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:

S6353 - Whitefish (*Coregonus lavaretus*)

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	**6353**
1.3 Species scientific name	**Coregonus lavaretus Complex**
1.4 Alternative species scientific name	
1.5 Common name (in national language)	Whitefish

2. Maps

2.1 Sensitive species	No
2.2 Year or period	2007-2018
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

Burgess, A, Goldsmith, B and Goodrich, S. 2014. Interpretation of Water Framework Directive Macrophyte Data for CSM Condition Assessment. Project Reference No: 25552. Report to Natural England.

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Scotland
Adams CE, Bean CW, Down A, Dodd JA, Etheridge EC, Gowans ARD, Hooker O, Knudsen R, Lyle AA, Maitland PS, Winfield IJ & Praebel K 2016. Inter and intra-population phenotypic and genotypic structuring in the European whitefish, Coregonus lavaretus, a rare freshwater fish in Scotland. Journal of Fish Biology 88, 580-594.
Adams CE, Winfield IJ & Lyle AA 2017. Assessing the status of powan in the wider countryside of Scotland for Article 17 Reporting, 2017. Report to Scottish Natural Heritage
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Winfield IJ, Fletcher JM, James BJ. (2008b) Long-Term monitoring plan for Llyn Arenig Fawr. CCW Contract Science no. 815. CCW, Bangor.
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Winfield IJ, Fletcher JM, James JB. (2010b) Llyn Arenig Fawr Hydroacoustic Survey 2009. CCW Contract Science Report no. 904. CCW, Bangor.
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2014. NRW Evidence Report No: 41, 44pp, NRW, Bangor.

5. Range

5.1 Surface area (km²)	2345.38	
5.2 Short-term trend Period	2007-2018	
5.3 Short-term trend Direction	Stable (0)	
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)	1782
	b) Operator	
	c) Unknown	
	d) Method	The FRR is the same as in 2013. The value is considered to be large enough to support a viable population and no lower than the range estimate when the Habitats Directive came into force in the UK. For further information 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	Since the 2013 reporting round, four new populations have been established in Scotland (Lochan Shira, Allt no Lairige Reservoir, Loch Tarsan and Loch Glashan). Therefore the calculated Range area has increased since 2013. Despite this, the Range trend is set as stable, becacuse the trend is assessed purely based on the native sites (and not including the translocation sites).	

6. Population

6.1 Year or period	2014-2017	
6.2 Population size (in reporting unit)	a) Unit	number of map 1x1 km grid cells (grids1x1)
	b) Minimum	
	c) Maximum	
	d) Best single value	244
6.3 Type of estimate	Best estimate	
6.4 Additional population size (using population unit other than reporting unit)	a) Unit	number of individuals (i)
	b) Minimum	
	c) Maximum	
	d) Best single value	202390
6.5 Type of estimate	95% confidence interval	

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6.6 Population size Method used	Complete survey or a statistically robust estimate	
6.7 Short-term trend Period	1998-2018	
6.8 Short-term trend Direction	Stable (0)	
6.9 Short-term trend Magnitude	a) Minimum b) Maximum c) Confidence interval	
6.10 Short-term trend Method used	Complete survey or a statistically robust estimate	
6.11 Long-term trend Period		
6.12 Long-term trend Direction		
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 has changed since 2013. An FRP operator has been used because it had not been possible to calculate the exact FRP value. The FRP is considered to be more than 25% above the current population. See the 2019 Article 17 UK Approach document for further information.
6.16 Change and reason for change in population size	Use of different method The change is mainly due to:	 Use of different method
6.17 Additional information	In the 2013 reporting, the population size unit used was 'number of localities' (lakes/reservoirs) and the current population was assessed as being no more than 25% of the Favourable Reference Population based on this population unit. Therefore the operator 'More than' was used. In the 2019 reporting, the population estimate has been assessed in 'number of individuals'. This has resulted in an estmate of the current population being more than 25% below the FRP. There is inter-annual variation in population size (natural fluctuation) of whitefish, but monitoring evidence and expert opinion suggests that the population in indivuduals is certainly well below the Favourable Reference Population size.	

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	Complete survey or a statistically robust estimate	

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7.3 Short-term trend Period	2005-2018
7.4 Short-term trend Direction	Stable (0)
7.5 Short-term trend Method used	Complete survey or a statistically robust estimate
7.6 Long-term trend Period	
7.7 Long-term trend Direction	
7.8 Long-term trend Method used	
7.9 Additional information	Quality of Habitat for the species varies between localities. There are less than optimal levels of Total Phosphorous (TP) and dissolved oxygen in some localities. Reservoirs can be subject to anthropogenic water level fluctuations when used as a drinking water supply via abstraction. In Wales, whitefish are at the southernmost part of their sub-arctic range. They have a highly specialised habitat requirement and no dispersal ability which means that the distribution range of this species is highly limited, and thus making it more vulnerable to the impacts of detrimental nutrient levels. Another pressure is the existence of roach, a non-native species to Ullswater in England, which may compete with whitefish. High levels of tourism and amenity use also may cause risks to particular sites.

8. Main pressures and threats

8.1 Characterisation of pressures/threats

Pressure	Ranking
Agricultural activities generating point source pollution to surface or ground waters (A25)	H
Agricultural activities generating diffuse pollution to surface or ground waters (A26)	H
Management of fishing stocks and game (G08)	M
Introduction and spread of species (including alien species and GMOs) in freshwater aquaculture (G24)	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
Agricultural activities generating point source pollution to surface or ground waters (A25)	H
Agricultural activities generating diffuse pollution to surface or ground waters (A26)	H
Management of fishing stocks and game (G08)	M
Introduction and spread of species (including alien species and GMOs) in freshwater aquaculture (G24)	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

Change of habitat location, size, and / or quality due to climate change (N05)	M
Other climate related changes in abiotic conditions (N09)	M

8.2 Sources of information

8.3 Additional information

9. Conservation measures

9.1 Status of measures

a) Are measures needed? Yes

b) Indicate the status of measures Measures identified and taken

9.2 Main purpose of the measures taken

Increase the population size and/or improve population dynamics (improve reproduction success, reduce mortality, improve age/sex structure) (related to 'Population')

9.3 Location of the measures taken

Only outside Natura 2000

9.4 Response to the measures

Medium-term results (within the next two reporting periods, 2019-2030)

9.5 List of main conservation measures

Reduce/eliminate point pollution to surface or ground waters from agricultural activities (CA10)
Reduce diffuse pollution to surface or ground waters from agricultural activities (CA11)
Reduce impact of hydropower operation and infrastructure (CC04)
Reducing the impact of (re-) stocking for fishing and hunting, of artificial feeding and predator control (CG03)
Control/eradication of illegal killing, fishing and harvesting (CG04)
Early detection and rapid eradication of invasive alien species of Union concern (CI01)
Management, control or eradication of other invasive alien species (CI03)
Adopt climate change mitigation measures (CN01)
Reinforce populations of species from the directives (CS01)
Improvement of habitat of species from the directives (CS03)

9.6 Additional information

10. Future prospects

10.1 Future prospects of parameters

a) Range Good

b) Population Bad

c) Habitat of the species Poor

10.2 Additional information

Future trend of Range is overall stable; 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.

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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	Stable (=)
11.7 Change and reasons for change in conservation status and conservation status trend	a) Overall assessment of conservation status Genuine change The change is mainly due to: Genuine change b) Overall trend in conservation status Genuine change The change is mainly due to: Genuine change
11.8 Additional information	Conclusion on Range reached because: (i) the short-term trend direction in Range surface area is stable; and (ii) the current Range surface area is not less than the Favourable Reference Range. Conclusion on Population reached because: (i) the short-term trend direction in Population size is stable; 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 good; (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 two of the conclusions are Unfavourable-bad. Overall trend in Conservation Status is based on the combination of the short-term trends for Range - stable, Population - stable, and Habitat for the species - stable. The Overall assessment of Conservation Status has changed between 2013 and 2019 because the conclusion for Population has changed from Unfavourable-inadequate to Unfavourable-bad and the conclusion for Future Prospects has changed from Unfavourable-inadequate to Unfavourable-bad. The Overall trend in Conservation Status has changed between 2013 and 2019 because the Habitat for the species trend has changed from decreasing to stable.

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

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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	In the UK, the taxonomy of this species is considered as Coregonus lavaretus. This includes 'powan' in Scotland, 'schelly' in England and 'gwyniad' in Wales, which are all the same species of whitefish.

Distribution Map

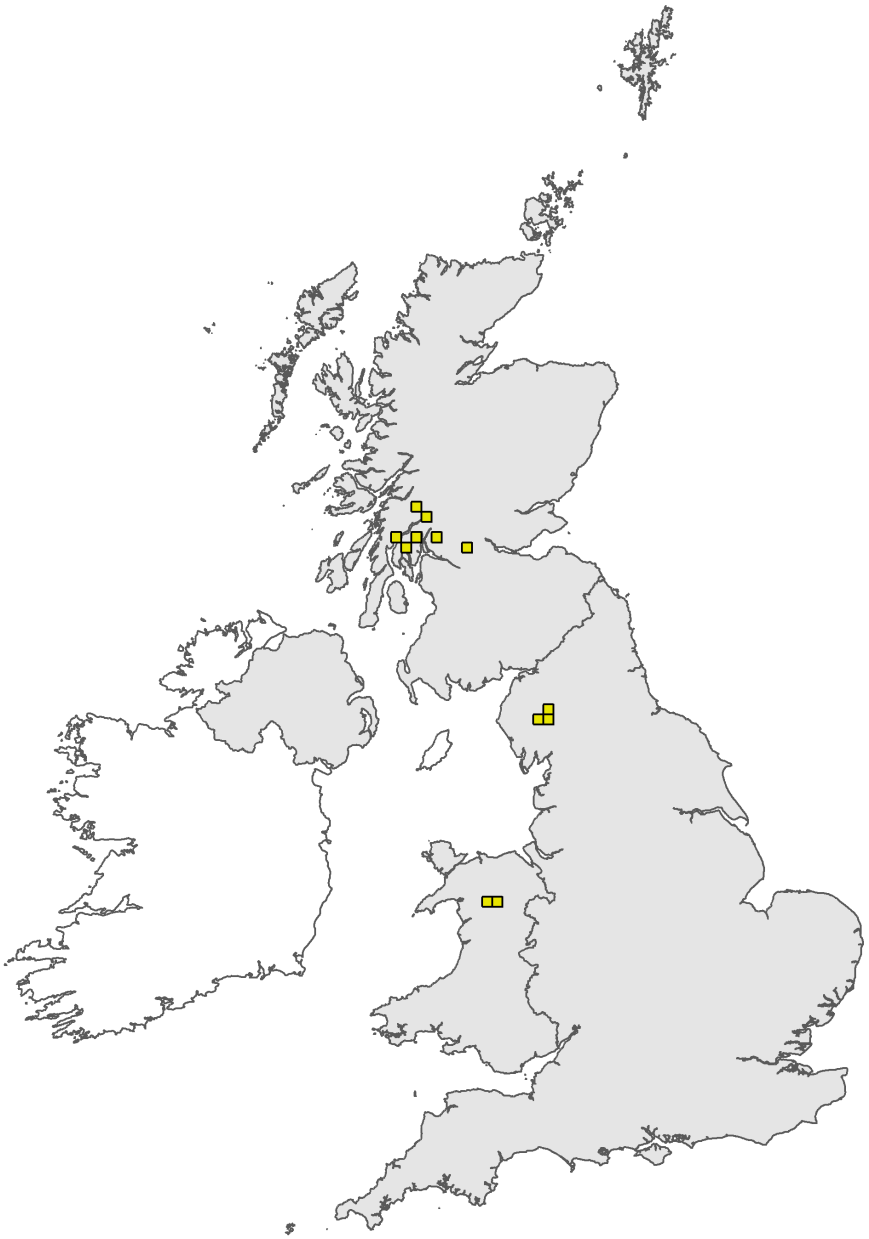

Figure 1: UK distribution map for S6353 - Whitefish (*Coregonus lavaretus*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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

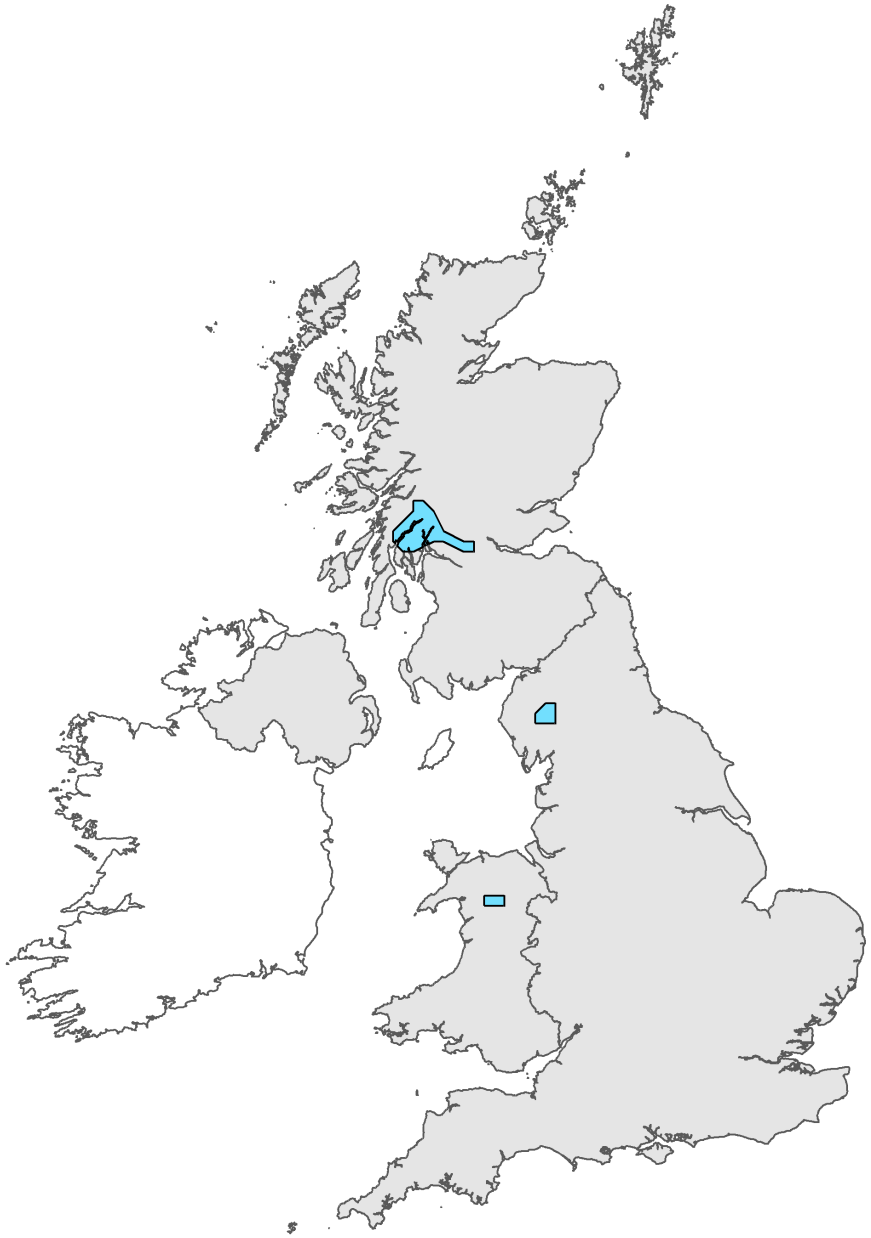

Figure 2: UK range map for S6353 - Whitefish (*Coregonus lavaretus*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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.