

Report under The Conservation of Habitats and  
Species Regulations 2017 (as amended),  
Regulation 9A

**2019-2024**

Conservation status assessment for the species:

**S2492 - Vendace**  
**(*Coregonus albula*)**

**England**



**For further information please contact:**

Natural England, Foss House, Kings Pool, 1-2 Peasholme Green, York, YO1 7PX.  
<https://www.gov.uk/government/organisations/natural-england>

JNCC, Quay House, 2 East Station Road, Fletton Quays, Peterborough, PE2 8YY.  
<https://jncc.gov.uk>

This report was produced by JNCC in collaboration with Natural England.

**This document should be cited as:**

Natural England and JNCC. (2026). Conservation status assessment for the species: S2492 Vendace (*Coregonus albula*).

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### **Important note - Please read**

- The information in this document represents the England Report under The Conservation of Habitats and Species Regulations 2017 (as amended), Regulation 9A, for the period 2019-2024.
- It is based on supporting information provided by Natural England, which is documented separately.
- The Habitats Regulations reporting 2019-2024 Approach Document provides details on how this supporting information contributed to the UK Report and the fields that were completed for each parameter.
- Maps showing the distribution and range of the species are included.
- Explanatory notes (where provided) are included at the end. These provide additional audit trail information to that included within the assessments. Further underpinning explanatory notes are available in the related country 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 National Site Network coverage for Annex II species).

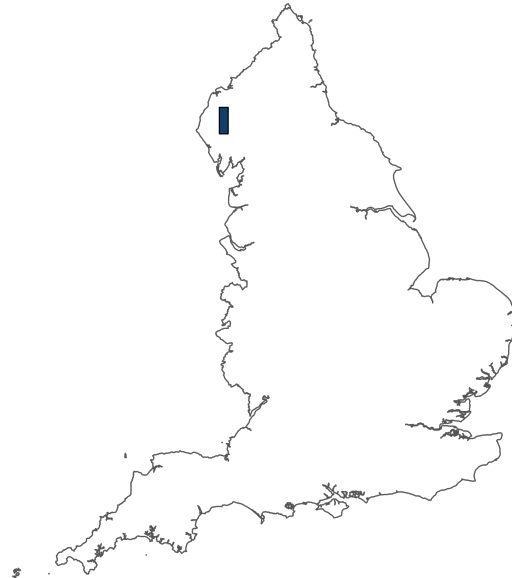
Further details on the approach to the Habitats Regulations Reporting 2019-2024 are available on the [JNCC website](#).

## Assessment Summary: Vendace

### Distribution Map



### Range Map



**Figure 1:** England distribution and 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 10km grid square distribution map is based on available species records within the current reporting period.

**Table 1:** Table summarising the conservation status for S2492 - Vendace (*Coregonus albula*). Overall conservation status for species is based on assessments of range, population, habitat for the species, and future prospects.

### Overall Conservation Status (see section 11)

**Unfavourable-inadequate (U1)**

### Breakdown of Overall Conservation Status

**Range** (see section 5)

**Favourable (FV)**

**Population** (see section 6)

**Favourable (FV)**

**Habitat for the species** (see section 7)

**Unfavourable-inadequate (U1)**

**Future prospects** (see section 10)

**Unfavourable-inadequate (U1)**

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## National Level

### 1. General information

1.1 Country	England
1.2 Species code	S2492
1.3 Species scientific name	<i>Coregonus albula</i>
1.4 Alternative species scientific name	
1.5 Common name	Vendace
Annex(es)	V

### 2. Maps

2.1 Sensitive species	No
2.2 Year or period	2000-2024
2.3 Distribution map	Yes
2.4 Distribution map; Method used	Complete survey or a statistically robust estimate

#### 2.5 Additional information

No additional information

### 3. Information related to Annex V Species

3.1 Is the species taken in the wild / exploited?	No
3.2 What measures have been taken?	
a) Regulations regarding access to property	Yes
b) Temporary or local prohibition on the taking of specimens in the wild and exploitation	Yes
c) Regulation of the periods and/or methods of taking specimens	Yes
d) Application of hunting and fishing rules which take account of the conservation of such populations	Yes

e) Establishment of a system of licences for taking specimens or of quotas	Yes
f) Regulation of the purchase, sale, offering for sale, keeping for sale, or transport for sale of specimens	Yes
g) Breeding in captivity of animal species as well as artificial propagation of plant species	Yes
Other measures	Yes

**Other measures description**

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

a) Unit                      number of adults

**Table 2:** Quantity taken from the wild during the reporting period (see 3.3a for units). For species with defined hunting seasons, Season 1 refers to 2018/2019 (autumn 2018 to spring 2019), and Season 6 to 2023/2024. For species without hunting seasons, data are reported by calendar year: Year 1 is 2019, and Year 6 is 2024.

	Season/ year 1	Season/ year 2	Season/ year 3	Season/ year 4	Season/ year 5	Season/ year 6
b) Minimum	-	-	-	-	-	-
c) Maximum	-	-	-	-	-	-
d) Unknown	Yes	Yes	Yes	Yes	Yes	Yes

**3.4: Hunting bag or quantity taken in the wild; Method used**                      Insufficient or no data available

**3.5: Additional information**

Vendace are not directly exploited as a quarry species for recreational angling or as a commercial species in England. It is possible that they could be captured as bycatch when fishing for other freshwater fish species, however, this is unlikely due to the habitat occupied and foraging behaviour of vendace. They have specific protection under

Schedule 5 of the wildlife and Countryside Act 1981 and general protections from fishery activity under the Salmon and Freshwater Fisheries Act 1975.

## Biogeographical Level

### 4. Biogeographical and marine regions

4.1 Biogeographical or marine region where the species occurs ATL

#### 4.2 Sources of information

See section 14 References

### 5. Range

5.1 Surface area (km<sup>2</sup>) 300

5.2 Short-term trend; Period 2013-2024

5.3 Short-term trend; Direction Stable

5.4 Short-term trend;  
Magnitude

a) Estimated minimum

b) Estimated maximum

c) Pre-defined range

d) Unknown

e) Type of estimate 95% confidence interval

f) Rate of decrease

5.5 Short-term trend; Method used Complete survey or a statistically robust estimate

5.6 Long-term trend; Period 2000-2024

5.7 Long-term trend; Direction Stable

5.8 Long-term trend;  
Magnitude

a) Minimum

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b) Maximum

---

c) Rate of decrease

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**5.9 Long-term trend; Method used** Complete survey or a statistically robust estimate used

#### 5.10 Favourable Reference Range (FRR)

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a) Area (km<sup>2</sup>) 10.53

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b) Pre-defined increment

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c) Unknown No

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d) Method used Reference-based approach

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e) Quality of information high

#### 5.11 Change and reason for change in surface area of range

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a) Change No

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b) Genuine change

---

c) Improved knowledge or more accurate data

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d) Different method

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e) No information

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f) Other reason

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g) Main reason

#### 5.12 Additional information

No additional information

## 6. Population

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6.1 Year or period 2024-

#### 6.2 Population size (in reporting unit)

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a) Unit number of individuals

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b) Minimum 27,504

<b>c) Maximum</b>	69,109
<b>d) Best single value</b>	43,518
<b>6.3 Type of estimate</b>	95% confidence interval
<b>6.4 Quality of extrapolation to reporting unit</b>	moderate
<b>6.5 Additional population size (using population unit other than reporting unit)</b>	
<b>a) Unit</b>	number of individuals
<b>b) Minimum</b>	
<b>c) Maximum</b>	
<b>d) Best single value</b>	
<b>e) Type of estimate</b>	
<b>6.6 Population size; Method used</b>	Complete survey or a statistically robust estimate
<b>6.7 Short-term trend; Period</b>	2013-2024
<b>6.8 Short-term trend; Direction</b>	Stable
<b>6.9 Short-term trend; Magnitude</b>	
<b>a) Estimated minimum</b>	
<b>b) Estimated maximum</b>	
<b>c) Pre-defined range</b>	
<b>d) Unknown</b>	
<b>e) Type of estimate</b>	
<b>f) Rate of decrease</b>	
<b>6.10 Short-term trend; Method used</b>	Complete survey or a statistically robust estimate
<b>6.11 Long-term trend; Period</b>	2000-2024
<b>6.12 Long-term trend; Direction</b>	Stable

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**6.13 Long-term trend;  
Magnitude**

**a) Minimum**

**b) Maximum**

**c) Confidence interval**

**d) Rate of decrease**

**6.14 Long-term trend; Method used** Complete survey or a statistically robust estimate

**6.15 Favourable Reference Population (FRP)**

**ai) Population size**

**a ii) Unit**

**b) Pre-defined increment** less than 5% smaller than the FRP

**c) Unknown** No

**d) Method used** Expert opinion

**e) Quality of information** low

**6.16 Change and reason for change in population size**

**a) Change** No

**b) Genuine change**

**c) Improved knowledge or  
more accurate data**

**d) Different method**

**e) No information**

**f) Other reason**

**g) Main reason**

**6.17 Additional information**

Since 2013 a small number of individuals have been found in Bassenthwaite Lake. Surveys in 2024 demonstrated that the abundance of post-juvenile vendace was higher

than the reference baseline established by previous monitoring. There was no robust evidence to suggest that the species had a restricted spatial distribution within its preferred habitat and there was no evidence of failed recruitment. However, as survey effort has been limited, while the population may be considered stable, further surveys are required to determine if it may be on an upward trend. stable / increasing / decreasing / uncertain / unknown

Whilst Derwent Water has consistently supported vendace, none were found in Bassenthwaite Lake from 2001-2013 despite specific searches. Since 2013 a small number of individuals have been found in Bassenthwaite Lake.

There are three possible origins for the individuals captured after 2013 from Bassenthwaite Lake. First, it is possible that vendace have survived in Bassenthwaite Lake since 2000 at a very low abundance, below the limit of detection, and may now be increasing in abundance. Second, the fish have arrived in Bassenthwaite Lake by moving down the River Derwent from the Derwent Water population. Third, this downstream movement happened some years ago and the observed individuals are the locally-spawned offspring of colonisers. Such immigration may have occurred during the extensive flooding experienced at both lakes and the connecting River Derwent in November 2009, although at least one of the two adults recorded in 2014 was too old to have resulted from this particular mechanism. DNA analysis of the single under-yearling vendace of 2013 was undertaken. The results were inconclusive but suggested a Derwent Water origin. Further genetic analysis is to be completed in 2025.

Surveys in 2024 demonstrated that the abundance of post-juvenile vendace was higher than the reference baseline established by previous monitoring. There was no robust evidence to suggest that the species had a restricted spatial distribution within its preferred habitat and there was no evidence of failed recruitment. However, as survey effort has been limited, while the population may be considered stable, further surveys are required to determine if it may be on an upward trend.

**6.18 Age structure, mortality and reproduction deviation**      No deviation from normal

## **7. Habitat for the species**

### **7.1 Sufficiency of area and quality of occupied habitat (for long-term survival)**

**a) Is area of occupied habitat sufficient?**      Yes

<b>b) Is quality of occupied habitat sufficient?</b>	No
<b>c) If No or Unknown, is there a sufficiently large area of unoccupied habitat of suitable quality?</b>	No

## **7.2 Sufficiency of area and quality of occupied habitat; Method used**

<b>a) Sufficiency of area of occupied habitat; Method used</b>	Complete survey or a statistically robust estimate
<b>b) Sufficiency of quality of occupied habitat; Method used</b>	Complete survey or a statistically robust estimate
<b>7.3 Short-term trend; Period</b>	2013-2024
<b>7.4 Short-term trend; Direction</b>	Decreasing
<b>7.5 Short-term trend; Method used</b>	Complete survey or a statistically robust estimate
<b>7.6 Long-term trend; Period</b>	2000-2024
<b>7.7 Long-term trend; Direction</b>	Decreasing
<b>7.8 Long-term trend; Method used</b>	Complete survey or a statistically robust estimate

## **7.9 Additional information**

Both Derwent Water and Bassenthwaite Lake populations are impacted 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 in the sub-littoral zone by *Crassula helmsii*. In addition, the vendace spawning areas within Bassenthwaite are impacted by excessive siltation which was noted to be continuing in 2017 habitat surveys.

The report comparing 2007 and 2022 quality of vendace spawning substrate in Derwent Water and Bassenthwaite Lake found:

- In 2007 Derwent Water 'optimal quality' spawning substrate was 48% which decreased to 30.2% in 2022

- The percentage of ‘poor quality’ spawning substrate increased from 38% in 2007 to 50% in 2022 in the Derwent water.
- The quality of the Bassenthwaite spawning substrate quality saw no significant changes, although the quality was very low to begin with.
- The percentage of ‘poor quality’ spawning substrate in Bassenthwaite increased from 80.8% in 2007 to 89% in 2023.
- Bassenthwaite Lake was almost devoid of optimal quality vendace spawning substrate.

This supports the view that the paucity of good quality spawning substrate is one of the main contributing pressures on vendace at these sites.

The Bassenthwaite vendace population may become extirpated from the water body in the future due to climate change effects, particularly increases in water temperature. Warming effects are likely to be more severe in Bassenthwaite, when compared with Derwent Water, due to its shallower depth. This assessment is based on vendace populations only being present in Derwent Water and Bassenthwaite Lake since the last glacial retreat from the lake district. At the present time, there is no evidence for vendace having been present within England at any other location. However, in the geographical area described by the Lake District, it is likely that waterbodies with a similar water chemistry, thermal regime, morphology and species assemblage may have been/are available for colonisation by vendace, should suitable conditions allowing their colonisation of these water bodies have become or will become available. If this principle is taken to its conclusion, suitable translocation sites (e.g. free from non-native species and with low future risks) in a similar geographic area (Lake District) are likely to exist. These sites may be capable of mitigating for uncontrollable climate change effects (i.e. sites at higher altitude) acting on Bassenthwaite Lake and rendering it unsuitable / unsustainable for future vendace populations.

## 8. Main pressures

### 8.1 Characterisation of pressures

**Table 3:** Pressures affecting the species, including timing and importance/impact ranking. Pressures are defined as factors acting currently and/or during the reporting period (2019–2024). Rankings are: High (direct/immediate influence and/or large spatial extent) and Medium (moderate direct/immediate influence, mainly indirect and/or regional extent).

Pressure	Timing	Ranking
PK01: Mixed source pollution to surface and ground waters (limnic and terrestrial)	Ongoing and likely to be in the future	High (H)

PI02: Other invasive alien species (other than species of Union concern)	Ongoing and likely to be in the future	High (H)
PI03: Problematic native species	Ongoing and likely to be in the future	High (H)
PA17: Agricultural activities generating pollution to surface or ground waters (including marine)	Ongoing and likely to be in the future	High (H)
PE01: Roads, paths, railroads and related infrastructure	Ongoing and likely to be in the future	Medium (M)
PL05: Modification of hydrological flow (mixed or unknown drivers)	Ongoing and likely to be in the future	Medium (M)
PJ14: Other climate related changes in abiotic conditions	Ongoing and likely to be in the future	High (H)
PJ01: Temperature changes and extremes due to climate change	Ongoing and likely to be in the future	High (H)
PJ03: Changes in precipitation regimes due to climate change	Ongoing and likely to be in the future	High (H)
PL06: Physical alteration of water bodies (mixed or unknown drivers)	Ongoing and likely to be in the future	Medium (M)
PG07: Freshwater fish and shellfish harvesting (recreational)	Ongoing and likely to be in the future	Medium (M)

## 8.2 Sources of information

See section 14 References

## 8.3 Additional information

PK01: Polluting inputs resulting in eutrophication effects such as deoxygenation of the hypolimnion and fine sediment deposition on spawning substrates. Impacts may continue for the foreseeable future due to catchment land use

PI02: *Crassula helmsii* smothering of sub-littoral spawning substrates in Bassenthwaite Lake and Derwent water. As there is currently no effective control agent/method for *Crassula*. The impact is likely to increase

PI03: Competitive pressure from locally non-native fish species, notably roach and ruffe. Ruffe is known to predate vendace eggs leading to reduced recruitment. Locally non-native fish species may have been introduced to Bassenthwaite lake and Derwent water as live bait for recreational angling, however, this is unproven and the evidence

disputed. The impact is likely to remain at or above the current state as there is no suitable method of control for these species in large waterbodies. It is possible that additional locally non-native/non-native fish species may be released into these water bodies

PA17: Polluting inputs resulting in eutrophication effects such as deoxygenation of the hypolimnion and fine sediment deposition on spawning substrates. Impacts may continue for the foreseeable future due to catchment land use

PE01: The western shore of Bassenthwaite Lake is bounded by the A66. The close proximity of the road and associated erosion protection impacts on areas of lake habitat. It is a major road located against steep valley sides. There are minimal options for moving the road away from the lake shore and continued / future maintenance will be required so impacts may be expected to continue.

PL05: Vendace require littoral gravels for egg deposition. Changes to the hydrological regime of inflowing rivers and streams may increase deposition rates of fine sediment on these gravels. River engineering works may increase spate flow velocities within the catchment resulting in excess sediment transport. If low flows are maintained over long periods of time, elevated water temperatures and deoxygenation of inflowing rivers and streams may become evident. Increased pressure within the catchment for flood risk management and drinking water supply may lead to increased river engineering and flow management.

PJ14: Warming of the climate may act synergistically with nutrient increases to reduce the area of suitable aquatic habitat for vendace. Increased storm intensity leading to catastrophic high flow events may lead to increased siltation of spawning areas. Increased warming of the water column may remove the thermal refugia required by vendace. Warming of the climate is predicated to continue and may ultimately exclude vendace from Bassenthwaite Lake due to the removal of a suitable cool, well oxygenated deep-water refuge area. In addition weather events may continue to become more intense and unpredictable leading to a degradation of spawning habitat (for PJ01 and PJ03 also)

## 9. Conservation measures

### 9.1: Status of measures

a) Are measures needed? No

b) Indicate the status of measures

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## 9.2 Main purpose of the measures taken

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## 9.3 Location of the measures taken

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## 9.4 Response to measures

## 9.5 List of main conservation measures

**Table 4:** Key conservation measures addressing current pressures and/or anticipated threats during the next two reporting periods (2025–2036). Measures are ranked by importance/impact: High (direct/immediate influence and/or large spatial extent) and Medium (moderate direct/immediate influence, mainly indirect and/or regional extent).

Conservation measure	Ranking
No conservation measures	

## 9.6 Additional information

Conservation measures not applicable to Vendance

# 10. Future prospects

## 10.1a Future trends of parameters

ai) Range	Overall stable
bi) Population	Negative - decreasing $\leq 1\%$ (one percent or less) per year on average
ci) Habitat for the species	Negative - slight/moderate deterioration

## 10.1b Future prospects of parameters

a ii) Range	Good
b ii) Population	Poor
c ii) Habitat for the species	Poor

## 10.2 Additional information

Following the recording of vendace in Bassenthwaite Lake in 2013 to present, the relative stability of the Derwent Water population and the favourable condition of the population in both water bodies determined by the 2024 surveys, it may reasonably be

assumed that if continued work is undertaken to address water quality and sedimentation issues within the catchment, vendace populations in both lakes may remain stable (and possibly increase) over the next 12 year period. However, in the longer term, climate change impacts may remove the required cold water refuge areas in Bassenthwaite Lake rendering the habitat unsuitable for vendace. In addition, there are no effective management techniques to address the impact of non-native and locally non-native species at the present time. It is considered unlikely that new techniques will become available in the near future, therefore, the impact on vendace will continue and may increase

## 11. Conclusions

<b>11.1 Range</b>	Favourable (FV)
<b>11.2 Population</b>	Favourable (FV)
<b>11.3 Habitat for the species</b>	Unfavourable-inadequate (U1)
<b>11.4 Future prospects</b>	Unfavourable-inadequate (U1)
<b>11.5 Overall assessment of Conservation Status</b>	Unfavourable-inadequate (U1)
<b>11.6 Overall trend in Conservation Status</b>	Stable

### 11.7 Change and reason for change in conservation status

This field is not reported as the period 2019-2024 marks the first instance in which conservation status has been assessed at the national level, meaning no comparisons to previous reports can be drawn.

### 11.7 Change and reason for change in conservation status trend

This field is not reported as the period 2019-2024 marks the first instance in which conservation status has been assessed at the national level, meaning no comparisons to previous reports can be drawn.

### 11.8 Additional information

Following the recording of vendace in Bassenthwaite Lake in 2013 to present, the relative stability of the Derwent Water population and the favourable condition of the population in both water bodies determined by the 2024 surveys, it may reasonably be assumed that if continued work is undertaken to address water quality and

sedimentation issues within the catchment, vendace populations in both lakes may remain stable (and possibly increase) over the next 12 year period. However, in the longer term, climate change impacts may remove the required cold water refuge areas in Bassenthwaite Lake rendering the habitat unsuitable for vendace. In addition, there are no effective management techniques to address the impact of non-native and locally non-native species at the present time. It is considered unlikely that new techniques will become available in the near future, therefore, the impact on vendace will continue and may increase.

## **12. UK National Site Network (pSCIs, SCIs, SACs) coverage for Annex II species**

### **12.1 Population size inside the pSCIs, SCIs and SACs network**

**a) Unit**

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**b) Minimum**

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**c) Maximum**

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**d) Best single value**

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### **12.2 Type of estimate**

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**12.3 Population size inside the network; Method used**

**12.4 Short-term trend of population size within the network; Direction**

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**12.5 Short-term trend of population size within the network; Method used**

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**12.6 Short-term trend of habitat for the species inside the pSCIs, SCIs and SACs network; Direction**

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**12.7 Short-term trend of habitat for the species inside the pSCIs, SCIs and SACs network; Method used**

## **12.8 Additional information**

No additional information

## **13. Complementary information**

### **13.1 Justification of percentage thresholds for trends**

No justification information

### **13.2 Trans-boundary assessment**

No trans-boundary assessment information

### **13.2 Other relevant information**

No other relevant information

## 14. References

### Biogeographical and marine regions

#### 4.2 Sources of information

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## **Main pressures**

### **8.2 Sources of information**

No sources of information

## 15. Explanatory Notes

Field label	Note
3.5: Additional information	<p>Vendace occur in lakes across north-west Europe (northern Scandinavia and north-west Russia to the north, north Bavaria to the south, English Lake District to the west and western Russia to the east). In England vendace are found in mesotrophic Bassenthwaite Lake and oligotrophic Derwent Water. These lakes are connected by the River Derwent. As well as the natural difference in trophic status, Derwent Water is slightly deeper and has a much smaller catchment than Bassenthwaite Lake. Due to concerns for the conservation of this species attempts have been made to establish refuge populations using fish from both Derwent Water and Bassenthwaite Lake. This has included attempts to establish populations at Sprinkling Tarn in the Lake District. There have been no reports of vendace being present at the site and recent eDNA monitoring did not produce any positive results for vendace, however, new monitoring and research using eDNA techniques is currently being undertaken at Sprinkling Tarn and other potential sites across the Lake District. Progeny from fish collected from Bassenthwaite Lake have successfully been established in Loch Skeen, Scotland. As these translocation sites are either located outside England (Loch Skeen) or the success / failure of the translocation is unknown (Sprinkling Tarn) these sites will not be used for Regulation 9a reporting.</p>