

“Workshop on Eutrophication Reduction Measures under EU Directives in the Domain of Water ”

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ECRAN 62260

Impact and pressure criteria used in WFD Article 5 risk assessment



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Structure of the presentation

- Art 5 reports
- Pressure and impact criteria – lakes
- Pressure and impact criteria – rivers
- Pressure and impact criteria – transitional waters
- UK tool for assessing GES



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Art 5 - Pressures and impact

The pressures and impacts assessment is a four-step process:

- describing the 'driving forces', especially land use, urban development, industry, agriculture and other activities which lead to pressures, without regard to their actual impacts;
- identifying pressures with possible impacts on the water body and on water uses, by considering the magnitude of the pressures and the susceptibility of the water body;
- assessing the impacts resulting from the pressures; and
- evaluating the risk of failing the WFD objectives.



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Impact and pressure criteria used in WFD Article 5 risk assessment (1)

LAKES

For WFD Article 5 risk assessments for eutrophication related pressures, some MS have derived pressure and impact criteria to determine whether a lake water body was at risk of not achieving its environmental objective in 2015.

The pressure criteria have been based on the presence of point sources of nutrients and/or a proportion of a particular land use (most commonly agricultural and urban land uses) in the catchment of the lake.

Spain assesses a water body to be probably at risk if the application of fertilizer is $> 25 \text{ kg N ha}^{-1} \text{ year}$ or if major point sources are present, such as urban waste water $> 2000 \text{ PE}$, unless no impact is documented.



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Impact and pressure criteria used in WFD

Article 5 risk assessment (2)

The impacts were measured based on nutrient concentrations (phosphorus and nitrogen).

UK use the Ecological Quality Ratio (EQR) < 0.5 for current phosphorus concentrations relative to type or site-specific background concentrations to assess water bodies at risk

NL uses the existing management target value to assess water bodies at risk.

The actual cut-off for TP between at risk and not at risk is comprised within a wide band of concentrations from $< 10 \mu\text{g l}^{-1}$ to $> \mu\text{g l}^{-1}$ for the different countries

For chlorophyll a the only two Member States who have reported cut-off values (**Norway** and **Spain**) both use $8 \mu\text{g l}^{-1}$ to say that a water body is clearly at risk (**Norway**) or probably at risk (**Spain**).



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Impact and pressure criteria used in WFD

Article 5 risk assessment (3)

RIVERS

Some MS have derived pressure and impact criteria to determine whether a river water body was at risk of not achieving its environmental objective in 2015.

The pressure criteria have been based on the presence of point sources of nutrients and/or a proportion of a particular land use (agriculture, forestry and untreated wastewater from settlements) in the upstream catchment of the river water body.

The impact criteria were based on nutrient concentrations (N and P).

The most commonly used impact criteria were TP and orthophosphate. Values for the estimated good/moderate class boundary used in the Article 5 risk assessments were comparable for similar river types (i.e. lowland rivers) (0.15 mg l^{-1} TP and 0.1 mg l^{-1} orthophosphate-P).



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Impact and pressure criteria used in WFD Article 5 risk assessment (4)

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Criteria for TN and for nitrate were used in some Member States supplemented with criteria for metrics/fractions indicative of indirect effects (dissolved oxygen concentrations, benthic invertebrate and phytobenthos metrics).

The assessment of the degree of eutrophication in rivers to date has been primarily determined through the application of nutrient (phosphorus and nitrogen) concentration criteria.

Info available in the Art 5 Reports.



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Impact and pressure criteria used in WFD Article 5 risk assessment (5)

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TRANSITIONAL WATERS

Eutrophication is a recognised threat to the ecological status of transitional water bodies as these accumulate nutrients transported from river systems, from direct inputs from their surrounding catchments and, in some cases, from coastal waters.

The available information for Article 5 related criteria indicates that whenever pressure criteria were reported these were based mainly on the presence of surface point sources (sewage) of nutrients loads and surface water run-off.

The impact criteria were based mainly on nutrient concentrations and chlorophyll a (direct effect) and occasionally on dissolved oxygen, macrovegetation, etc (indirect effects).



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ODEMM – UK tool for choosing ecosystem-based marine management options

ODEMM focuses on the structure, tools and resources required to choose and evaluate management options that are based on the principles of Ecosystem-Based Management (EBM).

The approach: translate policy driver objectives to an operational process of creating, appraising and choosing management options to inform decision makers.



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ODEMM GES risk for MSFD descriptors for 4 European regional seas

GES Descriptor (and characteristics)	NE Atlantic	Mediterranean Sea	Baltic Sea	Black Sea
Biodiversity-Phyto-zooplankton	Low-Moderate	Moderate	Moderate	Moderate
Biodiversity-Fish	Moderate	Moderate	Moderate	Moderate
Biodiversity-Marine mammals and reptiles	Low-Moderate	High	Moderate	Moderate-High
Biodiversity-Seabirds	Moderate	Moderate	Moderate	High
Biodiversity-Predominant habitat types	Moderate	Moderate	High	Moderate-High
Non-indigenous species	High	High	High	High
Commercial fish and shellfish	High	High	High	High
Food webs	High	High	High	High
Eutrophication	Moderate	Moderate	High	Moderate
Sea floor integrity	High	High	High	High
Contaminants	Moderate	Moderate	Moderate-High	Moderate-High
Contaminants in fish and shellfish	Low-Moderate	Low	Moderate	Moderate
Marine litter	High	High	High	High
Underwater noise	High	High	Moderate-High	High



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Thank you!



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