Environmental Protection

The Solway Tweed River Basin District (Standards) (Scotland) Directions 2014

The Scottish Government
Riaghaltas na h-Alba

ENVIRONMENTAL PROTECTION

The Solway Tweed River Basin District (Standards) (Scotland) Directions 2014

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The Scottish Ministers give the following Directions to SEPA in exercise of the powers conferred by section 40(1) and (2) of the Environment Act 1995(**a**), section 2(6) of the Water Environment and Water Services (Scotland) Act 2003(**b**) and of all other powers enabling them to do so.

In accordance with section 40(6) of the Environment Act 1995, they have consulted SEPA.

Citation, commencement, extent and application

1.—(1) These Directions may be cited as the Solway Tweed River Basin District (Standards) (Scotland) Directions 2014 and come into force on 16th August 2014.

(2) These Directions extend to Scotland only.

(3) These Directions apply—

(a) only in relation to the exercise of SEPA's functions under—

(**a**) 1995 c. 25. The functions of the Secretary of State were transferred to the Scottish Ministers by virtue of section 53 of the Scotland Act 1998 (c. 46).
(**b**) 2003 asp 3.

(i) the 2004 Regulations;

(ii) Part 1 of the Act in so far as it applies (by virtue of regulation 5 of, and Schedule 4 to, the 2004 Regulations) in relation to the Solway Tweed River Basin District; and

(iii) the relevant enactments (other than Part 1 of the Act) in so far as they apply in relation to the part of the Solway Tweed River Basin District which is in Scotland;

(b) only to surface water and groundwater within the part of the Solway Tweed River Basin District which is in Scotland; and

(c) only in so far as they are consistent with the Directive and the Groundwater Directive.

(4) Where a function of SEPA under a relevant enactment in relation to a protected area (construed in accordance with section 7(3) of the Act) requires it to apply an environmental standard that is more stringent than the standards that it is required to apply by virtue of these Directions, SEPA must apply that more stringent standard in accordance with that function.

Interpretation

2.—(1) In these Directions—

"the Act" means the Water Environment and Water Services (Scotland) Act 2003(**a**), as amended from time to time;

"the 2004 Regulations" means the Water Environment (Water Framework Directive) (Solway Tweed River Basin District) Regulations 2004(**b**), as amended from time to time;

"the Directive" means Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for Community action in the field of water policy(**c**), as amended from time to time;

"the Groundwater Directive" means Directive 2006/118/EC of the European Parliament and of the Council on the protection of groundwater against pollution and deterioration(**d**), as amended from time to time;

"the relevant enactments" has the same meaning as it has in section 2(8) of the Act; and

"Solway Tweed River Basin District" means the area identified as a river basin district by regulation 3(1) of the 2004 Regulations.

(2) In these Directions—

(a) a reference to a numbered article refers to the paragraph so numbered (other than a paragraph in a Schedule to these Directions);

(b) a reference to a numbered Schedule refers to the Schedule so numbered which refers in its heading to the Solway Tweed River Basin District (Standards) (Scotland) Directions 2014; and

(c) "these Directions" includes each such Schedule.

(3) Any word or expression used in Schedules 1 to 6 which is defined in Schedule 7 has the same meaning as it has in that Schedule.

(4) Any other word or expression used (but not defined) in these Directions which is defined in Part 1 of the Act has the same meaning as it has in Part 1 of the Act.

(**a**) 2003 asp 3, as amended by the Antisocial Behaviour etc. (Scotland) Act 2004 (asp 8), schedule 2, paragraph 6, the Planning etc. (Scotland) Act 2006 (asp 17), schedule 1, paragraph 1, the Flood Risk Management (Scotland) Act 2009 (asp 6), Schedule 3, paragraph 14, the Aquaculture and Fisheries (Scotland) Act 2013 (asp 7), section 54, the Water Resources (Scotland) Act 2013 (asp 5), schedule 4, paragraph 2, the Regulatory Reform (Scotland) Act 2014 (asp 3), schedule 3, paragraph 8(2), S.S.I. 2005/348 and S.I. 2011/1043.

(**b**) S.I. 2004/99, as amended by S.I. 2005/2035, S.I. 2008/1097, S.S.I. 2011/228, S.I. 2011/556, S.I. 2011/1043 and S.S.I. 2013/1675.

(**c**) OJ L 327, 22.12.2000, p. 1, as amended by Decision No 2455/2001/EC (OJ L 331, 15.12.2001, p. 1), Directive 2008/32/EC (OJ L 81, 20.3.2008, p. 60), Directive 2008/105/EC (OJ L 348, 24.12.2008, p. 84), Directive 2009/31/EC (OJ L 140, 5.6.2009, p. 114) and Directive 2013/39/EU (OJ L 226, 24.8.2013, p. 1).

(**d**) OJ L 372, 27.12.2006, p. 19.

(5) Unless the context otherwise requires, any other word or expression used (but not defined) in these Directions which is defined in the Directive has the same meaning as it has in the Directive.

Standards etc.

3.—(1) SEPA must—

(a) assign a Type or Types to each river, loch, transitional water and coastal water (or part thereof) in accordance with Schedule 1;

(b) apply environmental standards to each river, loch, transitional water and coastal water (or part thereof) according, where applicable, to its assigned Type or Types in accordance with Schedule 2;

(c) calculate morphological condition values for the relevant features of each river, loch, transitional water and coastal water (or part thereof) in accordance with Schedule 3;

(d) have regard to the condition limits in Schedule 3 when assessing the morphological condition, hydrological regime condition, river continuity condition or tidal regime condition of any river, loch, transitional water and coastal water (or part thereof);

(e) apply the spatial environmental standards in Schedule 4 for the purposes of assessing the ecological status or ecological potential of a body of surface water;

(f) apply the environmental standards for certain dangerous substances in Schedule 5 to inland surface waters, transitional waters and coastal waters; and

(g) apply, for the purposes of assessing the chemical status of each body of groundwater (or group of such bodies)—

(i) the groundwater quality standards in Annex I to the Groundwater Directive; and

(ii) the threshold values (and the investigation procedure) in Schedule 6.

(2) Paragraph (1) applies in relation to the exercise by SEPA of its functions pursuant to—

(a) regulation 4 (general duties) of the 2004 Regulations, as read with—

(i) paragraph 1(2) (review of characterisation);

(ii) paragraph 5 (monitoring); and

(iii) paragraph 6 (environmental objectives and programme of measures),

of Schedule 1 to those Regulations;

(b) section 2(1) (general duties) of the Act; and

(c) the Water Environment (Controlled Activities) (Scotland) Regulations 2011(**a**), as amended from time to time.

Cross-border bodies of water

4. In relation to a body of water which is partly within Scotland and partly within England, SEPA must, in exercising its functions pursuant to these Directions, work co-operatively with (and, if SEPA considers it appropriate, consult) the Environment Agency.

(**a**) S.S.I. 2011/209, as amended by S.S.I. 2012/360, S.S.I. 2013/176 and S.S.I. 2013/323.

Revocation

5. The Solway Tweed River Basin District (Surface Water Typology, Environmental Standards, Condition Limits and Groundwater Threshold Values) Directions 2009 are revoked(**a**).

W GEORGE BURGESS
A member of the staff of the Scottish Ministers

St Andrew's House,
Edinburgh
14th August 2014

(**a**) These are the Directions which were signed on 11th December 2009 and came into force on 15th December 2009.

SCHEDULE 1

Schedule 1 to Solway Tweed River Basin District (Standards) (Scotland) Directions 2014: Criteria for classifying the type of a body of water

RIVER TYPES

1.—(1) Insofar as is necessary for SEPA to determine the environmental standards or condition limits applicable to a river or part thereof, SEPA must, subject to sub-paragraph (2), classify the river or part thereof as being of the Type specified in Table 1.1 which corresponds with the applicable site altitude and alkalinity range specified in that table.

(2) SEPA must classify any river or part thereof as being of the type "salmonid" if, in its view, the river or part thereof would support salmonid fish species in the absence of more than very minor disturbances resulting from human activity.

(3) SEPA must classify the river or part thereof as being of the type "cyprinid", if, in its view, the river or part thereof would support cyprinid fish (but not salmonid fish) in the absence of more than very minor disturbances resulting from human activity.

(4) Subject to sub-paragraph (5), SEPA must classify the river or part thereof as being of the Type specified in Table 1.2 which corresponds to the descriptions specified in that table.

(5) Where, in accordance with sub-paragraph (6), the macrophyte community in the river (or part thereof) corresponds to a macrophyte community specified in Table 1.3, SEPA must classify the river or part thereof as being of the Type specified in that table which corresponds to the applicable macrophyte community. SEPA must only classify rivers in this way, if, in its view, the macrophyte community has not been significantly altered by human activity.

(6) SEPA must identify whether or not the macrophyte community in the river (or part thereof) corresponds to a macrophyte community specified in Table 1.3 as follows—

(a) subject to head (c), SEPA must assign a score of - 1 for every record of a macrophyte taxon specified in column 2 of Table 1.4 with a "(- 1)" sign recorded against it in column 3 of that table;

(b) subject to head (c), SEPA must assign a score + 1 for every record of a macrophyte taxon specified in column 2 of Table 1.4 with a "(+ 1)" sign recorded against it in column 3 of that table;

(c) where the name of a macrophyte taxon specified in column 2 of Table 1.4 is followed by a "(3)", SEPA must only assign a score for a record of that species in accordance with, as applicable, head (a) or (b) if the percentage of the channel area covered by the taxon is greater than 5 %;

(d) SEPA must calculate the total score for an identification step listed in column 1 of Table 1.4 by summing the scores for records of those macrophyte taxa listed in column 2 of that table which correspond to that identification step, and begin the identification procedure at identification step number 1;

(e) after having calculated the total score for an identification step, SEPA must determine within which of the two possible ranges of total score specified for that step in column 4 of Table 1.4 the calculated total score falls; and

(f) SEPA must then—

(i) proceed to the identification step number given in column 5 of Table 1.4 which corresponds to the range of total score within which the calculated total score falls; or

(ii) classify the macrophyte community associated with the river or part as being of the macrophyte community specified in column 5 of Table 1.4 which corresponds to the range of total score within which the calculated total score falls.

(7) Subject to sub-paragraph (8), SEPA must classify the river or part thereof as being of the Type specified in Table 1.5 which corresponds to the applicable descriptions specified in that table.

(8) Where, in SEPA's opinion, there are insufficient data to enable the Type of a river to be identified in accordance with sub-paragraph (7), SEPA must classify the river or part thereof as a "Type B" river.

(9) SEPA must classify any river or part thereof in accordance with Table 1.6 which corresponds to the applicable concentration of dissolved organic carbon given in that table.

Table 1.1: Criteria for identifying the Types of river to which the dissolved oxygen[(i)], biochemical oxygen demand[(ii)] and ammonia[(iii)] standards for rivers apply

Column 1	*Column 2*	*Column 3*	*Column 4*	*Column 5*	*Column 6*
Site altitude	*Alkalinity (as mg/l $CaCO_3$)*				
	≤ 10	*> 10 to ≤ 50*	*> 50 to ≤ 100*	*> 100 to ≤ 200*	*> 200*
≤ 80 metres above mean sea level	Type 1	Type 2	Type 3	Type 5	Type 7
> 80 metres above mean sea level			Type 4	Type 6	

Notes—

(i) The environmental standards for dissolved oxygen are specified in Tables C1.1 and C1.2 in Part C of Schedule 2.

(ii) The environmental standards for biochemical oxygen demand are specified in Tables C1.3 and C1.4 in Part C of Schedule 2.

(iii) The environmental standards for ammonia are specified in Tables C4.2 and C4.3 in Part C of Schedule 2.

Table 1.2: Criteria for identifying Types of river to which the environmental standards for river flows[(i)] apply

Column 1	*Column 2*	*Column 3*	*Column 4*	
Type	*Standard Average Annual Rainfall (mm) (period 1961-1990) [(ii)]*	*Base Flow Index (BFI)[(iii)]*	*Catchment area (km^2)*	
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 to < 1413	≥ 0.7495	Any	≤ 100 (A2 headwaters) > 100 (A2 downstream)
B1	≥ 810.5 to < 1155	≥ 0.3615 to < 0.7495	< 267.4	
B2	≥ 810.5 to < 1413	≥ 0.3615 to < 0.7495	≥ 267.4	

C2	≥ 1155 to < 1413	≥ 0.3615 to < 0.7495	< 267.4
	≥ 1413	≥ 0.3615	≥ 32.33
D2	≥ 1413	≥ 0.3615	< 32.33
	≥ 810.5	< 0.3615	Any

Notes—

(i) The environmental standards for river flows are specified in Tables B1.1 to B1.7 in Part B of Schedule 2.

(ii) The period is 1st January 1961 to 31st December 1990.

(iii) "Base flow" is the volume of flow in a river resulting from groundwater inputs rather than direct water run-off. "Base flow index (BFI)" is an expression of the volume of base flow in a river as a fraction of the total flow.

Table 1.3: Types of river to which the environmental standards for river flows*(i)* apply which are identified by the presence of particular macrophyte communities

Column 1	*Column 2*
Type	*Macrophyte community*[(ii)]
C1	VII
D1	IX

Notes—

(i) The environmental standards for river flows are specified in Tables B1.1 to B1.7 in Part B of Schedule 2.

(ii) "Macrophyte community" means an assemblage of macrophyte taxa characterised by the presence of particular macrophyte taxa and identified in accordance with sub-paragraph (6) and Table 1.4.

Table 1.4: Identification of macrophyte communities listed in column 2 of Table 1.3

Column 1	*Column 2*	*Column 3*	*Column 4*	*Column 5*
Identification step number	*Macrophyte taxa*	*Score for presence*	*Total score*	*"Go to step number as indicated" and macrophyte communities*
1	*Cladophora glomerata agg.*[(i)]	(- 1)	-1 or less	Relevant macrophyte communities not present
	Epilobium hirsutum	(- 1)		
	Pellia epiphylla	(+ 1)		
	Racomitrium aciculare	(+ 1)		
	Ranunculus flammula	(+ 1)	0 or more	2
	Solanum dulcamara	(- 1)		
	Sparganium erectum	(- 1)		
2	*Juncus bulbosus* (3)	(+ 1)	-1 or less 0 or more	3 4
	Phalaris arundinacea	(- 1)		
	Polytrichum commune	(+ 1)		
	Potentilla erecta	(+ 1)		
	Rhynchostegium riparoides	(- 1)		
	Sphagnum species	(+ 1)		
	Verrucaria species	(- 1)		

3	*Chiloscyphus polyanthos* *Glyceria fluitans* (3) *Hygrohypnum ochraceum* *Lemanea fluviatilis* *Thamnobryum alopecurum* *Verrucaria species*	(+ 1) (- 1) (+ 1) (+ 1) (+ 1) (+ 1)	0 or less	Community VII
4	*Eleocharis palustris* *Equisetum fluviatile* (3) *Glyceria fluitans* (3) *Hyocomium armoricum* *Nardus stricta* *Scapania undulata*	(- 1) (- 1) (- 1) (+ 1) (+ 1) (+ 1)	-1 or less	Community IX

Note—
(i) "Agg" in column 2 of this Table means "aggregations".

Table 1.5: Types to which the morphological condition limits for rivers apply

Column 1	*Column 2*	*Column 3*	*Column 4*	*Column 5*	*Column 6*	*Column 7*
Type	*Channel descriptions*	*Typical valley form* *Unconfined* (i) *Partly confined* (ii) *Confined* (iii)	*Typical channel slope* (iv)	*Typical sinuosity* (v)	*Dominant geology*	*Typical bed characteristics*
A	Bedrock and Peat channels	Confined	Variable	< 1.5	Peat or Solid	Channel bed characterised by exposed bedrock or peat deposits. Occasional sediment deposits may be present.
	Cascading channels	Confined	> 0.04	< 1.1	Solid	Channel bed characterised by exposed bedrock and disorganised accumulations of boulders and cobbles.
B	Step-pool channels	Confined to Partly Confined	0.01-0.08	< 1.1	Drift	Channel bed characterised by accumulations of boulders and cobbles forming steps separated by intervening pools containing finer sediments.

	Plane bed channels	Confined to Partly Confined	0.005-0.03	< 1.2	Drift	Channel bed characterised by an armoured and relatively featureless gravel/cobble bed which tends to lack deep pools. Isolated boulders may be present.
C	Pool-riffle channels and plane-riffle channels	Partly Confined to Unconfined	0.002-0.03	< 1.5	Drift	Characterised at low flows by sequences of pools and riffles (typical spacing 5-15 channel widths). Bed material predominantly gravel with occasional patches of larger or smaller sediments. Gravel bar features typically located on outside of bends.
	Wandering channels	Unconfined	0.008-0.03	< 1.1	Drift	Bed characteristics similar to pool-riffle but may contain vegetated islands and larger bar features. Bed sediments typically include sand and gravel.
	Braided channels	Unconfined	0.0005-0.03	< 1.2	Drift	Bed characterised by gravel bar deposits that split the channel into multiple threads. Pools and riffles will be present.

D	Low gradient actively meandering channels	Unconfined	0.0001-0.001	> 1.4	Drift	Pools and riffles associated with gravel bar formations on meander bends. Bed sediments dominated by sand and gravel.
F	Low gradient passively meandering channels	Unconfined	< 0.0001	< 1.5	Drift	Flows typically non-turbulent. Bed sediments dominated by sand and silts with occasional gravel and bar deposits.

Notes—

(i) "Unconfined valley form" means a valley whose shape and width is such that the lateral movement of the channel of the river that flows through it is not constrained by the narrowness of the valley.

(ii) "Partly confined valley form" means a valley whose shape and width is such that the lateral movement of the channel of the river that flows through it is restricted to a narrow flood plain.

(iii) "Confined valley form" means a valley whose narrowness is such as to prevent any lateral movement of the channel of the river that flows through it.

(iv) "Channel slope" means the ratio of stream length between two points and the drop in elevation between those two points.

(v) "Sinuosity" means the ratio of stream length between two points divided by the valley length between those two points.

Columns 3 to 6 in this Table describe a range of characteristics which are indicative of each river Type, in the absence of morphological alterations, column 7 in this Table describes further characteristics to be taken into account by SEPA where the river Type cannot readily be distinguished in accordance with columns 3 to 6.

The relative hazard to a river channel or river banks posed by different morphological alterations are specified in Tables 1.2 and 1.3 of Schedule 3.

For the purposes of this Table—

'boulder' refers to sediment with a diameter of > 256 mm;

'cobble' to sediment with a diameter of > 64 mm to 256 mm;

'gravel' to sediment with a diameter of > 2 mm to 64 mm;

'sand' to sediment with a diameter of > 62.5 µm to 2 mm; and

'silt' to sediment with a diameter of ≤ 62.5 µm.

Table 1.6: Criteria for identifying types of river to which the environmental standards for river acidity apply

Column 1	*Column 2*
Types	*Annual average concentration of dissolved organic carbon (mg/l)*
Clear Water	<10
Humic Water	≥10

LOCH TYPES

2.—(1) Insofar as is necessary for SEPA to determine the environmental standards or condition limits applicable to a loch or part thereof, SEPA must classify the loch or part as being of the Type specified in Table 2.1 which corresponds with the applicable description specified in that table.

(2) SEPA must classify the loch as being of the—

(i) loch geological Type in column 1 of Table 2.2 which corresponds with the annual mean alkalinity in column 2 of that table which is applicable to the loch;

(ii) loch geological sub-type in column 1 of Table 2.3 which corresponds with the description of the loch's characteristics in column 2 of that table;

(iii) loch depth Type in column 1 of Table 2.4 which corresponds with the mean loch depth in column 2 of that table which is applicable to the loch;

(iv) loch water Type in column 1 of Table 2.5 which corresponds with the annual mean concentration of dissolved organic carbon in column 2 of that table which is applicable to the loch;

(v) loch altitude Type in column 1 of Table 2.6 which corresponds to the altitude of the surface of the loch above mean sea level specified in column 2 of that table;

(vi) loch size Type in column 1 of Table 2.7 which corresponds to the loch surface area in column 2 of that table which is applicable to the loch; and

(vii) loch basin Type in column 1 of Table 2.8 which corresponds to the value of the equation $(3 \times D_{mean}) \div D_{max}$ in column 2 of that table which is applicable to the loch.

(3) Where SEPA has insufficient data to classify the geological Type of a loch in accordance with sub-paragraph (2), it must classify the geological Type of the loch as being of the geological Type in Table 2.2 which corresponds with the annual mean conductivity in column 3 of that table which is applicable to the loch.

(4) Where SEPA has insufficient data to classify the geological Type of a loch in accordance with either sub-paragraph (2) or (3), it must classify the geological Type of the loch as being of the geological Type specified in Table 2.2 which corresponds with the description of the solid geology of the catchment of the loch in column 4 of that table which is applicable to the loch.

Table 2.1: Criteria for identifying Types of loch to which the dissolved oxygen standards for freshwater lochs[(i)] apply

Column 1	*Column 2*
Type	*Description*
Salmonid	Freshwater lochs which would naturally support populations of salmonid fish
Cyprinid	Freshwater lochs in which populations of salmonid fish do not naturally occur

Note—

(i) The environmental standards for dissolved oxygen in freshwater lochs are specified in Table C2.1 in Part C of Schedule 2.

Table 2.2: Loch geological Types			
Column 1	*Column 2*	*Column 3*	*Column 4*
Geological Type	*Annual mean alkalinity*	*Annual mean conductivity*	*Solid geology of the catchment of the loch*
	Milli-equivalents per litre	Micro-siemens per centimetre	% of catchment area
Low alkalinity	< 0.2	≤ 70	> 90 % siliceous
Moderate alkalinity	0.2 to 1	> 70 to 250	> 50 % siliceous to ≤ 90 % siliceous
High alkalinity	> 1	> 250 to 1000	≥ 50 % calcareous

Table 2.3: Loch geological sub-types	
Column 1	*Column 2*
Geological sub-type	*Characteristics*
Marl	High alkalinity lochs, other than peat or brackish lochs, with > 65 % of the solid geology of their catchment area being limestone
Peat	Any loch, other than brackish lochs, with— (i) mean colour > 90 hazen units; or, where information on colour is unavailable; (ii) > 75 % of the soils of their catchment area being peat
Brackish	Any partly saline lochs with an annual mean conductivity > 1,000 micro-siemens per centimetre

Note—
"Hazen units" are a measure of water colour assessed in accordance with the International Organisation for Standardization, ISO 2211:1973, Measurement of colour in Hazen units (platinum-cobalt scale) of Liquid Chemical Products.

Table 2.4: Loch depth Types	
Column 1	*Column 2*
Loch depth Type	*Mean loch depth (metres)*
Very shallow	< 3
Shallow	3 to 15
Deep	> 15

Table 2.5: Loch water Types	
Column 1	*Column 2*
Loch water Type	*Annual mean concentration of dissolved organic carbon (mg/l)*
Humic	≥ 5
Clear	< 5

Table 2.6: Loch altitude Types	
Column 1	*Column 2*
Lake altitude Type	*Altitude of loch surface above mean sea level (metres)*
Lowland	< 200
Mid-altitude	200 to 800
High-altitude	> 800

Table 2.7: Loch size Types	
Column 1	*Column 2*
Loch size Type	*Loch surface area (hectares)*
Small	< 50
Large	≥ 50

Table 2.8: Loch basin Types	
Column 1	*Column 2*
Loch basin Type	$(3 \times D_{mean}) \div D_{max}$
V	< 0.67
L	≥ 0.67

Notes—
For the purposes of paragraph 2(2) and Table 2.8—
"D_{mean}" means the mean depth of the loch basin in metres; and
"D_{max}" means the maximum depth of the loch basin in metres.

TRANSITIONAL WATER AND COASTAL WATER TYPES

3.—(1) Insofar as is necessary for SEPA to determine the environmental standards or condition limits applicable to a transitional water or part thereof, SEPA must classify the transitional water or part as being of the Type specified in Table 3.1 which corresponds with the applicable description of the transitional water or part thereof in that table.

(2) To determine the relative hazard posed to—

(a) the morphological characteristics of the intertidal zone of a transitional water or a coastal water (or part thereof);

(b) the morphological characteristics of the subtidal zone of a transitional water or a coastal water (or part thereof); or

(c) the characteristics of the hydrodynamic zone of a transitional water or a coastal water (or part thereof),

by the different morphological alterations specified in Table 5.1 of Schedule 3, SEPA must classify the transitional water or part thereof, or the coastal water or part thereof, as being of the Type specified in Table 3.2 which corresponds to the applicable descriptions in that table.

(3) To determine the tidal regime condition limits applicable to a transitional water or any part thereof, SEPA must classify the transitional water or part as being of the Type specified in Table 3.3 which corresponds with the applicable description in that table.

Table 3.1: Criteria for identifying Types of transitional water to which the dissolved inorganic nitrogen standards[(i)] for transitional waters apply

Column 1	*Column 2*
Type	*Annual mean concentration of suspended particulate matter (mg/l)*
Very turbid	> 300
Turbid	100 to 300
Intermediate	10 to < 100
Clear	< 10

Note—
(i) The environmental standards for dissolved inorganic nitrogen in transitional waters are specified in Table C3.4 in Part C of Schedule 2.

Table 3.2: Types to which the morphological condition limits for transitional waters and coastal waters apply

Column 1	*Column 2*	*Column 3*	*Column 4*	*Column 5*
Type	*General characteristics*	*Annual mean salinity*	*Substrate*	*Fetch to the coastline of a coastal water; transitional water; or part thereof*
T(1)	Sea loch	< 30	Any	any
C(1)	Sea loch	> 30	Any	any
T(2)	Lagoon	< 30	Any	any
C(2)	Lagoon	> 30	Any	any
T(3)	Estuary	< 30	Any	any
C(3)	Coastal waters other than those in Types C(1) and C(2)	> 30	≥ 50 % exposed bedrock	> 10 km
C(4)	Coastal waters other than those in Types C(1) and C(2)	> 30	< 50 % exposed bedrock	< 10 km
C(5)	Coastal waters other than those in Types C(1) and C(2)	> 30	< 50 % exposed bedrock	> 10 km

Table 3.3: Criteria for identifying Types of transitional water to which the tidal regime condition limits for transitional waters apply

Column 1	Column 2
Type	*Ratio of the total Qn_{95} freshwater inflow (in cubic metres per second) into the transitional water, or part thereof, from rivers with a catchment area ≥ 10 km^2; to the volume (V_H) (in cubic metres) of water in the transitional water, or part thereof, at mean high water* $= \frac{\sum Qn95}{V_H} \times 1000$
High sensitivity (HS)	> 60
Medium sensitivity (MS)	35 to 60
Low sensitivity (LS)	< 35

GROUNDWATER DEPENDENT WETLAND TYPES

4. Insofar as is necessary for SEPA to determine the threshold values applicable for a groundwater, SEPA must classify the groundwater dependent wetland as being of the Type specified in Table 4.1 which corresponds with the applicable description of the groundwater dependent wetland thereof in that table.

Table 4.1: Wetland types to which the groundwater threshold values indicative of risks to the quality of groundwater dependent terrestrial ecosystems apply	
Wetland type	*Corresponding British plant community or communities (National Vegetation Classification plant communities**(i)***
Wet woodland	W1, W2, W3, W4, W5, W6, W7, W8, W9
Wet grassland	MG8, MG9, MG10
Wetland directly irrigated by spring or seepage	M6, M7, M8, M10, M11, M12, M13, M28, M29, M30, M31, M32, M33, M34, M37, M38
Fen (oligotrophic) and wetland at tufa forming spring	M9, M14, M24, M27, M37, M38, S2, S27
Fen (mesotrophic and fen meadow)	M23, M24, M25, M26, M27
Peatbog and woodland on peatbog	W18, M1, M2, M17, M18, M19, M20
Quaking bog	M4, M5, S27
Swamp (oligotrophic to mesotrophic)	S3, S4, S5, S8, S9, S10, S11, S12, S13, S14, S19, S20, S21
Swamp (mesotrophic to eutrophic and reedbed)	S4, S24, S25, S26, S27, S28
Wet dune	S5, SD13, SD14, SD15, SD16, SD17
Wet heath	M15, M16, H21

(i) J. S. Rodwell *(1998) British Plant Communities Volume 1 - Woodlands and scrub;* Cambridge University Press*;* ISBN: 0-521-62721-4; J. S. Rodwell (1998) *British Plant Communities Volume 2 - Mires and heaths;* Cambridge University Press*;* ISBN: 0-521-62720-6; J. S. Rodwell (1998) *British Plant Communities Volume 3 - Grasslands and montane communities,* Cambridge University Press*;* ISBN: 0-521-62719-2; J. S. Rodwell (1998) *British Plant Communities Volume 4 - Aquatic communities, swamps and tall-herb fens;* Cambridge University Press*;* ISBN: 0-521-62718-4; J. S. Rodwell *(2000)British Plant Communities Volume 5 - Maritime communities and vegetation of open habitats;* Cambridge University Press*;* ISBN: 0-521-64476-3.

SCHEDULE 2

Schedule 2 to Solway Tweed River Basin District (Standards) (Scotland) Directions 2014: Environmental standards

PART A

Biological Environmental Standards

Environmental standards for aquatic plants and animals in rivers

1.—(1) For any river or part thereof, SEPA must apply the "high", "good", "moderate" or "poor" benthic invertebrate fauna standards for rivers specified in Table A1.1. In order to do so, SEPA must calculate the ecological quality ratios for the parameters referred to in Table A1.1 in the river or part thereof in accordance with the method, "Invertebrates (General Degradation): Whalley, Hawkes, Paisley & Trigg (WHPT) metric in River Invertebrate Classification Tool (RICT)"(**j**).

(2) For any river or part thereof, SEPA must apply the "high", "good", "moderate" or "poor" aquatic macrophyte standard for rivers specified in Table A1.2. In order to do so, SEPA must calculate the ecological quality ratio ($EQR_{LEAFPACS2}$) in the river or part thereof in accordance with the method, "Macrophytes (River LEAFPACS2)"(**k**).

(3) For any river or part thereof, SEPA must apply the "high", "good", "moderate" or "poor" phytobenthos standard for rivers specified in Table A1.3. In order to do so, SEPA must calculate the ecological quality ratio ($EQR_{DARLEQ2}$) for phytobenthos in the river or part in accordance with the method, "Phytobenthos – Diatoms for Assessing River and lake Ecological Quality (River DARLEQ2)"(**l**).

(4) For any river of part thereof, SEPA must apply the "moderate", "poor" or "bad" criteria in Table A1.4 to assess the impact on the phytobenthic community of bacterial tufts and growths (sewage fungus).

(5) Once it has classified a river or part thereof in accordance with paragraph 1(9) of Schedule 1 as being of a type specified in Table A1.5, SEPA must apply the "high", "good", "moderate" or "poor" benthic invertebrate fauna standards specified in that table. In order to do so, SEPA must calculate the ecological quality ratio (EQR_{AWIC}) in the river or part thereof in accordance with the method, "Invertebrates (Anthropogenic Acidification): WFD Acid Water Indicator Community (WFD-AWIC)"(**m**).

(6) For any river or part thereof, SEPA must apply the "high", "good", "moderate" or "poor" fish fauna standards specified in Table A1.6. In order to do so, SEPA must calculate the ecological quality ratio (EQR_{FCS2}) in the river or part thereof in accordance with the method, "Fish Classification System 2 (FCS2)"(**n**).

(7) SEPA must apply such indicators as listed in the method, "Ecological indicators of severe water resource pressures"(**o**), as it considers necessary and appropriate in accordance with that

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(**j**) UKTAG (2014) *River Assessment Method, Benthic Invertebrate Fauna, Invertebrates (General Degradation): Whalley, Hawkes, Paisley & Trigg (WHPT) metric in River Invertebrate Classification Tool (RICT)*; ISBN: 978-1-906934-49-1.

(**k**) UKTAG (2014) *UKTAG River Assessment Method, Macrophytes and Phytobenthos, Macrophytes (River LEAFPACS2)*; ISBN: 978-1-906934-44-6.

(**l**) UKTAG (2014) *UKTAG River Assessment Method, Macrophytes and Phytobenthos, Phytobenthos – Diatoms for Assessing River and Lake Ecological Quality (River DARLEQ2);* ISBN: 978-1-906934-42-2.

(**m**) UKTAG (2014) UKTAG River Assessment Method, Benthic Invertebrate Fauna, Invertebrates (Anthropogenic Acidification): WFD Acid Water Indicator Community (WFD-AWIC); ISBN: 978-1-906934-48-4.

(**n**) UKTAG (2014) River Assessment Method, Fish Fauna, Fisheries Classification Scheme 2 (FCS2) Scotland; ISBN: 978-1-906934-50-7.

(**o**) UKTAG (2014) *UKTAG River Assessment Method, Ecological indicators of severe water resources pressures*; ISBN: 978-1-906934-56-9.

method for the purpose of identifying major or severe alterations to the quality of the structure or functioning of the river ecosystem resulting directly or indirectly from anthropogenic modifications to river flow.

Table A1.1: Benthic invertebrate fauna standards for rivers for application with the method, Invertebrates (General Degradation): Whalley, Hawkes, Paisley & Trigg (WHPT) metric in River Invertebrate Classification Tool (RICT)

Column 1	*Column 2*	*Column 3*
Condition of quality element	*Mean ecological quality ratio for the parameter, ASPT*	*Mean ecological quality ratio for the parameter, NTAXA*
High	0.97	0.80
Good	0.86	0.68
Moderate	0.72	0.56
Poor	0.53	0.47

Table A1.2: Aquatic macrophyte standards for rivers for application with the method, Macrophytes (River LEAFPACS2)

Column 1	*Column 2*
Condition of the quality element	*Mean $EQR_{LEAFPACS2}$*
High	0.8
Good	0.6
Moderate	0.4
Poor	0.2

Table A1.3: Phytobenthos standards for rivers for application with the method, Phytobenthos – Diatoms for Assessing River and lake Ecological Quality (River DARLEQ2)

Column 1	*Column 2*
Condition of quality element	*Mean $EQR_{DARLEQ2}$*
High	1.0
Good	0.75
Moderate	0.50
Poor	0.25

Table A1.4: Criteria for classifying the impact on the phytobenthic community in rivers of bacterial tufts and coats ("sewage fungus")

	Mean coverage of tufts and coats during assessment period		
Mean density of tufts and coats during assessment period	*Less than 30% of surface area*	*30% to 60% of surface area*	*Greater than 60% of surface area*
A just detectable trace	Moderate	Moderate	Poor
Obviously present but not sufficient to obscure substrate	Moderate	Poor	Poor
Sufficiently dense to fully obscure substrate	Poor	Poor	Bad
So dense as to occupy a significant proportion of the water column	Poor	Bad	Bad

Note—
The criteria in Table A1.4 do not apply to any river or part thereof classed as good or high in accordance with paragraph 1(3).

Table A1.5: Benthic invertebrate fauna standards for rivers for application with the method, Invertebrates (Anthropogenic Acidification): WFD Acid Water Indicator Community (WFD-AWIC)		
Column 1	*Column 2*	*Column 3*
Condition of quality element	*Mean EQR_{AWIC}*	
	Type: Humic Water	*Type: Clear Water*
High	0.93	0.91
Good	0.83	0.83
Moderate	0.77	0.72
Poor	0.73	0.66

Table A1.6: Fish fauna standards for rivers for application with the method, Fish Classification System (FCS2)	
Column 1	*Column 2*
Condition of the quality element	*Mean EQR_{FCS2}*
High	0.85
Good	0.60
Moderate	0.55
Poor	0.11

Environmental standards for aquatic plants and animals in lochs

2.—(1) SEPA must apply the "high", "good", "moderate" or "poor" benthic invertebrate standard for lochs specified in column 2 of Table A2.1. In order to do so, SEPA must calculate the ecological quality ratio (EQR_{CPET}) for benthic invertebrates in the loch or part in accordance with the method, "Chironomid Pupal Exuviae Technique (CPET)"(**p**).

(2) For any loch or part thereof and taking account of its geological type and sub-type, SEPA must apply the "high", "good" or "moderate" benthic invertebrate fauna standard for lochs specified in Table A2.2. In order to do so, SEPA must calculate the ecological quality ratio (EQR_{HLAMM} or EQR_{CLAMM}, as applicable) for benthic invertebrates in the loch or part in accordance with the method, "Lake Acidification Macroinvertebrate Metric (LAMM)"(**q**).

(3) For any loch or part thereof, SEPA must apply the "high", "good", "moderate" or "poor" aquatic macrophyte standard for lochs specified in Table A2.3. In order to do so, SEPA must calculate the ecological quality ratio ($EQR_{LEAFPACS2}$) for aquatic macrophytes in the loch or part in accordance with the method, "Macrophytes - (Lake LEAFPACS2)"(**r**).

(4) For any loch or part thereof and, taking account of the loch's geological type and sub-type, SEPA must apply the "high", "good" or "moderate" phytobenthos standard for lochs specified in Table A2.4. In order to do so, SEPA must calculate the ecological quality ratio ($EQR_{DARLEQ2}$) for phytobenthos in the loch or part in accordance with the method, "Phytobenthos – Diatoms for Assessing River and Lake Ecological Quality (Lake DARLEQ2)"(**s**).

(**p**) UKTAG (2008) *UKTAG Lake Assessment Method, Benthic Invertebrate Fauna, Chironomid Pupal Exuviae Technique (CPET)*; ISBN: 978-1-906934-04-0.

(**q**) UKTAG (2008) *UKTAG Lake Assessment Method*, *Benthic Invertebrate Fauna, Lake Acidification Macroinvertebrate Metric (LAMM)*; ISBN: 978-1-906934-05-7.

(**r**) UKTAG (2014) *UKTAG Lake Assessment Method, Macrophytes and Phytobenthos, Macrophytes (Lake LEAFPACS2)*; *ISBN*: 978-1-906934-45-3.

(**s**) UKTAG (2014) *UKTAG Lake Assessment Method, Macrophytes and Phytobenthos, Phytobenthos – Diatoms for Assessing River and Lake Ecological Quality (Lake DARLEQ2);* ISBN: 978-1-906934-43-9.

(5) Once SEPA has classified a loch or part thereof as being of a type specified in Table A2.5, it must apply the "high", "good", "moderate" or "poor" phytoplankton standards in that table. In order to do so, SEPA must calculate the ecological quality ratio, EQR_{PLUTO}, in accordance with the method, "Phytoplankton Lake Assessment Tool with Uncertainty Module (PLUTO)" (**t**).

Table A2.1: Benthic invertebrate fauna standards for lochs for application with the assessment method, Chironomid Pupal Exuviae Technique (CPET)	
Column 1	*Column 2*
Condition of the quality element	*Mean EQR_{CPET}*
High	0.77
Good	0.64
Moderate	0.49
Poor	0.36

Table A2.2: Benthic invertebrate fauna standards for lochs for application with the method, Lake Acidification Macroinvertebrate Metric, LAMM		
Column 1	*Column 2*	*Column 3*
Condition of quality element	*Humic water lochs*	*Clear water lochs*
	Mean EQR_{HLAMM}	*Mean EQR_{CLAMM}*
High	0.83	0.86
Good	0.61	0.70
Moderate	-	0.54

Table A2.3: Aquatic macrophyte standards for lochs for application with the method, Lake Macrophytes (LEAFPACS2)	
Column 1	*Column 2*
Condition of the quality element	*$^{S}EQR_{LEAFPACS2}$*
High	0.80
Good	0.60
Moderate	0.40
Poor	0.20

Table A2.4: Phytobenthos standards for lochs for application with the method, Phytobenthos – Diatoms for Assessing River and Lake Ecological Quality (Lake DARLEQ2)			
	Mean $EQR_{DARLEQ2}$		
Column 1	*Column 2*	*Column 3*	*Column 4*
Condition of quality element	*Lake geological category: "high alkalinity"*	*Lake geological category: "moderate alkalinity"*	*Lake geological category: "low alkalinity"*
High	0.92	0.95	0.92
Good	0.70	0.70	0.70
Moderate	0.46	0.46	0.46
Poor	0.23	0.23	0.23

(**t**) UKTAG (2014) *UKTAG Lake Assessment Method, Phytoplankton, Phytoplankton Lake Assessment Tool with Uncertainty Module (PLUTO)*; ISBN: 978-1-906934-47-7.

Table A2.5: Phytoplankton standards for lochs for application with the method, Phytoplankton Lake Assessment Tool with Uncertainty Module (PLUTO)	
Column 1	*Column 2*
Condition of the quality element	*Mean EQR_{PLUTO}*
High	0.80
Good	0.60
Moderate	0.40
Poor	0.20

Environmental standards for aquatic plants and animals in transitional waters

3.—(1) For any transitional water or part thereof, SEPA must apply the "high", "good", "moderate" or "poor" benthic invertebrate fauna standard for transitional waters specified in Table A3.1. In order to do so, SEPA must calculate the ecological quality ratio, EQR_{IQI}, for benthic invertebrates in the transitional water or part in accordance with the method, "Infaunal Quality Index"(**u**).

(2) For any transitional water or part thereof, SEPA must apply the "high", "good", "moderate" or "poor" macroalgae (seaweed) standard for transitional waters specified in Table A3.2. In order to do so, SEPA must calculate the ecological quality ratio, EQR_{fucoid}, for macroalgae in the transitional water or part in accordance with the method, "Fucoid Extent Tool"(**v**).

(3) For any transitional water or part thereof, SEPA must apply the "high", "good", "moderate" or "poor" macroalgae (seaweed) standard for transitional waters specified in Table A3.3. In order to do so, SEPA must calculate the ecological quality ratio, EQR_{OMBT}, for macroalgae in the transitional water or part in accordance with the method, "Opportunistic Macroalgae Blooming Tool"(**w**).

(4) For any transitional water or part thereof, SEPA must apply to the transitional water or part, the "high", "good", "moderate" or "poor" phytoplankton standards for transitional waters specified in Table A3.4. In order to do so, SEPA must calculate the ecological quality ratio (EQR_{TWPT}) in accordance with the method, "Transitional Water Phytoplankton Tool Index"(**x**).

(5) For any transitional water or part thereof, SEPA must apply the "high", "good", "moderate" or "poor" angiosperm (seagrass) standards specified in Table A3.5. In order to do so, SEPA must calculate the ecological quality ratio, $EQR_{Seagrass}$, for angiosperms in the transitional water or part in accordance with the method, "Intertidal Seagrass Tool"(**y**).

(6) For any transitional water or part thereof, SEPA must apply the "high", "good", "moderate" or "poor" fish fauna standard for transitional waters specified in Table A3.6. In order to do so, SEPA must calculate the ecological quality ratio, EQR_{TFCI}, for fish in the transitional water or part in accordance with the method, "Transitional Fish Classification Index"(**z**).

(**u**) UKTAG (2014) *UKTAG Transitional and Coastal Water Assessment Methods, Benthic Invertebrate Fauna, Infaunal Quality Index;* ISBN: 978-1-906934-34-7.

(**v**) UKTAG (2014) *UKTAG Transitional Water Assessment Method, Macroalgae, Fucoid Extent Tool;* ISBN: 978-1-906934-38-5.

(**w**) UKTAG (2014) *UKTAG Transitional and Coastal Water Assessment Method, Macroalgae, Opportunistic Macroalgal Blooming Tool;* ISBN: 978-1-906934-37-8.

(**x**) UKTAG (2014) *UKTAG Transitional Water Assessment Method, Phytoplankton, Transitional Water Phytoplankton Tool;* ISBN: 978-1-906934-41-5.

(**y**) UKTAG (2014) *Transitional and Coastal Water Assessment Method, Angiosperms, Intertidal Seagrass Tool;* ISBN: 978-1-906934-36-1.

(**z**) UKTAG (2014) *Transitional Water Assessment Method, Fish Fauna, Transitional Fish Classification Index;* ISBN: 978-1-906934-32-3.

Table A3.1: Benthic invertebrate fauna standards for transitional waters for application with the method, Infaunal Quality Index	
Column 1	*Column 2*
Condition of the quality element	*Mean EQR_{IQI}*
High	0.75
Good	0.64
Moderate	0.44
Poor	0.24

Table A3.2: Macroalgae (seaweed) standards for transitional waters for application with the method, Fucoid Extent Tool	
Column 1	*Column 2*
Condition of the quality element	*Mean EQR_{Fucoid}*
High	0.80
Good	0.60
Moderate	0.40
Poor	0.20

Table A3.3: Macroalgae (seaweed) standards for transitional waters for application with the method, Opportunistic Macroalgal Blooming Tool	
Column 1	*Column 2*
Condition of the quality element	*Mean EQR_{OMBT}*
High	0.80
Good	0.60
Moderate	0.40
Poor	0.20

Table A3.4: Phytoplankton standards for transitional waters for application with the method, Transitional Water Phytoplankton Tool	
Column 1	*Column 2*
Condition of the quality element	*Mean EQR_{TWPT}*
High	0.80
Good	0.60
Moderate	0.40
Poor	0.20

Table A3.5: Angiosperm (seagrass) standards for transitional waters for application with the method, Intertidal Seagrass Tool	
Column 1	*Column 2*
Condition of the quality element	*Mean $EQR_{Seagrass}$*
High	0.80
Good	0.60
Moderate	0.40
Poor	0.20

Table A3.6: Fish fauna standards for transitional waters for application with the method, Transitional Fish Classification Index	
Column 1	*Column 2*
Condition of the quality element	*Mean EQR_{TFCI}*
High	0.81
Good	0.58
Moderate	0.40
Poor	0.20

Environmental standards for aquatic plants and animals in coastal waters

4.—(1) For any coastal water or part thereof, SEPA must apply the "high", "good", "moderate" or "poor" benthic invertebrate fauna standards for coastal waters as specified in table A4.1. In order to do so, SEPA must calculate the ecological quality ratio, EQR_{IQI}, for benthic invertebrates in the coastal water or part in accordance with the method, "Infaunal Quality Index"(**aa**).

(2) To assess the ecological impact of tributyltin (TBT) in any coastal water or part thereof, SEPA must apply to the coastal water or part thereof, the "high" or "good" benthic invertebrate fauna standard for coastal waters specified in Table A4.2. In order to do so, SEPA must calculate the ecological quality ratio, $EQR_{Imposex}$, for benthic invertebrates in the coastal water or part in accordance with the method, "Assessment of imposex in Nucella lapillus (dog whelks)"(**bb**).

(3) For any coastal water or part thereof, SEPA must apply the "high", "good", "moderate" or "poor" macroalgae standard for coastal waters specified in Table A4.3. In order to do so, SEPA must calculate the ecological quality ratio, EQR_{IRSMI}, for macroalgae in the coastal water or part in accordance with the method, "Intertidal Rocky Shore Macroalgal Index"(**cc**).

(4) For any coastal water or part thereof, SEPA must apply the "high", "good", "moderate" or "poor" macroalgae (seaweed) standards for coastal waters specified in Table A4.4. In order to do so, SEPA must calculate the ecological quality ratio, EQR_{OMBT}, for macroalgae in the coastal water or part in accordance with the method "Opportunistic Macroalgal Blooming Tool(**dd**).

(5) For any coastal water or part thereof, SEPA must apply the "high", "good", "moderate" or "poor" phytoplankton standard for coastal waters specified in Table A4.5. In order to do so, SEPA must calculate the ecological quality ratio, EQR_{CWPT} for phytoplankton in the coastal water or part in accordance with the method, "Coastal Water Phytoplankton Tool"(**ee**).

(6) For any coastal water or part thereof, SEPA must apply the "high", "good", "moderate" or "poor" angiosperm (seagrass) standards specified in Table A4.6. In order to do so, SEPA must calculate the ecological quality ratio, $EQR_{Seagrass}$, for angiosperms in the coastal water or part in accordance with the method, "Intertidal Seagrass Tool"(**ff**).

(**aa**) UKTAG (2014) *UKTAG Transitional and Coastal Water Assessment Methods, Benthic invertebrate fauna, invertebrates in soft sediments, Infaunal Quality Index;* ISBN:978-1-906934-34-7.

(**bb**) UKTAG (2014) *UKTAG Coastal Water Assessment Method, Benthic Invertebrate Fauna, Assessment of imposex in Nucella lapillus (*dog whelks*);* ISBN: 978-1-906934-35-4.

(**cc**) UKTAG (2014) *UKTAG Coastal Water Assessment Method, Macroalgae, Macroalgae - Intertidal Rocky Shore Macroalgal Index;* ISBN: 978-1-906934-39-2.

(**dd**) UKTAG (2014) *UKTAG Transitional and Coastal Water Assessment Method, Macroalgae, Opportunistic Macroalgal Blooming Tool;* ISBN: 978-1-906934-37-8.

(**ee**) UKTAG (2014) *UKTAG Coastal Water Assessment Method, Phytoplankton, Coastal Water Phytoplankton Tool;* ISBN: 978-1-906934-33-0.

(**ff**) UKTAG (2014) *Transitional and Coastal Water Assessment Method, Angiosperms, Intertidal Seagrass Tool;* ISBN: 978-1-906934-36-1.

Table A4.1: Benthic invertebrate fauna standards for coastal waters for application with the method, Infaunal Quality Index	
Column 1	*Column 2*
Condition of the quality element	*Mean EQR_{IQI}*
High	0.75
Good	0.64
Moderate	0.44
Poor	0.24

Table A4.2: Benthic invertebrate fauna standards for coastal waters for application with the method, Assessment of imposex in Nucella lapillus (dog whelks)	
Column 1	*Column 2*
Condition of the quality element	*Mean $EQR_{Imposex}$*
High	0.95
Good	0.34

Table A4.3: Macroalgae standards for coastal waters for application with the method, Intertidal Rocky Shore Macroalgal Index	
Column 1	*Column 2*
Condition of the quality element	*Mean EQR_{IRSMI}*
High	0.80
Good	0.60
Moderate	0.40
Poor	0.20

Table A4.4: Macroalgae (seaweed) standards for coastal waters for application with the method, Opportunistic Macroalgal Blooming Tool	
Column 1	*Column 2*
Condition of the quality element	*Mean EQR_{OMBT}*
High	0.80
Good	0.60
Moderate	0.40
Poor	0.20

Table A4.5: Phytoplankton standards for coastal waters for application with the method, Coastal Water Phytoplankton Tool	
Column 1	*Column 2*
Condition of the quality element	*Mean EQR_{CWPT}*
High	0.80
Good	0.60
Moderate	0.40
Poor	0.20

Table A4.6: Angiosperm (Seagrass) standards for coastal waters for application with the method, Intertidal Seagrass Tool	
Column 1	*Column 2*
Condition of the quality element	*Mean $EQR_{Seagrass}$*
High	0.80
Good	0.60
Moderate	0.40
Poor	0.20

PART B

Hydromorphological Environmental Standards

Environmental standards for river hydrological regime - river flows

1.—(1) Subject to sub-paragraphs (2) to (6), once SEPA has classified, in accordance with paragraph 1(5) or 1(6) (as the case may be) of Schedule 1, a river or part thereof as being of a Type specified in Tables B1.1, B1.2, B1.6 and B1.7, it must apply the "high" environmental standards for river flows specified in Table B1.1; the "good" environmental standards for river flows specified in Table B1.2; the "moderate" environmental standards for river flows specified in Table B1.6; or the "poor" environmental standards for river flows specified in Table B1.7.

(2) Where an environmental standard for river flow specified in column 5 of Table B1.2 equates to more than 25% of Q_{n98}, when river flow is $\leq Q_{n98}$ SEPA may introduce such further restrictions on abstractions as it considers necessary for the purposes of protecting parts of the water environment, the aquatic plants or animals of which are, in SEPA's opinion, particularly sensitive to low flow conditions.

(3) SEPA must substitute the environmental standards for river flow specified in Table B1.3 for the "good" environmental standards for river flow specified in Table B1.2 in the period 1st April to 31st October in any year where, in SEPA's opinion, the application of these standards is necessary to protect the aquatic ecosystems concerned.

(4) Subject to sub-paragraph (6), SEPA must substitute the environmental standards for river flow specified in Table B1.4 for the "good" environmental standards for river flow specified in Table B1.2 in respect of rivers or parts thereof identified by SEPA as salmonid spawning and nursery grounds likely to need additional protection because of the particular sensitivity to reductions in river flows of the salmonid spawning and nursery grounds in those rivers or parts.

(5) Where an environmental standard for river flow specified in column 4 in Table B1.4 equates to more than 25% of Q_{n98}, when the river flow is $\leq Q_{n98}$ SEPA may introduce such further restrictions on abstractions as it considers necessary for the purposes of protecting parts of the water environment, the aquatic plants or animals of which are, in SEPA's opinion, particularly sensitive to low flow conditions.

(6) SEPA must substitute the environmental standards for river flow specified in Table B1.5 for the "good" environmental standards for river flow specified in Table B1.4 in the period 1st November and 31st March in any year in respect of rivers or parts thereof identified by SEPA as salmonid spawning and nursery grounds likely to need additional protection because of the particular sensitivity to reductions in river flows of the salmonid spawning and nursery grounds in those rivers or parts and which, in SEPA's opinion, require the application of more stringent environmental standards for this purpose than those specified in Table B1.4**.**

Table B1.1: "High" environmental standards for river flows		
Maximum permitted total abstraction per day as a proportion of daily natural flow (Q_n)		
High		
Column 1	Column 2	Column 3
River Type	Daily flows $\geq Q_{n95}$ to $< Q_{n5}$	Daily flows $< Q_{n95}$
A1, A2 (downstream), A2 (headwaters), B1, B2, C1, C2, D1, D2	10 % of daily Q_n	5 % of Q_{n95}

Table B1.2: "Good" environmental standards for river flows, except where the environmental standards specified in Table B1.3, B1.4 or B1.5 apply				
Maximum permitted total abstraction per day as a proportion of daily natural flow (Q_n)				
Good				
Column 1	*Column 2*	*Column 3*	*Column 4*	*Column 5*
River Type	*Daily flows ≥ Q_{n60} to < Q_{n5}*	*Daily flows < Q_{n60} to Q_{n70}*	*Daily flows < Q_{n70} to Q_{n95}*	*Daily flows < Q_{n95}*
A1	35 % of daily Q_n	30 % of daily Q_n	25 % of daily Q_n	20 % of Q_{n95}
A2 (downstream), B1, B2, C1, D1	30 % of daily Q_n	25 % of daily Q_n	20 % of daily Q_n	15 % of Q_{n95}
A2 (headwaters), C2, D2	25 % of daily Q_n	20 % of daily Q_n	15 % of daily Q_n	10 % of Q_{n95}

Table B1.3: Modifications to the "good" environmental standards for river flows specified in Table B1.2				
Maximum permitted total abstraction per day as a proportion of daily natural flow (Q_n)				
Good				
Column 1	*Column 2*	*Column 3*	*Column 4*	*Column 5*
River Type	*Daily flows ≥ Q_{n60} to < Q_{n5}*	*Daily flows < Q_{n60} to Q_{n70}*	*Daily flows < Q_{n70} to Q_{n95}*	*Daily flows < Q_{n95}*
A1	30 % of daily Q_n	25 % of daily Q_n	20 % of daily Q_n	15 % of Q_{n95}
A2 (downstream), B1, B2, C1, D1	25 % of daily Q_n	20 % of daily Q_n	15 % of daily Q_n	10 % of Q_{n95}
A2 (headwaters), C2, D2	20 % of daily Q_n	15 % of daily Q_n	15 % of daily Q_n	7.5 % of Q_{n95}

Table B1.4: "Good" environmental standards for river flows to protect salmonid spawning and nursery grounds			
Maximum permitted total abstraction per day as a proportion of daily natural flow (Q_n)			
Good			
Column 1	*Column 2*	*Column 3*	*Column 4*
Daily flows ≥ Q_{n60} to < Q_{n5}	*Daily flows < Q_{n60} to Q_{n70}*	*Daily flows < Q_{n70} to Q_{n95}*	*Daily flows < Q_{n95}*
25 % of daily Q_n	20 % of daily Q_n	15 % of daily Q_n	10 % of Q_{n95}

Table B1.5: Modifications to the environmental standards for river flows to protect salmonid spawning and nursery grounds specified in Table B1.4		
Maximum permitted total abstraction per day as a proportion of daily natural flow (Q_n)		
Good		
Daily flows ≥ Q_{n60} to < Q_{n5}	*Daily flows < Q_{n60} to Q_{n95}*	*Daily flows < Q_{n95}*
20 % of daily Q_n	15 % of daily Q_n	7.5 % of Q_{n95}

Table B1.6: Moderate environmental standards for river flows					
Moderate					
Permitted total abstraction per day as a proportion of daily natural flow					
River Type	*Daily flows < Q_{n5} to ≥ Q_{n60}*	*Daily flows < Q_{n60} to ≥ Q_{n70}*	*Daily flows < Q_{n70} to ≥ Q_{n90}*	*Daily flows < Q_{n90} to ≥ Q_{n95}*	*Daily flows < Q_{n95}*
A1	70% of Q_n	X% of Q_n	X% of Q_n	50% of Q_n	45% of Q_{n95}
A2 (downstream), B1, B2, C1, D1	70% of Q_n	Y% of Q_n	Y% of Q_n	45% of Q_n	40% of Q_{n95}
A2 (headwaters), C2, D2	70% of Q_n	Z% of Q_n	Z% of Q_n	40% of Q_n	35% of Q_{n95}

Notes—
For the purposes of this Table—
"X" has the value of 70 at Q_{n60} and 50 at Q_{n90}. Intermediate values are derived from the linear equation between these two reference points.
"Y" has the value of 70 at Q_{n60} and 45 at Q_{n90}. Intermediate values are derived from the linear equation between these two reference points.
"Z" has the value of 70 at Q_{n60} and 40 at Q_{n90}. Intermediate values are derived from the linear equation between these two reference points.

Table B1.7: Poor environmental standards for river flows			
Poor			
Permitted total abstraction per day as a proportion of daily natural flow			
River Type	*Daily flows < Q_{n5} to ≥ Q_{n90}*	*Daily flows < Q_{n90} to ≥ Q_{n95}*	*Daily flows < Q_{n95}*
A1	Q_n less 25% of Q_{n90}	75% of Q_n	70% of Q_{n95}
A2 (downstream), B1, B2, C1, D1	Q_n less 30% of Q_{n90}	70% of Q_n	65% of Q_{n95}
A2 (headwaters), C2, D2	Q_n less 35% of Q_{n90}	65% of Q_n	65% of Q_{n95}

Environmental standards for loch hydrological regime - loch water levels

2.—(1) For any loch or part thereof, SEPA must apply the "high", "good", "moderate" or "poor" environmental standards for loch water levels specified in Table B2.1 for changes to reference condition loch surface area resulting from alterations to loch water levels. For the purposes of Table B2.1—

"Loch surface area" means (i) the area of the lake's surface overlying water from the shore out to a depth 5 metres deeper than the depth at which rooted plants or bottom-living algae grow; or (ii), if the deepest part of the loch is shallower than the depth calculated in (i), the whole area of the loch's surface.

"Reference condition" means the absence of any pressures that could affect the surface area of the loch or any pressures that could affect the depth at which rooted plants or bottom-living algae are able to grow. In the absence of site-specific information on the depth to which rooted plants or bottom-living algae grow under reference conditions, the depth out to which surface area is measured may be taken to be 7 metres in lochs of the geological sub-type "peat". For all other lochs, it may be taken to be 12 metres. Reference conditions should be representative of the current standard UK Meteorological Office climate reference period (currently 1981 to 2010). For the purpose of assessing the risk posed to lochs identified as heavily modified, reference conditions means conditions consistent with good ecological potential.

Table B2.1: Standards for the effect of water level changes on loch surface area			
Daily maximum reduction in the reference condition loch surface area on 99% of days per year (%)			
Column 1	*Column 2*	*Column 3*	*Column 4*
High	Good	Moderate	Poor
1	5	10	20

PART C

Chemical and Physicochemical Environmental Standards

General chemical and physicochemical environmental standards for rivers

1.—(1) Once SEPA has classified, in accordance with paragraphs 1(1) and 1(2) of Schedule 1, a river or part thereof as being of a Type specified in column 1 of Table C1.1, it must apply the "high", "good", "moderate" or "poor" dissolved oxygen standards specified in that table to that river or part.

(2) Once SEPA has classified, in accordance with paragraphs 1(2) and 1(3) of Schedule 1, a river or part thereof as being of a Type specified in column 1 of Table C1.2, it must apply the "good" dissolved oxygen standards specified in that table to that river or part in relation to any short-term and intermittent changes in dissolved oxygen concentrations.

(3) Once SEPA has classified, in accordance with paragraph 1(1) and 1(2) of Schedule 1, a river or part thereof as being of a Type specified in Table C1.3, it must apply the "high", "good", "moderate" or "poor" biochemical oxygen demand standards specified in that table to that river or part.

(4) Once SEPA has classified, in accordance with paragraph 1(1) and 1(2) of Schedule 1, a river or part thereof as being of a Type specified in Table C1.4, it must apply the "high", "good", "moderate" or "poor" biochemical oxygen demand standards specified in that table to that river or part in relation to any short-term and intermittent changes in concentrations of biochemical oxygen demand.

(5) For any river or part thereof, SEPA must apply the "high", "good", "moderate" or "poor" phosphorus standards calculated in accordance with the applicable equations in Table C1.5.

(6) Once SEPA has classified, in accordance with paragraphs 1(2) and (3) of Schedule 1, a river or part thereof as being of a Type specified in row 2 of Table C1.6, it must apply the "high", "good", "moderate" or "poor" temperature standards specified in row 3 of that table and the "high" or "good" temperature standards specified in row 4 of that table.

(7) Once SEPA has classified, in accordance with paragraph 1(9) of Schedule 1, a river or part thereof as being of a Type specified in Table C1.7, it must apply the "high", "good" "moderate" or "poor" standards for pH in rivers specified in that table.

(8) Once SEPA has classified, in accordance with paragraph 1(9) of Schedule 1, a river or part thereof as being of a Type specified in Table C1.8, it must apply the "high", "good" "moderate" or "poor" standards for acid neutralising capacity in rivers specified in that table.

Table C1.1: Dissolved oxygen standards for rivers

Column 1	*Column 2*	*Column 3*	*Column 4*	*Column 5*
% oxygen saturation as 10-percentile values				
River Type	*High*	*Good*	*Moderate*	*Poor*
1, 2, 4 and 6 and salmonid	80	75	64	50
3, 5 and 7	70	60	54	45

Table C1.2: Standards for good dissolved oxygen concentrations in rivers in relation to short-term and intermittent changes in dissolved oxygen concentrations						
	Dissolved oxygen concentration (mg/l)					
Return periods	*1 hour*		*6 hour*		*24 hour*	
	Salmonid	*Cyprinid*	*Salmonid*	*Cyprinid*	*Salmonid*	*Cyprinid*
1 month	5 + F	4 + F	5.5 + F	5 + F	6 + F	5.5 + F
3 months	4.5 + F	3.5 + F	5 + F	4.5 + F	5.5 + F	5 + F
12 months	4.0 + F	3 + F	4.5 + F	4 + F	5 + F	4.5 + F

Notes—

For the purposes of this Table, "F" has the value—

(i) "Zero" when the concurrent concentration of un-ionised ammonia is ≤ 0.02 mg/l;

(ii) "(0.97 x log_{10}(concentration of NH_3-N in mg per litre) + 3.8)" when the concurrent concentration of un-ionised ammonia is ≥ 0.02 mg/l and ≤ 0.15 mg/l;

(iii) "2" when the concurrent concentration of un-ionised ammonia is ≥ 0.15 mg/l; or

(iv) "3" for salmonid spawning grounds

The dissolved oxygen standards in Table C1.2 must not be used in classifying the ecological status or ecological potential of water bodies.

Table C1.3: Biochemical oxygen demand (BOD) standards for rivers[(i)]				
Column 1	*Column 2*	*Column 3*	*Column 4*	*Column 5*
BOD concentration (mg/l) as 90-percentile values				
River Type	*High*	*Good*	*Moderate*	*Poor*
1, 2, 4 and 6 and salmonid	3	4	6	7.5
3, 5 and 7	4	5	6.5	9

Note—

(i) Biochemical oxygen demand standards must not be used in classifying the ecological status or ecological potential of water bodies.

Table C1.4: Standards for biochemical oxygen demand (BOD) in rivers in relation to short-term and intermittent changes in BOD concentrations		
	Concentration of biochemical oxygen demand (BOD) as a 99th percentile	
Column 1	*Column 2*	*Column 3*
	Types 1, 2, 4 and 6	*Types 3, 5 and 7*
High	7	9
Good	9	11
Moderate	14	14
Poor	16	19

Note—

(i) Biochemical oxygen demand standards must not be used in classifying the ecological status or ecological potential of water bodies.

Table C1.5: Phosphorus standards for rivers			
Annual mean reactive phosphorus concentration in µg/l			
Column 1	*Column 2*	*Column 3*	*Column 4*
High	*Good*	*Moderate*	*Poor*
10 to the power of ((1.0497 x $\log_{10}(0.702)$+1.066) x ($\log_{10}(RP_{ref})$ - $\log_{10}(3{,}500)$) + $\log_{10}(3{,}500)$)	10 to the power of ((1.0497 x $\log_{10}(0.532)$+1.066) x ($\log_{10}(RP_{ref})$ - $\log_{10}(3{,}500)$) + $\log_{10}(3{,}500)$)	10 to the power of ((1.0497 x $\log_{10}(0.356)$+1.066) x ($\log_{10}(RP_{ref})$ - $\log_{10}(3{,}500)$) + $\log_{10}(3{,}500)$)	10 to the power of ((1.0497 x $\log_{10}(0.166)$+1.066) x ($\log_{10}(RP_{ref})$ - $\log_{10}(3{,}500)$) + $\log_{10}(3{,}500)$)

Notes—

*(1) "Reactive phosphorus concentration" means the concentration of phosphorus as determined using the phosphomolybdenum blue colorimetric method(**gg**). Where necessary to ensure the accuracy of the method, samples are recommended to be filtered using a filter not smaller than 0.45 µm pore size to remove gross particulate matter.*

(2) "RP_{ref}" represents the annual mean concentration of reactive phosphorus in µg/l estimated for the site under reference conditions using the equation:

$$10 \text{ to the power of } (0.454\ (\log_{10}Alkalinity) - 0.0018\ (Altitude) + 0.476)$$

(3) If the value calculated for RP_{ref} using the equation above is less than 7 µg/l, it must be substituted for the purposes of calculating the standards for phosphorus by a value of 7 µg/l.

(4) For the purposes of calculating RP_{ref}:

(i) "Alkalinity" is the concentration of $CaCO_3$ in mg/l. If a site has an alkalinity greater than 250 mg/l $CaCO_3$, a value for alkalinity of 250 must be used for the purposes of calculating RP_{ref}. If a site has an alkalinity of less than 2, a value for alkalinity of 2 must be used for the purposes of calculating RP_{ref}.

(ii) *"Altitude" means the site's altitude above mean sea level in metres. If a site has an altitude of greater than 355 metres, a value for altitude of 355 metres must be used for the purposes of calculating RP_{ref}.*

Table C1.6: Temperature standards for rivers									
Row	*Column 1*	*Column 2*		*Column 3*		*Column 4*		*Column 5*	
1		*High*		*Good*		*Moderate*		*Poor*	
2	River temperature Type	Salmonid	Cyprinid	Salmonid	Cyprinid	Salmonid	Cyprinid	Salmonid	Cyprinid
3	River temperature (°C) as an annual 98-percentile standard	20	25	23	28	28	30	30	32
4(i)(ii)	Increase or decrease in temperature (°C) in relation to the ambient river temperature, as an annual 98-percentile standard	2	2	3	3	-	-	-	-

Notes—

(**gg**) HMSO, *Methods for the Examination of Waters and Associated Materials, 1980. Phosphorus in Waters, Effluents and Sewages*; ISBN 0 11 751582 5.

(i) The standards specified for temperature in row 4; columns 2 and 3 must not be used for the purpose of classifying the ecological status or ecological potential of water bodies.

(ii) Where application of a standard for temperature in row 4 would allow the water temperature of the river to exceed 10 °C for more than 2% of the time during the breeding period of salmonid fish species, SEPA must apply a more stringent standard than the standard in row 4 where it considers this necessary to avoid significant adverse impacts on the reproduction of those species.

Table C1.7: Standards for pH for rivers		
	Annual mean pH	
Column 1	*Column 2*	*Column 3*
	Humic water	*Clear water*
High	5.10	6.60
Good	4.55	5.95
Moderate	4.22	5.44
Poor	4.03	4.89

Table C1.8: Acid neutralising capacity (ANC) standards for rivers		
	*Annual mean acid neutralising capacity as calculated using the Cantrell method (**hh**)*	
Column 1	*Column 2*	*Column 3*
	Humic Water	*Clear water*
High	80	80
Good	50	40
Moderate	10	15
Poor	5	-10

General chemical and physicochemical environmental standards for lochs

2.—(1) Once SEPA has classified, in accordance with paragraph 2(1) of Schedule 1, a loch or part thereof as being of a Type specified in column 1 of Table C2.1, it must apply the "high", "good", "moderate" or "poor" dissolved oxygen standards specified in that table to that loch or part.

(2) Subject to sub-paragraph (3), SEPA must apply the "high" or "good" acid condition standards specified in Table C2.2 to all freshwater lochs or parts thereof.

(3) Where there is evidence demonstrating that a loch or part thereof had an acid reference condition value in accordance with Section 1.3 of Annex II to the Directive of ≤ 20 micro-equivalents per litre of acid neutralising capacity, SEPA must identify an appropriate value for 'good' between 0 and 20 micro-equivalents per litre that is protective of the loch or part and reflective of reference conditions.

(4) SEPA must apply the "good" salinity standard specified in Table C2.3 to all freshwater lochs or parts thereof with no natural saline influence.

(5) Subject to sub-paragraph (6) and except where the loch is classified in accordance with paragraph 2(2) of Schedule 1 as being of the geological sub-type "marl", SEPA must apply the "high", "good", "moderate" or "poor" phosphorus standard calculated in accordance with the formulae specified in Table C2.4, where in relation to those formulae—

"R_{TP}" represents the annual mean total phosphorus concentration expected in the loch in the absence of more than very minor phosphorus inputs to the loch resulting from human

(**hh**) K. J. Cantrell, S. M. Serkiz, and E. M. Perdue, Evaluation of Acid Neutralizing Capacity Data for Solutions Containing Natural Organic Acids, Geochim. Cosmochim. Acta, 54, 1247-1254 (1990).

activities and, where a reliable estimate of 'Alk_{milli}' is available, must have the value given by the formula; $Antilog_{10}$ [1.36 - (0.09 × A) + (0.24 × B)]; or 35, whichever is the smaller value;

"A" = Log_{10} of the altitude in metres above mean sea level of the surface of the loch;

"B" = $Log_{10}(Alk_{milli} \div D_{mean})$;

"Alk_{milli}" = the mean alkalinity of the loch in milli-equivalents per litre estimated for the loch when its alkalinity has not been otherwise altered as a result of point or diffuse pollution;

"D_{mean}" = the mean depth of the loch in metres;

"H" = 0.755 + (0.012 × Alk_{milli}) - (0.001 × D_{mean}); or 0.7, whichever is the larger value; and

"G" = 0.506 + (0.023 × Alk_{milli}) - (0.002 × D_{mean}); or 0.46, whichever is the larger value.

(6) If, in relation to sub-paragraph (5), the value of "Alk_{milli}" cannot be reliably estimated for the purpose of calculating the value of "R_{TP}" using the formula given in sub-paragraph (5), SEPA must use an alternative method for estimating the value "R_{TP}", provided that, for other lochs for which the value "Alk_{milli}" can be reliably estimated, that alternative method produces an equivalently unbiased estimate of the value "R_{TP}" to that produced by the application of sub-paragraph (5).

(7) If, in SEPA's opinion, the value of "R_{TP}" cannot be satisfactorily estimated in accordance with sub-paragraph (5) or (6), or if the loch or part thereof has been classified as being of the geological sub-type "marl" in accordance with paragraph 2(2) of Schedule 1, SEPA must apply to the loch or part, the "high", "good", "moderate" or "poor" phosphorus standard specified in Table B2.5 which corresponds with the combination of loch geological Type or geological sub-type, and loch depth Type specified in column 1 of that table and into which the loch or part has been classified in accordance with paragraph 2(2), 2(3) or, as the case may be, 2(4) of Schedule 1.

Table C2.1: Dissolved oxygen standards for freshwater lochs				
	Dissolved oxygen concentrations (mg/l) as mean values in the period between 1st July and 31st August			
Column 1	*Column 2*	*Column 3*	*Column 4*	*Column 5*
Loch Type	*High*	*Good*	*Moderate*	*Poor*
Salmonid	9	7	4	1
Cyprinid	8	6	4	1

Table C2.2: Acid condition standards for all freshwater lochs	
Acid neutralising capacity (micro-equivalents per litre) as annual mean values	
Column 1	*Column 2*
High	*Good*
40	20

Table C2.3: Salinity standards for freshwater lochs with no natural saline influence
Conductivity (micro-siemens per cm)
Good
1,000

Note—

The salinity of a loch or part thereof complying with the "good" environmental standard for salinity may be considered to be consistent with good and high ecological status or with good and maximum ecological potential.

Table C2.4: Phosphorus standards for lochs			
Annual mean total phosphorus concentration (µg/l)			
Column 1	*Column 2*	*Column 3*	*Column 4*
High	*Good*	*Moderate*	*Poor*
$R_{TP} \div H$; or 5, whichever is the larger value	$R_{TP} \div G$; or 8, whichever is the larger value	$(R_{TP} \div G) \div 0.5$; or 16, whichever is the larger value	$(R_{TP} \div G) \div 0.25$; or 32, whichever is the larger value

Table C2.5: Type-specific phosphorus standards for freshwater and brackish lochs where the standards specified in Table C do not apply				
Type	*Annual mean concentration of total phosphorus (µg/l)*			
Column 1	*Column 2*	*Column 3*	*Column 4*	*Column 5*
Loch geological Type or sub-types; and depth Type	High	Good	Moderate	Poor
High alkalinity; shallow	16	23	46	92
High alkalinity; very shallow	23	31	62	124
Moderate alkalinity; deep	8	12	24	48
Moderate alkalinity; shallow	11	16	32	64
Moderate alkalinity; very shallow	15	22	44	88
Low alkalinity; deep	5	8	16	32
Low alkalinity; shallow	7	10	20	40
Low alkalinity; very shallow	9	14	28	56
Marl; shallow	9	20	40	80
Marl; very shallow	10	24	48	96

General chemical and physicochemical environmental standards for transitional waters and coastal waters

3.—(1) SEPA must apply the dissolved oxygen standards for "high", "good", "moderate" or "poor" specified in Table C3.1 to coastal waters or parts thereof with mean salinities ≥ 34.5.

(2) SEPA must apply the "high", "good", "moderate" or "poor" dissolved oxygen standards specified in Table C3.2 for transitional waters, coastal waters or parts thereof with mean salinities < 34.5 using the applicable formula specified in that table.

(3) For coastal waters, or parts thereof, with mean salinities of ≥ 34.5 for the period 1st November to 28th February (the 'sampling period'), SEPA must apply the 'high', 'good', 'moderate' or 'poor' dissolved inorganic nitrogen standards specified in Table C3.3.

(4) For coastal waters, or part thereof, with mean salinities for the period 1st November to 28th February (the 'sampling period') in the range 30 to < 34.5, SEPA must—

(i) derive, for each sampling period within the compliance assessment period, an equation for the linear regression line, $y = mx + c$;

(ii) use the series of regression equations so derived to calculate the arithmetic mean concentration of dissolved inorganic nitrogen at salinity 32 for the compliance assessment period; and

(iii) apply the "high", "good", "moderate" or "poor" dissolved inorganic nitrogen standard specified in Table C3.3 for coastal waters with mean salinities in the range of 30 to < 34.5,

where—

"the regression line" describes the linear relationship between the variables, dissolved inorganic nitrogen and salinity in the coastal water;

"y" is dissolved inorganic nitrogen concentration in micromoles per litre;

"x" is salinity;

"m" is the slope of the regression line;

"c" is the value of "y" when "x" = 0; and

"compliance assessment period" is a number of consecutive sampling periods from which measured values are obtained for the purposes of calculating an arithmetic mean.

(5) For a transitional water, or part thereof, classified, in accordance with paragraph 3(1) of Schedule 1 as being of the Type "clear", SEPA must—

(i) derive, for each sampling period (1st November to 28th February) within the compliance assessment period, an equation for the linear regression line, $y = mx + c$;

(ii) use the series of regression equations so derived to calculate the arithmetic mean concentration of dissolved inorganic nitrogen at salinity 25 for the compliance assessment period; and

(iii) apply the "high", "good", "moderate" or "poor" dissolved inorganic nitrogen standard specified in Table C3.4.

where—

"the regression line" describes the linear relationship between the variables, dissolved inorganic nitrogen and salinity in the transitional water or part thereof resulting from the increasing dilution of dissolved inorganic nitrogen inputs towards the seaward limit of the transitional water;

"y", "x" and "c" have the same meaning as they do in sub-paragraph (4); and

"compliance assessment period" is a number of consecutive sampling periods from which measured values are obtained for the purposes of calculating an arithmetic mean.

(6) For a transitional water, or part thereof, classified, in accordance with paragraph 3(1) of Schedule 1 as being of the Type "intermediate", "turbid" or "very turbid", SEPA must apply:

(i) the corresponding "good", "moderate" or "poor" dissolved inorganic nitrogen standard specified in Table C3.4 to the transitional water or part; or

(ii) the "high" dissolved inorganic nitrogen standard specified in Table C3.4 in relation to the arithmetic mean concentration of dissolved inorganic nitrogen at salinity 25 for the compliance assessment period calculated according to the procedure described in sub-paragraph (5).

Table C3.1: Dissolved oxygen standards for coastal waters with salinities ≥ 34.5

Column 1	*Column 2*
Boundaries	*Dissolved oxygen concentrations (mg/l) as 5-percentile values*
High	5.7
Good	4.0
Moderate	2.4
Poor	1.6

Table C3.2: Dissolved oxygen standards for transitional and coastal waters with salinities < 34.5

Column 1	*Column 2*
Boundaries	*Dissolved oxygen standards (mg/l) as 5-percentile values*
High	= 7 - [0.037 x (salinity)]
Good	= 5 - [0.029 x (salinity)]
Moderate	= 3 - [0.017 x (salinity)]
Poor	= 2 - [0.011 x (salinity)]

Table C3.3: Dissolved inorganic nitrogen standards for coastal waters

	Mean dissolved inorganic nitrogen concentration (micromoles per litre) during the period 1st November to 28th February			
Column 1	*Column 2*	*Column 3*	*Column 4*	*Column 5*
Mean salinity of for the period 1st November to 28th February	High	Good	Moderate	Poor
≥ 34.5	10	15	22.5	33.75
30 to < 34.5	12(i)	18(i)	27(i)	40.5(i)

Note—

(i) The standard refers to the concentration of dissolved inorganic nitrogen at a mean salinity for the period 1st November to 28th February of 32.

Table C3.4: Dissolved inorganic nitrogen standards for transitional waters,				
	Mean dissolved inorganic nitrogen concentration (micromoles per litre) during the period 1st November to 28th February			
Column 1	*Column 2*	*Column 3*	*Column 4*	*Column 5*
	Dissolved inorganic nitrogen concentration (micromoles per litre)			
Type	*High*	*Good*	*Moderate*	*Poor*
	Mean for the period 1st November to 28th February	*Mean for the period 1st November to 28th February*		
Clear	20[(i)]	30[(i)]	45[(i)]	67.5[(i)]
		99-percentile standard for the period 1st November to 28th February		
Very turbid	20[(i)]	270	405	607.5
Turbid	20[(i)]	180	270	405
Intermediate	20[(i)]	70	105	157.5

Note—

(i) The standard refers to the concentration of dissolved inorganic nitrogen at a mean salinity for the period 1st November to 28th February of 25.

Specific pollutant environmental standards for rivers, lochs, transitional waters and coastal waters

4.—(1) Once SEPA has classified, in accordance with paragraph 1(1) of Schedule 1, a river or part thereof as being of a Type specified in column 1 of Table C4.1, it must apply the "high", "good", "moderate" or "poor" standards for the specific pollutant, ammonia, specified in that table to that river or part.

(2) Once SEPA has classified, in accordance with paragraph 1(1) of Schedule 1, a river or part thereof as being of a Type specified in Table C4.2, it must apply the "high", "good", "moderate" or "poor" standards specified in that table to that river or part in relation to any short-term and intermittent changes in the concentration of the specific pollutant, ammonia.

(3) SEPA must apply the standards for "good" specified in Table C4.3 to any river or part thereof in relation to any short-term and intermittent changes in the concentration of the specific pollutant, ammonia

(4) SEPA must apply the environmental standards for "good" for the specific pollutants identified in Tables C4.4 to C4.32 in accordance with those Tables.

(5) Where the standards for "good" specified for a specific pollutant in Tables C4.4 to C4.32 is achieved, the concentration of the specific pollutant must be considered consistent with good and high ecological status.

Table C4.1: Ammonia standards for rivers				
Column 1	*Column 2*	*Column 3*	*Column 4*	*Column 5*
	Total ammonia (mg of NH_3-N per litre) as 90-percentile values			
River Type	*High*	*Good*	*Moderate*	*Poor*
1, 2, 4 and 6	0.2	0.3	0.75	1.1
3, 5 and 7	0.3	0.6	1.1	2.5

Table C4.2: Ammonia standards for rivers in relation to short-term and intermittent changes in ammonia concentrations			
Column 1	*Column 2*	*Column 3*	*Column 4*
	Total ammonia (mg/l) as a 99th percentile		*Un-ionised ammonia (mg/l) as a 99th percentile*
	Types 1, 2, 4 and 6	*Types 3, 5 and 7*	*All types*
High	0.5	0.7	0.04
Good	0.7	1.5	
Moderate	1.8	2.6	-
Poor	2.6	6.0	-

Note—
The standards for ammonia specified in Table C4.2 must not be used for the purpose of classifying ecological status or ecological potential

Table C4.3: Ammonia standards for rivers in relation to short-term and intermittent changes in ammonia concentrations						
	Good					
	Un-ionised ammonia (NH_3-N) concentration (mg/l)					
Return periods	*1 hour*		*6 hour*		*24 hour*	
	Salmonid	*Cyprinid*	*Salmonid*	*Cyprinid*	*Salmonid*	*Cyprinid*
1 month	0.065 x F	0.150 x F	0.025 x F	0.075 x F	0.018 x F	0.030 x F
3 months	0.095 x F	0.225 x F	0.035 x F	0.125 x F	0.025 x F	0.050 x F
12 months	0.105 x F	0.250 x F	0.040 x F	0.150 x F	0.030 x F	0.065 x F

Notes—
For the purposes of this Table, "F" has the value—

"1" when the concurrent concentration of dissolved oxygen is ≥ 5 mg/l, pH is ≥ 7 and temperature is ≥ 5 ^{o}C;

"0.0003 x (pH)$^{4.17}$" when the concurrent concentration of dissolved oxygen is ≥ 5 mg/l, pH is < 7 and temperature is ≥ 5 ^{o}C;

"0.5" when the concurrent concentration of dissolved oxygen is ≥ 5 mg/l, pH is ≥ 7 and temperature is < 5 ^{o}C;

"0.0003 x (pH)$^{4.17}$ x 0.5" when the concurrent concentration of dissolved oxygen is ≥ 5 mg/l, pH is < 7 and temperature is < 5 ^{o}C;

"0.0126 x (concentration of dissolved oxygen in mg/l)$^{2.72}$" when the concurrent concentration of dissolved oxygen is ≤ 5 mg/l, pH is ≥ 7 and temperature is ≥ 5 ^{o}C;

"0.0126 x (concentration of dissolved oxygen in mg/l)$^{2.72}$ x 0.0003 x (pH)$^{4.17}$" when the concurrent concentration of dissolved oxygen is < 5 mg/l, pH is < 7 and temperature is ≥ 5 ^{o}C;

"0.0126 x (concentration of dissolved oxygen in mg/l)$^{2.72}$ x 0.5" when the concurrent concentration of dissolved oxygen is < 5 mg/l, pH is ≥ 7 and temperature is < 5 ^{o}C; and

"0.0126 x (concentration of dissolved oxygen in mg/l)$^{2.72}$ x 0.0003 x (pH)$^{4.17}$ x 0.5" when the concurrent concentration of dissolved oxygen is < 5 mg/l, pH is < 7 and temperature is < 5 ^{o}C.

The standards for ammonia specified in Table C4.3 must not be used for the purpose of classifying ecological status or ecological potential

Table C4.4: Ammonia standards for freshwater lochs			
High		*Good*	
Standard for lochs with: an annual mean concentration of $CaCO_3$ (mg/l) ≤ 50; or an annual mean concentration of $CaCO_3$ (mg/l) > 50 to ≤ 200 and an altitude > 80 metres above mean sea level.	*Standard for lochs with: an annual mean concentration of $CaCO_3$ (mg/l) > 50 to ≤ 200 and an altitude ≤ 80 metres above mean sea level.*	*Standard for lochs with: an annual mean concentration of $CaCO_3$ (mg/l) ≤ 50; or an annual mean concentration of $CaCO_3$ (mg/l) > 50 to ≤ 200 and an altitude > 80 metres above mean sea level.*	*Standard for lochs with: an annual mean concentration of $CaCO_3$ (mg/l) > 50 to ≤ 200 and an altitude ≤ 80 metres above mean sea level.*
90-percentile (mg of NH_3-N per litre)			
0.2	0.3	0.3	0.6

Table C4.5: Ammonia standards for transitional waters and coastal waters
Good
Annual mean (μg/l)
21

Table C4.6: Environmental standards for 2,4-Dichlorophenoxyacetic acid (2,4-D)			
All rivers and freshwater lochs		*All transitional waters and coastal waters*	
Good		*Good*	
Column 1	*Column 2*	*Column 3*	*Column 4*
Annual mean (μg/l)	*95-percentile (μg/l)*	*Annual mean (μg/l)*	*95-percentile (μg/l)*
0.3	1.3	0.3	1.3

Note—
The standards for 2,4-D specified in column 2 and column 4 must not be used for the purpose of classifying ecological status or ecological potential.

Table C4.7: Environmental standards for 2,4-Dichlorophenol			
All rivers and freshwater lochs		*All transitional waters and coastal waters*	
Good		*Good*	
Annual mean (μg/l)	95-percentile (μg/l)	Annual mean (μg/l)	95-percentile (μg/l)
4.2	140	0.42	6

Table C4.8: Environmental standards for 3,4-Dichloroaniline			
All rivers and freshwater lochs		*All transitional waters and coastal waters*	
Good		*Good*	
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 C4.9: Environmental standards for arsenic	
All rivers and freshwater lochs	*All transitional waters and coastal waters*
Good	*Good*
Annual mean (μg/l)	Annual mean (μg/l)
50	25

Table C4.10 Environmental standards for benzyl butyl phthalate			
All rivers and freshwater lochs		*All transitional waters and coastal waters*	
Good		*Good*	
Column 1	*Column 2*	*Column 3*	*Column 4*
Annual mean (μg/l)	95-percentile (μg/l)	Annual mean (μg/l)	95-percentile (μg/l)
7.5	51	0.75	10

Table C4.11: Environmental standards for carbendazim	
All rivers and freshwater lochs	
Good	
Column 1	*Column 2*
Annual mean (μg/l)	95-percentile (μg/l)
0.15	0.7

Table C4.12: Environmental standards for chlorine		
All rivers and freshwater lochs		*All transitional waters and coastal waters*
Good		*Good*
Column 1	*Column 2*	*Column 3*
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
2	5	10

Note—
The standard for chlorine specified in column 2 must not be used for the purpose of classifying ecological status or ecological potential.

Table C4.13: Environmental standards for chlorothalonil	
All rivers and freshwater lochs	
Good	
Column 1	*Column 2*
Annual mean (μg/l)	95-percentile (μg/l)
0.035	1.2

Table C4.14: Environmental standards for chromium VI		
All rivers and freshwater lochs	*All transitional waters and coastal waters*	
Good	*Good*	
Column 1	*Column 2*	*Column 3*
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

Note—
The standard for chromium VI specified in column 3 must not be used for the purpose of classifying ecological status or ecological potential.

Table C4.15: Environmental standards for chromium III	
All rivers and freshwater lochs	
Good	
Column 1	*Column 2*
Annual mean concentration (µg/l) of dissolved chromium III	95-percentile concentration (µg/l) of dissolved chromium III
4.7	32

Note—
The standard for chromium III specified in column 2 must not be used for the purpose of classifying ecological status or ecological potential.

Table C4.16: Environmental standards for copper		
All rivers and freshwater lochs	*All transitional waters and coastal waters*	
Good	*Good*	
Column 1	*Column 2*	
Annual mean concentration of bioavailable[(i)] copper (µg/l)	Annual mean concentration (µg/l) of dissolved copper[(ii)]	
1	Concentration of dissolved organic carbon (DOC) ≤ 1 mg/l	Concentration of dissolved organic carbon (DOC) > 1 mg/l
	3.76	3.76 + (2.677 x ((DOC/2)-0.5))

Notes—

*(i) "Bioavailable copper" means the fraction of dissolved copper in the river or part thereof or in loch or part thereof that has the potential to contribute to toxic effects in aquatic animals or plants as determined in accordance with the method, copper bioavailability assessment**(ii)***

(ii) The standards for transitional and coastal waters apply to water samples filtered through a 0.45 µm filter or equivalent pre-treatment

(ii) UKTAG (2014) *River and Lake Assessment Method, Specific Pollutants (Metals), Metal Bioavailability Assessment Tool (M-BAT)*; ISBN: 978-1-906934-57-6.

Table C4.17: Environmental standards for cyanide			
All rivers and freshwater lochs		*All transitional waters and coastal waters*	
Good		*Good*	
Column 1	*Column 2*	*Column 3*	*Column 4*
Annual mean concentration (μg/l) of hydrogen cyanide	95-percentile concentration (μg/l) of hydrogen cyanide	Annual mean concentration (μg/l) of hydrogen cyanide	95-percentile concentration (μg/l) of hydrogen cyanide
1	5	1	5

Note—
The standards for cyanide specified in column 2 and column 4 must not be used for the purpose of classifying ecological status or ecological potential.

Table C4.18: Environmental standards for cypermethrin			
All rivers and freshwater lochs		*All transitional waters and coastal waters*	
Good		*Good*	
Column 1	*Column 2*	*Column 3*	*Column 4*
Annual mean (ng/l)	95-percentile (ng/l)	Annual mean (ng/l)	95-percentile (ng/l)
0.1	0.4	0.1	0.41

Note—
The standards for cypermethrin specified in column 2 and column 4 must not be used for the purpose of classifying ecological status or ecological potential.

Table C4.19: Environmental standards for diazinon			
All rivers and freshwater lochs		All transitional waters and coastal waters	
Good		Good	
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

Note—
The standards for diazinon specified in column 2 and column 4 must not be used for the purpose of classifying ecological status or ecological potential.

Table C4.20: Environmental standards for dimethoate			
All rivers and freshwater lochs		*All transitional waters and coastal waters*	
Good		*Good*	
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

Note—
The standards for dimethoate specified in column 2 and column 4 must not be used for the purpose of classifying ecological status or ecological potential.

Table C4.21: Environmental standards for glyphosate			
All rivers and freshwater lochs		*All transitional waters and coastal waters*	
Good		*Good*	
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 C4.22: Environmental standards for iron	
All rivers and freshwater lochs	*All transitional waters and coastal waters*
Good	*Good*

Annual mean concentration (mg/l) of dissolved iron	Annual mean concentration (mg/l) of dissolved iron
1	1

Table C4.23: Environmental standards for linuron			
All rivers and freshwater lochs		*All transitional waters and coastal waters*	
Good		*Good*	
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

Note—
The standards for linuron specified in column 2 and column 4 must not be used for the purpose of classifying ecological status or ecological potential.

Table C4.24: Environmental standards for manganese
All rivers and freshwater lochs
Good
Annual mean concentration of bioavailable manganese[i] (µg/l)
123

Note—
*i. "Bioavailable manganese" means the fraction of dissolved manganese in the river or part thereof or in loch or part thereof that has the potential to contribute to toxic effects in aquatic animals or plants as determined in accordance with the method, manganese bioavailability assessment**(jj)***

Table C4.25: Environmental standards for mecoprop			
All rivers and freshwater lochs		*All transitional waters and coastal waters*	
Good		*Good*	
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

Note—
The standards for mecoprop specified in column 2 and column 4 must not be used for the purpose of classifying ecological status or ecological potential.

Table C4.26: Environmental standards for methiocarb	
All rivers and freshwater lochs	
Good	
Column 1	*Column 2*
Annual mean (µg/l)	95-percentile (µg/l)
0.01	0.77

Table C4.27: Environmental standards for pendimethalin	
All rivers and freshwater lochs	
Good	
Column 1	*Column 2*
Annual mean (µg/l)	95-percentile (µg/l)
0.3	0.58

(**jj** UKTAG (2014) *River and Lake Assessment Method, Specific Pollutants (Metals), Metal Bioavailability Assessment Tool (M-BAT)*; ISBN: 978-1-906934-57-6.

Table C4.28: Environmental standards for permethrin			
All rivers and freshwater lochs		*All transitional waters and coastal waters*	
Good		*Good*	
Annual mean	95-percentile (μg/l)	Annual mean	95-percentile (μg/l)
0.001	0.01	0.0002	0.001

Table C4.29: Environmental standards for phenol			
All rivers and freshwater lochs		*All transitional waters and coastal waters*	
Good		*Good*	
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

Note—
The standards for phenol specified in column 2 and column 4 must not be used for the purpose of classifying ecological status or ecological potential.

Table C4.30: Environmental standards for tetrachloroethane	
All rivers and freshwater lochs	
Good	
Column 1	*Column 2*
Annual mean (μg/l)	95-percentile (μg/l)
140	1848

Table C4.31: Environmental standards for toluene	
All rivers and freshwater lochs	*All transitional waters and coastal waters*
Good	*Good*
Annual mean (μg/l)	Annual mean (μg/l)
74	74

Table C4.32: Environmental standards for zinc[(ii)]	
All rivers and freshwater lochs	*All transitional waters and coastal waters*
Good	*Good*
Annual mean concentration of bioavailable zinc[(i)](μg/l)	Annual mean concentration of dissolved zinc (μg/l)
10.9	7.9

Notes—
*(i)"Bioavailable zinc" means the fraction of dissolved zinc in the river or part thereof or in loch or part thereof that has the potential to contribute to toxic effects in aquatic animals or plants as determined in accordance with the method, zinc bioavailability assessment(**kk**); and*
(ii) Prior to applying the standard for bioavailable zinc in rivers and freshwater lochs, SEPA must subtract 1 mg/l from the measured or otherwise estimated concentration of dissolved zinc in the river or part thereof or the loch or part thereof.

(**kk**) UKTAG (2014) *River and Lake Assessment Method, Specific Pollutants (Metals), Metal Bioavailability Assessment Tool (M-BAT)*; ISBN: 978-1-906934-57-6.

Environmental standards for priority substances and certain other pollutants in rivers, lochs, transitional waters and coastal waters

5.—(1) Subject to sub-paragraphs (2) to (4), SEPA must apply the environmental standards for "good" for the priority substances(**ll**) and certain other pollutants in Table C5.1 in accordance with that table.

(2) Before determining to apply the environmental quality standards in Table C5.1, SEPA may take into account—

(a) natural background concentrations of the metals cadmium, lead, mercury or nickel, or natural background concentrations of their compounds, which are such as to prevent the achievement of one or more of the environmental standards; and

(b) hardness, pH or other water quality characteristics that increase or decrease the bioavailability of the metals.

(3) SEPA may substitute for the environmental standards for mercury and its compounds in Table C5.1, an environmental standard of 20 μg/kg of prey tissue (wet weight). The prey tissue must be taken from whichever of fish, molluscs, crustaceans or other biota SEPA judges to provide the most suitable indicator of any risk posed to the structure and functioning of the aquatic ecosystem concerned.

(4) SEPA may substitute for the environmental standards for hexachlorobenzene in Table C5.1, an environmental standard of 10 μg/kg of prey tissue (wet weight). The prey tissue must be taken from whichever of fish, molluscs, crustaceans or other biota SEPA considers provides the most suitable indicator of any risk posed to the structure and functioning of the aquatic ecosystem concerned.

(5) SEPA may substitute for the environmental standards for hexachlorobutadiene in Table C5.1, an environmental standard of 55 μg/kg of prey tissue (wet weight). The prey tissue must be taken from whichever of fish, molluscs, crustaceans or other biota SEPA considers provides the most suitable indicator of any risk posed to the structure and functioning of the aquatic ecosystem concerned.

Table C5.1: Environmental standards[(i)] for priority substances ("PS"), priority hazardous substance ("PHS") and certain other pollutants ("OP") for which standards have been established at European Union level.

Name of substance		*Chemical Abstracts Service number*	*All rivers and lochs*		*All transitional waters and coastal waters*	
			Good		*Good*	
			Annual mean (μg/l)	*Maximum allowable concentration, (μg/l)*	*Annual mean (μg/l)*	*Maximum allowable concentration (μg/l)*
Alachlor	PS	15972-60-8	0.3	0.7	0.3	0.7
Anthracene	PHS	120-12-7	0.1	0.4	0.1	0.4
Atrazine	PS	1912-24-9	0.6	2.0	0.6	2.0
Benzene	PS	71-43-2	10	50	8	50
Brominated diphenylether[(ii)]	PHS	32534-81-9	0.0005	not applicable	0.0002	not applicable

(ll) Annex X to the Directive as amended by Decision No 2455/2001/EC of the European Parliament and of the Council of 20 November 2001 establishing the list of priority substances in the field of water policy and amending Directive 2000/60/EC.

Cadmium and its compounds *(depending on water hardness classes)*[iii]	PHS	7440-43-9	≤ 0.08 (Class 1) 0.08 (Class 2) 0.09 (Class 3) 0.15 (Class 4) 0.25 (Class 5)	≤ 0.45 (Class 1) 0.45 (Class 2) 0.6 (Class 3) 0.9 (Class 4) 1.5 (Class 5)	0.2	not applicable
Carbon-tetrachloride	OP	56-23-5	12	not applicable	12	not applicable
C10-13 Chloroalkanes	PHS	85535-84-8	0.4	1.4	0.4	1.4
Chlorfenvinphos	PS	470-90-6	0.1	0.3	0.1	0.3
Chlorpyrifos (Chlorpyrifos-ethyl)	PS	2921-88-2	0.03	0.1	0.03	0.1
Cyclodiene pesticides: Aldrin Dieldrin Endrin Isodrin	OPs	 309-00-2 60-57-1 72-20-8 465-73-6	Σ=0.01	not applicable	Σ=0.005	not applicable
DDT total[iv]	OP	not applicable	0.025	not applicable	0.025	not applicable
para-para-DDT	OP	50-29-3	0.01	not applicable	0.01	not applicable
1,2-Dichloroethane	PS	107-06-2	10	not applicable	10	not applicable
Dichloromethane	PS	75-09-2	20	not applicable	20	not applicable
Di(2-ethylhexyl)-phthalate (DEHP)	PS	117-81-7	1.3	not applicable	1.3	not applicable
Diuron	PS	330-54-1	0.2	1.8	0.2	1.8
Endosulfan	PHS	115-29-7	0.005	0.01	0.0005	0.004
Fluoranthene	PS	206-44-0	0.1	1	0.1	1
Hexachloro-benzene	PHS	118-74-1	0.01	0.05	0.01	0.05
Hexachloro-butadiene	PHS	87-68-3	0.1	0.6	0.1	0.6
Hexachloro-cyclohexane	PHS	608-73-1	0.02	0.04	0.002	0.02
Isoproturon	PS	34123-59-6	0.3	1.0	0.3	1.0
Lead and its compounds	PS	7439-92-1	7.2	not applicable	7.2	not applicable
Mercury and its compounds	PHS	7439-97-6	0.05	0.07	0.05	0.07
Naphthalene	PS	91-20-3	2.4	not applicable	1.2	not applicable
Nickel and its compounds	PS	7440-02-0	20	not applicable	20	not applicable
Nonylphenol (4-Nonylphenol)	PHS	104-40-5	0.3	2.0	0.3	2.0

Octylphenol (4-(1,1',3,3'-tetramethylbutyl)-phenol)	PS	140-66-9	0.1	not applicable	0.01	not applicable
Pentachloro-benzene	PHS	608-93-5	0.007	not applicable	0.0007	not applicable
Pentachloro-phenol	PS	87-86-5	0.4	1	0.4	1
Benzo(a)pyrene	PHS	50-32-8	0.05	0.1	0.05	0.1
Benzo(b)fluor-anthene	PHS	205-99-2	Σ=0.03	not applicable	Σ=0.03	not applicable
Benzo(k)fluor-anthene	PHS	207-08-9				
Benzo(g,h,i)-perylene	PHS	191-24-2	Σ=0.002	not applicable	Σ=0.002	not applicable
Indeno(1,2,3-cd)-pyrene	PHS	193-39-5				
Simazine	PS	122-34-9	1	4	1	4
Tetrachloro-ethylene	OP	127-18-4	10	not applicable	10	not applicable
Trichloro-ethylene	OP	79-01-6	10	not applicable	10	not applicable
Tributyltin compounds (Tributhyltin-cation)	PHS	36643-28-4	0.0002	0.0015	0.0002	0.0015
Trichloro-benzenes	PS	12002-48-1	0.4	not applicable	0.4	not applicable
Trichloro-methane	PS	67-66-3	2.5	not applicable	2.5	not applicable
Trifluralin	PS	1582-09-8	0.03	not applicable	0.03	not applicable

Notes—

(i) With the exception of those for cadmium, lead, mercury and nickel, the environmental standards in Table C5.1 apply to the total concentrations of all isomers of the pollutant concerned. In the case of cadmium, lead, mercury and nickel, the environmental standards apply to the dissolved concentration, i.e. the dissolved phase obtained by filtration of water samples through a 0.45 μm filter or any equivalent pre-treatment.

(ii) For the group of priority substances covered by brominated diphenylethers listed in Decision 2455/2001/EC, the annual mean standard applies only to the concentration of congener numbers 28, 47, 99, 100, 153 and 154.

(iii) For Cadmium and its compounds, the annual mean values vary dependent on the hardness of the water as specified in five class categories (Class 1: < 40 mg $CaCO_3$/l, Class 2: 40 to < 50 mg $CaCO_3$/l, Class 3: 50 to < 100 mg $CaCO_3$/l, Class 4: 100 to < 200 mg $CaCO_3$/l and Class 5: ≥ 200 mg $CaCO_3$/l).

(iv) 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).

SCHEDULE 3

Schedule 3 to Solway Tweed River Basin District (Standards) (Scotland) Directions 2014: Condition limits

CONDITION LIMITS FOR RIVERS

Morphological condition limits for rivers

1.—(1) For the purposes of sub-paragraph (4), SEPA must determine the scale of each of the alterations applicable to the river and listed in Table 1.1, in metres, using the corresponding measure specified in that table.

(2) Subject to sub-paragraph (3), SEPA must, in accordance with Table 1.2 and Table 1.3, respectively, assign the relative hazard scores in respect of the hazards posed to the river channel and the river banks by each applicable alteration specified in Table 1.2 and Table 1.3, respectively, which correspond to the Type specified in Tables 1.2 and 1.3 into which the river or part thereof has been classified, in accordance with paragraphs 1(7) and 1(8) of Schedule 1, as the case may be.

(3) Where a range is given for a relative hazard score in Table 1.2 or Table 1.3, SEPA must assign a score which falls within the applicable range and, which in SEPA's view, reflects the likely severity of the adverse ecological effects on the river or part thereof of the alterations to the structure and condition of the riparian zone vegetation.

(4) SEPA must calculate the morphological condition values for the channel and banks of the river or part thereof in accordance with the formulae—

$$\text{Channel condition value} = \frac{\sum_{j=1}^{n} (cHZ_j \times A_j)}{L_{chan}}$$

$$\text{Bank condition value} = \frac{\sum_{j=1}^{n} (bHZ_j \times A_j)}{L_{chan}}$$

where, in relation to those formulae—

"cHZ" is the river channel hazard score assigned in accordance with sub-paragraph (2) or (3), as applicable;

"A" is the scale of alteration determined in accordance with sub-paragraph (1);

"L_{Chan}" is the length in metres of channel in the river or part thereof, the morphological condition of which is being assessed. For the purpose of assessing whether the adverse impact of contiguous morphological alterations are significant, the length of channel assessed must not be less than 900 metres;

"j" represents an alteration listed in column 1 of Table 1.1 and applicable to the river or part;

"j" has a value of 1 to "n" used to indicate which of the all the applicable alterations it represents; and

"bHZ" is the river bank hazard score assigned in accordance with sub-paragraph (2) or (3), as applicable.

(5) In applying the morphological condition limits, SEPA must compare the morphological condition values for the channel and for the banks of a river or part thereof, calculated in accordance with sub-paragraph (4), with, as applicable, the morphological condition limits for "high", "good", "moderate" or "poor" specified in Table 1.4.

Table 1.1: Morphological alterations in relation to which the morphological condition limits for rivers apply

Column 1			*Column 2*
Morphological alteration			*Measure used to define the scale of alteration (metres)*
1.	Artificial walls, artificial earth banks or other artificial structures which are: (i) on land which is >10 metres or one channel width (whichever is the greater) but < 50 metres distant from the channel; and (ii) higher than the highest land between the structure and the channel.		Sum of the lengths of each bank which have such structures on the land adjacent to them.
2.	Artificial walls, artificial earth banks or other artificial structures, excluding revetments, which are: (i) on land which is ≤10 metres or one channel width (whichever is the greater) distant from the channel; and (ii) higher than the highest land between the structure and the channel		Sum of the lengths of each bank which have such structures on the land adjacent to them.
3.	Alteration of the structural complexity of vegetation within 2 metres of the channel, ranging from complete removal of vegetation to a partial change to the density of one structural component of the vegetation, such as woody vegetation.		Sum of the lengths of each bank which are subject to such alteration.
4.	Bank revetment using vegetation; geotextiles; wood placed at the toe of the bank; or non-grouted stone rip-rap placed at the toe of the bank.		Sum of the lengths of each bank which are subject to such alteration.
5.	Bank revetment using materials or methods other than vegetation; geotextiles; wood placed at the toe of the bank; or non-grouted stone rip-rap placed at the toe of the bank where—		
5a.	(i)	no structure is placed between revetments on opposite banks so as to span the channel width and create a culvert through which the river flow passes;	Sum of the lengths of each bank which are subject to such alteration.
5b.	(i) (ii)	the revetment is applied to the bank faces of each bank; and a structure is placed between the revetments and joined or abutted to them so as to span the channel width and create a culvert through which the river flow passes;	Length of channel subject to such alteration.

Table 1.1: Morphological alterations in relation to which the morphological condition limits for rivers apply			
Column 1			*Column 2*
Morphological alteration			*Measure used to define the scale of alteration (metres)*
5c.	(i) (ii) (iii)	the revetment is applied to the bank faces of each bank; the channel bed is altered to increase its resistance to erosion, such as by lining it, or replacing it, with concrete; bricks; wood; sediments larger than those typically capable of being transported by the river; or any other materials resistant to erosion; and a structure is placed between the bank revetments and joined or abutted to them so as to span the channel width and create a culvert through which the river flow passes	Length of channel subject to such alteration.
6.	Removal of sediment from the channel bed where the sediment is removed from ≤ 50 % of the channel width.		Length of channel over which sediment is removed.
7.	Removal of sediment from the channel bed where the sediment is removed from > 50 % of the channel width.		Length of channel over which sediment is removed.
8.	Alterations to the channel bed which increase its resistance to erosion, such as the lining of the bed, or the replacement of the bed, with concrete; bricks; wood; sediments larger than those typically capable of being transported by the river; or any other materials resistant to erosion.		Length of channel subject to such alteration, excluding lengths included in alterations 5c, 9 and 10.
9.	Placement of any structure on the bed of the channel such that the structure abuts one of the banks and deflects part of the river flow to another part of the channel.		Length of the longest axis of the structure.
10.	Placement of a structure on the bed of the channel such that the structure deflects part of the river flow to another part of the channel and, on its own or in combination with other in-stream structures, occupies more than 10 % of the channel width		10 metres or one channel width, whichever is greater
11	Any dam, weir or other works by which water is impounded.		Length of channel in which water is pooled upstream of the works.
12.	Alterations of the channel length or the channel width which pose a high risk of destabilising the balance between erosion and deposition of sediment and hence the structure and condition of the bed or banks.		Length of channel subject to such alteration, where 'length' means the length prior to the alteration.
13.	Alterations of the channel length or the channel width which pose a low risk of destabilising the balance between erosion and deposition of sediment and hence the structure and condition of the bed or banks.		Length of channel subject to such alteration, where 'length' means the length prior to the alteration.

Table 1.2: Relative hazard posed to the river channel by different morphological alterations					
	River Types to which the morphological conditions apply				
Column 1	*Column 2*	*Column 3*	*Column 4*	*Column 5*	*Column 6*
Morphological alteration[(i)]	A	B	C	D	F
1	0.01	0.02	0.065	0.04	0.02
2	0.21	0.335	0.835	0.585	0.29
3	0 to 0.5	0 to 0.5	0 to 0.5	0.01 to 0.5	0 to 0.5
4	0.03	0.08	0.11	0.155	0.045
5a	0.08	0.155	0.375	0.28	0.125
5b	0.42	0.67	1.67	1.17	0.58
5c	0.54	0.81	1.85	1.44	0.69
6	0 to 0.25	0 to 0.42	0 to 0.63	0 to 0.71	0 to 0.38
7	0 to 0.42	0 to 0.67	0 to 0.92	0 to 1.08	0 to 0.58
8	0.33	0.58	1.58	1.08	0.5
9	0.13	0.25	0.72	0.47	0.22
10	0.16	0.28	0.88	0.56	0.25
11	0.42	0.67	1.67	1.17	0.58
12	0.13 to 0.33	0.22 to 0.58	0.31 to 1.67	0.38 to 1.17	0.19 to 0.5
13	0.13	0.22	0.31	0.38	0.19

Note—

(i) The morphological alterations listed by number in column 1 of this Table refer to the morphological alterations identified in accordance with Table 1.1.

Table 1.3: Relative hazard posed to the river banks by different morphological alterations					
	River Types to which the morphological conditions apply				
Column 1	*Column 2*	*Column 3*	*Column 4*	*Column 5*	*Column 6*
Morphological alteration[(i)]	A	B	C	D	F
1	0	0	0	0	0
2	0	0.19	0.375	0.315	0.19
3	0	0 to 0.5	0.01 to 0.5	0.01 to 0.5	0 to 0.5
4	0	0.095	0.155	0.155	0.095
5a	0	0.19	0.375	0.315	0.19
5b	0	0.50	1.00	0.83	0.50
5c	0	0.50	1.00	0.83	0.50
6	0	0	0	0	0
7	0	0 to 0.31	0 to 0.50	0 to 0.56	0 to 0.31
8	0	0.13	0.25	0.19	0.13
9	0	0.38	0.75	0.63	0.38
10	0	0.08	0.17	0.17	0.08
11	0	0.33	0.67	0.58	0.33
12	0	0.13 to 0.50	0.19 to 1.00	0.19 to 0.83	0.13 to 0.50
13	0	0 to 0.13	0 to 0.19	0 to 0.19	0 to 0.13

Note—

(i) The morphological alterations listed by number in column 1 of this Table refer to the morphological alterations identified in accordance with Table 1.1.

Table 1.4: Morphological condition limits for rivers				
Column 1	*Column 2*	*Column 3*	*Column 4*	*Column 5*
	High	*Good*	*Moderate*	*Poor*
River channel morphological condition limit	0.05	0.25	0.5	0.75
River bank morphological condition limit	0.05	0.25	0.5	0.75

Hydrological regime condition limits for rivers - river flows

2.—(1) SEPA must apply each of the hydrological regime condition limits for "good" river flows specified in columns 1, 2, 3, 4 and 5 of Table 2.1 in relation to any river or part thereof, irrespective of type.

Table 2.1: Hydrological regime condition limits for river flows				
Good				
Column 1	*Column 2*	*Column 3*	*Column 4*	*Column 5*
Percentage deviation from mean Q_n for any calendar month	Percentage deviation from Q_{n5}	Percentage deviation from Q_{n95}	Percentage deviation from $Q_n$mean/Q_{n95}	Percentage deviation from mean annual number of days on which— $Q_n d - 2 > Q_n d - 1 < Q_n d$
± 40	± 40	+ 40	± 40	± 40

Note—
Subject to the application of paragraphs 1(1) to 1(6) in Part B of Schedule 2, the river flow conditions in a river or part thereof complying with the "good" hydrological regime condition limits for river flows in Table 2.1 may be considered to be consistent with good and high ecological status or good and maximum ecological potential, as applicable.

River continuity condition limits

3.—(1) Subject to sub-paragraph (2), SEPA must apply the "high", "good" or "moderate" river continuity condition limit specified in Table 3.1 in relation to any river or part thereof where, for the purposes of that table—

(a) "a severe impairment of fish movement" means that more than 80% of any one species of fish that would otherwise be able to move upstream to, or downstream from, the river or part concerned are, in SEPA's view, unable to do so because of man-made barriers to the movement of that species; and

(b) when assessing river continuity in relation to the fish species, Atlantic salmon, sea trout and brown trout, SEPA must take account of, among other factors, the criteria indicative of a total barrier to the upstream movement of the species concerned specified in Table 3.2.

(2) Where, in SEPA's view, an impairment of fish movement—

(a) to, or from, waters draining smaller catchment areas than those referred to in Table 3.1; or

(b) which is less than a severe impairment,

is having, or would have, more than a very minor, slight or moderate adverse impact on the ecological quality of the river or part thereof, SEPA must apply more stringent river continuity condition limits than those in columns 1, 2 and/or 3 of that table, respectively.

Table 3.1: River continuity condition limits in relation to impacts on the movement of fish species in river systems

Column 1	*Column 2*	*Column 3*	*Column 4*
High	*Good*	*Moderate*	*Poor*
Severe impairment of fish movement to, or from, rivers draining 1 % of the upstream river length or part thereof.	Severe impairment of fish movement to, or from, rivers draining 5 % of the upstream river length or part thereof.	Severe impairment of fish movement to, or from, rivers draining 20 % of the upstream river length or part thereof.	Severe impairment of fish movement to, or from, rivers draining greater than 20 % of the upstream river length or part thereof.

Table 3.2: Criteria indicative of a total barrier to the upstream movement of certain fish species

Barrier type	**Criteria**	**Atlantic salmon**	**Sea trout and brown trout**
Barrier presenting a vertical drop	Vertical hydraulic head (metres)	≥ 1.4	≥ 1.0
Barrier presenting a slope, including culverts	Slope of structure (%) where the structure has effective length ≤ 3 metres	≥ 60	≥ 60
	Slope of structure (%) where the structure has an effective length > 3 metres to < 10 metres	≥ 40	≥ 40
	Slope of structure (%) where the structure has an effective length ≥ 10 metres	≥ 15	≥ 15
	Effective length of structure (metres)	≥ 100	≥ 100

Note—
For the purposes of this Table, "effective length" means the distance that would have to be navigated by a fish to pass the barrier.

CONDITION LIMITS FOR LOCHS

Morphological condition limits for lochs

4.—(1) SEPA must determine the scale of each of the alterations listed in Table 4.1 that are applicable to the loch or part thereof using the corresponding measure of the scale of each alteration specified in that table.

(2) Where a range is given for a measure of the scale of an alteration in Table 4.1, SEPA must assign a value for the scale of the alteration which falls within the applicable range and which, in the opinion of SEPA, reflects the spatial extent of influence of the alteration on the shore zone, or part thereof, or on the rest of loch or part thereof.

(3) For each alteration specified in Table 4.2 and Table 4.3 which is applicable to the loch or part, SEPA must assign the relative hazard score relating to the loch shore zone, and the relative hazard score relating to the loch excluding its shore zone, and corresponding to the loch Type

listed in those Tables into which the loch or part, has been classified in accordance with paragraph 2(2) to (4) of Schedule 1.

(4) For the purposes of sub-paragraph (3), where a range is given for a relative hazard score for an alteration in Table 4.2 or Table 4.3, SEPA must assign a relative hazard score falling within that range and, which in SEPA's view, reflects the likely severity of the adverse ecological effects of the morphological alteration on the loch or part thereof.

(5) SEPA must calculate the morphological condition values for the shore zone or part and for the loch or part excluding its shore zone in accordance with the formulae—

$$\text{Loch shore zone condition value} = \sum_{j=1}^{n} (sHZ_j \times A_j)$$

$$\text{Condition value of loch excluding shore zone} = \sum_{j=1}^{n} (lHZ_j \times A_j)$$

where, in relation to those formulae—

"sHZ" is the hazard score for the loch shore zone, which applicable to the alteration in accordance with sub-paragraph (3) or (4), as the case may be;

"A" is the scale of the alteration determined in accordance with sub-paragraph (1) or, as the case may be, (2);

"lHZ" is the hazard score for the loch, excluding its shore zone, which is applicable to the alteration in accordance with sub-paragraph (3) or, as the case may be, (4); and

"j" represents an alteration listed in column 1 of Table 4.1 and applicable to the loch or part. "j" has a value of 1 to "n" used to indicate which of the all the applicable alterations it represents;

(6) Where SEPA considers that any of the morphological alterations listed in Table 4.4 pose a significant risk (on their own or in combination with other alterations) to the ecological quality of a loch or part thereof, SEPA may:

(i) identify the appropriate hazard scores for the alteration which, in its view, reflects the relative hazard posed by the alteration, taking account of the loch Type concerned and relevant scientific advice;

(ii) identify an appropriate measure of the scale of the alteration; and

(iii) include consideration of the alteration in calculating the morphological condition values for the loch or part in accordance with sub-paragraph (5) as if the alteration were an alteration listed in column 1 of Table 4.1.

(7) In applying the morphological condition limits specified in Table 4.5, SEPA must compare the morphological condition values for the shore zone or part and for the loch or part excluding its shore zone calculated in accordance with sub-paragraph (5) with, as applicable, the morphological condition limits for "high", "good", "moderate" or "poor" specified in Table 4.5.

Table 4.1: Morphological alterations to which the morphological condition limits for lochs apply	
Column 1	*Column 2*
Morphological alteration	*Measure of the scale of alteration*
1. Impounding works or works causing the lowering of the river bed immediately downstream of the loch outlet.	0.02 to 0.20
2. Bank revetment using materials other than vegetation, geotextiles or soil.	(length of bank revetment in metres) ÷ (total length in metres of the loch shore or part thereof, the morphological condition of which is being assessed).
3. Bank revetment using vegetation, geotextiles or soil.	(length of bank revetment in metres) ÷ (total length in metres of the loch shore or part thereof, the morphological condition of which is being assessed).
4. Any structure on the bed of a loch that extends from the shore into the loch other than an outfall, pipe, cable or part of a structure referred to in alteration 1, 5 or 6.	(length of structure in metres) ÷ (total length in metres of the loch shore or part thereof, the morphological condition of which is being assessed).
5. Any structure which— is suspended above the surface of a loch between foundation structures on the bed of the loch; and extends from the shore out into the loch.	(length of structure in metres) ÷ (total length in length of the loch shore or part thereof (metres), the morphological condition of which is being assessed).
6. In-filling by any means of a part of a loch with the effect of extending the adjacent terrestrial land surface into the area previously occupied by loch water.	(area infilled in metres^2) ÷ (total area in metres^2 of loch bed or part thereof, the morphological condition of which is being assessed).
7. Depositing of any material containing bedrock, boulders, gravel, sand, silt, mud or any mixture thereof on the bed of a loch other than as part of alterations 1, 2, 3, 4, 5 or 6.	(area of loch bed in metres^2 occupied by such material) ÷ (total area in metres^2 of loch bed or part thereof, the morphological condition of which is being assessed).
8. Removal of bed material by excavation from the bed of a loch.	(area of loch bed in metres^2 from which bed material is removed) ÷ (total area in metres^2 of loch bed or part thereof, the morphological condition of which is being assessed).
9. Alteration of the structural complexity of vegetation on land within 10 metres of the loch edge, ranging from complete removal of vegetation and replacement with impermeable surfaces to a partial change to the density of a structural component of the vegetation.	0 to 0.15

Table 4.2: Relative hazard posed by different morphological alterations to the loch shore zone						
Morphological alteration[(i)]	*Loch Types (geological Types and depth Types) to which the morphological conditions limits apply*					
Column 1	*Column 2*	*Column 3*	*Column 4*	*Column 5*	*Column 6*	*Column 7*
	Low Alkalinity and Very Shallow	Low Alkalinity, and Shallow or Deep	Moderate Alkalinity and Very Shallow	Moderate Alkalinity and Shallow or Deep	High Alkalinity and Very Shallow	High Alkalinity and Shallow or Deep
1	1.35 to 2.1	1.35 to 2.1	1.35 to 2.1	1.35 to 2.1	0.98 to 1.2	0.98 to 1.2
2	0.6	0.6	0.6	0.6	0.41	0.41
3	0.4	0.4	0.4	0.4	0.28	0.28
4	0.75	0.75	0.75	0.75	0.45	0.45
5	0.45	0.45	0.45	0.45	0.3	0.3
6	1.1	1.1	1.1	1.1	0.6	0.6
7	1.1	1.1	1.1	1.1	0.6	0.6
8	1.2	1.2	1.1	1.1	0.65	0.65
9	0.35	0.35	0.35	0.35	0.18	0.18

Note—

(i) The morphological alterations listed by number in column 1 refer to the morphological alterations so numbered in Table 4.1.

Table 4.3: Relative hazard posed by different morphological alterations to parts of the loch other than the loch shore zone						
Morphological alteration[(i)]	*Loch Types to which the morphological conditions limits apply*					
Column 1	*Column 2*	*Column 3*	*Column 4*	*Column 5*	*Column 6*	*Column 7*
	Low Alkalinity and Very Shallow	Low Alkalinity, and Shallow or Deep	Moderate Alkalinity and Very Shallow	Moderate Alkalinity and Shallow or Deep	High Alkalinity and Very Shallow	High Alkalinity and Shallow or Deep
1	1.0 to 1.4	0.35 to 0.5	0.85 to 1.2	0.45 to 0.6	0.65 to 0.8	0.3 to 0.4
2	0.1	0	0.1	0	0.03	0
3	0.1	0	0.1	0	0.03	0
4	0.25	0.13	0.2	0.15	0.1	0.1
5	0.23	0.04	0.19	0.04	0.08	0.04
6	0.9	0.34	0.38	0.38	0.45	0.26
7	0.83	0.3	0.38	0.34	0.41	0.23
8	0.79	0.3	0.75	0.3	0.34	0.19
9	0.15	0.03	0.35	0.03	0.05	0.03

Note—

(i) The morphological alterations listed by number in column 1 refer to the morphological alterations so numbered in Table 4.1

Table 4.4: Additional morphological alterations to those in Table 4.1 to which SEPA may have regard in calculating morphological condition values
10. Alterations to the shore zone resulting from recreational activities.
11. Alterations to the shore zone or other parts of a loch resulting from boat moorings in, or on, the loch bed.
12. Alterations to the shore zone or other parts of a loch resulting from the removal of aquatic vegetation from the loch.
13. Alterations to the shore zone or other parts of a loch resulting from floating tethered structures on the loch.
14. Alterations to the shore zone or other parts of a loch resulting from the effect on water flows and sediment transport into the loch of upstream impounding works.
15. Alterations to the shore zone or other parts of a loch resulting from the effect on water flows and sediment transport into the loch of land uses within the catchment of the loch.
16. Alterations falling under alteration 4 or 5 in Table 4.1 that impound water or partly or completely curtail water exchange between opposite sides of the structure.

Note—

(i) Where the morphological alterations listed in Table 4.4 apply in accordance with paragraph 4(6), they must be treated as if they were included in Table 4.1.

Table 4.5: Morphological condition limits for lochs				
Column 1	Column 2	Column 3	Column 4	Column 5
Loch zone	High	Good	Moderate	Poor
Condition limit for loch, excluding the shore zone	0.05	0.15	0.30	0.45
Condition limit for loch shore zone	0.05	0.15	0.30	0.45

CONDITION LIMITS FOR TRANSITIONAL WATERS AND COASTAL WATERS

Morphological condition limits for transitional waters and coastal waters

5.—(1) SEPA must determine the scale of each of the alterations listed in Table 5.1 and applicable to the transitional water, coastal water or part thereof using the corresponding measure specified in that table.

(2) For transitional waters, SEPA must assign a relative hazard score for each alteration in Table 5.2 applicable to the transitional water or part thereof and corresponding to the transitional water Type listed in that table into which the transitional water or part has been classified in accordance with paragraph 3(2) of Schedule 1. To do so, SEPA must assign a score which falls within the applicable range given in Table 5.2 and, which in SEPA's view, reflects the likely severity of the adverse effects of the morphological alteration on the transitional water or part thereof, as applicable. In determining the appropriate score, SEPA must take account of the degree to which the morphological characteristics of the transitional water have recovered from, and adapted to, the alteration.

(3) For coastal waters, SEPA must assign a relative hazard score for each alteration in Table 5.3 applicable to the coastal water or part thereof and corresponding to the coastal water Type listed in that table into which the coastal water or part has been classified in accordance with paragraph 3(2) of Schedule 1. To do so, SEPA must assign a score which falls within the applicable range given in Table 5.3 and, which in SEPA's view, reflects the likely severity of the adverse effects of the morphological alteration on the coastal water or part thereof, as applicable. In determining the

appropriate score, SEPA must take account of the degree to which the morphological characteristics of the coastal water have recovered from, and adapted to, the alteration.

(4) SEPA must calculate the morphological condition values for the intertidal zone, the sea bed zone and the tidal flow zone of the transitional water or part thereof, or of the coastal water or part thereof, as applicable, in accordance with the formulae—

$$\text{Intertidal zone condition value} = \sum_{j=1}^{n} \frac{(iHZ_{jkm}{}^2 \times A_{jkm}{}^2)}{area_{int}} + \sum_{j=1}^{n} \frac{(iHZ_{jkm} \times A_{jkm})}{length_{shoreline}}$$

$$\text{Sea bed zone condition value} = \sum_{j=1}^{n} \frac{(sHZ_{jkm}{}^2 \times A_{jkm}{}^2)}{area_{sub}} + \sum_{j=1}^{n} \frac{(sHZ_{jkm} \times A_{jkm})}{length_{shoreline}}$$

$$\text{Tidal flow zone condition value} = \sum_{j=1}^{n} \frac{(hHZ_{jkm}{}^2 \times A_{jkm}{}^2)}{area_{hyd}} + \sum_{j=1}^{n} \frac{(hHZ_{jkm} \times A_{jkm})}{length_{shoreline}}$$

where, in relation to those formulae—

"iHZ" is the hazard score for the intertidal zone for each alteration applicable to the transitional water, coastal water or part thereof identified in accordance with sub-paragraph (2) or (3), as the case may be;

"A" is the scale of each alteration applicable to the transitional water, coastal water or part thereof in accordance with sub-paragraph (1);

"$area_{int}$" is the area of the intertidal zone in km^2 of the transitional water or part, or coastal water or part, the morphological condition of which is being assessed;

"$length_{shoreline}$" is the length of the shoreline in km of the transitional water or part, or coastal water or part, the morphological condition of which is being assessed, and measured close to the height of mean high water spring tides;

"$area_{sub}$" is the area of the sea bed zone in km^2 of the transitional water or part, or coastal water or part, the morphological condition of which is being assessed;

"sHZ" is the hazard score for the sea bed zone for each alteration applicable to the transitional water, coastal water or part thereof identified in accordance with sub-paragraph (2) or (3), as the case may be;

"$area_{hyd}$" is the area of the upper surface of the tidal flow zone in km^2 of the transitional water or part, or coastal water or part, the morphological condition of which is being assessed;

"hHZ" is the hazard score for the tidal flow zone for each alteration applicable to the transitional water, coastal water or part thereof identified in accordance with sub-paragraph (2) or (3), as the case may be; and

"jkm" represents an alteration corresponding to morphological alteration 2, 7, 8 or 9 in column 1 of Table 5.1 and applicable to the transitional water, coastal water or part thereof. "j" has a value of 1 to "n" used to indicate which of the all the applicable alterations it represents; and

"jkm^2" represents an alteration corresponding to morphological alteration 1, 3, 4, 5, 6 or 10 in column 1 of Table 5.1 and applicable to the transitional water, coastal water or part thereof. "j" has a value of 1 to "n" used to indicate which of the all the applicable alterations it represents.

(5) Where SEPA considers that any of the morphological alterations listed in Table 5.4 pose a significant risk (on their own or in combination with other alterations) to the ecological quality of a transitional water, coastal water or part thereof, SEPA may—

(a) identify the appropriate hazard scores for the alteration which, in its view, reflect the relative hazard posed by the alteration, taking account of the transitional water or coastal water Type identified in accordance with paragraph 3(2) of Schedule 1 and relevant scientific advice;

(b) identify an appropriate measure for use in defining the scale of the alteration; and

(c) include consideration of the alteration in calculating the morphological condition values for the transitional water, coastal water or part in accordance with sub-paragraph (4) as if the alteration were an alteration listed in column 1 of Table 5.1.

(6) In applying the morphological condition limits specified in Table 5.5, SEPA must compare the morphological condition values for the intertidal, sea bed and tidal flow zones of a transitional water or part thereof, or of a coastal water or part thereof, calculated in accordance with sub-paragraph (4), with, as applicable, the morphological condition limits for "high", "good", "moderate" or "poor" in Table 5.5.

Table 5.1: Morphological alterations to which the morphological condition limits for transitional waters and coastal waters apply

Column 1	*Column 2*
Morphological alteration	*Measure used to define the scale of alteration*
1. In-filling by any means of a part of a transitional water or a part of a coastal water with the effect of extending the adjacent terrestrial land surface into the area previously occupied by the transitional water or coastal water.	Area in-filled in km^2
2. Reduction in the length of a transitional water channel.	Length of channel lost due to the alteration in km
3. Removal or displacement of bed material such as bedrock, boulders, gravel, sand, silt, mud or any mixture thereof from the bed of a transitional water or coastal water.	Area of bed from which sediment is removed in km^2
4. Depositing of any material containing bedrock, boulders, gravel, sand, silt, mud or any mixture thereof on the bed of a transitional water or coastal water other than as part of alteration 1, 5, 6 or 7.	Area of bed covered by deposited material in km^2
5. Any structure on the bed of a transitional water or coastal water that extends from the shoreline into the transitional water or coastal water other than an outfall, pipe, cable or part of a structure referred to in alteration 1, 6 or 7.	Area of structure in km^2
6. Any structure which: (a) is suspended above the surface of a transitional water or coastal water between foundation structures on the bed of the transitional water or coastal water; and (b) extends from the shoreline out into the transitional water or coastal water.	Area of suspended structure above surface of transitional or coastal water in km^2
7. Reinforcement of the shoreline using materials other than soft sediments, geotextiles or vegetation placed at or below mean high water springs other than as part of alteration 1.	Length of reinforcement in km

8. Any artificial wall, artificial earth bank or other artificial structure which— (a) is on land ≤ 10 metres inland from the landward extent that mean high water spring tides would have reached in the absence of alteration 7; and (b) limits the extent of inundation of land that would occur during flooding events in the absence of the structure.	Length of artificial structure in km
9. Installation of high voltage cables and/or pipelines with associated removal or displacement of bed material	Area of the sea bed over which sediment is removed or displaced in km^2
10. Tidal power devices fixed to the bed	Area of the sea bed occupied by the devices in km^2

Table 5.2: Relative hazard posed to the intertidal, sea bed and tidal flow zones of transitional waters by different morphological alterations

Alteration (as detailed in Table 5.1)	*Zone*	*Hazard score for different transitional water types*		
		Type T(3): Estuaries	*Type T(2): Lagoon*	*Type T(1): Transitional sea loch*
1. (In-filling)	Intertidal	0.33 - 1.25	0.21 - 0.79	0.21 - 0.79
	Sea bed	0.25 - 1.19	0.29 - 0.63	0.29 - 0.88
	Tidal flow	0.09 - 0.38	0.09 - 0.38	0.06 - 0.38
2. (Reducing the length of the transitional water)	Intertidal	0.22 - 0.88	0.13 - 0.56	0.16 - 0.56
	Sea bed	0.13 - 0.89	0 - 0.47	0.09 - 0.70
	Tidal flow	0.06 - 0.28	0.03 - 0.19	0.03 - 0.19
3. (Removal or displacement of bed material)	Intertidal	0.08 - 0.54	0.08 - 0.46	0.08 - 0.46
	Sea bed	0.22 - 0.69	0.17 - 0.63	0.20 - 0.69
	Tidal flow	0.03 - 0.13	0.03 - 0.13	0.03 - 0.13
4. (Deposit of material on the bed)	Intertidal	0.19 - 0.41	0.13 - 0.28	0.13 - 0.28
	Sea bed	0.23 - 0.47	0.12 - 0.28	0.21 - 0.42
	Tidal flow	0 - 0.03	0	0
5. (Structures on the bed)	Intertidal	0.17 - 0.63	0.10 - 0.38	0.13 - 0.41
	Sea bed	0.20 - 0.56	0.13 - 0.33	0.17 - 0.47
	Tidal flow	0.03 - 0.14	0.03 - 0.14	0.03 - 0.14
6. (Structures suspended above the surface)	Intertidal	0.29 - 0.75	0.19 - 0.47	0.19 - 0.47
	Sea bed	0.19 - 0.56	0.08 - 0.30	0.11 - 0.40
	Tidal flow	0.03 - 0.19	0.03 - 0.19	0.03 - 0.19

7. (Reinforcement of the shoreline)	Intertidal	0.17 - 0.75	0.10 - 0.47	0.10 - 0.47
	Sea bed	0.06 - 0.38	0.06 - 0.26	0.06 - 0.30
	Tidal flow	0.06 - 0.19	0.06 - 0.19	0.06 - 0.19
8. (Walls and other structures ≤ 10 metres inland from mean high water spring tide)	Intertidal	0.15 - 0.63	0.27 - 0.41	0.10 - 0.44
	Sea bed	0 - 0.06	0 - 0.06	0 - 0.06
	Tidal flow	0.06 - 0.19	0.13 - 0.19	0.06 - 0.19
9. (Installation of high voltage cables and/or pipelines)	Intertidal	0.02 - 0.08	0.02 - 0.08	0.02 - 0.10
	Sea bed	0.19 - 0.28	0.08 - 0.16	0.14 - 0.25
	Tidal flow	0 - 0.03	0	0
10. (Tidal power devices fixed to the bed)	Intertidal	0	0	0
	Sea bed	0.13 - 0.31	0.03 - 0.06	0.13 - 0.27
	Tidal flow	0 - 0.03	0 - 0.03	0 - 0.03

Table 5.3: Relative hazard posed to the intertidal, sea bed and tidal flow zones of coastal waters by different morphological alterations

Alteration (as detailed in Table 5.1)	*Zone*	*Hazard score for different coastal water types*				
		Type C(2): coastal lagoons	*Type C(1): coastal sea lochs*	*Type C(4): < 50% exposed bedrock and a wave fetch <10km*	*Type C(5): < 50% exposed bedrock and a wave fetch >10km*	*Type C(3): ≥ 50% exposed bedrock and a wave fetch >10km*
1. (In-filling)	Intertidal	0.21 - 0.79	0.21 - 0.79	0.25 - 0.92	0.42 - 1.58	0.08 - 0.33
	Sea bed	0.29 - 0.63	0.29 - 0.88	0.33 - 0.94	0.42 - 1.00	0.08 - 0.56
	Tidal flow	0.09 - 0.38	0.06 - 0.38	0.06 - 0.19	0.06 - 0.19	0.06 - 0.19
3. (Removal or displacement of bed material)	Intertidal	0.08 - 0.46	0.08 - 0.46	0.08 - 0.46	0.08 - 0.46	0.04 - 0.25
	Sea bed	0.17 - 0.63	0.20 - 0.69	0.25 - 0.81	0.16 - 0.50	0.19 - 0.56
	Tidal flow	0.03 - 0.13	0.03 - 0.13	0.03 - 0.09	0.03 - 0.09	0.03 - 0.09
4. (Deposit of material on the bed)	Intertidal	0.13 - 0.28	0.13 - 0.28	0.13 - 0.28	0.13 - 0.28	0.06 - 0.13
	Sea bed	0.12 - 0.28	0.21 - 0.42	0.23 - 0.47	0.14 - 0.28	0.14 - 0.28
	Tidal flow	0	0 - 0.03	0.00 - 0.03	0	0
5. (Structures on the bed that extend out from the shoreline)	Intertidal	0.10 - 0.38	0.13 - 0.41	0.13 - 0.44	0.21 - 0.75	0.04 - 0.13
	Sea bed	0.13 - 0.33	0.17 - 0.47	0.20 - 0.52	0.23 - 0.61	0.16 - 0.38
	Tidal flow	0.03 - 0.14	0.03 - 0.14	0.03 - 0.14	0.03 - 0.14	0.03 - 0.14

6. (Structures suspended above the surface)	Intertidal	0.19 - 0.47	0.19 - 0.47	0.21 - 0.56	0.38 - 0.94	0.08 - 0.19
	Sea bed	0.08 - 0.30	0.11 - 0.40	0.19 - 0.52	0.16 - 0.52	0.09 - 0.28
	Tidal flow	0.03 - 0.19	0.03 - 0.19	0.03 - 0.14	0.03 - 0.14	0.03 - 0.14
7. (Reinforc-ement of the shoreline)	Intertidal	0.10 - 0.47	0.10 - 0.47	0.13 - 0.56	0.21 - 0.96	0.04 - 0.19
	Sea bed	0.06 - 0.26	0.06 - 0.30	0.06 - 0.33	0.06 - 0.38	0.06 - 0.23
	Tidal flow	0.06 - 0.19	0.06 - 0.19	0.03 - 0.09	0.03 - 0.09	0.03 - 0.09
8. (Walls and other structures ≤ 10 metres inland from mean high water spring tide)	Intertidal	0.27 - 0.41	0.10 - 0.44	0.10 - 0.44	0.19 - 0.81	0.04 - 0.19
	Sea bed	0 - 0.06	0 - 0.06	0 - 0.06	0 - 0.06	0 - 0.06
	Tidal flow	0.13 - 0.19	0.06 - 0.19	0 - 0.05	0 - 0.05	0 - 0.05
9. (Installat-ion of high voltage cables and/or pipelines)	Intertidal	0.02 - 0.08	0.02 - 0.08	0.02 - 0.08	0.02 - 0.08	0 - 0.04
	Sea bed	0.08 - 0.16	0.14 - 0.25	0.22 - 0.34	0.13 - 0.19	0.13 - 0.22
	Tidal flow	0	0	0 - 0.03	0	0
10. (Tidal power devices fixed to the bed)	Intertidal	0	0	0	0	0
	Sea bed	0.03 - 0.06	0.13 - 0.27	0.13 - 0.28	0.13 - 0.31	0.13 - 0.22
	Tidal flow	0 - 0.03	0 - 0.03	0 - 0.03	0 - 0.03	0 - 0.03

Table 5.4: Additional morphological alterations (to those listed in Table 5.1) to which SEPA may have regard in calculating morphological condition values	
9.	Shoreline reinforcement using soft sediments, geotextiles or vegetation placed at or below mean high water springs.
10.	An alteration falling under alteration 5 or 6 in Table 5.1 that impounds water or partly or completely curtails water exchange between opposite sides of the structure

Note—
Where the morphological alterations listed in Table 5.5 apply in accordance with paragraph 5(6), they must be treated as if they were included in Table 5.1.

Table 5.5: Morphological condition limits for transitional waters and coastal waters				
Column 1	*Column 2*	*Column 3*	*Column 4*	*Column 5*
	High	*Good*	*Moderate*	*Poor*
Intertidal zone	0.05	0.15	0.30	0.45
Sea bed zone	0.05	0.15	0.30	0.45
Tidal flow zone	0.05	0.15	0.30	0.45

Tidal regime condition limits for transitional waters - freshwater flow

6. Once SEPA has classified, in accordance with paragraph 3(3) of Schedule 1, a transitional water or part thereof as being of a Type specified in row 2 of Table 6.1, it must apply the corresponding "good", "moderate" or "poor" tidal regime condition limits specified in that table to that transitional water or part.

Table 6.1: Tidal regime condition limits for transitional waters										
	Column 1	*Column 2*			*Column 3*			*Column 4*		
Row 1		*Good*			*Moderate*			*Poor*		
Row 2	*Type*	*HS*	*MS*	*LS*	*HS*	*MS*	*LS*	*HS*	*LS*	*MS*
Row 3	Maximum reduction in freshwater flow volume at daily freshwater flows $\geq Qn_{60}$	40 % of daily Q_n	45 % of daily Q_n	50 % of daily Q_n	55 % of daily Q_n	60 % of daily Q_n	65 % of daily Q_n	70 % of daily Q_n	75 % of daily Q_n	80 % of daily Q_n
Row 4	Maximum reduction in freshwater flow volume at daily flows < Qn_{60} to Qn_{70}	30 % of daily Q_n	40 % of daily Q_n	45 % of daily Q_n	50 % of daily Q_n	55 % of daily Q_n	60 % of daily Q_n	65 % of daily Q_n	70 % of daily Q_n	75 % of daily Q_n
Row 5	Maximum reduction in freshwater flow volume at daily flows < Qn_{70} to Qn_{95}	30 % of daily Q_n	35 % of daily Q_n	40 % of daily Q_n	45 % of daily Q_n	50 % of daily Q_n	55 % of daily Q_n	60 % of daily Q_n	65 % of daily Q_n	70 % of daily Q_n
Row 6	Maximum reduction in freshwater flow volume at daily flows < Qn_{95}	25 % of Q_{n95}	30 % of Q_{n95}	35 % of Q_{n95}	40 % of Q_{n95}	45 % of Q_{n95}	50 % of Q_{n95}	55 % of Q_{n95}	60 % of Q_{n95}	65 % of Q_{n95}

Note—
The freshwater flow conditions in a transitional water or part thereof complying with the "good" tidal regime condition limits in Table 6.1 may be considered to be consistent with good and high ecological status or good and maximum ecological potential, as applicable.

SCHEDULE 4

Schedule 4 to Solway Tweed River Basin District (Standards) (Scotland) Directions 2014: Spatial environmental standards

Spatial environmental standards applicable to river water bodies

1.—(1) Subject to sub-paragraphs (2), (3) and (4), for the purpose of classifying, as relevant, the ecological status or ecological potential of a river water body, SEPA must apply the spatial standards for high, good, moderate or poor in Table 1.1 in respect of the biological environmental standards for rivers in Part A of Schedule 2; the hydromorphological environmental standards for rivers in Part B of Schedule 2; the chemical and physicochemical environmental standards for rivers in Part C of Schedule 2; and the hydrological regime condition limits for rivers in paragraph 2 of Schedule 3.

(2) The spatial standards in row B of Table 1.1 must not be applied for the purpose of classifying, as relevant, the ecological status or the ecological potential of river water bodies with catchment areas of less than 10 km^2.

(3) Where 5 % of the length of the river water body is less than 0.5 km, SEPA must substitute the spatial standard for high in row B of Table 1.1 with the spatial standard for high in:

(a) row A of Table 1.2 if the length of the main stem of the river water body is greater than or equal to 0.5 km; or

(b) row B of Table 1.2 if the length of the main stem of the river water body is less than 0.5 km.

(4) Where 15 % of the length of the main stem of the river water body is less than 1.5 km, SEPA must substitute, as applicable, the spatial standard for good, moderate or poor in row B of Table 1.1 with the corresponding spatial standard for good, moderate or poor in:

(a) row A of Table 1.2 if the length of the main stem of the river water body is greater than or equal to 1.5 km; or

(b) row B of Table 1.2 if the length of the main stem of the river water body is less than 1.5 km.

(5) To assess the impact of morphological alterations on, as relevant, the ecological status or ecological potential of a river water body, SEPA must—

(a) when applying the morphological condition limits for rivers in paragraph 1 of Schedule 3, use the length of the main stem of the river water body as the length of channel which is being assessed ("L_{Chan}") when calculating the morphological condition values for the water body;

(b) apply the spatial standards in row D of Table 1.1; and

(c) apply the high, good, moderate or poor spatial standard in columns, 2, 3, 4 and 5 of Table 1.3.

(6) For the purposes of sub-paragraphs (1) to (5) and Table 1.1 and Table 1.2—

"length of the main stem of the river water body" means the length of river channel or channels within the water body, excluding the length of river channel, if any, in minor tributaries in the water body and taking into account only the length of the largest channel in parts of the main stem where the river flow divides into adjacent channels;

"minor tributaries" means rivers within a water body that have catchment areas of less than 10 km^2 as measured from their confluence with rivers in the water body that have a catchment of 10 km^2 or more; and

"total length of minor tributaries" means the length of those river channels or parts thereof within the minor tributaries of the water body that are considered by SEPA to be of a significant size and excluding very small channels close to the sources of the tributaries.

Table 1.1: Spatial standards for application in classifying the ecological status or ecological potential of river water bodies				
	Column 1	*Column 2*	*Column 3*	*Column 4*
	High	*Good*	*Moderate*	*Poor*
A	One or more environmental standards for high failed for a contiguous length of 0.5 km of the main stem of the river water body.	One or more environmental standards for good failed for a contiguous length of 1.5 km of the main stem of the river water body.	One or more environmental standards for moderate failed for a contiguous length of 1.5 km of the main stem of the river water body.	One or more environmental standards for poor failed for a contiguous length of 1.5 km of the main stem of the river water body.
B	One or more environmental standards for high failed for a total length equating to 5 % of the length of the main stem of the river water body.	One or more environmental standards for good failed for a total length equating to 15 % of the length of the main stem of the river water body.	One or more environmental standards for moderate failed for a total length equating to 15 % of the length of the main stem of the river water body.	One or more environmental standards for poor failed for a total length equating to 15 % of the length of the main stem of the river water body.
C	One or more environmental standards for good failed for a significant length(i) of the minor tributaries of the water body and the total length of minor tributaries in the water body accounts for 10% or more of the total length of river within the water body	One or more environmental standards for good failed for a significant length(i) of the minor tributaries of the water body and the total length of minor tributaries in the water body accounts for 25% or more of the total length of river within the water body	-	-
D	-	Significant morphological alterations present for a significant length of the minor tributaries in the water body and the total length of minor tributaries in the water body accounts for 25% or more of the total length of river within the water body	-	-

Note—

(i) A "significant length of the minor tributaries" means a significant proportion of the length of those tributaries or a length which, in SEPA's view, is otherwise of significance to the structure or functioning of the water body ecosystem.

Table 1.2: Spatial standards for application in classifying the ecological status or ecological potential of river water bodies where the spatial standards in row B of Table 1.1 do not apply				
	Column 1	*Column 2*	*Column 3*	*Column 4*
Row	*High*	*Good*	*Moderate*	*Poor*
A	One or more environmental standards for high failed in a total river length of 0.5 km.	One or more environmental standards for good failed in a total river length of 1.5 km.	One or more environmental standards for moderate failed in a total river length of 1.5 km.	One or more environmental standards for poor failed in a total river length of 1.5 km.
B	One or more environmental standards for high failed but not throughout the whole length of the river water body.	One or more environmental standards for good failed but not throughout the whole length of the river water body.	One or more environmental standards for moderate failed but not throughout the whole length of the river water body.	One or more environmental standards for poor failed but not throughout the whole length of the river water body.

Table 1.3: Spatial standards applicable in assessing the effect of discrete morphological alterations on the ecological status or ecological potential of river water bodies				
Column 1	Column 2	Column 3	Column 4	Column 5
	High[ii]	Good[ii]	Moderate[ii]	Poor[ii]
Contiguous length of the river water body subject to alteration "j" (contiguous length of altered channel in km)	$0.5 \div cHZ_j$	$2.5 \div cHZ_j$	$5 \div cHZ_j$	$7.5 \div cHZ_j$
Contiguous length of the river water body subject to alteration "j" (contiguous length of altered bank in km[i])	$1 \div bHZ_j$	$5 \div bHZ_j$	$10 \div bHZ_j$	$15 \div bHZ_j$

Notes—

(i) A contiguous length of altered bank means a contiguous length of alteration to one bank or, where both banks are affected by the alteration, the sum of the contiguous lengths of both banks;

(ii) "cHZ_j", "bHZ_j" and "j" have the same meaning as they do for the purposes of paragraph 1 of Schedule 3.

Spatial standards applicable to loch water bodies

2.—(1) For the purpose of classifying the ecological status or the ecological potential of a loch water body, SEPA must apply the spatial standards for high, good, moderate or poor in Table 2.1 in respect of the biological environmental standards for lochs in Part A of Schedule 2 and the chemical and physicochemical environmental standards for lochs in Part C of Schedule 2.

(2) When applying the morphological condition limits for lochs in paragraph 4 of Schedule 3 for the purpose of classifying the ecological status or ecological potential of a loch water body, SEPA must use the length of the shore of the loch water body and the area of the bed of the loch water body, respectively, as the length of the loch shore and the area of the loch bed in the denominator of the ratios for measuring the scale of alteration in column 2 of Table 4.1 of Schedule 3.

Table 2.1: Spatial standards for application in classifying the ecological status or ecological potential of loch water bodies			
Column 1	*Column 2*	*Column 3*	*Column 4*
High	*Good*	*Moderate*	*Poor*
One or more environmental standards for high failed in a total area equating to 5 % of the total area of the loch water body.	One or more environmental standards for good failed in a total area equating to 15 % of the total area of the loch water body.	One or more environmental standards for moderate failed in a total area equating to 15 % of the total area of the loch water body.	One or more environmental standards for poor failed in a total area equating to 15 % of the total area of the loch water body.

Spatial standards applicable to transitional water bodies and coastal water bodies

3.—(1) Subject to sub-paragraphs (2) and (3), for the purpose of classifying, as relevant, the ecological status or the ecological potential of a transitional water body or a coastal water body, SEPA must apply the spatial standards for high, good, moderate or poor in Table 3.1 in respect of the biological environmental standards for transitional and coastal waters in Part A of Schedule 2 and the chemical and physicochemical environmental standards for transitional and coastal waters in Part C of Schedule 2.

(2) Where 5 % of the surface area of a transitional water body or coastal water body is less than 0.5 km^2, SEPA must substitute the spatial standard for high in row B of Table 3.1 with the spatial standard for high in:

(a) row A of Table 3.2 if the surface area of the water body is greater than or equal to 0.5 km^2; or

(b) row B of Table 3.2 if the surface area of the water body is less than 0.5 km^2.

(3) Where 15 % of the surface area of a transitional water body or coastal water body is less than 1.5 km^2, SEPA must substitute the spatial standards for good, moderate and poor in row B of Table 3.1 with the spatial standards for good, moderate and poor in:

(a) row A of Table 3.2 if the surface area of the water body is greater than or equal to 1.5 km^2; or

(b) row B of Table 3.2 if the surface area of the water body is less than 1.5 km^2.

(4) To assess the impact of morphological alterations on, as relevant, the ecological status or ecological potential of a transitional water body or coastal water body, SEPA must—

(a) When applying the morphological condition limits for transitional waters and coastal waters in paragraph 5 of Schedule 3, use, as the area or length the morphological condition of which is being assessed ("$area_{int}$"; "$length_{shoreline}$"; "$area_{sub}$"; and "$area_{hyd}$"), the area of the water body's intertidal zone, the length of the water body's shoreline, the area of the water body's subtidal zone and the area the upper surface of the water body's hydrodynamic zone, respectively, for the purposes of calculating the morphological condition values; and

(b) Subject to sub-paragraph (5), apply the high, good, moderate or poor spatial standard in Table 3.3 to transitional water bodies and coastal water bodies other than lagoons.

(5) SEPA must apply more stringent spatial standards than those in Table 3.3 where, in SEPA's view, the application of more stringent standards is necessary to reflect adverse impacts resulting from alterations to the structure and condition of a significant and characteristic part of the intertidal zone, subtidal zone or hydrodynamic zone of a water body, such as a part of the intertidal zone of a water body characterised by silt and fine sand deposits or a part characterised by boulders and exposed bedrock.

Table 3.1: Spatial standards for application in classifying the ecological status or ecological potential of transitional water bodies and coastal water bodies				
	Column 1	*Column 2*	*Column 3*	*Column 4*
	High	*Good*	*Moderate*	*Poor*
A	One or more environmental standards for high failed in a part of the water body with a surface area of 0.5 km^2.	One or more environmental standards for good failed in a part of the water body with a surface area of 1.5 km^2.	One or more environmental standards for moderate failed in a part of the water body with a surface area of 1.5 km^2.	One or more environmental standards for poor failed in a part of the water body with a surface area of 1.5 km^2.
B	One or more environmental standards for high failed in one or more parts of a water body which cumulatively account for 5 % of the total surface area of the water body.	One or more environmental standards for good failed in one or more parts of a water body which cumulatively account for 15 % of the total surface area of the water body.	One or more environmental standards for moderate failed in one or more parts of a water body which cumulatively account for 15 % of the total surface area of the water body.	One or more environmental standards for poor failed in one or more parts of a water body which cumulatively account for 15 % of the total surface area of the water body.

Table 3.2: Spatial standards for application in classifying the ecological status or ecological potential of transitional water bodies and coastal water bodies where the spatial standards in row B of Table 3.1 do not apply				
	Column 1	Column 2	Column 3	Column 4
Row	High	Good	Moderate	Poor
A	One or more environmental standards for high failed in one or more parts of a water body which, in total, have a surface area of 0.5 km^2.	One or more environmental standards for good failed in one or more parts of a water body which, in total, have a surface area of 1.5 km^2.	One or more environmental standards for moderate failed in one or more parts of a water body which, in total, have a surface area of 1.5 km^2.	One or more environmental standards for poor failed in one or more parts of a water body which, in total, have a surface area of 1.5 km^2.
B	One or more environmental standards for high failed but not in all parts of the water body.	One or more environmental standards for good failed but not in all parts of the water body.	One or more environmental standards for moderate failed but not in all parts of the water body.	One or more environmental standards for poor failed but not in all parts of the water body.

Table 3.3: Spatial standards applicable in assessing the effect of discrete morphological alterations on the ecological status of transitional water bodies and coastal water bodies				
Column 1	Column 2	Column 3	Column 4	Column 5
	High	Good	Moderate	Poor
Spatial standards applicable to the intertidal zone of transitional waters or coastal waters (scale of alteration in km or km^2, as applicable, of contiguous alteration "j")	$1 \div iHZ_{jkm}$	$3 \div iHZ_{jkm}$	$6 \div iHZ_{jkm}$	$9 \div iHZ_{jkm}$
	$1.6 \div iHZ_{jkm^2}$	$4.8 \div iHZ_{jkm^2}$	$9.6 \div iHZ_{jkm^2}$	$14.4 \div iHZ_{jkm^2}$
Spatial standards applicable to the subtidal zone of transitional waters or coastal waters (scale of alteration in km or km^2, as applicable, of contiguous alteration "j")	$1 \div sHZ_{jkm}$	$3 \div sHZ_{jkm}$	$6 \div sHZ_{jkm}$	$9 \div sHZ_{jkm}$
	$1.6 \div sHZ_{jkm^2}$	$4.8 \div sHZ_{jkm^2}$	$9.6 \div sHZ_{jkm^2}$	$14.4 \div sHZ_{jkm^2}$
Spatial standards applicable to the hydrodynamic zone of transitional waters or coastal waters (scale of alteration in km or km^2, as applicable, of contiguous alteration "j")	$1 \div hHZ_{jkm}$	$3 \div hHZ_{jkm}$	$6 \div hHZ_{jkm}$	$9 \div hHZ_{jkm}$
	$1.6 \div hHZ_{jkm^2}$	$4.8 \div hHZ_{jkm^2}$	$9.6 \div hHZ_{jkm^2}$	$14.4 \div hHZ_{jkm^2}$

Note—
"iHZ_j", "sHZ_j" and "hHZ_j" have the same meaning as in Schedule 3.

SCHEDULE 5

Schedule 5 to Solway Tweed River Basin District (Standards) (Scotland) Directions 2014: Environmental standards for dangerous substances

1. Where necessary for the purpose of preventing or reducing pollution of rivers, lochs, transitional waters or coastal waters, SEPA must apply the environmental standards in Table 1.

2. Where, in SEPA's view, a dangerous substance listed in column 1 of Table 1 is being discharged in significant quantities, that substance must be regarded as a specific pollutant for the purposes of these Directions and for the purposes of classifying ecological status or ecological potential, as applicable.

Table 1: Environmental standards for dangerous substances		
Dangerous substance	*Environmental standards*	
	Rivers and Lochs	*Transitional waters and coastal waters*
Column 1	*Column 2*	*Column 3*
	Annual mean concentration (μg/litre)	Annual mean concentration (μg/litre)
Azinphos-methyl	0.01	0.01
Bentazone	500	500
Biphenyl	25	25
Chloronitrotoluenes	10	10
4-Chloro-3-methyl-phenol	40	40
2-Chlorophenol	50	50
Demeton	0.5	0.5
Dichlorvos	0.001	0.04
Fenitrothion	0.01	0.01
Malathion	0.01	0.02
Omethoate	0.01	Not applicable
Triazaphos	0.005	0.005
1,1,1-Trichloroethane	100	100
1,1,2-Trichloroethane	400	300
Triphenyltin and its derivatives	0.02	0.008
Xylene	30	30

SCHEDULE 6

Schedule 6 to Solway Tweed River Basin District (Standards) (Scotland) Directions 2014: Threshold values for groundwater

1. Where any threshold value for groundwater in Table 1 or Table 2 is failed, SEPA must undertake an appropriate investigation in accordance with Annex III of the Groundwater Directive (pursuant to Article 4(2)(c) of that Directive) to determine whether or not the applicable conditions for good groundwater chemical status are met.

Table 1: Threshold values for groundwater relevant to the assessment of groundwater chemical status

Pollutant or indicator of pollution	*Unit of measurement and associated assessment statistic*	*Risk indicated by a failure of the threshold value*			
		Threshold values indicative of risks to the ecological or chemical quality of an associated surface water	*Threshold values indicative of risks to the quality of water being abstracted, or intended to be abstracted, for human consumption* [(i)]	*Threshold values indicative of risks of saline intrusion*	*Threshold values indicative of other significant environmental risks including those affecting the ability of groundwater to support human uses*
Electrical conductivity	Mean conductivity (micro-siemens/cm)			1,000	1,000[(ii)]
Atrazine	Mean concentration (µg/l)		0.075		0.075
Benzo(a)pyrene	Mean concentration (µg/l)				0.0075
Chromium (total)	Mean concentration (µg/l)				37.5
Dichloromethane	Mean concentration (µg/l)				1.5
Epoxyconazole	Mean concentration (µg/l)				0.075
Mecoprop	Mean concentration (µg/l)				0.075
Nitrate	Mean concentration (mg/l)	18[(iii)]	37.5		37.5
Simazine	Mean concentration (µg/l)				0.075

Tetrachloroethene	Mean concentration (µg/l)				7.5
Tricholoethane	Mean concentration (µg/l)				7.5
Any other pollutant	As specified in Part C of Schedule 2 for the relevant chemical standard for the pollutant in the applicable surface water	Breach of a chemical environment-al standard for the pollutant in an associated surface water			
	Mean concentration (µg/l)				0.75 x maximum admissible concentration for the relevant drinking water standard[(iv)].

Notes—

(i) For the purpose of assessing risks to the quality of water being abstracted, or intended to be abstracted, for human consumption, the relevant thresholds in Table 1 apply to groundwater representative of the quality of the water being abstracted or intended to be abstracted.

(ii) For the purpose of assessing "other significant risks", the relevant electrical conductivity threshold value in Table 1 must be applied for the purposes of assessing the impact of mining on the chemical status of bodies of groundwater.

(iii) For the purposes of assessing risks to the ecological or chemical quality of an associated surface water, the relevant threshold value for nitrate in Table 1 is applicable only where there is an associated failure of a nitrogen-related standard in an associated surface water.

(iv) This includes relevant standards set under the Water Supply (Water Quality) (Scotland) Regulations 2001 and the Private Water Supplies (Scotland) Regulations 2006 (as amended or re-enacted from time to time).

Table 2: Threshold values for groundwater relevant to the assessment of groundwater chemical status				
Pollutant or indicator of pollution	*Unit of measurement and associated assessment statistic*	*Groundwater dependent wetland type*	*Threshold values indicative of risks to the quality of groundwater dependent wetlands*	
			Altitude of wetland above sea level (metres)	
			≤ 175	*> 175*
Nitrate	Annual mean concentration (mg/l NO_3) in groundwater on which the wetland depends	Quaking bog	18	4
		Wet woodland	22	9
		Wet dune	13	13
		Fen (mesotrophic) and fen meadow	22	9
		Fen (oligotrophic) and wetland at tufa forming springs	20	4
		Wet grassland	26	9
		Wet heath	13	9
		Peatbog and woodland on peatbog	9	9
		Wetland directly irrigated by spring or seepage	9	9
		Swamp (oligotrophic)	18	18
		Swamp (mesotrophic) and reedbed	22	22

Notes—

For the purpose of groundwater chemical status assessment, the threshold values in Table 2 apply where—

(i) the wetland concerned is significantly damaged; and

(ii) in SEPA's view, the characteristics of the damage are such that it may be due to nitrate reaching the wetland via groundwater.

SCHEDULE 7

Schedule 7 to Solway Tweed River Basin District (Standards) (Scotland) Directions 2014: Schedules 1 to 6 (interpretation)

Interpretation

1. In Schedules 1 to 6—

"5-percentile standard" means a standard that is failed if the measured value of the parameter to which the standard refers (e.g. concentration of a pollutant) is less than the standard for more than 5 % of the time;

"10-percentile standard" means a standard that is failed if the measured value of the parameter to which the standard refers (e.g. concentration of dissolved oxygen) is less than the standard for more than 10 % of the time;

*"*90-percentile standard" means a standard that is failed if the measured value of the parameter to which the standard refers (e.g. percentage of oxygen saturation) is greater than the standard for 10 % or more of the time;

"95-percentile standard" means a standard that is failed if the measured value of the parameter to which the standard refers (e.g. concentration of a pollutant) is greater than the standard for 5 % or more of the time;

"98-percentile standard" means a standard that is failed if the measured value of the parameter to which the standard refers (e.g. concentration of a pollutant) is greater than the standard for 2 % or more of the time;

"99-percentile standard" means a standard that is failed if the measured value of the parameter to which the standard refers (e.g. concentration of a pollutant) is greater than the standard for 1 % or more of the time;

"ambient river temperature" means the river temperature in degrees centigrade of a river or part thereof in the absence of any heat pollution or artificial release of water affecting the river temperature of that river or part thereof;

"annual mean standard" means a standard for which the compliance assessment period is a calendar year or multiple thereof;

"compliance assessment period" means the period over which measured values are obtained for the purposes of calculating an arithmetic average or a percentile value and may be part of a year, a year, part of several years, or several years;

"fetch" means the distance the wind can blow across a water surface without crossing land;

"good" means the boundary between the conditions consistent with the description of "good ecological status" and "moderate ecological status" in accordance with Section 1.2 of Annex V to the Directive; Values on the boundary are consistent with the description of good status. In relation to the priority substance and certain other pollutant environmental standards in Part C of Schedule 2, "good" means the boundary between conditions consistent with the description of "good surface water chemical status" and "failing to achieve good surface water chemical status" in Article 2 of, and Annex V to, the Directive;

"high" means the boundary between the conditions consistent with the description of "high ecological status" and "good ecological status" in accordance with Section 1.2 of Annex V to the Directive. Values on the boundary are consistent with the description of high status;

"intertidal zone" means that part of the bed and shore of transitional waters and coastal waters which is submerged at mean high water spring tides but not at mean low water spring tides;

"lagoon" means a body of water partially separated from its adjacent estuary or coastal water by a barrier of sand, other sediment or rocks, which retains all or most of its water mass during periods of low tide in the adjacent estuary or coastal water but has persistent natural water

exchange with the adjacent estuary or coastal water by percolation through, or overtopping of, the barrier or through inlet/outflow channels;

"mean standard" means a standard that is failed if the arithmetic average of all measured values during the compliance assessment period exceeds the standard;

"moderate" means the boundary between the conditions consistent with the description of "moderate ecological status" and "poor ecological status" in accordance with Section 1.2 of Annex V to the Directive. Values on the boundary are consistent with the description of moderate status;

"percentile standard" means a standard which, to be achieved, must be complied with for a defined percentage of the time in the compliance assessment period; and any time spent at the standard value is considered to be in compliance;

"poor" means the boundary between the conditions consistent with the description of "poor ecological status" and "bad ecological status" in accordance with Section 1.2 of Annex V to the Directive. Values on the boundary are consistent with the description of poor status;

"Q_n" means the volume of water that, in the absence of human alterations to the volume of water flowing in a river, would naturally flow past a particular location in a specified period of time;

"Q_nd" means the Q_n for a day in a calendar year;

"Q_nd - 1" means the Q_n for the day before Q_nd;

"Q_nd - 2" means the Q_n for the day two days before Q_nd;

"Q_{nx}" means the value for Q_n that, on average, is matched or exceeded for a specified percentage of time, 'x', where 'x' is has a numeric value between 0 and < 100;

"salinity" means the ratio of the electrical conductivity of a sample of water (at 15 °C, and one standard atmospheric pressure) to that of a standard solution of Potassium Chloride (KCl). A ratio of 1 is equivalent to a salinity of 35;

"sea bed zone" means that part of the bed of transitional waters or coastal waters that is submerged at mean low water spring tides;

"sea loch" means a sea inlet which has a length from its head at mean high water spring tides to its seaward mouth longer than its width; is entered by the tide on each cycle; and was created by glacial action;

"shoreline" means the zone demarking the transition between the terrestrial environment and a coastal water or transitional water and comprising the intertidal zone and any land immediately adjacent to the intertidal zone which directly and significantly affects the ecological quality of the intertidal zone;

"tidal flow zone" means the water column in transitional waters or coastal waters in which sediment is transported as a result of tidal flows and meteorological forces; and

"year" means a period of 12 consecutive months.

EXPLANATORY NOTE

(This note is not part of the Directions)

These Directions apply in relation to the exercise of SEPA's functions pursuant to—

- regulation 4 (general duties) of the Water Environment (Water Framework Directive) (Solway Tweed River Basin District) Regulations 2004 ("the 2004 Regulations");
- Part 1 of the Water Environment and Water Services (Scotland) Act 2003 ('the Act'); and
- the Water Environment (Controlled Activities) (Scotland) Regulations 2011.

They apply only in relation to surface water and groundwater within the part of the Solway Tweed River Basin District ("the District") which is in Scotland.

They should be read with reference to SEPA's functions under Schedule 1 of the 2004 Regulations, including—

- paragraph 1(2) which requires the Environment Agency and SEPA ("the Agencies") to review, and where necessary, update the characterisation of the District;
- paragraph 5 which requires the Agencies to monitor surface water and groundwater in the District; and
- paragraph 6 which requires the Agencies to set environmental objectives for the District, and to prepare a programme of measures to be applied to achieve those objectives.

They should also be read with reference to SEPA functions under—

- Part 1 of the Water Environment and Water Services (Scotland) Act 2003 (as applied by regulation 5 of, and Schedule 4 to, the 2004 Regulations); and
- the Water Environment (Controlled Activities) (Scotland) Regulations 2011 including, in particular, regulation 15(1)(e) and (f).

By virtue of that paragraph 1(2), the Agencies must review the characterisation of the District in accordance with the specifications in Annex II to Directive 2000/60/EC. Article 3 of, and Schedule 1 to, these Directions set out the criteria by which SEPA must determine the type of each body of surface water (in the Scottish part of the District) in accordance with those specifications.

By virtue of that paragraph 5, the Agencies are required to ensure that monitoring is carried out in accordance with Annex V to the Directive 2000/60/EC. Annex V set out the standards against which the status of each body of water (within the Scottish part of the District) can be classified by SEPA. Article 3 of, and Schedules 2 to 6 to, these Directions apply standards for this and other purposes with a view to achieving the environmental objectives of the Directive. In particular, for the purposes of assessing the chemical status of each body of groundwater (in the Scottish part), article 3(1)(g) directs SEPA to apply the groundwater quality standards in Annex I to the Directive 2006/118/EC(**a**) and the threshold values in Schedule 6. This therefore supplements the measures needed to comply Article 3(1) of Directive 2006/118/EC.

Article 5 directs SEPA as regards cross-border bodies of water.

Article 6 revokes a previous set of Directions relating to the above matters.

SEPA must comply with these Directions by virtue of—

- section 2(6) of the Act; and
- section 40(8) of the Environment Act 1995.

(**a**) OJ L 372, 27.12.2006, p. 19.

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