

Supporting document

Assessment of Deteriorating River Water bodies based on Interim WFD Classification 2018

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1.0 Introduction

The 2015 Water Framework Directive (WFD) river basin management plans set out the baseline status for water bodies, their objectives and a summary programme of measures to achieve these objectives and prevent deterioration in status. Compliance with the WFD requirement of no deterioration is formally assessed every six years i.e. by comparing 2021 status classifications with the 2015 baseline.

An interim classification for surface water bodies was published in 2018 to review progress towards meeting the objectives set for 2021 and to prioritise actions. This interim 2018 WFD status indicates a significant risk that the 2021 targets are unlikely to be met. In 2015, 37 % of water bodies (rivers, lakes, transitional and coastal water bodies, and groundwater bodies) were at good status. The 2018 classification indicates that this overall status has remained the same. However, for rivers there is a notable deterioration from 33 % to 31 % at good status. Overall 10 % of river water bodies did improve to achieve good status through targeted actions. However this was negated by deterioration elsewhere in river phosphorus, with 7.8 % of river water bodies declining from 'good'.

2.0 Deterioration from WFD 2015 to WFD2018

Deterioration must be investigated if any element has deteriorated in class, even if overall class remains unchanged. However this initial examination focuses on those fifty-two river water bodies where overall status deteriorated between 2015 and 2018. The deteriorations were all by only one class. Of greatest concern are the thirty-two river water bodies which deteriorated from Good to Moderate status. Of these twelve were due to a decline in SRP status alone and eight due to a decline in SRP and another element(s).

3.0 Assessing true deterioration

In 2006, UKTAG produced a guidance paper¹ entitled "Prevent Deterioration of Status". It recognised that there needs to be a way of managing the risk of deterioration and reporting status changes as "the intent is to report deterioration of status class, where it is certain there is an actual failure in meeting the status class requirements".

The guidance sets out reasons why a deterioration in status may not indicate a true decline in water quality. Any change in classification as a result of changes to tools and standards, new monitoring data or revision to water bodies is not considered to be related to a change in

¹https://www.wfduk.org/sites/default/files/Media/Setting%20objectives%20in%20the%20water%20environment/Prevent%20deterioration%20of%20status_Draft_010506.pdf

water quality. In addition a very small change may be enough to cause a face value class change which may not be statistically significant. The guidance therefore states that;

“Deterioration of status for an individual water body will not be reported on the basis of a face value change in class as to do so would be clearly misleading” and “Deterioration of status for an individual water body will be reported where there is at least 95 percent confidence that the water body has deteriorated from one status class to a lower one.”

Conversely a quality element may undergo a more significant larger change in score that has no impact on face value class. However our focus is on between class deterioration and within class deterioration will not be considered further at this stage.

Natural Resource Wales produced an Operational Guidance Note² in May 2017 on WFD Deterioration in water body status which includes a section on using statistical confidence to identify where a deterioration has occurred using the following confidence ranges;

Uncertain: >50% and <75% confidence that status has deteriorated

Quite certain: >75% and < 95% confidence that status has deteriorated

Very certain: >95% and <99% confidence that status has deteriorated

Highly certain; >99% confidence that status has deteriorated

The approach taken by Wales is that where any face-value deterioration is flagged as ‘Uncertain’ then no further action is required. Where any face-value deterioration is flagged as ‘Quite certain’, ‘Very certain’ or ‘Highly certain’ they identify reasons for that deterioration and the measures necessary to restore the previous status.

The NRW work uses a statistical methodology to test for between class deterioration in status, which was developed by WRc for the Environment Agency in 2013³. This method uses the confidence of a site truly being in each of the five status classes as a basis for assessing if the face value class has improved, deteriorated or remained unchanged. It can therefore only be applied where confidence in class is available.

The test is achieved by computing a series of conditional probabilities; for example, if the site had a 10% chance of being at High status in time period A and a 20% chance of being at Good status in time period B, then there is a $0.1 \times 0.2 = 0.02 = 2\%$ chance that it has deteriorated from High to Good status. Repeating this process for all 5 x 5 possible changes

² www.naturalresourceswales.gov.uk OGN 73 WFD – Deterioration in water body status

³ Environment Agency Assessing Deterioration in WFD Status Final Report July 2013

in status class builds up a complete probability matrix, and these results can then be aggregated to compute the overall confidence of deterioration.

For example, one river water body had deteriorated from Good status in 2015 to Moderate Status in 2018 based on Macrophytes. The macrophyte EQR and confidence in class results for the 2 survey years are provided in Table 1.

Year	EQR	LEAFPACS Class	Bad	Poor	Moderate	Good	High
06/06/2013	0.745	Good	0.00	0.00	1.40	83.37	15.23
15/06/2015	0.591	Moderate	0.00	0.63	54.22	45.10	0.05

Table 1: Example of a river water body which has declined from Good to Moderate due to Macrophyte classification

Inserting this data into a probability matrix produces the following results:

		WFD2018					
			HIGH	GOOD	MODERATE	POOR	BAD
			0.05	45.1	54.22	0.63	0
WFD2015	HIGH	15.23	0	6.9	8.3	0.1	0
	GOOD	83.37	0	37.6	45.2	0.5	0
	MODERATE	1.4	0	0.6	0.8	0	0
	POOR	0	0	0	0	0	0
	BAD	0	0	0	0	0	0
		61	% Confidence that status has deteriorated				
		38.4	% Confidence that status has not changed				
		0.7	% Confidence that status has improved				

In this case there is <75% confidence that deterioration has occurred i.e. Uncertain.

Confidence in class is currently only available for Diatoms, Invertebrates, Macrophytes and SRP.

4.0 Criteria setting to prioritise deteriorating river water bodies for further investigation

In order to prioritise the deteriorating river water bodies for investigation a number of criteria were devised. The number of river water bodies each criteria applies to are provided in brackets. The detail of these are provided in Section 5.0

1. Where the deterioration is due to new monitoring this will not be considered a true deterioration and further investigation will not be recommended (10 river water bodies).
2. Where deterioration in cross border river water bodies is due to data provided by EPA then NIEA will not investigate further (5).
3. Where deterioration is due to a change in the classification procedure further investigation will not be recommended (2).
4. Where confidence in class is available, the certainty that a true deterioration in status has occurred will be considered. If confidence in deterioration is >75% further investigation will be recommended as high priority (10).
5. Where confidence in class is available but confidence in deterioration is <75% further investigation will be recommended as low priority (16).
6. Where confidence in class is not available an investigation into the cause of deterioration will be recommended as high priority (8).
7. Where data collected during cycle two has been sampled but status is pending an investigation will be recommended as low priority (1).

5.0 Application of criteria for investigation applied to deteriorating river water bodies

The reasons why fifty-two river water bodies have deteriorated was examined at element level and are detailed in Appendix I. The river water bodies have been presented by River Basin District in Appendix IV.

The criteria described in section 4.0 were then applied at a river water body level:

- Ten deteriorations are due to new monitoring and are therefore not considered a true deterioration: two dissolved iron, two dissolved zinc, four hydromorphology, one macrophyte and one phosphorus and hydromorphology. Further investigation of these river water bodies has not been recommended.
- Five of the deteriorating river water bodies are cross border. Four are classified jointly by NIEA and EPA using the one-out-all-out principle. The main driver of status in these

four river water bodies is data supplied by EPA. The remaining river water body is classified solely by EPA. Further investigation/action into all five river water bodies lies with EPA.

- Two river water bodies have deteriorated due to a change in how the river water bodies are classified, ie, classified using lake status, and will be investigated as part of work looking at lake deteriorations.

The seventeen river water bodies above are not recommended for further investigation. The details of these are provided in Appendix II.

- Four river water bodies have deteriorated due to macro-invertebrates:
 - One with >75% confidence of deterioration and therefore recommended for further investigation as a high priority.
 - Three with <75% confidence of deterioration and therefore recommended for further investigation as a low priority.
- Twelve river water body deteriorations are due solely to phosphorus:
 - Two with >75% confidence of deterioration and therefore recommended for further investigation as a high priority.
 - Ten with <75% confidence of deterioration and therefore recommended for further investigation as a low priority.
- One river water body deterioration is due to phosphorus and new hydromorphology. The phosphorous confidence of deterioration is <75% and is therefore recommended for further investigation as a low priority.
- One river water body deterioration is due to phosphorus and total ammonia. The phosphorus confidence of deterioration is >75%. Confidence in class is not available for total ammonia. The river water body is therefore recommended for further investigation as a high priority.
- Two river water bodies have deteriorated due to phosphorus and at least one metal (new data). The phosphorous confidence of deterioration is >75% for both river water bodies and therefore further investigation is recommended as a high priority.
- Three river water bodies have deteriorated due to phosphorus and diatoms.
 - Two with >75% confidence of deterioration for phosphorus and <75% confidence for diatoms. Based on the phosphorus confidence of deterioration further investigation is recommended as a high priority.
 - One with <75% confidence of deterioration for both phosphorus and diatoms. Further investigation is recommended as a low priority.

- One river water body has deteriorated due to phosphorus, diatoms and new hydromorphology. Confidence of deterioration is <75% for both phosphorus and diatoms and therefore further investigation is recommended as a low priority.
- One river water body has deteriorated due to phosphorus and dissolved oxygen percent saturation (DO% sat). The phosphorus confidence of deterioration is >75%. Confidence in class is not available for DO% sat. The river water body is therefore recommended for further investigation as a high priority.
- Eight river water bodies have deteriorated due to either fish or DO% sat. Confidence in class is not available for either element, therefore, further investigation is recommended as a high priority.
- Two river water bodies have deteriorated due to macrophytes. Confidence in class is <75% indicating further investigation is required as a low priority. The remaining river water body was surveyed in 2018. Recommendations will be low priority and deferred pending classification.

Further investigation has been recommended for the thirty-five river water bodies above; seventeen have been categorised as low priority and eighteen as high priority.

The 17 river water bodies where further investigation is recommended as low priority are detailed in Appendix III.

Section 6.0 details the 18 river water bodies where further investigation is recommended as high priority.

6.0 River water bodies identified as high priority for further investigation by NIEA

Eighteen river water bodies are recommended as high priority for further investigation to determine the reason for deterioration in status and identify action to address the failure. These are provided in table 2 with a comparison of the status change between 2015 and 2018, the deteriorating element(s) and the rationale for the recommendation.

River Water body Number	River Water body Name	Status 2015 v 2018	Deteriorating QE(s)	Rationale for High Priority Recommendation
GBNI1NB030308201	River Blackwater (Annaghroe)	G to M	DO% sat	DO% sat: No CiC
GBNI1NB030308234	Grillagh River	G to M	DO% sat	DO% sat: No CiC
GBNI1NB030308244	River Main (Dunloy)	G to M	DO% sat	DO% sat: No CiC
GBNI1NW363602051	Kinglass Tributary	G to M	DO% sat	DO% sat: No CiC
GBNI1NW010101075	Glenmornan River	G to M	Fish	Fish: No CiC
GBNI1NB060608226	Jerrettspass River	M to P	Fish	Fish: No CiC
GBNI1NB030305204	Six Mile Water (Ballyclare)	M to P	Fish	Fish: No CiC
GBNI1NW353504065	Roogagh River	G to M	Fish	Fish: No CiC
GBNI1NB030304137	Ballynargan Stream	P to B	Inverts	Inverts: CiC >75%
GBNI1NB030302021	Devenagh Burn	G to M	SRP	SRP: CiC >75%
GBNI1NW010102039	Glenscollip Burn	G to M	SRP	SRP: CiC >75%
GBNI1NB030308102	Leitrim River	G to M	SRP, Ammonia	SRP: CiC >75%. Ammonia: No CiC
GBNI1NW010102064	Mourne Beg River (Lisnacloone)	G to M	SRP, D Fe AA	SRP: CiC >75%. Metal: new data
GBNI1NW010102091	Owenreagh (East) River (Greencastle)	G to M	SRP, D Fe AA, D Pb MAC	SRP: CiC >75%. Metal: new data
GBNI1NB060604042	Moygannon River	G to M	SRP, Diatoms	SRP: CiC >75%. Diatoms: CiC <75%
GBNI1NW363604039	Ballinamallard River (Keenogue)	G to M	SRP, Diatoms	SRP: CiC >75%. Diatoms: CiC <75%
GBNI1NW363602030	Cooneen Water	H to G	SRP, Diatoms, Hydromorphology	SRP: CiC >75%. Diatoms: CiC <75%. Hydromorph: new data
GBNI1NW363602017	Ballina Tributary	G to M	SRP, DO% sat	SRP: CiC >75%. DO% sat: No CiC

Table 2: Proposed high priority list of eighteen river water bodies which require further investigation to determine the reason for deterioration in status

Appendix I

Element(s) driving Deteriorations in overall class and any assessment of the deterioration. Where an assessment of the confidence in a deterioration has been made the calculations can be found in HPRM references AE1/18/921569 and AE1/18/928706.

Main driver	Deteriorates from H to Good	Deteriorates from G to Moderate	Deteriorates from M to Poor	Deteriorates from P to Bad	Grand Total	Assessment of deterioration
D Fe AA		2			2	New monitoring so not true deterioration. See Paper looking at Fe failures AE1/19/62542
D Zn AA		2			2	One site used to classify 2 rwbs Failure considered due to an anomaly so not true deterioration See Non Fe failures paper
DO% sat		4			4	No confidence in class available
Fish		2	2		4	No confidence in class available
Hydromorphology	4				4	HM new data for 2 nd RBC so not true deterioration
SRP, Diatoms, Hydromorphology	1				1	The confidence that the site had deteriorated from High to Good for diatoms was only 50% (Uncertain).
SRP (new data), Hydromorphology	1				1	New SRP data for 2 nd RBC so not true deterioration.
SRP, Hydromorphology	1				1	Decline from High to Good due to SRP has 62.7% confidence that class has deteriorated (Uncertain).
IE data		2	3		5	Data from IE
Inverts			3	1	4	Site declined from Poor to Bad has 87.7% confidence of deterioration so certain deterioration
						3 sites declined from Moderate to Poor have 72.4, 64.7 and 65% confidence are deteriorations so all <75% and uncertain deteriorations
Macrophytes		1	2		3	As assessed in the example above site declining from Good to Moderate has 61% confidence of deterioration so Uncertain deterioration
						Two water bodies declined from Moderate status to poor due to Macrophytes but these were surveyed for the first time in 2 nd RBC and are therefore not true deteriorations
SRP		12			12	Twelve rwbs deteriorated from Good to Moderate due to SRP alone. Two of the river water bodies had 86.4% and 94.9% (Quite Certain) confidence that class has deteriorated. The confidence that SRP has deteriorated in the remaining 10 rwbs ranges from 16.1% - 53.0% (Uncertain).
SRP, Ammonia		1			1	Decline from Good to Moderate due to SRP has 84.6% confidence that class has deteriorated of (Quite Certain). No C in C for Ammonia
SRP, D Fe AA		1			1	The river water body is assessed using the average class from two monitoring stations. One monitoring station remained at Good status. The other monitoring stations declined from Good to Moderate due to SRP with a 99.6% confidence that class has deteriorated (Highly Certain). No Cin C for Fe See metal papers

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Main driver	Deteriorates from H to Good	Deteriorates from G to Moderate	Deteriorates from M to Poor	Deteriorates from P to Bad	Grand Total	Assessment of deterioration
SRP, D Fe AA, D Pb MAC		1			1	The river water body is assessed using the average class from two monitoring stations. SRP has deteriorated from Good to Moderate due to SRP at F10069 with a 88.05% confidence of deterioration (Quite Certain). F11315 has deteriorated from High to Good due SRP with a 94.57% confidence of deterioration (Quite Certain). No Cin C for Fe or Pb See Metal papers
SRP, Diatoms	1	2			3	SRP - 62.3% (Uncertain) 94.9% (Quite Certain) and 92.5% (Quite Certain) confidence in deterioration Diatoms –confidence in deterioration 49.4% 64.1% and 64.2% All 3 uncertain
SRP, DO% sat		1			1	Decline from Good to Moderate due to SRP has 98.0% confidence that class has deteriorated (Very Certain). No Cin C for DO
Classified using Upper Erne Lough class			2		2	Decline due to lake diatoms declining from Moderate to poor with 99.5% confidence so Highly certain of deterioration
Grand Total	7	32	12	1	52	

Appendix II

Seventeen river water bodies that have deteriorated due to new data, are classified using lake status or are classified by EPA. Further investigation has not been recommended at these river water bodies.

River Water body Number	River Water body Name	Status 2015 v 2018	Deteriorating Quality Element(s)	Rationale for no further investigation recommendation
GBNI1NE050505063	Moneycarragh River (Dundrum)	G to M	D Zn AA	New chemistry (Zn) data - not a true deterioration
GBNI1NE050505067	Moneycarragh River (Claragh)	G to M	D Zn AA	New chemistry (Zn) - not a true deterioration
GBNI1NW010102081	Davagh Water	G to M	D Fe AA	New chemistry (Fe) data - not a true deterioration
GBNI1NW020204025	Cullion Burn	G to M	D Fe AA	New chemistry (Fe) data - not a true deterioration
GBNI1NB030307242	Knockmany (Blackwater) Burn	H to G	SRP, Hydromorph	New chemistry (SRP) and hydromorph data - not a true deterioration
GBNI1NB030301075	Agivey River (Garvagh)	H to G	Hydromorph	New hydromorph data - not a true deterioration
GBNI1NW010101071	Burn Dennett River (Ballynamallaght)	H to G	Hydromorph	New hydromorph data - not a true deterioration
GBNI1NW363601010	Boho Tributary	H to G	Hydromorph	New hydromorph data - not a true deterioration
GBNI1NW363601049	Florencecourt River	H to G	Hydromorph	New hydromorph data - not a true deterioration
GBNI1NB030308238	Derrycaw Stream	M to P	Macrophytes	New macrophyte data - not a true deterioration
GBNI1NW353504082	Drowes River	G to M	IE data Moderate Inverts (No NI data)	Reason for deterioration is due to EPA data.
GBNI1NW363604084	Finn River (Rosslea)	G to M	IE data Poor Inverts (NI data = G)	Reason for deterioration is due to EPA data.
GBNI1NB060602038	Kilnasaggart River	M to P	IE data Poor Inverts (NI data=M)	Reason for deterioration is due to EPA data.
GBNI1NB060603027	County Water	M to P	IE data Poor Inverts (NI data=M)	Reason for deterioration is due to EPA data.
GBNI1NB060608247	Flurry River (Meigh)	M to P	IE data Poor Inverts (NI data=M)	Reason for deterioration is due to EPA data.

River Water body Number	River Water body Name	Status 2015 v 2018	Deteriorating Quality Element(s)	Rationale for no further investigation recommendation
GBNI1NW363602035	Erne River (Bellanaleck)	M to P	n/a	Classified using Upper Lough Erne lake class
GBNI1NW363602063	Upper Lough Erne	M to P	n/a	Classified using Upper Lough Erne lake class

Appendix III

Seventeen river water bodies have deteriorated but confidence in class is <75%, ie, 'uncertain'. Further investigation has been recommended as a low priority at these river water bodies.

River Water body Number	River Water body Name	Status 2015 v 2018	Deteriorating Quality Element(s)	Rationale for Low Priority Recommendation
GBNI1NB030301163	Ivy Burn	M to P	Inverts	Inverts: CiC <75%
GBNI1NE050503046	River Lagan (Bull's Brook)	M to P	Inverts	Inverts: CiC <75%
GBNI1NE050503106	Brookmount Stream	M to P	Inverts	Inverts: CiC <75%
GBNI1NB030301223	Ballyversal Stream	M to P	Macrophytes	Awaiting new macrophyte data
GBNI1NB030308223	River Blackwater (Augher)	G to M	Macrophytes	Macrophytes: CiC <75%
GBNI1NB030302157	Aghill Burn	G to M	SRP	SRP: CiC <75%
GBNI1NB030304061	Killymoon River	G to M	SRP	SRP: CiC <75%
GBNI1NB030305202	Six Mile Water (Millikenstown)	G to M	SRP	SRP: CiC <75%
GBNI1NB030305203	Castle Water	G to M	SRP	SRP: CiC <75%
GBNI1NB030305207	Clady Water	G to M	SRP	SRP: CiC <75%
GBNI1NB030307175	Ballygawley Water	G to M	SRP	SRP: CiC <75%
GBNI1NE040405046	Glynn River	G to M	SRP	SRP: CiC <75%
GBNI1NE050505059	Moneycarragh Feeder	G to M	SRP	SRP: CiC <75%
GBNI1NW010102092	Camowen River (Ramackan)	G to M	SRP	SRP: CiC <75%
GBNI1NW010108257	Camowen River (Omagh)	G to M	SRP	SRP: CiC <75%
GBNI1NW363604083	Woodford River	H to G	SRP, Hydromorphology	SRP: CiC <75%. New hydromorph data.
GBNI1NW363601046	Ballinamallard River (Magheracross)	G to M	SRP, Diatoms	SRP: CiC <75%. Diatoms: CiC <75%

Appendix IV

Element(s) driving Deteriorations in overall class and any assessment of the deterioration by River Basin District. Where an assessment of the confidence in a deterioration has been made the calculations can be found in HPRM references AE1/18/921569 and AE1/18/928706.

Neagh Bann RBD

Main Driver(s)	Deteriorates from High to Good	Deteriorates from Good to Moderate	Deteriorates from Moderate to Poor	Deteriorates from Poor to Bad	Total	Assessment of Deterioration
Dissolved Oxygen Percent Saturation		3			3	Confidence in class not available for dissolved oxygen percent saturation.
Fish			2		2	Confidence in class not available.
Hydromorphology	1				1	Hydromorph is new data for 2nd RBC therefore not a true deterioration.
IE data (cross border)			3		3	Classifying data supplied by EPA.
Macro-invertebrates			1	1	2	One river waterbody declined from Poor to Bad with 87.7% confidence of deterioration (certain deterioration). One river waterbody declined from Moderate to Poor with 72.4% confidence of deterioration (uncertain deterioration).
Macrophytes		1	2		3	One river waterbody declined from Good to Moderate with 61% confidence of deterioration (uncertain deterioration). Two river waterbodies declined from Moderate to Poor. However, these were surveyed for the first time in 2nd RBC and are therefore not true deteriorations
SRP		7			7	Eight river waterbodies declined from Good to Moderate. Six had confidence in class ranging 16.1-48.2% (Uncertain deterioration) and one had confidence in class of 86.3% (Quite certain deterioration).
SRP, Hydromorphology	1				1	SRP is new data for 2nd RBC therefore not a true deterioration.
SRP, Ammonia		1			1	One river waterbody declined from Good to Moderate due to SRP with 84.6% confidence that class has deteriorated of (Quite Certain deterioration). Confidence in class for Ammonia is not available.
SRP, Diatoms		1			1	One river waterbody declined from Good to Moderate due to SRP with 78.8% confidence that class has deteriorated (Quite Certain deterioration) and diatoms with a 62.2% confidence of deterioration (Uncertain deterioration).
Total	2	13	8	1	24	

North East RBD

Main Driver	Deteriorates from High to Good	Deteriorates from Good to Moderate	Deteriorates from Moderate to Poor	Deteriorates from Poor to Bad	Total	Assessment of Deterioration
Dissolved Zinc		2			2	One monitoring station used to classify two river waterbodies. Failure considered due to an anomaly therefore not a true deterioration. See non iron metal failures paper HPRM AE1/19/93281
Macro-invertebrates			2		2	Two river waterbodies declined from Moderate to Poor with confidence in class of 64.7% and 65.0% (Uncertain deterioration).
SRP		2			2	Two river waterbodies declined from Good to Moderate with confidence in class of 29.0% and 19.0% (Uncertain deterioration).
Total		4	2		6	

North West RBD

Main Driver	Deteriorates from High to Good	Deteriorates from Good to Moderate	Deteriorates from Moderate to Poor	Deteriorates from Poor to Bad	Total	Assessment of Deterioration
Dissolved Iron		2			2	New monitoring so not true deterioration. See HPRM AE1/19/62542
Dissolved Oxygen Percent Saturation		1			1	Confidence in class not available
Fish		2			2	Confidence in class not available
Hydromorphology	3				3	Hydromorph is new data for 2nd RBC therefore not a true deterioration
IE data (cross border)		2			2	Classifying data supplied by EPA
SRP	1	3			4	One river waterbody declined from High to Good with confidence in class of 62.7% (Uncertain deterioration). Three river waterbodies declined from Good to Moderate with confidence in class of 94.9% (very certain deterioration) and 51.0% and 53.0% (Uncertain deterioration).
SRP, Dissolved Iron		1			1	The river water body is assessed using the average class from two monitoring stations. One monitoring station remained at Good status. The other monitoring stations declined from Good to Moderate due to SRP with a 99.6% confidence that class has deteriorated (Highly Certain deterioration). Confidence in class is not available for iron. See HPRM AE1/19/62542.
SRP, Dissolved Iron, Dissolved Lead		1			1	The river water body is assessed using the average class from two monitoring stations. SRP has deteriorated from Good to Moderate at one station with 88.1% confidence that class has

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						deteriorated (Quite Certain deterioration). One site has declined from High to Good due to SRP with a 94.6% confidence that class has deteriorated (Quite Certain deterioration). Confidence in class is not available for iron or lead. See HPRM AE1/16/62542 and AE1/19/93281.
SRP, Diatoms	1	2			3	One river waterbody declined from High to Good with a confidence of deterioration of 94.9% (Quite Certain deterioration) for SRP and 49.4% (Uncertain deterioration) for diatoms. Two river waterbodies declined from Good to Moderate with a confidence of deterioration of 92.5% (Quite Certain deterioration) 62.3% (uncertain deterioration) for SRP and 64.1% and 64.2% (uncertain deterioration) for diatoms.
SRP, Dissolved Oxygen Percent Saturation		1			1	One river waterbody declined from Good to Moderate due to SRP with 98.0% confidence that class has deteriorated (Very Certain deterioration). Confidence in class is not available for dissolved oxygen percent saturation.
Upper Erne Lough class assesses river waterbody			2		2	Two river waterbodies declined from Moderate to Poor due to lake diatoms with 99.5% confidence (Highly certain deterioration)
Total	5	15	2	0	22	



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