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 habitat:

H1150 - Coastal lagoons

ENGLAND

IMPORTANT NOTE - PLEASE READ

- The information in this document is a country-level contribution to the UK Report on the conservation status of this habitat, 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 habitat 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; and/or (iii) the field was only relevant at UK-level (sections 10 Future prospects and 11 Conclusions).
- For technical reasons, the country-level future trends for Range, Area covered by habitat and Structure and functions 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 17 for Annex I habitat types (Annex D)

NATIONAL LEVEL

1. General information

1.1 Member State	**UK (England information only)**
1.2 Habitat code	**1150 - Coastal lagoons**

2. Maps

2.1 Year or period	
2.3 Distribution map	Yes
2.3 Distribution map Method used	
2.4 Additional maps	No

BIOGEOGRAPHICAL LEVEL

3. Biogeographical and marine regions

3.1 Biogeographical or marine region where the habitat occurs	**Atlantic (ATL)**
3.2 Sources of information	Abrehart, T.R., Forster, S.J., 2012. Ecological surveys of saline lagoons on the Benacre NNR and Suffolk Coast NNR February 2012. Natural England Report. Acornley, R. and Jonas, P. 2006. Chesil and the Fleet SAC/SPA: Habitats Directive Assessment.: Environment Agency. Angus S., Cooper A., Doody P., Everard M., Garbutt A., Gilchrist P., Hansom J., Nicholls R., Pye K., Ravenscroft N., Rees S., Rhind P. and Whitehouse A., 2011, Broad Habitats, Chapter 11: Coastal Margins, In: The UK National Ecosystem Assessment Technical Report. UK National Ecosystem Assessment, UNEP-WCMC, Cambridge.Available online at: http://uknea.unep-wcmc.org/LinkClick.aspx?fileticket=dNI5e5W5I5Q%3D&tabid=82 Atkins. 2009. Natural England Survey and assessment of saline lagoons at Snettisham, Norfolk Atkins on behalf of Natural England. Bagwell, S. 2018. Fleet Lagoon Sediment Analysis Data [Excelfile]: Bournemouth University. Baldock, L. 2007. Biological survey of Zostera, Ruppia & Lamprothamnium in the Fleet Lagoon (SAC/SPA) 2007: Natural England. Baldock, L. 2011. Chesil and The Fleet SAC Tidal Rapids Monitoring. Report to Natural England. Baldock, L. 2014. The Fleet Lagoon SAC Survey of Macrophytes and Macroalgae (Unpublished report): Natural England. Baldock, L. and Bass, J. 2011. Chesil & the Fleet EMS: Survey of shingle springline communities.: Natural England. Bamber, R. and Robbins, R. 2010. Condition Monitoring of the Isle of Wight Coastal Saline Lagoons, 2010: Natural England. Bamber, R. N. and Barnes, R. S. K. 1995. Coastal Lagoons. http://jncc.defra.gov.uk/PDF/pubs_csuk_region05.pdf. Bamber, R. N. and Evans, N. J. 2006. Saline lagoon survey, Snettisham Lagoons, Norfolk, November 2006: Natural History Museum Consulting. Bamber, R. N., 1997, Assessment of saline lagoons within Special Areas of Conservation (SACs), English Nature Research Reports, 235, pages 1-178 Bamber, R. N., 2010, Coastal saline lagoons and the Water Framework Directive, Natural England Commissioned Reports, NERC039, pages 1-48, http://publications.naturalengland.org.uk/publication/44008 Bamber, R. N., Batten, S.D., Bridgwaters, N.D., 1993, Design criteria for the

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4. Range

4.1 Surface area (in km²)	14.45		
4.2 Short-term trend Period			
4.3 Short-term trend Direction			
4.4 Short-term trend Magnitude	a) Minimum	b) Maximum	
4.5 Short-term trend Method used			
4.6 Long-term trend Period			
4.7 Long-term trend Direction			
4.8 Long-term trend Magnitude	a) Minimum	b) Maximum	
4.9 Long-term trend Method used			
4.10 Favourable reference range	a) Area (km²) b) Operator c) Unknown No d) Method		
4.11 Change and reason for change in surface area of range	No change The change is mainly due to:		
4.12 Additional information			

5. Area covered by habitat

5.1 Year or period			
5.2 Surface area (in km²)	a) Minimum 14.45	b) Maximum 14.45	c) Best single value 14.45
5.3 Type of estimate			
5.4 Surface area Method used			
5.5 Short-term trend Period			
5.6 Short-term trend Direction			
5.7 Short-term trend Magnitude	a) Minimum	b) Maximum	c) Confidence interval
5.8 Short-term trend Method used			
5.9 Long-term trend Period			
5.10 Long-term trend Direction			
5.11 Long-term trend Magnitude	a) Minimum	b) Maximum	c) Confidence interval
5.12 Long-term trend Method used			
5.13 Favourable reference area	a) Area (km²) b) Operator c) Unknown No d) Method		
5.14 Change and reason for change in surface area of range	No change The change is mainly due to:		
5.15 Additional information			

Report on the main results of the surveillance under Article 17 for Annex I habitat types (Annex D)

6. Structure and functions

6.1 Condition of habitat	a) Area in good condition (km^2)	Minimum	3.80612	Maximum 3.80612
	b) Area in not-good condition (km^2)	Minimum	4.36309	Maximum 4.36309
	c) Area where condition is not known (km^2)	Minimum	6.2772	Maximum 6.2772
6.2 Condition of habitat Method used	Based mainly on extrapolation from a limited amount of data			
6.3 Short-term trend of habitat area in good condition Period	2007-2018			
6.4 Short-term trend of habitat area in good condition Direction	Uncertain (u)			
6.5 Short-term trend of habitat area in good condition Method used	Based mainly on expert opinion with very limited data			
6.6 Typical species	Has the list of typical species changed in comparison to the previous reporting period?	No		
6.7 Typical species Method used				
6.8 Additional information	To calculate feature area in good and not good condition, an audit of available information was carried out on a lagoon-by lagoon basis. Where condition assessment of the lagoon feature within a designated site had been carried out, this was recorded. Additionally expert judgement was used to assign condition to other lagoons where enough monitoring data was available to do this. Lagoons lacking enough data to make a condition judgement, or with no data at all remained as 'unassessed'. The short-term trend in the area of Coastal Lagoons in good condition in England is considered 'uncertain' because, while some data are available, they are not sufficient to accurately determine the recent trend from 2007-2018. Comparisons with the data from the two previous Article 17 reporting rounds in 2007 and 2013 suggest a 'decreasing' trend. However, methodological approaches differed between the reporting rounds making estimates of the short-term trend very difficult. Also, there were significantly less direct monitoring data available for the current reporting round, compared to previous data. Further, some lagoon sites have been negatively impacted by increased storminess, rising sea level and coastal squeeze in that time. Data to consistently assess these impacts on the area of lagoon habitat in good condition between 2007 -2018 are therefore not available.			

7. Main pressures and threats

7.1 Characterisation of pressures/threats

Pressure	Ranking
Sea-level and wave exposure changes due to climate change (N04)	H
Increases or changes in precipitation due to climate change (N03)	M
Change of habitat location, size, and / or quality due to climate change (N05)	M
Temperature changes (e.g. rise of temperature & extremes) due to climate change (N01)	M

Desynchronisation of biological / ecological processes due to climate change (N06)	M
Mixed source marine water pollution (marine and coastal) (J02)	M
Other invasive alien species (other then species of Union concern) (I02)	M
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)	M
Intensive grazing or overgrazing by livestock (A09)	M
Sports, tourism and leisure activities (F07)	M

Threat	Ranking
Sea-level and wave exposure changes due to climate change (N04)	H
Increases or changes in precipitation due to climate change (N03)	H
Change of habitat location, size, and / or quality due to climate change (N05)	H
Temperature changes (e.g. rise of temperature & extremes) due to climate change (N01)	H
Desynchronisation of biological / ecological processes due to climate change (N06)	M
Mixed source marine water pollution (marine and coastal) (J02)	M
Other invasive alien species (other then species of Union concern) (I02)	M
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
Intensive grazing or overgrazing by livestock (A09)	M
Sports, tourism and leisure activities (F07)	M

7.2 Sources of information	(Masselink & Russell 2013; Nicholls et al., 2007), (Lowe et al., 2009) (McClatchey et al., 2014) (Rennie and Hansom, 2011). (Mitchell et al 2007). (Johnston & Gilliland, 2000). (Thorp, 1994). (Jones et al., 2011b), (Spencer and Brooks, 2012).
7.3 Additional information	N04: Climate change impacts such as rising sea levels, changes in wave heights and increased storminess will have an number of effects including: increased erosion rates and inundation; increased frequency of breaching and overtopping of lagoon barriers; more extensive morphological collapse of barriers. N03: Many climate change models for Northern Europe have predicted that

most regions will experience wetter winters in the future, with increased frequency of flooding events in the coastal areas (McClatchey et al., 2014). Changes in the volume and timing of freshwater discharge into the lagoon due to climate change driven higher precipitation has the potential to alter the salinity regime and water quality of the lagoon, which combined with potentially more frequent overtopping during storms will lead to changes in water chemistry, depending on the water source. A reduction of salinity may occur where the balance shifts towards higher input of freshwater, and will result in a shift in species composition according to their tolerances. Reduction in water quality may also have an impact on the diversity and composition of lagoon species.
N05: The behaviour of any coastal sediment will change with increasing rates of rising sealevel, but sites will differ according to topography and sediment supply. There will be a tendency for shingle impoundments to migrate landwards as rising sea level progresses but once this exceeds a 'tipping point' around an annual rate of 3-4 mm, widespread reorganisation of coastal landforms, including lagoons, may occur.
N01: In southern Britain, where summers are likely to become drier and warmer, hypersaline conditions in coastal saline lagoons due to water evaporation may become more frequent . Changes in lagoon community composition may occur as species with higher salinity tolerances become more common. Drier and warmer summers may also lead to higher water temperatures and increased level of desiccation in the intertidal area of saline lagoons, restricting the distribution of intertidal species.
N06: This is considered to be a likely outcome of all the pressures and threats listed in this section.
J02: Pollution, in particular nutrient enrichment leading to eutrophication, can have major detrimental effects on lagoons, including species loss. Nutrient enrichment may have direct metabolic effects on species: it may cause an increase in growth of epiphytic, floating, ephemeral, benthic and phytoplanktonic algae and associated competition with lagoonal vegetation of conservation interest. Nutrient enrichment may also have indirect effects on lagoonal fauna. Increased turbidity may cause smothering, or inhibit the feeding of lagoonal invertebrates. Toxic contamination may also have potential impacts on lagoon habitats and their species. Suggested contaminants of concern from studies outside lagoons include heavy metals, herbicides and pesticides and chronic oil pollution.
I02: An example is Ficopomatus enigmaticus, is an annelid tubeworm which is thought to be at, or close to, its temperature minimum for maintaining populations and for successful reproduction, along southern coasts of Britain. It is believed to only be able to survive in artificially heated northern waters but it is now colonising lagoons along the south coast of England.
F08: Saline lagoons with natural barriers may be able to migrate with rising sea levels by barrier 'over-washing' and the transfer of sediment from the front to the rear of the barrier, but there are many places in England where this is restricted by hard sea defences. Policies that allow natural coastal rollback will cause losses of lagoon area unless the lagoons are able to migrate landward. In many cases, this is unlikely due to man-made barriers. This 'coastal squeeze' will diminish the extent of saline lagoons
A09: Grazing of livestock on land adjacent to lagoons can lead to eutrophication and damage to lagoon banks.
F07: Dredging of lagoons where marinas are located, as well as the pressures of small scale recreation threaten lagoon species and habitats.

Report on the main results of the surveillance under Article 17 for Annex I habitat types (Annex D)

8. Conservation measures

8.1 Status of measures	a) Are measures needed?	Yes
	b) Indicate the status of measures	Measures identified and taken
8.2 Main purpose of the measures taken		Restore the habitat of the species (related to 'Habitat for the species')
8.3 Location of the measures taken		Both inside and outside Natura 2000
8.4 Response to the measures		Medium-term results (within the next two reporting periods, 2019-2030)
8.5 List of main conservation measures		

Reduce/eliminate marine pollution from agricultural activities (CA13)

Reduce/eliminate marine pollution from industrial, commercial, residential and recreational areas and activities (CF07)

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

Reduce/eliminate marine contamination with litter (CF08)

Management, control or eradication of other invasive alien species (CI03)

8.6 Additional information

9. Future prospects

9.1 Future prospects of parameters	a) Range b) Area c) Structure and functions	
9.2 Additional information		Lagoons, particularly those on the low-lying southern and eastern coasts of England, are at high risk from rising sea levels and increasing storminess. There is also a risk from development and the construction of coastal defences around England. Lagoons are sensitive to these pressures, and consequently there is likely to be a decrease in the range, area and structure and function of the habitat of less than 1% per year. Plans for lagoon habitat creation schemes should offset some losses, but they are unlikely to offset the total loss. There are a number of uncertainties affecting this judgement of future prospects; these include the application and interpretation of EU Caselaw to small scale developments within European Sites.

10. Conclusions

10.1. Range		
10.2. Area		
10.3. Specific structure and functions (incl. typical species)		
10.4. Future prospects		
10.5 Overall assessment of Conservation Status		
10.6 Overall trend in Conservation Status		
10.7 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:
10.8 Additional information	

11. Natura 2000 (pSCIs, SCIs, SACs) coverage for Annex I habitat types

11.1 Surface area of the habitat type inside the pSCIs, SCIs and SACs network (in km² in biogeographical/ marine region)	a) Minimum	7.42
	b) Maximum	7.42
	c) Best single value	7.42
11.2 Type of estimate		
11.3 Surface area of the habitat type inside the network Method used		
11.4 Short-term trend of habitat area in good condition within the network Direction	Decreasing (-)	
11.5 Short-term trend of habitat area in good condition within network Method used	Based mainly on expert opinion with very limited data	
11.6 Additional information		

12. Complementary information

12.1 Justification of % thresholds for trends
12.2 Other relevant information

Distribution Map

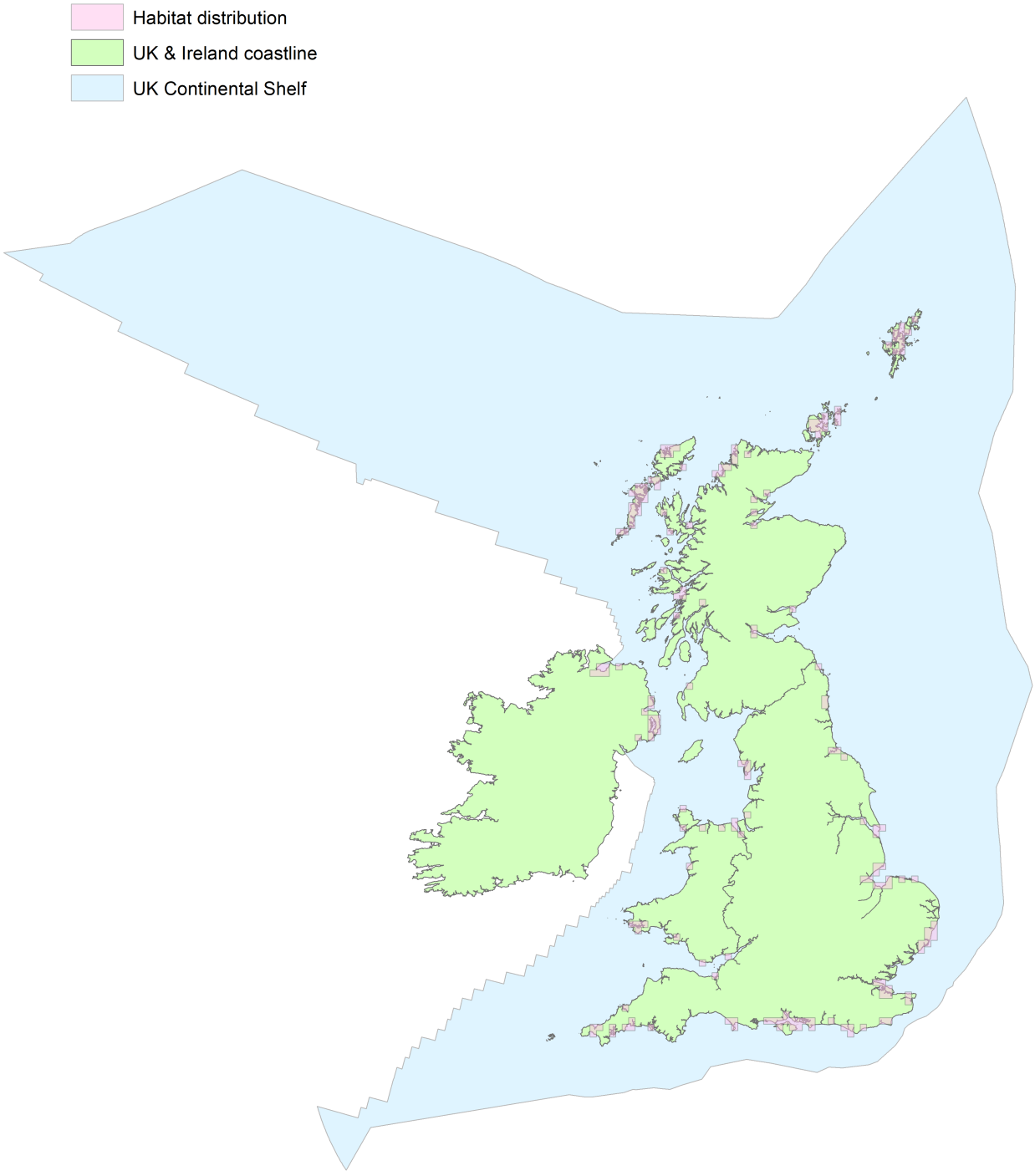

Figure 1: UK distribution map for H1150 - Coastal lagoons.

The 10km grid square distribution map is based on available habitat records which are considered to be representative of the distribution within the current reporting period. For further details see the 2019 Article17 UK Approach document.

Range Map

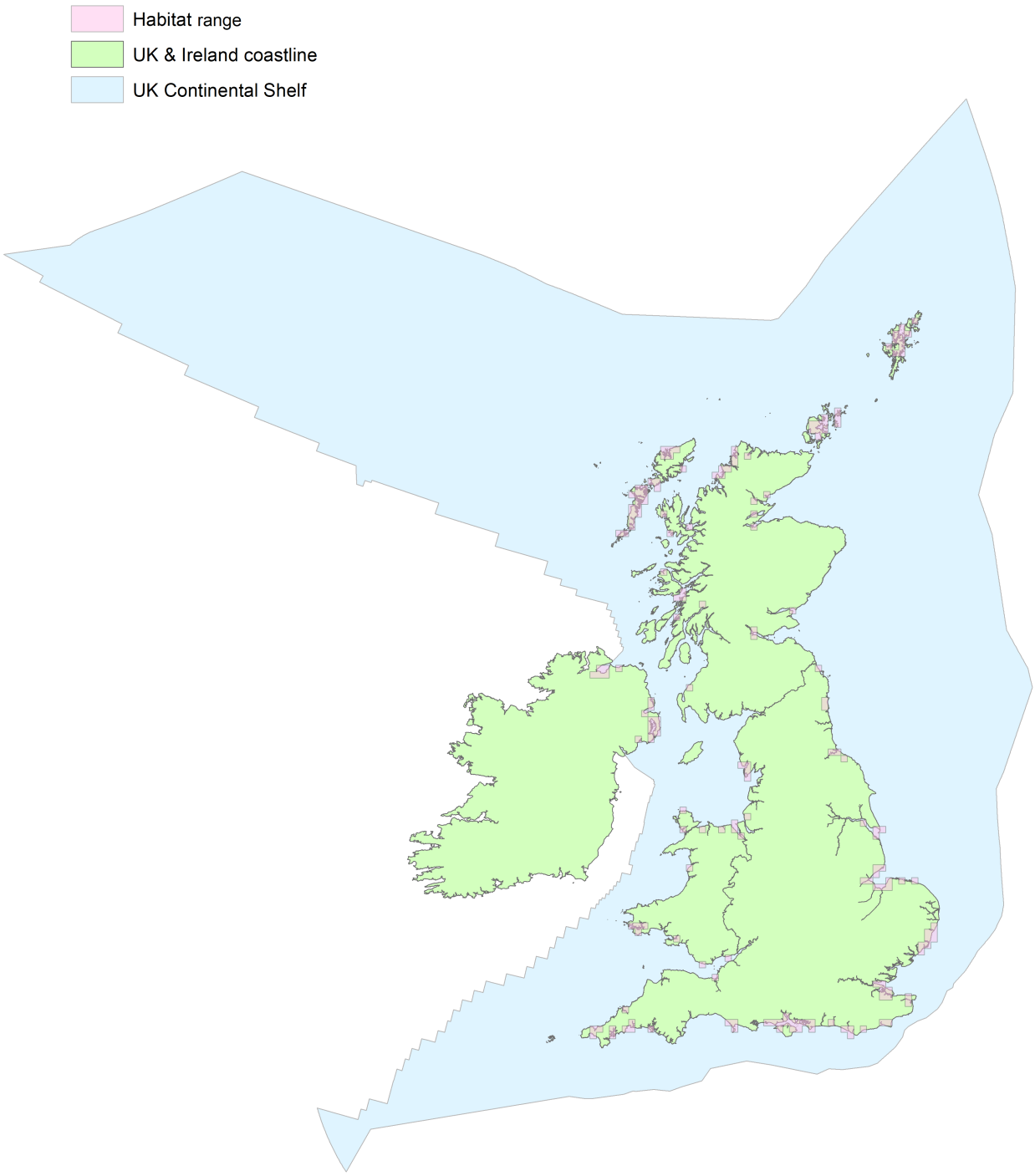

Figure 2: UK range map for H1150 - Coastal lagoons.

The range was considered equivalent to the surface area. Coastal lagoons are physiographic features and so their range is determined primarily by geomorphological and hydrographic processes occurring over long time-scales and is not related to biological communities or processes supported by communities.

Explanatory Notes

Habitat code: 1150 Region code: ATL

Field label	Note
6.1 Condition of habitat	To calculate feature area in good and not good condition, an audit of available information was carried out on a lagoon-by lagoon basis. Where condition assessment of the lagoon feature within a designated site had been carried out, this was recorded. Additionally expert judgement was used to assign condition to other lagoons where enough monitoring data was available to do this. Lagoons lacking enough data to make a condition judgement, or with no data at all remained as 'unassessed'. The short-term trend in the area of Coastal Lagoons in good condition in England is considered 'uncertain' because, while some data are available, they are not sufficient to accurately determine the recent trend from 2007-2018. Comparisons with the data from the two previous Article 17 reporting rounds in 2007 and 2013 suggest a 'decreasing' trend. However, methodological approaches differed between the reporting rounds making estimates of the short-term trend very difficult. Also, there were significantly less direct monitoring data available for the current reporting round, compared to previous data. Further, some lagoon sites have been negatively impacted by increased storminess, rising sea level and coastal squeeze in that time. Data to consistently assess these impacts on the area of lagoon habitat in good condition between 2007 -2018 are therefore not available.
6.2 Condition of habitat; Method used	To calculate feature area in good and not good condition, an audit of available information was carried out on a lagoon-by lagoon basis. Where condition assessment of the lagoon feature within a designated site had been carried out, this was recorded. Additionally expert judgement was used to assign condition to other lagoons where enough monitoring data was available to do this. Lagoons lacking enough data to make a condition judgement, or with no data at all remained as 'unassessed'. The short-term trend in the area of Coastal Lagoons in good condition in England is considered 'uncertain' because, while some data are available, they are not sufficient to accurately determine the recent trend from 2007-2018. Comparisons with the data from the two previous Article 17 reporting rounds in 2007 and 2013 suggest a 'decreasing' trend. However, methodological approaches differed between the reporting rounds making estimates of the short-term trend very difficult. Also, there were significantly less direct monitoring data available for the current reporting round, compared to previous data. Further, some lagoon sites have been negatively impacted by increased storminess, rising sea level and coastal squeeze in that time. Data to consistently assess these impacts on the area of lagoon habitat in good condition between 2007 -2018 are therefore not available.

6.3 Short term trend of habitat area in good condition; Period	To calculate feature area in good and not good condition, an audit of available information was carried out on a lagoon-by lagoon basis. Where condition assessment of the lagoon feature within a designated site had been carried out, this was recorded. Additionally expert judgement was used to assign condition to other lagoons where enough monitoring data was available to do this. Lagoons lacking enough data to make a condition judgement, or with no data at all remained as 'unassessed'. The short-term trend in the area of Coastal Lagoons in good condition in England is considered 'uncertain' because, while some data are available, they are not sufficient to accurately determine the recent trend from 2007-2018. Comparisons with the data from the two previous Article 17 reporting rounds in 2007 and 2013 suggest a 'decreasing' trend. However, methodological approaches differed between the reporting rounds making estimates of the short-term trend very difficult. Also, there were significantly less direct monitoring data available for the current reporting round, compared to previous data. Further, some lagoon sites have been negatively impacted by increased storminess, rising sea level and coastal squeeze in that time. Data to consistently assess these impacts on the area of lagoon habitat in good condition between 2007 -2018 are therefore not available.
6.4 Short term trend of habitat area in good condition; Direction	To calculate feature area in good and not good condition, an audit of available information was carried out on a lagoon-by lagoon basis. Where condition assessment of the lagoon feature within a designated site had been carried out, this was recorded. Additionally expert judgement was used to assign condition to other lagoons where enough monitoring data was available to do this. Lagoons lacking enough data to make a condition judgement, or with no data at all remained as 'unassessed'. The short-term trend in the area of Coastal Lagoons in good condition in England is considered 'uncertain' because, while some data are available, they are not sufficient to accurately determine the recent trend from 2007-2018. Comparisons with the data from the two previous Article 17 reporting rounds in 2007 and 2013 suggest a 'decreasing' trend. However, methodological approaches differed between the reporting rounds making estimates of the short-term trend very difficult. Also, there were significantly less direct monitoring data available for the current reporting round, compared to previous data. Further, some lagoon sites have been negatively impacted by increased storminess, rising sea level and coastal squeeze in that time. Data to consistently assess these impacts on the area of lagoon habitat in good condition between 2007 -2018 are therefore not available.
6.5 Short term trend of habitat area in good condition; Method used	To calculate feature area in good and not good condition, an audit of available information was carried out on a lagoon-by lagoon basis. Where condition assessment of the lagoon feature within a designated site had been carried out, this was recorded. Additionally expert judgement was used to assign condition to other lagoons where enough monitoring data was available to do this. Lagoons lacking enough data to make a condition judgement, or with no data at all remained as 'unassessed'. The short-term trend in the area of Coastal Lagoons in good condition in England is considered 'uncertain' because, while some data are available, they are not sufficient to accurately determine the recent trend from 2007-2018. Comparisons with the data from the two previous Article 17 reporting rounds in 2007 and 2013 suggest a 'decreasing' trend. However, methodological approaches differed between the reporting rounds making estimates of the short-term trend very difficult. Also, there were significantly less direct monitoring data available for the current reporting round, compared to previous data. Further, some lagoon sites have been negatively impacted by increased storminess, rising sea level and coastal squeeze in that time. Data to consistently assess these impacts on the area of lagoon habitat in good condition between 2007 -2018 are therefore not available.

7.1 Characterisation of pressures/ threats	N05: The behaviour of any coastal sediment will change with increasing rates of rising sealevel, but sites will differ according to topography and sediment supply. There will be a tendency for shingle impoundments to migrate landwards as rising sea level progresses but once this exceeds a 'tipping point' around an annual rate of 3-4 mm, widespread reorganisation of coastal landforms, including lagoons, may occur.
7.1 Characterisation of pressures/ threats	N03: Many climate change models for Northern Europe have predicted that most regions will experience wetter winters in the future, with increased frequency of flooding events in the coastal areas (McClatchey et al., 2014). Changes in the volume and timing of freshwater discharge into the lagoon due to climate change driven higher precipitation has the potential to alter the salinity regime and water quality of the lagoon, which combined with potentially more frequent overtopping during storms will lead to changes in water chemistry, depending on the water source. A reduction of salinity may occur where the balance shifts towards higher input of freshwater, and will result in a shift in species composition according to their tolerances. Reduction in water quality may also have an impact on the diversity and composition of lagoon species.
7.1 Characterisation of pressures/ threats	F07: Dredging of lagoons where marinas are located, as well as the pressures of small scale recreation threaten lagoon species and habitats.
7.1 Characterisation of pressures/ threats	N01: In southern Britain, where summers are likely to become drier and warmer, hypersaline conditions in coastal saline lagoons due to water evaporation may become more frequent . Changes in lagoon community composition may occur as species with higher salinity tolerances become more common. Drier and warmer summers may also lead to higher water temperatures and increased level of desiccation in the intertidal area of saline lagoons, restricting the distribution of intertidal species.
7.1 Characterisation of pressures/ threats	N06: This is considered to be a likely outcome of all the pressures and threats listed in this section.
7.1 Characterisation of pressures/ threats	J02: Pollution, in particular nutrient enrichment leading to eutrophication, can have major detrimental effects on lagoons, including species loss. Nutrient enrichment may have direct metabolic effects on species: it may cause an increase in growth of epiphytic, floating, ephemeral, benthic and phytoplanktonic algae and associated competition with lagoonal vegetation of conservation interest. Nutrient enrichment may also have indirect effects on lagoonal fauna. Increased turbidity may cause smothering, or inhibit the feeding of lagoonal invertebrates. Toxic contamination may also have potential impacts on lagoon habitats and their species. Suggested contaminants of concern from studies outside lagoons include heavy metals, herbicides and pesticides and chronic oil pollution.
7.1 Characterisation of pressures/ threats	I02: An example is Ficopomatus enigmaticus, is an annelid tubeworm which is thought to be at, or close to, its temperature minimum for maintaining populations and for successful reproduction, along southern coasts of Britain. It is believed to only be able to survive in artificially heated northern waters but it is now colonising lagoons along the south coast of England.
7.1 Characterisation of pressures/ threats	F08: Saline lagoons with natural barriers may be able to migrate with rising sea levels by barrier 'over-washing' and the transfer of sediment from the front to the rear of the barrier, but there are many places in England where this is restricted by hard sea defences. Policies that allow natural coastal rollback will cause losses of lagoon area unless the lagoons are able to migrate landward. In many cases, this is unlikely due to man-made barriers. This 'coastal squeeze' will diminish the extent of saline lagoons
7.1 Characterisation of pressures/ threats	A09: Grazing of livestock on land adjacent to lagoons can lead to eutrophication and damage to lagoon banks.
7.1 Characterisation of pressures/ threats	N04: Climate change impacts such as rising sea levels, changes in wave heights and increased storminess will have an number of effects including: increased erosion rates and inundation; increased frequency of breaching and overtopping of lagoon barriers; more extensive morphological collapse of barriers.

9.1 Future prospects of parameters	Lagoons, particularly those on the low-lying southern and eastern coasts of England, are at high risk from rising sea levels and increasing storminess. There is also a risk from development and the construction of coastal defences around England. Lagoons are sensitive to these pressures, and consequently there is likely to be a decrease in the range, area and structure and function of the habitat of less than 1% per year. Plans for lagoon habitat creation schemes should offset some losses, but they are unlikely to offset the total loss. There are a number of uncertainties affecting this judgement of future prospects; these include the application and interpretation of EU Caselaw to small scale developments within European Sites.