

# MSFD

## Key steps to Implementation; Agreeing Criteria and Methodological Standards

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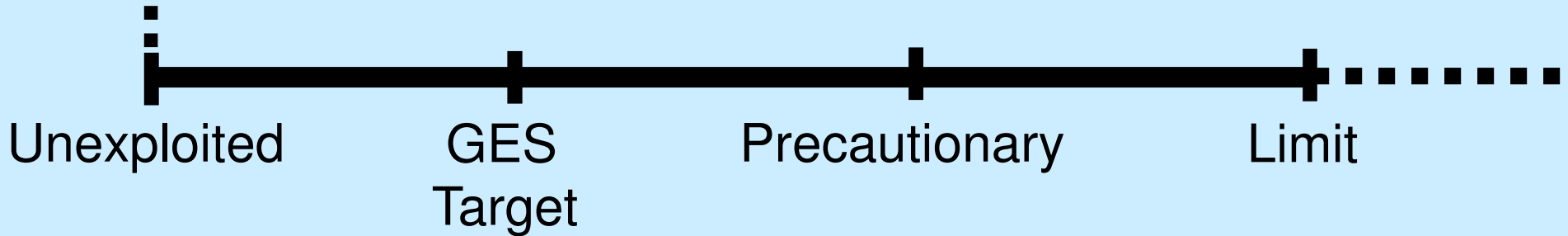


- Good environmental status is defined by 11 *Descriptors*, covering the ecosystem and including some pressures.
- Each descriptor will have one or several *Attributes* describing its' main features.
- Achievement of GES is based on assessment of Attributes against *Criteria* (value judgement statements, or 'normative definitions' of WFD).
- These are described and assessed using *Indicators*, with appropriate *thresholds* (target or limit reference points, reference directions).
- Each requires explicit *methodological standards*.
- Indicators should be linked to a manageable activity to allow appropriate *management measures*.
- Member States should undertake *cost-benefit analysis* before introducing new measures.

## Getting to know the terminology



Increasing human impact



Reference directions



Good Environmental Status

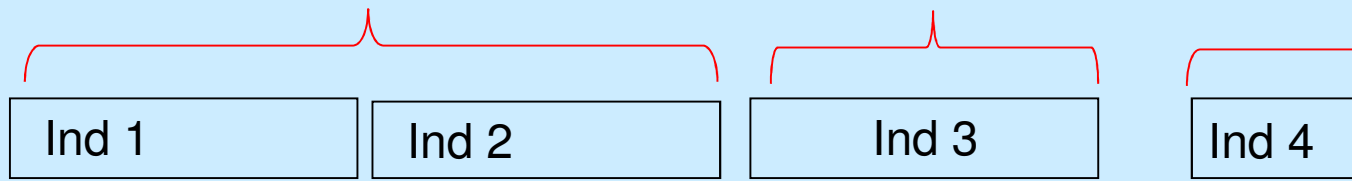


- How to assess multiple indicators for a descriptor?
  1. Be clear about the important attributes. i.e. in Food Webs;
    - Energy flows
    - Food web structure
  2. Use indicator(s) to confirm that the criteria for each attribute is met.

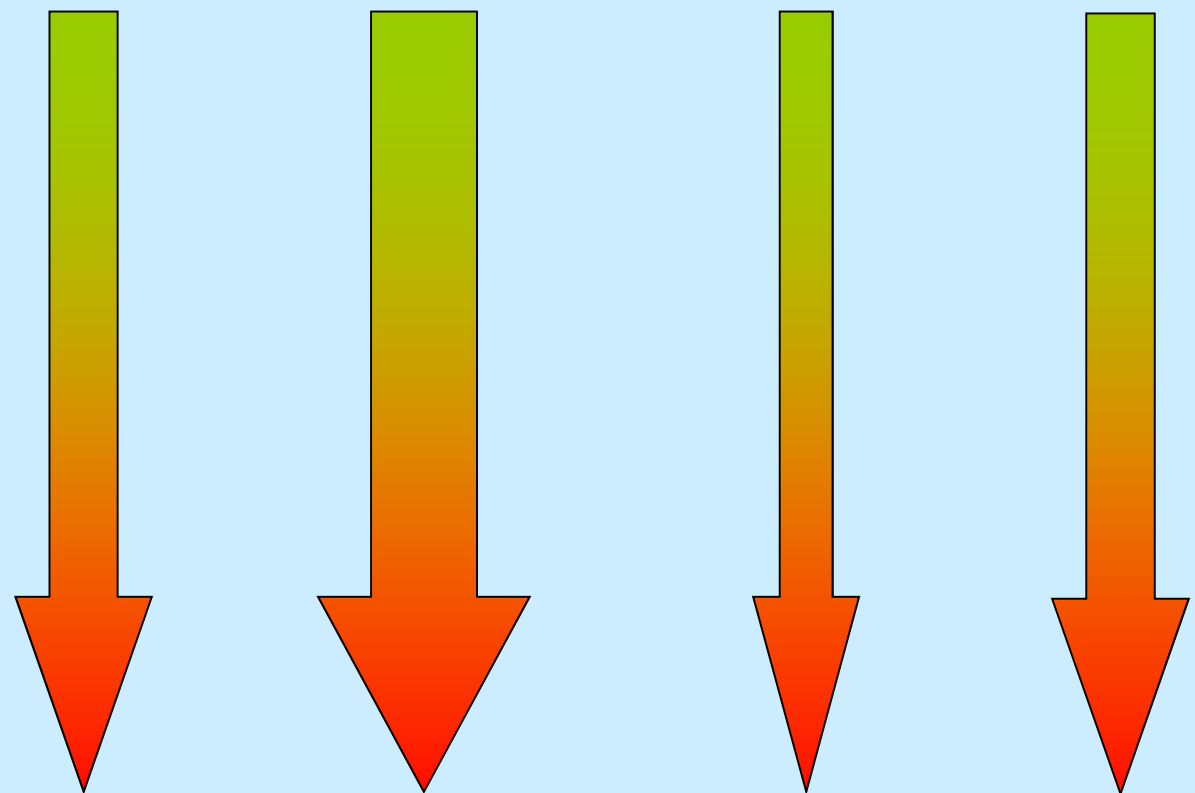
Attribute 1

Attribute 2

Attribu



<b>Increase trend / Achieve target</b>
<b>No trend</b>
<b>Declining trend / Below ref. point</b>
<b>Decline below historic level</b>



# Determining GES

**Establish WFD monitoring progs.**

**Achieve objectives RBMP 1.**

**Achieve objectives RBMP 2.**

Initial assessment of UK seas

Monitoring programme established

Programme of measures implemented

Dec 06 Jul 08

Jul 10

Jul 12

Jul 14

Jul 15

Jul 16

Jul 20

Directive transposed

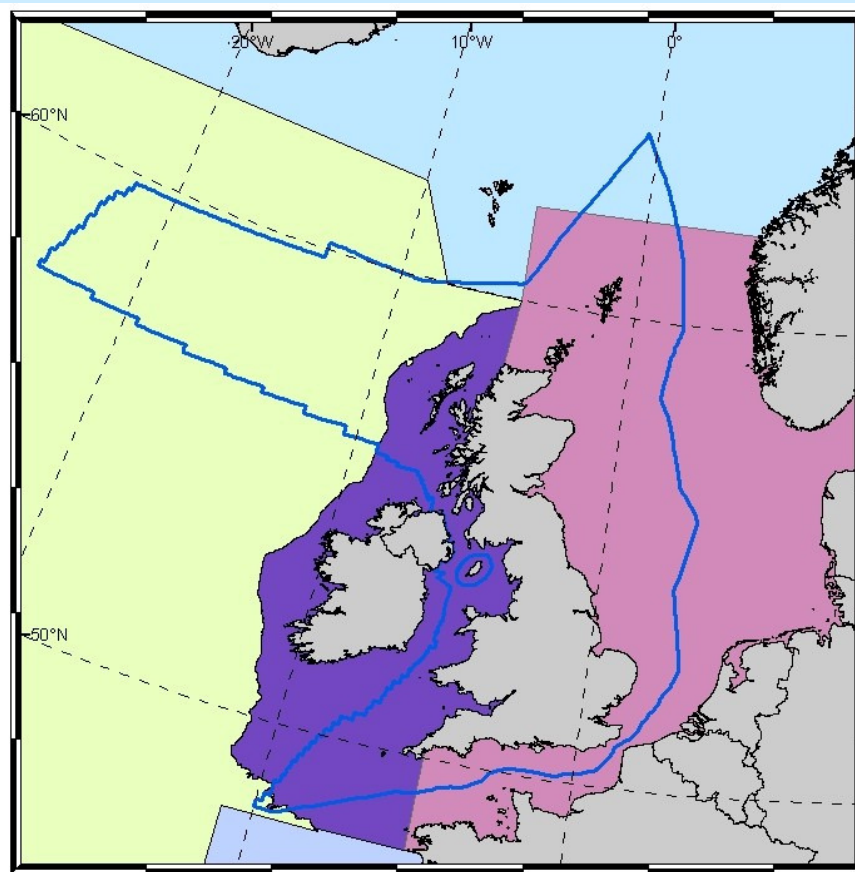
GES defined, including targets and indicators

Programme of measures designed

GES achieved for UK seas

# Directive Timeline

- UK marine waters are entirely within the ‘North-East Atlantic Ocean’ Region, but are split between sub-regions;
  - Greater North Sea
  - The Celtic Seas
- Still to agree;
  - Precise boundaries
  - Scale at which assessment and reporting occurs.



Spatial Scale

- Optimum scale to assess variation in many attributes is affected by;
  - Patchy distribution of habitats / species, bio-geographical and genetic variability.
  - Patchy distribution of pressures (local impacts and wider indirect effects) i.e. point source vs diffuse dispersion.
  - Patchy monitoring
- Assess using a step-wise approach to linking ecosystem components with pressures.
- Use ecologically meaningful scales (non-indigenous species in marinas; local contaminant concentrations; fish stocks)

Spatial & temporal Scale

- Many components change on a diurnal, annual or decadal time-scale (plankton, harbour porpoise ..)
- Assessments < annual are costly, and influenced by within-season variability.
- Annual scale preferred as integrates in-year variability when assessing growth & mortality, but longer lived species influenced by environmental factors.

Spatial & temporal Scale

- Time is pressing and pragmatic solutions are required to progress the Directive.
- Focus on difficult areas (highlighted in following talk) rather than spread resources evenly.
- Greater input from social sciences and economics expected as part of implementation.
- Learn from existing activities and incorporate where possible.

## Conclusions