European Community Directive
on the Conservation of Natural Habitats
and of Wild Fauna and Flora
(92/43/EEC)

Second Report by the United Kingdom under Article 17

on the implementation of the Directive from January 2001 to December 2006

Conservation status assessment for :

H3130: Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea*

H3130 Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea*

Audit trail compiled and edited by JNCC and the UK statutory nature conservation agencies Freshwater Lead Coordination Network.

This paper and accompanying appendices contain background information and data used to complete the standard EC reporting form (Annex D), following the methodology outlined in the commission document "Assessment, monitoring and reporting under Article 17 of the Habitats Directive, Explanatory Notes and Guidelines, Final Draft 5; October 2006". The superscript numbers below cross-reference to the headings in the corresponding Annex D reporting form. This supporting information should be read in conjunction with the UK approach for habitats (see 'Assessing Conservation Status: UK Approach').

1. National-biogeographic level information

1.1 General description and correspondance with National Vegetation Classification (NVC) and other habitat types

Table 1.1.1 provides a summary description of H3130 and its relations with UK classifications.

Types of lake associated with this habitat are of low to moderate alkalinity and nutrient concentrations, and support characteristic assemblages of plant species. The vegetation community is characterised by amphibious, short, perennial vegetation, with shoreweed *Littorella uniflora* being considered as the defining component. This species often occurs in association with water lobelia, *Lobelia dortmanna*, bog pondweed, *Potamogeton polygonifolius*, quillwort, *Isoetes lacustris*, bulbous rush, *Juncus bulbosus*, needle spike-rush, *Eleocharis acicularis*, alternate water milfoil, *Myriophyllum alterniflorum* and floating water bur-reed, *Sparganium angustifolium*. Yellow water-lily, *Nuphar lutea*, amphibious bistort, *Persicaria amphibia*, stoneworts, *Chara* and *Nitella* spp., least bur-reed, *Sparganium natans*, and other pondweeds, *Potamogeton* spp., may be present in more mesotrophic conditions. The marginal components of this community can be exposed on the shores of lakes during summer.

Most of the above species are common components of the aquatic flora of standing waters in the upland regions of the north-west of the UK. The Annex II species, floating water-plantain, *Luronium natans* (S1831), and slender naiad, *Najas flexilis*, are nationally scarce plants that occur in this plant assemblage. Although *L. natans* is not native to Scotland, so would not be expected to occur frequently there, it is strongly associated with lakes of this type in Wales. The nationally rare Shetland pondweed, *Potamogeton rutilus* and slender naiad are associated with the mesotrophic end of this habitat type, but only in Scotland. Pipewort, *Eriocaulon aquaticum*, is also found only in Scotland, but is associated with the nutrient poor end of the spectrum. The nationally scarce pillwort, *Pilularia globulifera*, is found in oligotrophic to mesotrophic standing waters in lakes in England, Northern Ireland, Scotland and Wales.

Salmonids (including Arctic charr), and whitefish are found in lakes of this type.

Habitat 3130 is comprised of both oligotrophic and mesotrophic waters, and includes intermediate types. While each type supports a characteristic plant community, the range of conditions to be expected in this habitat type is broad. Substrates of oligotrophic to mesotrophic waters include silt, sand, gravel, stones and boulders. In the UK, standing waters qualifying for habitat H3031 are classified within lake groups B, C1, C2, D and E in the revised classification of British lakes (Duigan *et al*. 2006). In an earlier

classification of British standing waters, oligotrophic to mesotrophic lakes were defined as types 2, 3, 4 and 5 (Palmer *et al*. 1992).

Table 1.1.1 Summary description of habitat H3130 and its relations with UK vegetation/habitat classifications

Classification	Correspondence with Annex I type	Comments
EU Interpretation Manual	22.12 x 22.31 - aquatic to amphibious short perennial vegetation, oligotrophic to mesotrophic, of lake, pond and pool banks and water-land interfaces belonging to the *Littorelletalia uniflorae* order. 22.12 x 22.32 - amphibious short annual vegetation, pioneer of land interface zones of lakes, pools and ponds with nutrient poor soils, or which grows during periodic drying of these standing waters: *Isoeto*-Nanojuncetea class.	PAL.CLASS: Palaearctic codes from the classification of Palaearctic habitats, based upon the CORINE classification.
CSM reporting categories	For SACs, the corresponding Annex I habitat is identified as H3130. For ASSI/SSSIs, the closest corresponding feature categories as used for 2006 reporting to JNCC are: oligotrophic, oligo-mesotrophic, mesotrophic, trophic range (part).	Further efforts are being made to reclassify SSSI feature names, to match the Annex I habitat types. Owing to limitations of citations, a number of lakes may have been misclassified as other types. There is likely to be a degree of overlap of oligotrophic with oligotrophic waters of sandy plains, oligotrophic and dystrophic types, mesotrophic and hard oligotrophic to mesotrophic water bodies.
Water Framework Directive Lake Typology	Low Alkalinity (LA) and Medium Alkalinity (MA).	Oligotrophic water bodies correspond with LA lakes, whilst mesotrophic waters relate to MA lakes.
British Lakes Classification (Duigan *et al*., 2006)	Lake groups: B, C1, C2, D and E.	Groups B, C1 and C2 represent oligotrophic waters. Groups D and E contain a number of oligotrophic waters, but mainly mesotrophic water bodies. Formerly, the lake Types covering these water bodies were 2,3,4 and 5 (Palmer *et al*. 1992).
Phase 1 Habitat Classification	G1.2 Standing water: mesotrophic (part). G1.3 Standing water: oligotrophic (part).	
BAP	Broad reporting category: Standing open water and canals. Priority habitat type: mesotrophic lakes.	Mesotrophic lakes in GB have been identified using botanical information, alkalinity/geology and estimated/actual total phosphorus levels. Presently there is no oligotrophic lakes HAP – UK conservation and environmental agencies have expressed the requirement for a HAP for nutrient poor standing waters.

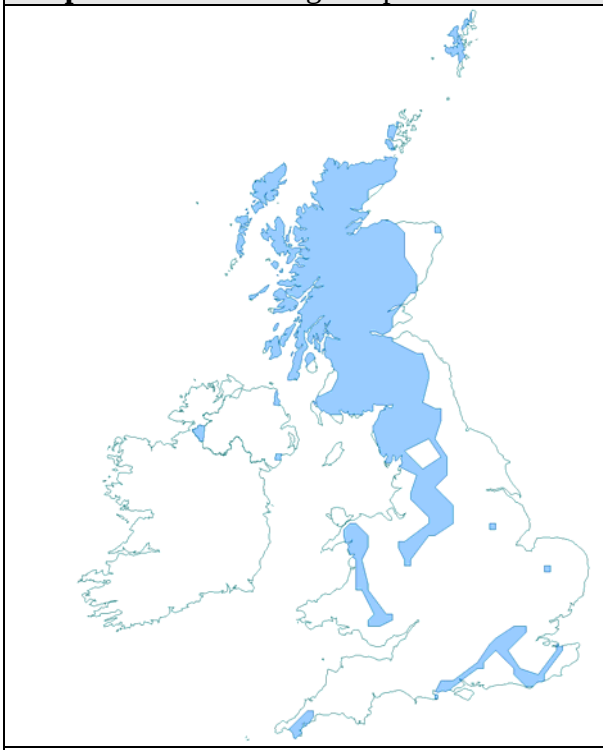
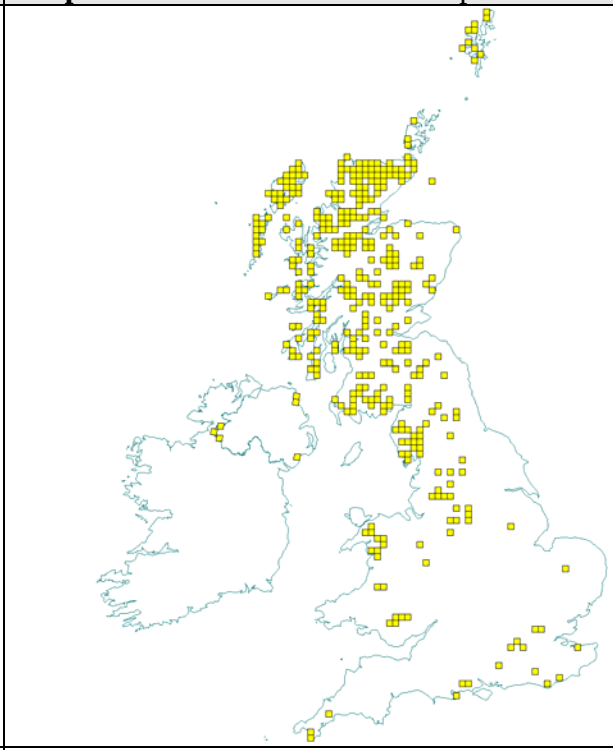
2. Range [2.3]

2.1 Current range

Range surface area [2.3.1]: 95,334 km²

Date calculated [2.3.2]: **May 2007**
Quality of data [2.3.3]: **Moderate**

Maps 2.1.1 and 2.1.2 show the range and distribution of H3130 in the UK. H3130 lakes were identified according to existing UK Lakes criteria for identifying trophic status. These use a combination of chemical, floristic and palaeolimnological modelled data to establish likely trophic status of each lake. This habitat type occurs in the majority of EU Member States and is relatively abundant in the more mountainous areas of Europe. In the UK, it is widespread and frequent in the north and west; it also occurs more rarely elsewhere. The majority of the resource is in Scotland, but lakes of this type are also found in England, Northern Ireland and Wales. In Scotland, most oligotrophic sites are situated to the north of the Highland Boundary Fault, whilst mesotrophic types are more likely to be found in the central lowlands, the lowland east, and on the Northern and Western Isles. In England and Wales, Habitat H3130 is most often found in the north and west. In Northern Ireland, lakes of this type also tend to be situated towards the west.

Map 2.1.1 Habitat range map [1.1] for H3130	**Map 2.1.2** Habitat distribution map [1.2] for H3130
	
Range envelope shown in blue/grey shade in above map is a minimum convex polygon constructed using JNCC Alpha Shapes tool (see Technical note I for details of methodology).	Each yellow square represents a 10x10km square of the National Grid and shows the known and/or predicted occurrence of this habitat. 10-km square count: 387

See Section 7.1 for map data sources

2.2 Trend in range since c.1994

Trend in range[2.3.4]: **Stable**
Trend magnitude[2.3.5]: **Not applicable**
Trend period[2.3.6]: **1994-2006**
Reasons for reported trend[2.3.7]: **Not applicable**

Lakes are rarely 'lost' in the conventional sense, although small water bodies may be in-filled or drained. However, many lakes have been severely degraded to the extent that they no longer support characteristic plant or animal communities. As a consequence area and range assessments show no significant change over time in spite of nutrient enrichment. Degraded sites are not considered lost because of the way in which lake types are defined. The range of H3130 is considered to have been broadly stable since 1994.

2.3 Favourable reference range [2.5.1]

Favourable reference range: 95,334 km^2

Section 3.2.1.3 of 'Assessing Conservation Status: UK Approach' sets out how favourable reference range estimates for habitats have been determined in the UK. Based on this approach, the current surface area, 95,334 km^2, has been set as the favourable reference area. Reasons for this are discussed below.

The natural (historical or potential) range of this habitat in the UK is influenced by many factors, including geomorphology, geology, soils, climate and hydrology. The occurrence of a higher concentration of oligotrophic waters to the north and west is related to the dominance of fluvio-glacial features, nutrient-poor geology and soils, and high rainfall. Oligotrophic waters occur from low to high altitude, whereas mesotrophic waters are generally associated with lowland areas and slightly richer solid or drift geology. Oligotrophic waters are associated with catchments incorporating acid/base-poor rock types, such as granite, schists and gneisses. They may also be found in peaty areas. Mesotrophic waters are associated with geology of an intermediate nature, such as old red sandstone, or a component of base-rich geology, such as limestone, or glacial drift deposits.

The potential range of this habitat is large, as it incorporates such a wide range of conditions, from lakes with extremely low nutrient and alkalinity levels, with few species and low productivity, to lakes with moderate nutrient and alkalinity levels, high numbers of species, and moderate productivity. Historically, the range of this habitat type has decreased – a number of small water bodies in south east England has been lost. More commonly, there has been a downgrading of examples of this habitat. The habitat is most likely to have been destroyed in small water bodies, which may have been drained to provide land for e.g. agriculture or development. In-filling and encroachment may also have occurred in small lakes. However, a proportion of the resource has been degraded because of nutrient enrichment (or acidification). The affected water bodies do not necessarily constitute a loss in this habitat type, as restoration may be possible.

The range covers a large part of the UK, and is not considered to be scarce. While in Scotland and northern England the range and distribution therein are not overly fragmented, the component in southern England and Wales is very fragmented and quite scarce. Losses of lakes in this area could lead to a contraction in range.

2.4 Conclusions on range

Conclusion[2.6.i]: Favourable

The range of H3130 is likely to have remained relatively stable, and sufficient examples of the habitat remain to allow for the long-term survival of the habitat, but action is required to improve the lakes which have been downgraded, particularly in designated sites in England and Wales, to ensure that there are good quality examples of the habitat throughout its natural range.

3. Area [2.4]

3.1 Current area

Total UK extent [2.4.1]: 1,500 km^2
Date of estimation [2.4.2]: May 2007
Method [2.4.3]: 1 = only or mostly based on expert opinion
Quality of data [2.4.4]: Poor

Table 3.1.1 provides information on the area of H3130 in the UK.

Note that surface area is an inadequate variable to describe the standing water habitat, as it takes no account of depth, volume, flushing rate, area of substrate available for colonisation by macrophytes, nor the fact that management anywhere in the catchment may affect the entire habitat of the lake. The latter is more relevant to lakes than to terrestrial habitats. In addition, other than in terms of viability, area is not generally a consideration when assessing the value of individual lakes. These factors result in standing waters normally being discussed in terms of number of lakes, rather than area of surface water. A further complication related to using areal data from Scottish Special Area of Conservation (SAC) or Site of Special Scientific Interest (SSSI) assessments is that generally, only one lake per SSSI (whether underpinning SAC or not) was examined. If a lake was found to be in unfavourable condition, the site was also described this way. However, this means that in sites with more than one lake per feature, it cannot be assumed that the entire area of the qualifying feature within the site is in unfavourable condition.

There are no comprehensive data available for the extent of this habitat type in England, Scotland and Wales. The figure provided for total UK extent is an estimate based on expert opinion. For Northern Ireland, comprehensive data are available from the Northern Ireland Lake Survey (Wolfe-Murphy *et al*. 1992)

The area of H3130 is difficult to estimate, due to the large number of lakes involved, and the overlap of the oligotrophic to mesotrophic habitat, with other habitat types. Without data on individual sites, it is difficult to estimate which lakes are oligotrophic, as opposed to dystrophic (H3160), or oligotrophic waters of sandy plains (H3110). Similarly, it is difficult to separate mesotrophic waters from hard oligotrophic to mesotrophic lakes (H3140).

During Biodiversity (BAP) reporting in 2005, the mesotrophic lakes Habitats Action Plan (HAP) estimated that there were 644 mesotrophic standing waters in England, 1749 in Scotland and 76 in Wales. There was no estimate for Northern Ireland, but from this information, it is evident that there were >2469 in the UK. Subsequently, further work has been undertaken through the HAP targets review process (this work has been ongoing - see UKBAP website for latest estimates of numbers of sites). Lakes were classified on the basis of flora, geology/alkalinity and estimated/actual total phosphorus concentrations.

Table 3.1.1 Area of H3130 in the UK

	Area (ha)	**Method** [2.4.3]	**Quality of data** [2.4.4]
England	Present	-	-
Scotland	Present	-	-
Wales	Present	-	-
Northern Ireland	2450	3	Moderate
Total UK extent [2.4.1]	150,000	1	Poor

Method used to estimate the habitat surface area: 1 = only or mostly based on expert opinion; 2 = based on remote sensing data; 3 = ground based survey. Only the most relevant class is given if more than one applies.
Quality of habitat surface area data: 'Good' e.g. based on extensive surveys; 'Moderate' e.g. based on partial data with some extrapolation; 'Poor' e.g. based on very incomplete data or on expert judgement
Data source: Freshwater Lead Co-ordination Network, JNCC; Wolfe-Murphy *et al*. (1992); Palmer & Roy (2001a,b).

3.2 Trend in area since c.1994

Trend in area[2.4.5]**:** **Unknown**
Trend magnitude[2.4.6]**:** **Not applicable**
Trend period[2.4.7]**:** **1994-2006**
Reasons for reported trend[2.4.8]**:** **Not applicable**

Lakes are rarely 'lost' in the conventional sense, although small water bodies may be in-filled or drained. However, many lakes have been severely degraded to the extent that they no longer support characteristic plant or animal communities. As a consequence area assessments show little significant change over time in spite of nutrient enrichment. Degraded sites are not considered lost because of the way in which lake types are defined.

There may have been losses of lakes or ponds, which could have been offset by creation of water bodies on adequate substrate. It is possible that the area of individual lakes in some areas has been reduced through drainage and water abstraction.

Historically there has been no systematic monitoring of lakes in the UK. Recently (post 2005) the introduction of Common Standards Monitoring (CSM) protocols has driven a programme of SAC and SSSI lake monitoring using a single consistent method. These data are insufficient to estimate trends in area since 1994.

3.3 Favourable reference area

Favourable reference area[2.5.2]: Unknown

Oligotrophic waters occur from low to high altitude, whereas mesotrophic waters are generally associated with lowland areas and slightly richer solid or drift geology. Oligotrophic waters are associated with catchments incorporating acid/base-poor rock types, such as granite, schists and gneisses. They may also be found in peaty areas. Mesotrophic waters are associated with geology of an intermediate nature, such as old red sandstone, or a component of base-rich geology, such as limestone, or glacial drift deposits.

There is insufficient data to reach any judgement on viability for this habitat in terms of area. The viability of this habitat type within the UK is largely dependent on the current and future condition of structures and functions; this is discussed in detail in Section 4.

3.4 Conclusions on area covered by habitat

Conclusion[2.6.ii]: Unknown

Accurate information on which waters fall within this habitat type is not available due to the lack of data on individual lakes and the inadequacy of predicting lake types remotely. Although it may be assumed that there has been a reduction in area historically, presently, the problem faced is of degradation, rather than loss. Existing data on H3130 is considered insufficient to assess a trend in area since 1994 and to determine if the area is viable.

4. Specific structures and functions **(including typical species)**

4.1 Main pressures [2.4.10]

Although a small number of oligotrophic SSSIs are in unfavourable condition, it should be noted that there are many oligotrophic waters which have not been examined, but which are likely to be in good condition, as a consequence of their distance from populated areas. However, the results on SSSIs with mesotrophic features show that a significant proportion of sites of this type are in unfavourable condition. It is therefore likely that the mesotrophic lakes in the wider countryside would be similarly or more at risk. Mesotrophic waters tend to be in more intensive agricultural catchments and closer to centres of population, which results in a greater risk of adverse anthropogenic impacts.

The most common reasons for unfavourable condition occurring are nutrient enrichment, colonisation by invasive, non-native species, and alteration of hydrological regime. Acidification remains an issue in sensitive areas, where recovery may take 50 to 100 years. Whilst a reduction in SOx has been achieved, NOx pollution continues and there may be considerable impacts associated with this for oligotrophic,

upland waters. Information on deposition of air pollutants is available from Air Pollution Information System (APIS) (2004). At some sites, recreation – particularly angling – is problematical.

- Nutrient enrichment (**421 disposal of household waste, 952 Eutrophication**)

In Scotland, the size of the oligotrophic resource is large and many oligotrophic waters are situated far from large centres of population, in areas where agricultural activities are limited. However, nutrient enrichment is occurring in many lakes in the UK. Considering mesotrophic lakes, there is a relatively limited resource of this type of water body, and mesotrophic waters are more likely to be close to large centres of population and/or situated in more intensely managed land.

The unfavourable condition of habitat 3130 is most often related to increases in nutrient concentrations. However, adverse changes in ecology may be reversible. It is therefore spurious to refer to lakes which have undergone eutrophication as lost, though the degree to which restoration of the oligotrophic or mesotrophic habitat is practical, or desirable, varies on a lake by lake basis. Referring to impacted sites as lost should be discouraged, as this may lead to acceptance of poor condition.

Whilst much has been achieved in tackling major point sources of pollution, many sites continue to suffer from nutrient enrichment from diffuse pollution sources, such as agriculture and small point sources such as septic tanks. Fish stocking may also put pressure on lake systems. However, improvements are expected through progress with the requirements of the Urban Waste Water Treatment Directive, Nitrates Directive, Water Framework Directive (WFD) and Land Management Contracts, in addition to actions which should be taken because CSM has indicated that there are problems at certain sites. In Scotland, septic tanks now require registration with the regulatory authority. Registration does not in itself have environmental benefits, but if necessary, the level of authorisation can be increased to licensing. Diffuse pollution from agricultural sources will be tackled using a combination of River Basin Management Planning, General Binding Rules, localised further controls and Land Management Contracts. However, enforcement is likely to remain problematical.

- Invasive non-native species (**954 invasion by a species, 971 competition**)

Invasive species are a particular problem, as once present in a water body, they may be impossible to eradicate. When an invasive species first enters a freshwater system, there is often a rapid increase in its biomass, at the expense of native flora. The problem may be exacerbated by nutrient enrichment. In a number of waters, following initial explosive growth, less invasive non-natives, such as *Elodea nuttallii* or *Elodea canadensis*, may become only a small part of the macrophyte community. However, particularly invasive species, such as *Crassula helmsii*, may remain dominant in a lake, and presently there is no effective means of controlling this species.

In England, most spread of *Crassula helmsii* is from existing populations. In Scotland, it is suspected that *Crassula helmsii* is being spread through contamination of stock at retail outlets, rather than the species necessarily being bought deliberately, but as the number of populations increases, so does the likelihood of further spread.

- Hydrology (**853 Management of water levels, 890 Other human induced changes in hydraulic conditions**)

Abstraction for potable water supply may have resulted in either an increase or decrease of extent of individual lakes, i.e. construction of an impoundment may increase the surface area and volume of a lake, whereas water use would decrease the extent of the water body. Similarly, hydroelectric schemes rely on impoundments and alter the hydromorphology of the water supply lake. Large changes in hydrological regime result in unfavourable conditions in lakes, but lakes used for potable supply or power generation may not be restorable, due to over-riding reasons of public interest. Judgements in this regard would be made on a case by case basis. Monitoring schemes for individual lakes may and have been set up at

potable supply lakes, in order to allow management to minimise the potential for harm. Another factor to consider is that there are lakes which support a good, representative flora, possibly including rare species, which are not completely natural in terms of hydromorphology, for which there may be a decrease in conservation value through a return to natural conditions. In such cases, there would not necessarily be an agenda of restoration, and the lake may be described as being in favourable condition with respect to its time of designation. Water abstraction for irrigation generally occurs where land-use is more intensive and loss of lake volume may be concurrent with enrichment from agricultural catchment areas.

- Air pollution (**702 air pollution**)

Based on an assessment of relevant literature, this habitat is potentially sensitive to air pollution, but it has not been possible to undertake an assessment of potential impact based on critical loads because of the poor equivalence between this habitat and those for which critical loads are set (see Technical note II).

4.2 Current condition

4.2.1 CSM condition assessments

Condition assessments based on CSM (see http://www.jncc.gov.uk/page-2199) provide a means to assess the structure and functioning of H3130 in the UK. The following attributes were examined for all CSM assessments relevant to the habitat:

- Extent.
- Composition of macrophyte community.
- Macrophyte community structure.
- Water quality.
- Hydrology.

The condition of structures and functions of the oligotrophic to mesotrophic habitats has been assessed, by the UK statutory conservation bodies, in lakes in SACs and SSSIs. Lakes in the wider countryside may have been examined in individual projects, or by other organisations, particularly if there is a pressure on the resource in lakes of interest. However, the number of lakes assessed in the wider countryside is small, relative to the size of the resource.

Oligotrophic to mesotrophic standing water features (H3130) of SACs and SSSIs were assessed according to targets related to structure and function, documented in the CSM Guidance (JNCC 2006). To be in favourable condition, a lake must meet presence and frequency of occurrence targets for characteristic species. Non-native invasive plants must be present at low frequency (or be absent). Zonation, maximum depth distribution and structure should be maintained. In addition, there should be no loss of extent of habitat, in individual water bodies. Characteristic water quality, hydrology, substrate and sediment should be maintained. In SSSIs, there is also an aim to maintain local distinctiveness, i.e. aspects of an individual water body, which are particular to it, and of conservation value, e.g. rare species.

SAC condition assessments

According to information from JNCC on SACs designated for their oligotrophic to mesotrophic standing water features, there are five sites in England, three sites in Northern Ireland, 32 sites in Scotland and seven sites in Wales. This includes sites for which the habitat H3130 is not the primary reason for site selection. All sites in England and Wales, and 30 in Scotland, were assessed under the CSM programme. Results are not yet available from Northern Ireland. Of the sites assessed, four sites in each of England and Scotland were in unfavourable condition, as were six sites in Wales. Across the UK, of the sites examined, seven were classed as unfavourable no change, but seven were unfavourable recovering. Note that in sites where there is more than one lake representing the qualifying feature, it requires only one of those water bodies to be in unfavourable condition, for the whole site to be described as being in unfavourable condition.

Table 4.2.1 CSM condition assessment results for UK SACs supporting H3130. See notes below table for details. Information on the coverage of these results is given in Section 7.2

Condition	Condition sub-categories	Area (ha)	Number of site features
Unfavourable	Declining		
	No change	2,877	5
	Unclassified	60	1
	Recovering	1,106	7
	Total	4,043	13
	% of all assessments	***20%***	***31%***
	% of total UK resource	***3%***	***unknown***
Favourable	Maintained	15,580	26
	Recovered		
	Unclassified	353	3
	Total	15,934	29
	% of all assessments	***80%***	***69%***
	% of total UK resource	***11%***	***unknown***

Notes

1. Data on features that have been partly-destroyed have been excluded from this table because they are not relevant to the consideration of present condition.
2. The data included are from CSM assessments carried out between April 1998 and December 2006. NB: these include additional and some up-date data form those used in the six year report produced by JNCC. (Williams, J.M., ed. 2006. *Common Standards Monitoring for Designated Sites: First Six Year Report*. Peterborough, JNCC).
3. Only assessments made for qualifying interest features on SAC have been included in this analysis.
4. Area figures for CSM assessments have been calculated using the data presented on the standard Natura 2000 data forms submitted to the EU.

Table 4.2.1 and Map 4.2.1 summarise the CSM condition assessments for UK SACs supporting habitat H3130. These data were collated in January 2007. The maps give an impression of the overall spread of where unfavourable and favourable sites exist (summary statistics for the map are given in Section 7.2). The combined assessments show that of the SACs assessed:

- 20% of the area and 31% of the number of assessments was unfavourable; and
- at least 3% of the total UK habitat area was in unfavourable condition.

Table 4.2.2 and Maps 4.2.2 and 4.2.3 summarise the CSM condition assessments that were judged to be either strongly or weakly indicative of the condition of the Annex I habitat on SSSI/ASSIs. This was based on expert sub-setting of SSSI data in each country agency. These data were collated in January 2007. The maps give an impression of the overall spread of where unfavourable and favourable sites exist (summary statistics for the maps are given in Section 7.2). The combined condition assessments show that of the SSSI/ASSI assessments considered:

- 0% of strongly indicative assessments and 27% weakly indicative assessments were unfavourable.

Table 4.2.2 CSM condition assessment results for UK SSSI/ASSIs that were judged to be either strongly or weakly indicative of the condition of H3130 on SSSI/ASSIs. See notes below table and Technical note II for further details

Condition	Condition sub-categories	Number of assessments	
		Strongly indicative assessments (Category 1)	Weakly indicative assessments (Category 2)
Unfavourable	Declining		12
	No change		7
	Unclassified		
	Recovering		2
	Total		21
	% of all assessments	***0%***	***27%***
Favourable	Maintained	6	56
	Recovered		
	Unclassified		
	Total	6	56
	% of all assessments	***100%***	***73%***

Notes

1. Data on features that have been partly-destroyed have been excluded from this table because they are not relevant to the consideration of present condition.
2. The data included are from CSM assessments carried out between April 1998 and December 2006.

SSSI/Area of Special Scientific Interest (ASSI) condition assessments

Most lake SACs in Scotland are underpinned by SSSIs with the same feature. In order to provide additional information on oligotrophic to mesotrophic waters of SSSIs alone, it would be necessary to view only the results from SSSIs which do not underpin SACs. The features would then require checking, to ensure they correspond with the SAC habitat type. In Scotland, SSSI features which should conform to the H3130 habitat type are oligotrophic loch, oligo-mesotrophic loch and mesotrophic loch, though as discussed, there are problems of overlap of a number of different types. A number of lochs of these feature types are in unfavourable condition, and the majority of these have been classed as unfavourable declining.

In Scotland, selecting only feature names of oligotrophic, oligo-mesotrophic and mesotrophic, 81 SSSIs were assessed. This does not take account of any sites which may be oligotrophic to mesotrophic but which have been assigned different feature names. As indicated above, there is 'double-accounting', as in many sites, the same lake will have been surveyed to report on both SSSI and SAC. Of 44 sites for which there was a feature name of oligotrophic or oligo-mesotrophic loch, six were in unfavourable condition, four of which were SSSI features only. In the assessment of 37 mesotrophic loch sites, nine were unfavourable declining (including one SAC) and five were unfavourable no change (including no SACs). In summary, 17 sites which were SSSIs only were in unfavourable condition. In Wales, seven SSSIs were examined, and all were in unfavourable condition. In England SSSI data are available on an area basis rather than by lake; sites in unfavourable condition accounted for 83% of the area of resource assessed. A significant proportion of the resource in the UK is therefore in unfavourable condition.

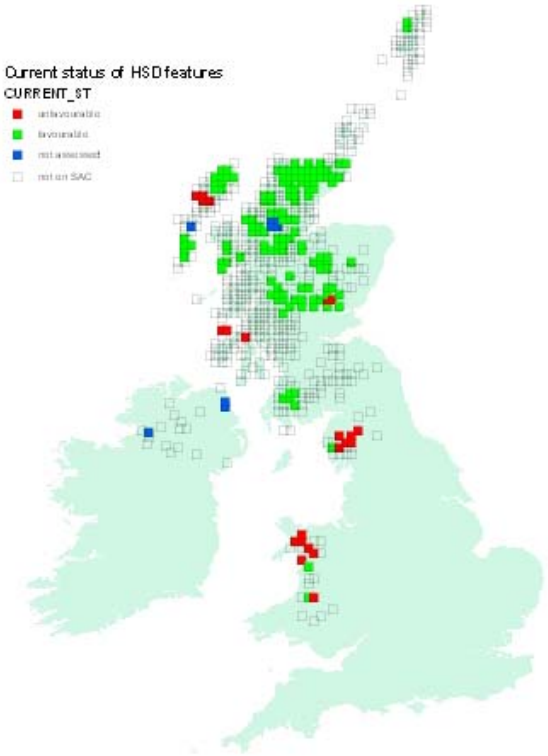
Wider countryside assessment

Risk assessments undertaken as part of the characterisation process for WFD purposes provide information on pressures on all lake types across the UK, and monitoring has been instigated to support this. However, characterisation did not include small water bodies, and was closely related to the SAC series, i.e. data on the wider countryside are limited. Prior to implementation of WFD-related monitoring, the UK's statutory environmental agencies monitored the water chemistry of certain lakes, particularly those receiving discharges consented under the Control of Pollution Act 1974. The WFD is intended for the protection of all lakes, and in Scotland, work has been undertaken to transfer consents under the Control of Pollution Act 1974 to consents under the Controlled Activities Regulations (CARs) (see

Section 5). However, in general, monitoring effort has been targeted at a relatively small number of sites where there are known problems, or where the water body has a high public profile. For the purposes of HAP reporting, in 2002 and 2005, the data used were limited to those collected by the statutory environmental and conservation agencies, through other drivers, though a small number of lakes are now included in a HAP Environmental Improvement Plan. In summary, outwith the limited programmes of CSM of designated sites and WFD monitoring schemes, few additional lakes are covered.

WFD-related risk assessments referred to all types of standing water body, not only to oligotrophic to mesotrophic lakes. Of 309 standing waters in the Scotland River Basin District (RBD), 167 were at risk (54.1%). The reasons for this were changes in morphology (37%), abstraction and flow regulation (34%), diffuse pollution (17%), point source pollution (11%) and alien species (1%). Of 32 lake water bodies assessed in the Solway-Tweed RBD, 21 (65.6%) were judged to be at risk. The reasons for this were again, changes in morphology (33%), abstraction and flow regulation (27%), diffuse pollution (31%), point source pollution (5%) and alien species (5%). Pressures are similar throughout the UK.

Current Condition of H3130 based on CSM condition assessments (See Sections 4.2 and 7.2 for further information)

Map 4.2.1 SAC assessments	**Map 4.2.2** Assessments strongly indicative of the condition on SSSI/ASSIs	**Map 4.2.3** Assessments weakly indicative of the condition on SSSI/ASSIs
		
Key Red = unfavourable, i.e. the square contains at least one SAC where this habitat feature is present and has been judged to be unfavourable Green = favourable, i.e. the square contains at least one SAC where this habitat feature is present and has been assessed as favourable but there are no unfavourable SAC features Blue = SAC not assessed, i.e. the square contains at least one SAC supporting this habitat feature but no assessment has been reported Transparent = SAC feature not present, i.e. the square does not contain any SAC features of this habitat type	Key* Green – 80 – 100% of assessed features on 10km square are favourable Yellow - 50 – 80% of assessed features on 10km square are favourable Orange - 20 – 50% of assessed features on 10km square are favourable Red - 0 – 20% of assessed features on 10km square are favourable *This is the same key as was used for JNCC CSM Report 2006	

4.3 Typical species[2.5.3 and 2.5.4]

Typical species[2.5.3]: None used

Typical species assessment[2.5.4]: Not applicable

The characteristic plants listed in EU Interpretation Manual are *Littorella uniflora*, *Luronium natans*, *Potamogeton polygonifolius*, *Pilularia globulifera*, *Juncus bulbosus* ssp. *bulbosus*, *Eleocharis acicularis*, *Sparganium natans*. The typical species in oligotrophic to mesotrophic standing waters in the UK are presented in the CSM Guidance (JNCC 2006): *Littorella uniflora*, *Lobelia dortmanna*, *Isoetes lacustris*, *Isoetes echinospora*, *Subularia aquatica*, *Sparganium angustifolium*, *Luronium natans*, *Elatine hexandra*, *Baldellia ranunculoides*, *Potamogeton gramineus*, *Potamogeton perfoliatus*, *Potamogeton alpinus*, *Potamogeton* x *nitens*, *Potamogeton praelongus*, *Potamogeton rutilus*, *Najas flexilis*, *Pilularia globulifera*, *Utricularia* species and *Nitella* species.

Assessing the significance of changes in these species is problematic as there is little information regarding their faithfulness to H3160.

Table 4.3.1 Trends and faithfulness of selected typical species for H3130

Typical species	Faithfulness to habitat H3130 (based on analysis of NVC synoptic tables)	Trend over last 25 years from BSBI atlas – based on change in 10 km square occupancy across UK (see http://www.jncc.gov.uk/page-3254)
Littorella uniflora	No information	Significant increase, but <25% in 25 years
Lobelia dortmanna	No information	Significant increase, but <25% in 25 years
Potamogeton alpinus	No information	Significant increase, but <25% in 25 years
Potamogeton gramineus	No information	Significant increase, of >=25% in 25 years
Potamogeton praelongus	No information	Significant increase, of >=25% in 25 years
Potamogeton perfoliatus	No information	Significant increase, but <25% in 25 years

Typical species of oligotrophic to mesotrophic standing waters were examined as the major part of habitat assessments in CSM, the results of which were considered in a) and b) above. All species characteristic of oligotrophic to mesotrophic standing waters in the UK were recorded during CSM of standing water features of SACs and SSSIs. Further information, on occurrence of species, and degree of stability of species, is presented in the *New Atlas of the British and Irish Flora* (Preston *et al*. 2002), as follows. However, due to the overlapping nature of different habitats, these records are not all related to oligotrophic to mesotrophic lakes (H3130). The isoetids, which are strongly associated with the oligotrophic part of this habitat's range, i.e. *Littorella uniflora*, *Lobelia dortmanna*, *Isoetes lacustris*, *Isoetes echinospora* and *Subularia aquatica*, all suffered losses before the 1930s. There has been relative stability since 1962, but there has been decline in lowland sites, particularly towards the eastern and southern edges of the ranges of these species. *Pilularia globulifera* was also lost from many sites before the 1930s, and loss continues. On examination of records of *Potamogeton* species from the mesotrophic end of the spectrum, *P. alpinus*, *P. gramineus*, *P. praelongus*, *P. perfoliatus* and *P.* x *nitens*, decreases were apparent before the 1930s. Presently, records are relatively stable, but there have been losses since 1962, particularly in the southern part of the range of these species.

4.4 Conclusions on specific structures and functions (including typical species)

Conclusion[2.6.iii]: Unfavourable – Inadequate

The EC Guidance states that where the specific structures and functions of a habitat are intermediate between "good with no significant pressures" and "bad with more than 25% of the area of the habitat area unfavourable as regards its specific structures and functions", the conclusion should be Unfavourable –

Inadequate. In the UK, this was generally taken to mean that 5-25% of the habitat area was in unfavourable condition.

The majority of sites assessed were in favourable condition and it is assumed that the majority of the oligotrophic resource in the wider countryside is in favourable condition. However, a significant proportion of oligotrophic to mesotrophic SSSIs were in unfavourable condition, including some sites which were also SACs and therefore expected to be good examples of the habitat. As lakes in designated sites are in unfavourable condition, it would be assumed that there are lakes in the wider countryside which are also degraded and in need of restoration, and there are data on a number of such lakes. Historically, there have been significant losses of species which are typical of oligotrophic to mesotrophic waters. Presently, there is relative stability in the resource of typical species, and sufficient numbers of colonised sites to ensure the continued presence of this habitat. However, there are areas in which there has been decline. It is considered likely that less than 25% of the UK resource is in unfavourable condition, but action is required in the eastern and southern parts of the UK, from which losses continue.

5. Future prospects

5.1 Main factors affecting the habitat

5.1.1 Conservation measures

- Protection within designated sites

Part of the resource of H3130 lies within SACs with management measures specifically aimed at maintaining and enhancing the features for which they are designated, and to address some of the pressures listed within section 4.1 and the future threats listed in section 5.1.2. A proportion of the resource of this habitat also lies within the SSSI/ ASSI series where similar management measures are in place.

- Water Framework Directive (WFD)

In addition to the drive for improvement generated by the SAC and SSSI network, the WFD is adding considerable impetus for widespread action on issues affecting the resource of this habitat such as abstraction licences and pollution. Considerable progress has been made in reducing the contribution of large waste water treatment works to nutrient loading but diffuse sources and the cumulative effect of small discharges continue to cause problems for many sites. Tackling these remaining nutrient sources will require a shift in land management practices and the regulatory regimes for small point sources. Pilot projects (such as ECSFDI, see Section 4.1) are beginning to demonstrate how such problems may be addressed but a step change is required before these solutions result in real ecological benefits on a broad scale. Measures currently being developed to deliver the WFD in the UK will have some benefit for H3150 beyond the SAC network but the net benefit of these measures may depend upon how widely there are applied outside of the very limited WFD ‘water body’ network.

In accordance with the WFD, SAC waters are in a protected sites register. Although the WFD has a size threshold of 50 ha for lakes, for characterisation, it is intended for the protection of all surface waters. In Scotland, although SSSIs are not included in the protected sites register, they will be considered in River Basin Management Plans. In addition, protection of oligotrophic to mesotrophic standing waters of SSSIs is likely to occur through the provisions of the Nature Conservation (Scotland) Act 2004, in which there is a duty for all public bodies to consider biodiversity, but also specific duties for SEPA in safeguarding the SSSI series, and in considering pollution, not only within boundaries of SSSIs, but also in the catchment areas of water features.

- CARs

The Water Environment and Water Services (Scotland) Act 2003 has led to the provisions of the Water Environment (Controlled Activities) (Scotland) Regulations 2005 (CARs), which allow for different levels of authorisation for engineering, abstraction and polluting activities, including septic tanks. There are also possibilities for reducing impacts of the built environment, through use of conditions and agreements in the Planning process.

It is proposed that diffuse agricultural pollution will be addressed in a similar manner to the processes involved with the CARs. There will also be Land Management Contracts and voluntary action. However, there will be challenges in ensuring compliance, particularly with the widespread General Binding Rules (GBRs). In a recent Scottish Executive consultation on proposed GBRs, conservation and environmental bodies judged these to be inadequate for the protection of aquatic environments. Septic tanks now require registration with the regulatory authority. Registration does not in itself have environmental benefits, but if necessary, the level of authorisation can be increased to licensing.

- UK BAP

The habitat is covered by the *Standing open waters and canals action plan* under the UK Biodiversity Action Plan (see http://www.ukbap.org.uk), as well as under country and local biodiversity action plans and strategies, with targets to maintain, improve, restore and expand the resource.

5.1.2 Main future threats[2.4.11]

Although a small number of oligotrophic SSSIs are in unfavourable condition, it should be noted that there are many oligotrophic waters which have not been examined, but which are likely to be in good condition, as a consequence of their distance from populated areas. However, the results on SSSIs with mesotrophic features show that a significant proportion of sites of this type are in unfavourable condition. It is therefore likely that the mesotrophic lakes in the wider countryside would be similarly or more at risk. Mesotrophic waters tend to be in more intensive agricultural catchments and closer to centres of population, which makes them more prone to human impacts.

WFD-related risk assessments referred to all types of standing water body, not only to oligotrophic to mesotrophic lakes. Of 309 standing waters in the Scotland River Basin District (RBD), 167 were at risk (54.1%). The reasons for this were changes in morphology (37%), abstraction and flow regulation (34%), diffuse pollution (17%), point source pollution (11%) and alien species (1%). Of 32 lake water bodies assessed in the Solway-Tweed RBD, 21 (65.6%) were judged to be at risk . The reasons for this were again, changes in morphology (33%), abstraction and flow regulation (27%), diffuse pollution (31%), point source pollution (5%) and alien species (5%). Pressures are similar throughout the UK.

The most obvious major future threats to H3130 are listed below, several of which are referred to in Section 4.1. The related EC codes are shown in brackets.

- Nutrient enrichment (**421 disposal of household waste, 952 Eutrophication**)

- Invasive non-native species (**954 invasion by a species, 971 competition**)

WFD will not necessarily deal with the problem of invasive non-natives and a coordinated approach is required. In Scotland, a number of invasive alien species has been added to Schedule 9 of the Wildlife and Countryside Act and presently, there is a Scottish Executive consultation which includes proposals to ban certain species from sale.

- Hydrology (**853 Management of water levels, 890 Other human induced changes in hydraulic conditions**)

- Air pollution (**702 air pollution**)

Based on an assessment of relevant literature, this habitat is potentially sensitive to air pollution, but it has not been possible to undertake an assessment of its potential future impact based on critical loads because of the poor equivalence between this habitat and those for which critical loads are set (see Technical note III). Acidification remains an issue in sensitive areas, where recovery may take 50 to 100 years. Whilst a reduction in SOx has been achieved, NOx pollution continues and there may be considerable impacts associated with this for oligotrophic, upland waters. Information on deposition of air pollutants is available from APIS (2004).

- Climate change (**853 Management of water levels**)

Based on the literature review (Technical note IV) climate change is considered a major threat to the future condition of this habitat especially in the long term. However, there is a high degree of uncertainty in defining future climate threats on habitats and species due to uncertainty in: future greenhouse gas emissions; the consequential changes in climatic features (for instance temperature, precipitation CO_2 concentrations); the responses of habitats and species to these changes (for instance location, phenology, community structure) and the role of other socio-economic drivers of environmental change. The scale of change in habitats and species as a result of climate change will vary across ecosystems. Small changes in the climate are more likely to have a substantial impact on habitats and species which exist within a narrow range of environmental conditions. The future impacts of climate change on UK biodiversity will be exacerbated when coupled with other drivers of environmental change.

5.2 Future condition **(as regards range, area covered and specific structres and functions)**

5.2.1 CSM condition assessments

The CSM condition assessments reported in Sections 4.2.1-2 provide a basis to predict the potential future condition of H3130 in the UK. This involved treating all assessments currently identified as either favourable or unfavourable recovering as future-favourable: remaining categories were treated as future-unfavourable – see Table 5.2.1.1. There are a number of caveats to this approach, which are set out beneath this table.

SAC condition assessments

Table 5.2.1 and Map 5.2.1 summarise the predicted potential future condition of H3130 on UK SACs. This is based on the approach described above. The maps give an impression of the overall spread of where future-unfavourable and future-favourable sites are predicted to occur (summary statistics for the map are given in Section 7.2). The combined assessments show that of the SACs assessed:

- 85% of the area and 86% of the number of assessments fall within the future-favourable category; and
- at least 11% of the total UK habitat area falls within the future-favourable category.

Table 5.2.1 Predicted future condition of UK SACs supporting H3130 based on current CSM condition assessments. See notes below table for details. Information on the coverage of these results is given in Section 7.2

Future condition	Present condition	Area (ha)	Number of site features
Future-unfavourable	Unfavourable declining		
	Unfavourable no change	2,877	5
	Unfavourable unclassified	60	1
	Total	2,937	6
	% of assessments	***15%***	***14%***
	% of total UK extent	***2%***	***Unknown***
Future-favourable	Favourable maintained	15,580	26
	Favourable recovered		
	Unfavourable recovering	1,106	7
	Favourable unclassified	353	3
	Total	17,039	36
	% of assessments	***85%***	***86%***
	% of total extent	***11%***	***Unknown***

Note that the scenario presented above is based on the same information as used to construct the Table in section 4.1. It is based on the following premises:
(i) the unfavourable-recovering condition assessments will at some point in the future become favourable;
(ii) all unfavourable-unclassified sites will remain unfavourable, which is probably overly pessimistic;
(iii) sympathetic management will be sustained on sites already classified as favourable and these will not be seriously damaged by any unforeseen events.
IMPORTANT NOTE: We do not have information on the timescale of the predicted recovery, which may be influenced by many past, natural and human related factors. A sustained, sympathetic management regime is more likely to result in 'favourable' condition being attained.

SSSI/ASSI condition assessments

Table 5.2.2 and Maps 5.2.2 and 5.2.3 summarise the predicted potential future condition of H3130 on UK SSSI/ASSIs. This is based on the approach described above and utilises condition assessments that were judged to be either strongly or weakly indicative of the condition of the Annex I habitat on SSSI/ASSIs (see Technical note II for details of methodology behind this). The maps give an impression of the overall spread of where unfavourable and favourable sites exist (summary statistics for the maps are given in Section 7.2). The combined condition assessments show that of the SSSI/ASSI assessments considered:

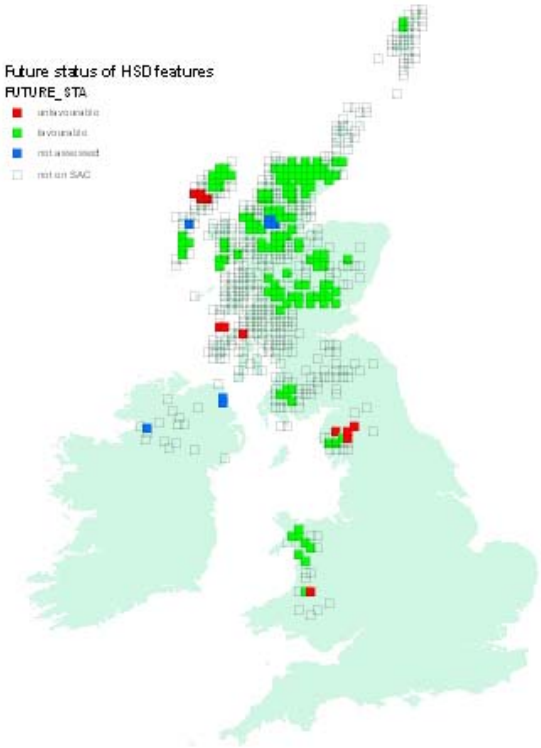
- 100% of strongly indicative assessments and 75% weakly indicative assessments fall within the future-favourable category.

Table 5.2.2 Predicted future condition of H3130 on SSSI/ASSIs based on CSM assessments that were judged to be either strongly or weakly indicative of the condition. See notes below table and Technical note II for further details

Future condition	Present condition	Number of assessments	
		Strongly indicative assessments (Category 1)	**Weakly indicative assessments (Category 2)**
Future-unfavourable	Unfavourable declining		12
	Unfavourable no change		7
	Unfavourable unclassified		
	Total		19
	% of assessments	***0%***	***25%***
Future-favourable	Favourable maintained	6	56
	Favourable recovered		
	Unfavourable recovering		2
	Favourable unclassified		
	Total	6	58
	% of assessments	***100%***	***75%***

Note that the scenario presented above is based on the same information as used to construct the Table 4.2.2. It is based on the following premises:
(i) the unfavourable-recovering condition assessments will at some point in the future become favourable;
(ii) all unfavourable-unclassified sites will remain unfavourable, which is probably overly pessimistic;
(iii) sympathetic management will be sustained on sites already classified as favourable and these will not be seriously damaged by any unforeseen events.
IMPORTANT NOTE: We do not have information on the timescale of the predicted recovery, which may be influenced by many past, natural and human related factors. A sustained, sympathetic management regime is more likely to result in 'favourable' condition being attained.

Predicted Future Condition of H3130 based on CSM condition assessments (See Sections 5.2 and 7.2 for further information on these maps)

Map 5.2.1 SAC assessments	**Map 5.2.2** Assessments strongly indicative of the condition on SSSI/ASSIs	**Map 5.2.3** Assessments weakly indicative of the condition on SSSI/ASSIs
		
Key Red = future-unfavourable, i.e. the square contains one or more SACs where this habitat feature is present and has been predicted to be future-unfavourable Green = future-favourable, i.e. the square contains at least one SAC where this habitat feature is present and has been predicted to be future-favourable Blue = SAC not assessed, i.e. the square contains at least one SAC supporting this habitat feature but no assessment has been reported Transparent = SAC feature not present, i.e. the square does not contain any SAC features of this habitat type	Key* Green – 80 – 100% of assessed features on 10km square are favourable Yellow - 50 – 80% of assessed features on 10km square are favourable Orange - 20 – 50% of assessed features on 10km square are favourable Red - 0 – 20% of assessed features on 10km square are favourable *This is the same key as was used for JNCC CSM Report 2006	

5.3 Conclusions on future prospects (as regards range, area covered and specific structures and functions)

Conclusion[2.6.iv]: Unfavourable – Inadequate but improving

The EC Guidance states that where habitat prospects are intermediate between "good with no significant impacts from threats expected and long-term viability assured" and "bad with severe impacts from threats expected and long-term viability not assured", the judgement should be Unfavourable – Inadequate. In the UK, this was generally taken to mean that range and/or area are stable or decreasing, and between 75-95% of the habitat area is likely to be in favourable condition in 12-15 years.

CSM results show that 15% of SAC area will remain unfavourable in the future, which represents 2% of the UK resource. In the long-term, prospects are that decline will be slowed. There is a responsibility to act on unfavourable CSM results, and domestic and European drivers are being introduced regarding e.g. diffuse pollution and invasive non-native species. Diffuse pollution, whether leading to nutrient enrichment or acidification, will remain difficult to tackle, and although there is a wealth of information on P enrichment, less is known regarding N enrichment. With respect to invasive non-natives, it is difficult to prevent release to the wild and such species spread from waters which have already been affected. Despite legislative provisions, raising awareness of the problem is necessary, to try to minimise further spread of species which have already been introduced. Presently, there is no integrated strategy for dealing with alien species, nor effective measures on eradication or prevention of spread at individual sites. WFD is unlikely to address alien species adequately, though presently there is a consultation on a GB framework for dealing with such species. The judgement is unfavourable inadequate, since degradation continues, and despite drivers for improvement, this will remain difficult and will require long-term management plans, involving a number of stakeholders.

6. Overall conclusions and judgements on conservation status

Conclusion[2.6]: Unfavourable – Inadequate but improving

On the basis of the structure and function and future prospects assessments, the overall conclusion for this habitat feature is Unfavourable – Inadequate but improving.

Table 6.1 Summary of overall conclusions and judgements

Parameter	Judgement	Grounds for Judgement	Confidence in judgement*
Range	Favourable	Range is stable and not less than the favourable reference range.	2
Area covered by habitat type within range	Unknown	Insufficient information to make a judgement.	2
Specific structures and functions (including typical species)	Unfavourable – Inadequate	Structures and functions considered to be intermediate between "good with no significant pressures" and "more than 25% of the habitat area unfavourable as regards its specific structures and functions".	2
Future prospects (as regards range, area covered and specific structures and functions)	Unfavourable – Inadequate but improving	Habitat prospects considered to be intermediate between "good with no significant impacts from threats expected and long-term viability assured" and "bad with severe impacts from threats expected and long-term viability not assured. Measures are in place and planned to address threats to future extent and structure and function for the overall UK resource.	2

Overall assessment of conservation status	Unfavourable – Inadequate but improving	All individual judgements are Unfavourable – Inadequate, but the general status of the habitat appears to be improving.	2

Key to confidence in judgement: 1 = High; 2 = Medium; 3 = Low

7. Annexed material **(including information sources used 2.2)**

7.1 References

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Map data sources

JNCC International Designations Database. Joint Nature Conservation Committee.

UK Lakes Database (compiled by the Inter-agency Freshwater Specialist Working Group). Joint Nature Conservation Committee.

7.2 Further information on CSM data as presented in Sections 4.2 and 5.2

Table 7.2.1 Summary of the coverage of the data shown in Tables 4.2.1 and 5.2.1

Data	Value
Number of SACs supporting feature (a)	47
Number of SACs with CSM assessments (b)	42
% of SACs assessed (b/a)	89
Extent of feature in the UK – hectares (c)	150,000
Extent of feature on SACs – hectares (d)	21,182
Extent of features assessed – hectares (e)	19,976
% of total UK hectarage on SACs (d/c)	14
% of SAC total hectarage that has been assessed (e/d)	94
% of total UK hectarage that has been assessed (e/c)	13

Notes

1. Extent of features on SACs (d) includes only those features that have been submitted on the official Natura 2000 data form as qualifying features. This figure is based on the habitat extent figures presented on standard Natura 2000 data forms.
2. The data included are from CSM assessments carried out between April 1998 and December 2006. NB: these include additional and some up-date data form those used in the six year report produced by JNCC (Williams, J.M., ed. 2006. *Common Standards Monitoring for Designated Sites: First Six Year Report*. Peterborough, JNCC)

Table 7.2.2 Summary of grid square map data shown in Maps 4.2.1-3 and 5.2.1-3

Status	Number of squares	Proportion of all squares
Current – Unfavourable (red)	22	4%
Current – Favourable (green)	131	21%
On SAC but not assessed (blue)	8	1%
Not on SAC (transparent)	464	74%
Total Number of 10km squares (any colour)	625	100%
Future – Unfavourable (red)	12	2%
Future – Favourable (green)	141	23%