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

Supporting documentation for the
conservation status assessment for the species:

S1095 - Sea lamprey (*Petromyzon marinus*)

NORTHERN IRELAND

IMPORTANT NOTE - PLEASE READ

- The information in this document is a country-level contribution to 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.
- The 2019 Article 17 UK Approach document provides details on how this supporting information was used to produce the UK Report.
- The UK Report on the conservation status of this species is provided in a separate document.
- The reporting fields and options used are aligned to those set out in the European Commission guidance.
- Explanatory notes (where provided) by the country are included at the end. These provide an audit trail of relevant supporting information.
- 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; (iii) the field was not relevant to this species (section 12 Natura 2000 coverage for Annex II species) and/or (iv) the field was only relevant at UK-level (sections 9 Future prospects and 10 Conclusions).
- For technical reasons, the country-level future trends for Range, Population and Habitat for the species are only available in a separate spreadsheet that contains all the country-level supporting information.
- The country-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 (Northern Ireland information only)**
1.2 Species code	**1095**
1.3 Species scientific name	**Petromyzon marinus**
1.4 Alternative species scientific name	
1.5 Common name (in national language)	Sea lamprey

2. Maps

2.1 Sensitive species	No
2.2 Year or period	1994-2018
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

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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

Goodwin, C (2003). Ecology of three lamprey species in Northern Ireland.
Goodwin, C.E., Dick, J.T.A., Rogowski, D.L., Elwood, R.W. (2008). Lamprey ammocoete habitat association at regional, catchment and microhabitat scales in Northern Ireland. Ecology of Freshwater Fish. Blackwell Munksgaard: 17: 542-553.
Loughs Agency (2010). Lamprey Baseline Surveys: River Finn and River Deele Co Donegal. Loughs Agency of the Foyle Carlingford and Irish Lights Commission. Report Ref: LA/Lamprey/04&09/11. https://www.loughs-agency.org/wp-content/uploads/2015/05/lamprey-baseline-surveys-finn-and-deele-2010.pdf.
Maitland PS (2003). Ecology of the River, Brook and Sea Lamprey. Conserving Natura 2000 Rivers Ecology Series No. 5. English Nature, Peterborough.
Niven, A & McCauley (2013a). Lamprey baseline survey No. 2: River Faughan and Tributaries SAC. Loughs Agency, L'Derry.
Niven, A & McCauley (2013b). Lamprey baseline survey No. 3: River Foyle and Tributaries SAC. Loughs Agency, L'Derry.
Niven, A & McCauley (2013c). Lamprey baseline survey No. 4: River Roe and Tributaries SAC. Loughs Agency, L'Derry.
Kurz, I and Costello, M.J. 1999 An outline of the biology, distribution and conservation of Lampreys in Ireland. Irish Wildlife Manuals No 5. Ducjas, Dublin.

5. Range

5.1 Surface area (km²)

5.2 Short-term trend Period

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5.3 Short-term trend Direction	Uncertain (u)	
5.4 Short-term trend Magnitude	a) Minimum	b) Maximum
5.5 Short-term trend Method used		
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	No change The change is mainly due to:	
5.12 Additional information		

6. Population

6.1 Year or period	1994-2018	
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	13
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	2007-2018	
6.8 Short-term trend Direction	Unknown (x)	
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	

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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
6.16 Change and reason for change in population size	No change The change is mainly due to:
6.17 Additional information	

7. Habitat for the species

7.1 Sufficiency of area and quality of occupied habitat	a) Are area and quality of occupied habitat sufficient (to maintain the species at FCS)?	Unknown
	b) Is there a sufficiently large area of occupied AND unoccupied habitat of suitable quality (to maintain the species at FCS)?	Unknown
7.2 Sufficiency of area and quality of occupied habitat Method used	Insufficient or no data available	
7.3 Short-term trend Period	2001-2018	
7.4 Short-term trend Direction	Uncertain (u)	
7.5 Short-term trend Method used	Insufficient or no data available	
7.6 Long-term trend Period		
7.7 Long-term trend Direction		
7.8 Long-term trend Method used		
7.9 Additional information		

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
Conversion from other land uses to housing, settlement or recreational areas (excluding drainage and modification of coastline, estuary and coastal conditions) (F01)	M
Agricultural activities generating diffuse pollution to surface or ground waters (A26)	H
Drainage (K02)	H
Mixed source pollution to surface and ground waters (limnic and terrestrial) (J01)	M
Roads, paths, railroads and related infrastructure (e.g. bridges, viaducts, tunnels) (E01)	H

Other modification of hydrological conditions for industrial or commercial development (F32)	H
Other human intrusions and disturbance not mentioned above (H08)	M

Threat	Ranking
Agricultural activities generating point source pollution to surface or ground waters (A25)	H
Conversion from other land uses to housing, settlement or recreational areas (excluding drainage and modification of coastline, estuary and coastal conditions) (F01)	M
Agricultural activities generating diffuse pollution to surface or ground waters (A26)	H
Drainage (K02)	H
Mixed source pollution to surface and ground waters (limnic and terrestrial) (J01)	M
Roads, paths, railroads and related infrastructure (e.g. bridges, viaducts, tunnels) (E01)	H
Other modification of hydrological conditions for industrial or commercial development (F32)	H
Other human intrusions and disturbance not mentioned above (H08)	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		Maintain the current range, population and/or habitat for the species
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

Manage the use of natural fertilisers and chemicals in agricultural (plant and animal) production (CA09)
Manage conversion of land for construction and development of infrastructure (CF01)
Other measures related to agricultural practices (CA16)
Reduce impact of multi-purpose hydrological changes (CJ02)
Restore habitats impacted by multi-purpose hydrological changes (CJ03)
Reduce impact of mixed source pollution (CJ01)
Reduce impact of transport operation and infrastructure (CE01)
Habitat restoration of areas impacted by transport (CE06)

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Manage changes in hydrological and coastal systems and regimes for construction and development (CF10)

Reduce impact of other specific human actions (CH03)

9.6 Additional information	Measures have been taken via the Water Framework Directive to maintain the water quality within all catchments in which the species is present.

10. Future prospects

10.1 Future prospects of parameters	a) Range	Unknown
	b) Population	
	c) Habitat of the species	
10.2 Additional information		

11. Conclusions

11.1. Range	
11.2. Population	
11.3. Habitat for the species	
11.4. Future prospects	
11.5 Overall assessment of Conservation Status	
11.6 Overall trend in Conservation Status	
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	

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	10
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	Unknown (x)	

12.5 Short-term trend of population size within the network Method used	Insufficient or no data available
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

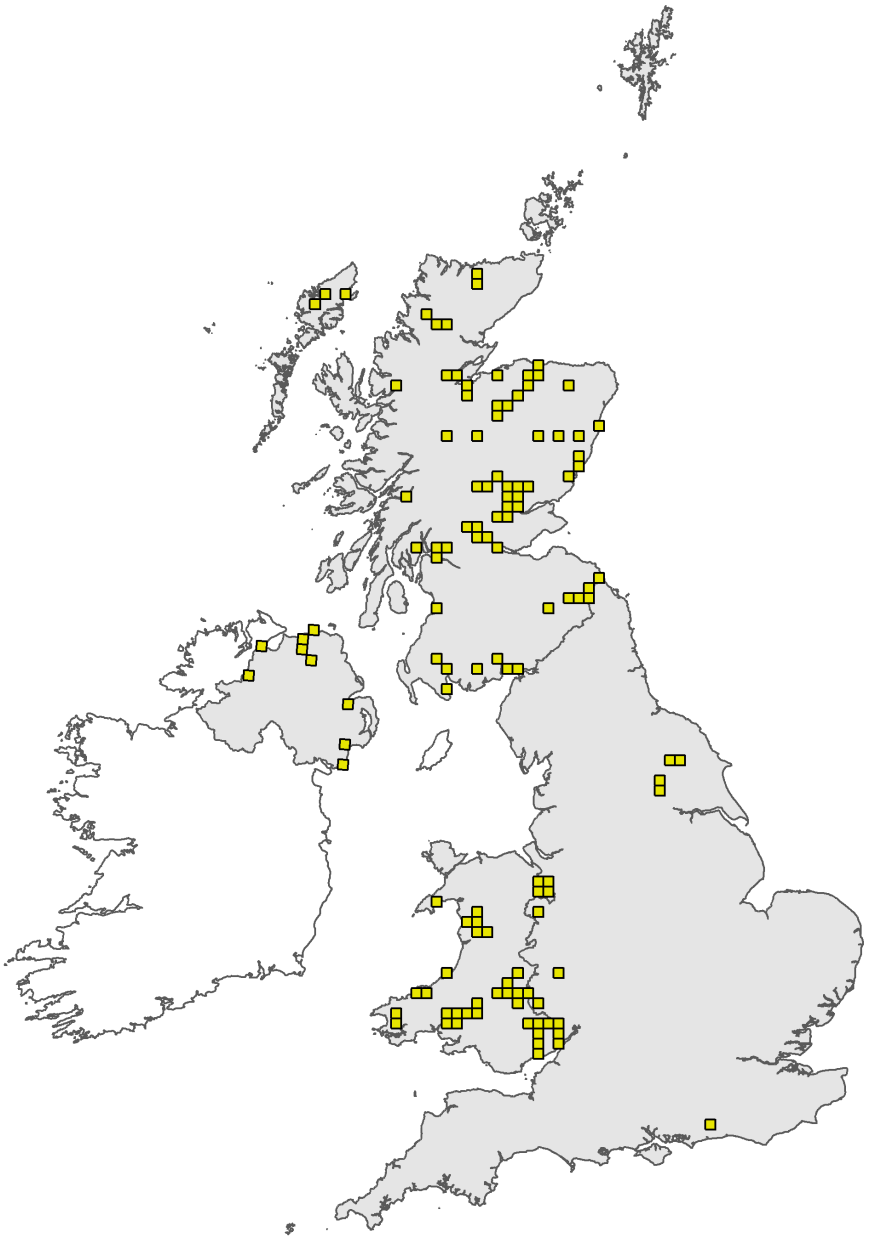

Figure 1: UK distribution map for S1095 - Sea lamprey (*Petromyzon marinus*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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.

Range Map

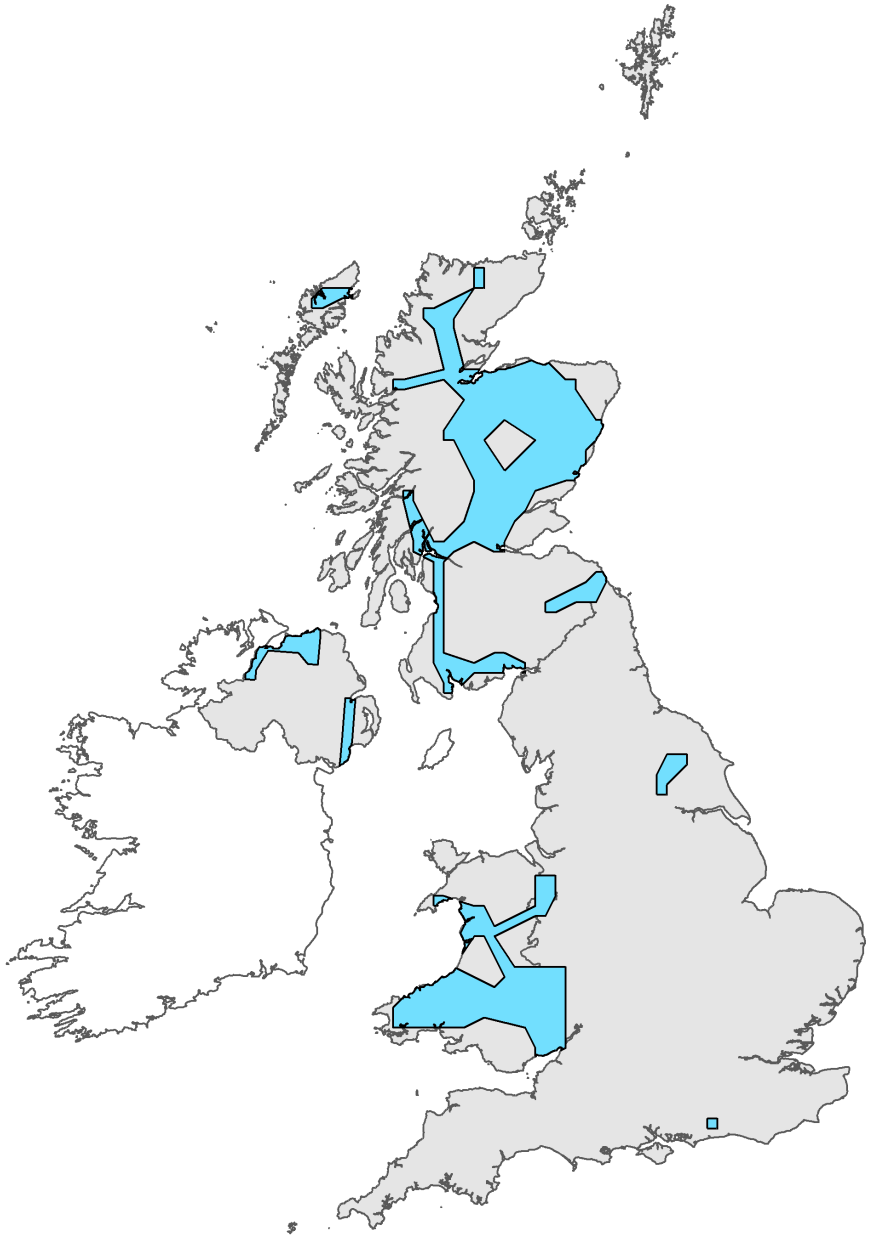

Figure 2: UK range map for S1095 - Sea lamprey (*Petromyzon marinus*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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.

Explanatory Notes

Species name: Petromyzon marinus (1095)

Field label	Note
2.2 Year or Period	Due to under-recording of Lamprey species, all records from 1994 have been used for the range maps and population estimates.

Species name: Petromyzon marinus (1095) Region code: ATL

Field label	Note
5.3 Short term trend; Direction	Lamprey recording for this reporting period has been more comprehensive than in the past. Specific recording of the presence of Lamprey species was carried out by dedicated personnel during electro-fishing surveys by AFBI and Loughs Agency staff. This increased recording effort accounts for the increase in Lamprey records in comparison to previous reporting rounds - it is therefore impossible to say if there has been an actual change in either range or population. Species range is likely underrepresented in the data presented in this report. This is due to the following factors: Survey Timing/Method - surveys were carried out at a time of year when adults are less likely to be detected and those used were designed to target Salmonids, with little emphasis for recorders to document lamprey bycatch.
6.1 Year or Period	Due to under-recording of Lamprey species, all records from 1994 have been used for the range maps and population estimates.
6.2 Population size	Lamprey species are generally under-recorded, as main fish sampling programmes are aimed at species of more economic importance (e.g. Salmon and Trout).
6.6 Population size; Method used	In Northern Ireland, records for the three lamprey species are largely anecdotal; however targeted surveys have been carried out historically as part of PhD research and localised monitoring. The majority of anecdotal records are derived from bycatch data, taken during quantitative and semi-quantitative salmon monitoring and Water Framework Directive salmonid surveys carried out by AFBI Northern Ireland and the Loughs Agency. The Water Framework Directive and salmon surveys are not undertaken during lamprey spawning time and so the records largely consist of non-breeding adult and ammocoete data. This is not representative of the entire population number and age structure for this species.
6.8 Short term trend; Direction	Due to the lamprey records for this reporting period being largely anecdotal and not based on systematic, repeated surveys, it is not possible to make direct comparisons between this and the previous reporting period with regard to species parameters.
6.10 Short term trend; Method used	Due to under-recording of Lamprey species, all records from 1994 have been used for the range maps and population estimates. After liaison with NI agencies responsible for fish recording, the recording for the 2013-2018 period is more comprehensive. It is for this reason that there is an increase in records by comparison to the last reporting round, not because of an increase in lamprey populations. However it is impossible to say if there has been an actual change in either parameter based on the records obtained for this reporting period. Species population is likely under-represented in the data presented in this report. This is due to the following factors: Survey Timing/Method - surveys were carried out at a time of year when adults are less likely to be detected and those used were designed to target Salmonids, with little emphasis for recorders to document lamprey bycatch.
6.16 Change and reason for change in population size	Due to the lack of systematic, repeated surveys over time and the lack of resource to make inferences using incidental records, we are unable to comment on the population trends for any of the lamprey species.

7.1 Sufficiency of area and quality of occupied habitat	It is difficult to fully assess the sufficiency of habitat area for the species, as we do not have enough information on species populations and range. However, based on the entries for sea lamprey (inc. observations and trapping), habitat is generally considered to be of moderate quality in NI (especially within catchments that are directly connected to the sea, have tidal estuaries and suitable spawning habitat in the lower river reaches). In NI sea lampreys appear to be restricted to areas of large rivers close to the coast or loughs, as sightings were made in the Foyle, Lagan, Neagh, Mourne and South Armagh, and Roe catchments (Goodwin et al 2009).
7.2 Sufficiency of area and quality of occupied habitat; Method used	In the absence of comprehensive lamprey habitat surveys, water quality data was used as proxy. Water quality was assessed using data on pollution incidents, industrial consents, abstraction licensing and surface water body monitoring sites, for river segments and river, transitional, coastal and lake water bodies within the catchments in which lamprey were recorded as present in. This data was last updated between August and November 2017.
8.1 Characterisation of pressures/ threats	Identification of threats and pressures was - in part - derived from an exercise in which experts were asked to rank the importance of threats and pressures, reported in the previous assessment. A total of 3 species experts participated in the exercise. The threats and pressures listed for Sea Lamprey were generally associated with potential pollution of water-courses, damage to river sediments, and obstructions to movement - i.e. A25: Agricultural activities generating point source pollution to surface or ground waters; F01: Conversion from other land uses to housing, settlement or recreational areas; A26: Agricultural activities generating diffuse pollution to surface or ground waters; K02: Drainage (i.e. destruction of sediment beds has been identified as a threat to ammocoete populations; it has been included in the pressures and threats section for all lamprey species); J01: Mixed source pollution to surface and ground waters (limnic and terrestrial); E01: Roads, paths railroads and related infrastructure (e.g. bridges, viaducts, tunnels); F32: Other modification of hydrological conditions for industrial or commercial development; and H08: Other human intrusions and disturbance not mentioned above. The latter include ease of migration over man-made structures - even those that are considered suitable for migration of salmonids - and the risk associated with water intakes, and particularly those associated with powerstations and other industrial processes. Current records are available from relevant powerstation impingement studies (Ballylumford and Coolkeeragh).
9.5 List of main conservation measures	Measures have been taken via the Water Framework Directive to maintain the water quality within all catchments in which the species is present.