

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

**Third Report by the United Kingdom under
Article 17**

on the implementation of the Directive
from January 2007 to December 2012
Conservation status assessment for

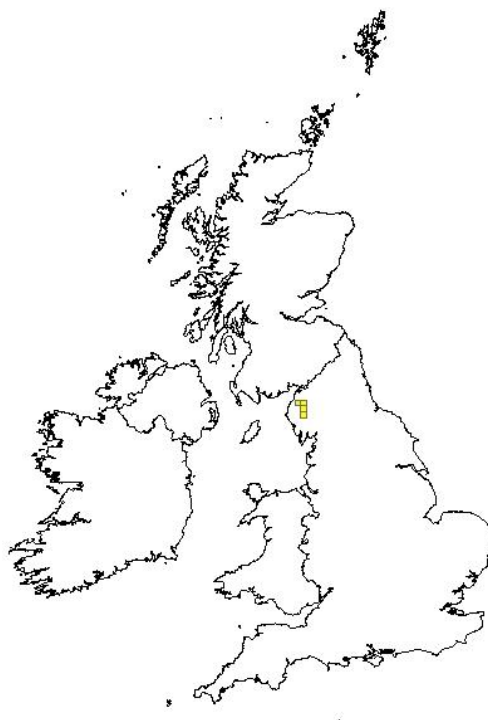
Species:

S2492 - Vendace (*Coregonus albula*)

Reporting format on the 'main results of the surveillance under Article 11' for Annex II, IV & V species

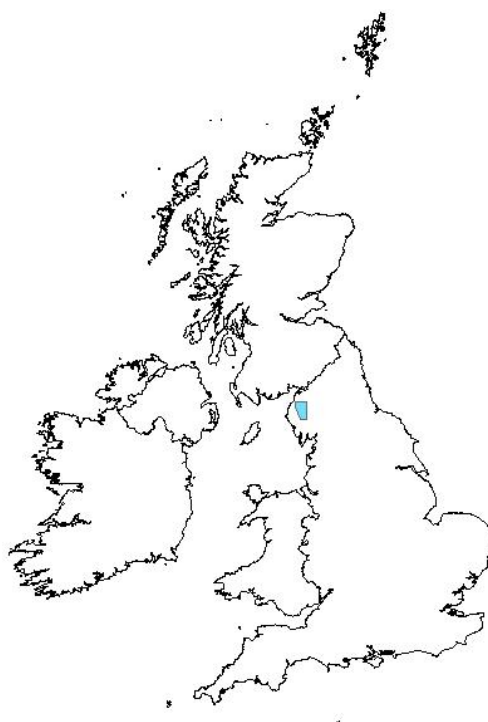
<i>Field name</i>	<i>Brief explanations</i>	
0.2 Species	0.2.1 Species code	S2492
	0.2.2 Species scientific name	<i>Coregonus albula</i>
	0.2.3 Alternative species scientific name Optional	
	0.2.4 Common name Optional	

1.1 Maps			
1.1.1 Distribution map	True	Sensitive	False
	The distribution map is based on species records which are considered to be representative of the range within the current reporting period. For further details see the 2013 Article 17 UK Approach document.		



1.1.2 Method used - map	Complete survey/Complete survey or a statistically robust estimate
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.
1.1.3 Year or period	2000-2009
	The distribution map is based on species records which are considered to be representative of the range within the current reporting period. For further details see the 2013 Article 17 UK Approach document.

1.1.4 Additional distribution map Optional	False
1.1.5 Range map	True The range map was produced by applying the UK range mapping tool to the distribution map presented in 1.1.4. The alpha value for this species was 25km. For further details see the 2013 Article 17 UK Approach document.



2.1 Biogeographical region & marine regions	ATL
2.2 Published sources	<p>CEH (Unpublished) Monitoring the Fish Populations of Bassenthwaite Lake and Derwent Water, 2011. Report to the Environment Agency by Centre for Ecology and Hydrology. Common Standards for Monitoring assessment of Bassenthwaite Lake, 2009. (University College London for Natural England) (unpublished)</p> <p>J. Alex; Bell, Victoria A. 2011. Predicting the potential long-term influence of climate change on vendace (<i>Coregonus albula</i>) habitat in Bassenthwaite Lake, U.K. Centre for Ecology and Hydrology, Freshwater Biology, 56. 395-405. http://nora.nerc.ac.uk/10797/</p> <p>Joint Nature Conservation Committee. 2007. Second Report by the UK under Article 17 on the implementation of the Habitats Directive from January 2001 to December 2006. Peterborough: JNCC. Available from: www.jncc.gov.uk/article17</p> <p>Lyle, A. A.; Maitland, P. S.; Winfield, I. J.. 2006 Translocation of vendace from Derwentwater to safe refuge locations (2005/6) Final Report. Centre for Ecology and Hydrology, 31pp. (CEH: Project Report Number C02852) (Unpublished)</p> <p>Maberly, S.C et al. 2011 A survey of the lakes of the English</p>

Lake District: The Lakes Tour 2010. NERC/Centre for Ecology & Hydrology, (CEH Project Number: C04357)
<http://nora.nerc.ac.uk/14563/2/N014563CR.pdf>

Warburton, J. Sediment Transfer in Steep Upland Catchments (Northern England, UK): Landform and Sediment Source Coupling. 2010. Landform - Structure, Evolution, Process Control Lecture Notes in Earth Sciences Volume 115, 2010, pp 165-183 http://link.springer.com/chapter/10.1007%2F978-3-540-75761-0_11?LI=true

Winfield et al, 2008. Conservation of the vendace (*Coregonus albula*), the U.K.'s rarest freshwater fish. In: Tallmann, Ross F.; Howland, Kimberley L.; Rennie, Michael D.; Mills, Kenneth, (eds.) Biology and management of coregonid fishes - 2008. Stuttgart, E. Schweizerbart, 547-559.
http://www.schweizerbart.de/publications/detail/isbn/9783510470655/Biology_and_Management_of_Coregonid_Fishes_2008

Winfield, I.J.; Fletcher, J.M.; James, J.B. 2011 Invasive fish species in the largest lakes of Scotland, Northern Ireland, Wales and England: the collective U.K. experience. Hydrobiologia, 660. 93-103. 10.1007/s10750-010-0397-2

Winfield, Ian J.; Fletcher, Janice M.; James, J. Ben 2010. Rare Fish Monitoring Final Report , Centre for Ecology and Hydrology,
http://nora.nerc.ac.uk/13743/1/Rare_fish_monitoring_Final_Report.pdf

Winfield, Ian J.; Fletcher, Janice M.; James, J. Ben. 2009 Investigation of vendace spawning grounds in Derwent Water. Final Report. NERC/Centre for Ecology and Hydrology, 42pp. (CEH Report Ref. No: LA/C03635/3) (Unpublished)
<http://nora.nerc.ac.uk/id/eprint/7151>

Winfield, Ian J.; Fletcher, Janice M.; James, J. Ben. 2010. Refinement of hydroacoustic methodology for vendace population assessment and monitoring. Final Report. NERC/Centre for Ecology and Hydrology, 34pp. (CEH Report Ref. No. LA/C03598/3), 2010. Winfield et al
<http://nora.nerc.ac.uk/id/eprint/9474>

Winfield, Ian J.; Fletcher, Janice M.; Lyle, Alexander A.. 2007 Assessment of the vendace refuge population of Loch Skeen. Draft Final Report. Lancaster, NERC/Centre for Ecology and Hydrology, 20pp. (CEH Report Ref No: LA/C02539/2) (Unpublished)

Winfield, Ian J.; Fletcher, Janice M.; Lyle, Alexander A.. 2008 Assessment of the vendace refuge population of Loch Skeen. Final Report. NERC/Centre for Ecology and Hydrology (CEH Report Ref No: LA/C02539/3, Scottish Natural Heritage Commissioned Report No.281, ROAME No. R06AC601A) (Unpublished) <http://nora.nerc.ac.uk/id/eprint/2181>

UK distribution map data sources

Database for the Atlas of Freshwater Fishes (1637-2003)
NBN Gateway data: Cumbria Biodiversity Data Centre GA000871 Cumbria Biodiversity Data Centre. Vertebrate Observation Records, other than Birds. Pre-2010 for Cumbria
NBN Gateway data: Environment Agency GA001129

	<p>Environment Agency Rare and Protected Species records v1</p> <p>UK Distribution Map data sources</p> <p>Database for the Atlas of Freshwater Fishes (1637-2003) NBN Gateway data: Cumbria Biodiversity Data Centre GA000871 Cumbria Biodiversity Data Centre. Vertebrate Observation Records, other than Birds. Pre-2010 for Cumbria NBN Gateway data: Environment Agency GA001129 Environment Agency Rare and Protected Species records v1</p>
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2.3 Range					
2.3.1 Surface area Range	<p>500</p> <p>The surface area of the range was calculated from the map presented in 1.1.5. For further details see the 2013 Article 17 UK Approach document.</p>				
2.3.2 Method used Surface area of Range	<p>Complete survey/ Complete survey or a statistically robust estimate</p> <p>For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.</p>				
2.3.3 Short-term trend Period	<p>2001-2012</p> <p>For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.</p>				
2.3.4 Short term trend Trend direction	<p>stable</p> <p>The short term trend direction was derived by comparing the range map in 1.1.5 with the range map produced in the 2007 report, by considering the range trend in the 2007 report, and by considering any further information provided by the UK country conservation agencies. For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.</p>				
2.3.5 Short-term trend Magnitude	<table border="1"> <tr> <td>a) Minimum</td> <td></td> </tr> <tr> <td>b) Maximum</td> <td></td> </tr> </table> <p>Optional</p>	a) Minimum		b) Maximum	
a) Minimum					
b) Maximum					
2.3.6 Long-term trend Period	<p>1989-2012</p> <p>For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.</p> <p>Optional</p>				
2.3.7 Long-term trend Trend direction	<p>decrease >1%/year</p> <p>The long term trend direction was derived by comparing the range map in 1.1.5 with the range map produced in the 2007 report, by considering the range trend in the 2007 report, and by considering any</p> <p>Optional</p>				

	further information provided by the UK country conservation agencies. For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
2.3.8 Long-term trend Magnitude Optional	a) Minimum	
	b) Maximum	
2.3.9 Favourable reference range	a) Value in km²	
	b) Operator for FRR	much more than
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
	c) FRR is unknown (indicated by "true")	False
	d) Method used to set FRR	
2.3.10 Reason for change Is the difference between the reported value in 2.3.1 and the previous reporting round mainly due to...	a) Genuine change?	False
	The surface area of range is the same as reported in 2007. However, the actual area occupied has declined to to extinction of the population in Bassenthwaithe.	
	b) Improved knowledge/more accurate data?	False
	The surface area of range is the same as reported in 2007. However, the actual area occupied has declined to to extinction of the population in Bassenthwaithe.	
	c) Use of different method (e.g. "Range tool")?	False
	The surface area of range is the same as reported in 2007. However, the actual area occupied has declined to to extinction of the population in Bassenthwaithe.	

2.4 Population		
2.4.1 Population size estimation (using individuals or agreed exceptions where possible)	a) Unit	number of individuals
	The population unit is the same as reported in 2007.	
	b) Minimum	242
	For further details see the 2013 Article 17 UK Approach document and	

	relevant country-level reporting information.	
	c) Maximum	29000
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
2.4.2 Population size estimation (using population unit other than individuals) Optional (<i>if 2.4.1 filled in</i>)	a) Unit	
	b) Minimum	
	c) Maximum	
2.4.3 Additional information on population estimates / conversion Optional	a) Definition of "locality"	
	b) Method to convert data	
	c) Problems encountered to provide population size estimation	
2.4.4 Year or period	2007-2012	
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
2.4.5 Method used Population size	Complete survey/Complete survey or a statistically robust estimate	
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
2.4.6 Short-term trend Period	2001-2012	
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
2.4.7 Short-term trend Trend direction	decrease 1% or less/year	
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
2.4.8 Short-term trend Magnitude Optional	a) Minimum	
	b) Maximum	
	c) Confidence	

	interval	
2.4.9 Short-term trend Method used	Complete survey/ Complete survey or a statistically robust estimate	
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
2.4.10 Long-term trend – Period	1995-2012	
Optional	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
2.4.11 Long-term trend Trend direction	decrease >1%/year	
Optional	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
2.4.12 Long-term trend Magnitude	a) Minimum	50
Optional		
	b) Maximum	64
	c) Confidence interval	
2.4.13 Long term trend Method used	Complete survey/ Complete survey or a statistically robust estimate	
Optional	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
2.4.14 Favourable reference population	a) Number of individuals/agreed exceptions/other units	
	There is insufficient information available for this species to be able to determine the favourable reference population.	
	b) Operator	much more than
	c) FRP is unknown (indicated by "true")	False
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
	d) Method used to set FRP	There is insufficient information available for this species to be able to determine the favourable reference population.
	There is insufficient information available for this species to be able to determine the favourable reference population.	

2.4.15 Reason for change Is the difference between the value reported at 2.4.1 or 2.4.2 and the previous reporting round mainly due to:	a) Genuine change?	True
	The extinction of this species at one of the two occupied sites has now been confirmed; the decline is genuine.	
	b) Improved knowledge/ more accurate data?	False
	The extinction of this species at one of the two occupied sites has now been confirmed; the decline is genuine.	
	c) Use of different method (e.g. "Range tool")?	False
The extinction of this species at one of the two occupied sites has now been confirmed; the decline is genuine.		

2.5 Habitat for the species		
2.5.1 Area estimation	5.43	
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information. There is not thought to be a sufficient amount of habitat in the UK to support a viable population of the species.	
2.5.2 Year or period	2012	
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
2.5.3 Method used Habitat for the species	Complete survey/Complete survey or a statistically robust estimate	
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
2.5.4 Quality of the habitat	a) Habitat quality	Moderate
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
	b) Assessment method	SAC condition assessment of Bassenthwaite and Derwent Water. Further general surveys of the Cumbrian Lake District, and specific spawning substrate assessments.
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
2.5.5 Short-term trend Period	2001-2012	
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
2.5.6 Short-term trend Trend direction	decrease	
	For further details see the 2013 Article 17 UK Approach document and	

	relevant country-level reporting information.	
2.5.7 Long-term trend Period	1995-2012	
Optional	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
2.5.8 Long-term trend Trend direction	decrease	
Optional	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
2.5.9 Area of suitable habitat for the species	a) Value in km²	
	b) Absence of data indicated as '0'	
2.5.10 Reason for change Is the difference between the value reported at 2.5.1 and the previous reporting round mainly due to	a) Genuine change?	True
	The decrease in surface area of habitat is considered to be a genuine change.	
	b) Improved knowledge/more accurate data?	False
	The decrease in surface area of habitat is considered to be a genuine change.	
	c) Use of different method (e.g. "Range tool")?	False
The decrease in surface area of habitat is considered to be a genuine change.		

2.6 Main pressures		
a) Pressure	b) Ranking	c) Pollution qualifier
	H = high importance (max 5 entries) M = medium importance L = low importance	
H01: Pollution to surface waters (limnic & terrestrial, marine & brackish)	H	X
I01: invasive non-native species	H	
I02: problematic native species	H	
J02: human induced changes in hydraulic conditions	H	
C01: Mining and quarrying	M	
F02: Fishing and harvesting aquatic resources	M	
M01: Changes in abiotic conditions	L	

For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.

2.6.1 Method used – Pressures

mainly based on expert judgement and other data

For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.

2.7 Threats

a) Threat	b) Ranking	c) Pollution qualifier
	H = high importance (max 5 entries) M = medium importance L = low importance	
H01: Pollution to surface waters (limnic & terrestrial, marine & brackish)	H	X
I01: invasive non-native species	H	
I02: problematic native species	H	
J02: human induced changes in hydraulic conditions	H	
C01: Mining and quarrying	M	
M01: Changes in abiotic conditions	L	

For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.

2.7.1 Method used – Threats

expert opinion

For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.

2.8 Complementary information

2.8.1 Justification of % thresholds for trends

2.8.2 Other relevant information

2.8.3 Trans-boundary assessment

2.9 Conclusions (assessment of conservation status at end of reporting period)	
2.9.1 Range	a) Conclusion Bad
	Range has been assessed as Bad., because surface area of range is more than 10% below the FRV. Although the surface area of range has remained stable (based on 10km records), the species is now confined extinct in one of the two locations it recently occupied.
	b) Qualifier stable
	The surface area of range based on 10km records has remained stable although the species is now confined extinct in one of the two locations it recently occupied.
2.9.2 Population	a) Conclusion Bad
	Population has been assessed as bad; it is declining and the current population estimate is thought to be more than 25% below the FRV.
	b) Qualifier declining
2.9.3 Habitat for the species	a) Conclusion Bad
	Habitat for species has been assessed as bad, as there is not considered to be sufficient habitat available to support a viable population, and the habitat trend is declining.
	b) Qualifier declining
2.9.4 Future prospects	a) Conclusion Bad
	Future prospects is assessed as bad. Future prospects of the three parameters, range, population and habitat for species: Range future prospects: Bad Population future prospects: Bad Habitat future prospects: Bad Overall future prospects: Bad Threatened by invasive species with no current control strategy; and by pollution to lake water.
	b) Qualifier declining
2.9.5 Overall assessment of Conservation Status	Bad
	The overall assessment is Bad., because all parameters are Bad.
2.9.6 Overall trend in Conservation Status	declining
	On balance, the overall trend is declining

**3 Natura 2000 coverage & conservation measures - Annex II species
(only applies to species listed under Annex II of the Directive)**

3.1 Population

3.1.1 Population size Estimation of population size included in the SAC network	a) Unit	
	b) Minimum	
	c) Maximum	
3.1.2 Method used		
3.1.3 Trend of population size within the network (short-term trend) Optional		

3.2 Conservation measures

Conservation measures taken (i.e. already being implemented) within the reporting period and provided information about their importance, location and evaluation.

3.2.1 Measure	3.2.2 Type					3.2.3 Ranking H = high importance M = medium importance L = low importance	3.2.4 Location where the measure is PRIMARILY applied			3.2.5 Broad evaluation of the measure					
	a) Legal/statutory	b) Administrative	c) Contractual	d) Recurrent	e) One-off		a) Inside	b) Outside	c) Both inside & outside	a) Maintain	b) Enhance	c) Long term	d) No effect	e) Unknown	f) Not evaluated

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