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

Conservation status assessment for the species:

S2492 - Vendace (*Coregonus albula*)

UNITED KINGDOM

IMPORTANT NOTE - PLEASE READ

- The information in this document represents the UK Report on the conservation status of this species, submitted to the European Commission as part of the 2019 UK Reporting under Article 17 of the EU Habitats Directive.
- It is based on supporting information provided by the geographically-relevant Statutory Nature Conservation Bodies, which is documented separately.
- The 2019 Article 17 UK Approach document provides details on how this supporting information contributed to the UK Report and the fields that were completed for each parameter.
- The reporting fields and options used are aligned to those set out in the European Commission guidance.
- Maps showing the distribution and range of the species are included (where available).
- Explanatory notes (where provided) are included at the end. These provide additional audit trail information to that included within the UK assessments. Further underpinning explanatory notes are available in the related country-level reports.
- 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 not relevant to this species (section 12 Natura 2000 coverage for Annex II species).
- The UK-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 11 for Annex II, IV and V species (Annex B)

NATIONAL LEVEL

1. General information

1.1 Member State	**UK**
1.2 Species code	**2492**
1.3 Species scientific name	**Coregonus albula**
1.4 Alternative species scientific name	
1.5 Common name (in national language)	Vendace

2. Maps

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

3. Information related to Annex V Species (Art. 14)

3.1 Is the species taken in the wild/exploited?		No
3.2 Which of the measures in Art. 14 have been taken?	a) regulations regarding access to property	No
	b) temporary or local prohibition of the taking of specimens in the wild and exploitation	No
	c) regulation of the periods and/or methods of taking specimens	No
	d) application of hunting and fishing rules which take account of the conservation of such populations	No
	e) establishment of a system of licences for taking specimens or of quotas	No
	f) regulation of the purchase, sale, offering for sale, keeping for sale or transport for sale of specimens	No
	g) breeding in captivity of animal species as well as artificial propagation of plant species	No
	h) other measures	No

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3.3 Hunting bag or quantity taken in the wild for Mammals and Acipenseridae (Fish)

a) Unit

b) Statistics/ quantity taken	Provide statistics/quantity per hunting season or per year (where season is not used) over the reporting period					
	Season/ year 1	Season/ year 2	Season/ year 3	Season/ year 4	Season/ year 5	Season/ year 6
Min. (raw, ie. not rounded)						
Max. (raw, ie. not rounded)						
Unknown	No	No	No	No	No	No

3.4. Hunting bag or quantity taken in the wild Method used

3.5. Additional information

BIOGEOGRAPHICAL LEVEL

4. Biogeographical and marine regions

4.1 Biogeographical or marine region where the species occurs

Atlantic (ATL)

4.2 Sources of information

England
Bohn, T. & Amundsen, P. 2001. The Competitive Edge of an Invading Specialist, Ecology, Vol. 82, No. 8 pp. 2150-2163
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Davies, C., Shelley, J., Harding, P., McLean, I., Gardiner, Ross & Peirson, G. 2004. Freshwater Fishes in Britain. The species and their distribution. Harley Books.
Elliott, J. A. & Bell, V. A. 2011. Predicting the potential long-term influence of climate change on vendace (Coregonus albula) habitat in Bassenthwaite Lake, U.K. Freshwater Biology 56: 395 - 405.
Etheridge, E.C., Adams, C.E., Bean, C.W., Durie, N.C., Gowans, A.R.D., Harrod, C., Lyle, A.A., Maitland, P.S. & Winfield, I.J. 2012. Are phenotypic traits useful for differentiating among a priori Coregonus taxa?
Kottelat, M. & Freyhof, J. 2007. Handbook of European Freshwater Fishes
Mainstone, C., Hall, R. & Diak, I. 2016. A narrative for conserving freshwater and wetland habitats in England. Natural England Research Reports, Number 064.
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Winfield, I.J., Fletcher, J.M & James, J.B. 2004. Conservation ecology of the vendace (Coregonus albula) in Bassenthwaite Lake and Derwent Water, UK. Ann. Zool. Fennici 41. 155-164.
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Scotland
Adams CE, Lyle AA, Dodd JA, Bean CW, Winfield IJ, Gowans ARD, Stephen A & Maitland PS. 2014. Translocation as a conservation tool: case studies from rare freshwater fishes in Scotland. The Glasgow Naturalist 26: 17-24.
Adams CE, Winfield IJ & Lyle AA 2016. Assessment of the Vendace refuge population of Loch Skeen 2016. Report to National Trust for Scotland and Scottish Natural Heritage.
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refuge locations in Southwest Scotland (2007/8). Scottish Natural Heritage Commissioned Report 283.
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5. Range

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5.1 Surface area (km²)	1000	
5.2 Short-term trend Period	2007-2018	
5.3 Short-term trend Direction	Increasing (+)	
5.4 Short-term trend Magnitude	a) Minimum	b) Maximum
5.5 Short-term trend Method used	Complete survey or a statistically robust estimate	
5.6 Long-term trend Period		
5.7 Long-term trend Direction		
5.8 Long-term trend Magnitude	a) Minimum	b) Maximum
5.9 Long-term trend Method used		
5.10 Favourable reference range	a) Area (km²) b) Operator c) Unknown d) Method	 Approximately equal to (≈) The FRR has changed since 2013. An FRR operator has been used because it has not been possible to calculate the exact FRR. The FRR is considered to be sufficient to maintain a viable population and is no less that when the Habitats Directive came into force in the UK. For further details see the 2019 Article 17 UK Approach document.
5.11 Change and reason for change in surface area of range	Genuine change The change is mainly due to:	 Genuine change
5.12 Additional information	The FRR has been set as 'approximately equal to' as the species has been recorded at both sites considered within its natural range (Bassenthwaite Lake and Derwent Water). In addition two new sites have been established in Scotland.	

6. Population

6.1 Year or period	2017-2017	
6.2 Population size (in reporting unit)	a) Unit b) Minimum c) Maximum d) Best single value	number of map 1x1 km grid cells (grids1x1) 28
6.3 Type of estimate	Best estimate	
6.4 Additional population size (using population unit other than reporting unit)	a) Unit b) Minimum c) Maximum d) Best single value	number of individuals (i) 8464
6.5 Type of estimate	Best estimate	
6.6 Population size Method used	Complete survey or a statistically robust estimate	
6.7 Short-term trend Period	1998-2018	

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6.8 Short-term trend Direction	Increasing (+)	
6.9 Short-term trend Magnitude	a) Minimum b) Maximum c) Confidence interval	
6.10 Short-term trend Method used	Based mainly on extrapolation from a limited amount of data	
6.11 Long-term trend Period	1994-2018	
6.12 Long-term trend Direction	Stable (0)	
6.13 Long-term trend Magnitude	a) Minimum b) Maximum c) Confidence interval	
6.14 Long-term trend Method used		
6.15 Favourable reference population (using the unit in 6.2 or 6.4)	a) Population size b) Operator c) Unknown d) Method	 Much more than (>>) The FRP is the same as in 2013 and is no more than 25% above the current population. An FRP operator has been used because it has not been possible to calculate the exact FRP value. For further information see the 2019 Article 17 UK Approach document.
6.16 Change and reason for change in population size	Genuine change The change is mainly due to:	 Genuine change
6.17 Additional information	Individuals have been recorded in several additional sites. This includes Bassenthwaite Lake in England in very low numbers and well below historic levels (where they were considered as extinct between 2001-2013), and Lock Skeen, Daer Reservoir and Loch Earn which are refuge sites established in Scotland.	

7. Habitat for the species

7.1 Sufficiency of area and quality of occupied habitat	a) Are area and quality of occupied habitat sufficient (for long-term survival)?	No
	b) Is there a sufficiently large area of unoccupied habitat of suitable quality (for long-term survival)?	No
7.2 Sufficiency of area and quality of occupied habitat Method used	Based mainly on extrapolation from a limited amount of data	
7.3 Short-term trend Period	2005-2018	
7.4 Short-term trend Direction	Stable (0)	
7.5 Short-term trend Method used	Based mainly on extrapolation from a limited amount of data	
7.6 Long-term trend Period		
7.7 Long-term trend Direction		
7.8 Long-term trend Method used		
7.9 Additional information	Within the English range (Derwent Water and Bassenthwaite Lake), the area and	

quality of Habitat for the species is compromised by non-native and locally non-native species including competition from fish species such as roach and ruffe, and the smothering of vendace spawning areas by Crassula helmsii. There is also excessive siltation at Bassenthwaite Lake. In Scotland, the area and quality of the occupied habitat for the species is considered sufficient.

8. Main pressures and threats

8.1 Characterisation of pressures/threats

Pressure	Ranking
Extraction activities generating diffuse pollution to ground or surface waters (C11)	M
Freshwater fish and shellfish harvesting (recreational) (G06)	M
Other invasive alien species (other then species of Union concern) (I02)	H
Problematic native species (I04)	H
Mixed source pollution to surface and ground waters (limnic and terrestrial) (J01)	H
Modification of hydrological flow (K04)	M
Other climate related changes in abiotic conditions (N09)	M

Threat	Ranking
Extraction activities generating diffuse pollution to ground or surface waters (C11)	M
Freshwater fish and shellfish harvesting (recreational) (G06)	M
Other invasive alien species (other then species of Union concern) (I02)	H
Problematic native species (I04)	H
Mixed source pollution to surface and ground waters (limnic and terrestrial) (J01)	H
Modification of hydrological flow (K04)	M
Other climate related changes in abiotic conditions (N09)	H

8.2 Sources of information

8.3 Additional information

9. Conservation measures

9.1 Status of measures

a) Are measures needed? No

b) Indicate the status of measures

9.2 Main purpose of the measures taken

9.3 Location of the measures taken

9.4 Response to the measures

9.5 List of main conservation measures

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9.6 Additional information	Although this is an Annex V species and conservation measures are therefore not required (in the reporting), Scotland have reported these at country level (see country level report). In Scotland, native populations of this species have been lost and those which are now present in Loch Skeen, Loch Earn and Daer Reservoir have been introduced there as part of a deliberate series of conservation actions. Initially these were carried out under the SNH Species Action Initiative, and latterly by the five-year Species Action Framework (see Bean et al. (2016) for an overview). Ruffe and other species native to the UK (such as roach) present a risk to vendace in other parts of its UK range (Bassenthwaite Lake and Derwent Water) and it is important to prevent their introduction to newly established Scottish sites. Further spread of ruffe and other non-native species (both non-native to the UK or to individual catchments/waterbodies) to new sites is now regulated by the Salmon and Freshwater Fish (Scotland) Act 2003. Water quality and the overall aquatic environment are protected through Water Framework Directive-led domestic legislation. Vendace are protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended).

10. Future prospects

10.1 Future prospects of parameters	a) Range	Poor
	b) Population	Bad
	c) Habitat of the species	Poor
10.2 Additional information	Future trend of Range is Negative - decreasing <=1% (one percent or less) per year on average; Future trend of Population is Negative - decreasing <=1% (one percent or less) per year on average; and Future trend of Habitat for the species is Negative - slight/moderate deterioration. For further information on how future trends inform the Future prospects conclusion see the 2019 Article 17 UK Approach document.	

11. Conclusions

11.1. Range	Favourable (FV)
11.2. Population	Unfavourable - Bad (U2)
11.3. Habitat for the species	Unfavourable - Inadequate (U1)
11.4. Future prospects	Unfavourable - Bad (U2)
11.5 Overall assessment of Conservation Status	Unfavourable - Bad (U2)
11.6 Overall trend in Conservation Status	Improving (+)
11.7 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 Genuine change The change is mainly due to: Genuine change

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11.8 Additional information	Conclusion on Range reached because: (i) the short-term trend direction in Range surface area is increasing; and (ii) the current Range surface area is approximately equal to the Favourable Reference Range. Conclusion on Population reached because: (i) the short-term trend direction in Population size is increasing; and (ii) the current Population size is more than 25% below the Favourable Reference Population. Conclusion on Habitat for the species reached because: (i) the area of occupied and unoccupied habitat is not sufficiently large and (ii) the habitat quality is not adequate for the long-term survival of the species; and (iii) the short-term trend in area of habitat is stable. Conclusion on Future prospects reached because: (i) the Future prospects for Range are poor; (ii) the Future prospects for Population are bad; and (iii) the Future prospects for Habitat for the species are poor. Overall assessment of Conservation Status is Unfavourable-bad because one or more of the conclusions are Unfavourable-bad. Overall trend in Conservation Status is based on the combination of the short-term trends for Range - increasing, Population - increasing, and Habitat for the species - stable. Overall assessment of Conservation Status has not changed since 2013. The Overall trend in Conservation Status has changed between 2013 and 2019 because the Range trend had changed from stable to increasing, the Population trend has changed from decreasing to increasing, the Habitat for the species trend has changed from decreasing to stable.

12. Natura 2000 (pSCIs, SCIs and SACs) coverage for Annex II species

12.1 Population size inside the pSCIs, SCIs and SACs network (on the biogeographical/marine level including all sites where the species is present)	a) Unit b) Minimum c) Maximum d) Best single value
12.2 Type of estimate	
12.3 Population size inside the network Method used	
12.4 Short-term trend of population size within the network Direction	
12.5 Short-term trend of population size within the network Method used	
12.6 Additional information	

13. Complementary information

13.1 Justification of % thresholds for trends	
13.2 Trans-boundary assessment	
13.3 Other relevant Information	

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Distribution Map

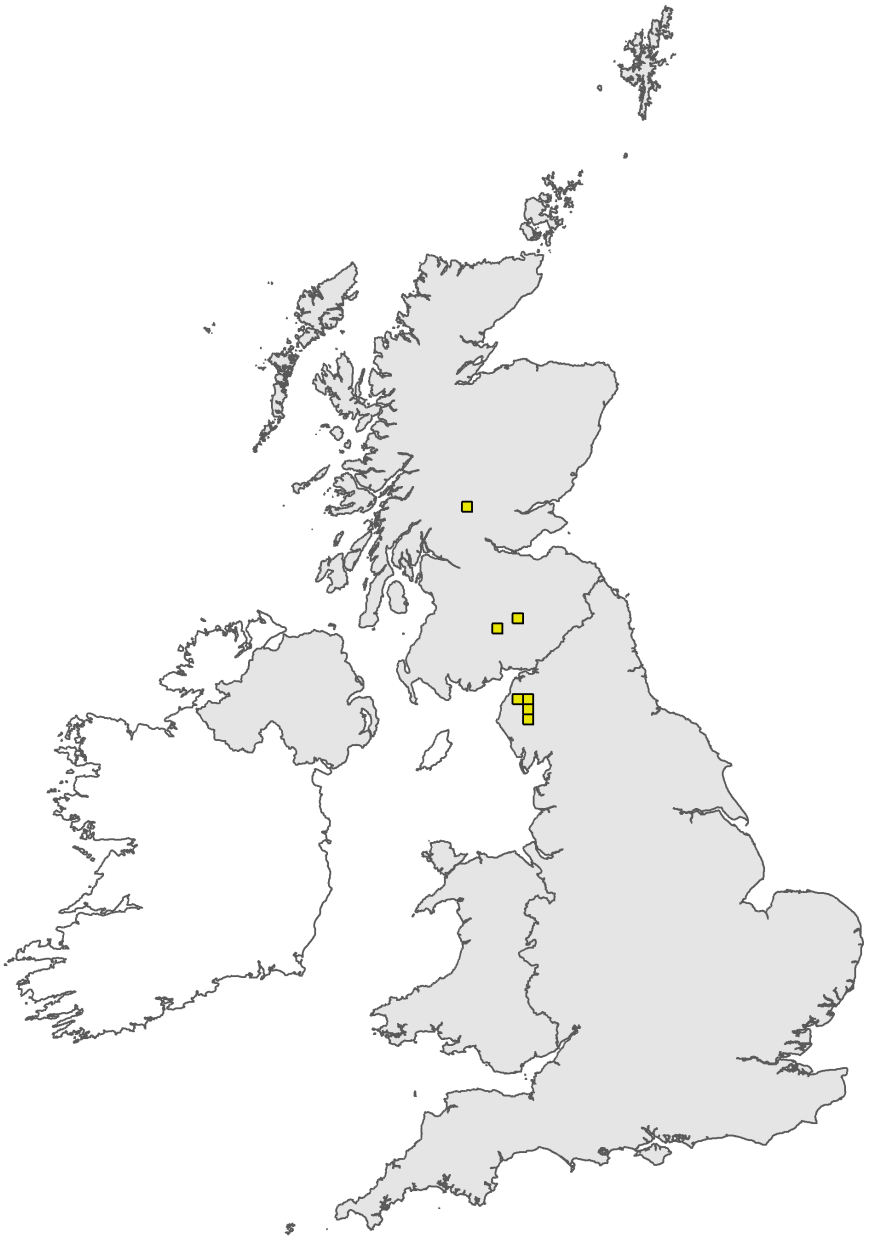

Figure 1: UK distribution map for S2492 - Vendace (*Coregonus albula*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

The 10km grid square distribution map is based on available species records within the current reporting period. For further details see the 2019 Article 17 UK Approach document.

Range Map

Figure 2: UK range map for S2492 - Vendace (*Coregonus albula*). 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 species was 25km. For further details see the 2019 Article 17 UK Approach document.