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:

S1034 - Medicinal leech (*Hirudo medicinalis*)

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.

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NATIONAL LEVEL

1. General information

1.1 Member State	**UK**
1.2 Species code	**1034**
1.3 Species scientific name	**Hirudo medicinalis**
1.4 Alternative species scientific name	
1.5 Common name (in national language)	Medicinal leech

2. Maps

2.1 Sensitive species	No
2.2 Year or period	1998-2017
2.3 Distribution map	Yes
2.4 Distribution map Method used	Based mainly on expert opinion with very limited 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

England
Changes to Medicinal Leech (Hirudo medicinalis) Populations from 2013 to 2016. Unpublished RSPB Dungeness Reserve report. 2018
Natural England licence return data for Schedule 5 species licensing.
https://freshwaterhabitats.org.uk/projects/million-ponds/phase-2/
Marshall. H 1999. Medicinal leech (Hirudo medicinalis) survey of Cumbria 1998-99. Report to English Nature, unpublished.
Williams. P, Biggs.J ,Crowe.A, Murphy.J, Nicolet.P, Weatherby.A & Dunbar.M (2010) CS Technical Report No. 7/07 Ponds Report from 2007.
http://nora.nerc.ac.uk/id/eprint/9622/1/N009622CR.pdf
Aqualina. R. 2016. https://www.aquilina-environmental.co.uk/Robert Aquilina newsletter 2016.pdf
Buczynski.P. et al. (2014) Occurrence of the medicinal leech (Hirudo medicinalis) in birds' nests Biologia, Volume 69, Issue 4, Pages 484-488, ISSN (Online) 1336-9563, DOI: https://doi.org/10.2478/s11756-014-0329-0.
Brian Banks, Flag Ecology, pers comms.
Scotland
Kirkland, P. 2017. European medicinal leech (Hirudo medicinalis) surveillance in Scotland. Scottish Natural Heritage Report.
Kirkland, P. 2013. European medicinal leech Hirudo medicinalis L. in Scotland: Surveillance 2012. Scottish Natural Heritage Report.
Littlewood, N.A. & Stockan, J.A. 2012. Surveillance of priority terrestrial invertebrates in Scotland. SNH report.
MIDAS - Management Information on Designated Areas in Scotland (SNH)
Utevsky, S., Zagmajster, M. & Trontelj, P. 2014. Hirudo medicinalis. The IUCN Red

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List of Threatened Species 2014: e.T10190A21415816.
Elliott, J.M. & Kutschera, U. 2011. Medicinal leeches: historical use, ecology, genetics and conservation. Freshwater Reviews 4: 21-41.
Davies, R.W. & McLoughlin, N.J. 1996. The effects of feeding regime on the growth and reproduction of the medicinal leech Hirudo medicinalis. Freshwater Biology 36: 563-568.
Kutschera, U. & Elliott, J.M. 2014. The European medicinal leech Hirudo medicinalis L.: Morphology and occurrence of an endangered species. Zoosyst. Evol. 91: 271-280.
Wales
Ausden, M., Banks, B., Donnison, E., Howe, M., Nixon, A., Phillips, D., Wicks, D. & Wynne, C. 2002. The status, conservation and use of the medicinal leech. British Wildlife, 13: 229-238.
Boyce, D.C. 2007. Monitoring invertebrate features on SSSIs - medicinal leech Hirudo medicinalis on Cors Goch and Newborough Warren - Ynys Llanddwyn. CCW Contract Science No. 940. Countryside Council for Wales, Bangor.
Evans, D. 1993. Medicinal leech Hirudo medicinalis survey at four Anglesey sites, 1992. CCW Species and Monitoring Report No. 92/2/15. Countryside Council for Wales, Bangor.
Howe, M.A. 2013. European Community Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora
(92/43/EEC) Supporting documentation for the Third Report by the United Kingdom under Article 17 on the implementation of the Directive from January 2007 to December 2012 Conservation status assessment for Species: S1034 - Medicinal Leech (Hirudo medicinalis).
Howe, M.A., Howe, E.A., Jewer, A., Robinson, H. 2016. Medicinal Leech Hirudo medicinalis on Cors Bodeilio NNR/SSSI and Cors Goch NNR in 2016. NRW unpublished report. Natural Resources Wales, Bangor.
Jones, A.C.L. & Kettle, B.S. 1999. Medicinal leech Survey of Anglesey (Ynys Mon) 1999. Volumes 1 and 2. Unpublished report. North Wales Wildlife Trust.
Lloyd, D. 1997. The medicinal leech, Hirudo medicinalis, at Cors Goch nature reserve. North Wales Wildlife Trust unpublished report.
Lloyd, D. 1998. The medicinal leech Hirudo medicinalis in Wales. CCW Contract Science No. 311. North Wales Wildlife Trust/ Countryside Council for Wales, Bangor.
Taylor, R. 2012. Monitoring medicinal leech Hirudo medicinalis at Cynffig/Kenfig SSSI and Pysgodlyn Mawr SSSI. CCW Regional Report. CCW/WW/12/1. Countryside Council for Wales.

5. Range

5.1 Surface area (km²)	2245.41	
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 expert opinion with very limited 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		

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5.10 Favourable reference range	a) Area (km²)	2163
	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	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 surface area. Change in availability of underpinning mapping data has resulted in an apparent decrease in range area compared to 2013, but this is not due to genuine change. Expert opinion considers the trend in range to be stable. The real range surface area is considered to be the range in 2013 - 2935km2. The FRR in 2013 was 2163km2. The current range surface area is above the FRR. For further information see the 2019 Article 17 UK Approach document.	

6. Population

6.1 Year or period	1998-2018	
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	29
6.3 Type of estimate	Best estimate	
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	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	Based mainly on extrapolation from a limited amount of data	
6.11 Long-term trend Period		
6.12 Long-term trend Direction		

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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	 Approximately equal to (≈) The FRP is the same as in 2013 and is approximately equal to the current population. An FRP operator has been used because it has not been possible to calculate the exact FRP. The FRP is considered to be large enough to maintain a viable population and is no less that when the Habitats Directive came into force in the UK. For further details see the 2019 Article 17 UK Approach document.
6.16 Change and reason for change in population size	No change The change is mainly due to:	
6.17 Additional information	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 30km2- 35km2. When map 10km range distribution data are viewed, there is an obvious correlation in coverage between the 2013 & 2019 reports. This indicates that differences in population calculations between 2013 and 2019 are likely to be due to data collection or sampling effort differences. There is no evidence for a genuine decline in species populations, evidence would generally indicate an improving picture for habitat for this species, which should at least ensure a stable population. 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)?	Yes
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	1998-2018	
7.4 Short-term trend Direction	Increasing (+)	
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	In England, which holds c. 51% of the UK population, the occupied leech ponds themselves look, overall, in reasonable condition. However, the ability to spread to new water bodies continues to be challenging with respect to their water quality. Evidence from the Countryside Survey of the UK (2007) reported that 80% of ponds were in poor or very poor condition. Therefore, despite substantial improvements since 2007 across the UK, water quality management continues to be a major conservation concern for this species.

8. Main pressures and threats

8.1 Characterisation of pressures/threats

Pressure	Ranking
Agricultural activities generating diffuse pollution to surface or ground waters (A26)	M
Management of fishing stocks and game (G08)	M
Other invasive alien species (other then species of Union concern) (I02)	M
Droughts and decreases in precipitation due to climate change (N02)	M

Threat	Ranking
Agricultural activities generating diffuse pollution to surface or ground waters (A26)	M
Management of fishing stocks and game (G08)	M
Other invasive alien species (other then species of Union concern) (I02)	H
Droughts and decreases in precipitation due to climate change (N02)	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		Restore the habitat of the species (related to '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

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)
Manage drainage and irrigation operations and infrastructures in agriculture (CA15)

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Early detection and rapid eradication of invasive alien species of Union concern (CI01)

Management, control or eradication of established invasive alien species of Union concern (CI02)

Manage other native species (CS04)

9.6 Additional information

10. Future prospects

10.1 Future prospects of parameters

a) Range	Good
b) Population	Good
c) Habitat of the species	Unknown

10.2 Additional information

Future trend of Range is Overall stable; Future trend of Population is Overall stable; and Future trend of Habitat for the species is Overall stable. 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	Favourable (FV)
11.3. Habitat for the species	Favourable (FV)
11.4. Future prospects	Favourable (FV)
11.5 Overall assessment of Conservation Status	Favourable (FV)
11.6 Overall trend in Conservation Status	Improving (+)

11.7 Change and reasons for change in conservation status and conservation status trend

a) Overall assessment of conservation status

No information on nature of change

The change is mainly due to:

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 approximately equal to the Favourable Reference Population.
Conclusion on Habitat for the species reached because: (i) the area of occupied and unoccupied sufficiently large and (ii) the habitat quality is suitable for the long-term survival of the species; and (iii) the short-term trend in both area and quality of habitat is increasing.
Conclusion on Future prospects reached because: (i) the Future prospects for Range are Good; (ii) the Future prospects for Population are Good; and (iii) the Future prospects for Habitat for the species are Unknown.
Overall assessment of Conservation Status is Favourable because all of the conclusions are Favourable.

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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 - increasing.
The reason for the change in the Overall assessment in Conservation Status between the 2013 and 2019 reporting is because the conclusion for Habitat for the species has changed from Unfavourable-inadequate to Favourable.
The reason for the change in the Overall trend in Conservation Status between the 2013 and 2019 reporting is because the Habitat for the species trend has changed from decreasing to increasing.

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 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

Distribution Map

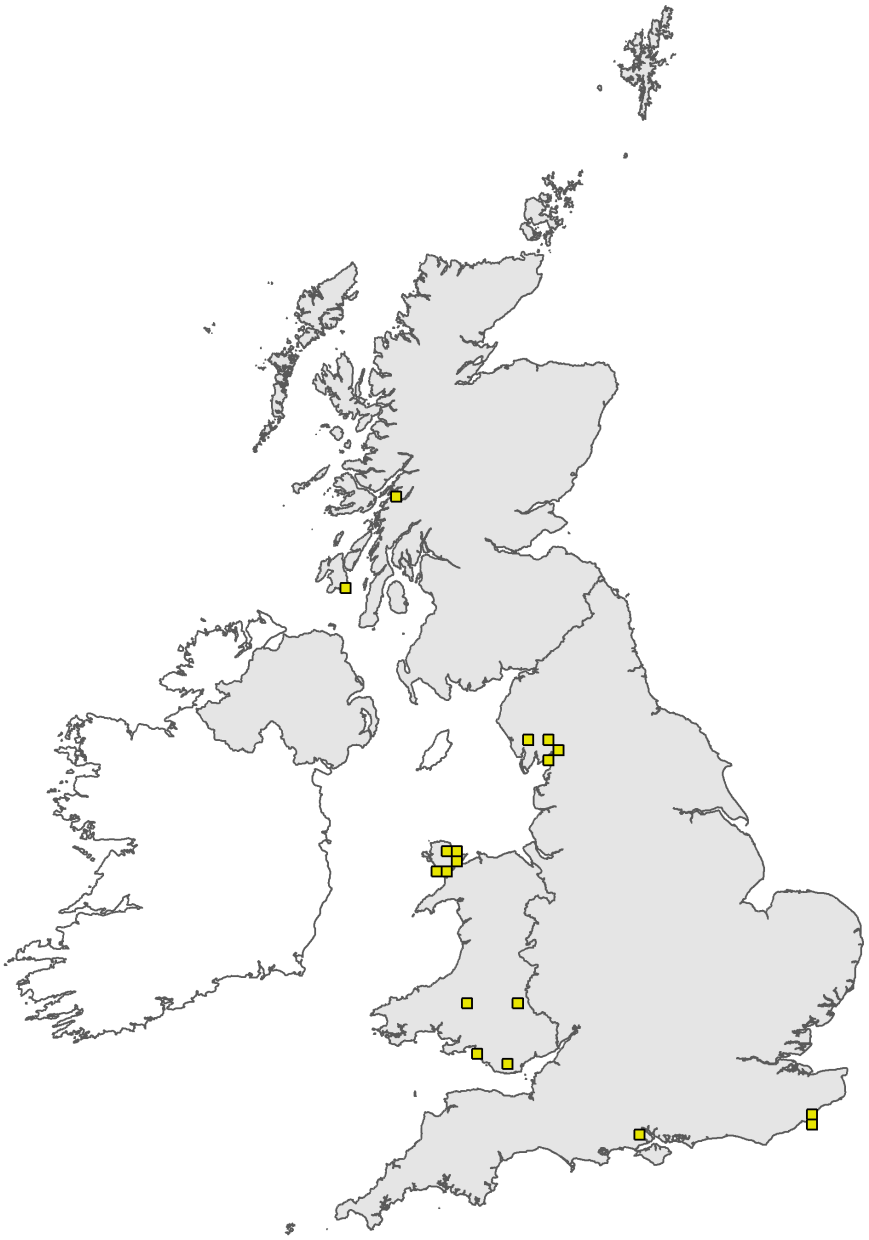

Figure 1: UK distribution map for S1034 - Medicinal leech (*Hirudo medicinalis*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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

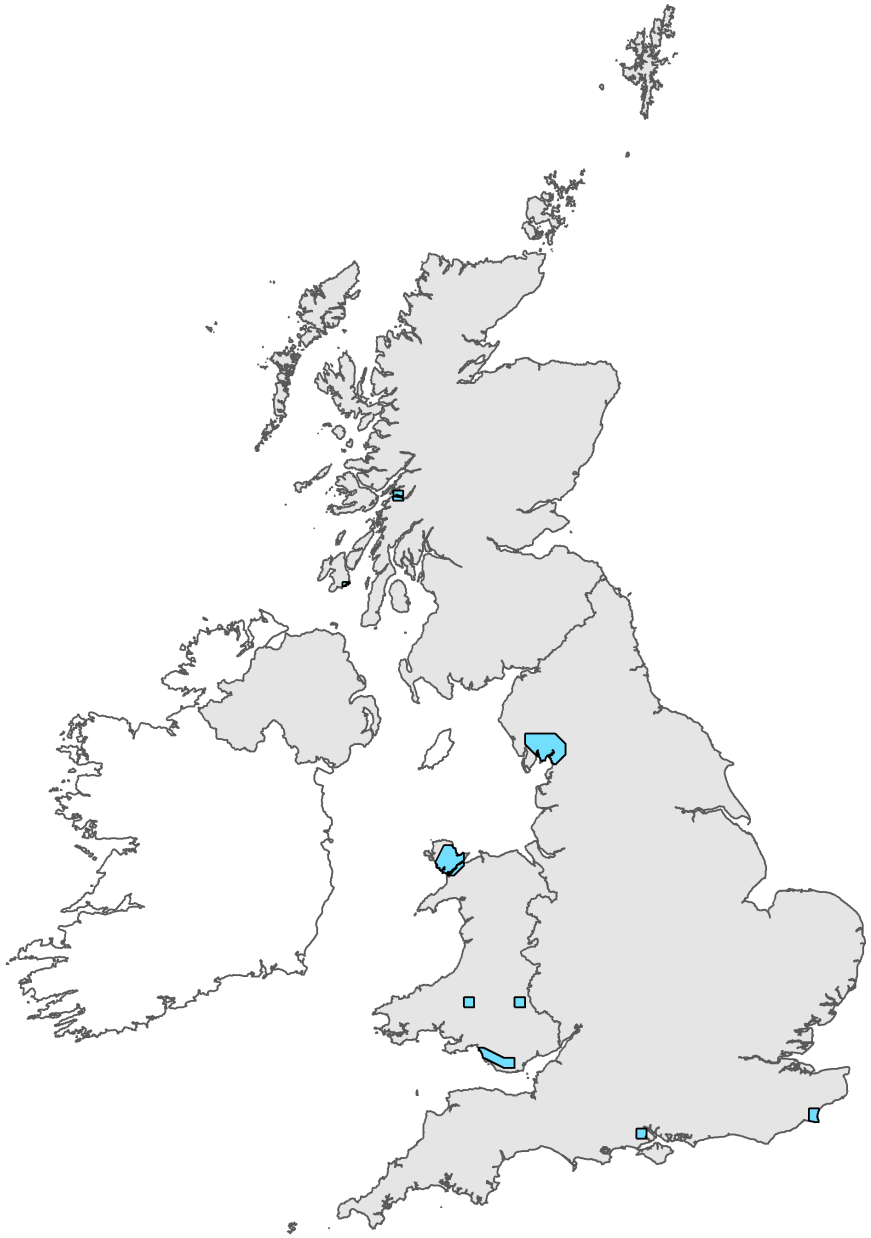

Figure 2: UK range map for S1034 - Medicinal leech (*Hirudo medicinalis*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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 20km. For further details see the 2019 Article 17 UK Approach document.