



**Report on the Regional Workshop on common approaches to  
habitats and species conservation in the Black Sea Marine  
Biogeographical Region**

27 – 30 October 2020

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## **Executive Summary**

An online Regional Workshop on common approaches to habitats and species conservation in the Black Sea Marine Biogeographical Region organised by the Bulgarian Ministry of Environment and Water was held between 27 and 30 October 2020. The workshop was supported through the framework of the Natura 2000 Biogeographical Process as a follow-up event to the second Natura 2000 seminar for the Baltic, Atlantic, Macaronesian, Mediterranean and Black Sea marine biogeographical regions.

At the workshop the participants addressed issues related to six marine natural habitat types in Annex 1 to the Habitats Directive for the Black Sea Marine Biogeographical Region and the state of Black Sea cetaceans with a view to developing common interpretation of Natura 2000 habitat definitions and common approach to define Favourable Reference Values for habitats and species.

Possible future actions were identified that should improve regional cooperation and data exchange and facilitate joint monitoring and reporting activities under Habitats Directive, Water Framework Directive and Marine Strategy Framework Directive.

## 1. Introduction

The Regional Workshop on common approaches to habitats and species conservation in the Black Sea Marine Biogeographical Region was held between 27 and 30 October 2020. Due to the Covid-19 pandemic, the event was held online. The workshop was organised by the Bulgarian Ministry of Environment and Water in close cooperation, and with the financial support of, the European Commission and supported through the framework of the Natura 2000 Biogeographical Process by NatureBureau Ltd. It was a follow-up event to the second Natura 2000 seminar for the Baltic, Atlantic, Macaronesian, Mediterranean and Black Sea marine biogeographical regions<sup>1</sup>.

The Natura 2000 Biogeographical Process (BGP) was launched by the European Commission in 2011 to assist Member States in managing Natura 2000 as a coherent ecological network. The BGP provides practical means to exchange the information, experience and knowledge that is required to identify and define common solutions and develop cooperative actions that can be delivered to ensure progress towards the EU 2020 Biodiversity Strategy targets, in particular Targets 1 & 2<sup>2</sup>.

During the discussions in the working group on habitats in the Mediterranean and Black Sea regions, held within the Second Natura 2000 marine seminar, it was concluded that it would be useful to have a follow-up meeting with focus on the definitions and specific subtypes of marine natural habitat types in Annex 1 to the Habitats Directive, taking into account the results of the work done for the European Red List of Habitats.

A need for better cooperation in the Black Sea Region was identified to improve adequacy of assessments and coherence in implementation of environmental legislation. This was confirmed later by a preliminary analysis of the available information made by NatureBureau Ltd. Based on EU Interpretation Manual and available publications and reports from Bulgaria and Romania, this suggested that it might be necessary to provide further interpretation of the habitat definitions in the EU Interpretation Manual to reflect any significant regional and national variations in the habitat features. The results of the analysis also showed that there are discrepancies between the Bulgarian, Romanian and EU habitat definitions. Possible issues were identified with the interpretation of habitat 1110 Sublittoral sandbanks in relation to cross-over between sub-types and other habitats such as 1160 Large shallow inlets and bays and possibly 1130 Estuaries. Furthermore, the definitions of 1170 Reefs sub-types used by Bulgaria and Romania show little or no cross-correspondence.

Another open issue for the Black Sea region is that despite available literature and numerous regional surveys, there are still gaps in the current knowledge on the population density and abundance of the Black Sea cetaceans. Therefore, it is highly desirable that relevant research institutions of Bulgaria and Romania collaborate and cooperate to design and implement joint

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<sup>1</sup> Second Nature 2000 Marine Seminar - Palma, Mallorca, Spain, 13 to 15 November 2018

<sup>2</sup> [https://ec.europa.eu/environment/nature/natura2000/seminars\\_en.htm](https://ec.europa.eu/environment/nature/natura2000/seminars_en.htm)

surveys and assessments to meet reporting obligations whenever possible, e.g. CeNoBS project.

The Bulgarian Ministry of Environment and Water took the opportunity to host a regional workshop to address the above topics. The main themes of the event were:

- Developing common interpretation of specific Natura 2000 habitat definitions for the Black Sea Marine Biogeographical Region of:
  - 1110 Sandbanks which are slightly covered by sea water all the time
  - 1130 Estuaries
  - 1140 Mudflats and sandflats not covered by seawater at low tide
  - 1160 Large shallow inlets and bays
  - 1170 Reefs
  - 1180 Submarine structures made by leaking gases
- Developing a common approach to define Favourable Reference Values for Natura 2000 habitats and species in the Black Sea Marine Biogeographical Region
- Improving regional cooperation and data exchange, and exploring possibilities for joint monitoring and reporting

## 2. Event Overview

### 2.1. Organisation of work

The workshop brought together representatives from:

- the scientific community and national authorities responsible for the implementation of relevant EU Directives from Bulgaria and Romania,
- the European Commission and the European Topic Centre on Biological Diversity (ETC/BD),
- environmental NGOs,
- other countries in the region (Turkey, Georgia, Ukraine), and
- from EU member states.

There were 46 registered participants from nine countries in addition to the experts from the Bulgarian Ministry of Environment and Water and the supporting team from NatureBureau Ltd.

The workshop consisted of an opening session, followed by six sessions covering each habitat type, a session on Black Sea cetaceans, a forum discussion and Planning of Future Action (see **Annex II** for the complete Workshop Programme).

Background briefing documents on Black Sea marine habitats were provided, in order to facilitate discussions during the workshop (prepared by Dr Susan Gubbay). These presented:

- overview of the Habitat Definitions and Favourable Reference Values and open questions related to them;
- possible common approaches to habitats and species conservation in the Black Sea Marine Biogeographical Region; and
- possibilities for improving regional cooperation and data exchange, as well as for joint monitoring and reporting under Habitats Directive, Water Framework Directive and Marine Strategy Framework Directive.

A separate briefing document was prepared to support discussions on cetaceans (prepared by Richard White), highlighting the conservation status, known distribution, pressures and threats and conservation measures for bottlenose dolphin (*Tursiops truncatus ponticus*), common dolphin (*Delphinus delphis ponticus*) and harbour porpoise (*Phocoena phocoena relicta*) in the Black Sea. The document also posed key issues that need to be addressed to facilitate the cooperation in monitoring of those species.

All briefing documents were distributed to all registered participants prior to the event and have been updated on the basis of the discussions and additional information provided during workshop. Final versions are presented in **Annex III** (habitats) and **Annex IV** (cetaceans).

The final session was dedicated to cross-cutting issues relating to planning and co-ordination of habitat monitoring and resulted in a draft road map of coordinated actions on marine habitats and cetaceans in the Black Sea (see Table 1 under Possible Future Actions below).

All the presentations made at the workshop are freely available on the BGP website, [https://ec.europa.eu/environment/nature/natura2000/platform/events/Regional\\_Workshop\\_in\\_Bio\\_geographical\\_Region.htm](https://ec.europa.eu/environment/nature/natura2000/platform/events/Regional_Workshop_in_Bio_geographical_Region.htm)

## **2.2. Opening session**

The workshop was opened by Ms. Atanaska Nikolova, Deputy Minister of Environment and Water of Bulgaria. Mr. Miroslav Kalugerov, Director of National Nature Protection Service Directorate in the Bulgarian Ministry of Environment and Water of Bulgaria made a short introduction to the event, providing an overview of the programme and setting out the intended outcomes.

Mr. Vedran Nikolic from the Nature Protection Unit of DG Environment of the European Commission made an introductory presentation on the biogeographical process and the main outcomes of the Second Marine Seminar that was held in the end of 2018. He also summarised the main elements of the 2020 State of Nature report and the key actions in the EU Biodiversity Strategy 2030 relevant to the marine environment.

Dr. Michelle Watson from ETC/BD reviewed Article 17 Habitats Directive data for Marine Black Sea habitats. Ms. Asya Doneva from the Bulgarian Ministry of Environment and Water presented the information provided by the Institute of Oceanology and the Institute of Biodiversity and Ecosystem Research - both at the Bulgarian Academy of Sciences – based on their research related to seabed habitats in the Bulgarian part of the Black Sea for the last 10 years. This was followed by an overview of current work on marine habitats in Romania presented by Mr. John Smaranda, Ministry of Environment, Waters and Forests of Romania.

Latest developments in EUNIS habitat classification on marine habitats were described by Dr. Eleni Tryfon from the European Environment Agency and Dr. Susan Gubbay from the N2K Consultancy presented an overview of concepts relating to Favourable Reference Values (FRVs) to provide a context for habitat-specific discussions.

## **2.3. Sessions on habitat definitions and Favourable Reference Values**

The objectives of the discussions were:

- to identify and discuss key questions/clarifications to help formulate any elaboration of definitions of six Annex 1 habitat definitions for the Black Sea; and
- to discuss approaches to setting Favourable Reference Values (Favourable Reference Range and Favourable Reference Area).

The EU Habitats Interpretation Manual definitions and Article 17 reporting data provided the starting points. The specific questions on the Definitions and FRV raised in the briefings were addressed for each habitat type and, where appropriate, additional information was provided by the participants. The results of the discussions are summarised in section 3 below and in the updated habitat briefings.

The overall conclusion is that the characteristics of all six habitat types throughout the Black Sea as described in the briefing document (**Annex II**) are relevant but the final definitions need

to be guided by those features which are most appropriate to their occurrence in Bulgarian and Romanian Black Sea areas.

#### **2.4. Session on Black Sea Cetaceans**

At the beginning of the session on Black Sea cetaceans, Dr Julie Belmont, ASI Project Officer at ACCOBAMS, presented the results from relevant ACCOBAMS surveys together with a short film from the CeNoBS/ACCOBAMS Survey Initiative project. This was followed by presentation of examples of best practice on cetacean species monitoring from the Baltic Sea, presented by Dr Ida Carlén from Coalition Clean Baltic. Ms Laura P. Gavilan from ETC/BD provided an outline of Article 17 reporting for Black Sea cetaceans.

The specific questions on the monitoring and co-operation regarding the Black Sea cetaceans raised in the briefings were discussed and, where appropriate, additional information was provided by the participants. The results of the discussions are summarised in section 3 below and in the updated cetaceans briefing.

The overall conclusion is there is good co-operation established amongst scientists and NGOs in studying and monitoring of cetaceans in Black Sea, but collaboration between national authorities of the Black Sea states should be strengthened. Development of joint monitoring methodologies and frameworks to be used by the Black Sea states will be broadly beneficial for conservation efforts.

#### **2.5. Forum discussion and Planning for Action**

This session addressed the collaboration between Bulgaria and Romania (and other Black Sea range states) on surveys, habitat data sharing, best practices, monitoring and reporting under Water Framework Directive, Marine Strategy Framework Directive and Nature Directives. The forum discussion was opened by Dr Valeria Abaza from National Institute for Marine Research and Development “Grigore Antipa”, Romania, who presented an overview of current joint activities of the two countries in the field, followed by moderated discussion for all participants. Based on these discussions, a draft road map of coordinated actions on marine habitats and cetaceans in the Black Sea was prepared (see Table 1 under Possible Future Actions below).

#### **2.6. Closing of the Workshop**

The Workshop was closed by Mr. Miroslav Kalugerov who thanked the participants for productive discussions. He expressed hope that the results of the meeting will provide a good basis for future collaboration between the Bulgarian and Romanian competent authorities regarding implementation of Water Framework Directive, Marine Strategy Framework Directive and Nature Directives regarding the Black Sea habitats and cetaceans. He also thanked the organising team and the European Commission.



### 3. Results

The main results of the discussions are summarised below.

#### 3.1. Black Sea habitat definitions and Favourable Reference Values

##### 1110 SANDBANKS

###### *Definition*

- Both Bulgaria and Romania define this habitat type as referring to sublittoral sands (in Bulgaria down to 30 m). The emphasis is on the sediment type rather than topographic feature.
- Initial surveys to identify the habitat have not described topographic features but these can be examined at different scales from sand ripples to sand bars.
- The associated biodiversity is driven by depth and sediment type and less so by the morphology. Sublittoral sands with their associated marine communities are under significant pressure in the Black Sea – both reasons why this broad approach to the habitat definition is advocated by some participants.
- Another view is that it may be more appropriate to deal with the conservation of sublittoral sands and their associated communities through measures such as MSFD and MPAs which are not necessarily Natura 2000. What is not in dispute is that there is considerable anthropogenic impact on sublittoral sands.
- Unlike the elaboration of the definition of this habitat type in other regional sea areas, macrophytes are present. NB. This may be because of a different interpretation of the definition elsewhere.
- Subtypes include reference to associated communities in Bulgaria but currently only sediment type in Romania. There is more up-to-date information on the sub-types in Bulgaria based on the communities/predominant species and this information was requested to update the habitat briefing.

###### *FRVs*

- There is good knowledge of range and some historical data to enable mapping.
- The digitised maps are probably very close to historical range in the 1950s.
- Changes in area are likely to be insignificant apart from very sheltered infralittoral areas where coast protection may have had some effects.
- The main issue for this habitat is more a loss of quality rather than loss of area.

## 1130 ESTUARIES

### *Definition*

- Two distinctive sub-types are present in the Black Sea - with or without delta. Subclasses of the latter type are those which are closed by sand bars or with no sandbars.
- Estuaries in the Black Sea are not significantly influenced by inflow of marine waters as there is no great tidal influence. This makes them more similar to the Baltic situation than NE Atlantic estuaries.
- Another relevant characteristic is that there can be dramatic changes in hydrography as a result of seasonal influences.
- The zone which could be defined as estuarine in non-delta estuaries may be very small, e.g. a few 10s of metres subject to both fresh and marine waters.
- Transitional marine waters, as defined under the WFD, include an area in front of the Danube where there is both high salinity and freshwater influence.
- The seaward extent should be determined with reference to the characteristic benthic communities/freshwater influence. In the Danube the front influenced by freshwater can be observed down to 20 m depth.
- Using the extent of any freshwater plume to determine the offshore boundary may result in overestimations.
- *Zostera marina* was not noted as a typical estuarine community in the Black Sea, but rather a fully marine community. There is however genetic mixing with *Zostera noltii* in some parts of the Black Sea.
- Ukraine has a range of different estuary types and these can be significantly affected by factors including seasonal flows, the presence of sand bars (which can be temporary), etc.

### *FRVs*

No substantive discussion was held on FRVs.

## 1140 MUDFLATS AND SANDFLATS

### Definition

- The extent of the zone is defined by weather more than tidal range. A 'core zone' could be identified between the maximum and minimum reach of waves. In Bulgaria a zone extending to water depths of up to 1m is used.
- Modelling of wave action could be used if a more precise boundary zone needs to be identified.
- Biological interpretation of the habitat and its relationship to the coastal region should also be considered in defining the extent of this habitat type up the shore.
- In the Black Sea, seagrass beds are not associated with this habitat type.
- In general, the sediment characteristic of these habitat types are more muddy in Romania, due to Danube influence and sandier in Bulgaria.
- Making links between the sub-types and EUNIS habitat types would be useful.
- Bulgaria and Romania have a similar approach to defining sub-types on the basis of sediment characteristics.
- More research is needed to describe the associated communities although the key characteristic species have been described (*Donacilla cornea* and *Ophelia bicornis*).
- Lagoon habitats are best covered by Habitat type 1150.

### FRVs

- There is good knowledge of the distribution of this habitat type. In Romania the data available is at least since the 1950s. Danube has been mapped in detail since the 1930s.
- There have been changes in extent particularly associated with coastal development, coastal defence and inland works (HEP dams). There has also been loss of dominated associated species.
- *Donacilla cornea* and *Ophelia bicornis* are used as indicators under MSFD so making links across the underpinning data for implementation of both MSFD and Habitats Directive will provide useful information.

## 1160 LARGE SHALLOW INLETS AND BAYS

### *Definition*

- As in other parts of the European Union there is much scope for determining what constitutes 'large' and 'shallow'. No particular conclusion on this could be reached, although it was proposed that a maximum depth of 30 m might be considered shallow.
- Wave/wind exposure is important in defining this habitat type and identifying locations where it occurs as shelter is a factor.
- The freshwater influence is acceptable but should be much less than in an estuary. This raises an issue of whether the Danube delta area should include this habitat type as there is a constant, large freshwater inflow.
- In Bulgaria, freshwater inflow has not been used to characterise this habitat type and the sites identified to date cover most of the national coastline.
- A possibility when considering what constitutes 'shallow' could be to use the infralittoral boundary. This has been modelled in EMODnet.
- MSFD evaluations do not directly address this habitat type.
- There is a need for a further look at the sites defined as this habitat type in the Black Sea cross-referencing to knowledge about wave exposure and marine communities as the approaches taken in Bulgaria and Romania have differences.
- No species unique to the Black Sea were identified as associated in this habitat type.
- It was recognised that this habitat type is another example of an Annex 1 marine type that is a habitat complex. It may or may not, for example, include some areas of rocky reef or lagoons although it may be more appropriate to list these separately.

### *FRVs*

- The associated communities for this habitat in some of the Natura 2000 sites have been mapped in detail (CoCoNet project).
- Sites that are in poor condition/not in Natura 2000 (e.g. Varna) should be taken into account when determining range.

## 1170 REEFS

### Definition

- Sub-types have been identified in Bulgaria and Romania, but a slightly different basis was used to define them. It would be useful to cross reference these.
- Elaboration of the subtypes should be done systematically based on the scientific data with elaboration not only on the associated marine communities but also substrate types.
- Links to the EUNIS scheme would help with cross-referencing as well as examining correspondence with MSFD types.
- There are similarities, but some differences in the habitat characteristics between Bulgaria and Romania, e.g. such due to biogeography.
- There are reefs formed by the invasive alien species *Ficopomatus enigmaticus*. They can support a diversity of species and have a structural role in the ecosystem but most probably not appropriate to be included as a sub-type of reef requiring conservation measures under the Habitats Directive.
- Caves can be a sub-types within reefs but are also a habitat type in their own right. For the purposes of the Habitats Directive a pragmatic approach would be for small examples that are impossible to map not be identified separately within reef habitats.
- The only sub-type unique to the Black Sea are the relict oyster reefs, and *Phyllophora nervosa* where it is established on shells/*Lithothamnion* to form a biogenic reef.
- Further elaboration of reef sub-types would be useful. There is ongoing research/projects but the data are not necessarily easy to access.

### FRVs

- There is generally good knowledge of the range of reef habitats.
- There is historical information on oyster reef, rocky reefs and for *Phyllophora* reefs from 1950s/60s.
- There is historical information on mussels reefs in the grey literature but it is difficult to estimate area as there is typically point source data and no mapping.
- There may be a relatively stable offshore depth boundary of reefs, e.g. 75-80 m although this varies depending on the sub-type.
- Fishing (bottom trawling) is a major pressure on this habitat type.

## 1180 SUBMARINE STRUCTURES MADE BY LEAKING GASES

### *Definition*

- Presence of structures in the anoxic zone is a distinctive feature in the Black Sea, however it is not clear if they would or should be considered to represent Habitat type 1180. There are no benthic communities rather bacterial mats.
- There are sulphurous springs that may qualify as such habitat type. Those can be temporary features, so it is unclear how to deal with them in an approach which requires site specific measures. There are no characteristic species associated with these features.
- Habitat type 1180 has been identified in shallow waters, however there is still big gaps of knowledge about potential characteristic associated species.
- Lack of knowledge means it is too early to determine whether there are any Black Sea specific habitat sub-types.

### *FRR & FRA*

- Some mapping has been done of the shallow water features (e.g. Mangalia area), but in general this habitat type is not well surveyed in Black Sea.
- Various ongoing projects and data from the oil and gas industry are likely to provide more information.
- The greatest known concentration of Habitat type 1180 features is in Ukraine, so it is likely this habitat is also present in BG and RO waters

## **3.2. Black Sea Cetacean**

### **MONITORING PROGRAMMES – PROPOSALS FOR THE BLACK SEA**

- Cetacean monitoring is required to underpin reporting for both the Habitats and Marine Strategy Framework Directives. Monitoring programmes should integrate the reporting needs of both Directives to avoid duplication of effort. Monitoring should consider the whole sea area of EU Member States and other coastal states in the Black Sea, not just Natura 2000 sites. Coastal states in the Black Sea should develop a common joint monitoring programme so that data from all survey and all countries are comparable. Steps towards this are being made through CeNoBS project, under MSFD.
- In addition to large-scale formal surveys, valuable data is also collected by regional institutions and NGOs. Many large-scale projects looking at wider data collection include cetacean surveys as a component (e.g. IFREMER and a project on coastal erosion). National reporting should include data from all sources.
- Monitoring programmes should gather data from the whole Black Sea basin and include aerial surveys, boat-based surveys, gathering of data from strandings, and acoustic monitoring. Acoustic monitoring provides long term datasets and allows identification of seasonal change. Programmes should also encourage fishers to collect and report bycatch data. Bycatch monitoring needs to be able to assess bycatch in IUU as well as legal fishing (though clearly this will be challenging), already in action as pilot actions in CeNoBS project which aims to support MSFD implementation in the Black Sea through establishing a regional monitoring system of cetaceans (D1) and noise monitoring (D11) for achieving GES.

### **COOPERATION**

- There is good cooperation amongst scientists and NGOs; this is not always the case at Government levels.
- Development of joint monitoring work should not only be driven by scientists and NGOs, but governments should participate.

### **REPORTING AND MAPPING OF CETACEAN DATA**

- The Article 17 data for Bulgaria is based on survey tracks only and not extrapolated across wider areas. There should be a move to use similar methodology to Romania in reporting to provide equivalent mapping data.

### **BALTIC HARBOUR PORPOISE – RELEVANCE FOR THE CETACEANS IN THE BLACK SEA**

- The main threat to harbour porpoise in the Baltic Sea is bycatch from commercial fishing and this needs addressing as a priority. Other pressures and impacts, which also need to be addressed, are environmental contaminants (especially PCBs which reduce

harbour porpoise fecundity), underwater noise (both background noise from shipping and percussive noise from construction), and prey availability and quality.

- The main bycatch pressure comes from bottom-set gill nets, targeting cod. Although management measures to help recovery of cod stocks means that fishing effort is reduced, they are still a major impact.
- Acoustic monitoring will remain the focus of future programmes, including SAMBAH 2. The population density of harbour porpoise in the Black Sea is too low for visual surveys to be useful.
- While small-scale area closures are an important part of management of bycatch in the Baltic Sea, these need to be complemented by wider area mitigation measures. These focus is on the use of pingers on nets, acting as an acoustic deterrent for harbour porpoise. However, these may cause problems with seals, attracting them to fish in nets, so they are not always popular with fishers. There are too few harbour porpoise in the Baltic Sea to assess the effectiveness of pingers, so management decisions are based on studies from elsewhere.



### **3.3. Planning for Action**

Main outcomes of discussions can be summarised as follows:

#### **IDENTIFIED NEEDS**

- More research activities and data collection.
- Better cooperation on all levels – between governmental/administrative institutions of Bulgaria and Romania as well as between scientific institutions between governmental and scientific institutions within each country.
- Streamlining monitoring and reporting under WFD, MSFD and HD.
- Update and harmonisation of existing (official) habitat interpretations of the Annex 1 Habitat types.

#### **CURRENT SITUATION**

- There are some ongoing projects and planned ones by both Bulgaria and Romania, as well as monitoring activities under WFD and MSFD, but better exchange of results is needed.
- International and EU scientific platforms may be used but a regional approach would be more appropriate.
- There are bilateral agreements related to WFD that are used also for MSFD. They may be used for formalisation of the cooperation and exchange of information on a more regular basis.
- The Natura 2000 Biogeographical process is useful to foster cooperation.

#### **NEXT STEPS**

- Planning of projects with as much research activities as possible, including bilateral ones (possible joint monitoring and reporting).
- Initiate work on revision/update of national/regional interpretation of EU definitions of Annex 1 habitat types.
- Formalisation of the process with a working group either under the existing agreements or as element of a separate new agreement.
- Update of EU Interpretation manual to include Black Sea region characteristics might be necessary, after formalisation of joint regional understanding of those characteristics.

#### **POSSIBLE FUTURE ACTIONS**

Table 1 summarises the possible future actions identified by the participants.

**Table 1**

**Possible future actions identified by the participants.**

Habitats	Cetaceans	Actions	Notes
Y		Sharing of national manuals for interpreting habitats	translation needed
Y		Create a discussion forum on the interpretation of habitat definitions, quality and function – to update regional and national interpretation manuals	
Y		Update national habitat interpretation manuals to reflect the specificities of the Black Sea habitats	Based on notes from all habitat workshops, to include: cross reference current RO and BG reef subtype definitions; further elaboration of reef subtypes (RO and BG); common approach to mapping 1160 (scale, depth, exposure); common approach on 1110 subtype definitions, to include associated communities
Y		Conduct further research on habitats to fill knowledge gaps, taking into account elaborated habitat definitions	
Y		Share updated manual with COM for reference if further elaboration of EU interpretation manual	
Y		Cross reference RO and BG habitat definitions, noting links to EUNIS and MSFD habitats	
Y		Establish a database of personal and organization contacts on specific habitats	from 2018 marine roadmap; not just RO and BG?
Y		<i>Collaboration on development of conservation measures</i>	<i>Biodiversity Strategy 2030 targets e.g. EU Nature Restoration Plan commitments 1. Legally binding EU nature restoration targets to be proposed in 2021, subject to an impact assessment. By 2030, significant areas of degraded and carbon-rich ecosystems are restored; habitats and species show no deterioration in conservation</i>

Habitats	Cetaceans	Actions	Notes
Y		Sharing of national manuals for interpreting habitats	translation needed
Y		Create a discussion forum on the interpretation of habitat definitions, quality and function – to update regional and national interpretation manuals	
			<i>trends and status; and at least 30% reach favourable conservation status or at least show a positive trend. 13. The negative impacts on sensitive species and habitats, including on the seabed through fishing and extraction activities, are substantially reduced to achieve good environmental status.</i>
			Romanian Waters can take a lead on habitat initiatives
	Y	Common monitoring framework for cetaceans in the Black Sea	Integrate species monitoring for HD, MSFD etc. ACCOBAMS working on 'roadmap' for monitoring across Black Sea; operational regional task force as a resource; including strandings monitoring; passive acoustic monitoring
	Y	Development of national, bi-national and multinational surveys and monitoring – using existing collaboration networks and existing best practices (e.g. passive acoustic monitoring)	Contact ACCOBAMS for support and facilitation; LIFE funding available for large-scale multinational surveys
	Y	Collaboration on development of conservation measures	Biodiversity Strategy 2030 targets <i>e.g. EU Nature Restoration Plan commitments 1. Legally binding EU nature restoration targets to be proposed in 2021, subject to an impact assessment. By 2030, significant areas of degraded and carbon-rich ecosystems are restored; habitats and species show no deterioration in conservation trends and status; and at least 30% reach favourable conservation status or at least show a positive trend. 14. The by-catch of species is eliminated or reduced to a level that allows species recovery and conservation.</i>

Habitats	Cetaceans	Actions	Notes
Y		Sharing of national manuals for interpreting habitats	translation needed
Y		Create a discussion forum on the interpretation of habitat definitions, quality and function – to update regional and national interpretation manuals	
	Y	Bycatch monitoring and mitigation programme, including increased cooperation between nature and fisheries Ministries	CENOBs pilot study on bycatch; HD legal obligation; links to new Biodiversity Strategy 2030; LIFE and EMFF funding for bycatch monitoring and mitigation
Y	Y	Regional platform for data sharing	
Y	Y	Black Sea Habitats and Species workshop in 2022	
Y	Y	BG RO memorandum on joint working – widen scope of working groups to include biodiversity	
Y	Y	Develop list of financial sources to support future actions	LIFE, EMFF, etc. Perhaps new EU funding guidelines once new spending agreed.

## Annex I – Workshop Participants List

Name	Organisation	Country
Abaza, Valeria	National Institute for Marine Research & Development “Grigore Antipa”	Romania
Amaha Ozturk, Ayaka	TUDAV	Turkey
Bailesteanu, Liviu	Ministry of Public Works, Development and Administration of Romania	Romania
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Berov, Dimitar	IBER-BAS	Bulgaria
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Gol'din, Pavel	Schmalhausen Institute of Zoology	Ukraine
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Name	Organisation	Country
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\* Members of organising committee

## Annex II – Workshop Programme

# Common Approaches to Black Sea Marine Habitats and Cetaceans

Online BGP Networking Event hosted by Ministry of Environment and Water, Bulgaria

## PROGRAMME

Date / Time (CEET)	Session & Chair	Speaker	Topic
<b>Tuesday 27 October</b>			
09.45	Admission of participants	BGP-NatureBureau Ltd	Technical support, information and procedures
	Miroslav Kalugerov, Director of National Nature Protection Service Directorate, Ministry of Environment and Water		
10.15 Recording starts	Opening and Introduction	Atanaska Nikolova, Deputy Minister of Environment and Water, Bulgaria Miroslav Kalugerov, Director of National Nature Protection Service Directorate, MOEW	Welcome, introduction to the meeting, overview of programme, intended outcomes
		Vedran Nikolic – DG-ENV	Update on outcomes of the Second Marine Seminar (Palma, 2018)
		Michelle Watson – ETC-BD	Review of available data on Black Sea habitats
		Asya Doneva – MOEW	Overview of current work on marine habitats in Bulgaria



Date / Time (CEET)	Session & Chair	Speaker	Topic
		John Smaranda – Ministry of Environment, Waters and Forests	Overview of current work on marine habitats in Romania
		Eleni Tryfon – EEA	Latest developments in EUNIS habitat classification
		Sue Gubbay – N2K Consultancy	Introduction to FRVs
12.15	Break		
12.30	Habitat 1180: Submarine structures made by leaking gases		Short film(s) Definition, interpretation Determining favourable reference values
13.30	Break		
14.00	Habitat 1170: Reefs		Definition, interpretation Determining favourable reference values
15.30	Closure		Participants to send in any further questions or suggestions for discussion on Friday
<b>Wednesday 28 October</b>			
09.45	Admission of participants	BGP-NatureBureau Ltd	Technical support, information and procedures
	John Smaranda, Senior Adviser, Ministry of Environment, Waters and Forests, Biodiversity Directorate		
10.15 Recording starts	Habitat 1140: Mudflats and sandflats		Short film(s) Definition, interpretation

Date / Time (CEET)	Session & Chair	Speaker	Topic
			Determining favourable reference values
11.30	Break		
12.00	Habitat 1110: Sandbanks		Definition, interpretation Determining favourable reference values
13.30	Closure		Participants to send in any further questions or suggestions for discussion on Friday
<b>Thursday 29 October</b>			
09.45	Admission of participants	BGP-NatureBureau Ltd	Technical support, information and procedures
	Nikolay Tzvetkov, State expert at Biodiversity Department, National Nature Protection Service Directorate		
10.15 Recording starts	Habitat 1130: Estuaries		Short film(s) Definition, interpretation Determining favourable reference values
11.30	Break		
12.00	Habitat 1160: Large shallow inlets and bays		Definition, interpretation Determining favourable reference values
13.30	Closure		Participants to send in any further questions or suggestions for discussion on Friday

Date / Time (CEET)	Session & Chair	Speaker	Topic
<b>Friday 30 October</b>			
09.45	Admission of participants	BGP-NatureBureau Ltd	Technical support, information and procedures
	Miroslav Kalugerov, Director of National Nature Protection Service Directorate, Ministry of Environment and Water		
10.15	Black Sea Cetaceans		Short film on cetaceans
Recording starts		Julie Belmont – ACCOBAMS	Results of the 2019 Black Sea aerial surveys
		Ida Carlen – Coalition Clean Baltic	Planning and co-ordination of species monitoring: examples of best practice from the Baltic Sea
		Laura-Patricia Gavilan Iglesias – ETC-BD	Outline of Habitats Directive Article 17 reporting from BG and RO
11.30	Break		
11.45	Forum discussion	Introduction - Valeria Abaza Questions / comments from previous sessions	Collaboration between BG and RO (and other BS range states) on surveys, habitat data sharing, best practice WFD, ND, MSFD overview
13.00	Break		
13.30	Planning for Action	Introduction – Asya Doneva MOEW	Draft roadmap of coordinated actions on marine habitats and cetaceans in the Black Sea  Participant feedback survey
15.30	Closure	Miroslav Kalugerov, Director of National Nature Protection Service Directorate, Ministry of Environment and Water	

## Annex III – Habitat Briefings

### Black Sea Marine Biogeographical Region. Regional Workshop, October 27<sup>th</sup>-30<sup>th</sup> 2020

#### Habitat Definitions and Favourable Reference Values

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## 1110 Sandbanks which are slightly covered by seawater all the time.

### HABITAT DEFINITION

#### EU Interpretation Manual Definition

“Sandbanks are elevated, elongated, rounded or irregular topographic features, permanently submerged and predominantly surrounded by deeper water. They consist mainly of sandy sediments, but larger grain sizes, including boulders and cobbles, or smaller grain sizes including mud may also be present on a sandbank. Banks where sandy sediments occur in a layer over hard substrata are classed as sandbanks if the associated biota are dependent on the sand rather than on the underlying hard substrata”.

The Interpretation Manual includes some regional characteristics but not for the Black Sea. Some EU Member States have elaborated on the interpretation to highlight characteristics of this habitat type as it occurs in their national waters. The following material is provided to support a similar approach by Bulgaria and Romania, as well as ensuring a consistent approach between EU Member States bordering the Black Sea.

**NB. The intention is not to provide a new definition.**

#### Cross reference to other Annex 1 types

This habitat can be found in association with, or be a component of Estuaries (1130), Mudflats and Sandflats not covered by seawater all the time (1140), and Large Shallow inlets and bays (1160).

#### Cross reference to EUNIS classification (main links only) level 3

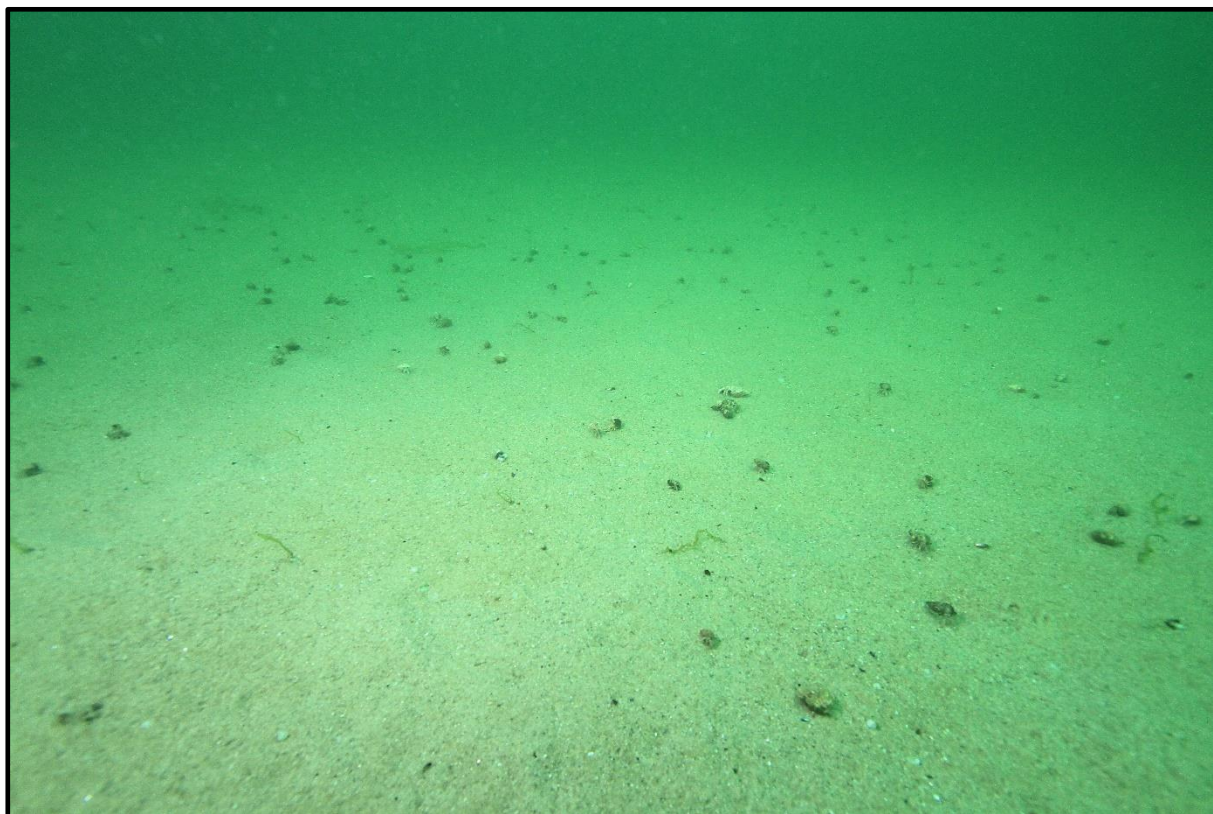
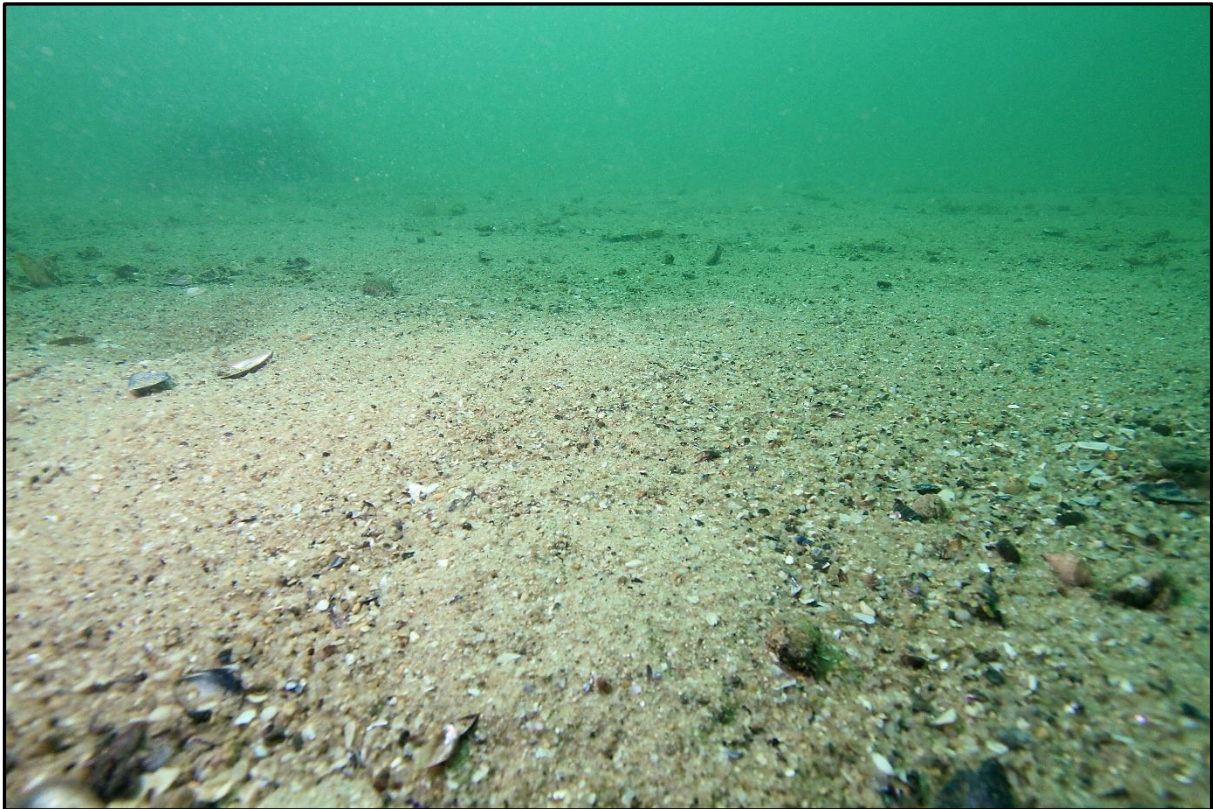
MB54 Black Sea infralittoral sand

MC54 Black circalittoral sand

Cross reference to EU Red list habitat types that may be present but not necessarily characteristic of this habitat type

A5.13	Pontic infralittoral mixed substrata
A5.35	Pontic upper circalittoral sandy mud
A5.5w	Seagrass meadows in Pontic lower infralittoral sands
A5.5z	Seagrass meadows in Pontic moderately exposed upper infralittoral clean sands
A5.aa	Pontic infralittoral sands and muddy sands with stable aggregations of perennial unattached macroalgae
A5.bb	Pontic infralittoral sands and muddy sands with annual algae





Shallow sands © J. Nedev

### Black Sea EU Member States interpretations to date

Both Bulgaria and Romania have undertaken work to further define this habitat type as it occurs in the Black Sea<sup>3</sup> (Table 1). This work continues and therefore the most up to date information should inform discussions at the workshop.

Table 1. Existing definitions in Bulgaria and Romania of habitat type 1110. NB. There is not necessarily a direct correspondence in the subsidiary code numbers (1110-1 etc.) between the habitat sub-types in Bulgaria and Romania. E.g. habitat sub-type 1110-5 in Bulgaria does not correspond to habitat sub-type 1110-5 in Romania.

Bulgaria	Romania
Nine types of sublittoral sands distinguished on the basis of medium or dominant species of macrophytes or macrozoobenthos, which are nationally important for conservation purposes	Seven types of sublittoral sands distinguished on the basis of sediment characteristics
1110-1. Underwater meadows with seagrass	1110-1 Fine clean or slightly muddy fine sands with <i>Zostera</i> meadows
1110-2. Large and medium shallow sands with <i>Donax trunculus</i>	1110-2 Medium sands in the form of submarine dunes
1110-3. Small and medium sands with <i>Lentidium mediterraneum</i>	1110-3 Fine sands of shallow depth
1110-4. Pure sands with <i>Arenicola marina</i> and <i>Callianassa</i> spp.	1110-4 Well sorted sands
1110-5. Sands and fine sands with <i>Chamelea gallina</i>	1110-5 Coarse sands and fine gravels beaten by waves
1110-6. Silent sands with <i>Upogebia pusilla</i>	1110-6 Infralittoral cobbles
1110-7. Organogeneous sands and gravels with <i>Modiolus adriaticus</i> and <i>Gouldia minima</i>	1110-7 "Camca" from the mouth of the Danube.
1110-8. Infralittoral gravel and stones	
1110-9. Sands with <i>Solen marginatus</i>	

### Other EU Member States interpretations

These typically include references to some or all the following: depth, topographic form, sediment type, mobility, diversity and types of associated communities. Where vegetation is present (e.g. seagrass) it is usually sparse due to the abrasive effects of waves and the unstable substratum.

### Key elements of defining this habitat type

Depth, topographic form, sediment type, mobility, diversity and types of associated communities and species.

<sup>3</sup> Bulgarian Academy of Sciences/Ministry of Environment and Water 2011. Red Data Book of the Republic of Bulgaria. Vol.3. Natural Habitats. <http://e-ecodb.bas.bg/rdb/en/vol3/02A2.html>

Key questions/clarifications to help formulate any elaboration of interpretation for this habitat type in the Black Sea

**NB. It is not essential to add information on each of the following elements however, where extra interpretation is proposed, please cross-check to ensure consistency with definition in the EU Interpretation Manual.**

**Suggestions should be informed by knowledge of the situation throughout the Black Sea but are essentially for the EU Member States of Bulgaria and Romania and should therefore reflect the situation in these two countries as a priority.**

#### Depth

The definition of “slightly covered” has been clarified as depth seldom being more than 20m below chart datum.

*Confirm understanding that sandbanks can extend into deeper waters for the purpose of Natura 2000 sites designation but are defined as shallow water features.*

#### Topographic form and mobility

Sandbank habitats are predominantly surrounded by deeper water rather than expanses of sublittoral sand. They can be highly mobile features or static over decades. It is also the case that although the main feature may not change over many years there can be regular changes in the topography of the crest and superimposed bedforms. They are not shallow or gradually sloping expanses of sandy seabed which is more typical of shallow inlets and bays (habitat type 1160).

*Are there any topographical sub-types of sandbanks in the Black Sea that would be useful to highlight in any elaborated definition?*

#### Sediment type

The Interpretation Manual is clear that this habitat type is predominantly sandy.

*Is there any need to expand on the Interpretation Manual to include any Black Sea specific characteristics of sediment type? If so, what categories should be used?*

Please refer to the EUNIS classification scheme if making any proposals.



### Associated marine species and benthic biotopes

Benthic biotope associated with shallow sandbanks are determined particularly by sediment type together with a variety of other physical, chemical, and hydrographic factors. Biotopes on the crests of sandbanks may be more typical of mobile sediments, for example. Benthic communities found on sandbank crests are predominantly those typical of mobile sediment environments and tend to have low diversity. Troughs or areas between banks generally contain more stable gravelly sediments and support diverse infaunal and epifaunal communities. Where conditions are suitable, sandbanks also support plant communities. This is the case in Burgas Bay, where most of the *Zostera* meadows in Bulgaria occurs, however please note that whilst seagrass species are mentioned in the Interpretation Manual as possibly occurring on sandbank habitats these biotopes are recognised as more typical biotopes of Large Shallow Inlets and Bays (1160).

Shallow sandbanks (defined as typically less than 20m depth) are used as resting and foraging areas by seabirds feeding on small pelagic fish and macrobenthos that are associated with the sandbanks or around the frontal systems which may develop in their vicinity.

*What are the main benthic biotope types likely to be associated with shallow sandbanks?*

*Are there characteristic species (plants/animals) associated with shallow sandbanks which should be listed?*

If particular biotopes are identified, please reference the relevant codes of the EUNIS classification.

### FAVOURABLE REFERENCE VALUES

Favourable Reference Values (FRVs) are key reference levels to define when Favourable Conservation Status (FCS) is being achieved for individual species and habitats under the Habitats Directive. For habitats FRVs need to be determined for both range and area – a Favourable Reference Range (FRR) and a Favourable Reference Area (FRA).

The task of the seminar is to discuss and propose approaches to setting FRV. **It is NOT to carry out an assessment of whether current values exceed, are equal to, or below these FVRs.**

A reference-based method using known area and/or distribution is considered the most appropriate for setting FRVs for habitats<sup>4</sup>. Historical range and distribution have been used as important factors in setting FRVs by a majority of Member States, but specific historical references have much less been considered. Expert opinion is used at some stage by most Member States.

- FRVs should be set on the basis of ecological/biological considerations;
- FRVs should be set using the best available knowledge and scientific expertise;
- FRVs should be set taking into account the precautionary principle and include a safety margin for uncertainty;

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<sup>4</sup> Bijlsma et al., 2018

- FRVs should not, in principle, be lower than the values when the Habitats Directive came into force, as most habitats have been listed in the Annexes because of their unfavourable status; the distribution (range) and size (area) at the date of entry into force of the Directive does not necessarily equal the FRVs;
- FRVs are not necessarily equal to 'national targets': 'Establishing favourable reference values must be distinguished from establishing concrete targets:'
- FRVs do not automatically correspond to a given 'historical maximum', or a specific historical date; historical information (e.g. a past stable situation before changes occurred due to reversible pressures) should, however, inform judgements on FRVs;
- FRVs do not automatically correspond to the 'potential value' (maximum possible extent) which, however, should be used to understand restoration possibilities and constraints.

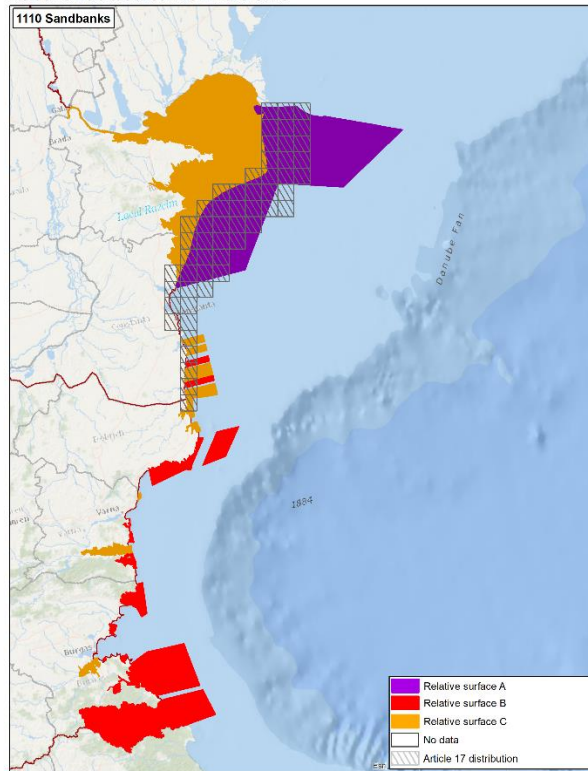
### Favourable Reference Range

Guidance from the European Commission for reporting under Article 17 of the Habitats Directive defines FRR as follows:

*Range within which all significant ecological variations of the habitat/species are included for a given biogeographical region and which is sufficiently large to allow the long-term survival of the habitat/species; favourable reference value must be at least the range (in size and configuration) when the Directive came into force; if the range was insufficient to support a favourable status the reference for favourable range should take account of that and should be larger (in such a case information on historic distribution may be found useful when defining the favourable reference range); 'best expert judgement' may be used to define it in absence of other data.'*

For the 2007-2012 Article 17 reporting period the range of this habitat type was reported as 4,600 km<sup>2</sup> in Bulgaria with the FRR unknown. *Zostera* seagrass meadows are known to be quite abundant in Burgas Bay and in other smaller sheltered bays along the Bulgarian coastline. For the 2013-2018 reporting period range was reported as 5,500 km<sup>2</sup> in Romania which was considered to be approximately equal to the FRR.

#### Relative habitat area within the SCIs



Distribution of Habitat Type 1110 as reported under Article 17 for the 2012-2018 reporting period and the area covered by the habitat (relative surface) in each Natura 2000 site in terms of its national coverage. A=15-100%; B=2-15%; C=up to 2%

#### Favourable Reference Range

In Bulgaria, the FEMA marine results give a good estimate of the current distribution of this sediment type as do the MSFD initial assessment and monitoring programme results.

*What is the known distribution (and therefore range) in Bulgaria and Romania of the different shallow sandbank types identified above?*

*What is known about the range of shallow sandbanks in the historical (previous centuries) and recent (50 years) past, and when the Directive came into force?*

#### Favourable Reference Area

Guidance from the European Commission for reporting under Article 17 of the Habitats Directive defines FRA as follows:

*“Total surface area of habitat in a given biogeographical region considered the minimum necessary to ensure the long-term viability of the habitat type; this should include necessary areas for restoration or development for those habitat types for which the present coverage is not sufficient to ensure long-term viability; favourable reference value must be at least the surface area when the Directive came into force; information on historic distribution may be found useful when defining the favourable reference area; 'best expert judgement' may be used to define it in absence of other data.*

Given that the majority of Annex I marine habitats are physiographic features, the underlying geological, physical and oceanographic processes are especially important influences on their

potential range. Understanding and mapping these influences has been used to scope the potential range of some offshore habitat types (e.g. sandbanks and reefs). The use of proxies is a reasonable and realistic approach to determining potential range of such marine habitat types and therefore also informative where there is an absence of current range data. In the absence of historical data and current range information, this is potentially the most significant factor to focus on when setting FRR.

Sandbanks can be highly dynamic features that change in character, move, erode or expand in response to natural processes such as the action of storms, tides and wave action. They may also be relict features where the main physical characteristics remain unchanged over decades.

Changes in both the physical and biological characteristics of some sandbanks have been described and variously attributed to natural processes, human activity, or a combination of both.

For the 2013-2018 Article 17 reporting period the area of this habitat type was reported as covering between 3,000 – 4,100 km<sup>2</sup> in Romania. This was considered to be approximately equal to the FRA. In Bulgaria, for the 2007-2012 reporting period the area of sandbank habitat was reported as 331 km<sup>2</sup> and the FRA as 383 km<sup>2</sup>.

#### Favourable Reference Area

Sediment supply as well as tide, wind and wave action, and the interactions between them, determine the development of sandbanks. They can be mobile features and go through cycles of being active or moribund.

*What is known about the dynamics of the different types of shallow sandbank features in the Black Sea and in Bulgaria and Romania?*

*What is known about the area of shallow sandbanks in the historical (previous centuries) and recent (50 years) past, and when the Directive came into force in Bulgaria and Romania?*

# 1130 Estuaries

## HABITAT DEFINITION

### EU Interpretation Manual Definition

“Downstream part of a river valley, subject to the tide and extending from the limit of brackish waters. River estuaries are coastal inlets where, unlike 'large shallow inlets and bays' there is generally a substantial freshwater influence. The mixing of freshwater and sea water and the reduced current flows in the shelter of the estuary lead to deposition of fine sediments, often forming extensive intertidal sand and mud flats. Where the tidal currents are faster than flood tides, most sediments deposit to form a delta at the mouth of the estuary. Baltic river mouths, considered as an estuary subtype, have brackish water and no tide, with large wetland vegetation (helophytic) and luxurious aquatic vegetation in shallow water areas.”.

The Interpretation Manual includes some regional characteristics but not for the Black Sea. Some EU Member States have elaborated on the interpretation to highlight characteristics of this habitat type as it occurs in their national waters. The following material is provided to support a similar approach by Bulgaria and Romania, as well as ensuring a consistent approach between EU Member States bordering the Black Sea.

**NB. The intention is not to provide a new definition.**

### Cross reference to other Annex 1 types

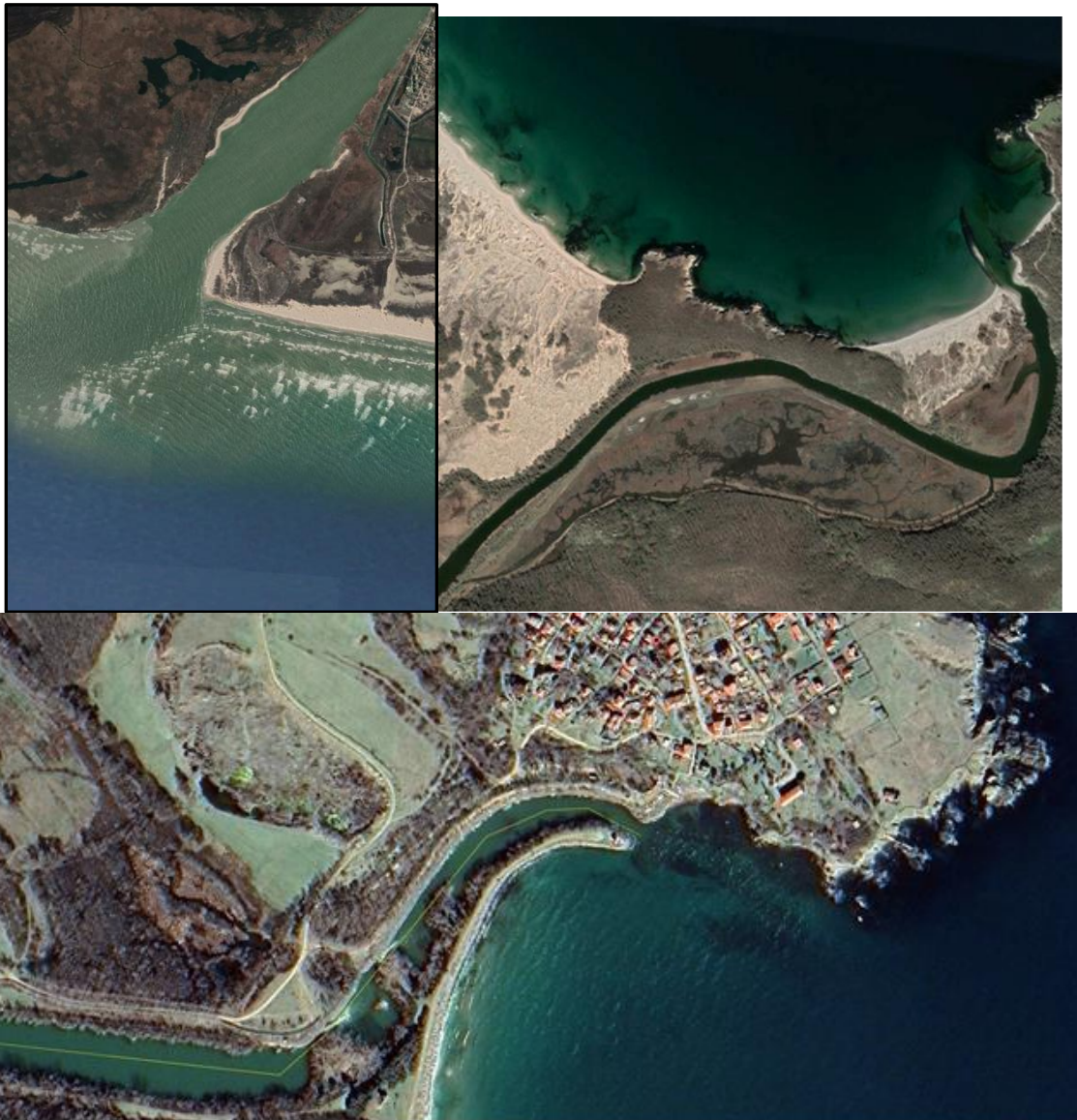
This habitat can be found in association with, Sandbanks (1110), and Mudflats and Sandflats not covered by seawater all the time (1140).

### Cross reference to EUNIS classification (main links only) level 3

- MA44 Black Sea littoral mixed sediment
- MA54 Black Sea littoral sand
- MA64 Black Sea littoral mud
- MB34 Black Sea infralittoral coarse sediment
- MB44 Black Sea infralittoral mixed sediment
- MB54 Black Sea infralittoral sand
- MB64 Black Sea infralittoral mud
- MB14 Black Sea infralittoral rock
- MC54 Black Sea circalittoral sand
- MC64 Black Sea circalittoral mud

Cross reference to EU Red list habitat types that may be present but not necessarily characteristic of this habitat type

A2.32	Polychaete/oligochaete-dominated upper estuarine Pontic littoral mud
A3.15	Mytilid-dominated Pontic exposed upper infralittoral rock with foliose algae (other than <i>Fucales</i> )
A3.1x	Mytilid-dominated Pontic exposed upper infralittoral rock with <i>Fucales</i>
A5.22	Estuarine Pontic infralittoral sand
A5.53	Seagrass and rhizomatous algal meadows in Pontic freshwater-influenced sheltered infralittoral muddy sands and sandy muds



(top left) Danube delta – Sfantu Gheorghe branch  
 (top right) lower reaches of Rapotamo river Bulgaria  
 (bottom) lower reaches of Rezovo river, Bulgaria  
 © Google Earth

**Black Sea EU Member States interpretations to date**

Both Bulgaria and Romania have undertaken work to further define this habitat type as it occurs in the Black Sea (Table 2). This work continues and therefore the most up to date information should inform discussions at the workshop.

*Table 2 Previously used definitions of estuaries types in Bulgaria and Romania*

Bulgaria	Romania
<p>The lower reaches of the rivers and their widened mouths at the confluence with the sea. They are characterized by the variability of the hydrological conditions depending on the season and water flow of the river. The waters are slightly salty - brackish, but with a big influence of fresh water. Mixing fresh with seawater and reduced estuary flows lead to the deposition of sediments, most often sandy, with extensive 'cheloft' vegetation as well as abundant water vegetation in shallow waters.</p>	<p>Based on description of the Danube delta area. Includes the mediolittoral, infralittoral and circalittoral. Characterised by low salinity of surface waters and upstream penetration of offshore waters. Although no tides and not the typical estuary shape, areas of variable salinity and supporting estuarine communities and plants do occur.</p>



In the case of Mandra lake and Ropotamo in Bulgaria, where the transition from ‘freshwater’ to typical Black Sea salinity occurs quite rapidly (tens of meters) and also varies seasonally. In these areas there are typical Black Sea marine habitats (Zostera seagrass meadows) immediately in front of the river mouths making the distinction and boundary of estuarine habitat difficult to make.

#### Other EU Member States interpretations

These typically include references to brackish water influence, water flow, tidal influence, associated communities and that the habitat type is a landscape complex which can be comprised of a variety of biotopes. In areas of greater tidal range, different estuary types as determined by geomorphological and hydrographic factors are described e.g. coastal plain estuaries, bar-built estuaries, complex estuaries and ria estuaries

#### Key elements of defining this habitat type

Salinity, topographic form, sediment type, diversity and types of associated communities and species

#### Key questions/clarifications to help formulate any elaboration of interpretation for this habitat type in the Black Sea

**NB. It is not essential to add information on each of the following elements however, where extra interpretation is proposed, please cross-check to ensure consistency with definition in the EU Interpretation Manual.**

**Suggestions should be informed by knowledge of the situation throughout the Black Sea but are essentially for the EU Member States of Bulgaria and Romania and should therefore reflect the situation in these two countries as a priority.**

#### Morphology

Estuaries are physiographic features which incorporate a range of interconnected and interdependent habitats as well as other Annex 1 habitats, Annex II species and birds protected under the Birds Directive, and may also be important nursery areas for juvenile fish. They are also dynamic features whose physical, biological and chemical characteristics change over many time scales, from daily tidal cycles to decadal changes in sea level. Sand bars may form at the mouth, influenced by wave action, whilst further upstream similar features may be the result of freshwater discharge. The physiographical character of estuaries is similar to that of a large shallow inlet and bay but is influenced to a greater extent by freshwater.

*Are there any morphological sub-types of estuaries in the Black Sea that would be useful to highlight in any elaborated definition?*

#### Hydrological Characteristics

Salinity gradients, tidal range, size, seasonal conditions, and anthropogenic activities which are frequently concentrated around estuaries, have a major influence on the detailed characteristics of an estuary. In the Black Sea with the absence of tides, seasonal factors can be very significant with the conditions in estuaries varying from fresh water in the spring high-water period, to slightly saline where the water is mixes. When the water level is low in

summer, the water column may become stratified with a layer of freshwater overlying denser more saline water. In Burgas and Varna Bay, for example there is a considerable decrease of salinity of surface waters as a result of the inflow of freshwater from the adjacent freshwater coastal lakes and lagoons yet it is unclear if the area under the influence of that inflow can be qualified as an estuary as there are no apparent differences in the biological communities.

*Is there any need to elaborate the Interpretation Manual definition to include any Black Sea specific hydrological characteristics of estuaries, particularly in relation to salinity? If so, what categories should be used? For example what constitutes 'freshwater influence', is a numerical value of salinity needed, and what marks a distinction between estuaries and other habitat types?*

Please refer to the EUNIS classification scheme if making any proposals.

#### Associated communities and species

There are descriptions of the diversity and types of biological communities present in Black Sea estuaries and associated species. They include marine, brackish and freshwater biotopes such as seagrass beds (*Zostera marina*, *Ruppia maritima*), soft sediment areas with infauna of molluscs and polychaete worms (e.g. *Abra segmentum*, *Cerastoderma glaucum*, *Mya Arenaria*, *Hediste diversicolor*), and fringing *Phragmites communis* and *Typha angustifolia* reed beds.

*What are the main biotope types likely to be associated with estuarine habitats in the Black Sea?*

*Are there characteristic species (plants/animals) of estuarine habitats which should be listed?*

If particular biotopes are identified, please reference the relevant codes of the EUNIS classification.

#### FAVOURABLE REFERENCE VALUES

Favourable Reference Values (FRVs) are key reference levels to define when Favourable Conservation Status (FCS) is being achieved for individual species and habitats under the Habitats Directive. For habitats FRVs need to be determined for both range and area – a Favourable Reference Range (FRR) and a Favourable Reference Area (FRA).

The task of the seminar is to discuss and propose approaches to setting FRV. **It is NOT to carry out an assessment of whether current values exceed, are equal to, or below these FVRs.**

A reference-based method using known area and/or distribution is considered the most appropriate for setting FRVs for habitats<sup>5</sup>. Historical range and distribution have been used as important factors in setting FRVs by a majority of Member States, but specific historical references have much less been considered. Expert opinion is used at some stage by most Member States.

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<sup>5</sup> Bijlsma et al., 2018



- FRVs should be set on the basis of ecological/biological considerations;
- FRVs should be set using the best available knowledge and scientific expertise;
- FRVs should be set taking into account the precautionary principle and include a safety margin for uncertainty;
- FRVs should not, in principle, be lower than the values when the Habitats Directive came into force, as most habitats have been listed in the Annexes because of their unfavourable status; the distribution (range) and size (area) at the date of entry into force of the Directive does not necessarily equal the FRVs;
- FRVs are not necessarily equal to 'national targets': 'Establishing favourable reference values must be distinguished from establishing concrete targets:'
- FRVs do not automatically correspond to a given 'historical maximum', or a specific historical date; historical information (e.g. a past stable situation before changes occurred due to reversible pressures) should, however, inform judgements on FRVs;
- FRVs do not automatically correspond to the 'potential value' (maximum possible extent) which, however, should be used to understand restoration possibilities and constraints.

### Favourable Reference Range

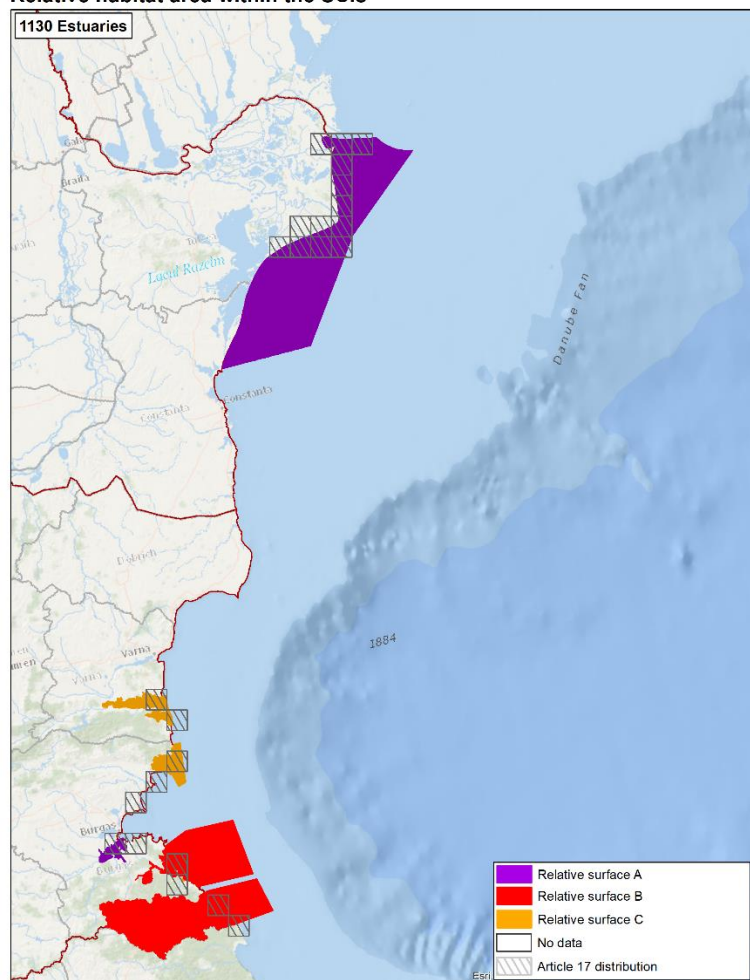
Guidance from the European Commission for reporting under Article 17 of the Habitats Directive defines FRR as follows:

*Range within which all significant ecological variations of the habitat/species are included for a given biogeographical region and which is sufficiently large to allow the long-term survival of the habitat/species; favourable reference value must be at least the range (in size and configuration) when the Directive came into force; if the range was insufficient to support a favourable status the reference for favourable range should take account of that and should be larger (in such a case information on historic distribution may be found useful when defining the favourable reference range); 'best expert judgement' may be used to define it in absence of other data.'*

For the 2013-2018 Article 17 reporting period the range of this habitat type was reported as 2,200 km<sup>2</sup> in Bulgaria and considered to be equivalent to the FRR. The range in Romania was reported as 1,200 km<sup>2</sup> in Romania which was considered to be approximately equivalent to the FRR.

This habitat type has been identified at the mouths of the rivers Kamchiya, Ropotamo, Veleka, Dyavolska, Karaagach, Silistar, and Butamyata in Bulgaria and the Danube, Musura and Sacalin in Romania.

### Relative habitat area within the SCIs



Distribution of Habitat Type 1130 as reported under Article 17 for the 2012-2018 reporting period and the area covered by the habitat (relative surface) in each Natura 2000 site in terms of its national coverage. A=15-100%;B=2-15%;C=up to 2%

### Favourable Reference Range

In Bulgaria, possible locations include the river mouths of Kamchia, Veleka, Ropotamo, Karaagach and possibly the areas of the outflow of freshwater from Mandra lake in Burgas Bay and Varna lake in Varna.

*What is the known distribution (and therefore range) in Bulgaria and Romania of the different estuary types identified above?*

*What is known about the range of estuaries in the historical (previous centuries) and recent (50 years) past, and when the Directive came into force?*

### Favourable Reference Area

Guidance from the European Commission for reporting under Article 17 of the Habitats Directive defines FRA as follows:

*“Total surface area of habitat in a given biogeographical region considered the minimum necessary to ensure the long-term viability of the habitat type; this should include necessary*

*areas for restoration or development for those habitat types for which the present coverage is not sufficient to ensure long-term viability; favourable reference value must be at least the surface area when the Directive came into force; information on historic distribution may be found useful when defining the favourable reference area; 'best expert judgement' may be used to define it in absence of other data.*

For the 2013-2018 Article 17 reporting period the area of this habitat type was reported as between 400-700 km<sup>2</sup> in Romania and considered to be approximately equivalent to the FRA. For the 2007-2012 reporting period the area of estuarine habitat was reported as 3 km<sup>2</sup> in Bulgaria and equivalent to the FRA.

#### Favourable Reference Area

Estuaries are naturally dynamic habitats and therefore the area covered, particularly the width and depth at the mouth of an estuary, can show substantial changes over both short- and long-term time scales. Changes in the sedimentary regime can also be cyclical, alternating between a system typified by net deposition to one characterised by net erosion. Sea level rise means that estuaries will show a natural tendency to move inland and may erode at the mouth.

*What is known about the dynamics of the different types of estuarine habitats in in Bulgaria and Romania?*

*What is known about the area of estuarine habitats in the historical (previous centuries) and recent (50 years) past, and when the Directive came into force in Bulgaria and Romania?*

## 1140 Mudflats and sandflats not covered by seawater at low tide

### HABITAT DEFINITION

#### EU Interpretation Manual Definition

“Sands and muds of the coasts of the oceans, their connected seas and associated lagoons, not covered by sea water at low tide, devoid of vascular plants, usually coated by blue algae and diatoms. They are of particular importance as feeding grounds for wildfowl and waders. The diverse intertidal communities of invertebrates and algae that occupy them can be used to define subdivisions of 11.27, eelgrass communities that may be exposed for a few hours in the course of every tide have been listed under 11.3, brackish water vegetation of permanent pools by use of those of 11.4”.

The Interpretation Manual does not describe any regional characteristics of this habitat type in the Black Sea. Some EU Member States have elaborated on the interpretation to highlight characteristics of this habitat type as it occurs in their national waters. The following material is provided to support a similar approach by Bulgaria and Romania, as well as ensuring a consistent approach between EU Member States bordering the Black Sea.

**NB. The intention is not to provide a new definition.**

#### Cross reference to other Annex 1 types

This habitat can be found in association with, or be a component of Estuaries (1130) and Large Shallow inlets and bays (1160).

#### Cross reference to EUNIS classification (main links only) level 3

MA54 Black Sea littoral sand

MA64 Black Sea littoral mud

Cross reference to EU Red list habitat types that may be present but not necessarily characteristic of this habitat type

A2.2x	Pontic mediolittoral sands
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Masurian Gulf, Danube Delta © NatureBureau Ltd

### Black Sea EU Member States interpretations to date

Both Bulgaria and Romania have undertaken work to further define this habitat type as it occurs in the Black Sea (Table 3). This work continues and therefore the most up to date information should inform discussions at the workshop.

Table 3. Existing definitions of habitat type 1140 in Bulgaria and Romania. . NB. There is not necessarily a direct correspondence in the subsidiary code numbers (1110-1 etc.) between the habitat sub-types in Bulgaria and Romania.

Bulgaria	Romania
Sandy sea shoals that are not covered by seawater at low tide	Under the microtides of the Black Sea this habitat is limited to the supralittoral and mediolittoral of sandy beaches
Subtypes	
Large and Medium Medioloritorial sands with <i>Donacilla cornea</i> and <i>Ophelia bicornis</i>	1140-1 Supralittoral sands, with or without fast drying drift lines
Medioloritorial gravel	1140-2 Supralittoral slow-drying drift lines
Mediolorittoral fine sands	1140-3 Midlittoral sands
Mediolorittoral muds	1140-4 Midlittoral detritus on shingle and boulders
Ejected algae area (temporary in some cases)	

### Other EU Member States interpretations

Member States have developed more detailed descriptions of the types mudflats and sandflats in their jurisdictions. There are typically references to the sediment characteristics e.g. clean sands, muddy sands, importance as feeding grounds for waders and wildfowl, and

the presence of macrophyte vegetation. In the Baltic Sea, for example, this habitat type is part of the hydrolittoral which means that these sands and muds dry out episodically due to wind induced water level reduction below the mean water line in the littoral zone, rather than due to regular tidally driven emersion. Depending on the emersion, such Baltic mudflats and sandflats occur with and without macrophyte vegetation.

#### Key elements of defining this habitat type

Tidal exposure, sediment characteristics, associated communities and typical species.

#### Key questions/clarifications to help formulate any elaboration of interpretation for this habitat type in the Black Sea

**NB. It is not essential to add information on each of the following elements however, where extra interpretation is proposed, please cross-check to ensure consistency with definition in the EU Interpretation Manual.**

**Suggestions should be informed by knowledge of the situation throughout the Black Sea but are essentially for the EU Member States of Bulgaria and Romania and should therefore reflect the situation in these two countries as a priority.**

#### Tidal exposure

The Black Sea is a microtidal basin with semidiurnal tides ranging between 7-12cm. Tides are negligible in comparison to other water level fluctuations such as storm surges which can elevate the sea level at the coast between 1-2m. Changes in water level are more wind driven. The nearest equivalents to this habitat type are the sands and sandy muds of the mediolittoral zone.

*Clarify how this habitat type relates to the tidal regime of the Black Sea and whether it should extend to the supralittoral zone. Describe any particular characteristics.*

#### Sediment type

This habitat is characterised by sand, sandy mud, and muddy substrates.

*Is there any need to expand on the Interpretation Manual to include any Black Sea specific characteristics on sediment type? If so, what categories should be used?*

Please refer to the EUNIS classification scheme if making any proposals.

#### Associated communities.

In the mediolittoral, coarse and medium-coarse sand grains subjected to strong waves are inhabited by the fast-burrowing mussel (*Donacilla cornea*) and the polychaete worm *Ophelia bicornis*. Small-grained sands are inhabited by the crustacean *Pontogammarus maeoticus* *Eurydice dolfusi*, *Gastrosaccus sanctus*, and the polychaetes *Nerine cirratulus*, *Saccocirrus papillocercus*, *Pisioneremota*, and *Hesionides arenaria*. In some sheltered areas the mediolittoral fine-grained sands support areas of sea grasses from the genus *Zostera*, however

this is not the case in the Black Sea<sup>6</sup>. In the supralittoral zone, the fauna are mainly detritivores, decomposers and their predators. These include isopods, amphipods and crustaceans especially insects. This habitat can be important as feeding grounds for overwintering and migrating waterfowl.

*What are the main biotope types likely to be associated with this habitat type?*

*Are there characteristic species (plants/animals) associated with this habitat type which should be listed?*

If particular biotopes are identified, please reference the relevant codes of the EUNIS classification.

## FAVOURABLE REFERENCE VALUES

Favourable Reference Values (FRVs) are key reference levels to define when Favourable Conservation Status (FCS) is being achieved for individual species and habitats under the Habitats Directive. For habitats FRVs need to be determined for both range and area – a Favourable Reference Range (FRR) and a Favourable Reference Area (FRA).

The task of the seminar is to discuss and propose approaches to setting FRV. **It is NOT to carry out an assessment of whether current values exceed, are equal to, or below these FVRs.**

A reference-based method using known area and/or distribution is considered the most appropriate for setting FRVs for habitats<sup>7</sup>. Historical range and distribution have been used as important factors in setting FRVs by a majority of Member States, but specific historical references have much less been considered. Expert opinion is used at some stage by most Member States.

- FRVs should be set on the basis of ecological/biological considerations;
- FRVs should be set using the best available knowledge and scientific expertise;
- FRVs should be set taking into account the precautionary principle and include a safety margin for uncertainty;
- FRVs should not, in principle, be lower than the values when the Habitats Directive came into force, as most habitats have been listed in the Annexes because of their unfavourable status; the distribution (range) and size (area) at the date of entry into force of the Directive does not necessarily equal the FRVs;
- FRVs are not necessarily equal to 'national targets': 'Establishing favourable reference values must be distinguished from establishing concrete targets';
- FRVs do not automatically correspond to a given 'historical maximum', or a specific historical date; historical information (e.g. a past stable situation before changes occurred due to reversible pressures) should, however, inform judgements on FRVs;
- FRVs do not automatically correspond to the 'potential value' (maximum possible extent) which, however, should be used to understand restoration possibilities and constraints.

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<sup>6</sup> <http://e-ecodb.bas.bg/rdb/en/vol3/02A2.html>. Along the Bulgarian Black Sea coast the upper depth limit of distribution of *Z.noltei* is 0.5-1m and for *Z.marina* 2-3m. *Z.noltei* is not present in sandy areas exposed to air

<sup>7</sup> Bijlsma et al., 2018

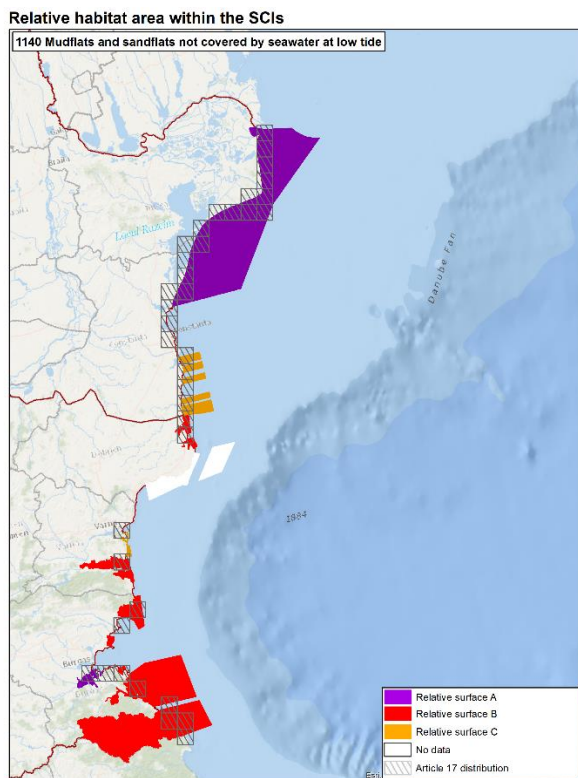


## Favourable Reference Range

Guidance from the European Commission for reporting under Article 17 of the Habitats Directive defines FRR as follows:

*Range within which all significant ecological variations of the habitat/species are included for a given biogeographical region and which is sufficiently large to allow the long-term survival of the habitat/species; favourable reference value must be at least the range (in size and configuration) when the Directive came into force; if the range was insufficient to support a favourable status the reference for favourable range should take account of that and should be larger (in such a case information on historic distribution may be found useful when defining the favourable reference range); 'best expert judgement' may be used to define it in absence of other data.'*

For the 2013-2018 Article 17 reporting period the range of this habitat type was reported as 2,500 km<sup>2</sup> in Bulgaria and considered to be approximately equivalent to the FRR. The range was also reported as 2,500 km<sup>2</sup> in Romania and also considered to be approximately equivalent to the FRR.



Distribution of Habitat Type 1140 as reported under Article 17 for the 2012-2018 reporting period and the area covered by the habitat (relative surface) in each Natura 2000 site in terms of its national coverage. A=15-100%; B=2-15%; C=up to 2%



### Favourable Reference Range

Sandy beaches have been estimated to constitute at least 30% of the Bulgarian shoreline although this is reducing due to coast protection works<sup>8</sup>.

There are only one or two localities on the Bulgarian Black Sea coast that have such a shallow sandy area with water depths of 5-10 cm in 'normal' sea conditions, which get partially exposed to air during wind-driven water level decrease ( e.g. Western winds)- within the Chengene Skele bay area and possibly small parts of Poda.

*What is the known distribution (and therefore range) in Bulgaria and Romania of the different mudflat and sandflat types identified above?*

*What is known about the range of mudflats and sandflats in the historical (previous centuries) and recent (50 years) past, and when the Directive came into force?*

### Favourable Reference Area

Guidance from the European Commission for reporting under Article 17 of the Habitats Directive defines FRA as follows:

*“Total surface area of habitat in a given biogeographical region considered the minimum necessary to ensure the long-term viability of the habitat type; this should include necessary areas for restoration or development for those habitat types for which the present coverage is not sufficient to ensure long-term viability; favourable reference value must be at least the surface area when the Directive came into force; information on historic distribution may be found useful when defining the favourable reference area; 'best expert judgement' may be used to define it in absence of other data.*

For the 2007-2012 reporting period the area of mudflats and sandflats in Bulgaria was estimated as 0.11 km<sup>2</sup> and considered equivalent to the FRR. In Romania, the area of the habitat was reported as 2-2.5 km<sup>2</sup> for the 2013-2018 reporting period and considered to be approximately equivalent to the FRR.

### Favourable Reference Area

*What is known about the dynamics of the different types of mudflat and sandflat features in the Black Sea and in Bulgaria and Romania?*

*What is known about the area of mudflats and sandflats in the historical (previous centuries) and recent (50 years) past, and when the Directive came into force in Bulgaria and Romania?*

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<sup>8</sup> Stancheva *et al.*, 2015;

[https://www.researchgate.net/publication/238798442\\_Coastal\\_Degradation\\_Induced\\_by\\_Anthropogenic\\_Impacts\\_along\\_the\\_North\\_Bulgarian\\_Black\\_Sea\\_Shore](https://www.researchgate.net/publication/238798442_Coastal_Degradation_Induced_by_Anthropogenic_Impacts_along_the_North_Bulgarian_Black_Sea_Shore)

## 1160 Large shallow inlets and bays

### HABITAT DEFINITION

#### EU Interpretation Manual Definition

“Large indentations of the coast where, in contrast to estuaries, the influence of freshwater is generally limited. These shallow indentations are generally sheltered from wave action and contain a great diversity of sediments and substrates with a well developed zonation of benthic communities. These communities have generally a high biodiversity. The limit of shallow water is sometimes defined by the distribution of the *Zosteretea* and *Potametea* associations. Several physiographic types may be included under this category providing the water is shallow over a major part of the area: embayments, fjards, rias and voes.”

They are often complex systems composed of an interdependent mosaic of subtidal and intertidal habitats and consequently there is considerable variety in the associated biotopes and species both within some Member States and across the EU. Some EU Member States have elaborated on the interpretation to highlight characteristics of this habitat type as it occurs in their national waters.

The following material is provided to support interpretation of this habitat type by Bulgaria and Romania, as well as ensuring a consistent approach between EU Member States bordering the Black Sea.

**NB. The intention is not to provide a new definition.**

#### Cross reference to other Annex 1 types

This habitat can be found in association with, Estuaries (1130) and may include Sandbanks (1110) Mudflats and Sandflats (1140) and/or Reefs (1170).

#### Cross reference to EUNIS classification (main links only) level 3

MA34 Black Sea littoral coarse sediment  
MA44 Black Sea littoral mixed sediment  
MA54 Black Sea littoral sand  
MB14 Black Sea infralittoral rock  
MB34 Black Sea infralittoral coarse sediment  
MB44 Black Sea infralittoral mixed sediment  
MB54 Black Sea infralittoral sand  
MC14 Black Sea circalittoral rock  
MC34 Black Sea circalittoral coarse sediment  
MC44 Black Sea circalittoral mixed sediment  
MC54 Black Sea circalittoral sand

Cross reference to EU Red list habitat types that may be present but not necessarily characteristic of this habitat type

A1.15	Pontic supralittoral rock
A1.16	Invertebrate-dominated exposed Pontic mediolittoral rock
A1.1xx	Invertebrate-dominated moderately exposed Pontic mediolittoral rock
A1.1xx	Pontic exposed lower mediolittoral barren rock

A1.1xx	Turf algae on Pontic exposed lower mediolittoral rock
A1.3x	Sheltered Pontic mediolittoral rock
A1.42	Pontic mediolittoral rock pools
A2.132	Pontic mediolittoral cobbles and gravels
A3.13	Exposed Pontic upper infralittoral rock with turf of <i>Corallinales</i>
A3.15	Mytilid-dominated Pontic exposed upper infralittoral rock with foliose algae (other than <i>Fucales</i> )
A3.1x	Mytilid-dominated Pontic exposed upper infralittoral rock with <i>Fucales</i>
A3.23	Corallinales on moderately exposed Pontic upper infralittoral rock
A3.2x	Mytilid-dominated Pontic moderately exposed upper infralittoral rock, blocks and boulders with <i>Fucales</i>
A3.2x	Mytilid-dominated Pontic moderately exposed upper infralittoral rock, blocks and boulders, with foliose algae (other than <i>Fucales</i> )
A3.34	<i>Fucales</i> and other algae on Pontic sheltered upper infralittoral rock, well illuminated
A3.3q	Pontic barren lower infralittoral rock
A3.3x	Foliose algae, other than <i>Fucales</i> on Pontic sheltered upper infralittoral rock, well illuminated
A3.3y	Pontic sheltered, shaded upper infralittoral rock, with sciaphilic algae
A4.2x	Pontic circalittoral rock affected by sedimentation
A5.13	Pontic infralittoral mixed substrata
A5.237	Pontic infralittoral sands and muddy sands without macroalgae
A5.24	Pontic infralittoral muddy sand
A5.53	Seagrass and rhizomatous algal meadows in Pontic freshwater-influenced sheltered infralittoral muddy sands and sandy muds
A5.5w	Seagrass meadows in Pontic lower infralittoral sands
A5.5y	Seagrass meadows in Pontic moderately exposed upper infralittoral clean sands
A5.61	Polychaete worm reefs in the Pontic infralittoral zone
A5.62	Mussel beds in the Pontic infralittoral zone
A5.aa	Pontic infralittoral sands and muddy sands with stable aggregations of perennial unattached macroalgae
A5.bb	Pontic infralittoral sands and muddy sands with annual algae
AA.XY	Invertebrate-dominated Pontic other hard substrata



Burgas, Lozenets beach © NatureBureau Ltd



Seagrass beds – *Zostera* with *Zannichellia* © IOBAS

**Black Sea EU Member States interpretations to date**

Both Bulgaria and Romania have undertaken work to further define this habitat type as it occurs in the Black Sea (Table 4). This work continues and therefore the most up-to-date information should inform discussions at the workshop.

Table 4. Existing definitions of inlets and bays in Bulgaria and Romania

Bulgaria	Romania
Extensive coastal recesses where, unlike estuaries, access to fresh water is limited. These shallow concave areas are usually protected from the effects of waves and contain a wide variety of sludge and substrates and have a zoning of benthic communities. The boundary of shallow water is sometimes determined by the distribution of communities of the <i>Zosteretea</i> and <i>Potametea</i> classes. Depth is typically up to 15m.	In the Romanian Black Sea, this type of habitat is represented as a subtype of bay (embayments).
Subtypes	
	1160-1 Sheltered sands in depths which do not exceed 3m. On muddy sands located in sheltered areas, shallow, rich vegetation and diverse fauna develop, both with marine and brackish elements.

### Other EU Member States interpretations

Further interpretation by other Member States include references to physiographic features, size, and sediment types as well as descriptions of associated communities and species. In the Baltic, fjords, fjord-like bays, shallow bights and types of Bodden are recognized sub-types<sup>9</sup> and in the UK, the main sub-types identified are embayments, fjardic sea lochs, and rias<sup>10</sup>.

### Key elements of defining this habitat type

Depth, wave exposure, size, indentation, diversity and types of associated communities and species

### Key questions/clarifications to help formulate any elaboration of interpretation for this habitat type in the Black Sea

**NB. It is not essential to add information on each of the following elements however, where extra interpretation is proposed, please cross-check to ensure consistency with definition in the EU Interpretation Manual.**

**Suggestions should be informed by knowledge of the situation throughout the Black Sea but are essentially for the EU Member States of Bulgaria and Romania and should therefore reflect the situation in these two countries as a priority.**

#### Size

The Interpretation Manual does not define what is meant by 'large'. This may not be necessary in any regional definition either but would need to be clarified for site survey and identification of potential Natura 2000 sites with reference to any existing classification systems developed by coastal geomorphologists and geologists. Ireland uses the guidance that linear lengths of this habitat type exceed 2km and that the length to width ratio is generally greater than 2:1

<sup>9</sup><http://www.helcom.fi/Red%20List%20of%20biotopes%20habitats%20and%20biotope%20complexes/HELCOM%20Red%20List%201160%20Large%20shallow%20inlets%20and%20bays.pdf>

<sup>10</sup> <http://jncc.defra.gov.uk/ProtectedSites/SACselection/habitat.asp?FeatureIntCode=h1160>

*Should there be any indication what constitutes a 'large' inlet and bay in any elaborated definition and if so, how might this be expressed?*

#### Depth

A note in the Interpretation Manual records that national experts considered it inappropriate to fix a maximum water depth, since the term 'shallow' may have different ecological interpretations according to the physiographic type considered and geographical location. Some Member States give an indication of the situation in their countries. In the UK, for example this is taken as usually averaging less than 30m across at least 75% of the site and Ireland, an average depth of 30m with at least half less than 30m. The Bulgarian and Romanian interpretations refer to much shallower areas (15m and 3m).

*Should there be any indication what constitutes a 'shallow' inlet and bay in the Black Sea and if so, how might this be expressed?*

#### Physiographic types

Large shallow inlets and bays may be divided into different physiographic types depending on factors such as their size, shape, form, geology and geographical location.

*Are there any physiographical sub-types of this habitat type in the Black Sea that would be useful to highlight in any elaborated definition?*

#### Sediment type

The sediment types within large shallow inlets and bays are very varied reflecting variations in exposure to wave action and geology. The levels of exposure to wave action across them may also vary from sheltered through semi-exposed to exposed. This will be reflected in the seabed sediments that are present with mud or sandy mud occurring in the sheltered areas, mixed sediments in semi-exposed areas and coarser sediments in the more exposed locations. They may be bordered by rocky headlands

*Is there any need to elaborate on the Interpretation Manual definition to include any Black Sea specific characteristics of sediment type? If so, what categories should be used?*

Please refer to the EUNIS classification scheme if making any proposals.

#### Associated communities

Large shallow inlets and bays may have a diversity of component habitats and seabed sediment types. As a result, they can support a considerable variety of marine biotopes and typical species, depending on factors such as depth, substrate and degree of exposure to wave action. The Interpretation Manual makes specific mention of *Zosteretea* and *Potametea* associations both of which are present in Black Sea examples of this habitat type.



*What are the main biotope types likely to be large shallow inlets and bays in the Black Sea?*

*Are there characteristic species (plants/animals) associated with this habitat type which should be listed?*

If particular biotopes are identified, please reference the relevant codes of the EUNIS classification.

## FAVOURABLE REFERENCE VALUES

Favourable Reference Values (FRVs) are key reference levels to define when Favourable Conservation Status (FCS) is being achieved for individual species and habitats under the Habitats Directive. For habitats FRVs need to be determined for both range and area – a Favourable Reference Range (FRR) and a Favourable Reference Area (FRA).

The task of the seminar is to discuss and propose approaches to setting FRV. **It is NOT to carry out an assessment of whether current values exceed, are equal to, or below these FVRs.**

A reference-based method using known area and/or distribution is considered the most appropriate for setting FRVs for habitats<sup>11</sup>. Historical range and distribution have been used as important factors in setting FRVs by a majority of Member States, but specific historical references have much less been considered. Expert opinion is used at some stage by most Member States.

- FRVs should be set on the basis of ecological/biological considerations;
- FRVs should be set using the best available knowledge and scientific expertise;
- FRVs should be set taking into account the precautionary principle and include a safety margin for uncertainty;
- FRVs should not, in principle, be lower than the values when the Habitats Directive came into force, as most habitats have been listed in the Annexes because of their unfavourable status; the distribution (range) and size (area) at the date of entry into force of the Directive does not necessarily equal the FRVs;
- FRVs are not necessarily equal to 'national targets': 'Establishing favourable reference values must be distinguished from establishing concrete targets:'
- FRVs do not automatically correspond to a given 'historical maximum', or a specific historical date; historical information (e.g. a past stable situation before changes occurred due to reversible pressures) should, however, inform judgements on FRVs;
- FRVs do not automatically correspond to the 'potential value' (maximum possible extent) which, however, should be used to understand restoration possibilities and constraints.

### Favourable Reference Range

Guidance from the European Commission for reporting under Article 17 of the Habitats Directive defines FRR as follows:

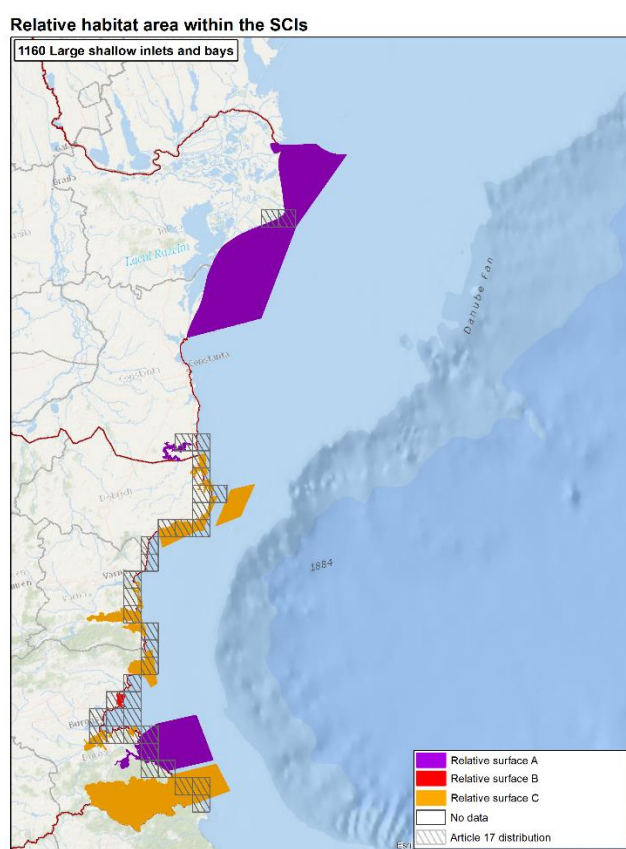
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<sup>11</sup> Bijlsma et al., 2018

*Range within which all significant ecological variations of the habitat/species are included for a given biogeographical region and which is sufficiently large to allow the long-term survival of the habitat/species; favourable reference value must be at least the range (in size and configuration) when the Directive came into force; if the range was insufficient to support a favourable status the reference for favourable range should take account of that and should be larger (in such a case information on historic distribution may be found useful when defining the favourable reference range); 'best expert judgement' may be used to define it in absence of other data.'*

For the 2013-2018 Article 17 reporting period the range of this habitat type was reported as 4,300 km<sup>2</sup> in Bulgaria and 400 km<sup>2</sup> in Romania. In both cases these figures were considered to be approximately equivalent to the FRR.

This habitat has been reported as present along the entire Black Sea coast of Bulgaria, but mostly near the cities of Varna, Nessebar, Burgas, Sozopol and Ahtopol.



Distribution of Habitat Type 1160 as reported under Article 17 for the 2012-2018 reporting period and the area covered by the habitat (relative surface) in each Natura 2000 site in terms of its national coverage. A=15-100%; B=2-15%; C=up to 2%

### Favourable Reference Range

*What is the known distribution (and therefore range) in Bulgaria and Romania of the large shallow inlets and bays identified above?*

*What is known about the range of large shallow inlets and bays in the historical (previous centuries) and recent (50 years) past, and when the Directive came into force?*

### Favourable Reference Area



Guidance from the European Commission for reporting under Article 17 of the Habitats Directive defines FRA as follows:

*“Total surface area of habitat in a given biogeographical region considered the minimum necessary to ensure the long-term viability of the habitat type; this should include necessary areas for restoration or development for those habitat types for which the present coverage is not sufficient to ensure long-term viability; favourable reference value must be at least the surface area when the Directive came into force; information on historic distribution may be found useful when defining the favourable reference area; 'best expert judgement' may be used to define it in absence of other data.*

For the 2013-2018 Article 17 reporting period the area of this habitat type was reported as between 18-21 km<sup>2</sup> in Romania and considered to be approximately equivalent to the FRA. In Bulgaria the area of large shallow inlets and bays was reported as 117 km<sup>2</sup> in the 2007-2012 reporting period and considered to be equivalent to the FRA.

#### Favourable Reference Area

*What is known about the dynamics of the different types of large inlets and bays in the Black Sea and in Bulgaria and Romania?*

*What is known about the area of this habitat type in the historical (previous centuries) and recent (50 years) past, and when the Directive came into force in Bulgaria and Romania?*

# 1170 Reefs

## HABITAT DEFINITION

### EU Interpretation Manual Definition

“Reefs can be either biogenic concretions or of geogenic origin. They are hard compact substrata on solid and soft bottoms, which arise from the sea floor in the sublittoral and littoral zone. Reefs may support a zonation of benthic communities of algae and animal species as well as concretions and corallogenic concretions.”.

Clarification is provided on what is meant by “hard compact substrata”, “biogenic concretions”, “geogenic origin”, “arise from the sea floor” and “sublittoral and littoral zone”.

The Interpretation Manual includes some regional characteristics but not for the Black Sea. EU Member States have elaborated on the interpretation to highlight characteristics of this habitat type as it occurs in their national waters. The following material is provided to support a similar elaboration by Bulgaria and Romania, as well as ensuring a consistent approach between EU Member States bordering the Black Sea.

**NB. The intention is not to provide a new definition.**

### Cross reference to other Annex 1 types

This habitat can be found in association with or be a component of Large Shallow inlets and bays (1160) and Submarine structures made by leaking gases (1180).

### Cross reference to EUNIS classification (main links only) level 3

- MA14 Black Sea littoral rock
- MA24 Black Sea littoral biogenic habitats
- MB14 Black Sea infralittoral rock
- MB24 Black Sea infralittoral biogenic habitat
- MC14 Black Sea circalittoral rock
- MC24 Black Se circalittoral biogenic habitats

Cross reference to EU Red list habitat types that may be present but not necessarily characteristic of this habitat type

A1.15	Pontic supralittoral rock
A1.16	Invertebrate-dominated exposed Pontic mediolittoral rock
A1.1xx	Invertebrate-dominated moderately exposed Pontic mediolittoral rock
A1.1xx	Pontic exposed lower mediolittoral barren rock
A1.1xx	Turf algae on Pontic exposed lower mediolittoral rock
A1.1xx	Turf algae on Pontic moderately exposed lower mediolittoral rock
A1.3x	Sheltered Pontic mediolittoral rock
A1.42	Pontic mediolittoral rock pools
A3.13	Exposed Pontic upper infralittoral rock with turf of Corallinales
A3.15	Mytilid-dominated Pontic exposed upper infralittoral rock with foliose algae (other than <i>Fucales</i> )

A3.1x	Pontic exposed upper infralittoral rock with rock borers
A3.1x	Mytilid-dominated Pontic exposed upper infralittoral rock with <i>Fucales</i>
A3.23	Corallinales on moderately exposed Pontic upper infralittoral rock
A3.2x	Mytilid-dominated Pontic moderately exposed upper infralittoral rock, blocks and boulders with <i>Fucales</i>
A3.2x	Mytilid-dominated Pontic moderately exposed upper infralittoral rock, blocks and boulders, with foliose algae (other than <i>Fucales</i> )
A3.34	<i>Fucales</i> and other algae on Pontic sheltered upper infralittoral rock, well illuminated
A3.3q	Pontic barren lower infralittoral rock
A3.3w	Invertebrate-dominated Pontic lower infralittoral rock
A3.3x	Foliose algae, other than <i>Fucales</i> on Pontic sheltered upper infralittoral rock, well illuminated
A3.3y	Pontic sheltered, shaded upper infralittoral rock, with sciaphilic algae
A3.3z	Pontic lower infralittoral rock, with significant cover of sciaphilic algae
A4.24	Invertebrate-dominated Pontic circalittoral rock
A4.2x	Pontic barren circalittoral rock
A4.2x	Pontic circalittoral rock affected by sedimentation
A5.61	Polychaete worm reefs in the Pontic infralittoral zone
A5.62	Mussel beds on Pontic circalittoral terrigenous muds
A5.64	Oyster reefs on Pontic lower infralittoral rock
A5.xx	Pontic circalittoral biogenic detritic bottoms with dead or alive musselbeds, shell deposits, with encrusting corallines( <i>Phymatolithon</i> , <i>Lithothamnion</i> ) and attached foliose sciaphilic macroalgae
AA.XY	Invertebrate-dominated Pontic other hard substrata



Infralittoral reef with perennial brown algae *Cystoseira* © D.Berov.

## Black Sea EU Member States interpretations to date

Both Bulgaria and Romania have undertaken work to further define this habitat type as it occurs in the Black Sea (Table 5). This work continues and therefore the most up to date information should inform discussions at the workshop.

Table 5. Existing definitions in Bulgaria and Romania of habitat type 1170 NB. There is no direct correspondence in the subsidiary code numbers (1170-1 etc.) between the habitat sub-types in Bulgaria and Romania. E.g. habitat sub-type 1170-1 in Bulgaria corresponds to habitat sub-type 1170-5 in Romania

Bulgaria	Romania
Definition is framed around the physical characteristics - substrate, depth range wave mode, light regime, trophic conditions and the structure of the biological community (medium, dominating and characteristic species, floor, species richness). Classification designates the dominant or dominant habitat-forming species. Based on this principle, the classification distinguishes 10 basic subtypes based on medium or dominant types of macrophytes or macrozoobenthos, 3 of which are further subdivided. The classification introduces some hierarchy based on the type of substrate (rocks of geological origin or biogenic structures), the depth zone and the characteristic community.	Definition is framed around the physical characteristics, shore/depth zone and typical species, including the characterising species of biogenic reefs.
1170-1 Mediollitoral rocks with sea urchins and black mussels 1170-1.1 Upper mediollitoral with <i>Chthamalus stellatus</i> , <i>Melaraphe neritoides</i> and <i>Ligia italica</i> 1170-1.2 Lower mediollitoral with <i>Mytilaster lineatus</i> and <i>Mytilus galloprovincialis</i>	1170-1 Biogenic reefs of <i>Ficopomatus enigmaticus</i>
1170-2 Mediollitoral rocks with <i>Corallina</i> , <i>Nemalion</i> , <i>Scytosiphon</i>	1170-2 Biogenic reefs of <i>Mytilus galloprovincialis</i>
1170-3 Infralittoral rocky bottom with perennial brown algae of <i>Cystoseira</i> 1170-3.1 Association of <i>Cystoseira barbata</i> 1170-3.2 Association of <i>Cystoseira crinita</i> f. <i>bosporica</i> *	1170-3 Shallow sulphur hydrothermal vents
1170-4 Infralittoral rock bottom with annual green and red macroalgae	1170-4 Agglomerations of rocks and boulders
1170-5 Lower Infralittoral, with a <i>Phyllophora crispa</i> association	1170-5 Supralittoral rock
1170-6. Infra- and circalittoral rocks with <i>Mytilus galloprovincialis</i> and <i>Mytilaster lineatus</i>	1170-6 Upper mediollitoral rock
1170-7 Rock bottom with stonecutter clams 1170-7.1 Soft rocks with <i>Pholas dactylus</i> and <i>Barnea candida</i> 1170-7.2 Limestone rocks with <i>Petricola lithophaga</i>	1170-7 Lower mediollitoral rock:
1170-8 Biogenic reefs built by <i>Ostrea edulis</i>	1170-8 Infralittoral rock with photophilic algae
1170-9 Animal fossils on a rock bottom	1170-9 Infralittoral rock with <i>Mytilus galloprovincialis</i>
1170-10 Mussel beds on sediment banks	1170-10 Infralittoral hard clay banks with Pholadidae

\* More recent work suggests this habitat type should be named Association of *Cystoseira bosporica*<sup>12</sup>

<sup>12</sup> Berov, D., Ballesteros, E., Sales, M., & Verlaque, M. (2015). Reinstatement of species rank for *Cystoseira bosporica* Sauvageau (Sargassaceae, Phaeophyceae). *Cryptogamie, Algologie*, 36(1), 65-80.

### Other EU Member States interpretations

These typically distinguish between biogenic and geogenic reef types and describe reef types with reference to substrate type, associated communities and species. Principle species forming biogenic reefs are categorised as sub-types.

### Key elements of defining this habitat type

Reef location and form, substrata, biogenic and geogenic diversity and associated communities

### Key questions/clarifications to help formulate any elaboration of interpretation for this habitat type in the Black Sea

**NB. It is not essential to add information on each of the following elements however, where extra interpretation is proposed, please cross-check to ensure consistency with definition in the EU Interpretation Manual.**

**Suggestions should be informed by knowledge of the situation throughout the Black Sea but are essentially for the EU Member States of Bulgaria and Romania and should therefore reflect the situation in these two countries as a priority.**

#### Zonation

The EU Interpretation Manual states that “reefs may extend from the sublittoral uninterrupted into the intertidal (littoral) zone or may only occur in the sublittoral zone, including deep water areas such as the bathyal.” In the Black Sea, where there is virtually no tidal range, the question of whether features defined as reefs extend from the circalittoral and infralittoral into the mediolittoral zone is more pertinent. There is a well-defined mediolittoral zone on rocky shores, this is the zone above the 'permanent' waterline, or the so-called 'spray zone', where rocks are almost continuously submerged during the seasons with more wave action and storms (winter) and less exposed to seawater in the 'calm' seasons. The mediolittoral zone has a distinct community of invertebrates and macroalgae, that are there either permanently or seasonally. They are defined in the MSFD initial assessment descriptions and in other documents, eg. the FEMA interpretations manual.

*Should the existing general definition of reefs be elaborated to cover geogenic and biogenic hard compact substrata that extend from the mediolittoral to the sublittoral zone? If so, are there any particular characteristics of this type of reef that should be highlighted?*

#### Topographic form

Reefs are topographically distinct from the surrounding seafloor e.g. Forming or emerging from a submarine sill, bank, slope or ridge. A variety of subtidal topographical features are included in this habitat complex such as hydrothermal vent habitats, sea mounts, vertical rock walls, horizontal ledges, overhangs, pinnacles, gullies, ridges, sloping or flat bed rock, broken rock and boulder and cobble fields.

Hard substrata that are covered by a thin and mobile veneer of sediment are also classed as reefs if the associated biota is dependent on the hard substratum rather than the overlying sediment.

*Are there any topographical sub-types of reefs in the Black Sea that would be useful to highlight in any elaborated definition?*

### Substrata

Geogenic reefs are characterised by benthic species that settle on hard compact substrata such as rock or stone. In Bulgaria and Romania these include limestone, sandstone and banks of hard clay.

Biogenic reefs may develop on these hard substrata as well as soft substrates such as muds in the case of mussel beds.

*Is there any need to describe Black Sea specific substrata types? If so, what categories should be used?*

Please refer to the EUNIS classification scheme if making any proposals.

### Biogenic reefs

The main types of biogenic reef that have been described in the Black Sea are those characterised by mussels *Mytilus galloprovincialis*, piddocks (Pholadidae) and tube worms (*Ficopomatus enigmaticus*). Reefs formed by the oyster (*Ostrea edulis*) are present in Bulgarian waters but are from historic rather than currently living populations. They are a unique Black Sea habitat type with sciaphylic brown & red macrolagae

*Are these the main biogenic reef types that should be listed as present in the Black Sea?*

Please cross reference to the EUNIS classification scheme.

### Associated marine species and benthic biotopes

Reefs are very variable in their form and in the biological communities they support, influenced by factors such as topography, depth (as a proxy for light availability for algal growth), exposure to waves and currents, salinity, rock type and biogeography.

Both Bulgaria and Romania have listed species typically found associated with different reef types. In Bulgaria ten different reef types, characterised by different marine species, have been identified. Many areas of reef in the photic zone are dominated by dense sands of *Cystoseira barbata* and *Cystoseira bosphorica* although other macroalgae (brown, green and red) are also present. In Romania, five of the ten different reef types have been identified by their characteristic species although typical species present have also been listed for all ten reef types. These include seasonal and ephemeral algae on agglomerations of rocks and boulders and red clay banks with galleries created by *Pholas dactylus* and *Barnea candida*.

*What are the main biotope types associated with biogenic and geogenic reefs?*

*Are there characteristic species (plants/animals) associated with reef habitats that should be listed?*

If particular biotopes are identified, please reference the relevant codes of the EUNIS classification.

## FAVOURABLE REFERENCE VALUES

Favourable Reference Values (FRVs) are key reference levels to define when Favourable Conservation Status (FCS) is being achieved for individual species and habitats under the Habitats Directive. For habitats FRVs need to be determined for both range and area – a Favourable Reference Range (FRR) and a Favourable Reference Area (FRA).

The task of the seminar is to discuss and propose approaches to setting FRV. **It is NOT to carry out an assessment of whether current values exceed, are equal to, or below these FVRs.**

A reference-based method using known area and/or distribution is considered the most appropriate for setting FRVs for habitats<sup>13</sup>. Historical range and distribution have been used as important factors in setting FRVs by a majority of Member States, but specific historical references have much less been considered. Expert opinion is used at some stage by most Member States.

- FRVs should be set on the basis of ecological/biological considerations;
- FRVs should be set using the best available knowledge and scientific expertise;
- FRVs should be set taking into account the precautionary principle and include a safety margin for uncertainty;
- FRVs should not, in principle, be lower than the values when the Habitats Directive came into force, as most habitats have been listed in the Annexes because of their unfavourable status; the distribution (range) and size (area) at the date of entry into force of the Directive does not necessarily equal the FRVs;
- FRVs are not necessarily equal to 'national targets': 'Establishing favourable reference values must be distinguished from establishing concrete targets:'
- FRVs do not automatically correspond to a given 'historical maximum', or a specific historical date; historical information (e.g. a past stable situation before changes occurred due to reversible pressures) should, however, inform judgements on FRVs;
- FRVs do not automatically correspond to the 'potential value' (maximum possible extent) which, however, should be used to understand restoration possibilities and constraints.

### Favourable Reference Range

Guidance from the European Commission for reporting under Article 17 of the Habitats Directive defines FRR as follows:

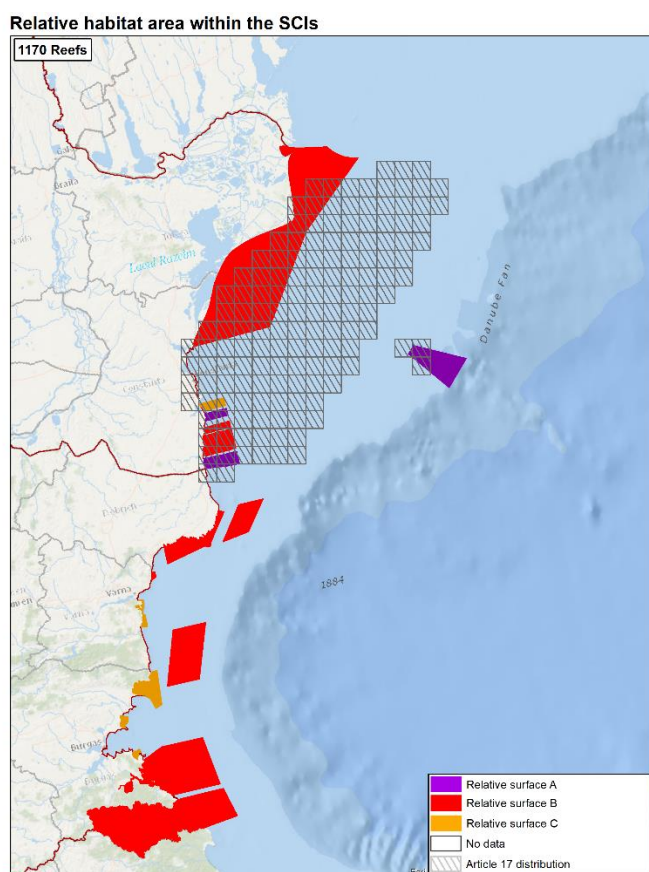
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<sup>13</sup> Bijlsma et al., 2018



Range within which all significant ecological variations of the habitat/species are included for a given biogeographical region and which is sufficiently large to allow the long-term survival of the habitat/species; favourable reference value must be at least the range (in size and configuration) when the Directive came into force; if the range was insufficient to support a favourable status the reference for favourable range should take account of that and should be larger (in such a case information on historic distribution may be found useful when defining the favourable reference range); 'best expert judgement' may be used to define it in absence of other data.'

For the 2007-2012 Article 17 reporting period the range of this habitat type was reported as 10,600 km<sup>2</sup> in Bulgaria with the FRR unknown. The most recent evaluations of habitat distribution and reference areas in Bulgarian coastal waters, were done under the MSFD 2013 initial assessment report, and gave an estimated figure of 190 km<sup>2</sup> for reef habitat. This excludes *Mytilus galloprovincialis* biogenic reefs which have not been mapped and where the current range of distribution is unknown. For the 2013-2018 reporting period range was reported as 16,600 km<sup>2</sup> in Romania which was considered to be approximately equal to the FRR.



Distribution of Habitat Type 1170 as reported under Article 17 for the 2012-2018 reporting period and the area covered by the habitat (relative surface) in each Natura 2000 site in terms of its national coverage. A=15-100%;B=2-15%;C=up to 2%

There is locational information, including area covered by some of the reef sub-types. For example, oyster reefs along the Bulgarian Black Sea coasts have been reported at depths of 7-23m between Cape Korakya and Urdoviza Bya, with other sites in front of Cape Korakya and Urdoviza Bay. Recent data (2015-2018 studies) showed the presence of these biogenic reefs in various locations along the whole Bulgarian Black Sea coast. There is detailed information



from Ropotamo Natura 2000 site and other small Natura 2000 sites have also been recently mapped e.g. Gradina-Zlatna Ribka, however, as of 2020, most of the zones in Bulgarian waters remain unmapped. In Romania, the reef habitats dominated by *Cystoseira* are found towards the southern coast along Mangalia-Saturn- 2 Mai- and Varna Veche. The extent of reef habitat has been mapped in more detail in some Natura 2000 sites e.g. Vama Veche – 2 Mai Marine Reserve in Romania.

#### Favourable Reference Range

Rocky reefs extend along the entire Black Sea coast of Bulgaria and there is some data on a serious decrease in the areas of *Cystoseira* dominated biotopes due to decrease in water transparency and eutrophication impacts. The current estimates available in the 2013 MSFD initial assessment report were further elaborated and updated in the Emodnet Habitat Seabed habitats databases, as well as in the framework of the FEMA marine ecosystem services mapping project. These new estimates rely on more accurate geological mapping of substrates and should be the base for the evaluation of the current distribution of 1170 in Bulgaria.

*What is the known distribution (and therefore range) in Bulgaria and Romania of the reef types identified above?*

*What is known about the range of biogenic and geogenic reefs in the historical (previous centuries) and recent (50 years) past, and when the Directive came into force?*

#### Favourable Reference Area

Guidance from the European Commission for reporting under Article 17 of the Habitats Directive defines FRA as follows:

*“Total surface area of habitat in a given biogeographical region considered the minimum necessary to ensure the long-term viability of the habitat type; this should include necessary areas for restoration or development for those habitat types for which the present coverage is not sufficient to ensure long-term viability; favourable reference value must be at least the surface area when the Directive came into force; information on historic distribution may be found useful when defining the favourable reference area; 'best expert judgement' may be used to define it in absence of other data.*

For the 2013-2018 Article 17 reporting period the area of this habitat type was reported as covering between 3,000 – 8,000 km<sup>2</sup> in Romania. This was considered to be approximately equal to the FRA. In Bulgaria, for the 2007-2012 reporting period the area of reef habitat was reported as just over 4,236 km<sup>2</sup> and the FRA as 3,832 km<sup>2</sup>.

#### Favourable Reference Area

Recent studies indicate a significant reduction in the area occupied by three reef subtypes in Bulgaria (1170-3, 1170-4, & 1170-5). This is mostly due to the significant reduction of the lower depth limit of macroalgae mostly due to the reduction in water transparency during the period of high eutrophication impact in the 1980s. The estimates of reduction are rather inaccurate

as historical data of depth ranges of species and habitats is very rare and inaccurate, and no actual spatial mapping of habitats was carried out prior to the 1980s to give the 'historical' area before the regime shift in the 1980s.

*What is known about the area of reef habitats in the historical (previous centuries) and recent (50 years) past, and when the Directive came into force in Bulgaria and Romania?*

# 1180 Submarine structures made by leaking gases

## HABITAT DEFINITION

### EU Interpretation Manual Definition

The EU Interpretation Manual provides a definition of this habitat and subdivides it into two types, depending on whether the Methane-Derived Authigenic Carbonate (MDAC) is on the seabed or rises above the normal seafloor, or whether it is present in pockmarks.

“Submarine structures consist of sandstone slabs, pavements, and pillars up to 4 m high, formed by aggregation of carbonate cement resulting from microbial oxidation of gas emissions, mainly methane. The formations are interspersed with gas vents that intermittently release gas. The methane most likely originates from the microbial decomposition of fossil plant materials.”

“The first type of submarine structures is known as “bubbling reefs”. These formations support a zonation of diverse benthic communities consisting of algae and/or invertebrate specialists of hard marine substrates different to that of the surrounding habitat. Animals seeking shelter in the numerous caves further enhance the biodiversity. A variety of sublittoral topographic features are included in this habitat such as: overhangs, vertical pillars and stratified leaf-like structures with numerous caves.”

“The second type are carbonate structures within “pockmarks”. “Pockmarks” are depressions in soft sediment seabed areas, up to 45 m deep and a few hundred meters wide. Not all pockmarks are formed by leaking gases and of those formed by leaking gases, many do not contain substantial carbonate structures and are therefore not included in this habitat. Benthic communities consist of invertebrate specialists of hard marine substrata and are different from the surrounding (usually) muddy habitat. The diversity of the infauna community in the muddy slope surrounding the “pockmark” may also be high.”

Submarine structures made by leaking gases form over geological time scales. The slow production of the structures is dependent upon the leakage of hydrocarbons over a long period of time and the process of accretion of carbonate cement mediated by a unique community of microbial organisms. This process leads to the production of Methane-Derived Authigenic Carbonate (MDAC)<sup>14</sup>, the qualifying feature of this habitat type.

The Interpretation Manual does not describe any regional characteristics for this habitat type. Some EU Member States have elaborated on the interpretation to highlight characteristics of this habitat type as it occurs in their national waters. The following material is provided to support a similar approach by Bulgaria and Romania, as well as ensuring a consistent approach between EU Member States bordering the Black Sea.

**NB. The intention is not to provide a new definition.**

### Cross reference to other Annex 1 types

This habitat can be found in association with or be a component Reefs (1170).

### Cross reference to EUNIS classification (main links only) level 3

Formerly part of A5.71 seeps and vents in sublittoral sediments.

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<sup>14</sup> Niemann, H., Elvert, M., Hovland, M., Orcutt, B., Judd A., Suck, I., Gutt, J., Joye, S., Damm, E., Finster, K. and Boetius A. (2005). Methane emission and consumption at a North Sea gas seep (Tommeliten area) *Biogeosciences*, 2: 335-351.

Cross reference to EU Red List of habitat types that may be present but not necessarily characteristic of this habitat type

Submarine structures made by leaking gases are believed to be mostly present along the shelf break and upper slope of the Black Sea and were not included in the geographical scope of the EU Red List analysis.



Columnar structures created by leaking gases, Romania © INCDM

#### Black Sea EU Member States interpretations to date

Both Bulgaria and Romania have undertaken work to further define this habitat type as it occurs in the Black Sea (Table 6). This work continues and therefore the most up to date information should inform discussions at the workshop.

Table 6. Existing definitions and descriptions in Bulgaria and Romania of habitat type 1180.

Bulgaria	Romania
There are known to be two types of gas leak expression: bubbling leaks and gas craters. To date, however, no columnar or pavement MDAC structures have been decisively located in Bulgarian waters.	Carbonate structures formed around methane emissions. These structures are present in the form of carbonate sandstone plates and pavements starting at a depth of 10 m, and in the form of moss and straight or branched columns starting from 40-50 m deep, extending far to the deep in the anoxic area. The size and complexity of these formations grow with depth.
Sub-Types	
Carbonate structures in the form of (a) plates (b) chambers below the surface of the sediment (c) columns with a vertical position in the water column or trunk netting structures below the surface of the sediment.	

### Other EU Member States interpretations

Elaborated definitions of this habitat typically included references to:

- the physical form (pavement, outcrops, chimneys with or without crevices and caves, structure of the carbonates e.g. fine-grained mudstone or sandstone, carbonate type
- marine algal species present if the feature is in the photic zone
- invertebrate species colonizing the hard substrata
- Fish aggregating around the structures.

### Key elements of defining this habitat type

Presence of MDAC, physical form, and any associated marine species

### Key questions/clarifications to help formulate any elaboration of interpretation for this habitat type in the Black Sea

**NB. It is not essential to add information on each of the following elements however, where extra interpretation is proposed, please cross-check to ensure consistency with definition in the EU Interpretation Manual.**

**Suggestions should be informed by knowledge of the situation throughout the Black Sea but are essentially for the EU Member States of Bulgaria and Romania and should therefore reflect the situation in these two countries as a priority.**

#### Carbonate cement structure

Structures formed by carbonate cement must be present in this habitat type.

*Confirm understanding that pockmarks without substantial carbonate cement structures, such as gas craters and gas leaks, are not examples of this habitat type.*

#### Physical form

This habitat may present as bubbling reefs or pockmarks. Structures in the form of plates, pavements of carbonated sandstone and columns have been described from Romanian waters with the complexity of formations increasing with depth. Flat, pancake-like, structures have been found in 60 m water depth, with larger concretions, up to 10 cm thick, at 110-130 m depth. At the top of the anoxic zone, at 190 m, the carbonates have formed coral-like concretions and at 230 m depth they have formed chimneys up to 1 m high.

Bubbling leaks and gas craters are common in Bulgarian waters. They have been recorded in areas where fine-grained sands overlie limestone and marl as well as amongst heavily cavernous rock blocks and slabs that can assemble as rock banks. Gas craters are typically shallow depressions in areas of relatively even muddy seabed and tend to be transitory. Neither type appear to have associated columnar or pavement MDAC structures.

*Are there any physical sub-types of this habitat type in the Black Sea that would be useful to highlight in any elaborated definition?*

*How relevant is their position in relation to the deep anoxic layer of the Black Sea?*

### Associated marine species and benthic biotopes

The Interpretation Manual describes the benthic communities associated with this habitat as consisting of invertebrate specialists of hard marine substrata which are different from the surrounding (usually) muddy habitat.

Associated species reported from studies in Romania are *Amphiura stepanovi*, *Apseudes acutifrons*, *Caprella acanthifera*, *Modiolula phaseolina*, and *Mytilus galloprovincialis* with the latter forming a dense covering of the rock surfaces which may be present around gas leaks. In some situations, a white curd-like mass surrounds a leak which is likely to be the accumulation of bacterial mats. In Bulgaria the rocky surfaces around gas leaks have been reported as thickly covered with *M.galloprovincialis*.

*Which species are likely to be associated with this habitat type in the Black Sea?*

*Are there any characteristic species (plants/animals) associated with leaking gas structures but different from the surrounding habitat which should be listed as typical of the situation in the Black Sea?*

If particular biotopes are identified, please reference the relevant codes of the EUNIS classification.

## FAVOURABLE REFERENCE VALUES

Favourable Reference Values (FRVs) are key reference levels to define when Favourable Conservation Status (FCS) is being achieved for individual species and habitats under the Habitats Directive. For habitats FRVs need to be determined for both range and area – a Favourable Reference Range (FRR) and a Favourable Reference Area (FRA).

The task of the seminar is to discuss and propose approaches to setting FRV. **It is NOT to carry out an assessment of whether current values exceed, are equal to, or below these FVRs.**

A reference-based method using known area and/or distribution is considered the most appropriate for setting FRVs for habitats<sup>15</sup>. Historical range and distribution have been used as important factors in setting FRVs by a majority of Member States, but specific historical references have much less been considered. Expert opinion is used at some stage by most Member States.

- FRVs should be set on the basis of ecological/biological considerations.
- FRVs should be set using the best available knowledge and scientific expertise.
- FRVs should be set taking into account the precautionary principle and include a safety margin for uncertainty.
- FRVs should not, in principle, be lower than the values when the Habitats Directive came into force, as most habitats have been listed in the Annexes because of their unfavourable status; the distribution (range) and size (area) at the date of entry into force of the Directive does not necessarily equal the FRVs;

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<sup>15</sup> Bijlsma et al., 2018

- FRVs are not necessarily equal to 'national targets': 'Establishing favourable reference values must be distinguished from establishing concrete targets:
- FRVs do not automatically correspond to a given 'historical maximum', or a specific historical date; historical information (e.g. a past stable situation before changes occurred due to reversible pressures) should, however, inform judgements on FRVs;
- FRVs do not automatically correspond to the 'potential value' (maximum possible extent) which, however, should be used to understand restoration possibilities and constraints.

### Favourable Reference Range

Guidance from the European Commission for reporting under Article 17 of the Habitats Directive defines FRR as follows:

*Range within which all significant ecological variations of the habitat/species are included for a given biogeographical region and which is sufficiently large to allow the long-term survival of the habitat/species; favourable reference value must be at least the range (in size and configuration) when the Directive came into force; if the range was insufficient to support a favourable status the reference for favourable range should take account of that and should be larger (in such a case information on historic distribution may be found useful when defining the favourable reference range); 'best expert judgement' may be used to define it in absence of other data.'*

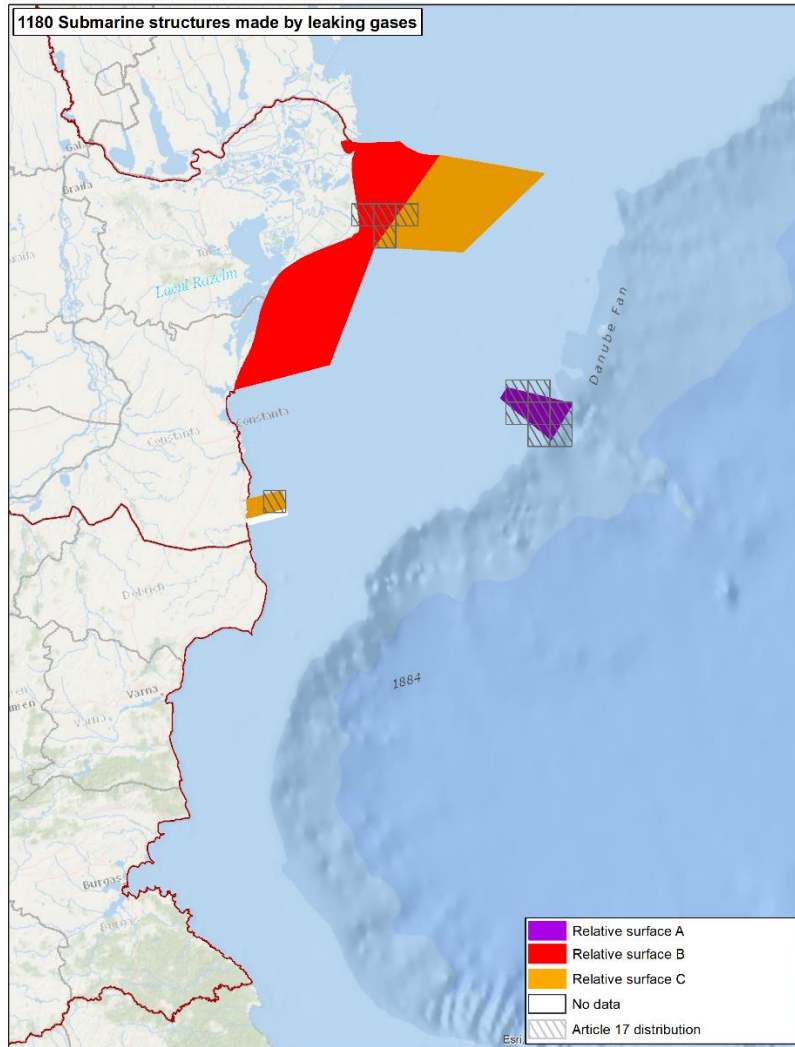
The geological features of the Bulgarian coast (presence of a shallow gas and oil fields; exposures of highly porous rocks and tectonic faults; active landslide processes) suggest that offshore gas leaks are relatively common. Two quite large fields are 'Golden Sands' just north of Varna, and 'Zelenka' west of Cape Kaliakra in the Bay of Balchik. There are also gas craters ('pockmarks') on the southern shelf, in two large zones (Eminska and Rezovo) and smaller regions between them. There has been extensive mapping of methane seeps in Bulgaria waters however, to date, no columnar or pavement MDAC structures have been confirmed as present.

In Romania, structures in the form of plates and pavements of carbonated sandstone as well as moss and straight or branched columns have been reported with the latter in deeper waters (from 40m). The highest density has been reported from the Danube Canyon which is in an area with important gas-hydrate deposits and a place of intense methane seepage in the anoxic water layer. As a result, large columnar methanogenic carbonate structures (bubbling reefs) are present throughout the canyon.

For the 2013-2018 Article 17 reporting period the range of this habitat type in Romania was reported as 1,100 km<sup>2</sup> and considered to be approximately equivalent to the FRR. Submarine structures made by leaking cases are currently not thought to be present in Bulgaria.



### Relative habitat area within the SCIs



Distribution of Habitat Type 1180 as reported under Article 17 for the 2012-2018 reporting period and the area covered by this habitat (relative surface) in each Natura 2000 site in terms of its national coverage. A=15-100%; B=2-15%; C=up to 2%

### Favourable Reference Range

*What is the known distribution (and therefore range) in Bulgaria and Romania of the different types of submarine structures associated with leaking gas?*

*What is known about the range of this habitat type in (previous centuries) and recent (50 years) past, and when the Directive came into force?*

### Favourable Reference Area

Guidance from the European Commission for reporting under Article 17 of the Habitats Directive defines FRA as follows:

*“Total surface area of habitat in a given biogeographical region considered the minimum necessary to ensure the long-term viability of the habitat type; this should include necessary*



*areas for restoration or development for those habitat types for which the present coverage is not sufficient to ensure long-term viability; favourable reference value must be at least the surface area when the Directive came into force; information on historic distribution may be found useful when defining the favourable reference area; 'best expert judgement' may be used to define it in absence of other data.*

Given that the majority of Annex I marine habitats are physiographic features, the underlying geological, physical and oceanographic processes are especially important influences on their potential range. Understanding and mapping these influences has been used to scope the potential range of some offshore habitat types (e.g. sandbanks and reefs). The use of proxies is a reasonable and realistic approach to determining potential range of such marine habitat types and therefore also informative where there is an absence of current range data. In the absence of historical data and current range information, this is potentially the most significant factor to focus on when setting FRR.

Sandbanks can be highly dynamic features that change in character, move, erode, or expand in response to natural processes such as the action of storms, tides and wave action. They may also be relict features where the main physical characteristics remain unchanged over decades.

Changes in both the physical and biological characteristics of some sandbanks have been described and variously attributed to natural processes, human activity, or a combination of both.

For the 2013-2018 Article 17 reporting period the area of this habitat type was reported as 50 km<sup>2</sup> in Romania and considered to be approximately equivalent to the FRA. This habitat type is currently not thought to be present in Bulgaria.

#### Favourable Reference Area

*What is known about the area covered by of submarine structures made by leaking gases in the historical (previous centuries) and recent (50 years) past, and when the Directive came into force in Bulgaria and Romania?*

# Improving regional cooperation and data exchange, and exploring possibilities for joint monitoring and reporting

## Objectives

The Habitats Directive, Water Framework Directive (WFD) and Marine Strategy Framework Directive (MSFD) have complementary objectives;

### *Habitats Directive*

- To maintain or restore, at favourable conservation status (FCS) natural habitats and wild flora and fauna of species of community interest.

### *Marine Strategy Framework Directive*

- To protect and preserve the marine environment, prevent its deterioration and restore the environment in areas where it has been adversely affected. Aims to achieve or maintain good environmental status (GES)

### *Water Framework Directive*

- The sustainable use of water and to protect and improve rivers, lakes, estuaries and coastal waters with the aim of achieving good environmental and chemical status

The **Habitats Directive** includes a focus on habitats and species listed on Annex I and II. The conservation status for habitats is defined in terms of the range and area of habitat, structure and function necessary for long-term maintenance and the associated typical species.

The **WFD** splits the ecosystem into its constituent parts and assess the individual quality of each part separately basing overall status on the quality of the worst element. Reference conditions must also be described based on biological quality elements. For transitional waters and for coastal waters these are phytoplankton, macroalgae, and benthic invertebrates. Fish are an additional biological element for consideration when monitoring transitional waters. All these elements can inform Natura 2000 assessments for marine habitats although, in practice, the results of monitoring macroalgae and benthic invertebrates are most likely to support assessment of the attributes of the habitat features considered here.

The **MSFD** uses 11 descriptors which taken together define good environmental status (GES). It covers those aspects of GES not already covered by the WFD (e.g. biodiversity). The criteria and methodological standards on GES and the specification and standardised methods for monitoring and assessment are set out in a Commission Decision<sup>16</sup>. Whilst any of the descriptors may be relevant when assessing the conservation status of the seven habitat features reviewed in this report, descriptor 1 (biodiversity), descriptor 4 (food webs) and descriptor 6 (sea floor integrity) are the most likely to present the greatest scope for integrated monitoring and use of the outcomes for assessment of marine Natura 2000 habitats. For example, the attributes and indicators considered relevant to assessing descriptor 1 include species distribution, habitat extent and community condition, and seabed substrate, species composition and the size of the biotic community for descriptor 6<sup>17</sup>.

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<sup>16</sup> Commission Decision EU 2017/848 <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017D0848&from=EN>

<sup>17</sup> Cochrane, S.K.J. *et al.* 2010. MSFD Task Group 1 Report .Biological Diversity. <https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/marine-strategy-framework-directive-task-group-1-report-biological-diversity>. Rice, J. *et al.* 2010. MSFD Task Group 6 Report. Seafloor integrity. <https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/marine-strategy-framework-directive-task-group-6-seafloor-integrity>

## Joint Monitoring

Member States have a range of monitoring obligations under the Habitats Directive, MSFD and WFD, and are encouraged to undertake joint monitoring where possible, to save resources and to allow an assessment based on a common data set<sup>18</sup>. The potential areas of overlap are shown in Table 1. Where the targets and indicators for these Directives are complementary or similar, this becomes practical and feasible<sup>19</sup>. Cross referencing the full list of recommended attributes and indicators for reporting on the MSFD and WFD will indicate the scope for integrated monitoring with assessments for the Habitats Directive.

**Table 1: Linkages between the Habitats, Marine Strategy Framework and Water Framework**

**Directives** (from NatureBureau Ltd, 2018) X = Most likely overlap o= Overlap but less of a priority

		Habitat types						
		1110	1130	1140	1160	1170	1180	8330
<b>MSFD Descriptors</b>								
1	Biological Diversity	X	X	X	X	X	X	X
2	Non-indigenous Species		o					
3	Commercial fish & shellfish							
4	Food webs	X	X	X	X	X		
5	Eutrophication		X		o			
6	Seafloor integrity	X	X	o	X	X	X	
7	Hydrographic conditions	o	X		o			
8	Contaminant effects		o					
9	Contaminants in seafood							
10	Marine Litter		o		o			o
11	Energy (including noise)							
<b>WFD</b>								
	Transitional waters		X	X				
	Coastal waters	X		X	X	X	X	X
	<b>Biological</b>							
	Invertebrate fauna	X	X	X	X	X	X	X
	Fish (Transitional waters only)		X					
	Macroalgae	X	X	X	X	X		X
	Phytoplankton		X					
	Angiosperms							
	<b>Hydromorphological</b>							

<sup>18</sup> <http://ec.europa.eu/environment/nature/natura2000/management/docs/FAQ-WFD%20final.pdf>

<sup>19</sup> E.g. Wadden Sea Trilateral Monitoring and Assessment Handbook. <http://www.waddensea-secretariat.org/monitoring-tmap/manual-guidelines>

	Tidal regime		X					X
	Morphological conditions	X	X	X	X			X
	<b><i>Physio-chemical</i></b>							
	Thermal conditions		X				X	
	Oxygenation conditions		X				X	
	Salinity		X					
	Nutrient conditions	o	X	o	o			
	Transparency	o				o		
	Specific non-synthetic pollutants		o					
	Specific synthetic pollutants		o					

## Joint Reporting

Reporting of the Birds Directive and Habitats Directive (HD) have been gradually moving to be more aligned and integrated, and this was formalised by Regulation EU 2019/1010. For WFD and MSFD, monitoring and reporting are undertaken at Member State level, but there are explicit requirements for regional cooperation through the Regional Conventions (e.g. Bucharest Convention).

Assessments of biodiversity condition and status made under the HD (and also Birds Directive) and of Ecological Status of inshore waters under the WFD, will explicitly contribute to assessments of those elements for the MSFD. Most Member States took this approach for their initial assessments under MSFD in 2012, and subsequent development of monitoring programmes. Rather than 'joint monitoring', monitoring carried out for implementing the HD (for 'special' habitats/species) and for WFD in coastal waters is 'nested with' monitoring of 'broad' or 'predominant' benthic habitats and requires regional cooperation (e.g. for mobile species and water column).

For mobile species such as cetaceans, where assessment and reporting of population status under the Habitats Directive is at the level of MS, rather than at a biogeographical scale, population estimates for the different areas will be calculated on a different basis, and therefore cannot be 'added together' to form an assessment at a wider biogeographical level for the same sea area.

## Regional co-operation and data exchange

The implementation of the revised GES Decision requires regional cooperation to be pursued by Member States to establish threshold values, lists of criteria elements and methodological standards.

There are regular bilateral meetings under Black sea Working Group in the scope of Joint Commission on Water Management (JCWM) established under the Agreement between the Ministry of Environment and Water of the Republic of Bulgaria and the Ministry of Environment and Water management of Romania on Cooperation in the field of water management signed at Bucharest on 12 November 2004. This requires also improving the

marine status assessment and monitoring in both countries, especially in relation to criteria covered, geographical coverage and number and frequency of sampling.

The Black Sea Integrated Monitoring and Assessment Program (BS IMPA) is developed under Art XV of the Bucharest Convention, based on national monitoring programs plus thematic surveys financed by national authorities or donors (e.g. UNEP, UNDP, EC, UN FAO etc). It introduces regional monitoring, including approaches for MSFD, and WFD. Assessment “will, to the extent possible, be built on clear, understandable and compatible common indicators and assessment criteria.”

Annex 1 of the BS IMPA presents an Integrated Monitoring and Assessment Plan for 2017-22, including lists of Ecological Quality Objectives (EcoQO) relevant to biodiversity with descriptors, targets, preparatory actions, detail of additional monitoring and data/information collection and data products. It says where an EcoQO is mandatory and frequency of reporting to the Black Sea Commission (1 or 4 times per year).

Several of the EcoQOs will support implement of the Habitats Directive however the most relevant to the current discussion, is EcoQO 2b (Conserve coastal and marine habitats and landscapes).

#### **EcoQO 2b Conserve coastal and marine habitats and landscapes**

<b>Descriptor</b>	Biological diversity is maintained. the quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions
	Sea-floor integrity is at a level that ensures that the structure and 19 functions of the ecosystems are safeguarded and benthic ecosystems, in particular, are not adversely affected
	Permanent alteration of hydrographical conditions does not adversely affect marine ecosystems
<b>Target</b>	Decreasing of anthropogenic pressures on coastal zone
	Increasing number and area of marine protected areas (MPAs)
<b>Preparatory actions</b>	Assess initial status and determine Good Environmental Status (GES) of marine habitats
	Agree on classification of habitats [and landscapes]
	Revise the List of habitats of Black Sea importance (Annex 2 TDA, priority habitats for restoration and conservation)
	Compile Lists of opportunistic species
	Revise and adopt the regional Guideline on MPAs
	Adopt the ICZM Guidelines
	Develop set of ICZM Indicators
	Update ICZM Stock Taking
	Update ICZM Progress Markers
<b>Additional monitoring and data/information collection</b>	Status of Habitats and Landscapes parameters, including macrophytes depth distribution
	Coastal erosion, sea-floor integrity (silting, smoldering etc.), hydrological changes in areas of threatened habitats ICZM and spatial plans
	BATs on habitats status assessment
	Satellite images
<b>Data Products</b>	Maps of indicated pressures, maps of habitats (reflecting the spatial and temporal changes) etc.

## Relevant databases for possible future harmonization with Black Sea Information System

Eionet	Partnership network of the European Environment Agency (EEA)
EmodNET	European Marine Observation and Data Network (Project of EC DG MARE)
GEOSS	Global Earth Observation System of Systems
GMES	Global Monitoring for Environment and Security
GOOS	Global Ocean Observing System (Black Sea)
IMO GISIS	Global Shipping Information System of International Maritime Organization (IMO)
INSPIRE (SDI)	European Spatial Data Infrastructure for sharing of environmental spatial information
IODE	International Oceanographic Data and Information Exchange
ReportNet	Comprehensive and shared European data and information management system which supports MSFD 2008/56/EC
SEADATANET	Pan-European standardized system for managing the data sets collected by the oceanographic fleets and the automatic observation systems
THETIS EU	information system that supports the Port State Control inspection regime
UNEP WCMC	World Conservation Monitoring Centre - biodiversity information and assessment centre of the United Nations Environment Programme
WISE	Comprehensive and shared European data and information management system which supports WFD 2000/16/EC

Is there any **joint monitoring** or **joint reporting** within Bulgaria or Romania of measures/attributes /indicators required for reporting under the HD, MSFD and WFD either independently or together?

What could be done to facilitate continuous (joint or at least coordinated) **monitoring** programmes in relation to implementation of the HD, MSFD and WFD for all MSFD descriptors, in the short, medium, and long-term?

What actions should be taken to encourage **regionally coordinated** monitoring programmes to support implementation of all the three European Directives?

Which existing structures/organisations might be used to improve **regional co-ordination and data exchange** to support implementation of the three European Directives?

Should any additional mechanisms (e.g. organisations/programs/projects) be considered and established to improve **regional co-ordination and data exchange**. If so, what form might they take?

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## Annex IV – Cetaceans Species Briefings

### Black Sea Marine Biogeographical Region Regional Workshop October 2020

#### Marine species

S1349 *Tursiops truncatus*

S1350 *Delphinus delphis*

S1351 *Phocoena phocoena*

#### OVERVIEW

##### Black Sea Cetaceans

Three species of cetaceans are regularly present in the Black Sea, bottlenose dolphin (*Tursiops truncatus ponticus*), common dolphin (*Delphinus delphis ponticus*) and harbour porpoise (*Phocoena phocoena relicta*). All are listed in Habitats Directive annexes (Table 1).

**Table 1** – Black Sea cetacean listings in Habitat Directive Annexes<sup>20</sup>

	Annex II	Annex IV
S1349 <i>Tursiops truncatus</i>	✓	✓
S1350 <i>Delphinus delphis</i>		✓
S1351 <i>Phocoena phocoena</i>	✓	✓

##### Article 17 status assessments

Bulgaria and Romania have both reported status assessments for all three cetacean species under Article 17 of the Habitats Directive (see Table 2 for a summary of the assessment results). Full details of the assessment results are available through the EIONET Article 17 web tool<sup>21</sup>.

<sup>20</sup> <https://eur-lex.europa.eu/legal-content/EN/AUTO/?uri=CELEX:01992L0043-20130701>

<sup>21</sup> Information from <https://nature-art17.eionet.europa.eu/article17/>

## Species distribution maps

The Article 17 reporting data includes maps summarising the distribution in EU waters and overall conservation status assessment for each species. Maps for all three Black Sea cetaceans are included as Annex 1 to this note.

**Table 2** – Article 17 species status assessment for Black Sea cetaceans in EU waters - 2013-2018

	Bulgaria				Romania			
	Overall	population	habitat	range	Overall	population	habitat	range
S1349 <i>Tursiops truncatus</i>	U2	U2	U2	FV	U1	U1	FV	FV
S1350 <i>Delphinus delphis</i>	U1	XX	FV	U1	U1	U1	FV	FV
S1351 <i>Phocoena phocoena</i>	U1	XX	FV	FV	U1	U1	FV	FV

FV – Favourable; XX – Unknown U1 – Unfavourable inadequate; U2 – Unfavourable bad

## Pressures and threats

Member state reporting includes an assessment of pressures and threats impacting on the conservation status of both species and habitats. Pressures and threats of high importance or impact for species are:

- F - Development, construction and use of residential, commercial, industrial and recreational infrastructure and areas
- G01 - Marine fish and shellfish harvesting (professional, recreational) causing reduction of species/prey populations and disturbance of species
- G12 - Bycatch and incidental killing (due to fishing and hunting activities)
- H02 - Military, paramilitary or police exercises and operations in the freshwater and marine environment
- J – Mixed sources pollution

## Conservation measures

Member States have taken measures for maintaining or restoring the conservation status of habitat types and species. For the Marine Black Sea, Romania and Bulgaria have reported the following measures to maintain the conservation status of cetaceans:

- CE - Measures to mitigate transport disturbance
- CF - Measures to mitigate urbanisation
- CG - Measures to mitigate exploitation of species (including bycatch and incidental killing)
- CJ - Measures to mitigate pollution.

Bulgaria applies conservation measures inside and outside Natura 2000 sites; this information has not been reported by Romania.

## SUGGESTED TOPICS FOR DISCUSSION

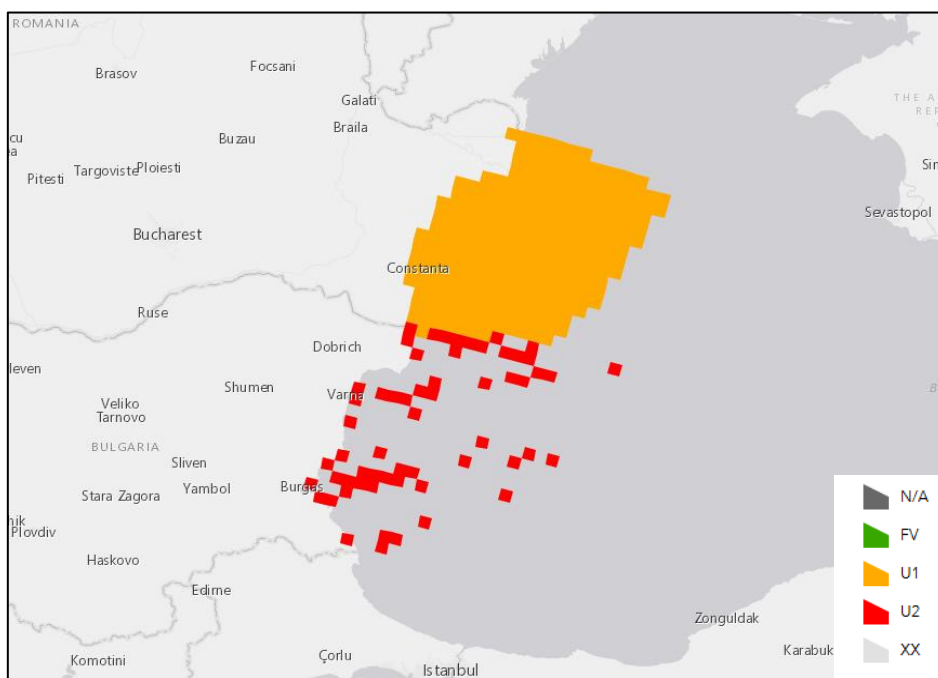
### Monitoring

- What are the strengths and weaknesses of the current monitoring of:
  - a) cetacean conservation status,
  - b) pressures, especially fisheries bycatch, and
  - c) implementation of conservation measuresboth in EU Member State waters and across the whole of the Black Sea basin?

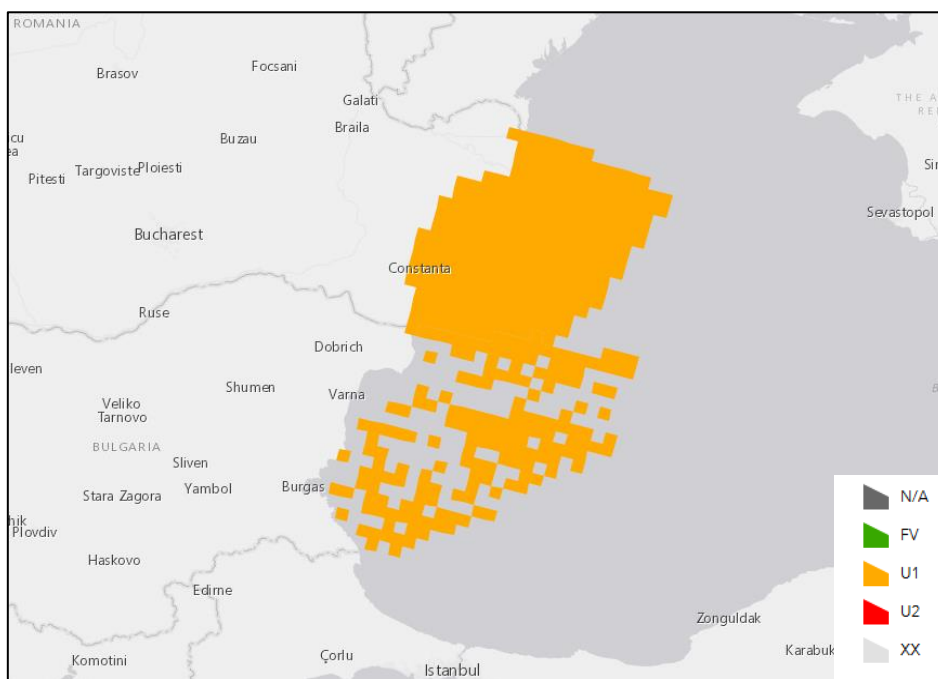
### Co-operation

- What are the existing levels of co-operation in monitoring of conservation status and pressures?
- What are the strengths and weaknesses of current co-operation, and what could be improved?
- What additional co-operation is needed to allow progress to be made with monitoring of cetacean conservation status and pressures?

**ANNEX 1 – Distribution maps for Black Sea cetacean species from Article 17 reporting 2013-2018<sup>22</sup>**

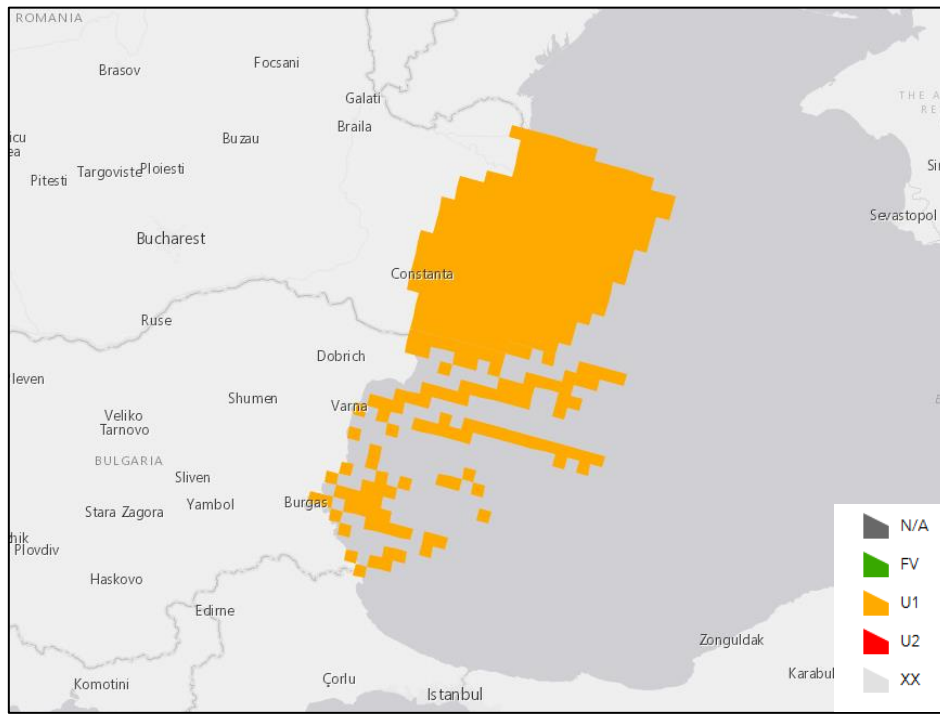


**Figure 1- Distribution map for S1349 *Tursiops truncatus* from Article 17 reporting 2013-2018**



**Figure 2- Distribution map for S1350 *Delphinus delphis* from Article 17 reporting 2013-2018**

<sup>22</sup> Maps from EEA/ETC-BD: Article 17 Web Tool <https://nature-art17.eionet.europa.eu/article17/species/summary/>



**Figure 3 - Distribution map for S1351 *Phocoena phocoena* from Article 17 reporting 2013-2018**