European Community Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC)

Fourth Report by the United Kingdom under Article 17

on the implementation of the Directive
from January 2013 to December 2018

Supporting documentation for the
conservation status assessment for the habitat:

H3160 - Natural dystrophic lakes and ponds

NORTHERN IRELAND

IMPORTANT NOTE - PLEASE READ

- The information in this document is a country-level contribution to the UK Report on the conservation status of this habitat, submitted to the European Commission as part of the 2019 UK Reporting under Article 17 of the EU Habitats Directive.
- The 2019 Article 17 UK Approach document provides details on how this supporting information was used to produce the UK Report.
- The UK Report on the conservation status of this habitat is provided in a separate document.
- The reporting fields and options used are aligned to those set out in the European Commission guidance.
- Explanatory notes (where provided) by the country are included at the end. These provide an audit trail of relevant supporting information.
- Some of the reporting fields have been left blank because either: (i) there was insufficient information to complete the field; (ii) completion of the field was not obligatory; and/or (iii) the field was only relevant at UK-level (sections 10 Future prospects and 11 Conclusions).
- For technical reasons, the country-level future trends for Range, Area covered by habitat and Structure and functions are only available in a separate spreadsheet that contains all the country-level supporting information.
- The country-level reporting information for all habitats and species is also available in spreadsheet format.

Visit the JNCC website, https://jncc.gov.uk/article17, for further information on UK Article 17 reporting.

Report on the main results of the surveillance under Article 17 for Annex I habitat types (Annex D)

NATIONAL LEVEL

1. General information

1.1 Member State	**UK (Northern Ireland information only)**
1.2 Habitat code	**3160 - Natural dystrophic lakes and ponds**

2. Maps

2.1 Year or period	2007-2017
2.3 Distribution map	Yes
2.3 Distribution map Method used	Complete survey or a statistically robust estimate
2.4 Additional maps	No

BIOGEOGRAPHICAL LEVEL

3. Biogeographical and marine regions

3.1 Biogeographical or marine region where the habitat occurs	**Atlantic (ATL)**
3.2 Sources of information	JOINT NATURE CONSERVATION COMMITTEE 2005. Common Standards Monitoring (CSM). Joint Nature Conservation Committee, Peterborough. www.jncc.gov.uk/page-2217 PALMER, M.A., BELL, S.L. & BUTTERFIELD, I. 1992. A botanical classification of standing waters in Britain: applications for conservation and monitoring. Aquatic Conservation: Marine and Freshwater Ecosystems 2: 125 - 143. PALMER, M.A. & ROY, D.B. 2001a. A method for estimating the extent of standing fresh waters of different trophic states in Great Britain. Aquatic Conservation: Marine and Freshwater Ecosystems, 11, 199-216. http://www3.interscience.wiley.com/cgi-bin/abstract/83502064/START PALMER, M.A. & ROY, D.B. 2001b. Second Report by the United Kingdom under Article 17 on the implementation of the Directive from January 2001 to December 2006 WILLIAMS, J.M. (ed.) 2006. Common Standards Monitoring for Designated Sites: First Six Year Report. Joint Nature Conservation Committee, Peterborough. http://www.jncc.gov.uk/page-3520 WOLFE-MURPHY, S.A., LAWRIE, E.W., SMITH, S.J. & GIBSON, C.E. 1992. Northern Ireland Lakes Survey. Unpublished report to Northern Ireland Department of Environment, Belfast. ENSIS Ltd (ENSIS Ltd (Environmental Science Services) Goldsmith, B., Davidson, T. A., Burgess, A., Hughes, M., Madgwick, G., Rawcliffe, R., Rippey, B. & Tyler, J., December 2008 Condition Assessments of Standing Water Features in SACs and ASSIs: Northern Ireland. Final Report to Northern Ireland Environment Agency. POND CONSERVATION Helen Keeble, Penny Williams, Jeremy Biggs & Neil Reid, 2009, Important Areas for Ponds (IAPs) and other small waterbodies in Northern Ireland, NIEA Research and Development Series 11/5. MC ELARNEY, Y.R. FOY, R.H. PARK, R. ANDERSON, N.J. PLA-RABES, S.RASMUSSEN,P.O'DEA, P.ENGSTOM,D.R. & MCGOWAN, S. 2009. A framework for the management of forest inpacts on upland lakes INTERREG - Project 20274 MC ELARNEY, Y.R. FOY, R. ANDERSON, S. & RASMUSSEN, P. 2010. Response of aquatic macrophytes in Northern Ireland softwater lakes to forestry management; eutrophication and dissolved organic carbon. Aquatic Botany AQBOT - 2335. www.elsevier.com/locate/aquabot. Northern Ireland Environment Agency unpublished survey and monitoring data 2000-2012.

Report on the main results of the surveillance under Article 17 for Annex I habitat types (Annex D)

Third Report by the United Kingdom under Article 17 on the implementation of the Directive from January 2007 to December 2012. Printed on 06/11/2013 Page 5

JNCC Common Standards Monitoring Guidance for Freshwater Habitats and Species, Rivers and Lakes guidance updated September 2016 and March 2015 respectively, ISSN 1743-8160 jnccdefra.gov.uk/page - 2231

Goldsmith, B., Dowman, S., Goodrich, S., Shilland, E. & Shilland, J. (2015) DOE NIEA Standing Fresh Water Monitoring of Special Areas of Conservation (SAC) and Areas Special Scientific Interest (ASSI) (Second Round). P_12324. ECRC (Environmental Change Research Centre) Research Report 168.

Air Pollution Information System (APIS). Http://.apis.ac.uk

Committee on Climate Change. 2017. UK Climate Change Risk Assessment (CCRAR) Evidence Report, Summary for Northern Ireland. Https://www.theecc.gov.uk

4. Range

4.1 Surface area (in km²)			
4.2 Short-term trend Period			
4.3 Short-term trend Direction	Stable (0)		
4.4 Short-term trend Magnitude	a) Minimum	b) Maximum	
4.5 Short-term trend Method used			
4.6 Long-term trend Period	1994-2018		
4.7 Long-term trend Direction	Stable (0)		
4.8 Long-term trend Magnitude	a) Minimum	b) Maximum	
4.9 Long-term trend Method used	Based mainly on extrapolation from a limited amount of data		
4.10 Favourable reference range	a) Area (km²) b) Operator c) Unknown No d) Method		
4.11 Change and reason for change in surface area of range	No change The change is mainly due to:		
4.12 Additional information			

5. Area covered by habitat

5.1 Year or period	2013-2017		
5.2 Surface area (in km²)	a) Minimum	b) Maximum	c) Best single value 0.8
5.3 Type of estimate	Minimum		
5.4 Surface area Method used	Based mainly on extrapolation from a limited amount of data		
5.5 Short-term trend Period	2007-2018		
5.6 Short-term trend Direction	Stable (0)		
5.7 Short-term trend Magnitude	a) Minimum	b) Maximum	c) Confidence interval
5.8 Short-term trend Method used	Based mainly on extrapolation from a limited amount of data		
5.9 Long-term trend Period	1994-2018		
5.10 Long-term trend Direction	Stable (0)		
5.11 Long-term trend Magnitude	a) Minimum	b) Maximum	c) Confidence interval

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5.12 Long-term trend Method used	Based mainly on extrapolation from a limited amount of data
5.13 Favourable reference area	a) Area (km²) b) Operator c) Unknown No d) Method
5.14 Change and reason for change in surface area of range	No change The change is mainly due to:
5.15 Additional information	

6. Structure and functions

6.1 Condition of habitat	a) Area in good condition (km²)	Minimum 0.8	Maximum 0.8
	b) Area in not-good condition (km²)	Minimum 0	Maximum 0
	c) Area where condition is not known (km²)	Minimum 0	Maximum 0
6.2 Condition of habitat Method used	Based mainly on extrapolation from a limited amount of data		
6.3 Short-term trend of habitat area in good condition Period	2007-2018		
6.4 Short-term trend of habitat area in good condition Direction	Stable (0)		
6.5 Short-term trend of habitat area in good condition Method used	Based mainly on extrapolation from a limited amount of data		
6.6 Typical species	Has the list of typical species changed in comparison to the previous reporting period? No		
6.7 Typical species Method used			
6.8 Additional information			

7. Main pressures and threats

7.1 Characterisation of pressures/threats

Pressure	Ranking
Intensive grazing or overgrazing by livestock (A09)	M
Extraction of minerals (e.g. rock, metal ores, gravel, sand, shell) (C01)	M
Other invasive alien species (other then species of Union concern) (I02)	M
Peat extraction (C05)	M
Wind, wave and tidal power, including infrastructure (D01)	M
Mixed source pollution to surface and ground waters (limnic and terrestrial) (J01)	H
Mixed source air pollution, air-borne pollutants (J03)	H
Abstraction from groundwater, surface water or mixed water (K01)	M
Temperature changes (e.g. rise of temperature & extremes) due to climate change (N01)	M

Increases or changes in precipitation due to climate change (N03)	M

Threat	Ranking
Intensive grazing or overgrazing by livestock (A09)	M
Extraction of minerals (e.g. rock, metal ores, gravel, sand, shell) (C01)	M
Other invasive alien species (other then species of Union concern) (I02)	M
Peat extraction (C05)	M
Wind, wave and tidal power, including infrastructure (D01)	M
Mixed source pollution to surface and ground waters (limnic and terrestrial) (J01)	H
Mixed source air pollution, air-borne pollutants (J03)	H
Abstraction from groundwater, surface water or mixed water (K01)	M
Temperature changes (e.g. rise of temperature & extremes) due to climate change (N01)	H
Increases or changes in precipitation due to climate change (N03)	H

7.2 Sources of information

7.3 Additional information

8. Conservation measures

8.1 Status of measures	a) Are measures needed?	Yes
	b) Indicate the status of measures	Measures identified and taken
8.2 Main purpose of the measures taken		Maintain the current range, population and/or habitat for the species
8.3 Location of the measures taken		Both inside and outside Natura 2000
8.4 Response to the measures		Medium-term results (within the next two reporting periods, 2019-2030)
8.5 List of main conservation measures		

Adapt/manage renewable energy installation, facilities and operation (CC03)
Reduce impact of mixed source pollution (CJ01)
Prevent conversion of (semi-) natural habitats into forests and of (semi-)natural forests into intensive forest plantation (CB01)
Reduce impact of multi-purpose hydrological changes (CJ02)
Manage water abstraction for resource extraction and energy production (CC13)
Early detection and rapid eradication of invasive alien species of Union concern (CI01)
Implement climate change adaptation measures (CN02)
Adapt mowing, grazing and other equivalent agricultural activities (CA05)
Adapt/manage exploitation of energy resources (CC02)
Adapt/change forest management and exploitation practices (CB05)

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8.6 Additional information

9. Future prospects

9.1 Future prospects of parameters	a) Range b) Area c) Structure and functions
9.2 Additional information	

10. Conclusions

10.1. Range	
10.2. Area	
10.3. Specific structure and functions (incl. typical species)	
10.4. Future prospects	
10.5 Overall assessment of Conservation Status	
10.6 Overall trend in Conservation Status	
10.7 Change and reasons for change in conservation status and conservation status trend	a) Overall assessment of conservation status No change The change is mainly due to: b) Overall trend in conservation status No change The change is mainly due to:
10.8 Additional information	

11. Natura 2000 (pSCIs, SCIs, SACs) coverage for Annex I habitat types

11.1 Surface area of the habitat type inside the pSCIs, SCIs and SACs network (in km² in biogeographical/ marine region)	a) Minimum b) Maximum c) Best single value 0.25
11.2 Type of estimate	95% confidence interval
11.3 Surface area of the habitat type inside the network Method used	Complete survey or a statistically robust estimate
11.4 Short-term trend of habitat area in good condition within the network Direction	Stable (0)
11.5 Short-term trend of habitat area in good condition within network Method used	Complete survey or a statistically robust estimate
11.6 Additional information	

12. Complementary information

12.1 Justification of % thresholds for trends	

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12.2 Other relevant information

Distribution Map

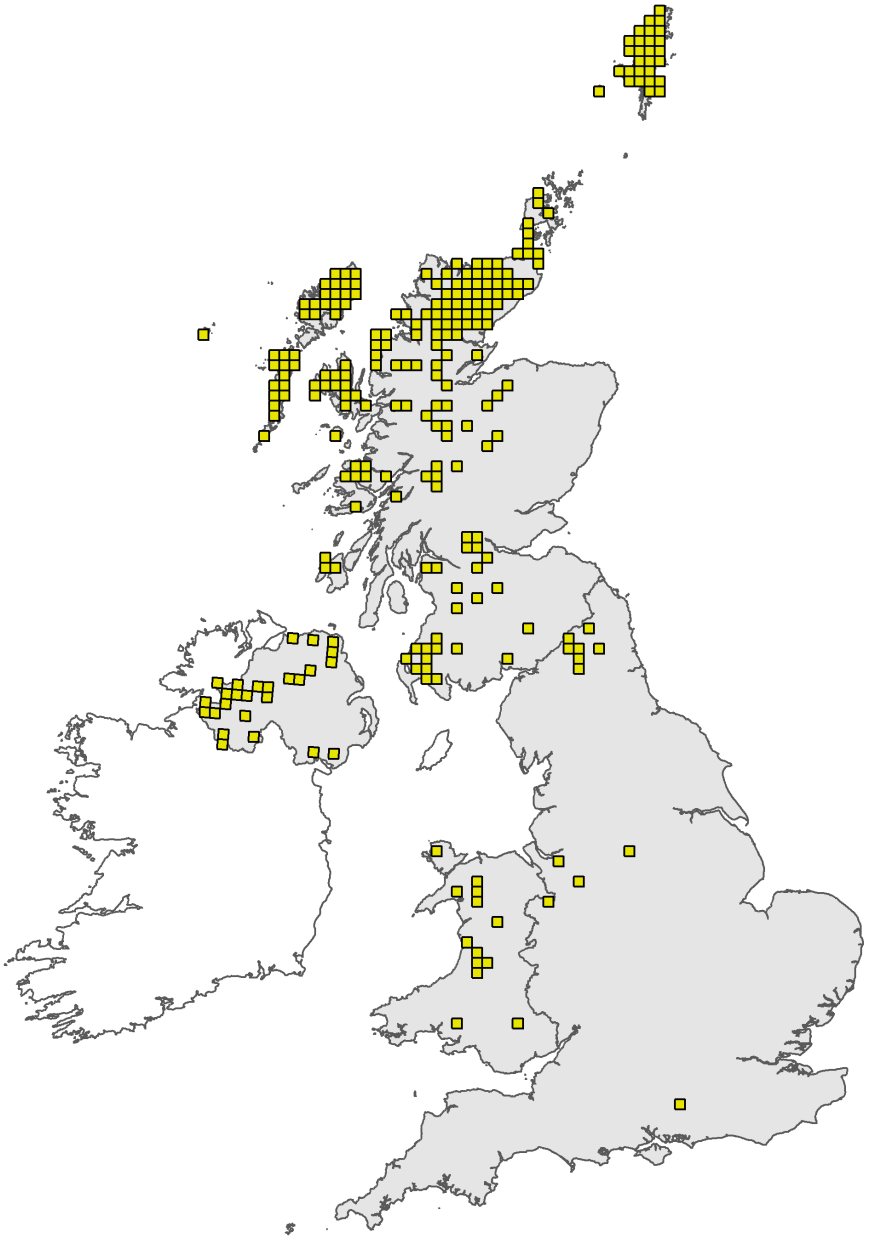

Figure 1: UK distribution map for H3160 - Natural dystrophic lakes and ponds. Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

The 10km grid square distribution map is based on available habitat records which are considered to be representative of the distribution within the current reporting period. For further details see the 2019 Article17 UK Approach document.

Range Map

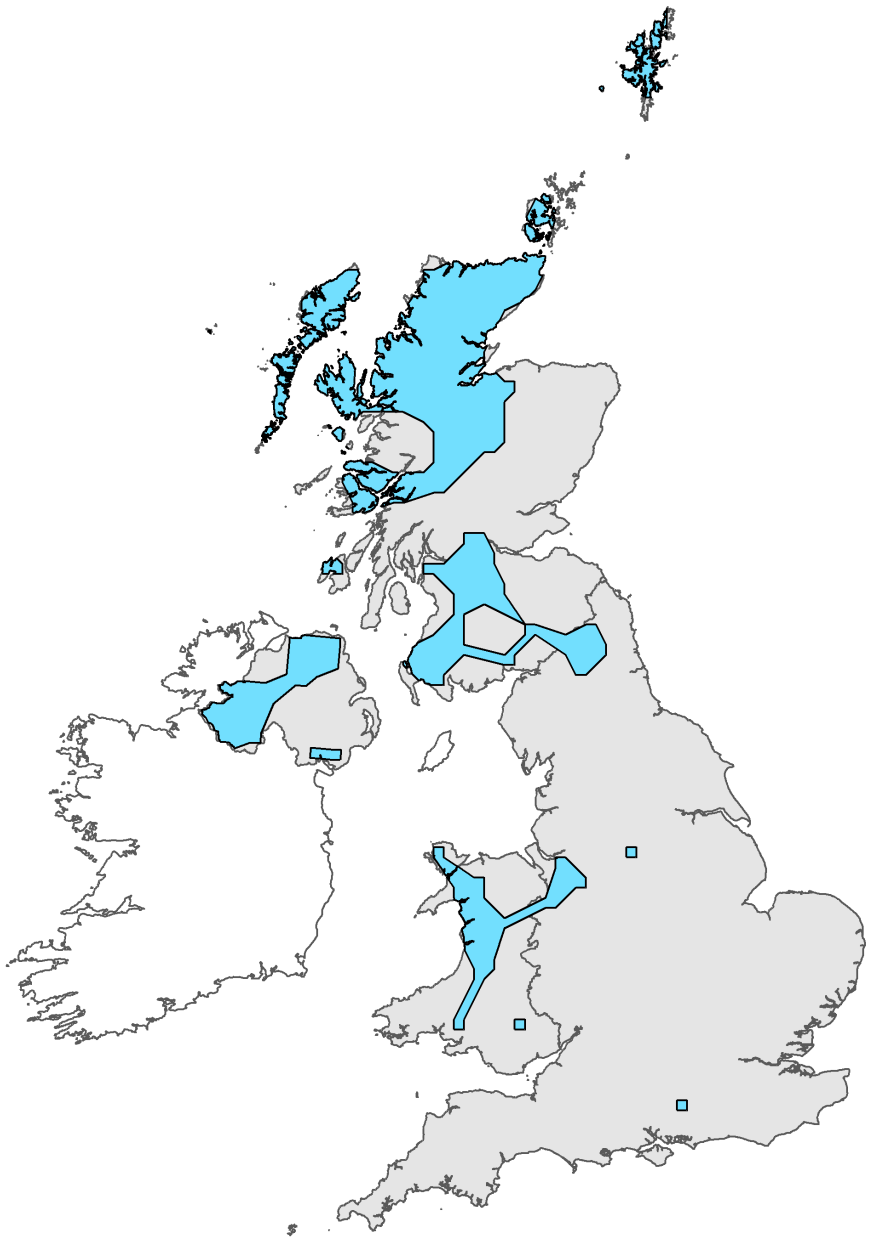

Figure 2: UK range map for H3160 - Natural dystrophic lakes and ponds. Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

The range map has been produced by applying a bespoke range mapping tool for Article 17 reporting (produced by JNCC) to the 10km grid square distribution map presented in Figure 1. The alpha value for this habitat was 25km. For further details see the 2019 Article 17 UK Approach document.

Explanatory Notes

Habitat code: 3160

Field label	Note
2.3 Distribution map; Method used	The distribution of H3160 lake type in Northern Ireland is derived from historical data compiled between 1988 and 1990 by the Northern Ireland Lake Survey (NILS). The same distribution was recorded by ENSIS Ltd (Environment Science Services) when completing Site Condition Assessments of Standing Water Features in SACs and ASSIs: Northern Ireland reports 2008 and 2015 which resurveyed the majority the original H3160 lake locations. The distribution is a good representation, although there will be some gaps in small H3160 water bodies as the NILS primarily confined itself to water bodies over 1 ha in size. In addition to these Lakes and Ponds the bog pools associated with raised and blanket bogs, with reference to the definition of this habitat given in the first Article 17 Report, also qualify and should be taken into consideration. The inclusion of these pools has little impact on the overall area of this habitat but does markedly extend its distribution.

Habitat code: 3160 Region code: ATL

Field label	Note
4.3 Short term trend; Direction	The trend of H3160 lake type in Northern Ireland is derived from comparing historical data compiled between 1988 and 1990 by the Northern Ireland Lake Survey (NILS) and data compiled by ENSIS Ltd (Environment Science Services) when completing the Site Condition Assessments of Standing Water Features in SACs and ASSIs: Northern Ireland reports 2008 and 2015, which resurveyed the majority of the original H3160 lake locations.
4.5 Short term trend; Method used	The short -term trend is derived from most comprehensive survey of Northern Ireland of H3160, which was undertaken by ENSIS Ltd (Environment Science Servises) to complete the Site Condition Assessments of Standing Water Features in SACs and ASSIs: Northern Ireland reports 2008 and 2015.
4.7 Long term trend; Direction	The trend of H3160 lake type in Northern Ireland is derived from comparing historical data compiled between 1988 and 1990 by the Northern Ireland Lake Survey (NILS) and data compiled by ENSIS Ltd (Environment Science Services) when completing the Site Condition Assessments of Standing Water Features in SACs and ASSIs: Northern Ireland reports 2008 an 2015 which resurveyed the majority the original H3160 lake locations.
4.9 Long term trend; Method used	The long -term trend is derived from most comprehensive survey of Northern Ireland of H3160, which was undertaken by ENSIS Ltd (Environment Science Services) to complete the Site Condition Assessments of Standing Water Features in SACs and ASSIs: Northern Ireland reports 2008 and 2015.
5.1 Year or period	The surface area of H3160 lake type in Northern Ireland is derived from comparing historical data compiled between 1988 and 1990 by the Northern Ireland Lake Survey (NILS) and data compiled by ENSIS Ltd (Environment Science Services) when completing the Site Condition Assessments of Water Features in SACs and ASSIs: Northern Ireland reports 2008 and 2015 - which resurveyed the majority the original H3160 lake locations. However this is an underestimate, due to the large number of small pools not assessed in either survey.
5.2 Surface area	See 5.1
5.3 Type of estimate	See 5.1
5.4 Surface area; Method used	See 5.1
5.5 Short term trend; Period	See 5.1

5.6 Short term trend; Direction	Lakes are rarely 'lost' in the conventional sense, although small water bodies may be in-filled or drained. However, many lakes have been severely degraded to the extent that they no longer support characteristic plant or animal communities. As a consequence area assessments show little significant change over time in spite of nutrient enrichment. Degraded sites are not considered lost because of the way in which lake types are defined.
5.8 Short term trend; Method used	See 5.1
5.9 Long term trend; Period	See 5.1
5.10 Long term trend; Direction	Lakes are rarely 'lost' in the conventional sense, although small water bodies may be in-filled or drained. However, many lakes have been severely degraded to the extent that they no longer support characteristic plant or animal communities. As a consequence area assessments show little significant change over time in spite of nutrient enrichment. Degraded sites are not considered lost because of the way in which lake types are defined.
5.12 Long term trend; Method used	See 5.1
6.1 Condition of habitat	Based on individual waterbody assessments as part of ENSIS Ltd (Environment Science Services) Site Condition Assessments of Water Features in SACs and ASSIs: Northern Ireland 2008 and 2015 which resurveyed the majority the original H3160 lake locations. However this is an underestimate, due to the large number of small pools not assessed in either survey.
6.2 Condition of habitat; Method used	see 6.1
6.4 Short term trend of habitat area in good condition; Direction	see 6.1
6.5 Short term trend of habitat area in good condition; Method used	see 6.1

7.1 Characterisation of pressures/ threats	Water pollution - The upland catchments where these dystrophic standing water bodies naturally occur are generally isolated from human occupation but subject to afforestation resulting in elevated nutrient levels and sedimentation through diffuse pollution. Another source of pollution is from direct defecation into these water bodies from livestock. Although naturally acidic, acid deposition from air pollution can have an impact, however the high DOC levels in the water column helps buffer against acid episodes. The increase in aerial nitrogen deposition (APIS) resulting in part from agricultural activity is now identified as a major threat to all habitats in Northern Ireland. Blanket bog integrity - these and other upland water bodies are dependent on the condition of the surrounding peatland. Therefore, any adverse impacts on the peatland - such as intensive grazing, mechanical removal of peat, burning and construction of wind farms - which have the potential to induce changes in hydraulic condition in addition to increased sediment loading, may have a negative effect on these upland water bodies. Hence pollution is from multiple sources and reported under J01 Mixed source pollution to surface and ground waters (limnic and terrestrial). Water abstraction - a few of these larger dystrophic lakes are used as a public water supply. Alien species - Due to their isolated nature there are no records of these upland standing waters being affected by non-native species, however the extent to which the artificial lowland ponds are impacted has not been assessed. The impact of climate change in the short term is not apparent, however if the predicted changers in temperature and rainfall patterns occur along with extreme weather events there will inevitably impact on the structure and function of all standing freshwater bodies to a greater or lesser degree.
8.2 Main purpose of the measures taken	There are two major elements to the current measures being undertaken to restore structure and function. The first is the ongoing commitment to the Water Framework directive (WFD) and carried out through River Basin Management, a key element in implementing the WFD, taking an integrated approach to the protection, improvement and sustainable use of the water environment. It applies to groundwater and to all surface water bodies, including rivers, lakes, transitional (estuarine) and coastal waters out to one nautical mile. In 2009 the first set of River Basin Management Plans (RBMP) as required by the Water Framework Directive were published for each River Basin District within Northern Ireland. The Plan identified where our water environment is in good or excellent conditions and set out objectives for improvement or prevention of deterioration. As required by WFD, the Plans are to be reviewed and updated every 6 years. In 2015 the second set of Plans were published providing an overview of changes and progress that have been made. Northern Ireland has 571 surface and groundwater bodies - 496 surface and 75 groundwater. The 2015 classification results indicate 36.78% are at good or better status. By 2021 with objectives set we aim to increase this to 69.8% with 99.1% at good or better status by 2027. The second is the initiation of the development of Conservation Management Plans for Natura 2000 sites, with a target of 95% completion by December 2020. This project will be undertaken partly through the Rural Development Programme (RDP) - Northern Ireland which will support the development of plans for some Natura 2000 sites, with many of the remaining plans being primarily funded through INTERREG VA. These plans will specifically include Lough Melvin the largest H3130 lake in Northern Ireland, Upper Lough Erne the second largest H3150 lake in Northern Ireland and all six SAC rivers. In addition plans are proposed for all upland peatland SACs which include a significant number of Northern Ireland's small H3130 and H3160 water bodies.
9.1 Future prospects of parameters	There are a number of factors which cannot be assessed with any degree of certainty. They include: The effectiveness of the SAC management plans currently being developed, the future impact of aerial nitrogen deposition, climate change and the effectiveness of the EU directives following Brexit, primarily the WFD and HD.

11.1 Surface area of the habitat type inside the pSCIs, SCIs and SACs network	The surface area of H3160 feature lakes in Northern Ireland SAC network is derived from comparing historical data compiled between 1988 and 1990 by the Northern Ireland Lake Survey (NILS) and data compiled by ENSIS Ltd (Environment Science Services) when completing Site Condition Assessments of Water Features in SACs and ASSIs: Northern Ireland reports 2008 and 2015 which resurveyed all H3160 feature lakes over 1ha with in the network. However it is a slight underestimate, due to the large number of small pools not assessed in either survey.
11.2 Type of estimate	see 11.1
11.3 Surface area of the habitat type inside the network; Method used	see 11.1
11.4 Short term trend of habitat area in good condition within the network; Direction	The condition of H3160 feature lakes in Northern Ireland SAC network is derived from the ENSIS Ltd (Environment Science Services) Site Condition Assessments of Water Features in SACs and ASSIs: Northern Ireland reports 2008 and 2015 which resurveyed all H3160 feature lakes over 1ha with in the network.
11.5 Short term trend of habitat area in good condition within the network; Method used	see 11.4