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:

S1355 - Otter (*Lutra lutra*)

WALES

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 (Wales information only)**
1.2 Species code	**1355**
1.3 Species scientific name	**Lutra lutra**
1.4 Alternative species scientific name	
1.5 Common name (in national language)	Otter

2. Maps

2.1 Sensitive species	No
2.2 Year or period	1995-2018
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

Andrews E, Crawford AK. 1986. Otter Survey of Wales 1984-85. Vincent Wildlife Trust, London.
Andrews E, Howell P. Johnson K. 1993. Otter Survey of Wales 1991: Vincent Wildlife Trust, London.
Bassett S, Wyan J. 2010. Otters in Scotland: How Vulnerable Are They to Disturbance? CIEEM In Practice
Battersby J. 2005. UK Mammals: Species Status and Population Trends. JNCC/Tracking Mammals Partnership.
Bradshaw AV, Slater FM. 2002. A Post Mortem Study of Otters in England and Wales: Environment Agency.
Carey PD, S Wallis, Chamberlain PM, Cooper A, Emmett BA, Maskell L C, McCann T, Murphy J. Norton LR, Reynolds B, Scott WA, Simpson IC, Smart SM, Ullyett JM. 2008. Countryside Survey: UK Results from 2007. CEH Project Number: C03259. N. C. f. E. Hydrology.
Chadwick EA. 2007. Post Mortem Study of Otters in England and Wales 2002 - 2003. Environment Agency Science Report SC010065/S
Chadwick EA. 2018. Preliminary report on National Otter Survey Wales 2017. Cardiff University Otter Project. Available from: http://www.otterproject.cf.ac.uk
Chanin P. 2003. Ecology of the European otter. Conserving natura 2000 rivers. Peterborough, English Nature. Ecology series.
Crawford A, Evans D, Jones A. McNulty J. 1979. Otter Survey of Wales 1977-78. Society for the Promotion of Nature Conservation, Lincoln.
Crawford A. 2003. Fourth Otter Survey of England 2000-2002.Environment Agency-Report W1cD61/TR. Environment Agency, Bristol.
Crawford A. 2010. Fifth Otter Survey of England 2009-2010. Bristol, Environment

Agency.
Dwyryd Otter Partnership. 2006. Compilation of Studies Carried out by the Dwyryd Otter Partnership 2000 to 2006. Funded by Countryside Council for Wales, Snowdonia National Park Authority, Environment Agency Wales, Species Challenge Fund.
Findlay M, Alexander L, Macleod C. 2015. Site condition monitoring for otters (Lutra lutra) in 2011-12. Scottish Natural Heritage Commissioned Report No. 521.
Harris S, Morris P, Wray S, Yalden, D. 1995. A review of British Mammals: population estimates and conservation status of British mammals other than cetaceans. JNCC, Peterborough.
Harris S, Yalden D. 2008. Mammals of the British Isles: Handbook. Hobbs GI, Chadwick EA, Bruford MW, Slater FM. 2011 Bayesian clustering techniques and progressive partitioning to identify population structuring within a recovering otter population in the UK. Journal of Applied Ecology Volume 48, Issue 5, pages 1206-1217.
Jefferies DJ. 1989. The changing otter population of Britain 1700-1989. Biological Journal of the Linnean Society 38, 61-69.
Jefferies DJ, Strachan C, Strachan R. 2003. Estimating numbers of the three interacting riparian mammals in Britain using survey data. In: Jefferies DJ. (Ed) The water vole and mink survey of 1996-1998 with a history of the long-term changes in the status of both species and their causes. pp188-197. Vincent Wildlife Trust, Ledbury.
Jones T, Jones D. 2004. Otter Survey of Wales 2002. Environment Agency, Bristol. Available from : www.environment-agency.gov.uk/subjects/conservation/483249/?version=1&lang=_e
Kean E, Lyons G, Chadwick EA. 2013. Persistent organic pollutants and indicators of otter health, CHEMTrust.
Kruuk H. 1995. Wild otters: Predation and populations. Oxford University Press, Oxford.
Liles G. 2003. Conserving Natura 2000 Rivers Conservation Techniques Series No. 5: Otter Breeding Sites - Conservation and Management. English Nature, Peterborough.
Liles G. 2006. Current and potential distribution, condition and breeding success of the otter Lutra lutra in the River Wye SAC and catchment (within Wales),CCW Environmental Monitoring Report No. 30. Unpublished report & Confidential Annex to CCW Bangor
Maltby E, Ormerod S, Acreman M, Blackwell M, Durance I, Everard M, Morris J, Spray C. 2011. Freshwaters - Openwaters, Wetlands and Floodplains in: The UK National Ecosystem Assessment Technical Report. UK National Ecosystem Assessment, UNEP-WCMC, Cambridge.
Mathews F, Kubasiewicz LM, Gurnell J, Harrower C, McDonald R, Shore R. 2018. A review of the population and conservation status of British Mammals. A report by The Mammal Society under contract to Natural England, Natural Resources Wales and Scottish Natural Heritage.
Pountney A, Stevens JR, Sykes T, Tyler CR. 2009. Population Genetics and PBDE Analysis of English and Welsh Otters. Science Report SC040024/SR1. Environment Agency.
Scottish Natural Heritage (SNH). 2015. Trend Note. Trends of Otters in Scotland: Prepared Using Evidence from the Otter Survey of Scotland by Leonie Alexander & Melanie Findlay.
Strachan R. 2007. National survey of otter Lutra lutra distribution in Scotland 2003-04. Scottish Natural Heritage Commissioned Report No. 211, Scottish Natural heritage.

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Strachan R. 2009. Otter Survey of Wales. Environment Agency Wales, Cardiff.
Strachan R. 2015. Otter survey of Wales 2009-10.
National Assembly Wales. 2015. Water quality in Wales. A quick guide. November 2015.
NRW. 2015. Water Watch Wales maps gallery. Cycle 2 waterbodies and rivers.
NRW. 2016c. NRW Board paper. Priorities for Delivering Water Framework Directive (WFD) requirements: Agricultural Pollution Issues - and the implications for natural resource management Paper Reference: NRW B B 46.16.
APEM. (2015). River Dee Otter Survey. APEM Scientific Report 413492 to Natural England.
Morgan, P.L. (2004). Current and potential distribution, condition and breeding success of the otter (Lutra lutra) in the River Dee catchment. Report FC 72-02-56 prepared for the Countryside Council for Wales, 46pp.

5. Range

5.1 Surface area (km²)		
5.2 Short-term trend Period		
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		
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	1995-2016	
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	
6.3 Type of estimate	Best estimate	

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6.4 Additional population size (using population unit other than reporting unit)	a) Unit	number of adults (adults)
	b) Minimum	
	c) Maximum	
	d) Best single value	1000
6.5 Type of estimate	Best estimate	
6.6 Population size Method used	Based mainly on extrapolation from a limited amount of data	
6.7 Short-term trend Period	2010-2018	
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	1991-2010	
6.12 Long-term trend Direction	Increasing (+)	
6.13 Long-term trend Magnitude	a) Minimum	71
	b) Maximum	71
	c) Confidence interval	
6.14 Long-term trend Method used	Based mainly on extrapolation from a limited amount of data	
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 information on nature of 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)?	Yes
	b) Is there a sufficiently large area of occupied AND unoccupied habitat of suitable quality (to maintain the species at FCS)?	
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	2007-2018	
7.4 Short-term trend Direction	Stable (0)	
7.5 Short-term trend Method used	Based mainly on extrapolation from a limited amount of data	
7.6 Long-term trend Period		
7.7 Long-term trend Direction		
7.8 Long-term trend Method used		

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7.9 Additional information

8. Main pressures and threats

8.1 Characterisation of pressures/threats

Pressure	Ranking
Modification of coastline, estuary and coastal conditions for development, use and protection of residential, commercial, industrial and recreational infrastructure and areas (including sea defences or coastal protection works and infrastructures) (F08)	H
Modification of hydrological flow or physical alteration of water bodies for agriculture (excluding development and operation of dams) (A33)	H
Agricultural activities generating diffuse pollution to surface or ground waters (A26)	M
Roads, paths, railroads and related infrastructure (e.g. bridges, viaducts, tunnels) (E01)	M
Mixed source pollution to surface and ground waters (limnic and terrestrial) (J01)	M
Mixed source marine water pollution (marine and coastal) (J02)	M

Threat	Ranking
Modification of coastline, estuary and coastal conditions for development, use and protection of residential, commercial, industrial and recreational infrastructure and areas (including sea defences or coastal protection works and infrastructures) (F08)	H
Modification of hydrological flow or physical alteration of water bodies for agriculture (excluding development and operation of dams) (A33)	H
Agricultural activities generating diffuse pollution to surface or ground waters (A26)	M
Roads, paths, railroads and related infrastructure (e.g. bridges, viaducts, tunnels) (E01)	M
Mixed source pollution to surface and ground waters (limnic and terrestrial) (J01)	M
Mixed source marine water pollution (marine and coastal) (J02)	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

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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	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 impact of mixed source pollution (CJ01)
Management of professional/commercial fishing (including shellfish and seaweed harvesting) (CG01)
Control/eradication of illegal killing, fishing and harvesting (CG04)
Reduce bycatch and incidental killing of non-target species (CG05)
Manage water abstraction for public supply and for industrial and commercial use (CF11)
Improvement of habitat of species from the directives (CS03)
Reduce impact of transport operation and infrastructure (CE01)

9.6 Additional information

10. Future prospects

10.1 Future prospects of parameters	a) Range 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	

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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 individuals (i)
	b) Minimum	
	c) Maximum	
	d) Best single value	300
12.2 Type of estimate		Best estimate
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

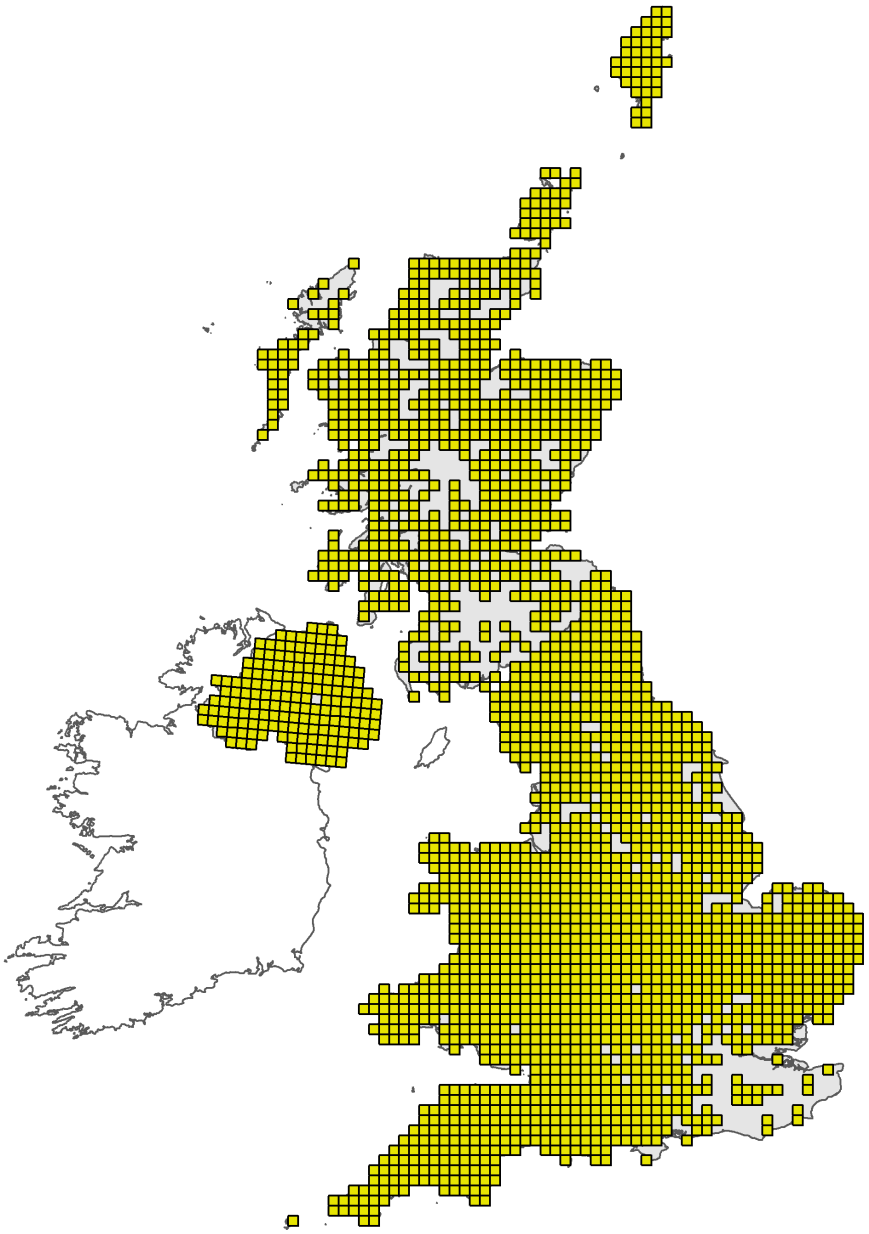

Figure 1: UK distribution map for S1355 - Otter (*Lutra lutra*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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

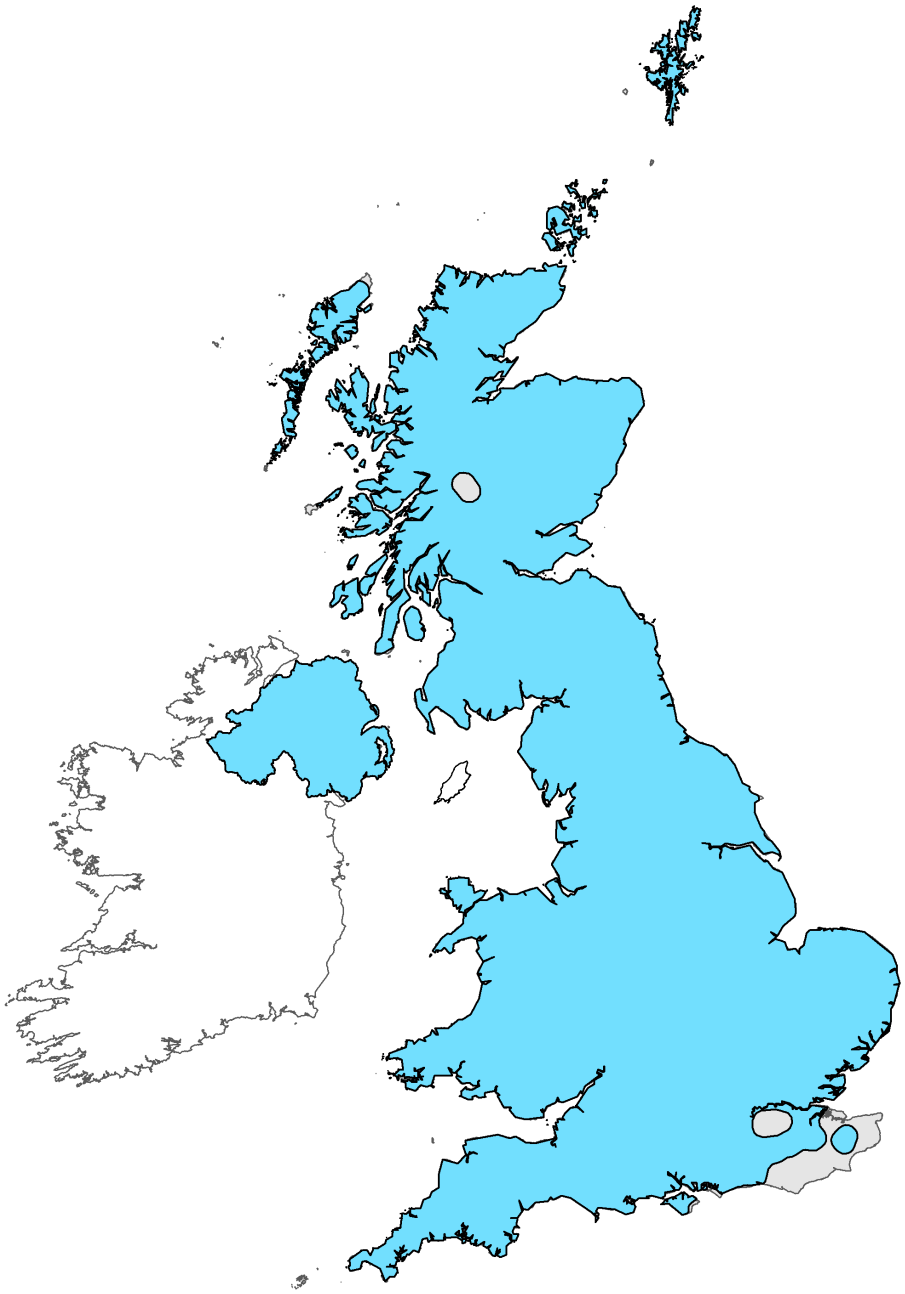

Figure 2: UK range map for S1355 - Otter (*Lutra lutra*).Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

The range map has been produced by The Mammal Society applying a range mapping tool as outlined in Matthews et al. (2018), to the 10km grid square distribution map presented in Figure 1. The alpha value for this species was 20km. For further details see the 2019 Article 17 UK Approach document.

Explanatory Notes

Species name: Lutra lutra (1355)

Field label	Note
2.2 Year or Period	The main source of data is the 'Review of the population and conservation status of British Mammals' (Mathews et al. 2018). This draws heavily from evidence generated over a number of years, principally 1995-2016. At a UK level. Otter populations are continuing to recover after the historic crash in 1960-1980 caused by pesticides and industrial chemicals. Recovery has been assisted by a combination of legal protection, improving water quality and habitat management.
2.4 Distribution map; Method used	The distribution map is based entirely on verified records. Several Wales national surveys since 1990, mean that the current distribution of otter is relatively well-understood.

Species name: Lutra lutra (1355) Region code: ATL

Field label	Note
5.3 Short term trend; Direction	See 5.11
5.11 Change and reason for change in surface area of range	For the purposes of this report, surface area of range has been derived from 'Review of the population and conservation status of British Mammals' 2018, Mathews et al. (2018). Data was collected between 1995 and 2016 which incorporated data from the results of the 2009/10 Otter Survey of Wales (Strachan R., 2015) hence no change. It should be noted that slightly different methods were employed to derive the value. There is no new data since the 2013 Article 17 report, hence the range in Wales is reported as stable at 89.9% occupancy. Even though range is considered to be stable at present, emerging evidence from the current Otter Survey of Wales may lead to this assessment being adjusted. See 6.8.
6.2 Population size	Count based on Mammal Review data (Mathews et al., 2018).

6.4 Additional population size	Population estimate was obtained by multiplying population density with the length of suitable habitat within the otter's distribution and adjusting for occupancy. The length of total riparian habitat within the geographical range of the otter in each country was derived by multiplying the data on riparian lengths given in Table 4 of Harris et al. (1995) by the proportion of each country included in the species' distribution. The length of potentially suitable coastline was derived from table 10.3 of Jefferies et al. (2003). These values excluded areas unlikely to be included within the home ranges of otters (e.g. long lengths of sheer cliffs), whereas all riparian habitat was included. No population density estimates, or occupancy values were available for coastlines in England and Wales, so the values for inland populations were applied. This method will provide a conservative estimate of the number of coastal otters in England and Wales, but was judged preferable to applying Scottish coastal values, which are likely to be much higher than those found in England and Wales. Population size is based on a single population density estimate for riparian habitats (and coastlines). These density estimates are applied to all occupied riparian habitats and coastlines, so variation due to habitat heterogeneity is not accounted for. This is a particular problem for coastlines in England and Wales, as the density estimates for riparian habitats were applied in the absence of any population density estimates for coastlines and is highly likely to be inaccurate. Length of suitable habitat within the otter's range in Wales was 29,000km and density estimates for Wales were obtained from a review of the literature from 1995 to 2015 giving a density of 0.037 per km2 in riparian coastal habitats in Wales. Occupancy of 89.9% was taken from Otter Survey of Wales 2009/2010 Strachan (2015). However, note that this occupancy value has not been updated since the 2013 report so the change from 926 to 1000 is presumed to be as a result of change in the length of suitable habitat (There has been an increase from 25,294km to 29,000km between reporting rounds).
6.5 Type of estimate	Estimate based on partial data with some extrapolation and/or modelling.
6.6 Population size; Method used	Estimate based on partial data with some extrapolation and/or modelling.
6.8 Short term trend; Direction	Mathews et al. 2018 gives a population estimate of 1000. When compared with the 2013 report population estimate of 926, this suggests a population increase of 8%. As there has been no new field survey data (i.e. percent occupancy) since the last reporting round, the increase in population estimate is thought to be a result of a change in the estimated length of suitable habitat leading to an apparent population increase. See 6.4. However, a new otter survey of Wales is currently underway and early data may suggest a decline in the percentage of occupied sites. As data analysis is ongoing this possible decline cannot be relied upon and consequently 'uncertain' has been reported as the short-term trend conclusion.
6.9 Short term trend; Magnitude	No new data
6.10 Short term trend; Method used	No new data
6.11 Long term trend; Period	(based on 1991-1994 and 2009-2010 surveys)

6.12 Long term trend; Direction	The total pre-breeding population in Harris et al. (1995) was estimated for the mid-1980s, as 400 in Wales. The method of calculating total population size was based on calculations from D. J. Jefferies (pers. comm.) which were later published in Jefferies et al. (2003) and used as the basis for the 2013 Article 17 report. The same population density was used in the current report A review of the population and conservation status of British Mammals Mathews et al. (2018), so relative trends identified by comparison between estimates highlights differences in the species range and percentage of occupied habitat only. A comparison of figures from Harris et al. (1995) and the current estimate suggest an increase in population size of 49% in Britain. This increase is entirely due to an increase in the percentage of occupied areas in England and Wales. A series of national surveys in Wales have been carried out to detect the rate of change in the otter's distribution. The surveys were not, however, designed to provide information on population trends. There has been an increase in the number of occupied 10km squares with an increase from 38% in 1977-89 to 72% in 2002-03 in Wales (Strachan, R. 2015). Data from the time-series of population estimates were used to calculate long term trends for England and Wales. These show the continuing recovery of the population from a nadir in the late 1970s or early 1980s, though recovery is not yet complete. The population increase in Wales is lower than in England because the otter population was less depleted, and the population is now assumed to be approaching carrying capacity. Jefferies et al. (2003) estimated otter populations in 1994 as 9,465 individuals in GB: 977 in England; 7,948 in Scotland; and 540 in Wales. In the fourth series of surveys (2002-2004) estimates were: 1580 otter in England and 731 otter in Wales. For the 2010 population update, the figures in England and Wales have again been derived using the same method. This gives revised estimates of: - 2,788 in England - 56% of sites surveyed were occupied (Crawford, A. 2010) giving 76,157 km of occupied bank and assuming a density of one otter per 27.32km of linear bank. - 926 in Wales - 89.9% of sites surveyed were occupied (Strachan, R. 2012), giving 25,294 km of occupied bank and assuming the same density as for England.
6.13 Long term trend; Magnitude	(see note in 6.12)
6.14 Long term trend; Method used	See note in 6.12
6.16 Change and reason for change in population size	There remains uncertainty around the nature of the reported change. In population. See narrative in 6.4
6.17 Additional information	The Cardiff University201a Otter Project (www.otterproject.cf.ac.uk.) runs a long term environmental surveillance scheme, using otters found dead to investigate contaminants, disease, and population biology across the UK. Indirectly this provides some evidence on age structure, suggesting there has been no shift in the number of road kill otters seen and no change in the age structure of otters that are analysed (Chadwick, L. pers comm.).

7.1 Sufficiency of area and quality of occupied habitat	- area = Yes -quality = Yes Overall = Yes, Although we do not have a reliable measure of the quality of the occupied habitat the population and range trend for the species is considered relatively stable and therefore the area and quality of occupied habitat is likely to be sufficient to maintain the species at FCS. Otter have been recorded using all types of waterways. Home range can be up to 40 km along river stretches and as small as 4-5 km in coastal situations. Breeding sites are generally accepted as being located within the home range. They may comprise land, or open water and land, but must be large enough to provide security from disturbance; one or more potential natal den sites; play areas for cubs; no risk of flooding and access to a good food supply. It seems that these can be located anywhere within river systems. The major habitat types associated with breeding sites are extensive reed beds; ponds and lakes; deciduous woodlands ranging in size from a 20m wide strip to several hectares; young conifer plantations; and large areas of scrub (Liles 2003). In Wales, otters are mainly confined to freshwater habitats. Since otters use linear habitats, calculation of area is inappropriate. It is possible to estimate total length of inland water or coastal bank that might be occupied by otter currently, using the estimate of total length of riparian habitats provided in Harris et al. (1995), population densities provided by Jefferies et al. (2003) and number of occupied sites in the most recent national surveys. Mathews et al. 2018 give a total length of coastal and riparian habitat of 29,000 km in Wales. This does not provide an area estimate because the measurement is of linear features. There is thought to be a sufficient amount of habitat in Wales to support a viable population of the species, this being based upon the results of the 2009 Otter Survey of Wales where 89.9% of sites surveyed were occupied (Strachan, 2012).
7.2 Sufficiency of area and quality of occupied habitat; Method used	Quality of habitat is inferred from the continuing consolidation of range and the fact that the population is approaching carrying capacity in some area of Wales (Strachan R. 2003).
7.3 Short term trend; Period	Although the actual area of habitat required by a favourable reference population of otter is unknown, there is some information on trends in quality and amount of suitable habitat used in Wales. River and riparian habitat suffered degradation in the UK during the 20th century, however, there is evidence to suggest that these trends are now in reverse. The Water Framework Directive (WFD) requires that water bodies are classified and reasons for failure are listed for those failing to meet Good Ecological Status. In Wales, 36 % of all water bodies achieved Good Ecological Status in 2012. In 2014, 42% of water bodies achieved good ecological status (National Assembly Wales, 2015). Whilst the above evidence suggests an improvement in quality of freshwater habitats, the possible stabilisation in occupancy suggests the underlying short-term trend in habitat of direct relevance to the species appears to be becoming stable as the population nears carrying capacity.
7.4 Short term trend; Direction	See 7.3
7.5 Short term trend; Method used	See 7.3

8.1 Characterisation of pressures/ threats	Pressures: The main pressures that affect otter in Wales are in the form of activities that affect their resting and natal sites as well as those that affect commuting and foraging behaviour with prey availability being included in that. Otters are distributed widely throughout freshwater and coastal systems which makes them vulnerable to pressures throughout the landscape. F08, A33, A26, J01, J02 - Otter in Wales forage throughout marine and freshwater habitats. Inappropriate development, coastal defence schemes and alterations to inland water bodies can result in loss of foraging habitats and prey availability. Toxic pesticides that enter waterways are the likely cause of historic declines in otter populations (Harris and Yalden 2008) and although levels of pollutants are now low enough to have enabled recovery of much of their former range (Chanin 2003, Kean, Lyons et al. 2013), it still remains a pressure. E01 and G12 Otters suffer from road traffic accidents and from accidental capture in fish traps though probably not sufficient to affect the population at this time. Threats: Threats to otter in Wales are also in the form of those activities that affect their resting and natal sites and those that affect their commuting and foraging behaviour. F08, A33, A26, J01, J02 - Both the development of our coasts, coastal defence schemes and alterations to inland waterways will continue to be a threat to otters in Wales as they use these habitats for commuting and foraging. The otter previously suffered heavily through the use of toxic pesticides and this could remain a threat, though a more rigorous system of approvals is now in place. E01 and G12 Road deaths and accidental capture in fish traps will continue to cause mortality and to be a threat though probably not sufficient to affect the population significantly.
9.5 List of main conservation measures	CJ01, CF11: Water quality has improved with a subsequent positive impact on otter populations and this needs to be maintained in order to prevent a recurrence of the decline in otter populations. This includes continuing to monitor water quality, the presence of pollutants and their impact on this top predator. CG01, CG04, CG05, CS03: Legal and administrative measures continue to be required to ensure that the protection provided by the legislation is effective and that protected habitats for the species are managed appropriately with measures in place to avoid by-catch during fishing practices. CE01: Road design, construction and operation need to take into account the likely impact on otters, e.g. in relation to the provision of safe crossing structures and the possible loss of otter habitat.
10.1 Future prospects of parameters	As the species appears to be nearing carrying capacity it is likely that the range will remain stable over the next 12 years. However, emerging evidence from the current Otter Survey of Wales may lead to this assessment being adjusted. See 6.8. Otter are likely to be at carrying capacity in most inland areas. We are still awaiting results of the most recent Otter survey of Wales that could potentially change this view. There is scope for more otters in Wales to move into marine habitats similar to the habitat utilisation seen in the Scottish population. Despite this potential we currently consider the future prospects for the otter population in Wales to be stable. Habitat has improved due to improvements in water quality, appropriate riparian management and site and species protection. As long as this is maintained the future prospects for the habitat in Wales is considered to be stable.
12.1 Population size inside the pSCIs, SCIs and SACs network	Population size is to be provided by JNCC at a UK level derived from Mathews et al., 2018. In terms of individual counts of otters, it is estimated approximately 30% of the population is within Natura sites. The figure of 300 animals is derived from 30% of the estimated population total given in 6.4. See 6.4 for the method of estimating the otter population in Wales. The estimate has a low degree of confidence as there is currently no available robust data on otter numbers against which to test the extrapolations.
12.3 Population size inside the network; Method used	See 12.1

12.4 Short term trend of the population size within the network; Direction	See 12.1 The trend is assumed to be stable in Wales. Populations associated with more highly protected areas would be expected to benefit from the additional protection and better management, although as a wide-ranging species, any otter would be dependent on habitat within and outside protected sites. Short-term trend data is limited as no SAC otter condition assessments have been undertaken since the 2013 Article 17 report.
12.5 Short term trend of population size within the network; Method used	The trend is assumed to be stable as this is the case for the otter population throughout the UK. Populations associated with more highly protected areas would be expected to benefit from the additional protection and better management, although as a wide-ranging species, any otter would be dependent on habitat within and outside protected sites. In the last SAC monitoring reporting round 9 SAC sites with otter as a feature were considered to be in Favourable Condition. Four were considered to be in Unfavourable Condition, but this was mainly due to the difficulty in confirming breeding (one of the main performance indicators) (Liles, G. 2006).