# 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:

**H1420 - Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*)**

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 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 (Wales information only)** |
| 1.2 Habitat code | **1420 - Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea** |

### 2. Maps

| | |
|---|---|
| 2.1 Year or period | 2003- |
| 2.3 Distribution map | Yes |
| 2.3 Distribution map Method used | Complete survey or a statistically robust estimate |
| 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 | Benoit, P. M. 1961. A note on Salicornia perennis (Perennial Glaswort). Nature in Wales, 7: 21-24.<br>Boorman, L. 2003. Saltmarsh Review. An overview of coastal saltmarsh, their dynamic and sensitivity characteristics for conservation and management. Report No. 334. Joint Nature Conservation Committee, Peterborough.<br>Boorman, L.A. and Hazelden, J. 2012. Impacts of additional aerial inputs of nitrogen to saltmarsh and transitional habitats. CCW Science Report No: 995, pp44, Countryside Council for Wales, Bangor, Wales<br>BRIG. 2007. A preliminary assessment of the implications of climate change for the implementation of the UK BAP targets.<br>Dargie, T. 1998. NVC survey of saltmarsh habitat in the Severn Estuary. CCW Contract Science Report no. 341.<br>Dargie, T. 2000. Description of the Severn Estuary survey sectors identified in the 1998 NVC survey. CCW Contract Science Report no. 399.<br>Dargie, T. 2001. NVC survey of the saltmarsh and other habitats in the Dee and Clwyd estuaries 2000. CCW Contract Science Report no. 450.<br>Environment Agency 2007. Saltmarsh management manual. R&D Technical Report SC030220.<br>Evans, F., Clarke, J. 2000. Ty Gwyn Marsh - National Vegetation Classification (NVC) Survey Saltmarsh Survey. NRW Dataset.<br>JNCC Special Area of Conservation (SAC) Habitat account - Marine, coastal and halophytic habitats: 1420 Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticose). [Online] Available from: http://jncc.defra.gov.uk/protectedsites/sacselection/habitat.asp?FeatureIntCode=H1420<br>Jones, M.L.M., Angus S., Cooper A., Doody P., Everard M., Garbutt A., Gilchrist P., Hansom G., Nicholls R., Pye K., Ravenscroft N., Rees S., Rhind P. & Whitehouse A. 2011. Coastal margins [chapter 11]. In: UK National Ecosystem Assessment. Understanding nature's value to society. Technical Report. Cambridge, UNEP-WCMC, 411-457.<br>MarLIN: The Marine Life Information Website: Networkhttps://www.marlin.ac.uk/habitats/detail/25<br>Prosser, M.V. and Wallace, H.L. 2004. Pen Llyn a'r Sarnau cSAC and adjacent areas saltmarsh review and National Classification survey 2003. CCW Contract |

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

Science Report No. 642.
Prosser, M.V. and Wallace, H.L. 1997. Braint Estuary pSAC, NVC survey 1996. CCW NW Area Report 3.
Prosser, M.V. and Wallace, H.L. 1998. Taf, Tywi and Gwendraeth saltmarsh survey (Burry Inlet cSAC), 1997. CCW Contract Science Report No 293.
Prosser, M.V. and Wallace, H.L. 1999a. Burry Inlet and Loughor Estuary SSSI, NVC Survey 1998. CCW Contract Science Report No 376.
Prosser, M.V. and Wallace, H.L. 1999b. Cefni and Aberffraw estuary pSAC: NVC survey 1998. Countryside Council for Wales, Bangor.
Prosser, M.V. and Wallace, H.L. 2002. National Vegetation Classification Survey: Saltmarshes of the Conwy Estuary. Countryside Council for Wales, Bangor.
Prosser, M.V. and Wallace, H.L. 2003. Milford Haven saltmarsh survey. Report to the Milford Haven Waterway Environmental Surveillance Group.
Prosser, M.V. and Wallace, H.L. 2004. Pen Llyn a'r Sarnau cSAC and adjacent areas saltmarsh review and National Vegetation Classification survey 2003. CCW Contract Science Report No. 642.
Royal Haskoning. 2012. SMP 21 St Ann's Head to Great Ormes Head (West of Wales) Shoreline Management Plan 2. Available from: http://www.westofwalessmp.org/.
Rhind, P. M. 1995. A review of saltmarsh vegetation surveys in Wales. Countryside Council for Wales, Biological Science Report. Bangor.
Rhind, P.M. 2013. JNCC 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 Habitat: H1420 - Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi)
Rodwell, J. S. et al. 2000. British Plant Communities. volume 5. Maritime Communities and Vegetation of Open Habitats. Cambridge University Press.
National Trust 2015. Shifting Shores Report, National Trust. https://www.nationaltrust.org.uk/documents/shifting-shores-report-2015.pdf
Natural Resources Wales. 2015. Water Watch Wales maps gallery. Cycle 2 waterbodies and rivers. Available from: https://nrw.maps.arcgis.com/apps/webappviewer/index.html?id=2176397a06d64731af8b21fd69a143f6

## 4. Range

| | | |
|---|---|---|
| 4.1 Surface area (in km²) | | |
| 4.2 Short-term trend Period | | |
| 4.3 Short-term trend Direction | Stable (0) | |
| 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: | |

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

4.12 Additional information

## 5. Area covered by habitat

| | | | |
|---|---|---|---|
| 5.1 Year or period | 2003-003- | | |
| 5.2 Surface area (in km²) | a) Minimum | b) Maximum | c) Best single value 0.07 |
| 5.3 Type of estimate | Best estimate | | |
| 5.4 Surface area Method used | Complete survey or a statistically robust estimate | | |
| 5.5 Short-term trend Period | 2007-2018 | | |
| 5.6 Short-term trend Direction | Uncertain (u) | | |
| 5.7 Short-term trend Magnitude | a) Minimum | b) Maximum | c) Confidence interval |
| 5.8 Short-term trend Method used | Insufficient or no data available | | |
| 5.9 Long-term trend Period | | | |
| 5.10 Long-term trend Direction | Uncertain (u) | | |
| 5.11 Long-term trend Magnitude | a) Minimum | b) Maximum | c) Confidence interval |
| 5.12 Long-term trend Method used | Insufficient or no data available | | |
| 5.13 Favourable reference area | a) Area (km²)<br>b) Operator<br>c) Unknown No<br>d) Method | | |
| 5.14 Change and reason for change in surface area of range | No change<br>The change is mainly due to: | | |
| 5.15 Additional information | | | |

## 6. Structure and functions

| | | | |
|---|---|---|---|
| 6.1 Condition of habitat | a) Area in good condition (km²) | Minimum 0 | Maximum 0 |
| | b) Area in not-good condition (km²) | Minimum 0 | Maximum 0 |
| | c) Area where condition is not known (km²) | Minimum 0.07 | Maximum 0.07 |
| 6.2 Condition of habitat Method used | Insufficient or no data available | | |
| 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 | Unknown (x) | | |
| 6.5 Short-term trend of habitat area in good condition Method used | Insufficient or no data available | | |
| 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 | | | |

## 7. Main pressures and threats

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

7.1 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) | M |
| Modification of hydrological flow or physical alteration of water bodies for agriculture (excluding development and operation of dams) (A33) | M |
| Roads, paths, railroads and related infrastructure (e.g. bridges, viaducts, tunnels) (E01) | 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) | M |
| Modification of hydrological flow or physical alteration of water bodies for agriculture (excluding development and operation of dams) (A33) | M |
| Roads, paths, railroads and related infrastructure (e.g. bridges, viaducts, tunnels) (E01) | M |
| Mixed source marine water pollution (marine and coastal) (J02) | M |
| Sea-level and wave exposure changes due to climate change (N04) | H |
| Change of habitat location, size, and / or quality due to climate change (N05) | H |

7.2 Sources of information

7.3 Additional information

## 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 | | Maintain the current range, population and/or 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 | | |

Restore habitats impacted by multi-purpose hydrological changes (CJ03)

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

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)

Implement climate change adaptation measures (CN02)

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

## 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
b) Maximum
c) Best single value 0.07

11.2 Type of estimate

Best estimate

11.3 Surface area of the habitat type inside the network Method used

Complete survey or a statistically robust estimate

11.4 Short-term trend of habitat area in good condition within the network Direction

Uncertain (u)

11.5 Short-term trend of habitat area in good condition within network Method used

Insufficient or no data available

11.6 Additional information

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

## 12. Complementary information

12.1 Justification of % thresholds for trends

12.2 Other relevant information

# Distribution Map

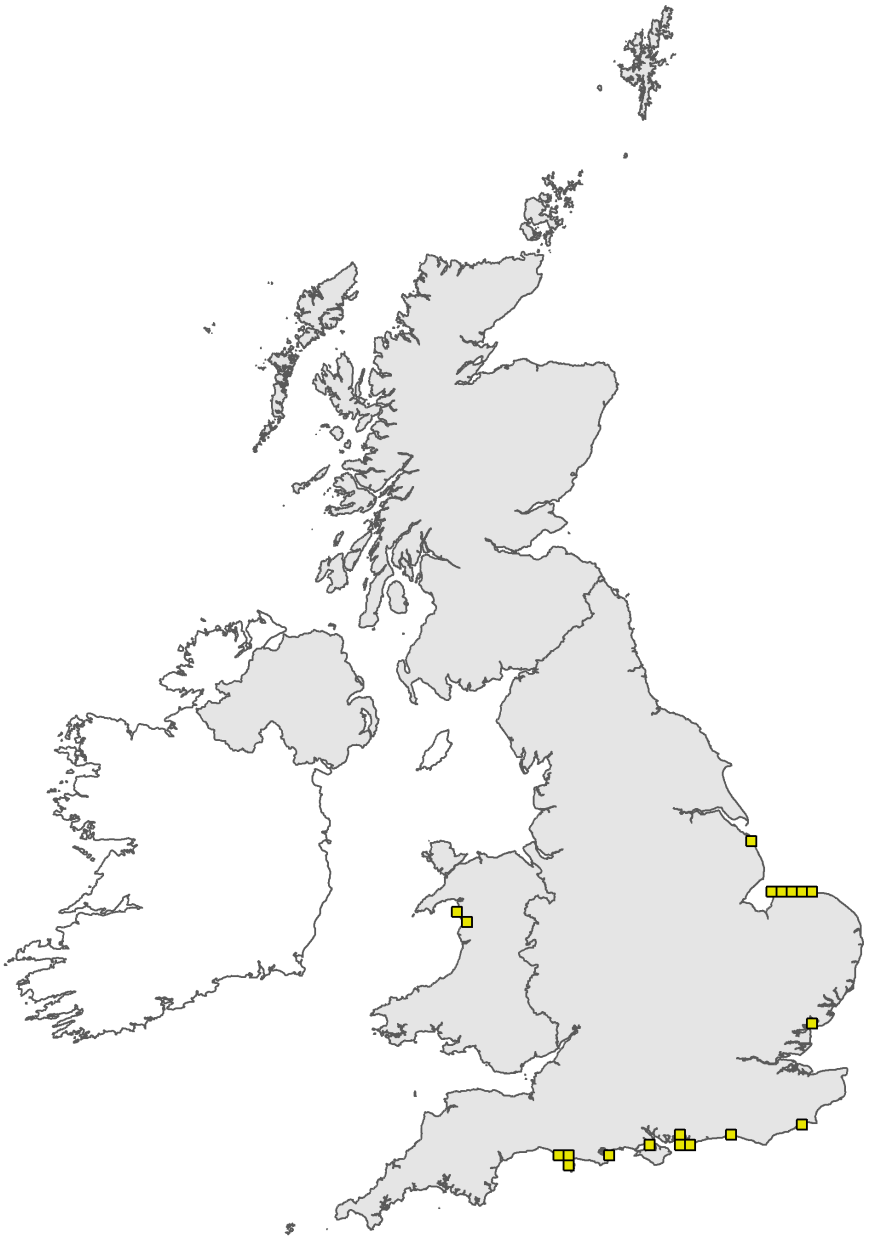

Figure 1: UK distribution map for H1420 - Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

The 10km grid square distribution map is based on available 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 H1420 - Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*). 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 habitat was 25km. For further details see the 2019 Article 17 UK Approach document.

# Explanatory Notes

**Habitat code: 1420**

| Field label | Note |
|---|---|
| 2.3 Distribution map; Method used | Distribution and area estimates are based on the Phase II survey of Pen Llyn a'r Sarnau SAC and adjacent areas (Prosser & Wallace 2004). The Phase II survey was based the UK's National Vegetation Classification (NVC) (Rodwell 2000). Only vegetation assigned to the SM7 NVC community was considered to be attributable to the Annex I habitat type and included within the Article 17 layer. Near comprehensive survey data is available for welsh saltmarshes but no other examples of SM7 have been recorded and there are no records of Sarcocornia perennis elsewhere in the Wales (Dargie, 1998, 2000 & 2001), (Evans and Clarke, 2000), (Prosser and Wallace, 1997, 1998, 1999a, 1999b, 2002, 2003,2004). |

**Habitat code: 1420 Region code: ATL**

| Field label | Note |
|---|---|
| 4.3 Short term trend; Direction | See 4.11 |
| 4.11 Change and reason for change in surface area of range | The same data was used for the 2013 and 2018 reporting rounds. |
| 5.4 Surface area; Method used | Distribution and area estimates are based on the Phase II survey: Pen Llyn a'r Sarnau cSAC and adjacent areas saltmarsh review and National Classification survey 2003 (Prosser & Wallace 2004). This survey includes all of the known examples of this habitat type in Wales. |
| 5.6 Short term trend; Direction | There is no available evidence relating to change in this habitat in Wales. However, as with the other saltmarsh features in Wales H1330 and H1310 there is the potential for loss of this habitat type due to coastal squeeze as sea level rises and also for gains due to growth of this habitat as a response to estuarine infilling. The West of Wales Shoreline Management Plan (Royal Haskoning 2012) predicts a 40ha loss of intertidal habitat within the Pan Llyn a'r Sarnau SAC between 2005 and 2025. |
| 5.11 Long term trend; Magnitude | See section 5.6 |

| | |
|---|---|
| 7.1 Characterisation of pressures/ threats | Pressures: F08: Modification of coastline, estuary and coastal conditions for development, use and protection of residential, commercial, industrial and recreational infrastructure and areas (including sea defence or coast protection works and infrastructures) & A33: Modification of hydrological flow or physical alternation of water bodies for agriculture (excluding development and operation of dams) Historic land claim has led to considerable losses in saltmarsh extent and altered the structure and function of the vast majority of the estuaries and in Wales including the Mawddach and Artro estuaries. Flood defences for land claim have the potential to cause coastal squeeze with sea level rise resulting in loss of this feature. Sea defences and rock armouring have contributed to declines in sediment supplies (Jones et al., 2011) which could affect the conditions required for this habitat to develop and to respond to climate change. E01: Roads, paths, railroads and related infrastructure (e.g. bridges, viaducts, tunnels) Part of this habitat has been affected by the presence of a road which connects Mochras (Shell Island) to the mainland. This road disrupts natural processes including tidal inundation. N04: Sea-level and wave exposure changes due to climate change & N05: Change of habitat location, size, and / or quality due to climate change N04 and N05 are both considered to be acting as LOW current pressures on the habitat and are considered more thouroughly under threats below. J02: Mixed source marine water pollution (marine and coastal) The whole of this feature is associated with water bodies which fail WFD targets for Dissolved Inorganic Nitrogen (DIN) and/or chemical pollutants. Eutrophication of coastal waters caused by Dissolved Inorganic Nitrogen (DIN) and Phosphorous causes enrichment of saltmarshes. This increases primary production and can lead to overgrowth of macro-algae (Packham and Willis 2007). However, saltmarsh is generally associated with quite high levels of Nitrogen (Boorman & Hazeldean 2012). The Artro estuary within the Pen Llyn a'r Sarnau SAC has failed to meet the WFD 'good' or 'high' standard for levels of Dissolved Inorganic Nitrogen. Chemical pollution. Saltmarsh has been assessed as having a 'Low Intolerance' for heavy metal contamination and a 'Intermediate Intolerance' for synthetic compounds (MarLIN websites). Intolerance of saltmarsh vegetation to hydrocarbon contamination is listed as 'High'; oil pollution can affect saltmarsh community structure, fauna and environmental conditions (Packham and Willis 2007 pp. 253). The Mawddach estuary has exceeded WFD targets for brominated diphenyl ether. I04: Problematic native species H1420 has been affected by the spread of Spartina anglica, on the Artro estuary mixed stands of Spartina anglica and Sarcocornia perennis have been recorded. In Wales concern relating to Spartina anglica has declined; the rate of spread has decreased considerably and is generally known only to be occurring at a low level on sites where estuaries are infilling. Dargie (2001) estimates a decline of 90% cover of Spartina dominated communities between 1983 and 2000 on the Dee and the Clwyd estuaries. Threats: All of the pressures are considered to be current representing an ongoing threat to the habitat, the following text considers only additional threats to the habitat and those issues where the threat it presents is considered significantly higher or lower than the pressure it has represented over the last 6 years. G01: Outdoor sports and leisure activities, recreational activities Much of this habitat is located close to a tourist hot spots and is therefore vulnerable to recreation and leisure activities. N04: Sea-level and wave exposure changes due to climate change & N05: Change of habitat location, size, and / or quality due to climate change The impacts of climate change on coastal saltmarsh have been assessed as High (BRIG 2007). Saltmarsh is not only subject to potential temperature increases but to sea level rise and potential increase in storminess. Coastal squeeze due to coastal defences is discussed with pressures A33 and F08 above, however, loss of H1420 could occur due to coastal squeeze to natural features such dunes. With coastal squeeze this habitat could become more fragmented leading to declines in quality. In addition, increased wave power could result in accelerated erosion of marshes and hinder seedling establishment. E03: Shipping lanes, ferry lanes and anchorage infrastructure (e.g. canalisation, dredging) & C07 Dumping/depositing of dredged materials from marine |

| | |
|---|---|
| | extraction Dredging has occurred intermittently within the Artro estuary to provide deeper channels for yachts and other pleasure craft. These activities are regulated; dredging is only permitted at levels below those deemed likely to have an adverse impact on the conservation status of the SAC features and disposal of the dredged materials is restricted to appropriate locations. Therefore, these activities are assessed as threats only, however without appropriate control dredging and the disposal of dredged material has the potential to disrupt the sediment supply and cause disturbance to natural processes with resulting impacts on this habitat. |
| 8.5 List of main conservation measures | In Wales, this habitat lies entirely within protected sites. CJ03: Restore habitats impacted by multi-purpose hydrological changes & CF10: Manage changes in hydrological and coastal systems and regimes for construction and development The National Habitats Creation Programme aims to restore intertidal habitats in Wales, providing compensation habitat for areas lost to coastal squeeze relating to sea defences owned and maintained by NRW. Options for extending this feature as part of the programme are limited because of its current restricted distribution. However, Sarcocornia perennis has been noted colonising a 3.5ha realignment site on the Mawddach which has been established to provide mitigation for flood defence works carried out on the estuary. The West of Wales Shoreline Management Plan (Royal Haskoning, 2012) which identifies the most sustainable approach to managing the flood and coastal erosion risks to the coastline in the short, medium and long term, however, this plan has yet to be fully implemented. (see section 9.1b). CF07: Reduce/eliminate marine pollution from industrial, commercial, residential and recreational areas and activities Implementation and enforcement of water quality regulation (both marine and freshwater) is ongoing work and is making gains in improving water quality. Management of the wider countryside including the implementation of the River Basin Management Plans by NRW and EA (cross-border catchments) is also contributing to improvements (NRW 2015). CN02: Implement climate change adaptation measures Implementation of climate change adaptation measures including the shoreline management plans, further managed realignment schemes need to be progressed. |

| | |
|---|---|
| 9.1 Future prospects of parameters | The main threat to H1420 is sea level rise. The 40ha loss of intertidal habitat predicted by the West of Wales Shoreline Management Plan (SMP) (Royal Haskoning 2012) due to coastal squeeze could affect this habitat. Saltmarsh can respond to sea level rise by vertical accretion, however, this is dependent on sediment supply (Jones et al. 2011). The National Habitat Creation Programme is in place to compensate for habitat loss due to coastal squeeze caused by sea defences owned and maintained by Risk Management Authorities (NRW & Local Authorities, and subject to WG grant in aid) which are or will in future cause coastal squeeze. The SMPs identify the most sustainable approach to managing the flood and coastal erosion risks to the coastline in the short medium and long term. Although SMPs have been adopted by Local Authorities and are referred to in planning policy and guidance, the implementation of SMPs is often problematic, especially where there has been a change in policy from 'hold the line' to 'no active intervention' or 'managed realignment'. Unless works to maintain a defence require regulation such as a marine licence, there is no specific driver to promote SMP implementation. Failure to implement the Shoreline Management Plans or to create new saltmarsh within timescales adequate to allow for development of new habitats prior to losses occurring could lead to declines in the extent of this feature. The coastline of the Pen Llyn a'r Sarnau SAC has been modified and reshaped by coastal defences which protect land claimed for agriculture and development including transport links. They constrict natural processes such as channel movements and tidal inundation. Other defences prevent natural erosion causing declines in sediment. Therefore, the 'natural' processes upon which this feature depends are compromised. The clear majority of these changes were made prior to the designation the Pen Llyn a'r Sarnau SAC however, estuaries and shorelines continue to respond to these changes. Although the whole of this feature is within the protected sites series pressures remain such as pollution and coastal defences which continue to affect the typical species and other aspects of structure and function of this feature. |
| 11.1 Surface area of the habitat type inside the pSCIs, SCIs and SACs network | This feature is confined to the Pen Llyn a'r Sarnau SAC and the Morfa Harlech a Morfa Dyffryn SAC but is not a recognised feature of either of these sites. |
| 11.4 Short term trend of habitat area in good condition within the network; Direction | The extent and condition of this feature has not been assessed since the baseline survey in 2003 (Prosser and Wallace 2004). |
| 11.5 Short term trend of habitat area in good condition within the network; Method used | The condition of this feature has not been formally assessed at any of its Welsh localities. |