (2) The standards for cypermethrin specified in column 2 and column 4 must not be used for the purposes of classifying the ecological status or potential of bodies of surface water.

**Table 31**

**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	Column 3	Column 4
Annual mean (µg/l)	95-percentile (µg/l)	Annual mean (µg/l)	95-percentile (µg/l)
0.01	0.02	0.01	0.26

**Table 32**

**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	Column 3	Column 4
Annual mean (µg/l)	95-percentile (µg/l)	Annual mean (µg/l)	95-percentile (µg/l)
0.48	4.0	0.48	4.0

**Table 33**

**Environmental standards for glyphosate**

<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 (µg/l)	95-percentile (µg/l)	Annual mean (µg/l)	95-percentile (µg/l)
196	398	196	398

**Table 34**

**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 35**

**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	Column 3	Column 4
Annual mean (µg/l)	95-percentile (µg/l)	Annual mean (µg/l)	95-percentile (µg/l)
0.5	0.9	0.5	0.9

**Table 36**

**Environmental standards for manganese**

<i>Good standard for rivers and freshwater lakes</i>
Annual mean (µg/l) bioavailable
123 <sup>(1)</sup>

(1) bioavailable means the fraction of the dissolved concentration of manganese likely to result in toxic effects as determined in accordance with the Metal Bioavailability Assessment Tool for manganese.

**Table 37**

**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	Column 3	Column 4
Annual mean (µg/l)	95-percentile (µg/l)	Annual mean (µg/l)	95-percentile (µg/l)
18	187	18	187

**Status:** This is the original version (as it was originally made).

**Table 38**

**Environmental standards for methiocarb**

<i>Good standards for rivers and freshwater lakes</i>	
Column 1	Column 2
Annual mean (µg/l)	95-percentile (µg/l)
0.01	0.77

**Table 39**

**Environmental standards for pendimethalin**

<i>Good standards for rivers and freshwater lakes</i>	
Column 1	Column 2
Annual mean (µg/l)	95-percentile (µg/l)
0.3	0.58

**Table 40**

**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	Column 3	Column 4
Annual mean (µg/l)	95-percentile (µg/l)	Annual mean (µg/l)	95-percentile (µg/l)
0.001	0.01	0.0002	0.001

**Table 41**

**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	Column 3	Column 4
Annual mean (µg/l)	95-percentile (µg/l)	Annual mean (µg/l)	95-percentile (µg/l)
7.7	46	7.7	46

**Table 42**

**Environmental standards for tetrachloroethane (TCE)**

<i>Good standards for rivers and freshwater lakes</i>	
Column 1	Column 2

<i>Good standards for rivers and freshwater lakes</i>	
Annual mean (µg/l)	95-percentile (µg/l)
140	1848

**Table 43**

**Environmental standards for toluene**

<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 (µg/l)	95-percentile (µg/l)	Annual mean (µg/l)	95-percentile (µg/l)
74	380	74	370

**Table 44**

**Environmental standards for triclosan**

<i>Good standard for rivers and freshwater lakes</i>		<i>Good standard for transitional and coastal waters</i>	
Column 1	Column 2	Column 3	Column 4
Annual mean (µg/l)	95-percentile (µg/l)	Annual mean (µg/l)	95-percentile (µg/l)
0.1	0.28	0.1	0.28

**Table 45**

**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

**Table 46**

**Environmental standards for zinc**

<i>Good standards for rivers and freshwater lakes</i>	<i>Good standards for transitional and coastal waters</i>
Column 1	Column 2
Annual mean	Annual mean

- (1) bioavailable means the fraction of the dissolved concentration of zinc likely to result in toxic effects as determined using the Metal Bioavailability Assessment Tool (also referred to as a PNEC Estimator) for zinc.
- (2) Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoring data. A figure of 1 µg/l has been estimated for freshwaters in Northern Ireland.

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<i>Good standards for rivers and freshwater lakes</i>	<i>Good standards for transitional and coastal waters</i>
10.9 bioavailable <sup>(1)</sup> plus Ambient Background Concentration <sup>(2)</sup> (µg/l) dissolved	6.8 dissolved plus Ambient Background Concentration (µg/l)

- (1) bioavailable means the fraction of the dissolved concentration of zinc likely to result in toxic effects as determined using the Metal Bioavailability Assessment Tool (also referred to as a PNEC Estimator) for zinc.
- (2) Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoring data. A figure of 1 µg/l has been estimated for freshwaters in Northern Ireland.

Environmental Standards for Priority Substances and other Substances

**Table 47**

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

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9
Number	Name of substance	Chemical Abstracts Service number	Date from which standards apply	All rivers and lakes		All transitional and coastal waters		EQS Biota <sup>(1)</sup>
				Good	AA-EQS (µg/l) <sup>(1)</sup> Inland surface waters <sup>(2)</sup>	Good	MAC-EQS (µg/l) <sup>(3)</sup> Inland surface waters <sup>(2)</sup>	
1	Alachlor	15972-60-8		0.3	0.7	0.3	0.7	
2	Anthracene	120-12-7	14/09/15-20/12/15	0.4	0.4	0.1	0.4	
			22/12/15 onwards	0.1	0.1	0.1	0.1	
3	Atrazine	1912-24-9		0.6	2.0	0.6	2.0	
4	Benzene	71-43-2		10	50	8	50	
5	Brominated diphenylethers <sup>(4)</sup>	32534-81-9	14/09/15-20/12/15	not applicable	not applicable	0.0002	not applicable	
			22/12/15 onwards	not applicable	0.14	not applicable	0.014	0.0085
6	Cadmium and its compounds (depending on water hardness classes) <sup>(5)</sup>	7440-43-9		≤ 0.08 (class 1)	≤ 0.45 (class 1)	0.2	≤ 0.45 (class 1)	
				0.08	0.45		0.45	

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9
Number	Name of substance	Chemical Abstracts from Service number	Date from which standards apply	All rivers and lakes		All transitional and coastal waters		EQS Biota <sup>(1)</sup>
				Good		Good		
				AA-EQS ( $\mu\text{g/l}$ ) <sup>(1)</sup> Inland surface waters <sup>(2)</sup>	MAC-EQS ( $\mu\text{g/l}$ ) <sup>(3)</sup> Inland surface waters <sup>(2)</sup>	AA-EQS ( $\mu\text{g/l}$ ) <sup>(1)</sup>	MAC-EQS ( $\mu\text{g/l}$ ) <sup>(3)</sup>	
				(class 2)	(class 2)		(class 2)	
				0.09 (class 3)	0.6 (class 3)		0.6 (class 3)	
				0.15 (class 4)	0.9 (class 4)		0.9 (class 4)	
				0.25 (class 5)	1.5 (class 5)		1.5 (class 5)	
6a	Carbon-tetrachloride <sup>(6)</sup>	56-23-5		12	not applicable	12	not applicable	
7	C10-13 Chloroalkanes <sup>(7)</sup>	85535-84-8		0.4	1.4	0.4	1.4	
8	Chlorfenvinphos	470-90-6		0.1	0.3	0.1	0.3	
9	Chlorpyrifos (Chlorpyrifos-ethyl)	2921-88-2		0.03	0.1	0.03	0.1	
9a	Cyclodiene pesticides:			$\Sigma=0.01$	not applicable	$\Sigma=0.005$	not applicable	
	Aldrin <sup>(6)</sup>	309-00-2						
	Dieldrin <sup>(6)</sup>	60-57-1						
	Endrin <sup>(6)</sup>	72-20-8						
	Isodrin <sup>(6)</sup>	465-73-6						
9b	DDT total <sup>(6)(8)</sup>	not applicable		0.025	not applicable	0.025	not applicable	
	Para-para-DDT <sup>(6)</sup>	50-29-3		0.01	not applicable	0.01	not applicable	
10	1,2-Dichloroethane	107-06-2		10	not applicable	10	not applicable	

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Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9
Number	Name of substance	Chemical Abstracts Service number	Date from which standards apply	All rivers and lakes		All transitional and coastal waters		EQS Biota <sup>(1)</sup>
				Good		Good		
				AA-EQS (µg/l) <sup>(1)</sup> Inland surface waters <sup>(2)</sup>	MAC-EQS (µg/l) <sup>(3)</sup> Inland surface waters <sup>(2)</sup>	AA-EQS (µg/l) <sup>(1)</sup>	MAC-EQS (µg/l) <sup>(3)</sup>	
11	Dichloromethane	75-09-2		20	not applicable	20	not applicable	
12	Di(2-ethylhexyl)-phthalate (DEHP)	117-81-7		1.3	not applicable	1.3	not applicable	
13	Diuron	330-54-1		0.2	1.8	0.2	1.8	
14	Endosulfan	115-29-7		0.005	0.01	0.0005	0.004	
15	Fluoranthene	206-44-0	14/09/15-20/12/15	1	0.1	0.1	1	
			22/12/15 onwards	0.0063	0.12	0.0063	0.12	30
16	Hexachlorobenzene	187-74-1			0.05		0.05	10
17	Hexachlorobutadiene	87-68-3			0.6		0.6	55
18	Hexachlorocyclohexane	608-73-1		0.02	0.04	0.002	0.02	
19	Isoproturon	34123-59-6		0.3	1.0	0.3	1.0	
20	Lead and its compounds	7439-92-1	14/09/15-21/12/15	not applicable	7.2	not applicable	not applicable	
			22/12/15 onwards	1.2 <sup>(12)</sup>	14	1.3	14	
21	Mercury and its compounds	7439-97-6			0.07		0.07	20
22	Naphthalene	91-20-3	14/09/15-21/12/15	not applicable	1.2	not applicable	not applicable	
			22/12/15 onwards	2	130	2	130	
23	Nickel and its compounds	7440-02-0	14/09/15-21/12/15	not applicable	20	not applicable	not applicable	
			22/12/15 onwards	4 <sup>(12)</sup>	34	8.6	34	



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Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9
Number	Name of substance	Chemical Abstracts Service number	Date from which standards apply	All rivers and lakes		All transitional and coastal waters		EQS Biota <sup>(1)</sup>
				Good		Good		
				AA-EQS (µg/l) <sup>(1)</sup> Inland surface waters <sup>(2)</sup>	MAC-EQS (µg/l) <sup>(3)</sup> Inland surface waters <sup>(2)</sup>	AA-EQS (µg/l) <sup>(1)</sup>	MAC-EQS (µg/l) <sup>(3)</sup>	
24	Nonylphenol (4-Nonylphenol)	104-40-5		0.3	2.0	0.3	2.0	
25	Octylphenol (4-(1,1',3,3'-tetramethylbutyl)-phenol)	140-66-9		0.1	not applicable	0.01	not applicable	
26	Pentachlorobenzene	608-93-5		0.007	not applicable	0.0007	not applicable	
27	Pentachlorophenol	87-86-5		0.4	1	0.4	1	
28	Polycyclic aromatic hydrocarbons (PAH) <sup>(10)</sup>			not applicable	not applicable	not applicable	not applicable	
	Benzo(a)pyrene	50-32-8	14/09/15-20/02/15	0.1	0.1	0.05	0.1	
			22/12/15 onwards	1.7 x 10 <sup>-4</sup>	0.27	1.7 x 10 <sup>-4</sup>	0.027	5
	Benzo(b)fluoranthene	205-99-2	14/09/15-21/12/15	Σ=0.03	not applicable	Σ=0.03	not applicable	
			22/12/15 onwards	see footnote 10	0.017	see footnote 10	0.017	see footnote 10
	Benzo(k)fluoranthene	207-08-9	14/09/15-21/12/15	Σ=0.03	not applicable	Σ=0.03	not applicable	
			22/12/15 onwards	see footnote 10	0.017	see footnote 10	0.017	see footnote 10
	Benzo(g,h,i)perylene	191-24-2	14/09/15-21/12/15	Σ=0.02	not applicable	Σ=0.02	not applicable	
			22/12/15 onwards	see footnote 10	8.2 x 10 <sup>-3</sup>	see footnote 10	8.2 x 10 <sup>-4</sup>	see footnote 10

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Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9
Number	Name of substance	Chemical Abstracts Service number	Date from which standards apply	All rivers and lakes		All transitional and coastal waters		EQS Biota <sup>(1)</sup>
				Good		Good		
				AA-EQS (µg/l) <sup>(1)</sup> Inland surface waters <sup>(2)</sup>	MAC-EQS (µg/l) <sup>(3)</sup> Inland surface waters <sup>(2)</sup>	AA-EQS (µg/l) <sup>(1)</sup>	MAC-EQS (µg/l) <sup>(3)</sup>	
	Indeno(1,2,3-cd)-pyrene	193-39-5	14/09/15-22/12/15 onwards	Σ=0.02	not applicable	Σ=0.02	not applicable	
			22/12/15 onwards	see footnote 10	not applicable	see footnote 10	not applicable	see footnote 10
29	Simazine	122-34-9		1	4	1	4	
29a	Tetrachloroethylene	107-18-4		10	not applicable	10	not applicable	
29b	Trichloroethylene	79-01-6		10	not applicable	10	not applicable	
30	Tributyltin compounds (Tributyltin-cation)	36643-28-4		0.0002	0.0015	0.0002	0.0015	
31	Trichlorobenzene	12002-48-1		0.4	not applicable	0.4	not applicable	
32	Trichloromethane	67-66-3		2.5	not applicable	2.5	not applicable	
33	Trifluralin	1582-09-8		0.03	not applicable	0.03	not applicable	
34	Dicofol	115-32-2	22/12/18 onwards	1.3 x 10 <sup>-3</sup>	not applicable <sup>(9)</sup>	3.2 x 10 <sup>-5</sup>	not applicable <sup>(9)</sup>	33
35	Perfluorooctane sulfonic acid and its derivatives (PFOS)	1763-23-1	22/12/18 onwards	6.5 x 10 <sup>-4</sup>	36	1.3 x 10 <sup>-4</sup>	7.2	9.1
36	Quinoxifen	124495-182	22/12/18 onwards	0.15	2.7	0.015	0.54	
37	Dioxins and dioxin-like compounds	See footnote 9 in Annex X to	22/12/18 onwards		not applicable		not applicable	Sum of PCDD +PCDF +PCB-DL

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9
Number	Name of substance	Chemical Abstracts from Service number	Date from which standards apply	All rivers and lakes		All transitional and coastal waters		EQS Biota <sup>(1)</sup>
				Good		Good		
				AA-EQS ( $\mu\text{g/l}$ ) <sup>(1)</sup> Inland surface waters <sup>(2)</sup>	MAC-EQS ( $\mu\text{g/l}$ ) <sup>(3)</sup> Inland surface waters <sup>(2)</sup>	AA-EQS ( $\mu\text{g/l}$ ) <sup>(1)</sup>	MAC-EQS ( $\mu\text{g/l}$ ) <sup>(3)</sup>	
		Directive 2000/60/EC						0.0065 $\mu\text{g}\cdot\text{kg}^{-1}$ TEQ <sup>(13)</sup>
38	Aclonifen	74070-46	22/12/18 onwards	0.12	0.12	0.012	0.012	
39	Bifenox	42576-02	22/12/18 onwards	0.012	0.04	0.0012	0.004	
40	Cybutryne	28159-98	22/12/18 onwards	0.0025	0.016	0.0025	0.016	
41	Cypermethrin	52315-07	22/12/18 onwards	$8 \times 10^{-5}$	$6 \times 10^{-4}$	$8 \times 10^{-6}$	$6 \times 10^{-5}$	
42	Dichlorvos	62-73-7	22/12/18 onwards	$6 \times 10^{-4}$	$7 \times 10^{-4}$	$6 \times 10^{-5}$	$7 \times 10^{-5}$	
43	Hexabromo-cyclododecane (HBCDD)	See footnote 11 in Annex X to Directive 2000/60/EC	22/12/18 onwards	0.0016	0.5	0.0008	0.05	167
44	Heptachlor and heptachlor epoxide	76-44-8 / 10241-37-8	22/12/18 onwards	$2 \times 10^{-7}$	$3 \times 10^{-4}$	$1 \times 10^{-8}$	$3 \times 10^{-5}$	$6.7 \times 10^{-3}$
45	Terbutryn	886-50-0	22/12/18 onwards	0.065	0.34	0.0065	0.034	

(1) This parameter is the EQS expressed as an annual average value (AA-EQS). Unless otherwise specified, it applies to the total concentration of all isomers.

(2) Inland surface waters encompass rivers and lakes and related artificial or heavily modified water bodies.

(3) 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.

(4) For the group of priority substances covered by brominated diphenylethers (No 5), the EQS refers to the sum of the concentrations of congener numbers 28, 47, 99, 100, 153 and 154.

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- (5) For cadmium and its compounds (No 6) 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).
- (6) This substance is not a priority substance but one of the other pollutants for which the EQS are identical to those laid down in the legislation that applied prior to 13 January 2009.
- (7) No indicative parameter is provided for this group of substances. The indicative parameter(s) must be defined through the analytical method.
- (8) 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).
- (9) There is insufficient information available to set a MAC-EQS for these substances.
- (10) For the group of priority substances of polyaromatic hydrocarbons (PAH) (No 28), the biota EQS and corresponding AA-EQS in water refer to the concentration of benzo(a)pyrene, on the toxicity of which they are based. Benzo(a)pyrene can be considered as a marker for the other PAHs, hence only benzo(a)pyrene needs to be monitored for comparison with the biota EQS or the corresponding AA-EQS in water.
- (11) Unless otherwise indicated, the biota EQS relate to fish. An alternative biota taxon, or another matrix, may be monitored instead, as long as the EQS applied provides an equivalent level of protection. For substances numbered 15 (Fluoranthene) and 28 (PAHs), the biota EQS refers to crustaceans and molluscs. For the purpose of assessing chemical status, monitoring of Fluoranthene and PAHs in fish is not appropriate. For substance number 37 (Dioxins and dioxin-like compounds), the biota EQS relates to fish, crustaceans and molluscs, in line with section 5.3 of the Annex to Commission Regulation (EU) No 1259/2011 of 2 December 2011 amending Regulation (EC) No 1881/2006 as regards maximum levels for dioxins, dioxin-like PCBs and non-dioxin-like PCBs in foodstuffs (OJ L 320, 3.12.2011, P.18).
- (12) These EQS refer to bioavailable concentrations of the substances.
- (13) PCDD: polychlorinated dibenzo-p-dioxins; PCDF: polychlorinated dibenzofurans; PCB-DL: dioxin-like polychlorinated biphenyls; TEQ: toxic equivalents according to the World Health Organisation 2005 Toxic Equivalence Factors.

Application of the standards set out in Table 47

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. Where the Department introduces statistical methods, such methods must apply with rules laid down in accordance with the examination procedure referred to in Article 9(2) of Directive 2008/105/EC.

With the exception of cadmium, lead, mercury and nickel (hereinafter “metals”) the standards set out in Table 47 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, or, where specifically indicated, to the bioavailable concentration.

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, dissolved organic carbon or other water quality parameters that affect the bioavailability of metals, the bioavailable concentrations being determined using appropriate bioavailability modelling.

## PART 3

### Boundary values for biological quality elements

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

1. The Department must apply, as applicable, to any river or part thereof, the “high”, “good”, “moderate”, “poor” or “bad” benthic invertebrate fauna boundary value for rivers specified in Tables 1 and 2 below.
2. The Department must apply, as applicable, to any river or part thereof, the “high”, “good”, “moderate”, “poor” or “bad” phytobenthos boundary value for rivers specified in Table 3 below.
3. The Department must 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.
4. The Department must apply, as applicable, to any river or part thereof, the “high”, “good”, “poor” or “bad” freshwater fish boundary value for rivers specified in Table 5 below.

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

5. To determine the phytoplankton and phytobenthos boundaries to apply to a lake or any part thereof, the Department must assign to that lake or any part thereof, the appropriate geological category, depth category and colour category specified in Schedule 1 Part 1, Tables 5, 6 and 7 respectively.
6. The Department must 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 and 6 of Table 6 below and columns 2, 3, 4, 5 and 6 of Table 7 below and columns 2 and 3 of Table 8 below respectively.
7. The Department must apply, as applicable, to any lake or part thereof, the “high”, “good”, “moderate”, “poor” or “bad” phytobenthos boundary value for lakes specified in Table 9 below.
8. The Department must 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 10 below.
9. The Department must apply, as applicable, to any lake or part thereof, the “high”, “good”, “moderate”, “poor” or “bad” freshwater fish boundary value for lakes specified in Table 11 below.

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

10. The Department must 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 12 and 13 below.
11. The Department must 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 14 below.
12. The Department must 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 15 below.

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13. The Department must 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 16 and 17 below.

14. The Department must 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 18 below.

**Table 1**

**Benthic invertebrate fauna Walley Hawkes Paisley Trigg (WHPT) boundary values (WHPT 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	0.72
Poor	0.59
Bad	< 0.59

**Table 2**

**Benthic invertebrate fauna Walley Hawkes Paisley Trigg (WHPT) boundary values (WHPT 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	0.80
Good	0.68
Moderate	0.56
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

<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>	
High	0.80
Good	0.60
Moderate	0.40
Poor	0.20
Bad	< 0.20

**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****Freshwater Fish FCS2 (Ireland) boundary values for rivers**

	<i>Ecological quality ratio<sup>(1)</sup></i>
High	$0.845 < \text{EQR} \leq 1.0$
Good	$0.54 < \text{EQR} \leq 0.854$
Moderate	$0.12 < \text{EQR} \leq 0.54$
Poor	$0.007 < \text{EQR} \leq 0.12$
Bad	$0 \leq \text{EQR} \leq 0.007$

(1) FCS2 (Ireland) is the Fisheries Classification Scheme 2 (Ireland) model developed for WFD Ecoregion 17 which is the island of Ireland

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**Table 6**

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

*Boundary values for the degree to which the biomass of phytoplankton 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</i>					
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Lake Type	High alkalinity, shallow  Marl shallow	High alkalinity, very shallow  Moderate alkalinity, very shallow  Low alkalinity, very shallow  Marl very shallow	Moderate alkalinity, deep  Moderate alkalinity, shallow  Moderate alkalinity  shallow humic	Low alkalinity, shallow  Low alkalinity, shallow humic	Low alkalinity deep
High	0.55	0.63	0.50	0.64	0.64
Good	0.32	0.30	0.33	0.29	0.33
Moderate	0.16	0.15	0.17	0.15	0.17
Poor	0.05	0.05	0.05	0.05	0.05
Bad	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

**Table 7**

**Phytoplankton boundary values for lakes – plankton trophic index**

<i>Ecological quality ratio</i>					
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Lake Type	High alkalinity, shallow  Moderate alkalinity very shallow  Low alkalinity very shallow humic  Marl very shallow	High alkalinity very shallow	Moderate alkalinity, deep  Moderate alkalinity shallow  Low alkalinity, shallow humic  Low alkalinity very shallow Clear	Low alkalinity  Deep Clear Water  Low alkalinity shallow Clear Water	Low alkalinity shallow humic



<i>Ecological quality ratio</i>					
			Marl Shallow		
High	0.93	0.91	0.95	0.98	0.96
Good	0.82	0.80	0.84	0.87	0.85
Moderate	0.70	0.68	0.72	0.75	0.73
Poor	0.58	0.56	0.60	0.63	0.61
Bad	<0.58	<0.56	<0.60	<0.63	<0.61

**Table 8**

**Phytoplankton boundary values for lakes – cyanobacteria biomass**

<i>Ecological quality ratio</i>		
Column 1	Column 2	Column 3
Lake Type	All Low and Moderate alkalinity and Marl Lakes	High alkalinity Lakes
High	0.47	0.63
Good	0.32	0.43
Moderate	0.23	0.34
Poor	0.13	0.21
Bad	< 0.13	< 0.21

**Table 9**

**Phytoplankton boundary values for lakes**

<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	
Column 1	Column 2	Column 3
	High and Low alkalinity lakes	Moderate alkalinity lakes
High	0.92	0.93
Good	0.70	0.66
Moderate	0.46	0.46
Poor	0.23	0.23
Bad	< 0.23	< 0.23

**Status:** This is the original version (as it was originally made).

**Table 10**

**Aquatic macrophyte boundary values for lakes**

<i>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</i>	
	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 11**

**Freshwater Fish FiL2 boundary values for lakes**

	<i>Ecological quality ratio<sup>(1)</sup></i>
High	0.76 < EQR <= 1.0
Good	0.53 < EQR <= 0.76
Moderate	0.32 < EQR <= 0.53
Poor/Bad	0 <= EQR <= 0.32

(1) FiL2 is the Fish in Lakes version 2 model developed for WFD Ecoregion 17 which is the island of Ireland

**Table 12**

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

<i>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 978-1-906934-35-4)</i>		
	Ecological quality ratio	Vas Deferens Stage Index (VDSI)
High	0.95	0.3
Good	0.33	4
Moderate	0.17	5

**Table 13**

**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 978-1-906934-34-7)*

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

**Table 14**

**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 978-1-906934-36-1)*

	Ecological quality ratio
High	0.8
Good	0.6
Moderate	0.4
Poor	0.2
Bad	< 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.

**Table 15**

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

*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 978-1-906934-41-5 for Transitional waters and UKTAG method ISBN 978-1-906934-33-0 for Coastal Waters)*

	Ecological quality ratio
High	0.8

(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.

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<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 978-1-906934-41-5 for Transitional waters and UKTAG method ISBN 978-1-906934-33-0 for Coastal Waters)</i>	
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 16**

**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 978-1-906934-39-2)</i>	
	Ecological quality ratio
High	0.8
Good	0.6
Moderate	0.4
Poor	0.2
Bad	< 0.2

**Table 17**

**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 ISBN978-1-906934-37-8)</i>	
	Ecological quality ratio
High	0.8
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 18**

**Fish boundary values for transitional waters**

<i>Boundary values relating to the degree to which transitional water fish communities deviate from expectations in terms of species diversity and composition, species abundance, estuarine utilisation, and trophic composition using the Estuarine Multi-metric Fish Index (EMFI)</i>	
	Ecological quality ratio
High	≥ 0.92
Good	0.65
Moderate	0.35
Poor	0.10
Bad	< 0.10

**PART 4**

**Intermittent Discharge Standards**

**Table 1**

**Intermittent standards for dissolved oxygen in rivers**

<i>Salmonid waters</i>			
	Dissolved oxygen concentration (mg/l)		
Return period	1 hour	6 hours	24 hours
1 month	5.0	5.5	6.0
3 months	4.5	5.0	5.5
1 year	4.0	4.5	5.0
<i>Cyprinid waters</i>			
	Dissolved oxygen concentration (mg/l)		
Return period	1 hour	6 hours	24 hours
1 month	4.0	5.0	5.5
3 months	3.5	4.5	5.0
1 year	3.0	4.0	4.5
<p>The standards apply when the concurrent concentration of un-ionised ammonia concentration is below 0.02 mg/l. The following correction factors apply at higher concurrent un-ionised concentrations:</p> <p>Where the un-ionised ammonia lies between 0.02-0.15mg NH<sub>3</sub>-N/l: the correction factor is an addition of (0.97 x log (mg NH<sub>3</sub>-N/l) + 3.8) mg O<sub>2</sub>/l. For concentrations that exceed 0.15 mg NH<sub>3</sub>-N/l, the correction factor is +2 mg O<sub>2</sub>/litre.</p>			

**Status:** This is the original version (as it was originally made).

<i>Salmonid waters</i>
A correction factor of 3mg O <sub>2</sub> /l is added for salmonid spawning grounds.

**Table 2**

**Intermittent standards for un-ionised ammonia in rivers**

<i>Salmonid waters</i>			
	Un-ionised Ammonia concentration (mg NH <sub>3</sub> -N/l)		
Return period	1 hour	6 hours	24 hours
1 month	0.065	0.025	0.018
3 months	0.095	0.035	0.025
1 year	0.105	0.040	0.030
<i>Cyprinid waters</i>			
	Un-ionised Ammonia concentration (mg NH <sub>3</sub> -N/l)		
Return period	1 hour	6 hours	24 hours
1 month	0.150	0.075	0.030
3 months	0.225	0.125	0.050
1 year	0.250	0.150	0.065
<p>The above limits apply when the concurrent concentration of dissolved oxygen is above 5 mg/l. At lower concentrations of dissolved oxygen the following correction factor applies: For dissolved oxygen less than 5mg/l DO, multiply the standard by 0.0126 and the concentration of dissolved oxygen in mg O<sub>2</sub>/litre, C, raised to the power of 2.72, that is, 0.0126 C<sup>2.72</sup>.</p> <p>The standards also assume that the concurrent pH is greater than 7 and temperature is greater than 5 degrees Centigrade. For lower pH and temperatures the following correction factors apply: Where the pH is less than 7, multiply the standard by 0.0003 and by the value of the pH, p, raised to the power of 4.17, that is: 0.0003p<sup>4.17</sup>. Where the temperature is less than 5 degrees Centigrade, multiply this correction factor by a further 0.5.</p>			

**Table 3**

**99th percentile standards for biochemical oxygen demand in rivers**

<i>Status</i>	<i>Types of river</i>	<i>99th percentile BOD (mg/l)</i>
High	1,2,4,6 and salmonid	7.0
High	3,5 and 7	9.0
Good	1,2,4,6 and salmonid	9.0
Good	3,5 and 7	11.0
Moderate	1,2,4,6 and salmonid	14.0
Moderate	3,5 and 7	14.0
Poor	1,2,4,6 and salmonid	16.0

<i>Status</i>	<i>Types of river</i>	<i>99th percentile BOD (mg/l)</i>
Poor	3,5 and 7	19.0

**Table 4**

**99th percentile standards for ammonia in rivers**

<i>Status</i>	<i>Types of river</i>	<i>Total ammonia (mg NH4-N/l)</i>	<i>Un-ionised ammonia (mg NH3-N/l)</i>
		<i>99th percentile</i>	<i>99th percentile</i>
High	1,2,4,6 and salmonid	0.5	0.04
High	3,5 and 7	0.7	0.04
Good	1,2,4,6 and salmonid	0.7	0.04
Good	3,5 and 7	1.5	0.04
Moderate	1,2,4,6 and salmonid	1.8	0.04
Moderate	3,5 and 7	2.6	0.04
Poor	1,2,4,6 and salmonid	2.6	0.04
Poor	3,5 and 7	6.0	

**Table 5**

**Types of river to which the proposed 99th percentile standards in Tables 3 and 4 apply**

<i>Alkalinity (as mg/l CaCO<sub>3</sub>)</i>					
<i>Altitude</i>	<i>Less than 10</i>	<i>10-50</i>	<i>50-100</i>	<i>100-200</i>	<i>Over 200</i>
<i>Under 80 metres</i>	Type 1	Type 2	Type 3	Type 5	Type 7
<i>Over 80 metres</i>			Type 4	Type 6	

SCHEDULE 2

PART 1

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

1. The Department must 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;

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- (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;
  - (iv) the concentrations of those priority substances likely to be in the water body in quantities that could cause failure of chemical status; and
  - (v) 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, chemical 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 paragraph 1 of this Schedule reflects totally or nearly totally undisturbed conditions; and there is no evidence that a high impact alien species, as identified on the Ecoregion 17 list, has become established and is having an ecological effect on the water body.
  - (d) where the biological quality elements and the general chemical and physiochemical elements and specific pollutants are high and the chemical status is good but the hydromorphological status is less than high, then the overall status of the surface water body is “good”.
  - (e) where a surface water body is not classified as “high” ecological status in accordance with paragraph 1(c), the Department must 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 must 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 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 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 must classify a surface water body designated as heavily modified or artificial as—

- (a) “good 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 must —

- (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.

**Status:** This is the original version (as it was originally made).

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 must monitor morphological conditions within relevant water bodies.
  - (a) Once the Department has, in accordance with paragraph 3 of Part 1 of Schedule 1, assigned a type to a river or part thereof, the Department must 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. Classification shall be assigned according to the ecological quality ratio in the River Hyrdromorphology Assessment Technique specified in Table 1 of this Part.
  - (b) Once the Department has in accordance with paragraphs 7 of Part 1 of Schedule 1 assigned a type to a lake, the Department must consider both direct and indirect pressures on the physical character of lakes in the shore zone and open water. Morphological Condition Limits are used to represent thresholds of alteration in morphological conditions beyond which conditions could be altered in ways that could result in deterioration in status. A Morphological Condition Limit of 5% is the boundary between High Ecological Status and Good Ecological Status and a Morphological Condition Limit of 15% is the boundary between Good Ecological Status and Moderate Ecological Status.
  - (c) To assess the morphological condition of transitional and coastal water bodies, the Department must 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.

**Table 1**

<i>Boundary values for the River Hydromorphology Assessment Technique</i>	
	Ecological quality ratio
High	$\geq 0.8$
Good	$0.6 - < 0.8$
Moderate	$0.4 - < 0.6$
Poor	$0.2 - < 0.4$
Bad	$< 0.2$

## PART 5

### Determining Overall Status of Surface Water Bodies

1. The Department must 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 biological quality elements and the general chemical and physiochemical elements and specific pollutants are high and the chemical status is good but the hydromorphological status is less than high, then the overall status of the surface water body is “good”
- (c) where the ecological status is good and the chemical status is good, then the overall status is “good”.
- (d) where the ecological status is high, good or moderate, and the chemical status is failing to achieve good, then the overall status is “moderate”.
- (e) where the ecological status is moderate and irrespective of chemical status, then the overall status is “moderate”.
- (f) 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 must 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 must 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”.

*Status: This is the original version (as it was originally made).*

**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 of achieving its target status class).</p>	<p>a) 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 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>

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>	
		<i>Artificial water bodies</i>	<i>Heavily modified</i>
Good and above		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
Poor		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

**Table 3**

**Surface Water Chemical Status**

<i>Chemical status classification</i>	<i>Colour code</i>
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

**Status:** This is the original version (as it was originally made).

**Table 5**  
**Groundwater Quantitative Status**

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

SCHEDULE 5

**PART 1**  
**Shellfish Waters Standards**

**Table 1**  
**Shellfish Water Mandatory Standards**

<i>Parameter</i>	<i>Units</i>	<i>Standard</i>
Temperature	°C	A discharge affecting shellfish waters must not cause the temperature of the water to exceed by more than 2°C the temperature of the waters not so affected.
pH		pH values will not reach levels outside of the range established so as to ensure the functioning of the ecosystem and the achievement of the values specified for the biological quality elements under Good Ecological Status
Silver	Annual mean (AA-EQS) (µg/l)	0.5
	Maximum allowable concentration (MAC-EQS) (µg/l)	1
Salinity	Practical Salinity Units (PSU)	<p>≤40 PSU</p> <p>A discharge affecting shellfish waters must not cause their salinity to exceed by more than 10% the salinity of waters not so affected.</p>

**Table 2****Shellfish Water Salinity Guideline Standard**

<i>Parameter</i>	<i>Units</i>	<i>Standard</i>
Salinity	PSU	12-38

**PART 2****Microbial Guideline Value****Microbial Guideline Value**

1. In shellfish waters, the Department must endeavour to respect the microbial guideline value in the shellfish flesh and intervalvular liquid as set out in Table 1 to this Part, in addition to the mandatory standards set out in these Regulations.

**Compliance with the microbial guideline value**

2.—(1) Subject to sub-paragraph (2), in relation to any period of 12 months, shellfish waters shall be treated as complying with the guideline value set out in Table 1 to this Part, if 75 per cent of the samples taken comply with the guideline value.

(2) Non-compliant samples may be ignored for the purposes of sub-paragraph (1) if they are the result of natural cause or force majeure.

**Sampling and analysis**

3.—(1) The Department must ensure that the guideline value adopted as a result of paragraph 1 and samples are analysed in accordance with the following provisions of this paragraph.

(2) Subject to sub-paragraph (1), sampling shall be carried out at least at the minimum frequency specified in Table 1 to this Schedule.

(3) Where sampling shows that the guideline value adopted as a result of paragraph 1 is not being met, the Department must establish whether this is the result of chance, a natural phenomenon or pollution, and must adopt appropriate measures to prevent deterioration.

(4) Samples shall be analysed using the reference methods of analysis specified in Table 1 to this paragraph or methods which are at least as reliable as the reference methods.

**Table 1****Microbial Standard for shellfish waters**

<i>Parameter</i>	<i>Units</i>	<i>Guideline values and comments</i>	<i>Reference methods of analysis</i>	<i>Minimum sampling and measuring frequency</i>
Escherichia coli (E.coli)	cfu/100ml	≤230 in the shellfish flesh and intervalvular liquid	ISO16649 part 3 or equivalent	Quarterly

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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 (OJ No. L348, 24.12.2008 p.84) as amended by Directive 2013/39/EU (OJ L226, 24.08.2013, p.1) 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 (OJ No. L327, 22.12.2000 p.1-73).

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.

Regulations 4 to 8 require the Department to apply the standards for priority standards, including biota standards, as set out in Table 47 of Part 2 of Schedule 1.

Regulations 9 to 14 set out requirements for the Department with respect to the monitoring of biota and sediment standards.

Regulations 15 to 17 require the Department to carry out monitoring for substances identified by the Commission on the first Watch List (Commission Implementing Decision 2015/495) as well as substances which are subsequently added to it.

Regulation 19 and Schedule 5 require the Department to apply pH, silver, temperature, salinity standards and endeavour to respect a microbial value with respect to shellfish waters.

Regulations 20 and 21 and Schedules 2, 3 and 4 require the Department to classify surface waters and groundwaters and to report this classification in the River Basin Management Plans produced for the purposes of implementing Directive [2000/60/EC](#).

Regulation 22 allows for the designation of mixing zones and regulation 23 requires the Department to update the inventories of emissions, discharges and losses in respect of priority substances which have been established for each of the River Basin Districts in Northern Ireland.

Regulation 27 revokes the Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2011.

Regulation 28 revokes the Water Framework Directive (Priority Substances and Classification) (Amendment) Regulations (Northern Ireland) 2012.

Regulation 29 revokes the Water Framework Directive (Priority Substances and Classification) (Amendment) Regulations (Northern Ireland) 2015.