

# 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

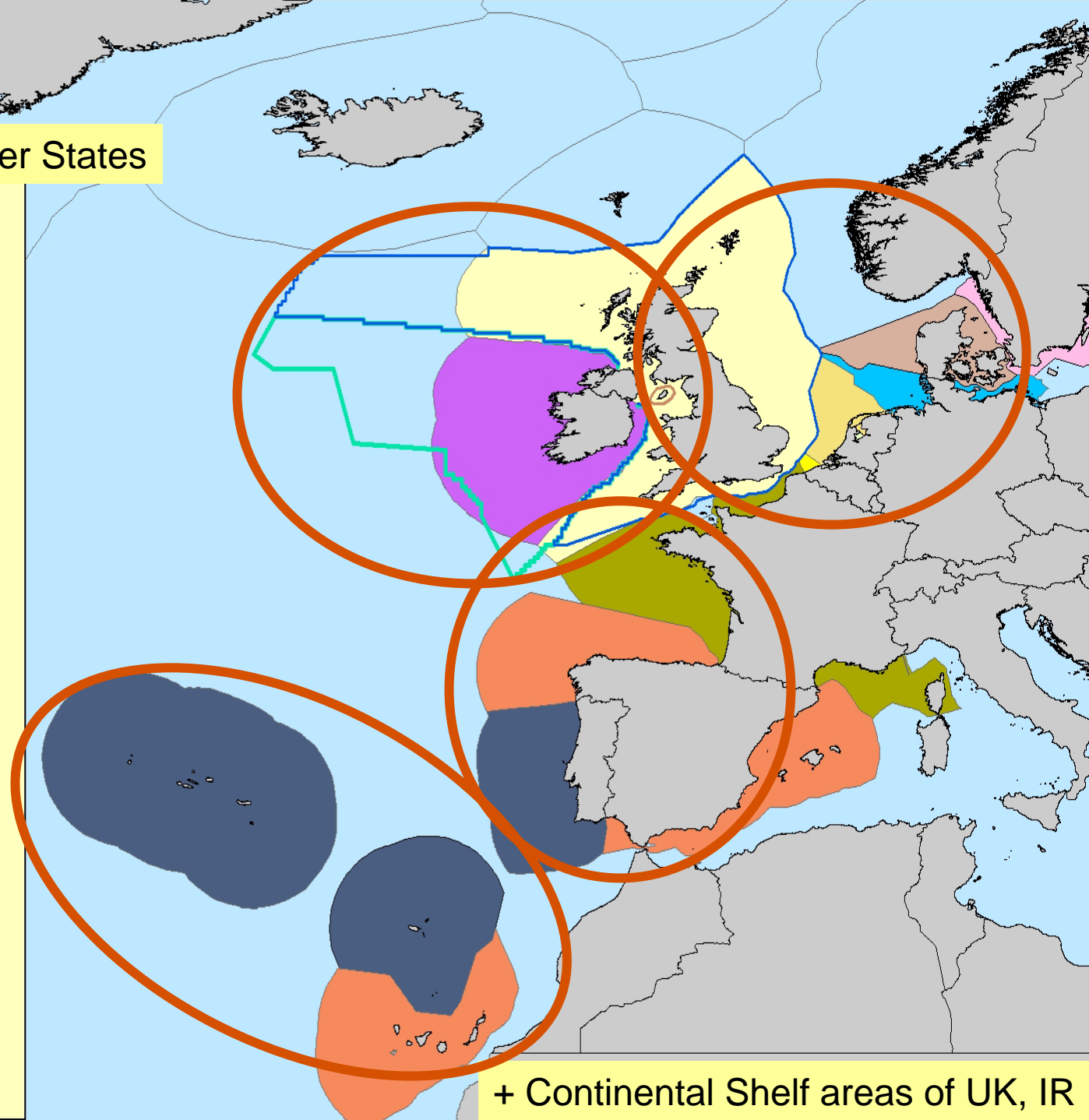
- Management of activities and their pressures
- Enable sustainable use of marine goods and services

# MSFD timetable

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

# 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**  
**D6 Seafloor integrity**

**1.4 Habitats**

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)

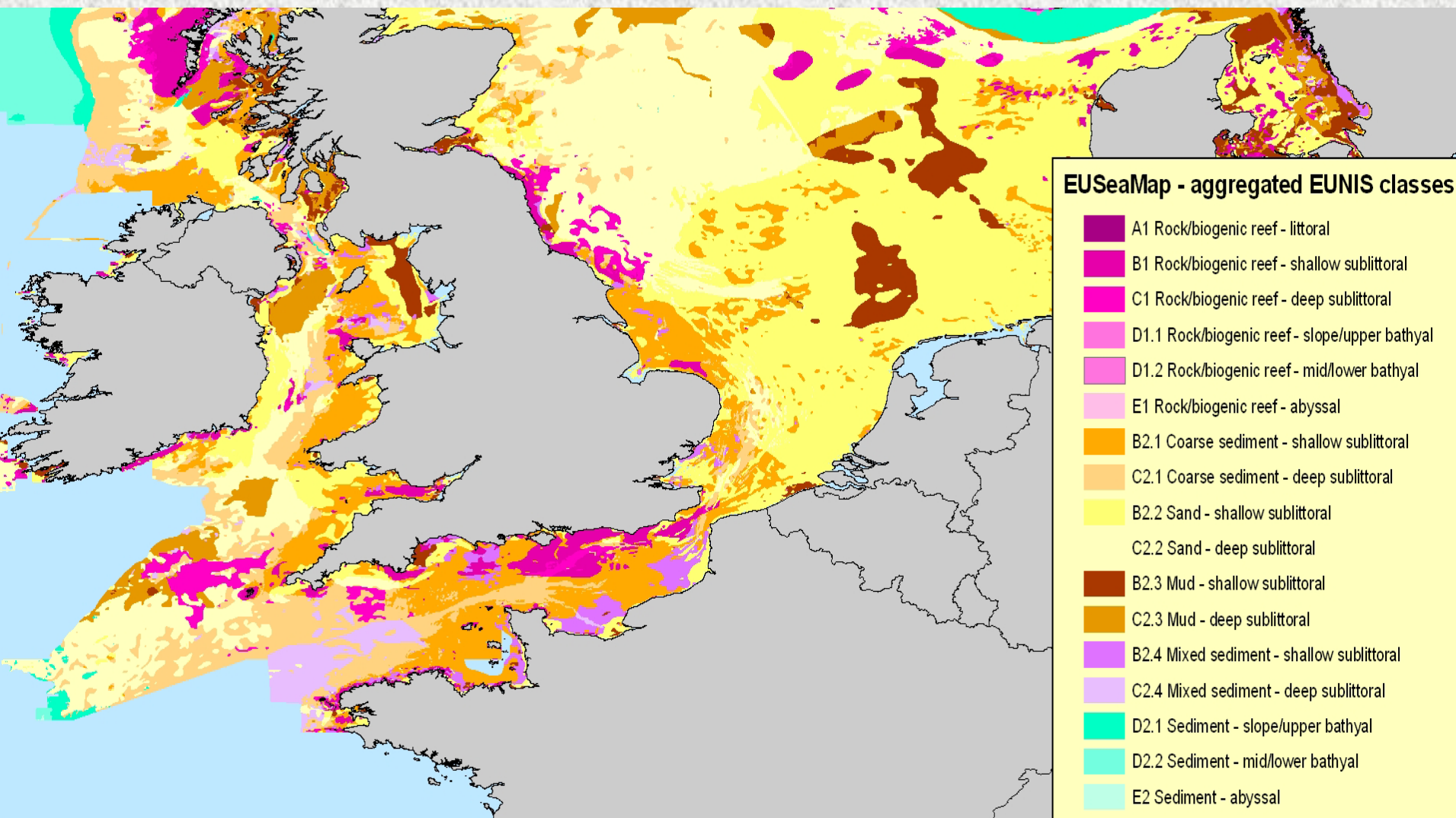
- **Functional groups of [highly mobile/widely dispersed] species:**
  - ➔ Birds, mammals, reptiles, fish, cephalopods
- **Predominant habitat types:**
  - ➔ Water column
  - ➔ Seabed
- **Listed features:**
  - ➔ species and habitats listed under Community legislation (Habitats & Birds Directives) and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

# Predominant habitat types

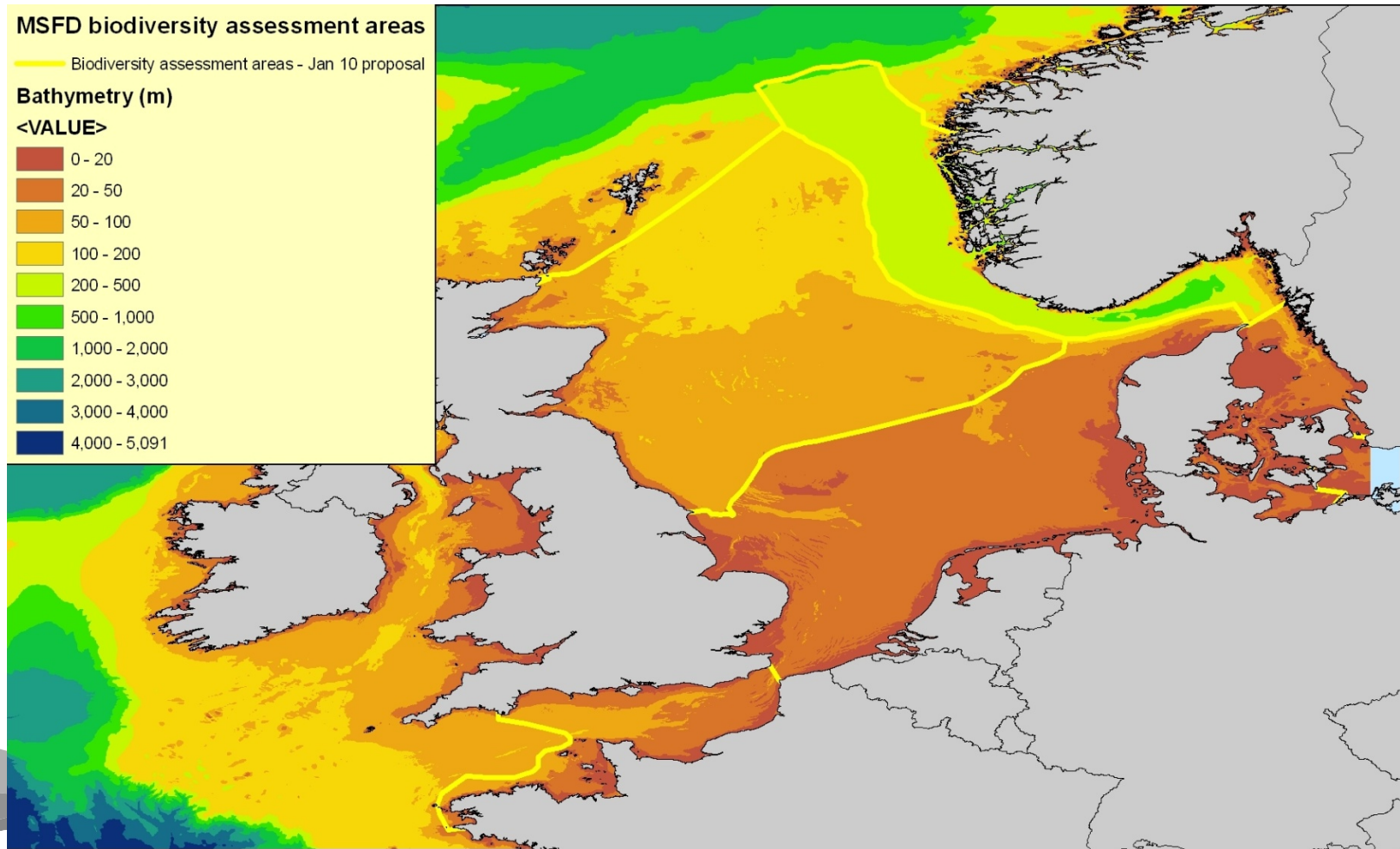
Zone boundary (approx. m)	Zone	Substrate	Rock	Sediment				Water column
			inc. mixed hard substrata, biogenic reefs	Coarse	Sand	Mud	Mixed sediment	
	Littoral							Reduced
0	Sublittoral - shallow							Variable
50	Sublittoral - shelf							Marine – coastal
200	Bathyal – upper							Marine – shelf
1100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

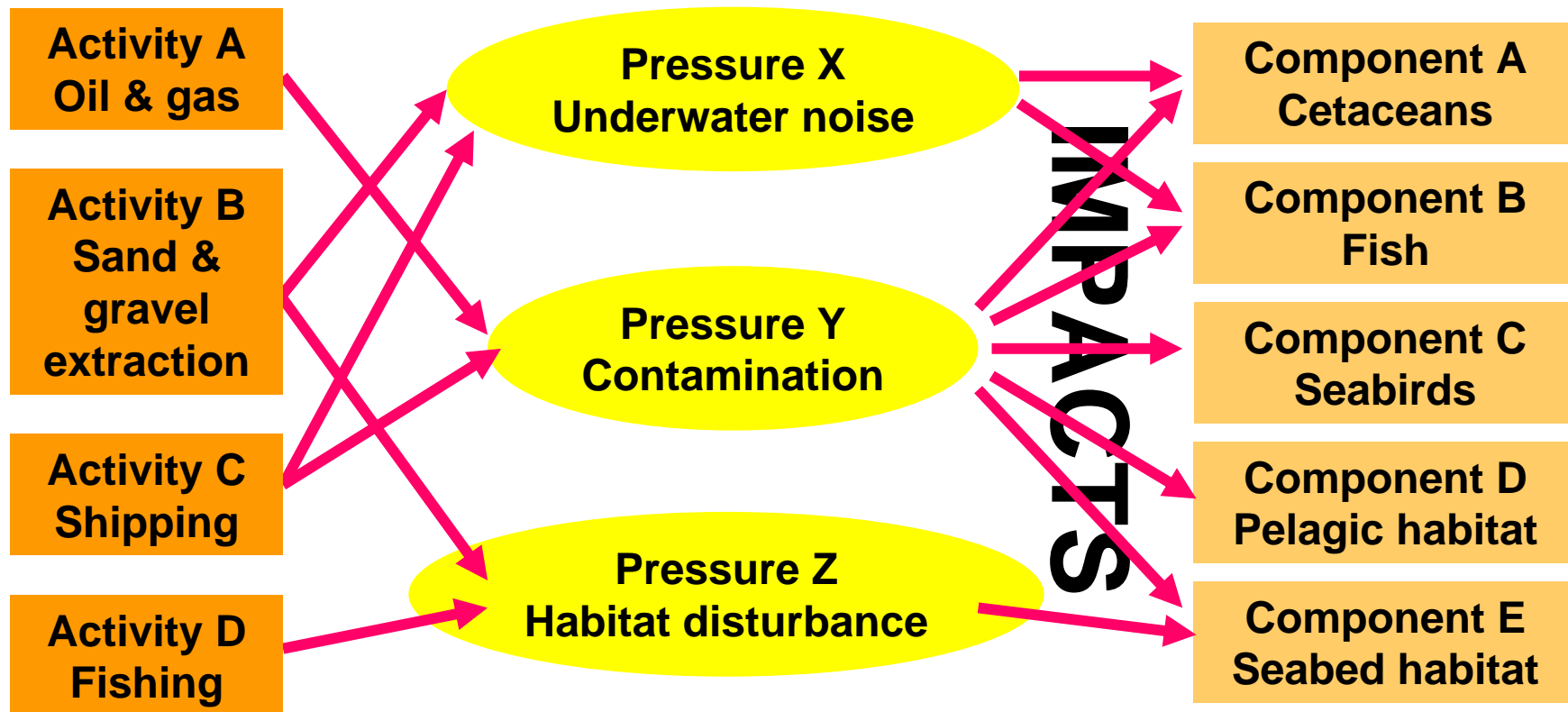
Pressure themes	Pressures
Physical loss	Smothering, sealing
Physical damage	Siltation, abrasion, extraction
Other physical disturbance	Noise Litter
Interference with hydrological processes	Thermal regime changes Salinity regime changes
Contamination by hazardous substances	Synthetic compounds Non-synthetic compounds Radio-nuclides
Systematic or intentional release of substances	e.g. CO <sub>2</sub> 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



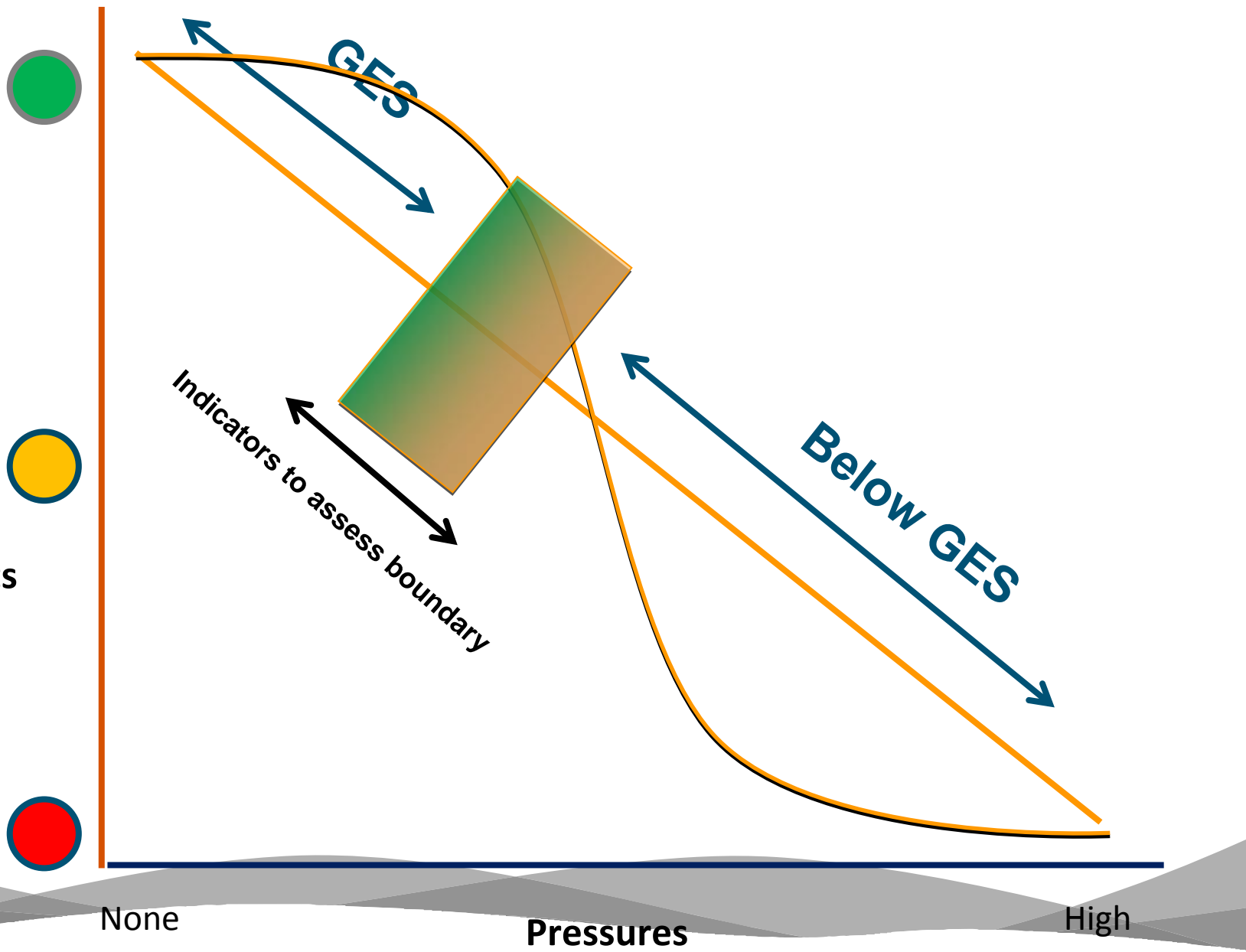
**Economic & social analysis**  
Art 8.1c

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

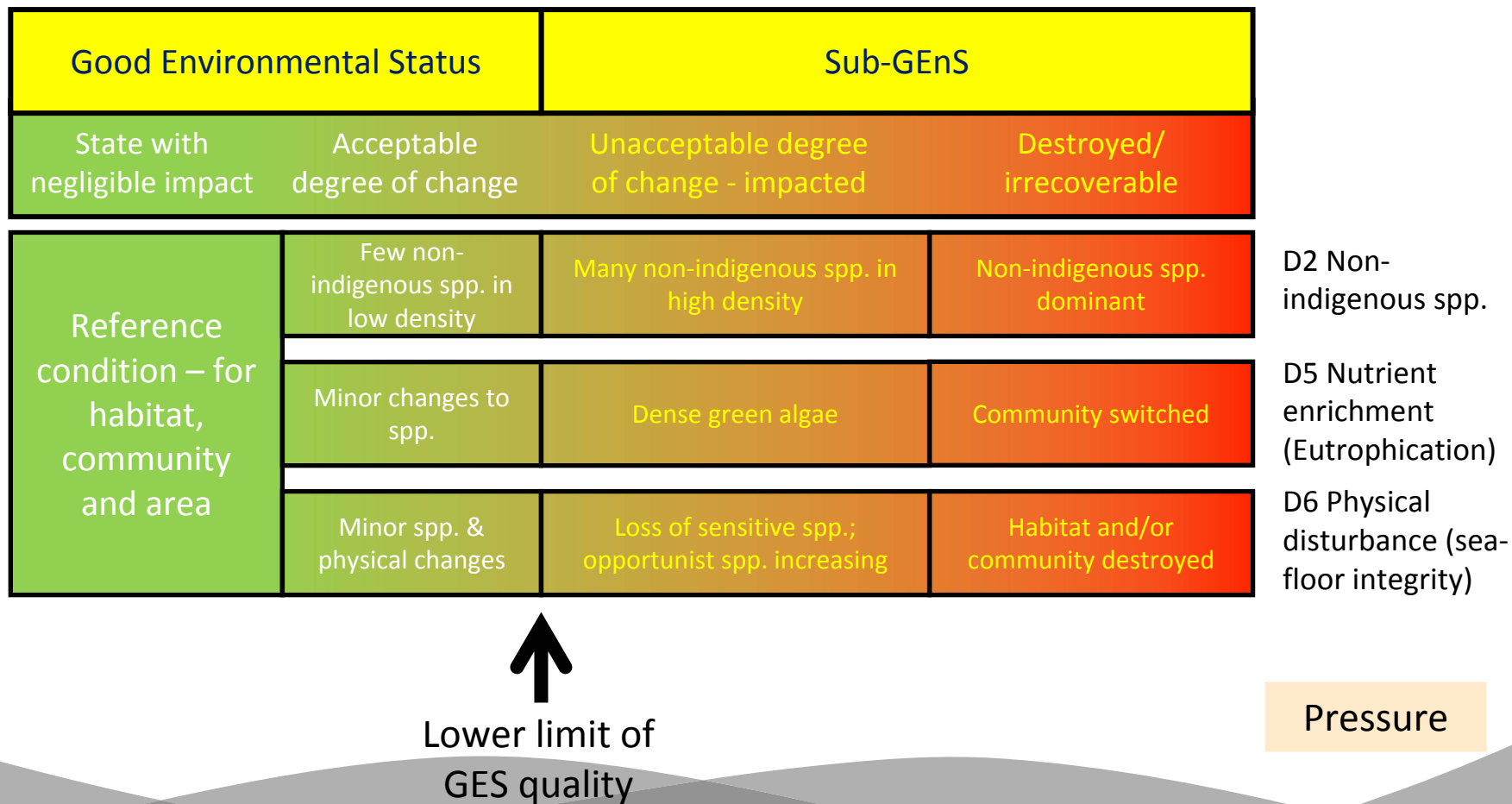
**Assessment of state**  
Art 8.1a  
Table 1



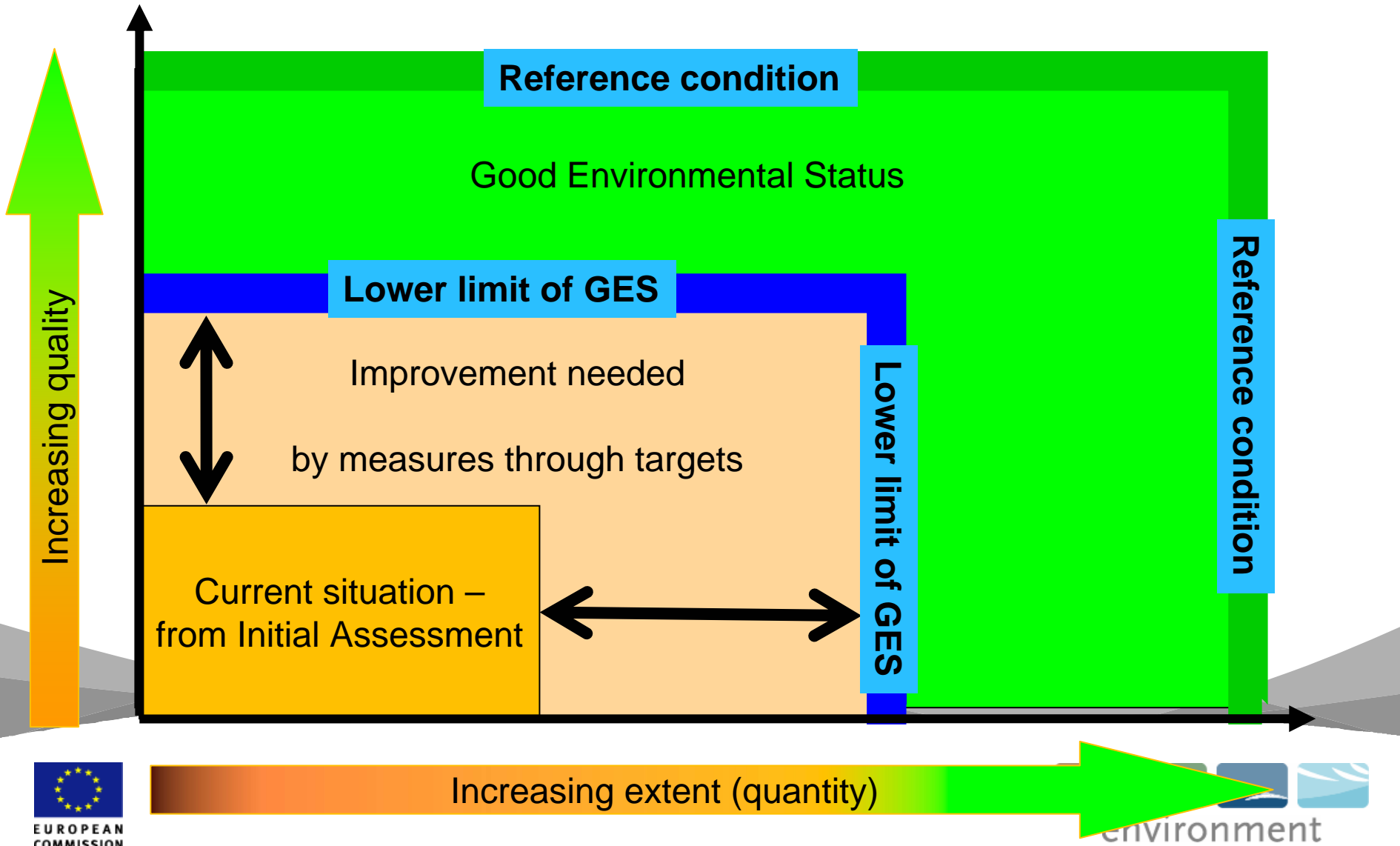
State of ecosystem  
(structural  
and  
functional  
components)



# Quality is affected by pressures



# GES - quality and quantity (extent/proportion)

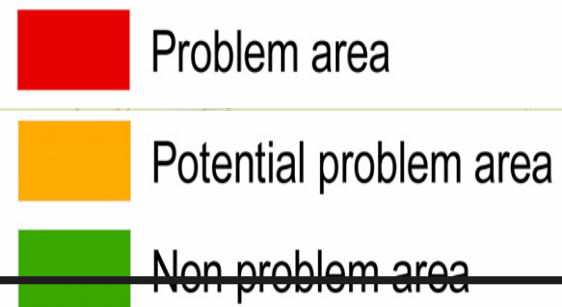


**OSPAR  
eutrophication  
assessment  
(QSR 2010)**

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

