Our Ref: PR24/Hab Cond_u25
Your Ref:

FAO:
[redacted]

Februray 2025

Dear Water Company CEO

PR24 Performance Commitments: Biodiversity - Advice to water companies on assessing habitat condition

This advice is provided by Natural Resources Wales (NRW) to water companies operating in Wales to assist in complying with Ofwat's PR24 Final Determinations. The Biodiversity performance commitment was introduced at PR24 to incentivise companies to conserve and enhance biodiversity in the exercise of its functions.

NRW's advice relating to Areas of Strategic Significance in Wales, is set out in a separate advice letter. This advice letter relates to habitat condition assessments to assist water companies in implementing Performance commitment definition - Biodiversity (hereinafter referred to as the PC Definition).

The PC Definition requires that all water companies operating in Wales make use of 'The Statutory Biodiversity Metric User Guide', dated July 2024 and the "Statutory Biodiversity Metric Calculation Tool" (hereinafter referred to as the Metric). The Metric allows for biodiversity to be better accounted for in decision-making, measuring change by calculating and comparing biodiversity units between a baseline and subsequent re-assessments.

The Metric has been designed primarily for use in England and is reliant on the UK Habitat Classification (UKHab). It is likely that there will be misclassification of several habitat types in Wales that are not well represented in the UKHab. As such, Ofwat is requiring water companies operating in Wales, as set out in the PC Definition, to undertake surveys using the Handbook for Phase 1 Habitat Survey – a technique for environmental audit (2010) (JNCC, 2016) before translating to the UK Hab. Thereby enabling assessment and decision making using the Metric as per the PC Definition. Ofwat, within their PC Definition, have requested that "For any land in Wales the company follows the advice issued by NRW".

Our advice is that:

Water companies should translate Phase 1 survey results to UKHab using the cross-tabulation tool developed by, and available for download from, UKHAB Ltd. This tool should be used in accordance with the additional advice given in Appendix 1 to this letter.

- Water companies should make use of the habitat condition tables contained within “The Statutory Biodiversity Metric User Guide”, alongside the advice provided in Appendix 2 to this letter.

This is our current advice and we reserve the right to review and update it in line with developments to the Metric and/or Welsh environment policy. We hope this helps to clarify how your company can continue to embed biodiversity and ecosystem resilience considerations into core business thereby contributing to the Wellbeing of Future Generations indicators and the incoming Global Biodiversity framework targets to effectively manage and put nature on a path to recovery by 2030.

Yours sincerely

[redacted]
Pennaeth Gweithrediadau Ansawdd Dwr
Head of Operations Water Quality

Direct e-mail: [redacted]

Croesewir gohebiaeth yn Gymraeg a byddwn yn ymateb yn Gymraeg, heb i hynny arwain at oedi.

Correspondence in Welsh is welcomed, and we will respond in Welsh without it leading to a delay.

Cc’d:
[redacted]

Appendix 1

NRW advice on translating Phase 1 Habitat Survey Classification to UKHab Classification

Key to Relationship Column

=	Is equal to
>	Contains
<	Is contained in
(<>)	Overlaps with
0	Has no relationship with
?	Relationship uncertain
&	habitat recorded to which a secondary code is added
^	UKHab splits further

Code	Phase 1 Habitat Code	Relationship	UK Hab Primary Code	Advice to those translating from Phase 1 to UKHab in Wales
A2	Scrub	>	h3	Stands of Rhododendron should not be recorded as Phase 1 A.2
A21	Dense / continuous scrub	=	h3^	Stands of Rhododendron should not be recorded as Phase 1 A.2.1
B1	Acid grassland	=	g1	Phase 1 dense (continuous) bracken, where present, should be recorded and cross-tabulated to UKHab separately.
B1.1	Unimproved acid grassland	<	g1	Advice as for B1.
B1.1	Unimproved acid grassland	>	g1a^	Advice as for B1.
B1.1	Unimproved acid grassland	>	g1b^	Advice as for B1.
B1.2	Semi-improved acid grassland	?	g1	Advice as for B1.
B1.2	Semi-improved acid grassland	>	g1b6	Advice as for B1.
B1.2	Semi-improved	>	g1d	Advice as for B1.

Code	Phase 1 Habitat Code	Relationship	UK Hab Primary Code	Advice to those translating from Phase 1 to UKHab in Wales
	acid grassland			
B3.1	Unimproved calcareous grassland	>	g2a^	Advice as for B1.
B3.1	Unimproved calcareous grassland	>	g2b^	Advice as for B1.
B3.2	Semi-improved calcareous grassland	?	g2	Advice as for B1.
B3.2	Semi-improved calcareous grassland		g2b	Advice as for B1.
B5	Marsh/ marshy grassland	>	f2b^	For cross-tabulation purposes between Phase 1 and UKHab B.5 has no relationship with f1a or f1b. B.5 overlaps with f2b. B.5 also overlaps with the following NVC categories: M22(a-d); M23(a-b):M24(a-cU); M25(a-s): M26(a-b); M27(A-C); M28(a-c) and priority habitats: Purple moor grass and rush pasture; Coastal and floodplain grazing marsh; Upland flushes, fens and swamps. Any area with a peat depth >40cm should not be recorded as B.5.
B5	Marsh/ marshy grassland	>	g1^	For cross-tabulation purposes between Phase 1 and UKHab B.5 has no relationship with, rather than contains, g1.
B5	Marsh/ marshy grassland	>	g3^	For cross-tabulation purposes between Phase 1 and UKHab B.5 has no relationship with, rather than contains, g3.
D2	Wet dwarf shrub heath	>	h1a8	UKHab h1a8 habitat is absent from Wales so should not be recorded using Phase 1.
D3	Lichen / bryophyte heath	>	s1a7	Only Phase 1 C.2, I1.1.2 or I1.3 habitats should be cross-tabulated to UKHab s1a7.
D3	Lichen / bryophyte heath	>	s1a8	Only Phase 1 C.2, I1.1.2 habitats should be cross-tabulated to UKHab s1a7.

Code	Phase 1 Habitat Code	Relationship	UK Hab Primary Code	Advice to those translating from Phase 1 to UKHab in Wales
E1	Bog	=	f1	All Phase 1 bog habitat types should be recorded to their Phase 1 sub-types prior to cross-tabulation with the UKHab.
E1.6	Sphagnum bog	<	f1	Any area with a peat depth >40cm should not be recorded as a Phase 1 grassland or heathland habitat type. Where possible peat depth should be noted and submitted to the Wales' National Peat Action Programme.
E1.6.1	Blanket bog	=	f1a^	Any area with a peat depth >40cm should not be recorded as a Phase 1 grassland or heathland habitat type. Where possible peat depth should be noted and submitted to the Wales' National Peat Action Programme. Areas recorded in Phase 1 E.6.1 should only be cross-tabulated to f1a5. For cross-tabulation purposes between Phase 1 and UKHab E1.6.1 is contained within, rather than contains, f1a and is equal to f1a5.
E1.6.2	Raised bog	>	f1b^	Any area with a peat depth >40cm should not be recorded as a Phase 1 grassland or heathland habitat type. Where possible peat depth should be noted and submitted to the Wales' National Peat Action Programme. For cross-tabulation purposes between Phase 1 and UKHab E1.6.2 is contained within, rather than contains, f1b and is equal to f1b5.
E1.7	Wet modified bog	<	f1a6	Any area with a peat depth >40cm should not be recorded as a Phase 1 grassland or heathland habitat type. Where possible peat depth should be noted and submitted to the Wales' National Peat Action Programme. For cross-tabulation purposes between Phase 1 and UKHab E1.7 is also contained within f1b6. It may also be appropriate to cross-tabulate Phase 1 wet modified bog that is very damaged f1b7.
E1.7	Wet modified bog	<	f1b6	Any area with a peat depth >40cm should not be recorded as a Phase 1 grassland or heathland habitat type. Where possible peat depth should be noted and submitted to the Wales' National Peat Action Programme. For cross-tabulation purposes between Phase 1 and UKHab E1.7 is also contained within f1a6. It may also be appropriate to cross-tabulate Phase 1 wet modified bog that is very damaged f1b7.

Code	Phase 1 Habitat Code	Relationship	UK Hab Primary Code	Advice to those translating from Phase 1 to UKHab in Wales
E1.8	Dry modified bog	<	f1a6	Any area with a peat depth >40cm should not be recorded as a Phase 1 grassland or heathland habitat type. Where possible peat depth should be noted and submitted to the Wales' National Peat Action Programme. For cross-tabulation purposes between Phase 1 and UKHab E1.8 is also contained within f1b6. It may also be appropriate to cross-tabulate Phase 1 wet modified bog that is very damaged f1b7.
E1.8	Dry modified bog	<	f1b7	Any area with a peat depth >40cm should not be recorded as a Phase 1 grassland or heathland habitat type. Where possible peat depth should be noted and submitted to the Wales' National Peat Action Programme. For cross-tabulation purposes between Phase 1 and UKHab E1.8 is also contained within f1a6. It may also be appropriate to cross-tabulate Phase 1 wet modified bog that is very damaged f1b7.
E.2	Flush and spring	<	f	All Phase 1 flush and spring habitat types should be recorded to their Phase 1 sub-types together with a note indicating whether they are upland or lowland prior to translation to UKHab. For cross-tabulation purposes between Phase 1 and UKHab E2 is also contained within f2a and f2c.
E2.1	Acid/neutral flush	=	f	Phase 1 habitat should be recorded with a note to indicate whether it is upland or lowland. For cross-tabulation purposes between Phase 1 and UKHab E2.1 is contained within, rather than equal to, f and there is a relationship to E2.1 and f2a and f2c.
E2.2	Basic flush	=	f	For cross-tabulation purposes between Phase 1 and UKHab E2.2 is contained within, rather than equal to f and there is a relationship to f2a and f2c.
E2.3	Bryophyte-dominated spring			For cross-tabulation purposes between Phase 1 and UKHab there is a relationship between E2.3 and f2a6. most often 185, or 134.
E3	Fen	>	f	For cross-tabulation purposes between Phase 1 and UKHab E3 is broadly equal to, rather

Code	Phase 1 Habitat Code	Relationship	UK Hab Primary Code	Advice to those translating from Phase 1 to UKHab in Wales
				than contained within, f2a or f2c depending on altitude.
E3.1	Valley mire	>	f	For cross-tabulation purposes between Phase 1 and UKHab E3.1 is contained within, rather than equal to, f2a or f2c depending in altitude.
E3.2	Basin mire	>	f	For cross-tabulation purposes between Phase 1 and UKHab E3.2 is contained within, rather than equal to, f2a or f2c depending in altitude.
E3.3	Floodplain mire	>	f	For cross-tabulation purposes between Phase 1 and UKHab E3.3 is contained within, rather than equal to, f2a or f2c depending in altitude.
H2	Saltmarsh coastland	=	t2a	For cross-tabulation purposes between Phase 1 and UKHab t2a should be considered as contained within, rather than equal to, H.2
H2.4	"Scattered plants, saltmarsh "	<	t2a5	For cross-tabulation purposes between Phase 1 and UKHab H2.4 contains, rather than is contained within, t2a5, t2a6 and t2a8.
H3	Shingle above high tide mark	=	s3b	For cross-tabulation purposes between Phase 1 and UKHab H3 contains, rather than is contained within, s3b. All shingle above high tide mark should be recorded for Phase 1 not just vegetated shingle beaches above the reach of storm waves as per s3b.
H6.4	Dune slack sand dune coastland	=	s3a3	For cross-tabulation purposes between Phase 1 and UKHab H6.4 contains, rather than is contained within, s3a3.
H6.7	Dune scrub sand dune coastland	(<>)	h3c	For cross-tabulation purposes between Phase 1 and UKHab H6.7 contains, rather than is contained within, h3c. Where present stands of Sea buckthorn should be recorded as Phase 1 H6.8 and targeted noted accordingly as this species in non-native to Wales.
H6.7	Dune scrub sand dune coastland	=	s3a	For cross-tabulation purposes between Phase 1 and UKHab H6.7 contains, rather than is contained within, s3a 10. Where present stands of Sea buckthorn should be recorded as Phase 1 H6.8 and targeted noted accordingly as this species in non-native to Wales.
H6.8	Open dune sand dune coastland	>	s3a	For cross-tabulation purposes between Phase 1 and UKHab H6.7 is contained withi, rather than contains, s3a. Where present stands of Sea buckthorn should be recorded as Phase

Code	Phase 1 Habitat Code	Relationship	UK Hab Primary Code	Advice to those translating from Phase 1 to UKHab in Wales
				1 H6.8 and targeted noted accordingly as this species in non-native to Wales.
H8	Maritime cliff coastland	=	s2a	For cross-tabulation purposes between Phase 1 and UKHab H8 contains, rather than is equal to, s2a.
H8.1	Hard maritime cliff coastland	=	s2a5	For cross-tabulation purposes between Phase 1 and UKHab H8.1 contains, rather than is equal to, s2a5.
H8.2	Soft maritime cliff	=	s2a6	For cross-tabulation purposes between Phase 1 and UKHab H8.2 is contained within, rather than contains s2a6.
H8.3	Crevice/ ledge vegetation	>	s2a5	Phase 1 target notes should distinguish between habitat on soft and hard cliffs. For cross-tabulation purposes between Phase 1 and UKHab H8.3 is contained with, rather than contains, s2a5.
H8.3	Crevice/ ledge vegetation		t1e	For cross-tabulation purposes between Phase 1 and UKHab H8.3 contains t1e.
H8.3	Crevice/ ledge vegetation	>	s2a6	Phase 1 target notes should distinguish between habitat on soft and hard cliffs. For cross-tabulation purposes between Phase 1 and UKHab H8.3 is contained within, rather than contains, S2a6.
H8.4	Coastal grassland	>	s2a5	Phase 1 target notes should distinguish between habitat on soft and hard cliffs. For cross-tabulation purposes between Phase 1 and UKHab H8.4 overlaps with, rather than contains, S2a5.
H8.4	Coastal grassland	>	s2a6	Phase 1 target notes should distinguish between habitat on soft and hard cliffs. For cross-tabulation purposes between Phase 1 and UKHab H8.4 overlaps with, rather than contains, S2a6.
I2.2	Spoil heap	?		For cross-tabulation purposes between Phase 1 and UKHab it may be appropriate in some instances for I2.2 to be related to s1c5, s1c, or u1a.
J1.2	Amenity grassland		c1b or g4	For cross-tabulation purposes between Phase 1 and UKHab J1.2 has no relationship with c1b and contains G4.

Code	Phase 1 Habitat Code	Relationship	UK Hab Primary Code	Advice to those translating from Phase 1 to UKHab in Wales
J2.5	Wall	>	&	For cross-tabulation purposes between Phase 1 and UKHab J2.5 has no relationship to h2 77 or secondary code 71.

Appendix 2

Advice on use of UKHab Habitat Condition Sheets in the Context of Welsh Ecosystems

Advice has been provided by NRW for habitats in the context of the Welsh biogeography. Alterations have been added in red to highlight the amendments from the specifically English version.

1 Coastal*

Condition Sheet: COASTAL Habitat Type	
UKHab Habitat Type(s)	
Sparsely vegetated land - Coastal sand dunes **Sparsely vegetated land - Coastal vegetated shingle** **Sparsely vegetated land - Maritime cliff and slopes**	
Habitat Description	
See UKHab	
Condition Assessment Criteria	
1	The vegetation composition is formed of native species including: a) The Common Standards Monitoring (CSM) guidance for maritime cliff habitats for maritime grasslands. b) The condition criteria for heathland from the England Biodiversity Metric Technical Guide, including maritime indicator species, for coastal heathland. c) The CSM guidance for sand dune habitats for sand dunes. d) The CSM guidance for sand dune habitats and vegetated coastal shingle habitats for vegetated shingle. are present in the typical successional stages, transitions and/or mosaics, at sufficient cover and frequency to meet the definition for the relevant habitat. NB - this criterion is essential for achieving good condition.
2	Vegetation structure (sward height variation, zonation) is varied and not uniform.
3	Naturally open ground or bare surfaces are present as part of a sequence of colonisation and succession. Targets for bare ground set for successional stages within the relevant CSM are met.
4	Coastal processes needed to support the habitat are functional and are not modified by hard engineering or other forms of negative intervention.
5	The landform reflects the interaction of coastal processes and geology, and there is a varied topography present supporting the relevant range of habitat types.
6	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981 and as described below). Combined cover of species indicative of sub-optimal condition[1] (including those described below) and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area. On coastal heathland *Ulex europaeus* and bracken should not exceed 10% cover Sea cliffs: non-native Cotoneaster species, Holm oak, Hottentot-fig *Carpobrotus edulis* Purple Dewplant, *Disphyma crassifolium* and Montbretia*Crocosmia x crocosmiiflora* should be considered as invasive non-natives and sub-optimal condition indicators. Sand dunes and vegetated shingle: all non-native conifers, *Hippopahe rhamnoides*, *Impatiens glandulifera*, Rosa rugosa, *Reynoutria japonica*, *Crassula helmsii* and *Acaena novae-zelandiae*

	should be considered as invasive non-native species. Broad and coarse leaved grasses species e.g. *Arrhenatherum elatius*, *Holcus* spp and *Datcylis glomerata*, grass species indicative of improved conditions e.g. *Lolium perenne*, species from the *Rosa* group and woody (scrub and tree) species indicative of pressures such a neglect or nitrogen deposition should be considered as invasive non-natives and sub-optimal condition indicators.
7	Some scattered scrub (including bramble) may be present, but scrub should be less than 10% of area within the grassland/bare substrate matrix. Blocks of scrub or woodland, which might be desirable in their own right, should be classified and mapped separately.
8	Water quality and quantity (e.g. seasonal fluctuations in dune slacks or seepages on cliff slopes) is sufficient to support the range of water-dependent parts of the habitat.

Condition Assessment Result	Condition Assessment Score
Passes 8 of 8 criteria including essential criterion 1	Good (3)
Passes 5 , 6 or 7 of 8 criteria; OR Passes 7 criteria excluding essential criterion 1	Moderate (2)
Passes 0, 1, 2, 3 or 4 of 8 criteria.	Poor (1)

Footnotes

Footnote 1: General coastal species indicative of sub-optimal condition: creeping thistle

Cirsium arvense, spear thistle *Cirsium vulgare*, curled dock *Rumex crispus*, broad-leaved dock *Rumex obtusifolius*, common nettle *Urtica dioica*, bramble *Rubus fruticosus*, white willow *Salix alba* hybrids, garden plants.

Grassland species indicative of sub-optimal condition: creeping thistle *Cirsium arvense*, spear thistle *Cirsium vulgare*, curled dock *Rumex crispus*, broad-leaved dock *Rumex obtusifolius*, common nettle *Urtica dioica*, creeping buttercup *Ranunculus repens*, greater plantain *Plantago major*, cow parsley *Anthriscus sylvestris*.

Heathland species indicative of sub-optimal condition: bracken *Pteridium aquilinum.*

Footnote 2: Joint Nature Conservancy Council, Common Standards Monitoring Guidance.

2 Coastal lagoons*

Condition Sheet: COASTAL LAGOONS Habitat Type
EUNIS Habitat Type(s)
Coastal lagoons
Habitat Description
See Coastal lagoons EUNIS habitat description
Habitat Attributes to Record
The following information should be recorded within the condition assessment proforma: • Extent of lagoon water body[1] • Description of presence of typical communities and biotopes • Description of species diversity and community composition[2] • Salinity in parts per thousand (ppt)

- Presence and abundance of non-native species
- Observations on coastal process functioning and any human physical modifications present
- % cover of algal growths that could be attributed to nutrient enrichment.
- Presence and density of non-natural structures and direct human impacts
- Assessment of litter
- Visual record of water clarity
- Observations of the functioning and state of the isolating barrier
- Observations of the functioning and state of the lagoon banks

Condition Assessment Criteria

	Indicator	Good (3 points)	Moderate (2 points)	Poor (1 point)	Score
1	**Presence and abundance of invasive non-native species**[3]	Not more than 1 invasive non-native species is present at a level of occasional on the SACFOR scale or occupying more than 1% of the habitat. No high-risk species indicative of sub-optimal condition present, see footnote.	No invasive non-native species are present above 'Frequent' on the SACFOR scale or they occupy between 1-10% of the habitat. No high-risk species indicative of suboptimal condition present, see footnote for list	One or more invasive non-native species are present at an 'Abundant' level on the SACFOR scale, they occupy more than 10% of the habitat or a high-risk species indicative of sub-optimal condition is present – GBNNSS should be notified, see footnote for details.	
2	**Water Quality**	No visual evidence of pollution. There are no nuisance algal growths that are likely to be attributable to nutrient enrichment. Seasonality of the assessment should be considered, peak bloom time is July – September.	Visual evidence of low to moderate levels of pollution. elevated algal growth with increases in cover that may indicate nutrient enrichment. Seasonality of the assessment should be considered, peak bloom time is July – September.	Visual evidence of high algal growth that is indicative of nutrient enrichment. Signs of eutrophication that would impede bird feeding. Seasonality of the assessment should be considered, peak bloom time is July – September.	
3	**Non-natural structures and direct human impacts**	No evidence of impacts from direct human activities (including pontoons, moorings, boats, crab tiles, bait digging, anchoring scars, livestock feeding rings on saltmarsh, or vehicle tracks) or they occupy <1% of the habitat area	Some evidence of impacts from direct human activities (including pontoons, moorings, boats, crab tiles, bait digging, anchoring scars, livestock feeding rings on saltmarsh, or vehicle tracks), occupying up to 10% of the habitat area	Some evidence of impacts from direct human activities (including pontoons, moorings, boats, crab tiles, bait digging, livestock feeding rings on saltmarsh, or vehicle tracks anchoring scars), occupying over >10% of the habitat area.	

4	**Litter (when examining a beach strandline /mean high water line or intertidal rocky shore)**[4]	Following the MCS beach litter survey method the number of items of litter does not exceed 0.0036 m^{-1} min^{-1} $person^{-1}$ equivalent to up to 21 items per person per 100m per hour. See Nelms 2017 *et al* and the link to the MSFD threshold value assessment.	Following the MCS beach litter survey method the number of items of litter does not exceed 0.0078 m^{-1} min^{-1} $person^{-1}$ equivalent to between 20 and 47 items of litter per 100m survey per person per hour. See Nelms 2017 *et al* and the link to the MSFD threshold value assessment.	Following the MCS beach litter survey method the number of items of litter exceeds 0.0078 m^{-1} min^{-1} $person^{-1}$ equivalent to more than 47 items of litter per 100m survey per person per hour. See Nelms 2017 *et al* and the link to the MSFD threshold value assessment.	
5	**Salinity**	Salinity is between 15 - 34 ppt	Salinity values are at the ends of range acceptable for lagoons measured in ppt	Salinity values are either hypersaline >40 ppt or hyposaline <15 ppt	
6	**Isolating barrier (criteria should not be used for percolating lagoons)**	Fully functional and permitting tidal exchange	Slightly damaged but some water exchange still occurring	Not functioning. No water exchange occurring making the lagoon hyposaline.	
7	**Physical damage of lagoon banks**[5]	No physical damage present	Only small isolated patches of physical damage present	Evidence of significant physical damage	
8	**Water clarity**	Water is clear	Water clarity is reduced	Water is turbid and water clarity is poor (not just after heavy rain)	
				Total score (out of a possible 24)	

Condition Assessment Result

TOTAL SCORE 18 - 24 (75-100%) **= GOOD CONDITION**

TOTAL SCORE 12 - 17 (50-75%) **= MODERATE CONDITION**

TOTAL SCORE 8 - 11 (0-50 %) **= POOR CONDITION**

Footnotes

Footnote 1 – The extent of the lagoon water body should be recorded at high tide. This should be assessed at the end of the summer (late August – early September) and gives an indication of the amount of water that is present at all times of the year. It should be noted that some lagoons are naturally very shallow.

Footnote 2 - Examples of species adapted to lagoons can be found in Bamber (2010):

BAMBER, R.N. (2010) *Coastal saline lagoons and the Water Framework Directive* [online]. Natural England Commissioned Reports, Number 039. Available from: Coastal saline lagoons and the Water Framework Directive - NECR039 (naturalengland.org.uk)

For assessment of species characteristic of anoxic environment, e.g. presence of Capitellid worms, further information on the SACFOR scale can be found on the JNCC website at: JNCC (No date) *SACFOR abundance scale used for both littoral and sublittoral taxa from 1990 onwards* [online]. Available from: sacfor.pdf (jncc.gov.uk)

Footnote 3 - Abundances estimated using SACFOR scales details available here:

JNCC (No date) *SACFOR abundance scale used for both littoral and sublittoral taxa from 1990 onwards* [online]. Available from: sacfor.pdf (jncc.gov.uk)

Use Centre for Environment Fisheries and Aquaculture Science (Cefas) non-native species list available here: STEBBING AND TIDBURY (2019). *Collated new non-native species records for UK from 2003-2014* [online]. Cefas, UK. V1. Available on: Cefas Data Portal - View. Further information can be found on: UK Marine Monitoring and Assessment Strategy (UKMMAS) (No date) *Non-indigenous species* [online]. Available from: Non-indigenous species (cefas.co.uk)

High risk species indicative of sub-optimal condition at time of publication include:

- Ficopomatus enigmaticus -Trumpet tube worm
- Styela clava - Asian tunicate; leathery sea squirt, club tunicate
- Corella eumyota - Orange-tipped sea squirt
- Grateloupia turuturu - Devil's tongue weed, gracie, red menace and red tide
- Undaria pinnatifida - Asian kelp, wakame
- Schizoporella japonica - Orange ripple bryozoan
- •Sargassum muticum - Wire weed
- Hemigrapsus sanguineus - Asian shore crab
- Eriocheir sinensis - mitten crab

In addition species included in the Marine Invasive Non-native Species Priority Monitoring and Surveillance List for Wales should also be considered indicators of sub-optimal condition.

Please check for updates of high-risk species

Footnote 4 - Please see Nelms et al (2017) for methodological details to identify litter m^{-1} min^{-1} $person^{-1}$.

NELMS, S.E. ET AL. (2017) Marine anthropogenic litter on British beaches: A 10-year

nationwide assessment using citizen science data. *Science of The Total Environment* [online], 579. Available from: Marine anthropogenic litter on British beaches: A 10-year nationwide assessment using citizen science data - ScienceDirect

The indicator thresholds for litter are based on the methods in Van Loon et al. (2020), which is guidance developed within the Common Implementation Strategy for the Marine Strategy Framework Directive by the MSFD Technical Group on Marine Litter.

VAN LOON, W. ET AL. (2020). *A European Threshold Value and Assessment Method for Macro Litter on Coastlines.* EUR 30347 EN, Publications Office of the European Union, Luxembourg. [online] Available from:

(PDF) A European Threshold Value and Assessment Method for Macro Litter on Coastlines (researchgate.net)

Footnote 5 - Sources of physical damage include: excessive poaching, damage from machinery use, damaging management or public access activities.

Footnote 6 – for Criteria 2 pollutants included on the Water Watch Wales website should also be considered.

3 Coastal saltmarsh*

Condition Sheet: COASTAL SALTMARSH Habitat Type					
EUNIS Habitat Type(s)					
Coastal saltmarshes and saline reed beds Artificial coastal saltmarshes and saline reed beds					
Habitat Description					
See: EUNIS -Factsheet for Coastal saltmarshes and saline reedbeds.					
Habitat Attributes to Record					
The following information should be recorded within the condition assessment proforma: • List of biological communities and species - including whether they are representative or characteristic of disturbance and/or pollution • Observations on coastal process functioning and any human physical modifications present • Observations on zonation and transitions to other habitats, including variations in vegetation structure/sward height1 • Observations of naturally open ground or bare surfaces such as creeks or pans being present in a mosaic with vegetated areas • Presence and abundance of non-native species • Assessment of litter • % cover of algal growths that could be attributed to nutrient enrichment					
Condition Assessment Criteria					
Indicator		**Good (3 points)**	**Moderate (2 points)**	**Poor (1 point)**	**Score per indicator**
1	**Coastal processes**	Coastal processes are functioning naturally. No evidence of human physical modifications which are clearly impacting the habitat.	Artificial structures present e.g. groynes and sea walls that are impeding the natural movement of sediments or water, affecting up to 10% of the habitat.	Artificial structures present e.g. groynes that are impeding the natural movement of sediments or water, affecting more than 25% of the habitat	
2	**Presence and abundance of invasive non-native species[2]**	Not more than 1 invasive non-native species is present at a level of occasional on the SACFOR scale or occupying more than 1% of the habitat. No high-risk species indicative of suboptimal	No invasive non-native species are present above 'Frequent' on the SACFOR scale or they occupy between 1-10% of the habitat. No high-risk species indicative of suboptimal condition present, see footnote for list	One or more invasive non-native species are present at an 'Abundant' level on the SACFOR scale, they occupy more than 10% of the habitat or a high-risk species indicative of sub-optimal condition is present – GBNNSS should be notified,	

		condition present, see foot note.		see footnote for details.	

3	**Water Quality**	No visual evidence of pollution. There are no nuisance algal growths that are likely to be attributable to nutrient enrichment. Seasonality of the assessment should be considered, peak bloom time is July – September.	Visual evidence of low to moderate levels of pollution. Elevated algal growth with increases in cover that may indicate nutrient enrichment. Seasonality of the assessment should be considered, peak bloom time is July – September.	Visual evidence of high algal growth that is indicative of nutrient enrichment. Signs of eutrophication that would impede bird feeding. Seasonality of the assessment should be considered, peak bloom time is July – September.	
4	**Non-natural structures and direct human impacts**	No evidence of impacts from direct human activities (including pontoons, moorings, boats, crab tiles, bait digging or anchoring scars) or they occupy <1% of the habitat area	Some evidence of impacts from direct human activities (including pontoons, moorings, boats, crab tiles, bait digging or anchoring scars), occupying up to 10% of the habitat area	Some evidence of impacts from direct human activities (including pontoons, moorings, boats, crab tiles, bait digging or anchoring scars), occupying over >10% of the habitat area.	
5	**Litter (when examining a beach strandline /mean high water line or intertidal rocky shore)**	Following the MCS beach litter survey method the number of items of litter does not exceed 0.0036 m^{-1} min^{-1} $person^{-1}$ equivalent to up to 21 items per person per 100m per hour. See Nelms 2017 *et al* and the link to the MSFD threshold value assessment[3].	Following the MCS beach litter survey method the number of items of litter does not exceed 0.0078 m^{-1} min^{-1} $person^{-1}$ equivalent to between 20 and 47 items of litter per 100m survey per person per hour. See Nelms 2017 *et al* and the link to the MSFD threshold value assessment[3].	Following the MCS beach litter survey method the number of items of litter exceeds 0.0078 m^{-1} min^{-1} $person^{-1}$ equivalent to more than 47 items of litter per 100m survey per person per hour. See Nelms 2017 *et al* and the link to the MSFD threshold value assessment[3].	

6	**Zonation and transition to other habitats[3]**	Zonation of vegetation/ communities is clear and continuous. Distribution of the feature and transition to other habitats, including associated transitional habitats, within the site is reflective of expected natural distribution seaward and landward	One of the expected zones are absent or significantly impacted by human modification of the shoreline and transitions to other habitats are restricted in less than 20% of the habitat boundaries.	Zonation of vegetation/ communities is not clearly visible or is significantly impacted by human modification of the shoreline. Or transitions to other habitats are restricted in more than 20% of the habitat boundaries.	
				Total score (out of a possible 18)	

Condition Assessment Result

TOTAL SCORE 14 - 18 (75-100%) **= GOOD CONDITION**

TOTAL SCORE 9 - 13 (50-75%) **= MODERATE CONDITION**

TOTAL SCORE 6 - 8 (0-50%) **= POOR CONDITION**

Footnotes

Footnote 1 - Assessment of grazing levels:

- light grazing - most of the standing crop is not removed
- moderate grazing - standing crop almost completely removed
- heavy grazing - height < 10 cm, all standing crop removed
- abandoned grazing – tall, matted vegetation, no standing crop removed

Footnote 2 - Abundances estimated using SACFOR scales details available here: JNCC (No date) *SACFOR abundance scale used for both littoral and sublittoral taxa from 1990 onwards* [online]. Available from: sacfor.pdf (jncc.gov.uk)

Use Cefas non-native species list available here: STEBBING AND TIDBURY (2019). *Collated new non-native species records for UK from 2003-2014* [online]. Cefas, UK. V1. Available on: Cefas Data Portal - View . Further information can be found on: UK Marine Monitoring and Assessment Strategy (UKMMAS) (No date) *Non-indigenous species* [online]. Available from: Non-indigenous species (cefas.co.uk).

The following species would also be considered invasive non-natives and so indicators of sub-optimal condition in Wales: red marine seaweed *Gracilaria vermiculophylla*, *Crassula helmsii,* Buttonweed and *Cotula coronopifolia*.

High risk species indicative of sub-optimal condition at time of publication include:

Hemigrapsus spp. – Asian Shore crabs (*H. sanguineus*, *H. takanoi* or *H. penicillatus*) Please check for updates of high risk species

Footnote 3 - Please see Nelms et al. (2017) for methodological details to identify litter m^{-1} min^{-1} $person^{-1}$.

NELMS, S.E. ET AL. (2017) Marine anthropogenic litter on British beaches: A 10-year nationwide assessment using citizen science data. *Science of The Total Environment* [online], 579. Available from: Marine anthropogenic litter on British beaches: A 10-year nationwide assessment using citizen science data - ScienceDirect

The indicator thresholds for litter are based on the methods in Van Loon et al (2020), which is guidance developed within the Common Implementation Strategy for the Marine Strategy Framework Directive by the MSFD Technical Group on Marine Litter.

VAN LOON, W. ET AL. (2020). *A European Threshold Value and Assessment Method for Macro Litter on Coastlines.* EUR 30347 EN, Publications Office of the European Union, Luxembourg.

[online] Available from:

(PDF) A European Threshold Value and Assessment Method for Macro Litter on Coastlines (researchgate.net)

Footnote 4 - Vegetation zones can be described differently but these are the most likely to be found (seaward to landward):

- Pioneer Open communities with one or more of the following – *Spartina* spp., *Salicornia* spp., *Aster tripolium*. Zone covered by all tides except the lowest neap tides. 290-c.600 submersions per year.
- Low marsh (generally closed communities with at least *Puccinellia maritima* and *Atriplex portulacoides* as well as the previous species; zone covered by most tides.350-400 submergences per year) and middle marsh (generally closed communities with *Limonium* spp. and/or *Plantago maritima*, as well as low marsh species; Zone covered only by spring tides. 150 to 220 submergences per year)
- High marsh Generally closed communities with one or more of the following – *Festuca rubra*, *Armeria maritima*, *Elytrigia* spp., as well as the middle marsh species. Zone covered only by highest spring tides. Minimum 25 submergences, maximum 150 submergences per year.
- Transition zone Vegetation intermediate between the high marsh and adjoining non-halophytic areas. Zone covered only occasionally during extreme storm events but can have salt spray influence from strong onshore winds.

4 Ditch – No additional NRW advice

5 Grassland – Low Distinctiveness*

Condition Sheet: GRASSLAND Habitat Type (low distinctiveness)	
UKHab Habitat Type(s)	
Grassland - Modified grassland	
Habitat Description	
See UKHab	
Condition Assessment Criteria	
1	There must be 6-8 (including herb) species per m^2. If a grassland has 9 or more species per m^2 it should be classified as a medium distinctiveness grassland habitat type. **NB - this criterion is essential for achieving moderate condition.**

2	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.
3	Some scattered scrub (including bramble) may be present, but scrub accounts for less than 20% of total grassland area. Note - patches of shrubs with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.
4	Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.
5	Cover of bare ground is up to 10%, excluding localised areas (for example, a concentration of rabbit warrens).
6	Cover of bracken is less than 20%.
7	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981).

Condition Assessment Result	Condition Assessment Score
Passes 6 or 7 of 7 criteria including passing essential criterion 1	Good (3)
Passes 4 or 5 of 7 criteria including passing essential criterion 1	Moderate (2)
Passes 0, 1, 2 or 3 of 7 criteria; OR 4, 5 or 6 of criteria (but failing criterion 1)	Poor (1)

6 Grassland – Medium, High & Very High Distinctiveness*

Condition Sheet: GRASSLAND Habitat Type (medium, high & very high distinctiveness)
UKHab Habitat Type(s)
Grassland - Lowland calcareous grassland
Grassland - Lowland dry acid grassland
Grassland - Lowland meadows
Grassland - Other lowland acid grassland
Grassland - Other neutral grassland
Grassland - Tall herb communities (H6430) [Note Tall herb habitat that does not meet the Annex 1 definition should be recorded as "Other neutral grassland"]
Grassland - Upland acid grassland
Grassland - Upland calcareous grassland
Grassland - Upland hay meadows
Sparsely vegetated land - Calaminarian grassland
Habitat Description

See UKHab	
Condition Assessment Criteria	
1	The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type (see UKHab definition). Wildflowers, sedges and indicator species for the specific grassland habitat type are frequent throughout the sward. **NB - This criterion is essential for achieving moderate condition for all grassland types.**
2	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.
3	Cover of bare ground is up to 5%, excluding localised areas, for example, rabbit warrens.
4	Cover of bracken is less than 10% and cover of scrub (including bramble) is less than 5%.
5	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of species indicative of sub-optimal condition[1] and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area.
Additional Group (Non-acid types only)	
6	There are greater than 9 species per metre squared. **NB - This criterion is essential for achieving good condition (non-acid grassland types only).**

Condition Assessment Result	Condition Assessment Score
Acid Grassland Types	
Passes 5 of 5 criteria	Good (3)
Passes 3 or 4 of 5 criteria	Moderate (2)
Passes 0, 1 or 2 of 5 criteria	Poor (1)
Non-acid grassland Types	
Passes 5 of 6 criteria, including essential criterion 1 and 6.	Good (3)
Passes 3 or 4 of 6 criteria, including essential criterion 1.	Moderate (2)
Passes 0, 1, 2 criteria of 6 criteria; OR Passes 3 or 4 criteria excluding criterion 1 and 6	Poor (1)

Footnotes

Footnote 1 - Species indicative of sub-optimal condition for this habitat type include:

Creeping thistle *Cirsium arvense*, spear thistle *Cirsium vulgare*, curled dock *Rumex crispus*, broadleaved dock *Rumex obtusifolius*, common nettle *Urtica dioica*, creeping buttercup *Ranunculus repens*, greater plantain *Plantago major*, *Sonchus* spp, cow parsley *Anthriscus sylvestris.*

7 Heathland – No additional NRW advice

8 Hedgerow – No additional NRW advice

9 Intertidal biogenic reefs*

Condition Sheet: INTERTIDAL BIOGENIC REEFS Habitat Type					
EUNIS Habitat Type(s)					
Littoral biogenic reefs Artificial littoral biogenic reefs					
Habitat Description					
See JNCC biotope habitat description					
Habitat Attributes to Record					
The following information should be recorded within the condition assessment proforma: • % cover of recognisable biogenic reef structures across the bed • Distribution of the habitat seaward and landward limits and extent should be recorded • Description of presence of typical communities and biotopes • Description of species diversity and community composition • Observations on coastal process functioning and any human physical modifications present • Presence and abundance of non-native species • % cover of algal growths that could be attributed to nutrient enrichment • Presence and density of non-natural structures and direct human impacts • Assessment of litter • Is the habitat distribution constrained by human modification? • WFD classification of overlying water					
Condition Assessment Criteria					
Indicator		**Good (3 points)**	**Moderate (2 points)**	**Poor (1 point)**	**Score per indicator**
1	**Coastal processes**	Coastal processes are functioning naturally. No evidence of human physical modifications which are impacting the habitat.	Artificial structures present e.g. groynes that are impeding the natural movement of sediments or water, affecting up to 10% of the habitat.	Artificial structures present e.g. groynes that are impeding the natural movement of sediments or water, affecting more than 25% of the habitat	
2	**Presence and abundance of invasive non-native species[1]**	Not more than 1 invasive non-native species is present at a level of occasional on the SACFOR scale or	No invasive non-native species are present above 'Frequent' on the SACFOR scale or they occupy between 1-10% of the habitat. No	One or more invasive non-native species are present at an 'Abundant' level on the SACFOR scale, they occupy more than 10% of the habitat or a high-risk	

		occupying more than 1% of the habitat. No high-risk species indicative of sub-optimal condition present, see foot note.	high-risk species indicative of suboptimal condition present, see footnote for list	species indicative of suboptimal condition is present – GBNNSS should be notified, see footnote for details.	
3	**Water Quality**	No visual evidence of pollution. There are no nuisance algal growths that are likely to be attributable to nutrient enrichment. Seasonality of the assessment should be considered; peak bloom time is July – September.	Visual evidence of low to moderate levels of pollution. elevated algal growth with increases in cover that may indicate nutrient enrichment. Seasonality of the assessment should be considered; peak bloom time is July – September.	Visual evidence of high algal growth that is indicative of nutrient enrichment. Signs of eutrophication that would impede bird feeding. Seasonality of the assessment should be considered; peak bloom time is July – September.	
4	**Non-natural structures and direct human impacts**	No evidence of impacts from direct human activities (including pontoons, moorings, boats, crab tiles, bait digging or anchoring scars) or they occupy <1% of the habitat area	Some evidence of impacts from direct human activities (including pontoons, moorings, boats, crab tiles, bait digging or anchoring scars), occupying up to 10% of the habitat area	Some evidence of impacts from direct human activities (including pontoons, moorings, boats, crab tiles, bait digging or anchoring scars), occupying over >10% of the habitat area.	
5	**Litter (when examining a beach strandline /mean high water line or intertidal rocky shore)**	Following the MCS beach litter survey method the number of items of litter does not exceed 0.0036 m_{-1} min_{-1} $person^{-1}$ equivalent to up to 21 items per person per 100m per hour. See Nelms 2017 *et al* and the link to the MSFD	Following the MCS beach litter survey method the number of items of litter does not exceed 0.0078 m^{-1} min^{-1} $person^{-1}$ equivalent to between 20 and 47 items of litter per 100m survey per person per hour. See Nelms 2017 *et al* and the link to the MSFD threshold value assessment[2].	Following the MCS beach litter survey method the number of items of litter exceeds 0.0078 m^{-1} min^{-1} $person^{-1}$ equivalent to more than 47 items of litter per 100m survey per person per hour. See Nelms 2017 *et al* and the link to the MSFD threshold value assessment[2].	

		threshold value assessment[2].			
				Total score (out of a possible 15)	

Condition Assessment Result

TOTAL SCORE 12-15 (75-100%) **= GOOD CONDITION**

TOTAL SCORE 8-11 (50-75%) **= MODERATE CONDITION**

TOTAL SCORE 5-7 (0-50%) **= POOR CONDITION**

Footnotes

Footnote 1 - Abundances estimated using SACFOR scales details available here: JNCC (No date) *SACFOR abundance scale used for both littoral and sublittoral taxa from 1990 onwards* [online]. Available from: sacfor.pdf (jncc.gov.uk)

Use Cefas non-native species list available here: STEBBING AND TIDBURY (2019). *Collated new non-native species records for UK from 2003-2014* [online]. Cefas, UK. V1. Available on: Cefas Data Portal - View . Further information can be found on: UK Marine Monitoring and Assessment Strategy (UKMMAS) (No date) *Non-indigenous species* [online]. Available from: Non-indigenous species (cefas.co.uk)

The following species would also be considered invasive non-natives and so indicators of sub-optimal condition in Wales: Pacific oyster *M. gigas, C. fornicate, Japanese oyster drill Ocinebrellus inornatus, Rapa whelk Rapana venosa* and *American Oyster drill Urosalpinx cinerea.*

High risk species indicative of sub-optimal condition at time of publication include:

- *Didemnum vexillum* – Carpet sea squirt
- *Hemigrapsus spp.* – Asian Shore crabs (*H. sanguineus*, *H. takanoi* or *H. penicillatus*) Please check for updates of high risk species

Footnote 2 - Please see Nelms et al (2017) for methodological details to identify litter m^{-1} min^{-1} $person^{-1}$.

NELMS, S.E. ET AL. (2017) Marine anthropogenic litter on British beaches: A 10-year nationwide assessment using citizen science data. *Science of The Total Environment* [online], 579. Available from: Marine anthropogenic litter on British beaches: A 10-year nationwide assessment using citizen science data - ScienceDirect

The indicator thresholds for litter are based on the methods in Van Loon et al (2020), which is guidance developed within the Common Implementation Strategy for the Marine Strategy Framework Directive by the MSFD Technical Group on Marine Litter.

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10 Intertidal hard structures*

Condition Sheet: INTERTIDAL HARD STRUCTURES Habitat Type
ARTIFICIAL Habitat Type(s)

Intertidal artificial hard structures

Intertidal artificial features of hard structures

Intertidal artificial hard structures with Integrated Greening of Grey Infrastructure (IGGI)

Habitat Description

Artificial hard structures are man-made structures fulfilling a range of functions (e.g. coastal defences, port, harbour and marina installations, energy infrastructure, aquaculture). They can be made of various hard materials (artificial or natural rock, wood, plastics, metal) that would not normally be found in the area they are being deployed.

Habitat Attributes to Record

The following information should be recorded within the condition assessment proforma:

- Description of presence of typical communities and biotopes
- Description of species diversity and community composition
- Presence and abundance of non-native species
- Observations on coastal process functioning and any human physical modifications present
- % cover of algal growths that could be attributed to nutrient enrichment
- WFD classification of overlying water
- Assessment of litter

Condition Assessment Criteria

	Indicator	Good (3 points)	Moderate (2 points)	Poor (1 point)	Score per indicator
1	**Coastal processes**	Coastal processes are functioning naturally. No evidence of human physical modifications which are clearly impacting the habitat.	Artificial structures present e.g. groynes that are impeding the natural movement of sediments or water, affecting up to 25% of the habitat.	Artificial structures present e.g. groynes that are impeding the natural movement of sediments or water, affecting more than 25% of the habitat.	
2	**Presence and abundance of invasive non-native species**[1]	Not more than 1 invasive non-native species is present at a level of occasional on the SACFOR scale or occupying more than 1% of the habitat. No high risk species indicative of sub-optimal condition present, see footnote.	No invasive non-native species are present above 'Frequent' on the SACFOR scale or they occupy between 1-10% of the habitat. No high risk species indicative of suboptimal condition present, see footnote for list.	One or more invasive non-native species are present at an 'Abundant' level on the SACFOR scale, they occupy more than 10% of the habitat or a high risk species indicative of sub-optimal condition is present – GBNNSS should be notified, see footnote for details.	
3	**Water Quality**	No visual evidence of pollution. There are no nuisance algal growths that	Visual evidence of low to moderate levels of pollution.	Visual evidence of high algal growth that is indicative of nutrient enrichment. Signs of	

		are likely to be attributable to nutrient enrichment. Seasonality of the assessment should be considered, peak bloom time is July – September.	elevated algal growth with increases in cover that may indicate nutrient enrichment. Seasonality of the assessment should be considered, peak bloom time is July – September.	eutrophication that would impede bird feeding. Seasonality of the assessment should be considered, peak bloom time is July – September.	
4	**Litter (when examining a beach strandline /mean high water line or intertidal rocky shore)**	Following the MCS beach litter survey method the number of items of litter does not exceed 0.0036 m^{-1} min^{-1} $person^{-1}$ equivalent to up to 21 items per person per 100m per hour. See Nelms 2017 *et al* and the link to the MSFD threshold value assessment[2].	Following the MCS beach litter survey method the number of items of litter does not exceed 0.0078 m^{-1} min^{-1} $person^{-1}$ equivalent to between 20 and 47 items of litter per 100m survey per person per hour. See Nelms 2017 *et al* and the link to the MSFD threshold value assessment[2].	Following the MCS beach litter survey method the number of items of litter exceeds 0.0078 m^{-1} min^{-1} $person^{-1}$ equivalent to more than 47 items of litter per 100m survey per person per hour. See Nelms 2017 *et al* and the link to the MSFD threshold value assessment[2].	
5	**Amount of colonisation**	More than three different faunal and floral communities present.	Two or three different faunal/ flora communities present.	One or no faunal/flora communities present.	
				Total score (out of a possible 15)	

Condition Assessment Result

TOTAL SCORE 12-15 (75-100%) **= GOOD CONDITION**

TOTAL SCORE 8-11 (50-75%) **= MODERATE CONDITION**

TOTAL SCORE 5-7 (0-50%) **= POOR CONDITION**

Footnotes

Footnote 1 - Abundances estimated using SACFOR scales details available here: JNCC (No date) *SACFOR abundance scale used for both littoral and sublittoral taxa from 1990 onwards* [online].

Available from: sacfor.pdf (jncc.gov.uk)

High risk species indicative of sub-optimal condition at time of publication include:

- *Didemnum vexillum* – Carpet sea squirt
- *Hemigrapsus spp.* – Asian Shore crabs (*H. sanguineus*, *H. takanoi* or *H. penicillatus*)
- *Ficopomatus enigmaticus* Trumpet tube worm
- *Corella eumyota* – Orange-tipped sea squirt

- *Grateloupia turuturu* – Devil's tongue weed, gracie, red menace and red tide
- *Schizoporella japonica* – Orange ripple bryozoan
- Please check for updates of high risk species

The following species would also be considered invasive non-natives and so indicators of sub-optimal condition in Wales: Pacific oyster *M. gigas, C. fornicate, Japanese oyster drill Ocinebrellus inornatus, Rapa whelk Rapana venosa* and *American Oyster drill Urosalpinx cinerea*.

Footnote 2 - Please see Nelms et al (2017) for methodological details to identify litter m^{-1} min^{-1} $person^{-1}$.

NELMS, S.E. ET AL. (2017) Marine anthropogenic litter on British beaches: A 10-year nationwide assessment using citizen science data. *Science of The Total Environment* [online], 579. Available from: Marine anthropogenic litter on British beaches: A 10-year nationwide assessment using citizen science data - ScienceDirect

The indicator thresholds for litter are based on the methods in Van Loon et al (2020), which is guidance developed within the Common Implementation Strategy for the Marine Strategy Framework Directive by the MSFD Technical Group on Marine Litter.

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[online] Available from:

(PDF) A European Threshold Value and Assessment Method for Macro Litter on Coastlines (researchgate.net)

11 Intertidal seagrass*

Condition Sheet: INTERTIDAL SEAGRASS Habitat Type
UKHab Habitat Type(s)
Intertidal sediment - Littoral seagrass Intertidal sediment - Littoral seagrass - on peat, clay or chalk Intertidal sediment - Artificial littoral seagrass
Habitat Description
See JNCC littoral seagrass bed habitat description
Habitat Attributes to Record
The following information should be recorded within the condition assessment proforma: • % cover of seagrass across the bed • Distribution of the seagrass landward, seaward and extent should be recorded • Description of presence of typical communities and biotopes • Description of species diversity and community composition • Observations on coastal process functioning and any human physical modifications present • Presence and abundance of non-native species • % cover of algal growths that could be attributed to nutrient enrichment • WFD classification of overlying water • Presence and density of non-natural structures and direct human impacts • Assessment of litter • Evidence of visible rhizomes

Condition Assessment Criteria					
Indicator		**Good (3 points)**	**Moderate (2 points)**	**Poor (1 point)**	**Score per indicator**
1	**Coastal processes**	Coastal processes are functioning naturally. No evidence of human physical modifications which are clearly impacting the habitat.	Artificial structures present e.g. groynes that are impeding the natural movement of sediments or water, affecting up to 10% of the habitat.	Artificial structures present e.g. groynes that are impeding the natural movement of sediments or water, affecting more than 25% of the habitat	
2	**Presence and abundance of invasive non-native species[1]**	Not more than 1 invasive non-native species is present at a level of occasional on the SACFOR scale or occupying more than 1% of the habitat. No high risk species indicative of suboptimal condition present, see foot note.	No invasive non-native species are present above 'Frequent' on the SACFOR scale or they occupy between 1-10% of the habitat. No high risk species indicative of suboptimal condition present, see footnote for list	One or more invasive non-native species are present at an 'Abundant' level on the SACFOR scale, they occupy more than 10% of the habitat or a high risk species indicative of suboptimal condition is present – GBNNSS should be notified, see footnote for details.	
3	**Water Quality**	No visual evidence of pollution. There are no nuisance algal growths that are likely to be attributable to nutrient enrichment. Seasonality of the assessment should be considered, peak bloom time is July – September.	Visual evidence of low to moderate levels of pollution. elevated algal growth with increases in cover that may indicate nutrient enrichment. Seasonality of the assessment should be considered, peak bloom time is July – September.	Visual evidence of high algal growth that is indicative of nutrient enrichment. Signs of eutrophication that would impede bird feeding. Seasonality of the assessment should be considered, peak bloom time is July – September.	

4	**Non-natural structures and direct human impacts**	No evidence of impacts from direct human activities (including pontoons, moorings, boats, crab tiles, bait digging or anchoring scars) or they occupy <1% of the habitat area	Some evidence of impacts from direct human activities (including pontoons, moorings, boats, crab tiles, bait digging or anchoring scars), occupying up to 10% of the habitat area	Some evidence of impacts from direct human activities (including pontoons, moorings, boats, crab tiles, bait digging or anchoring scars), occupying over >10% of the habitat area.	
5	**Litter (when examining a beach strandline /mean high water line or intertidal rocky shore)**	Following the MCS beach litter survey method the number of items of litter does not exceed 0.0036 m^{-1} min^{-1} $person^{-1}$ equivalent to up to 21 items per person per 100m per hour. See Nelms 2017 *et al* and the link to the MSFD threshold value assessment[2].	Following the MCS beach litter survey method the number of items of litter does not exceed 0.0078 m^{-1} min^{-1} $person^{-1}$ equivalent to between 20 and 47 items of litter per 100m survey per person per hour. See Nelms 2017 *et al* and the link to the MSFD threshold value assessment[2].	Following the MCS beach litter survey method the number of items of litter exceeds 0.0078 m_{-1} min_{-1} $person^{-1}$ equivalent to more than 47 items of litter per 100m survey per person per hour. See Nelms 2017 *et al* and the link to the MSFD threshold value assessment[2].	
				Total score (out of a possible 15)	

Condition Assessment Result

TOTAL SCORE 12-15 (75-100%) **= GOOD CONDITION**

TOTAL SCORE 8-11 (50-75%) **= MODERATE CONDITION**

TOTAL SCORE 5-7 (0-50%) **= POOR CONDITION**

Footnotes

*essential attribute the habitat overall cannot score higher than it does for this attribute.

Footnote 1 - Abundances estimated using SACFOR scales details available here: JNCC (No date) *SACFOR abundance scale used for both littoral and sublittoral taxa from 1990 onwards*

[online]. Available from: sacfor.pdf (jncc.gov.uk)

High risk species indicative of sub-optimal condition at time of publication include:

- *Didemnum vexillum* – Carpet sea squirt
- *Hemigrapsus spp*. – Asian Shore crabs (*H. sanguineus, H. takanoi* or *H. penicillatus*)
- *Eriocheir sinensis* – Chinese mitten crab

Please check for updates of high risk species

The following species would also be considered invasive non-natives and so indicators of sub-optimal condition in Wales: *Sargassum muticum* and *Agarophyton vermiculophyllum*.

Footnote 1 - Please see Nelms et al (2017) for methodological details to identify litter m^{-1} min^{-1} $person^{-1}$.

NELMS, S.E. ET AL. (2017) Marine anthropogenic litter on British beaches: A 10-year nationwide assessment using citizen science data. *Science of The Total Environment* [online], 579. Available from: Marine anthropogenic litter on British beaches: A 10-year nationwide assessment using citizen science data - ScienceDirect

The indicator thresholds for litter are based on the methods in Van Loon et al (2020), which is guidance developed within the Common Implementation Strategy for the Marine Strategy Framework Directive by the MSFD Technical Group on Marine Litter.

VAN LOON, W. ET AL. (2020). *A European Threshold Value and Assessment Method for Macro Litter on Coastlines.* EUR 30347 EN, Publications Office of the European Union, Luxembourg. [online] Available from:

(PDF) A European Threshold Value and Assessment Method for Macro Litter on Coastlines (researchgate.net)

12 Intertidal sediment*

Condition Sheet: INTERTIDAL SEDIMENT Habitat Type
EUNIS Habitat Type(s)
Littoral coarse sediment
Littoral sand
Littoral muddy sand
Littoral mud
Littoral mixed sediments
Features of littoral sediment
Artificial littoral coarse sediment
Artificial littoral mixed sediments
Artificial littoral mud
Artificial littoral muddy sand
Artificial littoral sand
Habitat Description
See EUNIS littoral sediment description
Habitat Attributes to Record
The following information should be recorded within the condition assessment proforma: • Description of sediment character • Description of presence of typical communities and biotopes • Description of species diversity and community composition • Observations on coastal process functioning and any human physical modifications present • Observations on transitions to other habitats • Assessment of litter • % cover of algal growths that could be attributed to nutrient enrichment

- WFD classification of overlying water
- Description of zonation

Condition Assessment Criteria

	Indicator	Good (3 points)	Moderate (2 points)	Poor (1 point)	Score per indicator
1	**Coastal processes**	Coastal processes are functioning naturally. No evidence of human physical modifications which are clearly impacting the habitat.	Artificial structures present e.g. groynes that are impeding the natural movement of sediments or water, affecting up to 25% of the habitat.	Artificial structures present e.g. groynes that are impeding the natural movement of sediments or water, affecting more than 25% of the habitat	
2	**Presence and abundance of invasive non-native species**[1]	Not more than 1 invasive non-native species is present at a level of occasional on the SACFOR scale or occupying more than 1% of the habitat. No high risk species indicative of sub-optimal condition present, see footnote.	No invasive non-native species are present above 'Frequent' on the SACFOR scale or they occupy between 1-10% of the habitat. No high risk species indicative of sub-optimal condition present, see footnote for list.	One or more invasive non-native species are present at an 'Abundant' level on the SACFOR scale, they occupy more than 10% of the habitat or a high risk species indicative of sub-optimal condition is present – GBNNSS should be notified, see footnote for details.	
3	**Water Quality**	No visual evidence of pollution. There are no nuisance algal growths that are likely to be attributable to nutrient enrichment. Seasonality of the assessment should be considered, peak bloom time is July – September.	Visual evidence of low to moderate levels of pollution. elevated algal growth with increases in cover that may indicate nutrient enrichment. Seasonality of the assessment should be considered, peak bloom time is July – September.	Visual evidence of high algal growth that is indicative of nutrient enrichment. Signs of eutrophication that would impede bird feeding. Seasonality of the assessment should be considered, peak bloom time is July – September.	
4	**Non-natural structures and direct human impacts**	No evidence of impacts from direct human activities (including pontoons, moorings, boats, crab tiles, bait digging or	Some evidence of impacts from direct human activities (including pontoons, moorings, boats, crab tiles, bait digging or anchoring scars), occupying up to 10% of the habitat area	Some evidence of impacts from direct human activities (including pontoons, moorings, boats, crab tiles, bait digging or anchoring scars),	

		anchoring scars) or they occupy <1% of the habitat area		occupying over >10% of the habitat area.	
5	**Litter** **(when examining a beach strandline /mean high water line or intertidal rocky shore)**	Following the MCS beach litter survey method the number of items of litter does not exceed 0.0036 m^{-1} min^{-1} $person^{-1}$ equivalent to up to 21 items per person per 100m per hour. See Nelms 2017 *et al* and the link to the MSFD threshold value assessment[2].	Following the MCS beach litter survey method the number of items of litter does not exceed 0.0078 m^{-1} min^{-1} $person^{-1}$ equivalent to between 20 and 47 items of litter per 100m survey per person per hour. See Nelms 2017 *et al* and the link to the MSFD threshold value assessment[2].	Following the MCS beach litter survey method the number of items of litter exceeds 0.0078 m^{-1} min^{-1} $person^{-1}$ equivalent to more than 47 items of litter per 100m survey per person per hour. See Nelms 2017 *et al* and the link to the MSFD threshold value assessment[2].	
				Total score (out of a possible 15)	

Condition Assessment Result

TOTAL SCORE 12-15 (75-100%) **= GOOD CONDITION**

TOTAL SCORE 8-11 (50-75%) **= MODERATE CONDITION**

TOTAL SCORE 5-7 (0-50%) **= POOR CONDITION**

Footnotes

Footnote 1 - Abundances estimated using SACFOR scales details available here: JNCC (No date) *SACFOR abundance scale used for both littoral and sublittoral taxa from 1990 onwards* [online].

Available from: sacfor.pdf (jncc.gov.uk)

Use Cefas non-native species list available here: STEBBING AND TIDBURY (2019). *Collated new non-native species records for UK from 2003-2014* [online]. Cefas, UK. V1. Available on: Cefas Data

Portal - View . Further information can be found on: UK Marine Monitoring and Assessment Strategy (UKMMAS) (No date) *Non-indigenous species* [online]. Available from: Non-indigenous species (cefas.co.uk)

The following species would also be considered invasive non-natives and so indicators of sub-optimal condition in Wales: *Agarophyton vermiculophyllum.*

High risk species indicative of sub-optimal condition at time of publication include:

Intertidal coarse sediment A2.1:

- Ficopomatus enigmaticus Trumpet tube worm
- Styela clava Asian tunicate; leathery sea squirt, club tunicate
- Corella eumyota Orange-tipped sea squirt
- Grateloupia turuturu Devil's tongue weed, gracie, red menace and red tide Intertidal mixed sediment A2.4:
- Ficopomatus enigmaticus Trumpet tube worm

Always check for updates of high risk species

Footnote 2 - Please see Nelms et al (2017) for methodological details to identify litter m^{-1} min^{-1} $person^{-1}$.

NELMS, S.E. ET AL. (2017) Marine anthropogenic litter on British beaches: A 10-year nationwide assessment using citizen science data. *Science of The Total Environment* [online], 579. Available from: Marine anthropogenic litter on British beaches: A 10-year nationwide assessment using citizen science data - ScienceDirect

The indicator thresholds for litter are based on the methods in Van Loon et al (2020), which is guidance developed within the Common Implementation Strategy for the Marine Strategy Framework Directive by the MSFD Technical Group on Marine Litter.

VAN LOON, W. ET AL. (2020). *A European Threshold Value and Assessment Method for Macro Litter on Coastlines.* EUR 30347 EN, Publications Office of the European Union, Luxembourg.

[online] Available from:

(PDF) A European Threshold Value and Assessment Method for Macro Litter on Coastlines (researchgate.net)

13 Lake*

Condition Sheet: LAKE Habitat Type
UKHab Habitat Type(s)
Lakes - Aquifer fed naturally fluctuating waterbodies
Lakes - High alkalinity lakes
Lakes - Low alkalinity lakes
Lakes - Marl lakes
Lakes - Moderate alkalinity lakes
Lakes - Peat lakes
Lakes - Reservoirs
Lakes - Temporary lakes, ponds and pools [Use this condition sheet for Temporary lakes, or use Pond condition sheet for Temporary ponds and pools]
Habitat Description
See WFD Lakes typologies description
For '**Aquifer fed naturally fluctuating waterbodies**', '**Reservoirs**' and '**Temporary lakes, ponds and pools**' see: UKHab
Condition Assessment Criteria
The Freshwater Biological Association 'Habitat Naturalness Assessment' is used to assess the condition of lakes. Scores for four attributes (physical, hydrological, chemical, and biological naturalness) are averaged to generate an overall 'habitat naturalness assessment score' which can then be translated into a condition score for use in Biodiversity metric 3.1 (see below).
There are other elements considered in the lake naturalness assessment but these are not included when calculating the condition assessment score.
Details of the methodology for assessing naturalness of lakes are available at: http://priorityhab.wpengine.com/contribute/

The key documents are:

Lake-Naturalness-Assessment-Guidance-3.pdf (priorityhabitats.org)

Lakes-print-out-naturalness-form-2.pdf (priorityhabitats.org)

Annex-II-Physical-Naturalness-Photographs.pdf (wpengine.com)

Annex-III-Hydrological-naturalness-photographs.pdf (wpengine.com)

Annex-IV-Chemical-Naturalness.pdf (wpengine.com)

Annex-V-Plant-Functional-Group-pictures.pdf (wpengine.com)

Annex-VI-Further-Species-Recording-1.pdf (priorityhabitats.org)

We encourage recording of data on lakes on the Freshwater Biological Association 'Habitat Naturalness Assessment' website portal: http://priorityhab.wpengine.com/contribute/

Average 'Habitat Naturalness Assessment' Class	Condition Assessment Score
1 Natural	Good (3)
2	Fairly good (2.5)
3	Moderate (2)
4	Fairly poor (1.5)
5 Least natural	Poor (1)

14 Limestone Pavement*

Condition Sheet: LIMESTONE PAVEMENT Habitat Type	
UKHab Habitat Type(s)	
Sparsely vegetated land - Limestone pavement	
Habitat Description	
See UKHab	
Condition Assessment Criteria	
1	Cover of typical emergent pavement flora and clint-top vegetation should account for at least 25% of total vegetation cover (i.e. excluding bare rock). NB - This criterion is essential for achieving good or moderate condition.
2	Cover of species indicative of sub-optimal condition is less than 1% of area mapped.
3	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and species indicative of sub-optimal condition[1] make up less than 5% of vegetated ground cover.
4	Less than 25% of live leaves (broadleaved plants), fronds (ferns) or shoots (dwarf shrubs) show signs of grazing or browsing.
5	There should be no evidence of recent or obvious physical damage to the pavement surface or dumping of material.

Condition Assessment Result	Condition Assessment Score
Passes 5 of 5 criteria	Good (3)
Passes 4 of 5 criteria	Moderate (2)
Passes 0, 1, 2 or 3 of 5 criteria	Poor (1)
Footnotes	
Footnote 1 - Species indicative of sub-optimal condition for this habitat type include: perennial rye grass *Lolium perenne*, false oat-grass *Arrhenatherum elatius*, crested dog's-tail *Cynosurus cristatus*, bramble *Rubus fruticosus*, creeping thistle *Cirsium arvense*, spear thistle *Cirsium vulgare*, curled dock *Rumex crispus*, broad-leaved dock *Rumex obtusifolius*, common ragwort *Jacobaea vulgaris*, common nettle *Urtica dioica,* other pernicious perennial species.	

15 Line of Trees – No additional NRW advice

16 Orchard – No additional NRW advice

17 Pond – No additional NRW advice

18 Rocky shore*

Condition Sheet: ROCKY SHORE Habitat Type
EUNIS Habitat Type(s)
Rocky shore - High energy littoral rock
Rocky shore - Moderate energy littoral rock
Rocky shore - Low energy littoral rock
Rocky shore - Features of littoral rock
Rocky shore - High energy littoral rock - on peat, clay or chalk
Rocky shore - Moderate energy littoral rock - on peat, clay or chalk
Rocky shore - Low energy littoral rock - on peat, clay or chalk
Rocky shore - Features of littoral rock - on peat, clay or chalk
Habitat Description
See EUNIS -Factsheet for Features of littoral rock
Habitat Attributes to Record

The following information should be recorded within the condition assessment proforma:

- Description of presence of typical communities and biotopes
- Description of species diversity and community composition
- Observations on coastal process functioning and any human physical modifications present
- Presence and abundance of non-native species
- % cover of algal growths that could be attributed to nutrient enrichment
- Presence and density of non-natural structures and direct human impacts
- Assessment of litter
- Habitat zonation[1]
- WFD classification of overlying water

Condition Assessment Criteria

	Indicator	Good (3 points)	Moderate (2 point)	Poor (1 point)	Score per indicator
1	**Coastal processes**	Coastal processes are functioning naturally. No evidence of human physical modifications which are clearly impacting the habitat.	Artificial structures present e.g. groynes that are impeding the natural movement of sediments or water, affecting up to 25% of the habitat but no more than 10% of habitats listed under Section 7 of Env Wales Act (Under-boulder communities, Peat and Clay exposures, Estuarine rock).	Artificial structures present e.g. groynes that are impeding the natural movement of sediments or water, affecting more than 25% of the habitat.	
2	**Presence and abundance of invasive non-native species[2]**	Not more than 1 invasive non-native species is present at a level of occasional on the SACFOR scale or occupying more than 1% of the habitat. No high risk species indicative of sub-optimal condition present, see footnote.	No invasive non-native species are present above 'Frequent' on the SACFOR scale or they occupy between 1-10% of the habitat. No high risk species indicative of suboptimal condition present, see footnote for list.	One or more invasive non-native species are present at an 'Abundant' level on the SACFOR scale, they occupy more than 10% of the habitat or a high risk species indicative of suboptimal condition is present – GBNNSS should be notified, see footnote for details.	

3	**Water Quality**	No visual evidence of pollution. There are no nuisance algal growths that are likely to be attributable to nutrient enrichment. Seasonality of the assessment should be considered; peak bloom time is July – September	Visual evidence of low to moderate levels of pollution. elevated algal growth with increases in cover that may indicate nutrient enrichment. Seasonality of the assessment should be considered; peak bloom time is July – September.	Visual evidence of high algal growth that is indicative of nutrient enrichment. Signs of eutrophication that would impede bird feeding. Seasonality of the assessment should be considered; peak bloom time is July – September.	
4	**Non-natural structures and direct human impacts**	No evidence of impacts from direct human activities (including pontoons, moorings, boats, crab tiles, bait digging or anchoring scars) or they occupy <1% of the habitat area.	Some evidence of impacts from direct human activities (including pontoons, moorings, boats, crab tiles, bait digging or anchoring scars), occupying up to 10% of the habitat area.	Some evidence of impacts from direct human activities (including pontoons, moorings, boats, crab tiles, bait digging or anchoring scars), occupying over >10% of the habitat area.	
5	**Litter (when examining a beach strandline /mean high water line or intertidal rocky shore)**	Following the MCS beach litter survey method the number of items of litter does not exceed 0.0036 m_{-1} min_{-1} $person^{-1}$ equivalent to up to 21 items per person per 100m per hour. See Nelms 2017 *et al* and the link to the MSFD threshold value assessment[3].	Following the MCS beach litter survey method the number of items of litter does not exceed 0.0078 m^{-1} min^{-1} $person^{-1}$ equivalent to between 20 and 47 items of litter per 100m survey per person per hour. See Nelms 2017 *et al* and the link to the MSFD threshold value assessment[3].	Following the MCS beach litter survey method the number of items of litter exceeds 0.0078 m^{-1} min^{-1} $person^{-1}$ equivalent to more than 47 items of litter per 100m survey per person per hour. See Nelms 2017 *et al* and the link to the MSFD threshold value assessment[3].	
				Total score (out of a possible 15)	
Condition Assessment Result					
TOTAL SCORE 12-15 (75-100%) **= GOOD CONDITION**					

TOTAL SCORE 8-11 (50-75%) **= MODERATE CONDITION** **TOTAL SCORE 5-7** (0-50%) **= POOR CONDITION**
Footnotes
Footnote 1 - The rocky shore macroalgal index enables an assessment of the condition of the rocky shore by looking at the macroalgal taxonomic composition and cover. WFD's Reduced Species List for the Macroalgae Tool: WFD (2012) *Practitioners Guide to the Opportunistic* *Macroalgal Blooming Tool Water Framework Directive: Transitional and Coastal Waters* [online]. Available from: Water Framework Directive development of classification tools for ecological assessment: (wfduk.org) **Footnote 2** - Abundances estimated using SACFOR scales details available here: JNCC (No date) *SACFOR abundance scale used for both littoral and sublittoral taxa from 1990 onwards* [online]. Available from: sacfor.pdf (jncc.gov.uk) The following species would also be considered invasive non-natives and so indicators of sub-optimal condition in Wales: Wireweed *Sargassum muticum*, Pacific oyster *Magallana gigas* and Slipper limpet *Crepidula fornicate.* High risk species indicative of sub-optimal condition at time of publication include: • *Didemnum vexillum* – Carpet sea squirt • *Hemigrapsus spp.* – Asian Shore crabs (*H. sanguineus*, *H. takanoi* or *H. penicillatus*) • *Corella eumyota* – Orange-tipped sea squirt • *Grateloupia turuturu* – Devil's tongue weed, gracie, red menace and red tide • *Schizoporella japonica* – Orange ripple bryozoan • Please check for updates of high risk species **Footnote 3** - Please see Nelms et al (2017) for methodological details to identify litter m^{-1} min^{-1} $person^{-1}$. NELMS, S.E. ET AL. (2017) Marine anthropogenic litter on British beaches: A 10-year nationwide assessment using citizen science data. *Science of The Total Environment* [online], 579. Available from: Marine anthropogenic litter on British beaches: A 10-year nationwide assessment using citizen science data - ScienceDirect The indicator thresholds for litter are based on the methods in Van Loon et al (2020), which is guidance developed within the Common Implementation Strategy for the Marine Strategy Framework Directive by the MSFD Technical Group on Marine Litter. VAN LOON, W. ET AL. (2020). *A European Threshold Value and Assessment Method for Macro Litter on Coastlines.* EUR 30347 EN, Publications Office of the European Union, Luxembourg. [online] Available from:(PDF) A European Threshold Value and Assessment Method for Macro Litter on Coastlines (researchgate.net)

19 Scrub*

Condition Sheet: SCRUB Habitat Type
UKHab Habitat Type
Heathland and shrub - Blackthorn scrub **Heathland and shrub - Gorse scrub** **Heathland and shrub - Hawthorn scrub**

Heathland and shrub - Hazel scrub **Heathland and shrub - Mixed scrub** **Heathland and shrub - Sea buckthorn scrub (Annex 1)**	
Habitat Description	
See UKHab	
For sea buckthorn scrub see: Habitats Directive Annex 1 definition	
Condition Assessment Criteria	
1	Habitat is representative of UKHab description (where in its natural range). There are at least three woody species, with no one species comprising more than 75% of the cover (except common juniper, sea buckthorn or box, which can be up to 100% cover).
2	There is a good age range – all of the following are present: seedlings, young shrubs and mature shrubs.
3	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and species indicative of sub-optimal condition[1] make up less than 5% of ground cover.
4	The scrub has a well-developed edge with scattered scrub and tall grassland and/or herbs present between the scrub and adjacent habitat(s).
5	There are clearings, glades or rides present within the scrub, providing sheltered edges.

Condition Assessment Result	Condition Assessment Score
Passes 5 of 5 criteria	Good (3)
Passes 3 or 4 of 5 criteria	Moderate (2)
Passes 0, 1 or 2 of 5 criteria	Poor (1)

Footnotes
Footnote 1 - Species indicative of sub-optimal condition for this habitat type include: tree-of-heaven *Alianthus altissima*, holm oak *Quercus ilex*, turkey oak *Quercus cerris*, creeping thistle *Cirsium arvense*, common nettle *Urtica dioica*, cherry laurel *Prunus laurocerasus*, snowberry *Symphoricarpos* spp., buddleia *Buddleja* spp., cotoneaster spp., Spanish bluebell *Hyacinthoides hispanica* (or hybrids).

20 Sparsely Vegetated Land – No additional NRW advice

21 Urban*

Condition Sheet: URBAN Habitat Type	
UKHab Habitat Type	
Sparsely vegetated land - Ruderal/ephemeral **Urban – Allotments** **Urban – Biodiverse green roof** [Use Urban condition sheet as default. Where there are areas of grassland, scrub or other habitat above the minimum mappable area threshold, record and assess these as the relevant habitat type] **Urban - Bioswale** **Urban - Cemeteries and churchyards** [Use Urban condition sheet as default. Where there are areas of grassland, woodland or scrub above the minimum mappable area threshold, record and assess these as the relevant habitat type] **Urban - Façade-bound green wall** **Urban - Ground based green wall** **Urban - Intensive green roof** **Urban - Open mosaic habitats on previously developed land** **Urban - Rain garden** **Urban - Sustainable urban drainage feature** [in the context of the Biodiversity Metric, this habitat type refers to open SUDS with vegetation and/or open water] **Urban - Vacant / derelict land / bare ground**	
Habitat Description	
See UKHab	
Condition Assessment Criteria	
CORE CRITERIA - applicable to **all urban habitat types:**	
1	Vegetation structure is varied, providing opportunities for insects, birds and bats to live and breed. A single structural habitat component / vegetation type should not account for more than 80% of the total habitat area except where a habitat normally comprises 100% of the total area for example bioswales and green walls. NB Where a habitat normally comprises 100% of the total area, no more than 50% should be covered by a single species to achieve GOOD condition.
2	There is a diverse range of flowering plant species, providing nectar sources for insects. These species may be either native, or non-native but beneficial to wildlife. NB - To achieve GOOD condition, criterion 2 must be satisfied by native species only (rather than non-natives beneficial to wildlife). Note that Biodiverse green roofs are exempt from this requirement, and can include non-native sedums, as set out in footnote 1.
3	Invasive non-native species (Schedule 9 of WCA) cover less than 5% of total vegetated area. NB - To achieve GOOD condition, criterion 3 must be satisfied by a complete absence of invasive non-native species (rather than <5% cover). NB - Raingarden habitat is exempt from this criterion.
ADDITIONAL CRITERION - only applicable to **Open mosaic on previously developed land** habitat type:	

4a	The site shows spatial variation, forming a mosaic of at least four early successional communities (a) to (h) PLUS bare substrate AND pools. (a) annuals; (b) mosses/liverworts; (c) lichens; (d) ruderals; (e) inundation species; (f) open grassland; (g) flower-rich grassland; (h) heathland.
ADDITIONAL CRITERION - only applicable to **Bioswale and SUDS** habitat types:	
4b	The water table is at or near the surface throughout the year. This could be open water or saturation of soil at the surface.
ADDITIONAL CRITERION - only applicable to **green roof** habitat types (select as necessary):	
4c1	**Intensive green roofs** – have a minimum of 50% native and non-native wildflowers - 70% of the roof area is soil and vegetation (including water features)
4c2	**Biodiverse green roofs** - have a varied depth of 80 - 150mm at least 50% is at 150mm and is planted and seeded with wildflowers or is pre-prepared with sedums and wildflowers. To achieve Good condition some additional habitat, such as sand piles, logs etc should be present.

Condition Assessment Result	**Condition Assessment Score**
If 3 criteria assessed:	
• Passes 3 of 3 core criteria; AND • Meets the requirements for good condition within criteria 2 and 3	Good (3)
• Passes 2 of 3 core criteria; OR • Passes 3 of 3 core criteria but does not meet the requirements for good condition within criteria 2 and 3	Moderate (2)
• Passes 0 or 1 of 3 core criteria	Poor (1)
If 4 criteria assessed:	
• Passes 3 of 3 core criteria; AND • Meets the requirements for good condition within criteria 2 and 3; AND • Passes additional criterion 4	Good (3)
• Passes 2 of 3 of 4 criteria; OR • Passes 4 of 4 criteria but does not meet the requirements for good condition within criteria 2 and 3	Moderate (2)
• Passes 0 or 1 of 4 criteria	Poor (1)

Footnotes

Footnote 1: For **Biodiverse green roofs** only - experience has shown that a range of sedums species (native, naturalised, and non-native) support wildflowers during hot periods. Therefore, for Criteria 2 a Biodiverse green roof can have non-native sedums and still achieve Good condition.

Footnote 2: For Criteria 3 – For **green roof** habitat types only - *Buddleja davidii* should be assessed alongside Schedule 9 species. This species impairs the health of the local ecosystem and reduces the biodiversity potential of the roof. It is also a sign that a roof has not be planted and seeded correctly in sub-sequent years.

22 Urban trees*

Condition Sheet: URBAN TREES Habitat Type	
UKHab Habitat Type(s)	
Urban - Urban tree	
Habitat Description	
Covers the following topographical formations most commonly found in urban areas[1]: **Individual Trees:** Young trees over 75mm in diameter measured at 1.5m from ground level and individual semi-mature and mature trees of significant stature and size that dominate their surroundings, whose canopies are not touching but that are in close proximity to other trees. **Perimeter Blocks:** Groups or stands of trees within and around boundaries of land, former field boundary trees incorporated into developments, individual trees in gardens whose canopies overlap continuously **Linear Blocks:** Lines of trees along streets, highways, railways and canals whose canopies may or may not overlap continuously.	
Condition Assessment Criteria	
1	The tree is a native species (or more than 70% within the block are native species). NB – Street trees are exempt from this criterion.
2	The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).
3	The tree is mature[2] or veteran[3] (or more than 50% within the block are mature[2] or veteran[3]).
4	There is little or no evidence of an adverse impact on tree health by anthropogenic activities such as vandalism or herbicide use. There is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.
5	Micro-habitats for birds, mammals and insects are present e.g. presence of deadwood, cavities, ivy or loose bark
6	More than 20% of the tree canopy area is oversailing vegetation beneath.

Condition Assessment Result	Condition Assessment Score
Passes 5 or 6 of 6 criteria	Good (3)
Passes 3 or 4 of 6 criteria	Moderate (2)
Passes 0, 1 or 2 of 6 criteria	Poor (1)

Footnotes

Footnote 1 - This covers all trees in artificial urban habitats such as private gardens, private land, institutional land and land used for transport functions; roads, streets, canals, rail, footpaths etc. Trees in urban areas can under the right conditions provide a large range of habitat opportunities, supporting lichens, invertebrates and birds. Tree planting in urban areas has for over two hundred years also introduced non-native species into towns and cities. In the context of biodiversity native species are the preferred option. However, non-native tree species can contribute positively to biodiversity richness particularly in relation to providing a seasonal food source for nectar feeders and other invertebrates as well as supporting vertebrates that feed on species that are hosted by non-native

trees. Examples are early and late flowering species of *Prunus* and aphids on varieties of *Acer* providing food for species higher up the food chain. The species of trees (native or non-native) together with the intensity and type of management they are subject to will determine the biodiversity value of the trees in question. Trees in urban areas provide opportunistic sites for biodiversity to colonise and re-colonise, increasing connectivity and contributing to biodiversity critical mass between already established patches or sites. This is especially so where transport corridors are populated with mixed native species

Footnote 2 - A mature tree in this context is one that is at least 2/3 expected fully mature height for the species.

Footnote 3 - All ancient trees are veteran trees, but not all veteran trees are ancient. A veteran tree may not be very old, but it has decay features, such as branch death and hollowing. These features contribute to its biodiversity, cultural and heritage value. Veteran trees can be classified if they have four out of the five following features:

1. Rot sites associated with wounds which are decaying >400cm^2;
2. Holes and water pockets in the trunk and mature crown >5 cm diameter;
3. Dead branches or stems >15 cm diameter;
4. Any hollowing in the trunk or major limbs; and,
5. Fruit bodies of fungi known to cause wood decay.

23 Wetland*

Condition Sheet: WETLAND Habitat Type
UKHab Habitat Type(s)
Grassland - Floodplain wetland mosaic (CFGM) [Use this condition sheet (plus Ditch condition sheet for any ditches) unless associated with a species rich grassland sward (meeting the definition of a priority habitat), reedbed or fen, in which case record and assess as the relevant habitat type within the metric (plus Ditch condition sheet for any ditches). **Wetland - Blanket bog** **Wetland - Depression on peat substrates (H7150)** **Wetland - Fens (upland and lowland)** **Wetland - Lowland raised bog** **Wetland - Oceanic valley mire [1] (D2.1)** **Wetland - Purple moor grass and rush pastures** **Wetland - Reedbeds** **Wetland - Transition mires and quaking bogs (H7140)**
Habitat Description
Oceanic valley mires – See EUNIS -Factsheet for Valley mires (europa.eu) **Floodplain wetland mosaic (CFGM) -** Where an area is included within the (soon to be published) 'Floodplain wetland mosaic Habitat Inventory' as extant habitat OR included within the 'Floodplain with potential for restoration to Wetland Mosaic' layer it should be recorded within the metric as FWM habitat. In these cases the ditches form an integral part of the habitat and should not be recorded separately as linear features in the Rivers & Streams part of the metric.

If it is NOT included within either layer of the inventory it should be assessed, and entered into the metric, as the appropriate habitat (e.g. modified grassland, cereal crop, temporary lakes, ponds and pools). Any ditches should be recorded separately within the River and Streams part of the metric. *Until this new inventory is published, you should use existing inventories for floodplain habitats, including the Coastal and Floodplain Grazing Marsh layer of the Priority Habitat Inventory (England) and any local habitat data.* Coastal and floodplain grazing marsh UK BAP Priority Habitat description **All other wetland habitats** - See UKHab	
Condition Assessment Criteria	
CORE CRITERIA - Applicable to **all wetland habitat types**:	
1	There is no artificial drainage or other hydrological modifications within or adjacent to the habitat, unless specifically to maintain water levels to meet its conservation management objectives. **NB - this criterion is essential for achieving good condition.**
2	Assess habitat condition using the relevant CSM[4] guidelines for structure, composition, positive indicator species.
3	The water supplies (groundwater, surface water and/or rainwater) to the wetland are of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution. Indicators of enrichment e.g. *Typha latifolia, Apium nodiflorum, Lemna* spp *Callitriche* spp and *Glyceria* spp. are of localised and no more than occasional outside areas affected by stock poaching and do not occur over the general expanse of habitat.
4	Cover of scrub and scattered trees less than 10% and less than 5% cover away from the margins of bog habitat.
5	Cover of bare ground less than no more than rare occurrence and limited to small patches.
6	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and species indicative of sub-optimal condition[1] make up less than 5% of ground cover.
ADDITIONAL CRITERION - only applicable to **Fen and Purple moor grass and rush pasture** habitat type:	
7a	Continuous litter cover should form no more than 10% of the area assessed.
ADDITIONAL CRITERION - only applicable to **Bog** habitat type:	
7b	Sphagnum and cottongrasses are at least frequent. Cover of ericaceous dwarf-shrubs[2] is less than 75%.
ADDITIONAL CRITERION - only applicable to **Reedbed** habitat type:	
7c	The reedbed has a diverse structure with between 60 and 80% reeds. Other areas may include open water (at least 10%), fen and/or wet woodland. NB - Areas of species rich-fen that are remnant or negatively affected by reed dominance should not mapped separately and only assessed as MODERATE or POOR.
ADDITIONAL CRITERION - only applicable to **Floodplain wetland mosaic (CFGM)** habitat type:	
7d	All ditches recorded within the habitat achieve Good condition as assessed using the Ditch condition sheet.

	NB - Apply hydrological or floristic indicators as for fen or floodplain grassland for fields between ditches where the conservation objective is to support feeding/breeding birds or habitat interest.

Condition Assessment Result	Condition Assessment Score
If 6 criteria assessed:	
• Passes 5 or 6 of 6 core criteria, INCLUDING essential core criterion 1	Good (3)
• Passes 3 or 4 of 6 core criteria; OR • Passes 5 of 6 core criteria EXCLUDING essential core criterion 1	Moderate (2)
• Passes 0, 1 or 2 of 6 core criteria	Poor (1)
If 7 criteria assessed:	
• Passes 5 or 6 of 6 core criteria, INCLUDING essential core criterion 1; AND • Passes additional criterion 7a, 7b, 7c OR 7d where applicable	Good (3)
• Passes 4 or 5 of 7 criteria; OR • Passes 6 of 7 criteria EXCLUDING either essential core criterion 1 or additional criterion 7a, 7b, 7c OR 7d	Moderate (2)
• Passes 0, 1, 2 or 3 of 7 criteria	Poor (1)

Footnotes

Footnote 1 - For fens, specify what fen type is present - alkaline, neutral, acidic/eutrophic, mesotrophic, oligotrophic.

Footnote 2 - Species indicative of sub-optimal condition for this habitat type include: creeping thistle *Cirsium arvense*, spear thistle *Cirsium vulgare,* common nettle *Urtica dioica*, docks *Rumex* spp., cherry laurel *Prunus laurocerasus*, common ragwort *Jacobaea vulgaris*.

Footnote 3 - Ericaceous dwarf shrubs include: crowberry *Empetrum nigrum*, cowberry *Vaccinium vitis-idaea*, bog bilberry *Vaccinium uliginosum*, cranberry *Vaccinium oxycoccos*, heather *Calluna vulgaris*, cross-leaved heath *Erica tetralix*, bog-rosemary *Andromeda polifolia*, bog myrtle *Myrica gale*

Footnote 4: Joint Nature Conservancy Council, Common Standards Monitoring Guidance.

24 Woodland – No additional NRW advice

25 Wood-pasture & Parkland – No additional NRW advice