



## WATER POLLUTION (STANDARDS AND OBJECTIVES) SCHEME 2020

### Index

Paragraph	Page
1 Title .....	3
2 Commencement .....	3
3 Interpretation.....	3
<b>PART 2 – RELEVANT WATERS</b>	<b>5</b>
4 Monitoring of relevant waters .....	5
5 Assessment of relevant waters.....	5
6 Classification of relevant waters.....	5
7 Relevant waters water quality objectives .....	5
<b>SCHEDULE 1</b>	<b>7</b>
MONITORING OF RELEVANT WATERS	7
<b>SCHEDULE 2</b>	<b>9</b>
STANDARDS AND CLASSIFICATION OF STATUS OF INLAND WATERS	9
<b>SCHEDULE 3</b>	<b>13</b>
STANDARDS AND CLASSIFICATION OF STATUS OF COASTAL WATERS	13
<b>ENDNOTES</b>	<b>15</b>
TABLE OF ENDNOTE REFERENCES	15



Statutory Document No. 2020/0537



*Water Pollution Act 1993*

## **WATER POLLUTION (STANDARDS AND OBJECTIVES) SCHEME 2020<sup>1</sup>**

*Approved by Tynwald: 15 December 2020*  
*Coming into Operation: 31 December 2020*

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The Department of Environment, Food and Agriculture makes the following Scheme under section 2 of the Water Pollution Act 1993.

### **1 Title**

This Scheme is the Water Pollution (Standards and Objectives) Scheme 2020.

### **2 Commencement**

If approved by Tynwald<sup>1</sup>, this Order comes into operation on 31 December 2020.

### **3 Interpretation**

In this Scheme —

“**the Act**” means the Water Pollution Act 1993;

“**assessed quality element**” means an estimated representative value of a quality element under paragraph 5;

“**chemical status**” means the expression of the chemical content of a body of inland water by reference to the quality standards in paragraph 1 of Schedule 2 and classified in accordance with paragraph (1)(a) of that Schedule;

“**the Department**” means the Department of Environment, Food and Agriculture;

“**environmental status**” means the expression of the quality of the water, biota and sediment of coastal waters by reference to the quality standards in paragraph 1 of Schedule 3 and classified in accordance with paragraph 2 of that Schedule;

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<sup>1</sup> Section 2(5) of the Water Pollution Act 1993 specifies that a scheme under section 2 shall not have effect unless it is approved by Tynwald.

“**general status**” means the expression of the quality of a body of inland water by reference to the quality standards in paragraph 5 of Schedule 2 and classified in accordance with paragraph 6(5) of that Schedule;

“**inland water statuses**” means the chemical status, nitrate status, phosphorus status, metals status and general status;

“**limit of detection**” means the output signal or concentration value above which it can be affirmed, with a stated level of confidence that a sample is different from a blank sample containing no determinand of interest;

“**limit of quantification**” means a stated multiple of the limit of detection at a concentration of the determinand that can reasonably be determined with an acceptable level of accuracy and precision, where the limit of quantification can be calculated using an appropriate standard or sample, and may be obtained from the lowest calibration point on the calibration curve, excluding the blank;

“**metals status**” means the expression of the metals content of a body of inland water by reference to the quality standards in paragraph 4 of Schedule 2 and classified in accordance with paragraph 6(4) of that Schedule;

“**named inland water**” means a river or watercourse that is named in paragraph 4 of Schedule 2 and for which specific values of quality standards are listed in the table in that Schedule;

“**nitrate status**” means the expression of the nitrate content of a body of inland water by reference to the quality standard in paragraph 2 of Schedule 2 and classified in accordance with paragraph (1)(b) of that Schedule;

“**phosphorus status**” means the expression of the phosphorus content of a body of inland water by reference to the quality standard in paragraph 3 of Schedule 2 and classified in accordance with paragraph (1)(c) of that Schedule;

“**quality element**” means a quality of water, sediment or biota tabulated in Schedules 2 or 3;

“**quality standard**” means the –

- (a) concentration of a quality element in Schedules 2 and 3 that should not be exceeded; and
- (b) the range of pH stated in Schedules 2 and 3 that inland and coastal water should be within,

in order to protect human health and the environment;

“**relevant waters**” means inland and coastal waters;

“**river or watercourse**” means any river or watercourse (including an underground river or watercourse and an artificial river or watercourse) which is neither a public sewer nor a sewer or drain which drains into a public sewer;

“**uncertainty of measurement**” means a non-negative parameter characterising the dispersion of the quantity values being attributed to a measurand, based on the information used; and

“**water status**” means the status of a body of inland or coastal water in relation to its applicable quality standards.

## PART 2 – RELEVANT WATERS

### 4 Monitoring of relevant waters

Monitoring of relevant waters is carried out in accordance with Schedule 1.

### 5 Assessment of relevant waters

- (1) Either monitoring or modelling is used to estimate representative values of quality elements in relevant waters.
- (2) The estimated representative values under subparagraph (1) are compared –
  - (a) for inland waters, with the quality standards in Part 1 of Schedule 2; and
  - (b) for coastal waters, with the quality standards in Schedule 3.

### 6 Classification of relevant waters

- (1) Inland water statuses are classified in accordance with Part 2 of Schedule 2.
- (2) The environmental status of coastal waters is classified in accordance with Part 2 of Schedule 3.

### 7 Relevant waters water quality objectives

- (1) The “**inland water quality objective**” is the aim that all inland waters classified under paragraph 6(1) (classification of relevant waters), in accordance with the relevant criteria that are set out in Part 2 of Schedule 2, have inland water statuses of “excellent”, “good” or “pass”.
- (2) The “**coastal water quality objective**” is the aim that all coastal waters classified under paragraph 6(2) (classification of relevant waters), in accordance with the relevant criteria that are set out in Part 2 of Schedule 3, have an environmental water status of “pass”.
- (3) The inland water quality objective and coastal water quality objective must be met by 31 December 2025.

**MADE 30 NOVEMBER 2020**



**SCHEDULE 1**

[Paragraph 4]

**MONITORING OF RELEVANT WATERS****1 Monitoring: general provisions**

- (1) The monitoring data and modelling results used in any classification are, as far as reasonably possible, representative of the water body as a whole.
- (2) Where the calculated mean value of a measurement, when carried out using the best available technique not entailing excessive costs, is referred to as “less than the limit of quantification”, and the limit of quantification of that technique is above the quality standard, the result for the substance is not be used for the purposes of assessing the water status of that water body.

**2 Methods of analysis**

All methods of analysis, including laboratory, field and on-line methods, used for the purposes of paragraph 1 (monitoring: general provisions) of this Schedule, are validated and documented in accordance with EN ISO/IEC-17025 standard<sup>2</sup> or other equivalent standard accepted at international level.

**3 Minimum performance criteria for methods of analysis**

- (1) The minimum performance criteria for all methods of analysis applied are based on uncertainty of measurement of 50% or below ( $k = 2$ ) estimated at the level of relevant quality standards and a limit of quantification equal or below a value of 30% of the relevant quality standards.
- (2) In the absence of relevant quality standard for a given parameter, or in the absence of a method of analysis meeting the minimum performance criteria set out in subparagraph (a), monitoring is carried out using best available techniques not entailing excessive costs.

**4 Calculation of mean values**

- (1) Subject to subparagraph (3), where the amounts of physico-chemical or chemical measurands in a given sample are below the limit of quantification, the measurement results are set to half of the value of the limit of quantification concerned for the calculation of mean values.

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<sup>2</sup> ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. Published by the International Organisation for Standardisation ([www.iso.org](http://www.iso.org)).

- (2) Where a calculated mean value of the measurement results referred to in subparagraph (a) is below the limits of quantification, the value is referred to as 'less than limit of quantification'.
- (3) Where measurands are total sums of a given group of physico-chemical parameters or chemical measurands, including their relevant metabolites, degradation and reaction products, results below the limit of quantification of the individual substances are set to zero.

## 5 Quality assurance and control

- (1) Quality management system practices are applied in accordance with EN ISO/IEC-17025 standard or other equivalent standard accepted at international level.
- (2) A party's competence, in analysing relevant physico-chemical or chemical measurands, is demonstrated by –
  - (a) participation in proficiency testing programmes covering the methods of analysis referred to in paragraph 2 (methods of analysis) of this Schedule of measurands at levels of concentrations that are representative of any monitoring programme carried out under paragraph 4 (monitoring of relevant waters); and
  - (b) analysis of available reference materials that are representative of collected samples which contain appropriate levels of concentrations in relation to relevant quality standards referred to in paragraph 3 (minimum performance criteria for methods of analysis) of this Schedule.
- (3) The proficiency testing programme referred to in subparagraph (2) is organised by accredited organisations or internationally or nationally recognised organisations which meet the requirements of ISO/IEC guide 43-1<sup>3</sup> or of other equivalent standard accepted at international level.
- (4) The results of participation in the proficiency testing programmes referred to in subparagraph (2)) are evaluated on the basis of the scoring systems set out in ISO/IEC guide 43-1 or in the ISO-13528 standard<sup>4</sup> or in other equivalent standard accepted at international level.

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<sup>3</sup> ISO/IEC Guide 43-1 Proficiency testing by interlaboratory comparison Part 1: Development and operation of proficiency testing schemes. Published by the International Organisation for Standardisation ([www.iso.org](http://www.iso.org)).

<sup>4</sup> ISO 13528:2005. Statistical methods for use in proficiency testing by interlaboratory comparisons. Published by the International Organisation for Standardisation ([www.iso.org](http://www.iso.org)).



## SCHEDULE 2

[Paragraphs 5(2) and 6(1)]

## STANDARDS AND CLASSIFICATION OF STATUS OF INLAND WATERS

## PART 1 – INLAND WATERS QUALITY STANDARDS

## 1 Chemical quality standards for inland waters

<i>Quality element</i>	<i>Poor</i>	<i>Moderate</i>	<i>Good</i>	<i>Excellent</i>
Dissolved oxygen (percent saturation) (10 percentile)	<64	64 to <75	75 to <80	≥80
Biochemical Oxygen Demand (mg/l) (90 percentile)	>6	>4 to 6	>3 to 4	≤3
Total Ammonia (mg/l) (90 percentile)	>0.75	>0.3 to 0.75	>0.2 to 0.3	≤0.2

## 2 Nitrate quality standard for inland waters

<i>Quality element</i>	<i>Poor</i>	<i>Moderate</i>	<i>Good</i>	<i>Excellent</i>
Nitrate (as NO <sub>3</sub> , mg/l)	>30	>10 to 30	>5 to 10	≤5

## 3 Phosphorus quality standard for inland waters

<i>Quality element</i>	<i>Poor</i>	<i>Moderate</i>	<i>Good</i>	<i>Excellent</i>
Phosphorus concentration (mg/l)	>0.128	>0.046 to 0.128	>0.023 to 0.046	≤0.023

## 4 Metals quality standards for inland waters

<i>Inland water body</i>	<i>Mean dissolved concentration (µg/l) quality element</i>				
	<i>Copper</i>	<i>Lead</i>	<i>Manganese</i>	<i>Nickel</i>	<i>Zinc</i>
Cornaa River	6	4.8	350	9	11
Fern Glen Stream	6	4.8	350	9	11
Lhen Trench	51.2	14.4	258.7	26.4	20.4
Santonburn	6	4.8	350	9	11
Glen Maye Stream	6	4.8	350	9	11
Foxdale Stream	6	4.8	350	9	11
River Laxey	6	4.8	350	9	11
General inland waters	6	4.8	350	9	11

## 5 General quality standards for inland waters

<i>Quality element</i>	<i>Mean value</i>	<i>Maximum or percentile concentration</i>
Arsenic (µg/l) <sup>1</sup>	50	
Benzo(a)pyrene (µg/l)	0.00017	0.27
Cadmium class 1 (µg/l) <sup>1,2</sup>	≤0.08	≤0.45
Cadmium class 2 (µg/l) <sup>1,3</sup>	0.08	0.45

<i>Quality element</i>	<i>Mean value</i>	<i>Maximum or percentile concentration</i>
Cadmium class 3 ( $\mu\text{g/l}$ ) <sup>1,4</sup>	0.09	0.6
Cadmium class 4 ( $\mu\text{g/l}$ ) <sup>1,5</sup>	0.15	0.9
Cadmium class 5 ( $\mu\text{g/l}$ ) <sup>1,6</sup>	0.25	1.5
Iron ( $\mu\text{g/l}$ ) <sup>1</sup>	1000	
Mercury ( $\mu\text{g/l}$ ) <sup>1</sup>		0.07
pH (5 and 95 percentiles)		$\geq 6$ to $\leq 9$
Polychlorinated biphenyls ("PCBs") ( $\text{ng/l}$ )		15

<sup>1</sup> Assessed in the dissolved form

<sup>2</sup> In water with  $<40$   $\text{mg/l CaCO}_3$ <sup>2</sup>

<sup>3</sup> In water with 40 to  $<50$   $\text{mg/l CaCO}_3$ <sup>3</sup>

<sup>4</sup> In water with 50 to  $<100$   $\text{mg/l CaCO}_3$ <sup>4</sup>

<sup>5</sup> In water with 100 to  $<200$   $\text{mg/l CaCO}_3$ <sup>5</sup>

<sup>6</sup> In water with  $\geq 200$   $\text{mg/l CaCO}_3$ <sup>6</sup>

## PART 2 – INLAND WATERS CLASSIFICATION

### 6 Classification of inland waters status

- (1) A body of inland waters is classified as "fail" if it has not been monitored or modelled in accordance with Schedule 1.
- (2) On the basis of each comparison under paragraph 5(2)(a) (assessment of relevant waters), a body of inland water is classified by reference to its –
  - (a) chemical status, in accordance with the poorest quality standard in paragraph 1 (chemical quality standards for inland waters) of this Schedule;
  - (b) nitrate status, in accordance with paragraph 2 (nitrate quality standards for inland waters) of this Schedule; and
  - (c) phosphorus status, in accordance with paragraph 3 (phosphorus quality standards for inland waters) of this Schedule.
- (3) On the basis of each comparison under paragraph 5(2)(a) (assessment of relevant waters) –
  - (a) a named inland water is classified by reference to its respective metal quality standard in accordance with paragraph 4 (metals quality standards for inland waters) of this Schedule; and
  - (b) all other inland waters are classified by reference to the values in the row corresponding to "general inland waters".
- (4) For the purposes of subparagraph (3), a body of inland water is classified as –
  - (a) "fail" if it has one or more assessed quality element listed in paragraph 4 (metals quality standards for inland waters) of this

Schedule that is higher than the respective quality standard stated in the table; and

- (b) “pass” in all other cases.
- (5) On the basis of each comparison under paragraph 5(2)(a) (assessment of relevant waters), the general status of a body of inland water is classified in accordance with paragraph 5 (general quality standards for inland waters) of this Schedule.
- (6) For the purposes of subparagraph (5), a body of inland water is classified as –
- (a) “fail” if, with the exception of pH, it has one or more assessed quality element that is higher than the respective quality standard stated in the table;
  - (b) “fail” if it has assessed pH outside of the range given in paragraph 5 (general quality standards for inland waters) of this Schedule; and
  - (c) “pass” in all other cases.
- (7) When classifying inland waters, account may be taken of –
- (a) natural background concentrations for metals and their compounds where such concentrations prevent compliance with the relevant quality standards;
  - (b) hardness, pH, dissolved organic carbon or other water quality parameters that affect the bioavailability of metals, the bioavailable concentrations being determined using appropriate bioavailability modelling.



**SCHEDULE 3**

[Paragraphs 5(2) and 6(2)]

**STANDARDS AND CLASSIFICATION OF STATUS OF COASTAL WATERS****PART 1 – COASTAL WATER QUALITY STANDARDS****1 Environmental quality standards for coastal waters**

<i>Quality element</i>	<i>Mean value</i>	<i>Maximum concentration</i>	<i>Sediment (µg/kg)</i>	<i>Biota (µg/kg)</i>
Arsenic (µg/l) <sup>1</sup>	25			
Benzo(a)pyrene (µg/l)	0.00017	0.027		
Cadmium (µg/l) <sup>1</sup>	0.2			
Chlorine (µg/l)		10		
Chromium <sup>1</sup>	0.6	32		
Copper (µg/l) <sup>1</sup>	3.76			
Dissolved inorganic nitrogen (micromoles/l)		18.7		
Dissolved inorganic phosphorus (micromoles/l)		0.74		
Dissolved oxygen (mg/l)		4		
Iron (µg/l) <sup>1</sup>	1000			
Lead (µg/l) <sup>1</sup>	1.3	14		
Mercury (µg/l) <sup>1</sup>		0.07		
Nickel (µg/l) <sup>1</sup>	8.6	34		
PCB28 (ng/l)		15	1.7	64
PCB 52 (ng/l)		15	2.7	108
PCB101 (ng/l)		15	3	120
PCB118 (ng/l)		15	0.6	24
PCB138 (ng/l)		15	7.9	316
PCB153 (ng/l)		15	40	1600
PCB180 (ng/l)		15	12	480
pH (5 and 95 percentiles)		≥6 to ≤9		
Tributyltin (µg/l)	0.0002	0.0015		
Unionised ammonia (µg/l)	21			
Zinc (µg/l) <sup>1</sup>	6.8			

<sup>1</sup> Assessed in the dissolved form**PART 2 – COASTAL WATER CLASSIFICATION****2 Classification of coastal waters**

- (1) On the basis of a comparison under paragraph 5(2)(b) (assessment of relevant waters), the environmental status of a body of coastal water is classified in accordance with paragraph 1 (environmental quality standards for coastal waters) of this Schedule.

- (2) For the purposes of subparagraph (1), a body of coastal water is classified as —
- (a) “fail” if it has not been monitored or modelled in accordance with Schedule 1;
  - (b) “fail” if, with the exception of pH, it has one or more assessed quality element that is higher than the respective value stated in the table;
  - (c) “fail” if it has assessed pH outside of the range given in paragraph 1 (environmental quality standards for coastal waters) of this Schedule; and
  - (d) “pass” in all other cases.

## ENDNOTES

### Table of Endnote References

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<sup>1</sup> The format of this legislation has been changed as provided for under section 75 of, and paragraph 2 of Schedule 1 to, the Legislation Act 2015. The changes have been approved by the Attorney General after consultation with the Clerk of Tynwald as required by section 76 of the Legislation Act 2015.

<sup>2</sup> Footnote 2 corrected by virtue of reprint powers under section 75 of, and Schedule 1 to, the Legislation Act 2015.

<sup>3</sup> Footnote 3 corrected by virtue of reprint powers under section 75 of, and Schedule 1 to, the Legislation Act 2015.

<sup>4</sup> Footnote 4 corrected by virtue of reprint powers under section 75 of, and Schedule 1 to, the Legislation Act 2015.

<sup>5</sup> Footnote 5 corrected by virtue of reprint powers under section 75 of, and Schedule 1 to, the Legislation Act 2015.

<sup>6</sup> Footnote 6 corrected by virtue of reprint powers under section 75 of, and Schedule 1 to, the Legislation Act 2015.