

EU Marine Strategy

to protect Europe's oceans and seas



Marine Strategy Framework Directive – an introduction to seafloor issues

Human footprint on the seafloor conference

2 September 2011

Natural History Museum, Brussels



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Outline

- MSFD – brief overview
- Marine habitats and seafloor perspective
- Assessing seafloor quality
- Good environmental status in a regional context
- Key considerations

What is the MSFD?

■ Overall goal

- To take measures to achieve or maintain Good Environmental Status (GES) by 2020

■ Develop and implement Marine Strategies

- Protect and preserve the marine environment, prevent deterioration and restore where practicable
- Prevent and reduce inputs (phase out pollution) to ensure there are no significant impacts or risks to marine biodiversity, marine ecosystems, human health or legitimate uses of the sea

■ Deliver through an ecosystem-based approach

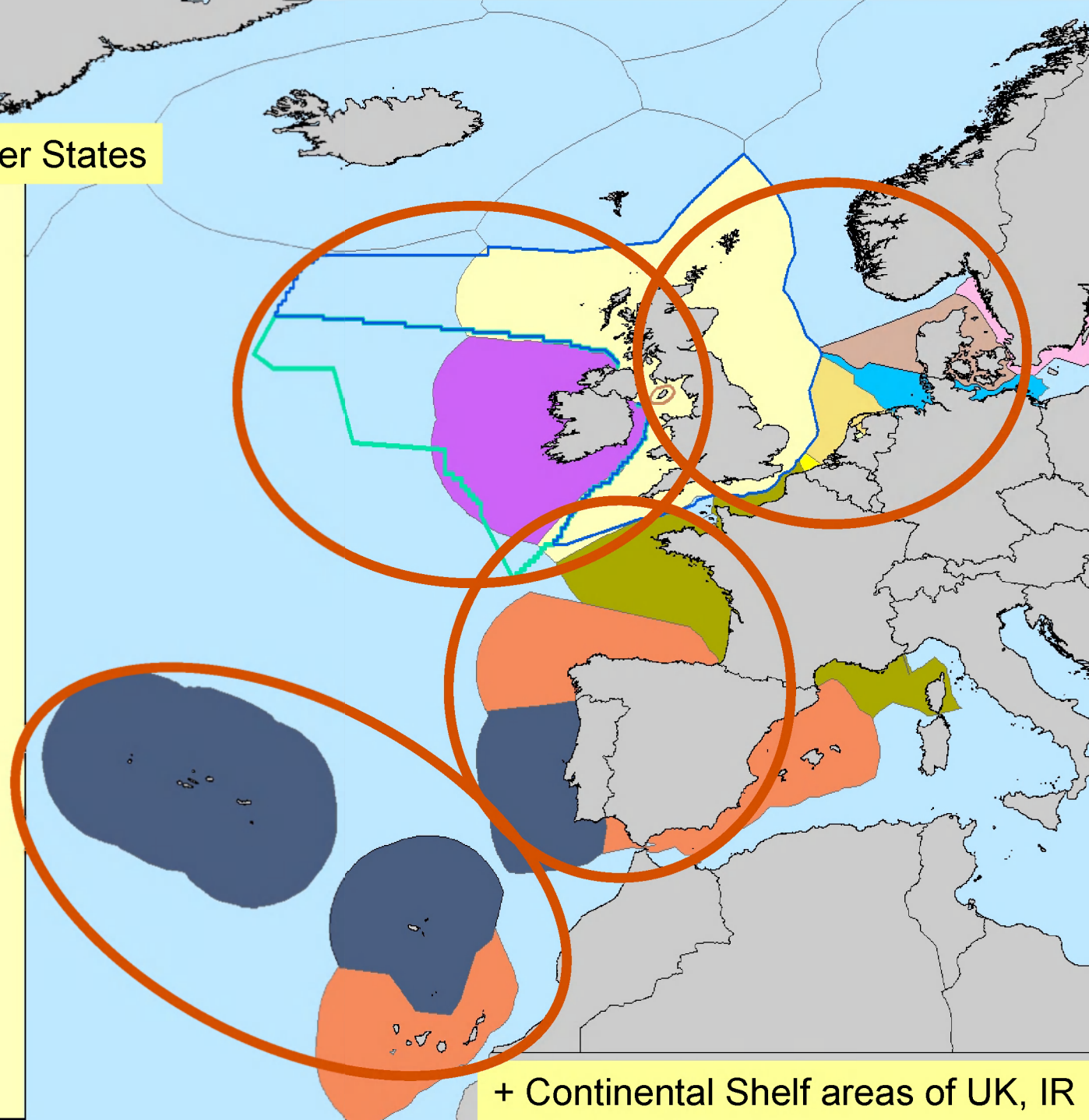
- Management of activities and their pressures
- Enable sustainable use of marine goods and services

MSFD timetable

Main tasks to 2016	Complete by
Initial Assessment <ul style="list-style-type: none">➤ Environmental characteristics➤ Pressures and impacts➤ Socio-economic analysis and costs of degradation	2012
Determine characteristics for GES	2012
Establish environmental targets and associated indicators	2012
Establish and implement monitoring programmes	2014
Develop and implement a programme of measures	2016

EEZs - Atlantic EU Member States

- Belgium
- Denmark
- Denmark - Faeroe Islands
- Denmark - Greenland
- France
- Germany
- Iceland
- Ireland
- Netherlands
- Norway
- Norway - Jan Mayen
- Portugal
- Portugal - Azores
- Portugal - Madeira
- Spain
- Spain - Canary Islands
- Sweden
- United Kingdom
- UK - Guernsey
- UK - Jersey
- UK Continental Shelf area
- Ireland Continental Shelf area



+ Continental Shelf areas of UK, IR

GES overview

■ GES definition (Art. 3.5)

- Ecologically diverse and dynamic seas which are clean, healthy and productive
- Use is at a sustainable level
- Fully functioning and resilient ecosystem
- Biodiversity decline is prevented, biodiversity is in balance and protected

- GES is to be assessed at Region or Subregion level (Art. 3.5)
- Coherent, coordinated and common approaches (Art. 5.2)
- Achieved through Regional Seas Conventions (Art. 6)

- No pollution effects

What is GES? – Annex I Descriptors



No.	Topic
1	Biological diversity
2	Non-indigenous species
3	Commercial fish & shellfish
4	Food-webs
5	Eutrophication
6	Sea-floor integrity
7	Hydrography
8	Contaminants
9	Contaminants in seafood
10	Litter
11	Energy, incl. underwater noise



Descriptors – for seabed habitats

D1: 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.

D6: Sea floor integrity is at a level that ensures that the structure and functions of the ecosystems are safeguarded and benthic ecosystems, in particular, are not adversely affected.

Criteria for assessment (COM Decision, 2010)

D1 Biodiversity
(habitats)
D6 Seafloor integrity

Criteria	Indicators
1.4 Habitat distribution	1.4.1 Distributional range 1.4.2 Distributional pattern
1.5 Habitat extent	1.5.1 Habitat area 1.5.2 Habitat volume
1.6 Habitat condition	1.6.1 Condition of typical species & communities 1.6.2 Relative abundance and/or biomass 1.6.3 Physical, hydrological and chemical conditions
Criteria	Indicators
6.1 Physical damage	6.1.1 Type, abundance & areal extent of biogenic substrate 6.1.2 Extent of seabed significantly affected by human activities for different substrate types
6.2 Benthic community condition	6.2.1 Presence of sensitive/tolerant species 6.2.2 Indexes assessing condition & functionality 6.2.3 Proportion of biomass/no. of individuals above specified length/size 6.2.4 Size spectrum of community

Assessments (biodiversity)

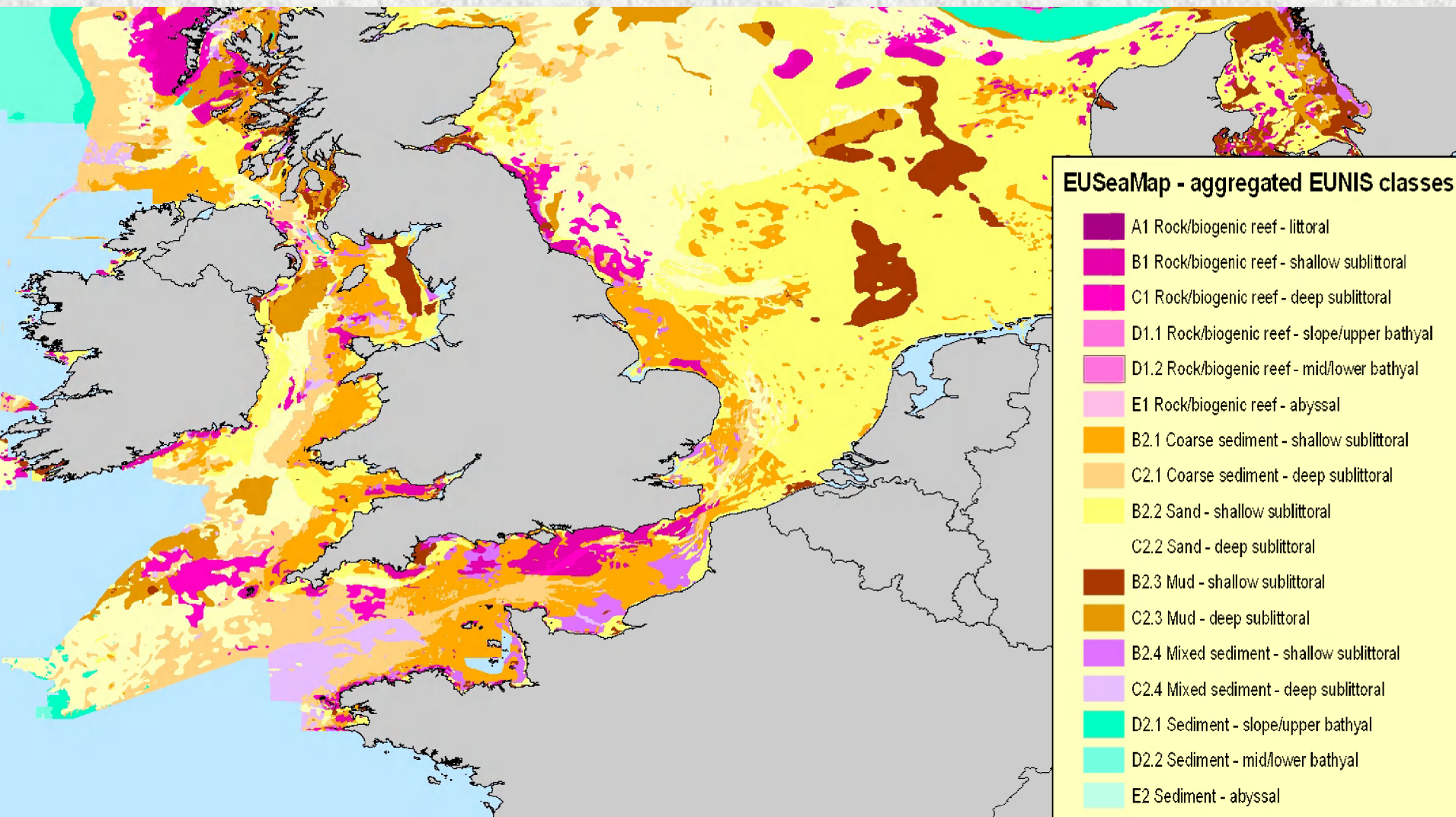
- **Functional groups of [highly mobile/widely dispersed] species:**
 - Birds, mammals, reptiles, fish, cephalopods
- **Predominant habitat types:**
 - Water column
 - Seabed
- **Listed features:**
 - species and habitats listed under Community legislation (Habitats & Birds Directives) and international agreements (e.g. OSPAR, ASCOBANS).

Predominant habitat types

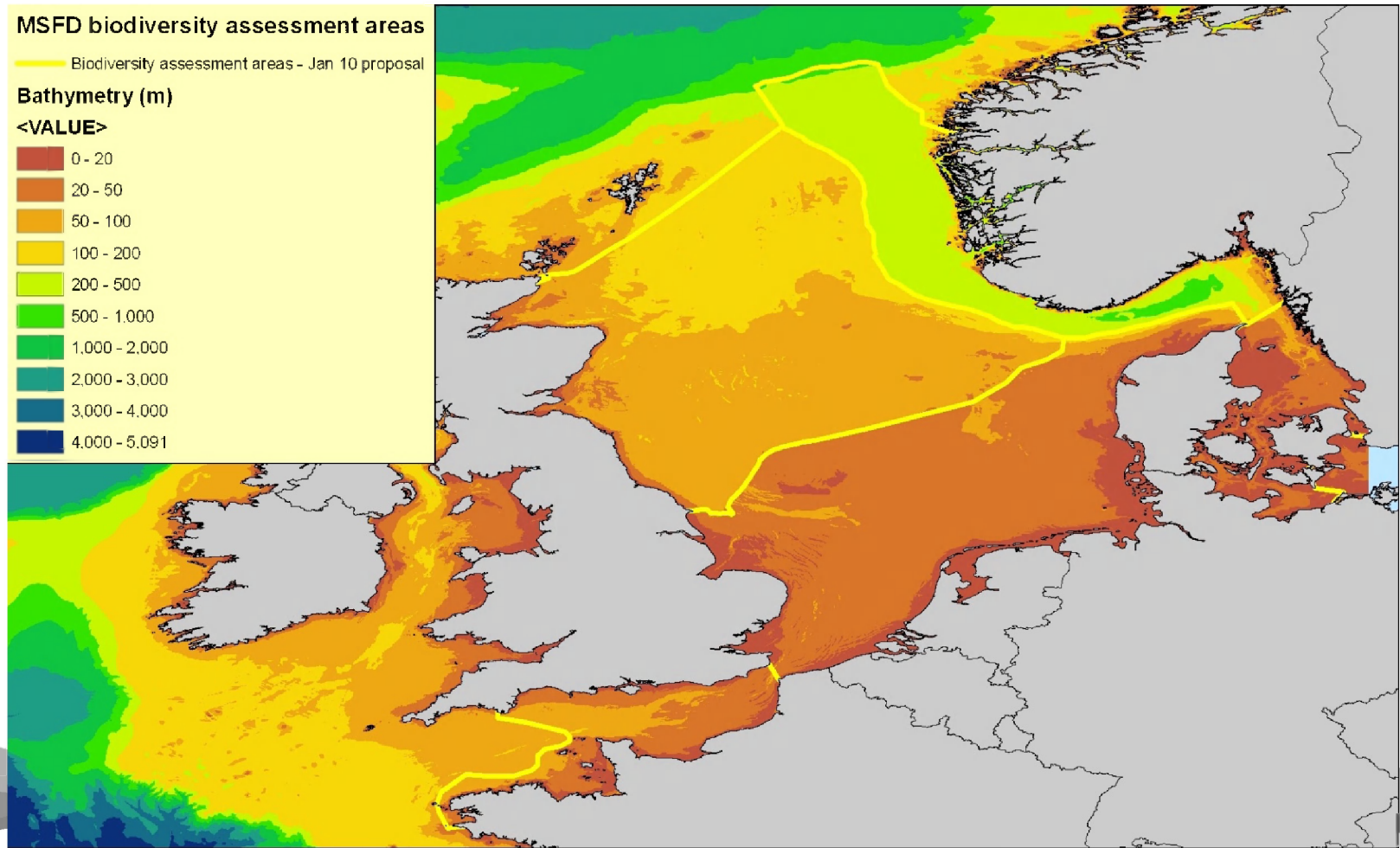
Zone boundary (approx. m)	Zone	Substrate	Rock	Sediment				Water column
			inc. mixed hard substrata, biogenic reefs	Coarse	Sand	Mud	Mixed sediment	
0	Littoral							Reduced
50	Sublittoral - shallow							Variable
200	Sublittoral - shelf							Marine – coastal
1100	Bathyal – upper							Marine – shelf
2700	Bathyal - lower							Marine - oceanic
	Abyssal							



- first physical habitat mapping of EU waters using consistent classification
- application in assessment for Marine Framework Strategy Directive



Proposed assessment scales - habitats



Annex III, Table 2

Pressures and impacts

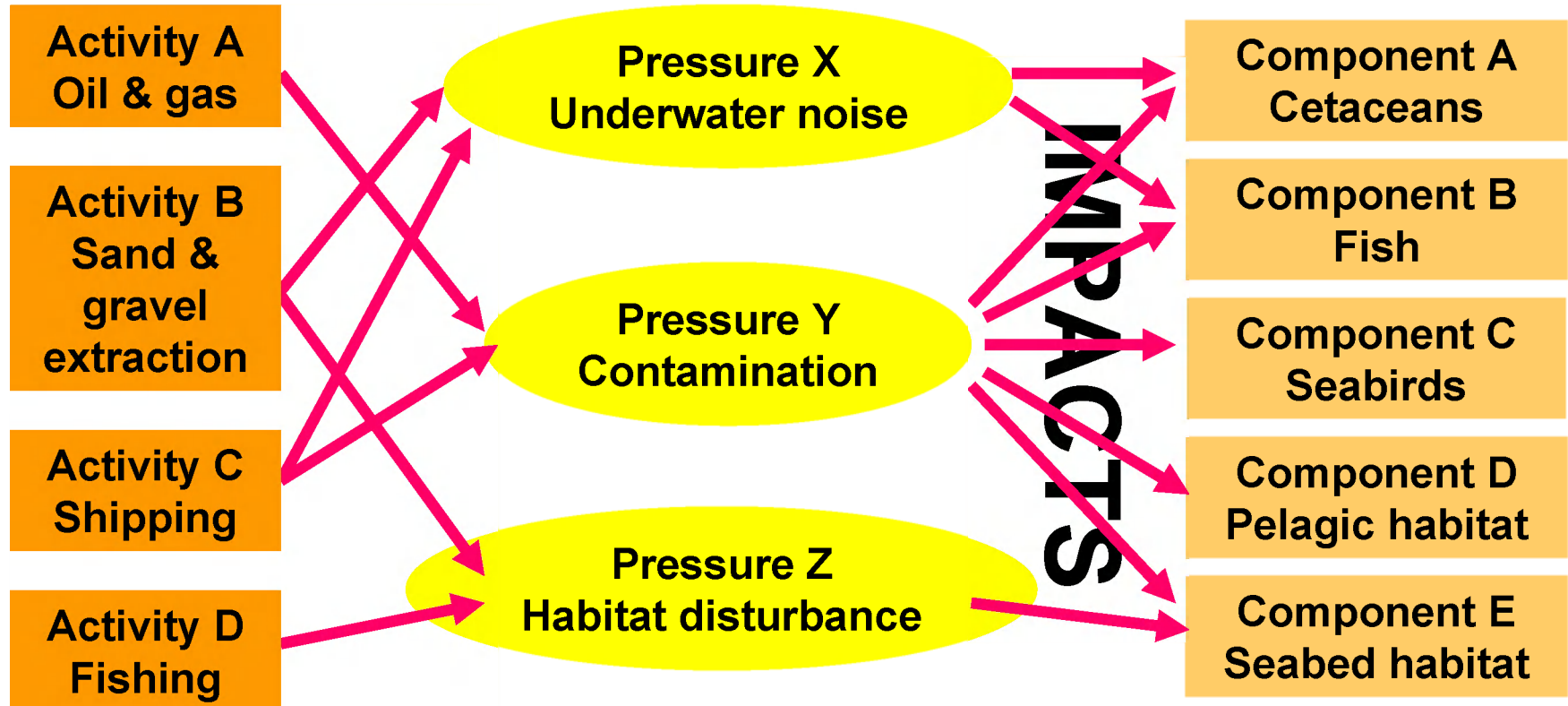
Pressure themes	Pressures
Physical loss	Smothering, sealing
Physical damage	Siltation, abrasion, extraction
Other physical disturbance	Noise Litter
Interference with hydrological processes	Thermal regime changes Salinity regime changes
Contamination by hazardous substances	Synthetic compounds Non-synthetic compounds Radio-nuclides
Systematic or intentional release of substances	e.g. CO ₂ storage, produced water
Nutrient & organic enrichment	Inputs of N & P-rich substances Inputs of organic matter
Biological disturbance	Microbial pathogens Non-indigenous species Extraction of species (incl. by-catch)



Activity

Pressure

State

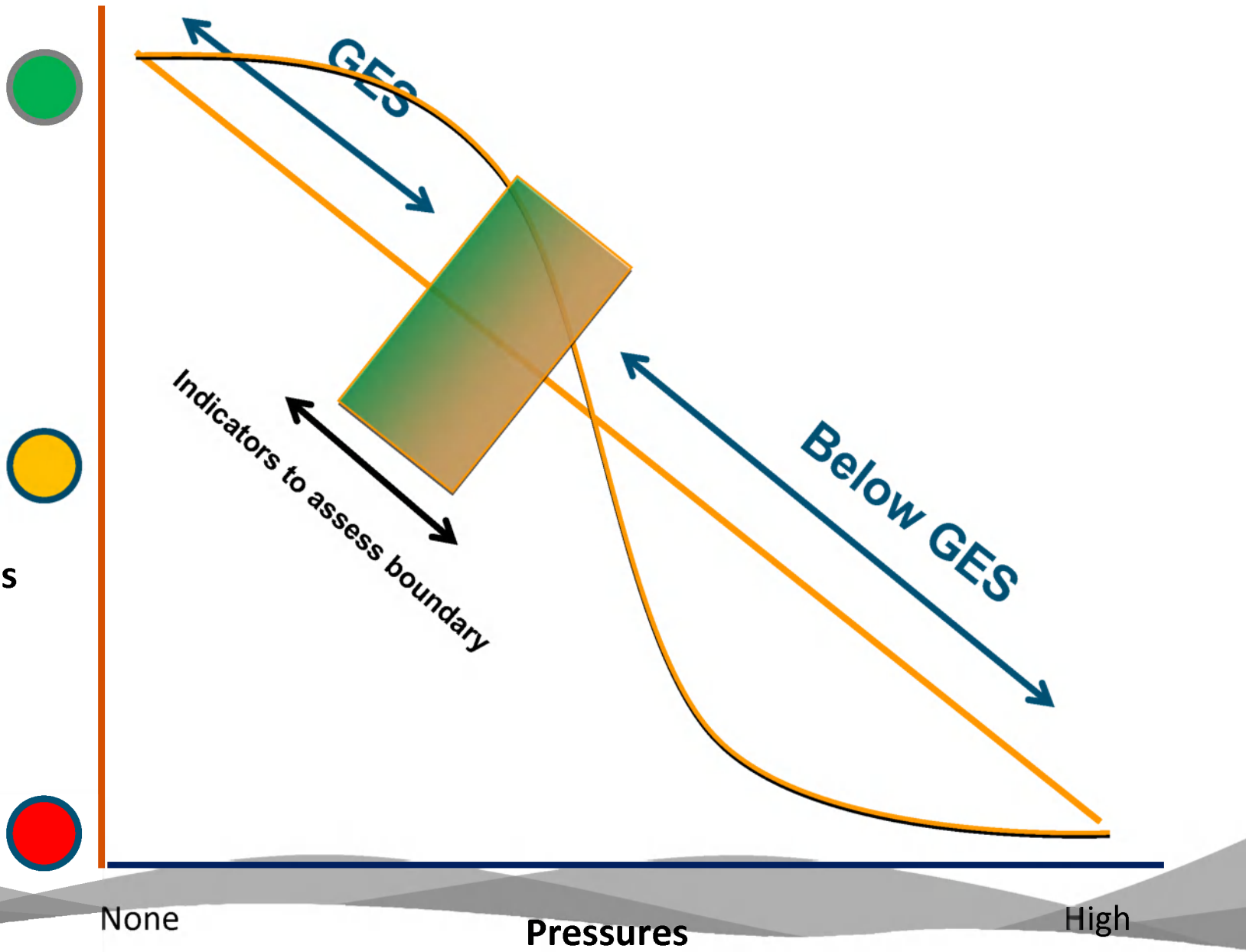


**Economic &
social
analysis**
Art 8.1c

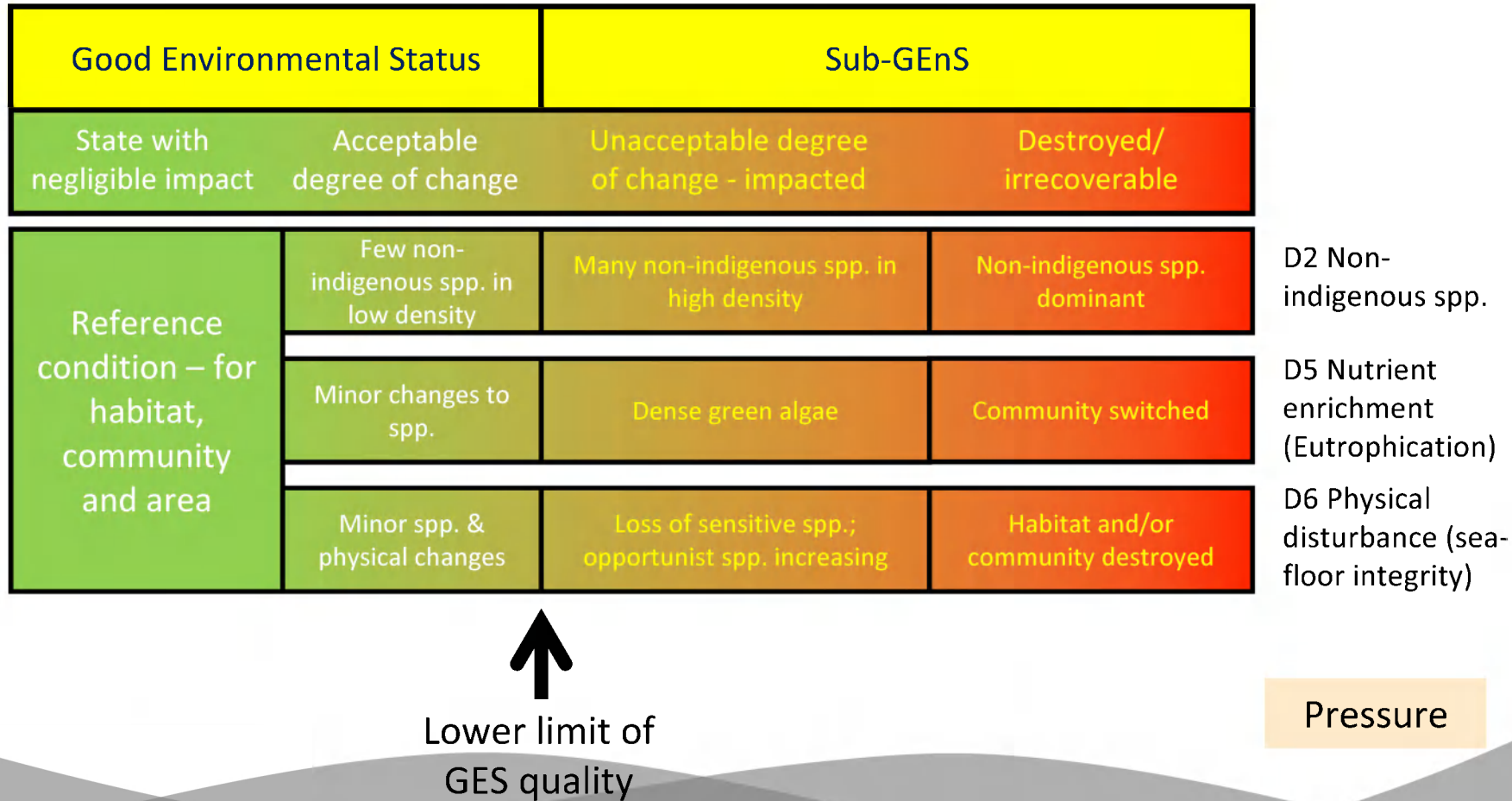
**Assessment
of pressures**
Art 8.1b
Table 2

**Assessment of
state**
Art 8.1a
Table 1

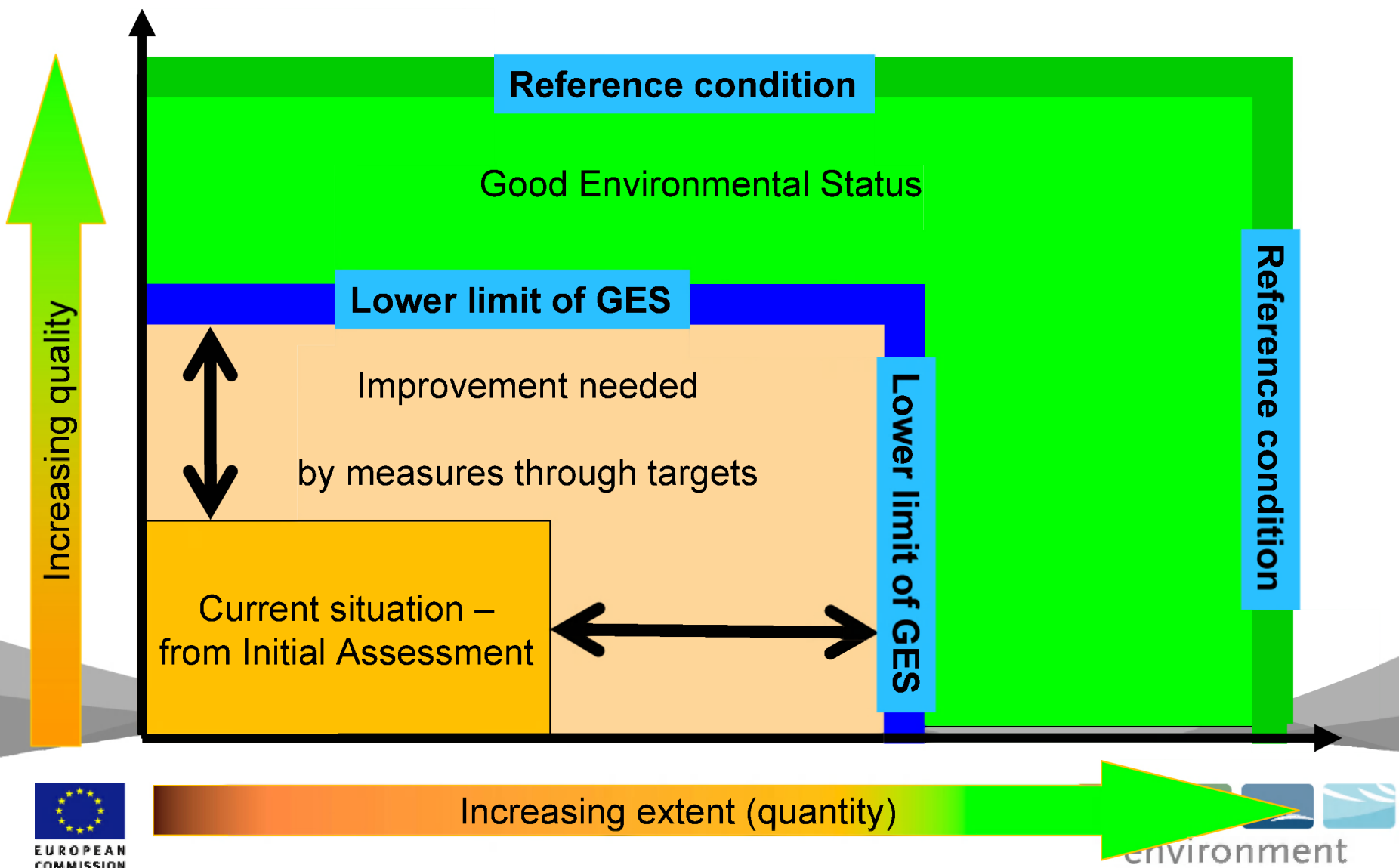
State of ecosystem
(structural
and
functional
components)



Quality is affected by pressures



GES - quality and quantity (extent/proportion)



**OSPAR
eutrophication
assessment
(QSR 2010)**

V

II

III



Considerations

■ Climate change impacts

- GES should be set out-with such climatic variation (TG1 interpretation), i.e. in relation to other anthropogenic impacts

■ Dynamic ecosystems

- Change is normal – expect species composition, abundance and distribution to change with time (e.g. due to climatic variability, predator-prey relationships)
- Respect these natural/climatic processes in determining GES

■ Sustainable use

- Expect some levels or areas of impact from sustainable human activities within scope of GES

■ Management measures

- Need to focus on reducing pressures (linked to impacts)
- Promote (natural) recovery of ecosystems

Summary & key issues

■ Seabed/habitat quality

- Different affects, depending on pressure
- Indicators need to link to pressures
- Indicator threshold value defines GES (quality)

■ GES in a regional/subregional context

- Biogeographic variation – use of ecologically relevant assessment scales e.g. southern North Sea
- Accommodating sustainable use
 - Can include areas of ‘impact’ (e.g. wind-farm infrastructure)
 - What proportion should be at certain quality levels?

■ Cooperation within subregion

- How is assessment and target ‘shared’ across MS in the subregion?

EU Marine Strategy

Thank you for your attention !

to protect Europe's oceans and seas

