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:

S1103 - Twaite shad (*Alosa fallax*)

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	**1103**
1.3 Species scientific name	**Alosa fallax**
1.4 Alternative species scientific name	
1.5 Common name (in national language)	Twaite shad

2. Maps

2.1 Sensitive species	No
2.2 Year or period	1990-2018
2.3 Distribution map	Yes
2.4 Distribution map Method used	Based mainly on extrapolation from a limited amount of data
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

Report on the main results of the surveillance under Article 11 for Annex II, IV and V species (Annex B)

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

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5. Range

5.1 Surface area (km²)	18682.01
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	Based mainly on extrapolation from a limited amount of data
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: More than (>) c) Unknown d) Method: The FRR is the same as in 2013 and is not more than 10% above the current range. An FRR operator has been used because it had not been possible to calculate the exact FRR value. See the 2019 Article 17 UK Approach document for further information.
5.11 Change and reason for change in surface area of range	No change The change is mainly due to:
5.12 Additional information	Due to their migratory life history, the distribution of twaite shad is likely to be

underestimated. Assessment of this species' Range is further complicated due to the difficulty in discriminating between allis and twaite shad species.

6. Population

6.1 Year or period		1990-2018
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	167
6.3 Type of estimate		Minimum
6.4 Additional population size (using population unit other than reporting unit)	a) Unit	
	b) Minimum	
	c) Maximum	
	d) Best single value	
6.5 Type of estimate		
6.6 Population size Method used		Based mainly on extrapolation from a limited amount of data
6.7 Short-term trend Period		2006-2018
6.8 Short-term trend Direction		Uncertain (u)
6.9 Short-term trend Magnitude	a) Minimum	
	b) Maximum	
	c) Confidence interval	
6.10 Short-term trend Method used		Insufficient or no data available
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	More than (>)
	c) Unknown	
	d) Method	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 had not been possible to calculate the exact FRP value. See the 2019 Article 17 UK Approach document for further information.
6.16 Change and reason for change in population size		No information on nature of change
	The change is mainly due to:	No information on the nature of change
6.17 Additional information		Due to the difficulties of identification between twaite and allis shad, and their

ability to hybridise, the monitoring of shad populations is technically very challenging. Records for twaite shad are sporadic throughout the short term trend period and survey effort is not consistant across the species' range, so the short-term trend is uncertain. In the previous reporting round, twaite shad were assessed using the length of occupied river (Hatton-Ellis et al. 2012). Since the EU reporting unit is an equivalent type of unit, occupied river length has not been recalculated for the 2019 reporting. There has been no appreciable change in shad population since the last reporting period at UK-level, so the same FRP operator was still appropriate.

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 expert opinion with very limited data	
7.6 Long-term trend Period		
7.7 Long-term trend Direction		
7.8 Long-term trend Method used		
7.9 Additional information	Access restrictions (due to physical barriers) to historical river habitat is the primary issue for the species in reducing habitat sufficiency. Water quality is also known to comprimise the species, although the extent of the problem is uncertain.	

8. Main pressures and threats

8.1 Characterisation of pressures/threats

Pressure	Ranking
Hydropower (dams, weirs, run-off-the-river), including infrastructure (D02)	M
Marine fish and shellfish harvesting (professional, recreational) activities causing physical loss and disturbance of seafloor habitats (G03)	M
Invasive alien species of Union concern (I01)	M
Mixed source pollution to surface and ground waters (limnic and terrestrial) (J01)	H
Modification of hydrological flow (K04)	H
Physical alteration of water bodies (K05)	H

Threat	Ranking
Wind, wave and tidal power, including infrastructure (D01)	H

Hydropower (dams, weirs, run-off-the-river), including infrastructure (D02)	H
Abstraction of surface and ground water for energy production (excluding hydropower) (D13)	M
Marine fish and shellfish harvesting (professional, recreational) activities causing physical loss and disturbance of seafloor habitats (G03)	M
Invasive alien species of Union concern (I01)	M
Mixed source pollution to surface and ground waters (limnic and terrestrial) (J01)	H
Modification of hydrological flow (K04)	H
Physical alteration of water bodies (K05)	H
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		Expand the current range of the species (related to 'Range')
9.3 Location of the measures taken		Both inside and 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

Adapt/manage exploitation of energy resources (CC02)
Adapt/manage renewable energy installation, facilities and operation (CC03)
Reduce impact of hydropower operation and infrastructure (CC04)
Management of professional/commercial fishing (including shellfish and seaweed harvesting) (CG01)
Management of hunting, recreational fishing and recreational or commercial harvesting or collection of plants (CG02)
Reduce impact of mixed source pollution (CJ01)
Reduce impact of multi-purpose hydrological changes (CJ02)
Restore habitats impacted by multi-purpose hydrological changes (CJ03)
Other measures related to mixed source pollution and multi-purpose human-induced changes in hydraulic conditions (CJ04)
Adopt climate change mitigation measures (CN01)

9.6 Additional information

10. Future prospects

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10.1 Future prospects of parameters	a) Range	Poor
	b) Population	Poor
	c) Habitat of the species	Poor
10.2 Additional information	Future trend of Range is Positive - increasing <=1% (one percent or less) per year on average; Future trend of Population is Positive - increasing <=1% (one percent or less) per year on average; and Future trend of Habitat for the species is Positive- slight/moderate improvement. 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	Unfavourable - Inadequate (U1)
11.2. Population	Unfavourable - Inadequate (U1)
11.3. Habitat for the species	Unfavourable - Inadequate (U1)
11.4. Future prospects	Unfavourable - Inadequate (U1)
11.5 Overall assessment of Conservation Status	Unfavourable - Inadequate (U1)
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 No change The change is mainly due to: b) Overall trend in conservation status No information on nature of change The change is mainly due to: No information on the nature of 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 more than 10% below the Favourable Reference Range. Conclusion on Population reached because: (i) the short-term trend direction in Population size is uncertain; and (ii) the current Population size is not 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 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 poor; and (iii) the Future prospects for Habitat for the species are poor. Overall assessment of Conservation Status is Unfavourable-inadequate because all of the conclusions are Unfavourable-inadequate. Overall trend in Conservation Status is based on the combination of the short-term trends for Range - stable, Population - uncertain, and Habitat for the species - stable. The overall Conservation Status has not changed since 2013. The Overall trend in Conservation Status has changed between 2013 and 2019 because the Range trend has changed from unknown to stable, the Population

trend has changed from increasing to uncertain, and the Habitat for the species trend has changed from increasing 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	number of map 1x1 km grid cells (grids1x1)
	b) Minimum	
	c) Maximum	
	d) Best single value	71
12.2 Type of estimate		Minimum
12.3 Population size inside the network Method used		Based mainly on extrapolation from a limited amount of data
12.4 Short-term trend of population size within the network Direction		Stable (0)
12.5 Short-term trend of population size within the network Method used		Based mainly on extrapolation from a limited amount of data
12.6 Additional information		

13. Complementary information

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

Distribution Map

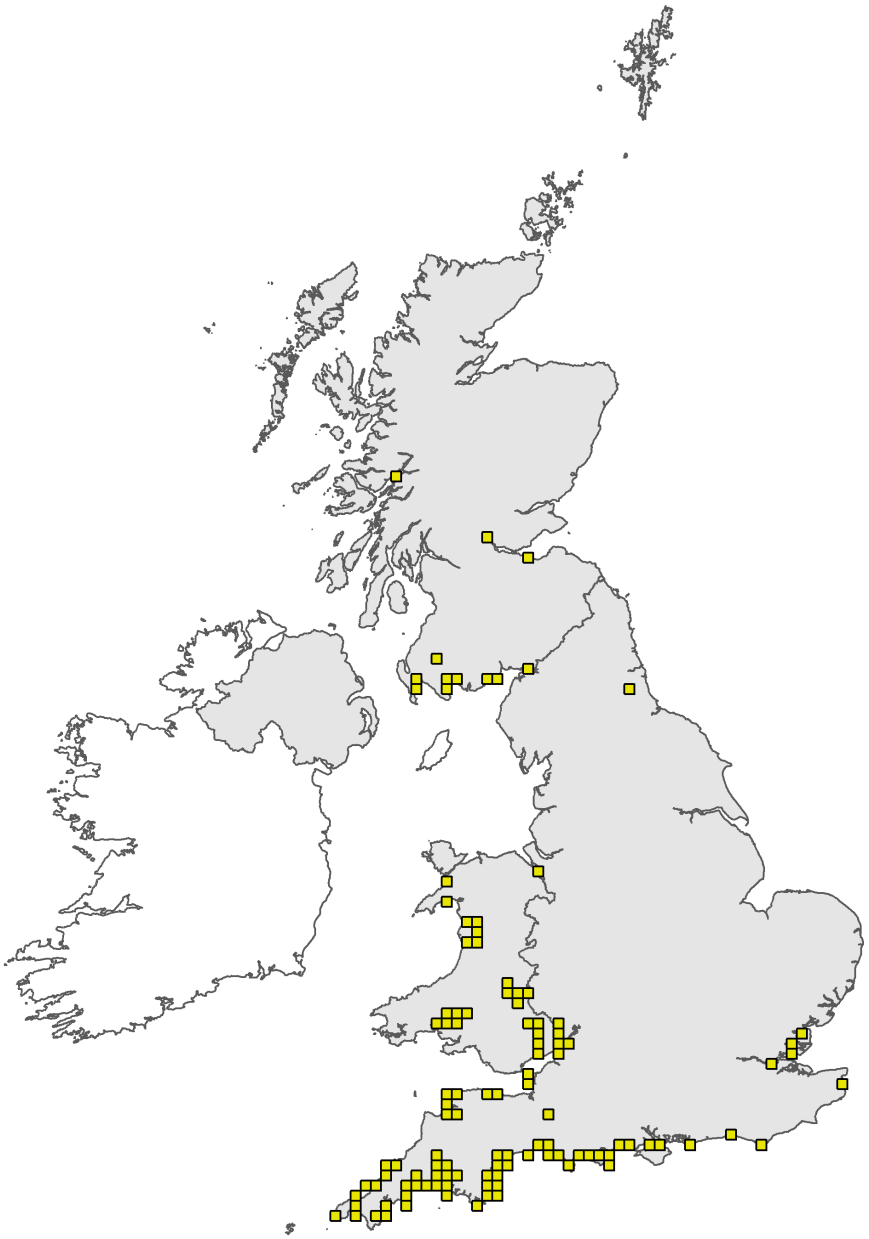

Figure 1: UK distribution map for S1103 - Twaite shad (*Alosa fallax*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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

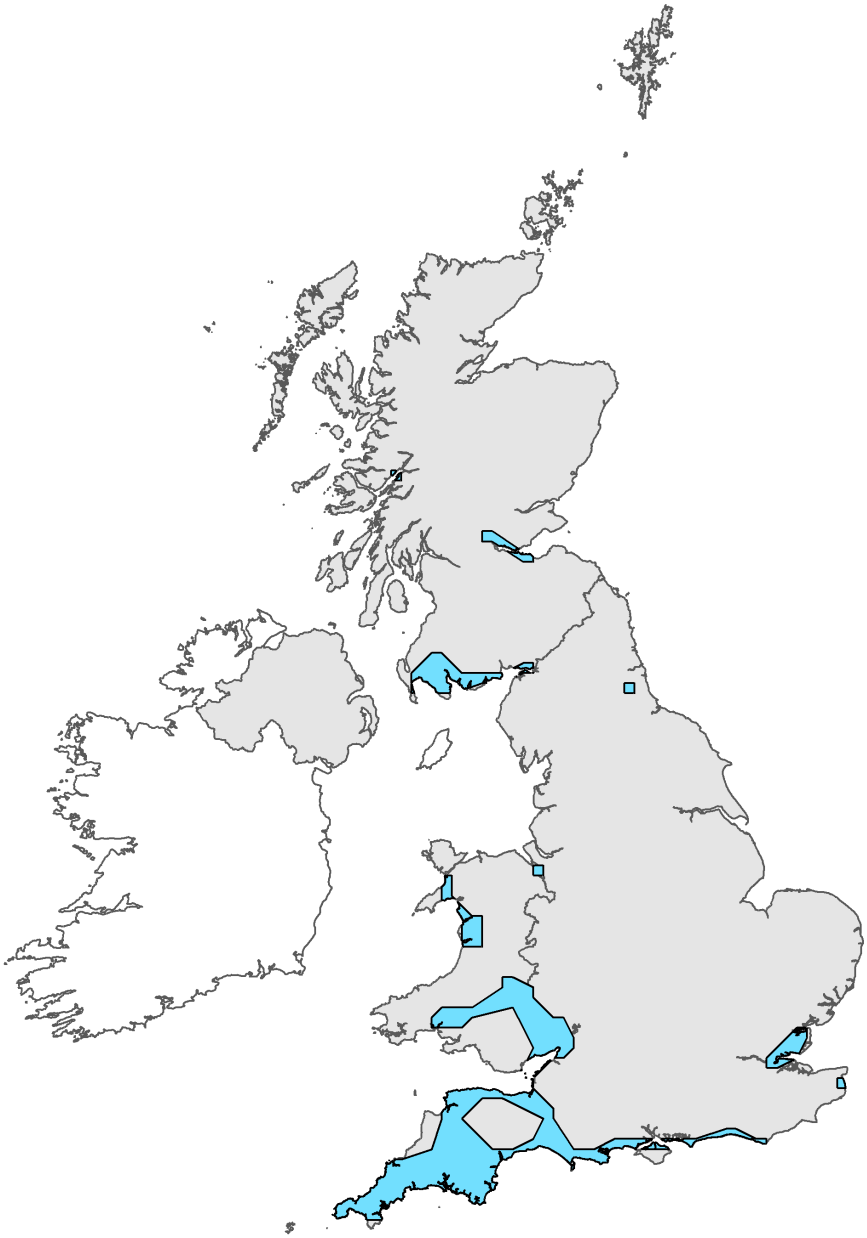

Figure 2: UK range map for S1103 - Twaite shad (*Alosa fallax*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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.