

# Monitoring Specifications

Date: 2010-05-03

## HD Habitat Type 1230 Vegetated Sea Cliffs of the Atlantic and Baltic Coasts





## ARGE BLMP - Working Group for the North Sea and Baltic Sea Monitoring Programme

At the 34th North German Environmental Ministerial Meeting held on 17 April 1997, the competent departments of the German Federal Government and of the federal states of Hamburg, Mecklenburg-Vorpommern, Lower Saxony and Schleswig-Holstein agreed to establish a joint working group co-ordinating the monitoring of the marine environment of the North and Baltic Seas (ARGE BLMP Nord- und Ostsee).

Members of ARGE BLMP are:

- Federal Ministry of Food, Agriculture and Consumer Protection
- Federal Ministry of Transport, Building and Urban Development
- Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
- Federal Ministry of Education and Research
- Authority for Urban Development and Environment of the Free and Hanseatic City of Hamburg
- Mecklenburg-Vorpommern Ministry for Agriculture, the Environment and Consumer Protection
- Lower Saxony Ministry for the Environment and Climate Protection
- Schleswig-Holstein Ministry for Agriculture, the Environment and Rural Areas

The Monitoring Manual describes the current measuring programme implemented under BLMP. The monitoring requirements of the different EC Directives (Marine Strategy Framework Directive, Water Framework Directive, FFH, Birds Directive), marine protection conventions (OSPAR, HELCOM, Trilateral Monitoring and Assessment Program) and other bodies of regulations have been taken into account in the Manual. The Monitoring Manual is available free of charge on the BLMP website at [www.blmp-online.de/Seiten/Monitoringhandbuch.htm](http://www.blmp-online.de/Seiten/Monitoringhandbuch.htm)

## Editorial information

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# 1 General

## 1.1 Subject area

Biological Monitoring - Habitats - HD Habitat Type 1230 - Vegetated Sea Cliffs of the Atlantic and Baltic Coasts

## 1.2 Definition

### 1.2.1 EU definition

Vegetated sea cliffs of the Atlantic and Baltic coasts

Vegetated cliffs exhibit a complex pattern of variation reflecting the degree of maritime exposure, geology and geomorphology, biogeographical provenance and pattern of human management. Typically, on the most exposed cliffs there is a zonation from crevice and ledge communities of the steepest slopes beside the sea (*Crithmo-Armerietealia*, Géhu 1964) through to closed maritime grasslands on upper cliff slopes, cliff tops and cliff ledges where there is deeper accumulation of soils (*Silenion maritimae*, Malloch 1973). Further inland and on more sheltered cliffs, these grade into a complex assemblage of maritime and paramaritime types of heath, calcareous grassland, acid grassland, therophyte, tall herb, scrub and wind-pruned woodland vegetation, each enriched by floristic elements characteristic of coastal habitats. On soft coasts with much active movement, complex assemblages of maritime and non-maritime vegetation occur.

### 1.2.2 National definition

Complexes of sea cliffs on Atlantic, North Sea and Baltic Sea coasts where there is at least partial cover with higher plants. Since these are dynamic habitats, the total cliff complex, including an at least 100-m-wide conservation strip above the cliff edge, is to be included. On the Baltic Sea, this habitat type is found in the form of chalk sea cliffs and coastal moraine cliffs; on the North Sea, it is essentially represented by the sandstone cliffs of Heligoland.

(Updated: 29 November 2006)

### 1.2.3 Mapping procedure

The seaward boundary is the foot of the cliff/slope, the course of which determines the zone influenced by deposition on the beach beneath the cliff and may, in certain circumstances, extend as far as the coastline (Baltic Sea) or the MHT line (North Sea). Clear indications include fresh boulder belts, deposited and washed sand and clay, fallen trees and root plates, and remains of cliff vegetation from soil clods that have slipped down (e.g. coltsfoot communities). Areas previously covered by heaps of slip debris also belong to this habitat type where the heaps have been almost completely denuded, e.g. by high tides. It is sufficient for the occurrence of corresponding structures to have been promptly documented, e.g. in the course of an earlier mapping trip during habitat type monitoring. Cliff springs that run across the beach are included.

Beaches on which annual or perennial vegetation or dune formation may become established and that can therefore be mapped as separate units, e.g. as annual vegetation of drift lines (1210), perennial vegetation of stony banks (1220), Atlantic salt meadow (1330) or embryonic shifting dunes (2110), are among the areas that do not fall within this habitat type.

The lower slopes of sea cliffs on the island of Heligoland that are covered exclusively by algae and extend as far as the coastline are included in this habitat type.

Where eroding sea cliffs are set back from the sea and only very rarely subject to marine influences, the seaward boundary usually runs directly along the foot of the slope.

Landwards, the boundary of the habitat type runs:

- Along the boundary to the next land use, if arable land and comparable intensively used land, settlements and installations permissible under the Land Nature Conservation Act adjoin it in the strip of land designated for the protection of water and recreational utility; an at least 2-m-wide strip above the last edge of the slope is included;
- Along landward boundaries to other habitat types located above the sea cliff (e.g. European dry heaths (4030), beech forests (9110 - 9130)); if this boundary extends considerably further than 100 m inland, only recognisably coastally influenced parts of the area beyond this are included;
- Along landward boundaries to other biotope types located above the sea cliff (e.g. coastal grasslands, scrub, wetlands, dry herbaceous communities, mixed woodland, areas characterised by successional processes), areas mapped as biotopes or areas to be developed as biotopes (e.g.. land owned by nature conservation foundations or public bodies, compensatory areas); if these extend considerably further than 100 m inland, only recognisably coastally influenced parts of the area beyond this are included.

The criteria for categorisation as 'coastally influenced' include:

- Significant occurrence of species or subspecies of flora (rarely, it may also be possible for fauna to be verified) that are generally indicative of the influence of salt (including airborne salt) or that experience suggests show an affinity with the particular microclimate in the vicinity of the coast (e.g. *Festuca rubra* ssp. *litoralis*, *Tripleurospermum maritimum* or particularly frost-susceptible species).
- Growth forms indicative of the influence of salt or the marine climate (in particular, sea winds).
- Functional ecological relationships, e.g. biotope complexes that evidently belong together, zonation, penetration.

Habitat Type 1230 is conceived as a complex, which is why all other occurring habitat types listed in Annex I are also to be mapped and assessed as separate units in each case. E.g., the following habitat types may occur on or above the cliff: coastal dunes (2120, 2130, 2140, etc.), European dry heaths (4030), semi-natural dry grasslands and scrubland facies (6210), species-rich *Nardus* grassland (6230) and petrifying springs with tufa formation (7220). The forest and woodland habitat types 9110, 9120, 9130, 9160, 9180 and 9190 are also surveyed as separate units and as components of the complex, provided they are still subject to maritime influences. Phenomena that are particularly characteristic of such a situation include the occurrence of wind pruning and sweep of the bole on beeches. See above for further criteria. Scrub and pioneer stands are allocated to the corresponding habitat types, provided these are spatially related as successional stages and are identifiable as such in phytosociological terms.

Delimitation from other habitat types:

1110, 1140, 1160, 1170: No overlap, as these habitat types extend (approximately) to the coastline (Baltic Sea) or MHT line (North Sea; 1110: MLT line) at most. The wave-cut platforms around Heligoland are reef (1170) and directly adjoin Habitat Type 1230 at the MHT line.

1210, 1220: Absence of corresponding structures (drift lines; beach ridges, including beach ridges with cliff material worn down by attrition, large beach ridge landscapes in front of fossil cliffs, etc.) and vegetation, absence of clearly identifiable direct domination by erosion and denudation processes on the cliff.

1330: Halophytes occurring in narrow strips, lines or small patches (mostly individual species and not salt meadow vegetation in a narrower sense) are sometimes characteristic of areas on the lower slopes and at the foot of the cliff that have been dormant for a somewhat longer period. These also include, in particular, small populations with *Bolboschoenus maritimus* (sea clubrush), *Phragmites australis* (common reed) and some of the characteristic plant species. Coherent extensive and small sites usually do not belong to the complex, but to 1330, or are to be surveyed as part of 1210 or 1220 (e.g. this is more frequently the case on the Schlei).

6430: Hydrophilous tall herb communities that accompany watercourse banks are limited to running waters, so overlaps could occur on streams and in V-shaped valleys within the complex. Just like woodland margin formations, they often cannot be distinguished from other Habitat Type 1230 tall herb communities and are therefore, as a matter of principle, only surveyed as separate units at sites that are typical in area.

7220: Petrifying springs with tufa formation are identifiable thanks to vegetation associated with tufa formation and are to be delimited by reference to the associated spring-head.

9110 - 9190: All extensive manifestations to be characterised as forests at coherent sites that, as a rule, are >1,000 m<sup>2</sup> in area (ravine forests are frequently smaller) and in which species characteristic of the forest habitat type are able to live, at least for periods, are also surveyed as separate units in each case.

### 1.3 Competent authority/ies

Mecklenburg-Vorpommern:	STAUN, <a href="#">LUNG</a>
Lower Saxony:	<a href="#">NLWKN</a> , <a href="#">NLPV NI</a>
Schleswig-Holstein:	<a href="#">LLUR</a> , <a href="#">LKN-SH</a>

### 1.4 Working group

Ad Hoc Working Group on Habitat Types

## 2 Monitoring requirements

### 2.1 Necessity

#### [HD \[1\]](#)

##### Article 11 [\[2\]](#)

Comments

"Member States shall undertake surveillance of the conservation status of the natural habitats and species referred to in Article 2 with particular regard to priority natural habitat types and priority species."

This provision is not limited to NATURA 2000 areas, while habitat types outside Habitats Directive areas are also to be included in the monitoring as appropriate

##### Article 17 [\[3\]](#)

Comments

"Every six years [...], Member States shall draw up a report on the implementation of the measures taken under this Directive. This report shall include [...] the main results of the surveillance referred to in Article 11."

Article 17 governs the performance of the reporting obligations in general terms. DocHab 04-03/03 (European Commission, 2006) sets out further substantive standards and guidelines.

#### [WFD \[4\]](#)

##### Article 8 in conjunction with Article 6 and Annex IV

Comments

"Member States shall ensure the establishment of programmes for the monitoring of water status in order to establish a coherent and comprehensive overview of water status..."

"[F]or protected areas the above programmes shall be supplemented by those specifications contained in Community legislation under which the individual protected areas have been established." (Third indent of Article 8(1))

Under Article 6 in conjunction with Annex IV, the protected areas also include NATURA 2000 sites designated for the protection of habitats and species, provided the maintenance or improvement of water status is an important factor in their protection.

### 2.2 Environmental targets

#### HD

Maintenance of Habitat Type 1230 with a favourable conservation status or, where applicable, its restoration to such a status by means of the conservation, restoration and, where applicable, development of:

- Dynamics involved in the formation of biotopes at sea cliffs with typical structures
- Unbuilt-up and unstabilised areas above and below sea cliffs to ensure natural erosion and development
- Largely natural sediment, current and wave conditions off sea cliffs
- Typical structures and functions (see assessment matrix)

### 2.3 Threats

Current impairments according to the information given in the national report submitted under Article 17 of the Habitats Directive for the reporting period 2001 - 2006 (BMU, 2008):

- Trampling
- Coastal protection measures
- Erosion

## 2.4 Spatial allocation

As the definition indicates, sea cliffs are located only on the margins of coastal waters. The conservation status of sea cliffs is dependent, in particular, on current conditions, high tides/storm surges and similar phenomena.

	EEZ	12- nm zone	Coastal waters 1)	Transitional waters
MSFD	-	-	-	-
Birds Directive	-	-	-	-
HD	-	-	x	-
WFD	-	-	-	-
HELCOM	-	-	-	-
OSPAR	-	-	-	-
TMAP	-	-	-	-

1) Under the WFD: baseline plus one nautical mile

## 3 Monitoring concept

### 3.1 Description of monitoring network

The foundation for the network is provided by the Concept for the Monitoring of the Conservation Status of Habitat Types and Species under the Habitats Directive in Germany (*Konzept zum Monitoring des Erhaltungszustandes von Lebensraumtypen und Arten der FFH-Richtlinie in Deutschland*), which was drawn up at the federal level for terrestrial habitat types on the basis of the results of an R+D project (SACHTELEBEN and BEHRENS, 2009).

Under the concept, a total census is to be carried out for this habitat type.

#### North Sea

On the North Sea, the sites are limited to Schleswig-Holstein (Heligoland, Geest islands) (seven sites).

#### Baltic Sea

On the Baltic Sea coast, the sites are several times larger and are more widely distributed. 24 sites have been delimited in Schleswig-Holstein; 20 sites have been delimited in Mecklenburg-Vorpommern.

The sites that have been delimited are geographically/topographically discrete areas, as a rule islands or parts of islands and/or sections of coast oriented towards adjacent seaward water bodies (subject to the WFD).

On the specification of the monitoring network, see section 3.2.

### 3.2 Monitoring activities

#### North Sea and Baltic Sea

##### Surveying and Evaluation of Sea Cliffs (1230)

###### Methods:

The target variables are the status quo and trends in:

- Occurrence, range and area
- Typical species spectrum and ecological structural diversity

The sampling strategy is to be specified separately for the individual types of sea cliff. Representative sites may be selected from among sea cliffs that display similar biotic and abiotic conditions. The sampling strategy must make it possible to obtain evidence about the ecological status of the habitat type, which is usually composed of various biotopes.

Use should be made of basic monitoring with loose grids, provided the species and habitats are in a good, stable situation, but selective monitoring (more intensive sampling) should be undertaken as soon as problems come to light in order to survey the scale of the problems and facilitate an adequate response.

###### Monitoring concept:

Area-wide surveying of the overall extent of the habitat type to ascertain its range and area. Selection and permanent specification of representative sample plots or transects for the detailed surveying of qualitative parameters (see below).

###### Basic monitoring and specification of monitoring network

An area-wide survey of the habitat type is carried out in the course of the six-year reporting cycle in order to assess its range and area as characteristic variables. Both on the North Sea and on the Baltic Sea, this survey is carried out using aerial images and the biotope mapping keys issued by the Länder and/or the TMAP typology and the associated mapping key. The primary goal is the uniform characterisation and assessment of HD habitat types across the different Länder. Depending on what is known about the changes in certain areas, it may be sufficient to carry out reviews of known sites based on aerial images in alternation with area-wide terrestrial surveys. This is a matter to be decided by the relevant specialist authorities at Land level.

Representative survey areas along the transects are established and surveyed or the transects surveyed in their entirety in order to record characteristic qualitative variables (characteristic structures, functions and species, impairments) (for general comments on the specification of survey areas, see SACHTELEBEN and BEHRENS, 2009). Where a total census is to be carried out, each dune heath site must be covered by at least one transect. The transects or the survey areas within the transects represent the various sites in terms of their manifestation, variability and conservation status (selection criteria: topographical, geomorphological and habitat situation, structure and size). The data that are required for the assessment of the criteria mentioned in the assessment matrix (see below) are gathered

in these areas. The number of transects and survey areas specified within the transects must be sufficient to adequately depict the variance of the manifestations and conservation statuses at the qualitative and quantitative levels. As a rule, the individual sites should not be less than approx. 1,000 m<sup>2</sup> in area; the survey areas specified reflect the form and size of the sites delimited in the course of the area-wide mapping. Exception: smaller sites of particular significance and representativity (see selection criteria).

As a rule, the transects run at right angles to the coastline in order to optimise the representation of the sequence of locations. Depending on the size of the site or the complexes of sites, the survey areas may range in size from single, permanent plots to several large, spatially specified survey areas along transects and transects in their entirety. Where appropriate, it is also possible for full-coverage site surveying to be implemented at small sites along the mainland coasts on the North Sea and Baltic Sea. The 'structured walks' procedure may be deployed in this context. Where appropriate, the transects encompass all the habitat types found on the relevant section of coast or island. This is the best way of incorporating natural transitions and dynamic changes into the assessment.

The survey areas along the transects or the transects themselves are to be plotted using GPS with the highest possible positional accuracy (approx. 1 - 5 m), so that they can be surveyed again when the mapping procedure is repeated. Where the sites change to a considerable extent, the boundaries of the transects or survey areas must be adjusted as necessary. The length of the transects may be increased in areas where a habitat type is expanding or decreased where a habitat type is shrinking.

#### **Frequency:**

The frequency for the surveys of the transects or survey areas ranges from once a year to once per reporting period. In the latter case, the survey cycle is to be intensified as necessary, depending on the actual dynamics of change at the specific location. The concrete specification of the transects and survey areas and, where appropriate, the specification of a different survey cycle are matters to be decided by the relevant specialist authorities at Land level.

The results from the individual survey areas are compiled and the conservation status of the habitat type for the relevant biogeographical region assessed, incorporating the results of the area-wide mapping, in order to carry out an overall assessment of the habitat type site in question (see SACHTELEBEN and BEHRENS, 2009).

#### **Parameter:**

- Abundance (flora)
- Area
- Coastal protection measures
- Construction measures
- Exposure (active or passive cliff)
- Inputs of substances/materials
- Position
- Recreational uses/facilities
- Species spectrum
- Structures/processes (landslips, washed debris, rock falls, etc.)

#### **Zone:**

Littoral

### **3.3 Additional parameters**

The following parameters are required additionally for the assessments::

- Hydrology (status quo and trends)
- Morphology (status quo and trends)

## 4 Assessment

### 4.1 Assessment procedures

#### North Sea and Baltic Sea

**Title**

HD Habitat Types - Vegetated Sea Cliffs (1230)

**Authors**

(KRAUSE et al 2008)

**Guideline:**

HD

**Comments:**

Assessment Matrix Drawn up by the Federation-Länder Working Group on Habitats Directive Reporting Obligations for Marine and Coastal Sites within the Framework Laid Down in the 'Pinneberg Schema' (Updated: 27 May 2008):

The assessment matrices for the marine and coastal habitat types listed in Annex I of the Habitats Directive form the basis for the performance of the monitoring and reporting obligations established in Articles 11 and 17.

The typical species listed in the matrices under the assessment criterion 'Completeness of the typical species inventory' are intended to reflect the functional structure of a habitat type, since this is not evaluated in any other way. Given that 'typical species' may occur in various habitat types, they are not to be equated with 'characteristic species'.

The species lists set out here are not exhaustive. It remains possible for items to be added and deleted in order to take account of more recent findings. The species lists must be adjusted to specific regional circumstances for the mapping of the sites in question. The threshold values cited for some habitat and impairment parameters also have to be specified particularly for individual regions as appropriate.

The inventories of typical species for the habitat types represent one of the main ecological assets that have to be assessed in order to comply with the obligations placed on Member States with regard to reporting to the EU. Nevertheless, although they are to be assessed as indicators of the conservation status of the habitat type in question, no separate species monitoring needs to be carried out on individual typical species. Information on the presence of the species is sufficient for this purpose. Optionally, abundances, trends, etc. may be obtained to support the assessment.

The assessment of the manifestations of the habitat type specific to the physical region in question is used to supplement the habitat type profiles and assessment matrices drawn up by the specialist authorities at Land level.

On the assessment criteria:

The habitat types for beaches and sea cliffs are highly dynamic habitats, the boundaries and manifestations of which are subject to constant change. Active coastal dynamics and their manifestations are therefore reflected, in particular, in the assessment parameters for habitat structures and impairments.

**Habitat structures:**

The diversity of natural substrates typical of the location and, in particular, processes that have identifiable effects on sea cliffs (rock falls, solifluction, etc.) are assessed as expressions of unrestricted coastal dynamics. Biotic parameters are subordinated.

The assessment is carried out by meaning the subcriteria.

**Typical species inventory:**

The proportion of all the plant species potentially present at a location that actually occur is drawn on for the assessment.

In addition to this, furthermore, the number or occurrence of typical animal species may be incorporated into the assessment as a subcriterion, provided studies of suitable species groups are available.

Impairments:

In particular, mechanical and structural changes in the habitat type sites or the surrounding areas that influence them, inputs of substances and damage caused by recreational use are assessed as impairments. As a matter of principle, what is decisive is the subcriterion that has been assessed least favourably in each case, i.e. the subcriterion that constitutes the greatest impairment.

[Assessment matrix \(PDF\)](#)

## 5 Quality assurance

### Comments

The participating institutions are striving to build up and introduce uniform QA standards.

### 5.1 Monitoring institutions

- [LLUR](#)
- [LUNG](#)
- [NPV SH](#)

### 5.2 Guidance documents

- Council of the European Communities, 1992: Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora; *Official Journal*; L 206: pp. 7-50.
- European Commission, DG Environment, 2006: *Assessment, monitoring and reporting under Article 17 of the Habitats Directive: Explanatory Notes & Guidelines: Final Draft*.
- European Commission, DG Environment, 2007: *Interpretation Manual of European Union Habitats*.
- Krause, J., Drachenfels, O.v., Ellwanger, G., Farke, H., Fleet, D.M., Gemperlein, J., Heinicke, K., Herrmann, C., Klugkist, H., Lenschow, U., Michalczyk, C., Narberhaus, I., Schröder, E., Stock, M. and K. Zscheile (2008): *Bewertungsschemata für die Küsten- und Meereslebensraumtypen der FFH-Richtlinie: Ergebnis Bund-Länder-Arbeitskreis "FFH-Berichtspflichten Meere und Küsten": Stand: 27.05.2008*.
- Sachteleben, J., Behrens, M. et al., 2009: *Konzept zum Monitoring des Erhaltungszustandes von Lebensraumtypen und Arten der FFH-Richtlinie in Deutschland: Ergebnisse des F+E-Vorhabens "Konzeptionelle Umsetzung der EU-Vorgaben zum FFH-Monitoring und Berichtspflichten in Deutschland" (Stand: November 2008)*; commissioned by the Federal Agency for Nature Conservation.
- State Agency for Nature and Environment of the Land Schleswig-Holstein, 2007: *Hinweise zur Bewertung des Erhaltungszustandes von FFH-Lebensraumtypen in Schleswig-Holstein: 1. Fassung, Juli 2007*.
- State Agency for Nature and Environment of the Land Schleswig-Holstein, 2007: *Steckbriefe und Kartierhinweise für FFH-Lebensraumtypen in Schleswig-Holstein: 1. Fassung, Mai 2007*.
- TMAP [Manual](#)

### 5.3 Standards

- To be specified by the Quality Assurance Panel at the UBA as necessary.

### 5.4 Current status

## 6 Literature

## **7 Activities required to implement the concept**

### **7.1 Changes to the current monitoring programme**

HD Habitat Type 1230 must be monitored in accordance with the methodology described in sections 3 and 4.

### **7.2 Working steps required**

#### **Priorities**

- Data management: standards set by the European Union, support provided, standards set and evaluation carried out by BfN
- Conclusive compilation of current habitat type site shapes (at present, still not available for Mecklenburg-Vorpommern)
- Conclusive specification of transects/survey areas in Schleswig-Holstein (carried out as part of or directly following the current, ongoing HD habitat type monitoring or the extended TMAP procedure in Schleswig-Holstein; due to be concluded in 2012) and Mecklenburg-Western Pomerania
- Evaluation with a view to management plans and/or necessary measures

## Footnotes

- (1)** Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.
- (2)** Article 11 (monitoring of habitats and all species listed in Annexes II, IV and V) imposes the obligation to monitor the conservation status of all habitats (listed in Annex I) of Community interest. In consequence, this provision is not limited to NATURA 2000 areas, but habitat types outside the Habitat Directive areas are also to be included in the monitoring as appropriate.
- (3)** Article 17 governs the performance of reporting obligations. The Habitats Directive imposes binding obligations concerning the submission of reports to the European Commission (Articles 11 and 17).
- (4)** EC Water Framework Directive; Directive 2000/60/EC. The coastal waters subject to ecological assessment under the WFD extend 1 nautical mile beyond the baseline.