# 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:

**S5076 - Pollan (*Coregonus autumnalis pollan*)**

UNITED KINGDOM

## IMPORTANT NOTE - PLEASE READ

- The information in this document represents the UK Report on the conservation status of this species, submitted to the European Commission as part of the 2019 UK Reporting under Article 17 of the EU Habitats Directive.
- It is based on supporting information provided by the geographically-relevant Statutory Nature Conservation Bodies, which is documented separately.
- The 2019 Article 17 UK Approach document provides details on how this supporting information contributed to the UK Report and the fields that were completed for each parameter.
- The reporting fields and options used are aligned to those set out in the European Commission guidance.
- Maps showing the distribution and range of the species are included (where available).
- Explanatory notes (where provided) are included at the end. These provide additional audit trail information to that included within the UK assessments. Further underpinning explanatory notes are available in the related country-level reports.
- Some of the reporting fields have been left blank because either: (i) there was insufficient information to complete the field; (ii) completion of the field was not obligatory; and/or (iii) the field was not relevant to this species (section 12 Natura 2000 coverage for Annex II species).
- The UK-level reporting information for all habitats and species is also available in spreadsheet format.

Visit the JNCC website, https://jncc.gov.uk/article17, for further information on UK Article 17 reporting.

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

## NATIONAL LEVEL

## 1. General information

| | |
|---|---|
| 1.1 Member State | **UK** |
| 1.2 Species code | **5076** |
| 1.3 Species scientific name | **Coregonus pollan** |
| 1.4 Alternative species scientific name | |
| 1.5 Common name (in national language) | Pollan |

## 2. Maps

| | |
|---|---|
| 2.1 Sensitive species | No |
| 2.2 Year or period | 2013-2018 |
| 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? | Yes | |
| 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

Harrod, C. (2001). The ecology of a threatened fish, the pollan (Coregonus autumnalis) in Lough Neagh, Northern Ireland. D. Phil. Thesis. University of Ulster.
Harrod, C., Griffiths, D., McCarthy, T.K. & Rosell, R. S. (2001). The Irish pollan, Coregonus autumnalis: options for its conservation. Journal of Fish Biology 59 (Supplement A), 339-355.
Harrod, C., Griffiths, D., Rosell, R. S. & McCarthy, T.K. (2002) Current status of the pollan (Coregonus autumnalis Pallas 1776) in Ireland. Arch. Hydrobiol. Spec. Issues Advanc. Limnol. 57: 627-638.
Inger R, McDonald R, Rogowski D, Andrew L. Jackson A, Parnell A, Preston SJ, Harrod C, Goodwin C, Griffiths D, Dick JTA, Elwood RW, Newton J & Bearhop S
King, J.L., Marnell, F., Kingston, N., Rosell, R., Boylan, P., Caffrey, J.M., FitzPatrick, S., Gargan, P.G., Kelly, F.L., O'Grady, M.F., Poole, R., Roche, W.K. & Cassidy, D. (2011) Ireland Red List No. 5: Amphibians, Reptiles & Freshwater Fish. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.
Rosell, R.S. 1992 The coarse fish of the Erne system: comparison of 1971 and 1991 gill net survey data. In R.P. Briggs and D. Roberts (eds), The Erne system: sustainable use of a biological resource, 37-49. Proceedings of the Institute of Biology (NI Branch) Conference, Enniskillen (October 1992).
Rosell, R.S. (1994). Changes in fish populations in Lower Lough Erne: a comparison of 1972-3 and 1991-2 gill net survey data. Biology and Environment: Proceedings of the Royal Irish Academy 97B, 163-171.
Rosell, R.S. (1997). The status of pollan Coregonus autumnalis pollan Thompson in Lough Erne, Northern Ireland. Biology and Environment: Proceedings of the Royal Irish Academy 97B,

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Rosell, R., Harrod, C., Griffiths, D. and McCarthy, T.K. (2004). Conservation of the Irish populations of the pollan Coregonus autumnalis. Biology and Environment: Proceedings of the Royal Irish Academy, 104B (3): 67-72.
Digest of Statistics for Salmon and Inland Fisheries in the DAERA Jurisdiction: Annual Report 2018. DAERA
Helminen, H., Sarvala, J., & Karjalainen, J. (1997). Patterns in vendace recruitment in Lake Pyhajarvi, southwest Finland. Journal of Fish Biology 51 (Supplement A), 303-316.
Winfield, I.J. And Wood, R.B. 1990 Conservation of the Irish pollan Coregonus autumnalis pollan (Thompson) in Lough Neagh, Northern Ireland. Journal of Fish Biology 37 suppl. A, 259-60.

## 5. Range

| | | |
|---|---|---|
| 5.1 Surface area (km²) | 1643.83 | |
| 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 | Complete survey or a statistically robust estimate | |
| 5.6 Long-term trend Period | 1994-2018 | |
| 5.7 Long-term trend Direction | Stable (0) | |
| 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) | 1643.83 |
| | b) Operator | |
| | c) Unknown | |
| | d) Method | The FRR has changed since 2013. The new 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 and relevant country-level reporting information. |
| 5.11 Change and reason for change in surface area of range | Improved knowledge/more accurate data | |
| | The change is mainly due to: | Improved knowledge/more accurate data |
| 5.12 Additional information | Expert opinion would suggest that the combined area of the two loughs in Northern Ireland should be considered as the FRR value for this species. The current range calculation includes some additional 10 km squares that were ommitted in 2013. Hence the range surface area in 2019 is larger than that given in the 2013 Report, but the actual range of the species has not changed. | |

## 6. Population

| | |
|---|---|
| 6.1 Year or period | 2007-2018 |

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| | | |
|---|---|---|
| 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 | 606 |
| 6.3 Type of estimate | Best estimate | |
| 6.4 Additional population size (using population unit other than reporting unit) | a) Unit | number of localities (localities) |
| | b) Minimum | |
| | c) Maximum | |
| | d) Best single value | 2 |
| 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 | 2007-2018 | |
| 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 | 1999-2018 | |
| 6.12 Long-term trend Direction | Stable (0) | |
| 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 | 606 with unit number of map 1x1 km grid cells (grids1x1) |
| | b) Operator | |
| | c) Unknown | |
| | d) Method | The FRP has changed since 2013. The value is considered to be large enough to support a viable population and no less than the population estimate when the Habitats Directive came into force in the UK. The new FRP is set as the combined area of Lough Neagh and Lower Lough Erne (606km2), rather than 2 localities as in 2013. There is effectively no change in the size of the FRP, but a change in the FRP unit of measurement. For further information see the 2019 Article 17 UK Approach document and relevant country-level reporting information. |
| 6.16 Change and reason for change in population size | No change | |
| | The change is mainly due to: | |
| 6.17 Additional information | There are two populations: the Lough Neagh stock is relatively abundant and | |

supports a commercial fishery; the Lough Erne stock appears stable at a low level.

## 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)? | Yes |
| | b) Is there a sufficiently large area of unoccupied habitat of suitable quality (for long-term survival)? | |
| 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 | | |
| 7.9 Additional information | At present there is no definitive information available on area of habitat, but surveys of Lower Lough Erne (2007; 2010) and Lough Neagh (2011-2012) have indicated that the species is widely distributed throughout both waters. Area of habitat is therefore considered to cover the full extent of the two loughs. | |

## 8. Main pressures and threats

8.1 Characterisation of pressures/threats

| Pressure | Ranking |
|---|---|
| Freshwater fish and shellfish harvesting (professional) (G05) | H |
| Bycatch and incidental killing (due to fishing and hunting activities) (G12) | H |
| Invasive alien species of Union concern (I01) | M |
| Other invasive alien species (other then species of Union concern) (I02) | H |
| Mixed source pollution to surface and ground waters (limnic and terrestrial) (J01) | H |
| Mixed source air pollution, air-borne pollutants (J03) | H |
| Physical alteration of water bodies (K05) | M |
| Abiotic natural processes (e.g. erosion, silting up, drying out, submersion, salinization) (L01) | M |
| Change of habitat location, size, and / or quality due to climate change (N05) | M |
| Other climate related changes in abiotic conditions (N09) | M |

| Threat | Ranking |
|---|---|
| Freshwater fish and shellfish harvesting (professional) (G05) | M |

| | |
|---|---|
| Bycatch and incidental killing (due to fishing and hunting activities) (G12) | M |
| Invasive alien species of Union concern (I01) | H |
| Other invasive alien species (other then species of Union concern) (I02) | M |
| Mixed source pollution to surface and ground waters (limnic and terrestrial) (J01) | H |
| Mixed source air pollution, air-borne pollutants (J03) | H |
| Physical alteration of water bodies (K05) | M |
| Abiotic natural processes (e.g. erosion, silting up, drying out, submersion, salinization) (L01) | M |
| Change of habitat location, size, and / or quality due to climate change (N05) | H |
| Other climate related changes in abiotic conditions (N09) | H |

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: Only outside Natura 2000

9.4 Response to the measures: Short-term results (within the current reporting period, 2013-2018)

9.5 List of main conservation measures

9.6 Additional information: Dynamic management is underway and management measures have been applied to protect spawning stocks in Lough Neagh.

## 10. Future prospects

10.1 Future prospects of parameters

a) Range Unknown

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. Both populations are apparently stable but Lower Lough Erne stock remains at a low level. Future Prospects must therefore be rated as unknown, especially as there is a high degree of uncertainty with regard to the level of the stock and future impacts of climate change. For further information on how future trends inform the Future Prospects conclusion see the 2019 Article 17 UK Approach document.

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## 11. Conclusions

| | |
|---|---|
| 11.1. Range | Favourable (FV) |
| 11.2. Population | Favourable (FV) |
| 11.3. Habitat for the species | Favourable (FV) |
| 11.4. Future prospects | Unknown (XX) |
| 11.5 Overall assessment of Conservation Status | Favourable (FV) |
| 11.6 Overall trend in Conservation Status | Stable (=) |
| 11.7 Change and reasons for change in conservation status and conservation status trend | a) Overall assessment of conservation status<br>Improved knowledge/more accurate data<br>The change is mainly due to: Improved knowledge/more accurate data<br>b) Overall trend in conservation status<br>No change<br>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 the same as the Favourable Reference Range.<br><br>Conclusion on Population reached because: (i) the short-term trend direction in Population size is stable; and (ii) the current Population size is the same as the Favourable Reference Population.<br><br>Conclusion on Habitat for the species reached because: (i) the area of occupied habitat is sufficiently large and (ii) the habitat quality is suitable for the long-term survival of the species; and (iii) the short-term trend in area of habitat is stable and the quality of habitat is stable.<br><br>Conclusion on Future prospects reached because: (i) the Future prospects for Range are unknown; (ii) the Future prospects for Population are unknown; and (iii) the Future prospects for Habitat for the species are unknown.<br><br>Overall assessment of Conservation Status is Favourable because three of the conclusions are Favourable and one is Unknown.<br><br>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 – stable.<br><br>Overall conservation Status has changed from Unfavourable-inadequate in 2013 to Favourable in 2019 because the Future prospects have changed from Unfavourable-inadequate to Unknown.<br><br>Overall trend in Conservation Status has not changed since 2013. |

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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<br>b) Minimum<br>c) Maximum<br>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 | In 2013 the overall Conservation Status conclusion was Unfavourable-inadequate; in the current report it has been assessed as Favourable. The change in the overall conservation status relates to a change in the assessment of Future prospects, from Unfavourable-inadequate to Unknown. This was largely due to a change in the way Future prospects were assessed in the current report. There is greater confidence in the stability of the current stocks of this species in the UK and although still vulnerable to future changes (particularly climatic), it seems more appropriate to class Future prospects as Unknown, rather than Unfavourable-inadequate. |

# Distribution Map

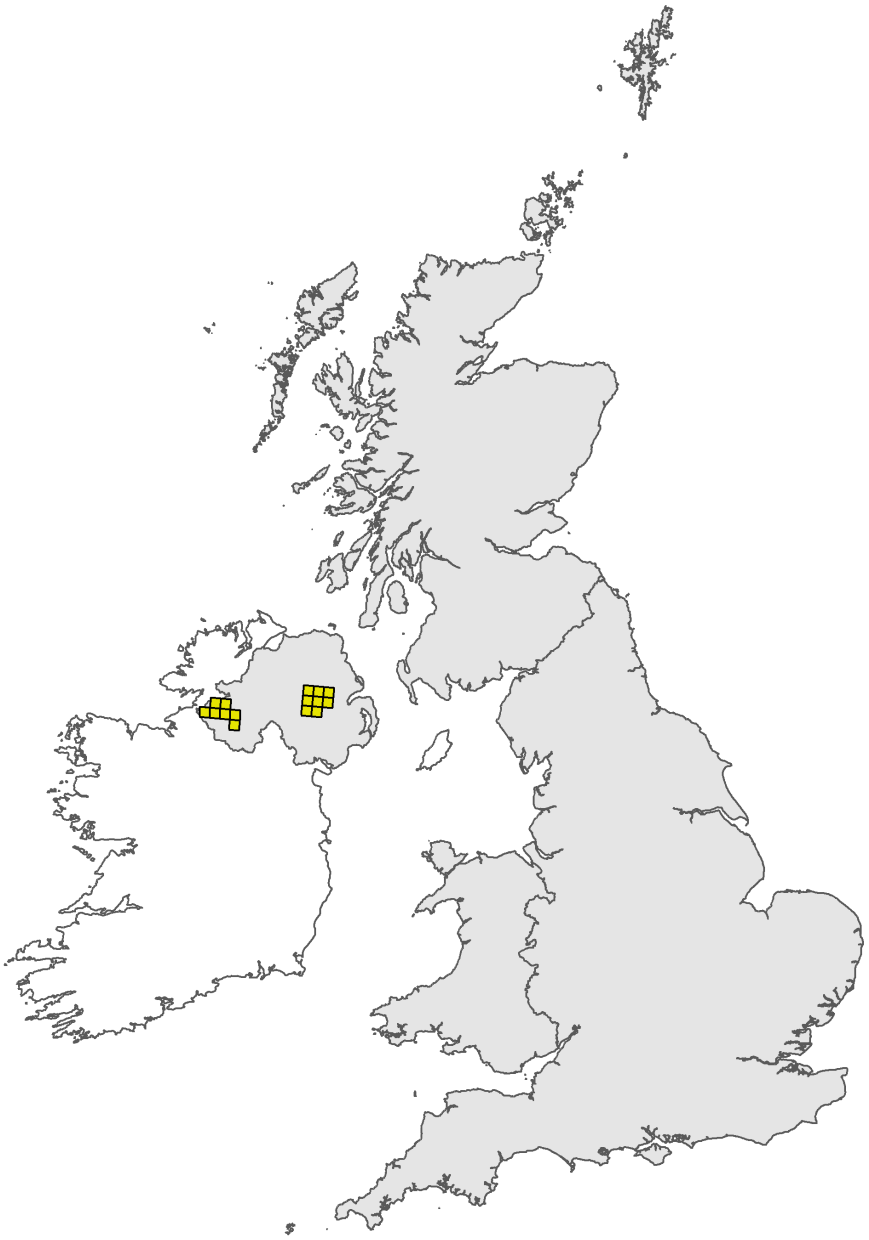

Figure 1: UK distribution map for S5076 - Pollan (*Coregonus autumnalis pollan*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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

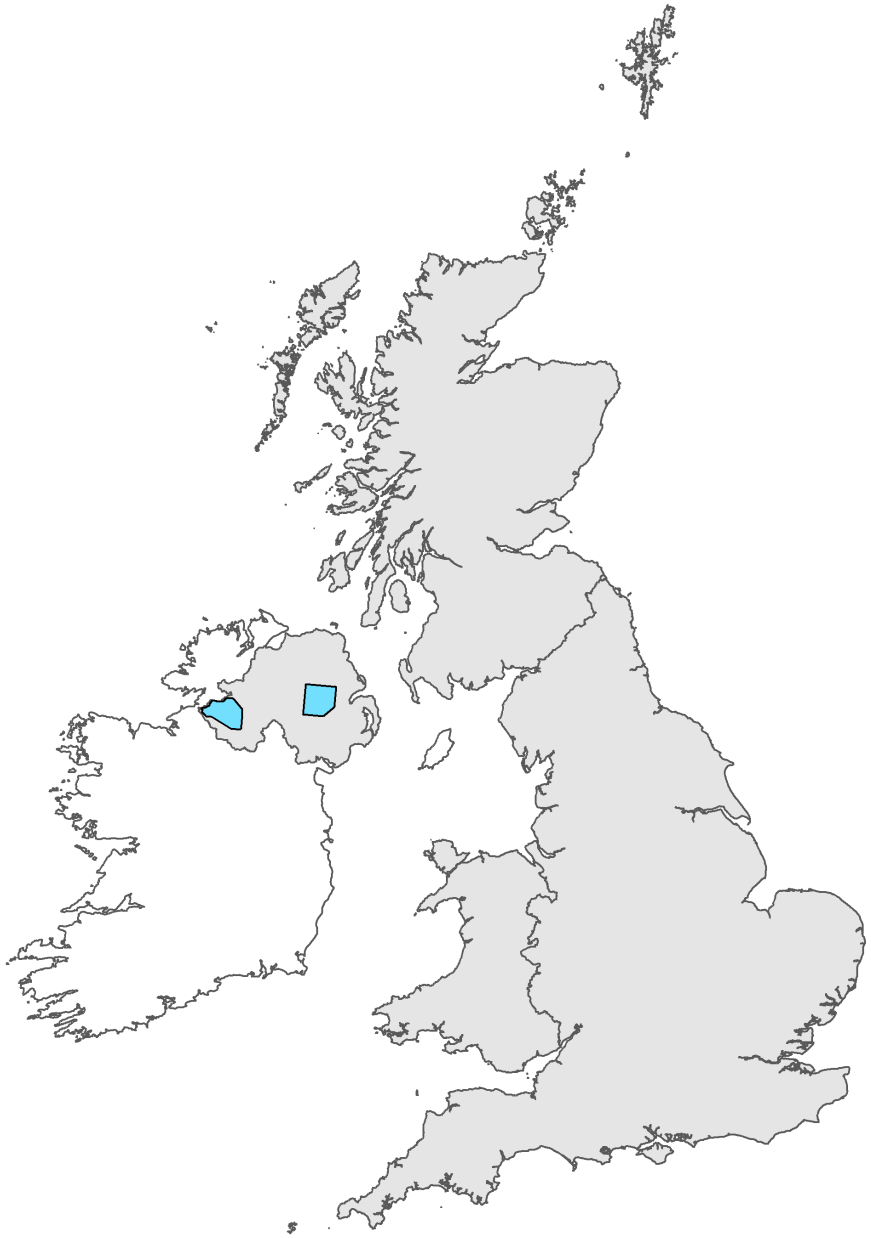

Figure 2: UK range map for S5076 - Pollan (*Coregonus autumnalis pollan*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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: Coregonus pollan (5076)**

| Field label | Note |
|---|---|
| 2.2 Year or Period | Estimated distribution covers the recommended period 2013-2018. |
| 2.3 Distribution map | Pollan are present in the two largest lakes in Northern Ireland - Lough Neagh and Lower Lough Erne. |

**Species name: Coregonus pollan (5076) Region code: ATL**

| Field label | Note |
|---|---|
| 5.1 Surface area | It is believed that the species occupies all habitats in Lough Neagh, but are largely absent from shallow waters in Lower Lough Erne (Harrod et al, 2002). More recent surveys of Lower Lough Erne (2007; 2010) and L Neagh (2011-2016) have indicated that the species has a wide range throughout both waters. Distribution is therefore considered to cover the full extent of the two loughs. Note that the range calculation for 2013 was based upon inaccurate data, and excluded some 10K squares that should have been included. Hence range figure in 2019 is larger than that given in the 2013 Report, but the actual range of the species has not changed. |
| 5.2 Short term trend; Period | Recommended period 2007-2018 |
| 5.3 Short term trend; Direction | Information on distribution along with expert opinion would suggest that range has remained stable during this period. |
| 5.5 Short term trend; Method used | Netting surveys of Lower Lough Erne (2002, 2004, 2007, 2010) and L Neagh (2011-16). Targeted surveys and anecdotal evidence are pointing towards rising stocks in Lower Lough Erne (AFBI, pers. comm., 2019). As netting surveys have definitely confirmed the presence of the species in both lakes (and therefore confirmed the existing range), this is recorded as Complete survey or a statistically robust estimate. |
| 5.7 Long term trend; Direction | Long-term trend in range believed to be stable, as the species still occurs in the two lakes that it has been recorded from in the past. |
| 5.10 Favourable reference range | Expert opinion would suggest that the combined area of the two loughs should be considered as the FRR. Note that the range calculation for 2013 was based upon inaccurate data, and excluded some 10K squares that should have been included. Hence range figure in 2019 is larger than that given in the 2013 Report, but the actual range of the species has not changed. |
| 6.1 Year or Period | Surveys of Lough Erne in 2007 and 2010 and surveys of Lough Neagh as part of PhD study, 2011-12, and AFBI surveys (2011-2016). |
| 6.2 Population size | Population size has been estimated as 606 1km grids. This assumes that the species occurs across the full extent of both loughs. Although the actual combined surface area of Lough Neagh and Lower Lough Erne is 492 km2 (as indicated in the 2013 Report), the 1km grids produces a higher value than a simple area figure would. This is because many of the 1km grid squares cross the perimeter of the lakes, therefore producing a larger value in 2019, compared to what might be expected from the area figure included in the 2013 report. |
| 6.6 Population size; Method used | Sonar-directed gill net surveys of Lower Lough Erne, 2007 and 2010; gill net and size draft net surveys of Lough Neagh, 2011-16. Due to its large size and relatively homogenous habitat, Lough Neagh is not suitable for traditional sampling methods that typically rely on gill netting. As such, AFBI uses a modified version of traditional commercial fishing techniques to provide better estimates of abundance than would be possible using gill netting. The method has the additional benefit of reducing fish mortality due to sampling. |

| | |
|---|---|
| 6.7 Short term trend; Period | Specified short term period, 2007-2018. |
| 6.8 Short term trend; Direction | There is insufficient data to estimate current or recent levels of abundance in either of the two extant populations. However the Lough Neagh population remains relatively abundant and still supports a small-scale commercial fishery (King et al, 2011; Campbell, pers comm), while the Lough Erne population exists at a much lower level and forms less than 1% of the total fish biomass of the lough (Rosell, pers comm). Expert opinion and recent surveys would suggest that each population is stable, although at different levels. Lough Neagh pollan are short-lived and recruitment-influenced fluctuations in abundance are a feature of short-lived pelagic fish stocks (Bailey, 1978), with extreme variations in annual recruitment observed in many coregonid stocks (Sandlund et al., 1991; Helminen et al., 1997). Recruitment and resultant year-class strength is highly variable in the Lough Neagh population and this is a major factor in the abundance of the stock (Wilson, 1983; Harrod, 2001). Larval abundance of Pollan has been monitored at key spawning sites in the Ballyronan area of Lough Neagh over the 6 year period 2011-2016. Larval density has been highly variable throughout the period. In 2016 pollan larval density was greater than twice that of the previous year, and the third highest value since monitoring began in 2011. |
| 6.10 Short term trend; Method used | Due to difficulties in sampling Lower Lough Erne populations (the species' niche of pelagic behaviour in open deep water makes it hard to survey without major effort), method used described as Based mainly on extrapolation from a limited amount of data. |
| 6.12 Long term trend; Direction | Long-term abundance data for NI are not comprehensive, but expert opinion would consider that both populations have been relatively stable since the 1990s, although at different levels. Harrod (2001) has reviewed data collected over four decades, 1960s to 1990s, on the Lough Neagh pollan population and states that erratic recruitment and annual variation in size structure have characterised the stock since its early descriptions. Unfortunately data collected on abundance over this long-term period (Wilson, 1983; Winfield et al, 1993; Harrod, 2001; Inger et al, 2010) are not directly comparable, due to differences in sampling methods and fishing effort. Wilson (1983) noted a decline in abundance over three years following a recruitment failure in 1977, while Winfield et al (1993) recorded a slight increase in abundance from 1985 to 1988. A comparison of the two most recent datasets from 2006 (Inger et al, 2010) and 2011 (Campbell, in progress) would suggest a stable numerical abundance but a significant decline in biomass; this difference is considered to be most likely due to the fluctuating annual recruitment and population size structure (Campbell, pers comm). The Lough Erne population has probably never been as abundant as the Lough Neagh population, but until recently it supported a small-scale commercial fishery which was suspended in 1994, due to an apparently low level in the stock (Rosell, 1997). It is reported that pollan were reasonably common up to about the early 1960s (Rosell, 1997), and were captured without difficulty in gill nets for genetic studies (Ferguson 1974; Ferguson et al. 1978). Extensive targeted gill net surveys of Lower Lough Erne by the Department of Agriculture in 1991/92 found only two specimens of pollan, indicating a possible low point in numbers (Rosell 1992; 1994), but subsequent surveys in 1994, 1997, 2000, 2007 and 2010 have recorded small numbers of fish to a point where, in 2010, at least five year classes are present and the best CPUE to date was noted (Rosell, 1997; King et al, 2011). In 2013, it was felt that this may be indicative of a slight recovery in the stock but the numbers are too low to form any robust conclusions with regard to long term trend direction (Rosell, pers comm). Since then, targeted survey and anecdotal evidence would suggest that stocks are on the rise, with multiple year classes indicating variable but continuous recruitment. In summary, it appears that Lower Lough Erne stocks have come back significantly over the last 20 years (AFBI, pers. comm., 2019). Hence a stable assessment for the long-term population of Pollan in NI. |

| | |
|---|---|
| 6.15 Favourable reference population | There are two populations - the Lough Neagh stock is relatively abundant and supports a commercial fishery: the Lough Erne stock appears stable at a low level. The FRP set as the combined area of Lough Neagh and Lower Lough Erne (1x1km squares). |
| 7.1 Sufficiency of area and quality of occupied habitat | At present there is no definitive information available on area of habitat, but surveys of Lower Lough Erne (2007; 2010) and Lough Neagh (2011-2012) have indicated that the species is widely distributed throughout both waters. Area of habitat is therefore considered to cover the full extent of the two loughs (Rosell, pers comm; Campbell, pers comm). Pollan occupy all habitats in Lough Neagh, but are largely absent from shallow waters in Lough Erne (Harrod et al, 2002; Rosell, 1997), as they exhibit a general tendency to a semi-pelagic deep-water habitat, other than in the spawning season when they move into shallow waters. Expert opinion would suggest that the area of suitable habitat should be considered as the total surface area of the waters occupied. It is thought that the influence of Zebra mussel populations (which has increased water clarity) and reduced numbers of roach, may have contributed to better conditions for pollan in Lower Lough Erne (AFBI, pers.comm., 2019). |
| 8.1 Characterisation of pressures/ threats | Pressures and threats include factors which impact water quality from both point and diffuse sources, such as agriculture (animal waste from intensive beef and dairy production, slurry and artificial fertilisers, etc.) and development (habitat loss, septic tank run-off, etc.). Other factors include invasive non-native species such as Roach - the lowest point in Lower Lough Erne pollan stocks coincided with peak periods of very high roach abundance, probably due to interspecific competition (Rosell, 1994 and 1997). Roach were considered a threat to Lough Neagh pollan (Winfield & Wood, 1990), but roach stocks were considerably reduced by the cestode parasite Ligula sp. in the 1980s and roach have not dominated Lough Neagh's fish community. The interaction between juvenile pollan and roach in Lough Neagh is not clear (Harrod et al, 2001). Zebra mussel - now in both Lower Lough Erne and Lough Neagh; by reducing phytoplankton densities they have the potential to influence pollan - most likely to impact on 0+ pollan (Harrod et al, 2001). Climate change - in particular temperature changes - Dabrowski (1985) demonstrated that high summer temperatures in Lough Neagh had an effect on pollan growth. In addition, Lough Neagh already has reduced oxygen levels in summer with concentrations falling as low as 60% saturation in inshore waters (Carter & Griffiths, 2001). Rising Phosphate levels are likely to lead to increased eutrophication and reduced oxygen levels (Harrod, 2001). Current summer temperatures rarely exceed 18 deg C - predicted rises will further reduce oxygen carrying capacity with longer periods of low oxygen with implications for fish stocks (Harrod et al, 2001). Lough Erne on the other hand, although enriched, has a much larger area of deeper water, which pollan tend to occupy and the consequences of climate warming will probably be less severe (Harrod et al, 2001). Fishing - the Lough Neagh Pollan support a small scale fishery which was poorly monitored in the past. However with the increase in regulations, the threat of over-fishing will be reduced. |
| 9.1 Status of measures | Dynamic management underway and fishery owner / manager has applied management measures to protect spawning stocks in Lough Neagh. |
| 9.3 Location of the measures taken | Population only occurs in two locations - neither of which are SACs. |

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| 10.1 Future prospects of parameters | The fields for Future prospects have been assessed as Unknown on the basis of assessments of the future prospects of the three parameters, range, population and habitat for species. Although both populations are currently believed to be stable, the stock levels in one population (Lough Erne) remain very low, and may be at risk of a population crash (or extinction), particularly if threats increase in the future (e.g. climate change, catastrophic pollution event, invasive species, etc). Localised extinction of the Lower Lough Erne population would clearly reduce the range considerably. Climate change may also be a significant factor for the Lough Neagh population, as the effect of rising freshwater temperatures could have a particularly significant impact on the species within the shallow water environment of Lough Neagh. Thus there is uncertainty as to the long term stability of Pollan in Northern Ireland. Thus both species' range and population are vulnerable. |
| 11.1 Range | The two localities for the species - Lough Neagh and Lower Lough Erne - still retain populations of the species. Hence Range is assessed as Favourable. |
| 11.2 Population | Despite an apparent decline in Lower Lough Erne stocks in the past, populations in both Lower Lough Erne and Lough Neagh appear to be relatively stable now. |
| 11.3 Habitat for the species | Habitat quality is moderate and trend is believed to be stable. Range and population appear to be favourable, which suggests that habitat is not a major problem for this species. |
| 11.4 Future prospects | Both populations apparently stable but Lower Lough Erne stock remains at a low level - Future Prospects must therefore be rated as Unknown, especially as there is a high degree of uncertainty with regard to the level of the stock and future impacts of climate change. |
| 11.5 Overall assessment of Conservation Status | Three parameters assessed as Favourable, with one (Future Prospects) Unknown due to uncertainty over stock levels in both populations, in addition to the unpredictable impacts of climate change. Hence overall assessment is Favourable. |
| 11.7 Change and reasons for change in conservation status and conservation status trend | In 2013 the overall Conservation Status conclusion was 'Unfavourable-inadequate'; in the current report it has been assessed as Favourable. The change in the overall conservation status relates to a change in the assessment of future prospects, from inadequate to unknown. This was largely due to a change in the way future prospects were assessed in the current report. We have more confidence in the stability of the current stocks of Pollan in both Lower Lough Erne and Lough Neagh, and although still vulnerable to future changes (particularly climatic), it seems more appropriate to class Future Prospects as unknown, rather than Unfavourable - Inadequate. |