

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

Supporting documentation for the
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:

S2494 - Whitefish (*Coregonus lavaretus*)

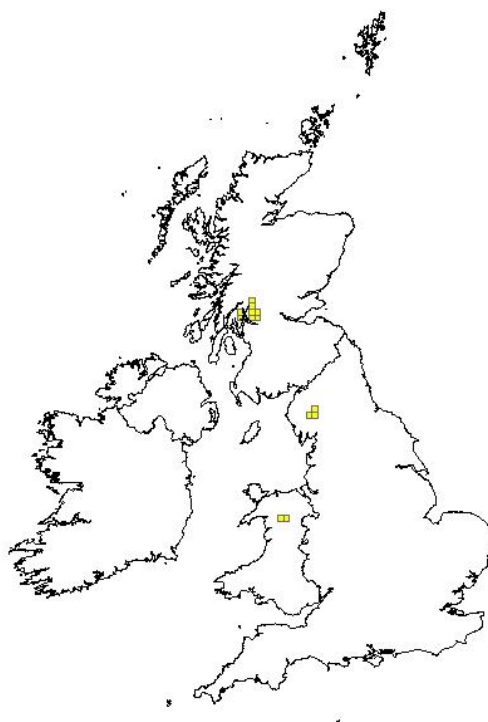
IMPORTANT NOTE – PLEASE READ

- The country-level reporting information contained in this document is a contribution to the Article 17 UK report for the habitat/species concerned.
- It has been provided by **Natural England** and refers only to the state of the habitat/species in **England** - it does not constitute an assessment for the whole of the UK.
- The Article 17 UK Approach document provides details on how this information has been used and, combined with information supplied by other Statutory Nature Conservation Bodies
- The format of the document is closely aligned to that set out by the European Commission for Member State reporting – as a result, some of the fields are not applicable at a country-level and have deliberately been left blank – in addition, the content of most fields is constrained by the EC reporting categories.

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	S2494
	0.2.2 Species scientific name	<i>Coregonus lavaretus</i>
	0.2.3 Alternative species scientific name Optional	
	0.2.4 Common name Optional	Schelly

1.1 Maps			
1.1.1 Distribution map		Sensitive	False



1.1.2 Method used - map	Complete survey/Complete survey or a statistically robust estimate		
1.1.3 Year or period	2007-2012		
1.1.4 Additional distribution map	False		
1.1.5 Range map			

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2.1 Biogeographical region & marine regions	ATL
2.2 Published sources	<p>"Ian J. Winfield, Colin W. Bean , John Gorst , Andrew R. D. Gowans , Maggie Robinson and Rhian Thomas (In Draft) Assessment and conservation of whitefish (<i>Coregonus lavaretus</i> (L.)) in the U.K. Paper to be submitted to relevant peer-reviewed journal.</p> <p>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</p> <p>Winfield, I.J.; Fletcher, J.M.; James, J.B. 2011 Monitoring of the schelly of Haweswater April 2010 to March 2011. Final Report to United Utilities http://nora.nerc.ac.uk/14020/1/Monitoring_of_the_schelly_of_Haweswater_Final_Report_2011.pdf</p> <p>Winfield, I.J.; Fletcher, J.M.; James, J.B. 2011 Monitoring of the schelly of Haweswater April 2009 to March 2010. Final Report to United Utilities (Unpublished)</p> <p>Winfield, Ian J.; Fletcher, Janice M.; James, J. Ben. 2009 Monitoring of the schelly of Haweswater, April 2008 to March 2009. Final Report. To United Utilities (Unpublished)</p> <p>Winfield, Ian J.; Fletcher, Janice M.; James, J. Ben. 2009 Monitoring of the schelly of Haweswater, April 2007 to March 2008. Final Report. To United Utilities (Unpublished)</p> <p>Winfield, Ian J.; Fletcher, Janice M.; James, J. Ben. 2009 Monitoring of the schelly of Haweswater, April 2006 to March 2007. Final Report. To United Utilities (Unpublished)</p> <p>Winfield, Ian J.; Fletcher, Janice M.; James, J. Ben. 2009 Monitoring of the schelly of Haweswater, April 2005 to March 2006. Final Report. To United Utilities (Unpublished)</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>Winfield, I. J., Fletcher, J. M. & James, J. B. 2004) Modelling the impacts of water level fluctuations on the population dynamics of whitefish (<i>Coregonus lavaretus</i> (L.)) in Haweswater, U.K. <i>Ecohydrology & Hydrobiology</i> 4, 409-416.</p> <p>Winfield, I. J., Fletcher, J. M. & James, J. B. (2004c). The impact of cormorants on the fish community of Haweswater. Final Report. Report to Environment Agency, LA/C00152/8. 44 pp.</p> <p>Winfield, I. J., Fletcher, J. M. & James, J. B. 2007. Modelling the impacts of water level fluctuations and predation by cormorants (<i>Phalacrocorax carbo</i>) on the population dynamics</p>

	<p>of whitefish (<i>Coregonus lavaretus</i>) in Haweswater, U.K. Archiv fur Hydrobiologie, Official Journal of the International Association for Theoretical and Applied Limnology. Special Issues: Ergebnisse der Limnologie 60, 277-284.</p> <p>WINFIELD, I.J., CRAWSHAW, D.H. & DURIE, N.C. (2003b): Management of the cormorant, <i>Phalacrocorax carbo</i>, and endangered whitefish, <i>Coregonus lavaretus</i>, populations of Haweswater, UK. - In: COWX, I.G. (Ed.): Interactions between Fish and Birds: Implications for Management, pp. 335-344 Fishing News Books, Blackwell Scientific Publications, Oxford.</p> <p>ETHERIDGE, E.C., BEAN, C.W. & ADAMS, C.E. 2011. An experimental approach to estimating vulnerability of European whitefish (<i>Coregonus lavaretus</i>) ova to predation by invasive ruffe (<i>Gymnocephalus cernuus</i>). Ecology of Freshwater Fish.</p> <p>Bean, C.W. 2003, A Standardised Survey and Monitoring Protocol for the Assessment of Whitefish <i>Coregonus albula</i> (L) and <i>Coregonus lavaretus</i> (L) Populations in the UK. Scottish Natural Heritage Research, Survey and Monitoring Report</p> <p>Maberly, S.C et al. 2011 A survey of the lakes of the English Lake District: The Lakes Tour 2010. NERC/Centre for Ecology & Hydrology, (CEH Project Number: C04357)</p> <p>http://nora.nerc.ac.uk/14563/2/N014563CR.pdf</p> <p>Common Standards for Monitoring assessment of Ullswater 2008. (University College London for Natural England) (unpublished)</p> <p>Common Standards for Monitoring assessment of Brothers Water 2008. (University College London for Natural England) (unpublished)</p> <p>Common Standards for Monitoring assessment of Red Tarn 2007. (University College London for Natural England) (unpublished)"</p>
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2.3 Range	
2.3.1 Surface area Range	
2.3.2 Method used Surface area of Range	Complete survey/Complete survey or a statistically robust estimate
2.3.3 Short-term trend Period	2001-2011
2.3.4 Short term trend Trend direction	stable The species is not thought to have occurred outside of the four existing sites in England, therefore the range in England is considered to be stable over both short and long-term timescales.
2.3.5 Short-term trend Magnitude	a) Minimum

	b) Maximum	
2.3.6 Long-term trend Period	1995-2012	
2.3.7 Long-term trend Trend direction	stable	
	The species is not thought to have occurred outside of the four existing sites in England, therefore the range in England is considered to be stable over both short and long-term timescales.	
2.3.8 Long-term trend Magnitude	a) Minimum	
Optional		
	b) Maximum	
2.3.9 Favourable reference range	a) Value in km²	
	The species is not thought to have occurred outside of the four existing sites in England, therefore the existing range in England is considered to be the favourable reference range.	
	b) Operator for FRR	
	c) FRR is unknown (indicated by "true")	False
	d) Method used to set FRR	
2.3.10 Reason for change	a) Genuine change?	False
Is the difference between the reported value in 2.3.1 and the previous reporting round mainly due to...		
	b) Improved knowledge/more accurate data?	False

	c) Use of different method (e.g. "Range tool")?	False

2.4 Population		
2.4.1 Population size estimation (using individuals or agreed exceptions where possible)	a) Unit	number of individuals
	b) Minimum	
	c) Maximum	
2.4.2 Population size estimation (using population unit other than individuals) Optional (<i>if 2.4.1 filled in</i>)	a) Unit	number of localities
	b) Minimum	4
	c) Maximum	4
2.4.3 Additional information on population estimates / conversion Optional	a) Definition of "locality"	Ullswater Haweswater Red Tarn Brotherswater
	b) Method to convert data	
	c) Problems encountered to provide population size estimation	
2.4.4 Year or period	2007-2011	
2.4.5 Method used Population size	Estimate based on partial data with some extrapolation and/or modelling	
	Although the Haweswater data is based on a full survey, it is still only a survey of 1 of the 4 English localities. The assessment is based on the number of individuals caught (i.e. a minimum estimate), not a population estimate.	
2.4.6 Short-term trend Period	2001-2011	
2.4.7 Short-term trend Trend direction	decrease 1% or less/year	
	Trend data are only available for one site, Haweswater. These show a dramatic decline before 2005 and numbers are now at a very low level.	

	Numbers stabilised and improved slightly over the early part of the short-term trend period but have very recently shown signs of further decline, hence the '<' judgement. No comparable data are available for the other 3 English localities, but these populations are assumed to be currently stable on the basis of low apparent level of pressures.	
2.4.8 Short-term trend Magnitude	a) Minimum	
	b) Maximum	
	c) Confidence interval	
2.4.9 Short-term trend Method used	Estimate based on partial data with some extrapolation and/or modelling Based on comparing the number of individuals captured during survey of Haweswater from the 2001 to present.	
2.4.10 Long-term trend – Period	1981-2011 The long-term trend period has been set to include the dramatic decline in numbers from the early 1980's onwards. The trend is not so apparent from 1989 onwards.	
2.4.11 Long-term trend Trend direction	decrease >1%/year Trend data are only available for one site, Haweswater. The number of individual caught show a dramatic decline from the early 1980s to the present day. Population size at other localities is assumed to be stable on the basis of low apparent level of pressures.	
2.4.12 Long-term trend Magnitude Optional	a) Minimum	
	b) Maximum	
	c) Confidence interval	
2.4.13 Long term trend	2	

Method used	Based on comparing the number of individuals captured during survey of Haweswater from the 1981 to present.	
2.4.14 Favourable reference population	a) Number of individuals/agreed exceptions/other units	400
	Historical population size by number of individuals has been estimated at one only site in England, Haweswater. No comparable data are available for the other 3 English sites.	
	b) Operator	more than
	This judgement is based on the recorded decline of the species at Haweswater.	
	c) FRP is unknown indicated by "true"	False
	d) Method used to set FRP	Historical population size by number of individuals has been estimated at one only site in England, Haweswater, by direct capture survey. No comparable data are available for the other 3 English sites. The Favourable reference population quoted refers to the reference population size at Haweswater only, and is a minimum estimate based on the total number of individuals caught in survey. There is considerable inter-annual variation around this figure (plus or minus 100).
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
	b) Improved knowledge/more accurate data?	True
	c) Use of different method (e.g. "Range tool")?	True

2.5 Habitat for the species

2.5.1 Area estimation

18

2.5.2 Year or period	2001-2005	
	This estimate of the combined area of the 4 English sites was generated before the last reporting round but is still valid.	
2.5.3 Method used Habitat for the species	Complete survey/Complete survey or a statistically robust estimate	
2.5.4 Quality of the habitat	a) Habitat quality	Moderate
	The Haweswater population has been heavily impacted by predation of artificially enhanced populations of cormorants and by the abstraction regime in the reservoir. However, the 2 SACs containing the species are recorded as being in favourable condition. The 'moderate' rating is assigned because of the condition of Haweswater.	
	b) Assessment method	Condition assessment of SACs and SSSIs plus specific investigations.
2.5.5 Short-term trend Period	2001-2012	
2.5.6 Short-term trend Trend direction	decrease	
	Based on trends in Haweswater. Although abstraction problems have been addressed and predation levels in Haweswater fell during a recent period of cormorant management, there are now signs of cormorant populations building again following cessation of this management.	
2.5.7 Long-term trend Period	1989-2012	
2.5.8 Long-term trend Trend direction	decrease	
	Based on trends in Haweswater. Although abstraction problems have been addressed and predation levels in Haweswater fell during a recent period of cormorant management, there are now signs of cormorant populations building again following cessation of this management.	
2.5.9 Area of suitable habitat for the species	a) Value in km²	18
	The species still occupies all historical sites for the species in England. Whilst other lakes may provide suitable habitat, this would involve translocation outside of its known natural range and would therefore not be relevant to the Habitats Directive. Translocation experiments have been attempted to isolated sites in England, as a means of providing added long-term security for the species. However, this does not represent suitable habitat within the species' known natural range.	
	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 trends in habitat quality are genuine	
	b) Improved knowledge/more accurate data?	False

	c) Use of different method (e.g. "Range tool")?	True
	The habitat area figure for England was not included in the previous Article 17 report.	

2.6 Main pressures		
a) Pressure	b) Ranking	c) Pollution qualifier
	H = high importance M = medium importance L = low importance	
I02: problematic native species	H	
J02: human induced changes in hydraulic conditions	H	

Based on pressures on the Haweswater population.

2.6.1 Method used – Pressures	based exclusively or to a larger extent on real data from sites/occurrences or other data sources

2.7 Threats		
a) Threat	b) Ranking	c) Pollution qualifier
	H = high importance M = medium importance L = low importance	
I01: invasive non-native species	H	
I02: problematic native species	H	
J02: human induced changes in hydraulic conditions	H	
M01: Changes in abiotic conditions	M	

Based on threats to most populations. This includes the current pressures on Haweswater from artificial water level fluctuations and the potential for the introduction of damaging native fish species (despite a ban on the use of 'live bait' by anglers being in place to try and avoid such introductions). It also includes the potential for further spread of non-native species such as *Crassula* into the 4 localities (*Crassula* can smother littoral areas where the schelly spawns), and the risks of climate change (which have not been studied specifically in relation to schelly but are a tangible risk given that the species is adapted to coldwater conditions).

2.7.1 Method used – Threats	modelling

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*)**

Please refer to the United Kingdom assessment for this species.

**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)****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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