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:

S1095 - Sea lamprey (*Petromyzon marinus*)

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

<table>
<thead>
<tr>
<th>1. General Information</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Member State</td>
<td>UK</td>
</tr>
<tr>
<td>1.2 Species code</td>
<td>1095</td>
</tr>
<tr>
<td>1.3 Species scientific name</td>
<td>Petromyzon marinus</td>
</tr>
<tr>
<td>1.4 Alternative species scientific name</td>
<td></td>
</tr>
<tr>
<td>1.5 Common name (in national language)</td>
<td>Sea lamprey</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Maps</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Sensitive species</td>
<td>No</td>
</tr>
<tr>
<td>2.2 Year or period</td>
<td>1990-2018</td>
</tr>
<tr>
<td>2.3 Distribution map</td>
<td>Yes</td>
</tr>
<tr>
<td>2.4 Distribution map Method used</td>
<td>Based mainly on extrapolation from a limited amount of data</td>
</tr>
<tr>
<td>2.5 Additional maps</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Information related to Annex V Species (Art. 14)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Is the species taken in the wild/exploited?</td>
<td>No</td>
</tr>
<tr>
<td>3.2 Which of the measures in Art. 14 have been taken?</td>
<td></td>
</tr>
<tr>
<td>a) regulations regarding access to property</td>
<td>No</td>
</tr>
<tr>
<td>b) temporary or local prohibition of the taking of specimens in the wild and exploitation</td>
<td>No</td>
</tr>
<tr>
<td>c) regulation of the periods and/or methods of taking specimens</td>
<td>No</td>
</tr>
<tr>
<td>d) application of hunting and fishing rules which take account of the conservation of such populations</td>
<td>No</td>
</tr>
<tr>
<td>e) establishment of a system of licences for taking specimens or of quotas</td>
<td>No</td>
</tr>
<tr>
<td>f) regulation of the purchase, sale, offering for sale, keeping for sale or transport for sale of specimens</td>
<td>No</td>
</tr>
<tr>
<td>g) breeding in captivity of animal species as well as artificial propagation of plant species</td>
<td>No</td>
</tr>
<tr>
<td>h) other measures</td>
<td>No</td>
</tr>
</tbody>
</table>
3.3 Hunting bag or quantity taken in the wild for Mammals and Acipenseridae (Fish)

<table>
<thead>
<tr>
<th>b) Statistics/quantity taken</th>
<th>Season/year 1</th>
<th>Season/year 2</th>
<th>Season/year 3</th>
<th>Season/year 4</th>
<th>Season/year 5</th>
<th>Season/year 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min. (raw, i.e. not rounded)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. (raw, i.e. not rounded)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

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

3.5. Additional information

4. Biogeographical and marine regions

4.1 Biogeographical or marine region where the species occurs

Atlantic (ATL)

England
Common Standards Monitoring Guidance for Freshwater Fauna 2015
Common Standards Monitoring Guidance for Rivers 2014
Environment Agency 2012. Summary of outcomes of the Review of Consents on
water-related SACs. Excel spreadsheet.
Mainstone, C.P. 2018. Article 17 Habitats Pro-forma England H3260 for UK
aggregation. Natural England
Canadian Journal of Fisheries and Aquatic Sciences. 37, 1944-1952.
aquatic vertebrates: the effect of Procambarus clarkii on fish assemblages in 
Mediterranean temporary streams. Biological Invaders in Inland Waters. 
Gherardi, F. (ed.)
Natural England. 2015. River restoration theme plan. Output from the EU Life 
project 'Improvement Programme for England's Natura 2000 Sites' (IPENS). 
Natural England Report number IPENSTP023.
lamprey populations in the Yorkshire Ouse catchment, north-east England, and 
the potential influence of physical migration barriers. Aquatic Conservation: 
Marine and Freshwater Ecosystems 18: 175-189.
consolidate existing data and literature to help inform the conservation status of 
Annex II features (migratory fish species) within the Severn Estuary river 
catchment. Natural England, IPENS programme LIFE11NAT/UK/000384/IPENS. 
O'Keeffe, N. Clough, S. & Cesar, C. 201. Keadby Power Station fish entrainment 
study. APEM Scientific Report 410735
crayfish (Pacifastacus leniusculus) on the recruitment of salmonid fish in a 
headwater stream in Yorkshire, England. Knowledge and Management of Aquatic 
Ecosystems.
Reynolds, J.D. 2011. A review of ecological interactions between crayfish and 
fish, indigenous and introduced. Knowledge and Management of Aquatic 
Ecosystems. 401, 10
Russon, I.G., Kemp, P.S. & Lucas, M.C. 2011. Guaging weirs impede the upstream 
migration of adult river lamprey lampetra fluviatilis. Fisheries Management and 
Ecology. 18. 201-2010.
Sea Lamprey redd counts, River Eden SAC, 2016. Natural England 
Summary of distribution and numbers of sea lamprey in the Rivers Ure, Swale, 
Wharfe, Nidd and Derwent 2003 to 2011 inclusive. Report for the Environment 
Agency, compiled by the Bellflask Ecological Survey Team. 
Wheeldon, J. 2012. River Restoration Planning and implementation on River Sites 
Scotland
Scottish Natural Heritage commissioned report. 
Scottish Natural Heritage Commissioned Report No. 032. 
Scottish Natural Heritage Commissioned Report No. 464. 
The Tweed Foundation. Assessment of lamprey distribution and abundance in 
the River Tweed cSAC/SSSI 2004. Unpublished Scottish Natural Heritage 
commissioned report. 
Watt J, Ravenscroft NOM, Seed M. 2008. Site Condition Monitoring of lamprey in 
the River Tay SAC. Scottish Natural Heritage Commissioned Report No. 292. 
Watt J, Brown L, Bull, C. Lamprey Site Condition Monitoring of the River Spey 
Report on the main results of the surveillance under Article 11 for Annex II, IV and V species (Annex B)

Unpublished Scottish Natural Heritage commissioned report.

IAFG. 2017. UK Article 17 reporting procedure for estimating population using 1 km square resolution records data. Inter-agency Freshwater Group, UK.

Wales

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

https://doi.org/10.1525/bio.2009.59.11.7
NRW. 2017a. Indicative site level assessment. Migratory fish sea lamprey / Petromyzon marinus. Carmarthen Bay and Estuaries / Bae Caerfyrddin ac Aberoedd SAC.
NRW. 2017b. Indicative site level assessment. Migratory fish sea lamprey / Petromyzon marinus. Dee Estuary / Aber Dyfrdwy SAC.
NRW. 2017c. Indicative site level assessment. Migratory fish sea lamprey / Petromyzon marinus. Pembrokeshire Marine / Sir Benfro Forol SAC
NRW. 2017d. Indicative site level assessment. Migratory fish sea lamprey / Petromyzon marinus. Carmarthen Bay and Estuaries / Bae Caerfyrddin ac Aberoedd SAC.
5. Range

5.1 Surface area (km²) 38217.03
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
   c) Unknown
   d) Method

5.11 Change and reason for change in surface area of range
   Improved knowledge/more accurate data
   Use of different method
   The change is mainly due to: Use of different method

5.12 Additional information
   The current Range surface area calculation does not represent the real range
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surface area, which is considered to be the range in 2013 - 63046.95km². Change in availability of underpinning mapping data compared to 2013 has resulted in an apparent decrease in range area, but this is not genuine change. Expert opinion considers the trend to be stable. For further information see the 2019 Article 17 UK Approach document.

<table>
<thead>
<tr>
<th>6. Population</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>6.1 Year or period</strong></td>
</tr>
<tr>
<td><strong>6.2 Population size (in reporting unit)</strong></td>
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<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>6.3 Type of estimate</strong></td>
</tr>
<tr>
<td><strong>6.4 Additional population size (using population unit other than reporting unit)</strong></td>
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<tr>
<td></td>
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<td></td>
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<tr>
<td></td>
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<tr>
<td><strong>6.5 Type of estimate</strong></td>
</tr>
<tr>
<td><strong>6.6 Population size Method used</strong></td>
</tr>
<tr>
<td><strong>6.7 Short-term trend Period</strong></td>
</tr>
<tr>
<td><strong>6.8 Short-term trend Direction</strong></td>
</tr>
<tr>
<td><strong>6.9 Short-term trend Magnitude</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>6.10 Short-term trend Method used</strong></td>
</tr>
<tr>
<td><strong>6.11 Long-term trend Period</strong></td>
</tr>
<tr>
<td><strong>6.12 Long-term trend Direction</strong></td>
</tr>
<tr>
<td><strong>6.13 Long-term trend Magnitude</strong></td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
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<tr>
<td><strong>6.14 Long-term trend Method used</strong></td>
</tr>
<tr>
<td><strong>6.15 Favourable reference population (using the unit in 6.2 or 6.4)</strong></td>
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<td></td>
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<td></td>
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<tr>
<td><strong>6.16 Change and reason for change in population size</strong></td>
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<td></td>
</tr>
</tbody>
</table>
6.17 Additional information

The species is very widespread and spatial distribution and annual variability of populations are not fully understood. Therefore it is not been possible to set an short term trend or FRP. Surveyor error may also be an issue. Petromyzon ammocoetes are relatively difficult to detect using standard techniques, partly because they are much less abundant than Lampetra ammocoetes, which occupy similar habitat. The current population calculation does not represent the real population. Change in availability of distribution data has resulted in an apparent decrease in the population compared to 2013, but this is not due to genuine change. Expert opinion considers the trend in population to be stable. The population in 2013 was 305km². For further information see the 2019 Article 17 UK Approach document.

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)? Unknown

b) Is there a sufficiently large area of unoccupied habitat of suitable quality (for long-term survival)? Unknown

7.2 Sufficiency of area and quality of occupied habitat Method used

Based mainly on expert opinion with very limited data

7.3 Short-term trend Period

2001-2018

7.4 Short-term trend Direction

Unknown (x)

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

Habitat sufficiency is unknown for this species. Evidence suggests that the historical introduction of physical barriers have precluded sea lamprey reaching their spawning grounds. Poor water quality is also a factor in some parts of the species range.

8. Main pressures and threats

8.1 Characterisation of pressures/threats

<table>
<thead>
<tr>
<th>Pressure</th>
<th>Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural activities generating point source pollution to surface or ground waters (A25)</td>
<td>M</td>
</tr>
<tr>
<td>Agricultural activities generating diffuse pollution to surface or ground waters (A26)</td>
<td>M</td>
</tr>
<tr>
<td>Forestry activities generating pollution to surface or ground waters (B23)</td>
<td>M</td>
</tr>
<tr>
<td>Hydropower (dams, weirs, run-off-the-river), including infrastructure (D02)</td>
<td>M</td>
</tr>
<tr>
<td>Discharge of urban waste water (excluding storm overflows and/or urban run-offs) generating pollution to surface or ground water (F12)</td>
<td>M</td>
</tr>
</tbody>
</table>
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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
Long-term results (after 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 diffuse pollution to surface or ground waters from forestry activities (CB10)
Reduce impact of hydropower operation and infrastructure (CC04)
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Reduce/eliminate point source pollution to surface or ground waters from industrial, commercial, residential and recreational areas and activities (CF04)
Reduce/eliminate diffuse pollution to surface or ground waters from industrial, commercial, residential and recreational areas and activities (CF05)
Reduce impact of mixed source pollution (CJ01)
Reduce impact of multi-purpose hydrological changes (CJ02)
Adopt climate change mitigation measures (CN01)
Implement climate change adaptation measures (CN02)

9.6 Additional information

10. Future prospects

10.1 Future prospects of parameters
a) Range  Good
b) Population Unknown
   c) Habitat of the species Unknown

10.2 Additional information
Future trend of Range is Unknown; Future trend of Population is Unknown; and Future trend of Habitat for the species is Unknown. 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  Unknown (XX)
11.3. Habitat for the species  Unknown (XX)
11.4. Future prospects  Unknown (XX)
11.5 Overall assessment of Conservation Status  Unknown (XX)
11.6 Overall trend in Conservation Status  Unknown (x)
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 change
      The change is mainly due to:

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 approximately equal to the Favourable Reference Range.
Conclusion on Population reached because: (i) the short-term trend direction in Population size is unknown; and (ii) the Favourable Reference Population is unknown.
Conclusion on Habitat for the species reached because: (i) the area of occupied and unoccupied habitat is unknown and (ii) the habitat quality is unknown for the long-term survival of the species; and (iii) the short-term trend in area of
13. Complementary information

13.1 Justification of % thresholds for trends

13.2 Trans-boundary assessment

13.3 Other relevant Information

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

<table>
<thead>
<tr>
<th>12.1 Population size inside the pSCIs, SCIs and SACs network (on the biogeographical/marine level including all sites where the species is present)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Unit number of map 1x1 km grid cells (grids1x1)</td>
</tr>
<tr>
<td>b) Minimum</td>
</tr>
<tr>
<td>c) Maximum</td>
</tr>
<tr>
<td>d) Best single value 116</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>12.2 Type of estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum</td>
</tr>
</tbody>
</table>

Based mainly on extrapolation from a limited amount of data

<table>
<thead>
<tr>
<th>12.3 Population size inside the network Method used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown (x)</td>
</tr>
</tbody>
</table>

Insufficient or no data available

<table>
<thead>
<tr>
<th>12.4 Short-term trend of population size within the network Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.5 Short-term trend of population size within the network Method used</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>12.6 Additional information</th>
</tr>
</thead>
</table>
Figure 1: UK distribution map for S1095 - Sea lamprey (*Petromyzon marinus*). 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.
Figure 2: UK range map for S1095 - Sea lamprey (Petromyzon marinus). 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.