

ECOSTAT nutrient meeting
(18.-19.11.2015)

Session 1 – Working group 1b

**Working group on the comparison of
saline water nutrient boundaries and their
application**

Overview of the main topics for discussion

1. Comparison of methods to derive reference conditions and G/M boundaries (15 min)
2. Comparison of nutrient boundary values (45 min)
3. Application of nutrient boundaries (30min)
4. Comparison of methods to derive reference conditions and G/M boundaries (30min)

1. Comparison of the methods used to derive reference conditions and to set nutrient boundary values

To derive reference conditions predominantly use of historic nutrient inputs/nutrient concentrations and extrapolation into the sea along salinity gradients

Use of different historic years – DE 1880, DK 1900, NL 1930s, BE 1950s/2, PL 1950s?, HR 1972-2010, EE 1993-2008 sites with low impact, F 2006-2011, FI 1900 & recent, IE – unimpacted sites; SE – historical data ?, not further specified:?, LV 60s and 1973, NO-recent data?, PT – not yet defined, RO-1959-2011, SI – recent, UK?

Sometimes use of pressure-response relationships (e.g. IT - chl_a, BG, LT-chl_a) mainly based on chlorophyll-a (sometimes macrophytes) but it remains unclear how the boundaries for the BQEs were derived

To derive G/M boundaries, an acceptable deviation was added to the reference conditions. This deviation was mainly 50%, but e.g. for IE 2x50%.

In this approach, setting reference conditions is the anchor point for deriving G/M boundaries

- What are the reasons for using different approaches in deriving reference conditions (e.g. different historic year) and G/M boundaries (e.g. sometimes >50% “acceptable deviation”)?
- Is it possible to agree on a more harmonized approach

2. Comparison of nutrient boundary values – gaps in reporting

- Why did some MS not report on reference conditions and G/M boundaries for nutrients? Were these not set or were they just not reported?
- [Why did most MS not report on the common types?]

2. Comparison of nutrient boundary values – the use of different nutrient parameters

Parameters used for nitrogen: TN, DIN, nitrate

Parameters used for phosphorus: TP, phosphate

- Why is there such a large variety of nutrient parameters used by MS? Are there ecological reasons why dissolved nutrients or total nutrients are assessed or is this mainly driven by monitoring practicalities or cost efficiency (monitoring frequency of dissolved nutrients is less than for total nutrients)?
- Is there a possibility to agree on a key set of suitable nutrient parameters at least for regional seas?
- Could a general agreement be reached that total nutrients are important parameters to describe eutrophication effects since they can be used for calculating nutrient budgets and they are generally more robust (more measurements are generally collected, less affected by climate change)?
- Why are some MS using different nutrient parameters (e.g. TN or inorganic nitrogen) in transitional, coastal and marine waters? Does this support nutrient management?

2. Comparison of nutrient boundary values – the use of different seasons

General pattern: dissolved nutrients are measured in winter; total nutrients are measured year-round (or in summer)

- What are reasons for diverging from the general pattern of monitoring total nutrients all year round and dissolved nutrients in winter?

2. Comparison of nutrient boundary values – the use of different statistics

Mean, median, 90th percentile, maximum

- What are the reasons for using different statistics when assessing nutrients?
- Could we give a recommendation for one statistic to be used? Could we think about an option to convert from one statistics to another?

2. Comparison of nutrient boundary values – use of HELCOM / OSPAR nutrient boundaries

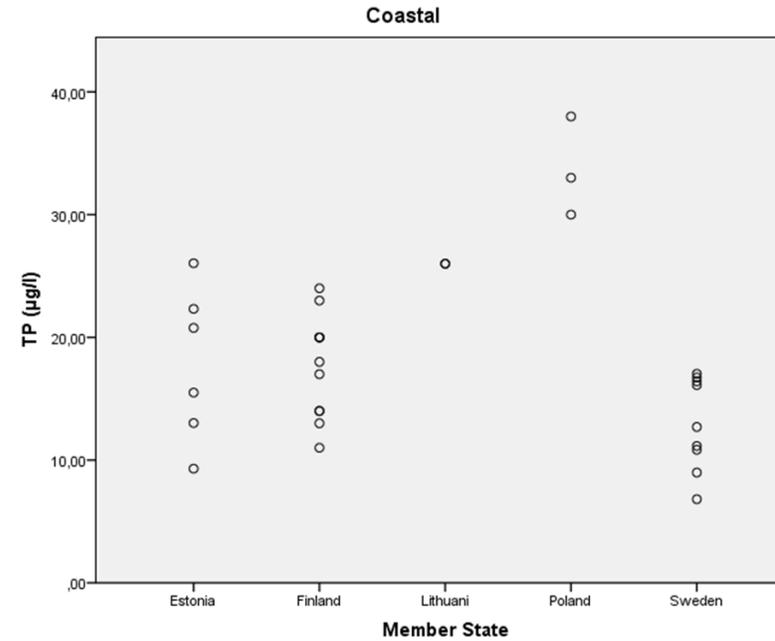
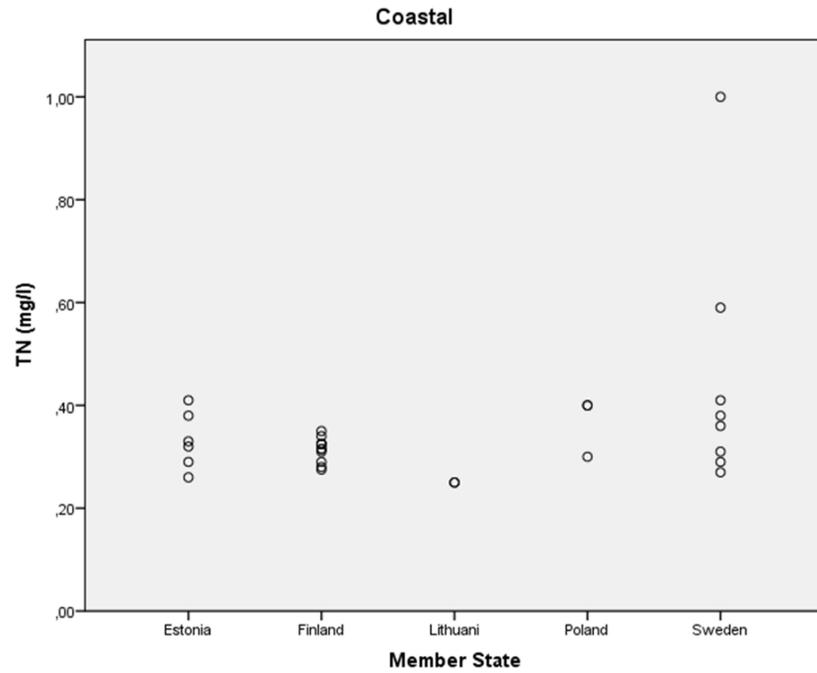
- Why do some MS – despite being Contracting Parties of HELCOM/OSPAR, not use the nutrient boundaries agreed in HELCOM and OSPAR?

Country	HELCOM-region	DIN in mg/l	DIN HELCOM ¹ in mg/l
		Mean	Mean
Germany ²	Kiel Bight	0,081	0,077
Germany	Mecklenburg Bight	0,093	0,060
Germany	Arkona Basin	0,080	0,041
Germany	Bornholm Basin	0,050	0,035
Finland	Gulf of Finland		0,053
Latvia	Baltic Proper	0,053	0,073
Latvia	Gulf of Riga	0,154	0,036
Lithuania	HELCOM Eastern Gotland Basin	0,040	0,028
Poland	Central (external) Gulf of Gdańsk	0,140	
Poland	Gdańsk Deep	0,084	
Poland	Shallow coastal zone along the central Polish coast - eastern part	0,084	0,059
Poland	SE Gotland Basin	0,053	
Poland	Shallow coastal zone along the central Polish coast - western part	0,084	
Poland	Pomeranian Bay-open part	0,180	
Poland	Bornholm Deep	0,050	0,041
Sweden	HELCOM Arkona Basin	0,048	0,035
Sweden	HELCOM Bornholm basin	0,042	0,036
Sweden	HELCOM Eastern Gotland Basin	0,042	0,028
Sweden	HELCOM Western Gotland Basin	0,041	0,041
Sweden	HELCOM Northern Baltic Proper	0,042	0,042
Sweden	HELCOM Åland Sea	0,042	0,038
Sweden	HELCOM Bothnian Sea	0,042	0,039
Sweden	HELCOM The Quark	0,057	0,073
Sweden	HELCOM Bothnian Bay	0,074	0,059

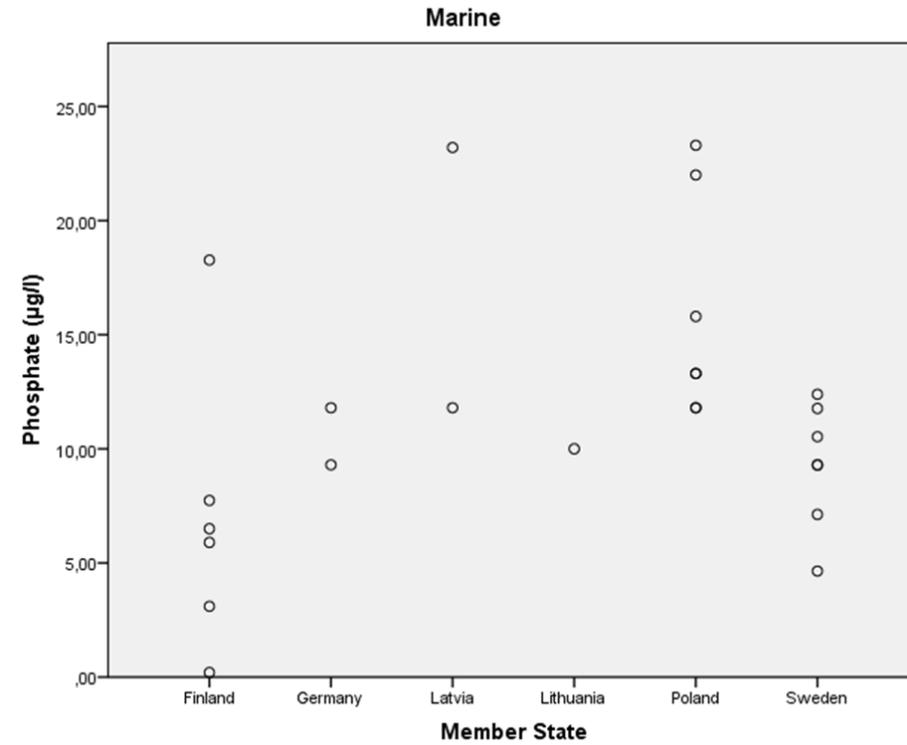
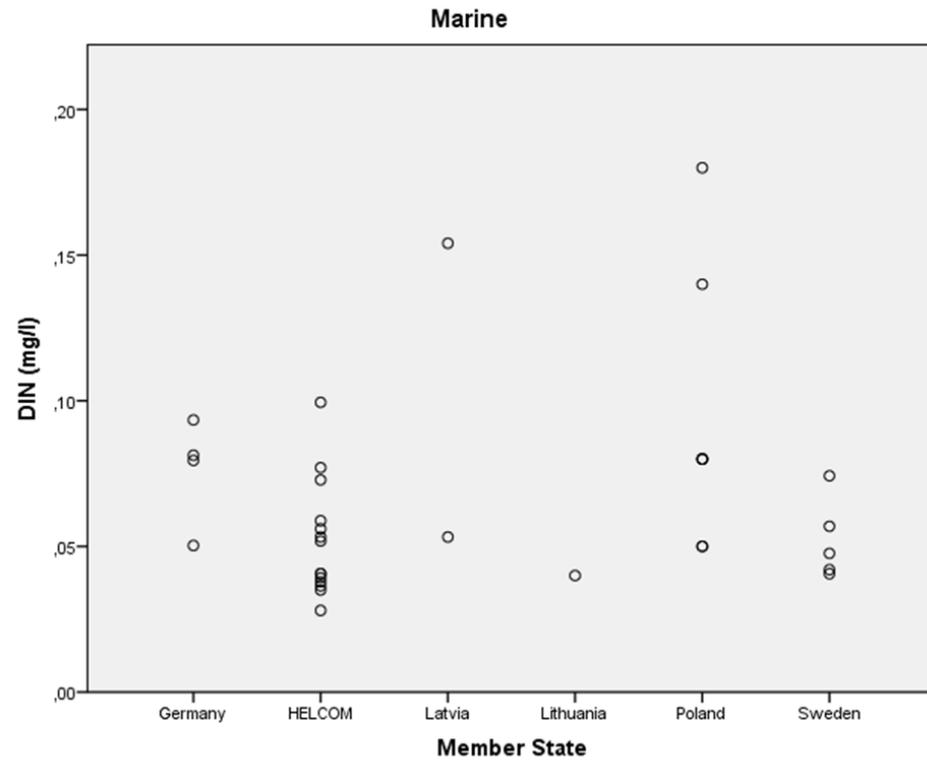
2. Comparison of nutrient boundary values – comparison of reference conditions and G/M boundaries

- For the few comparisons that could be made within a region, is there an explanation for the observed ranges?

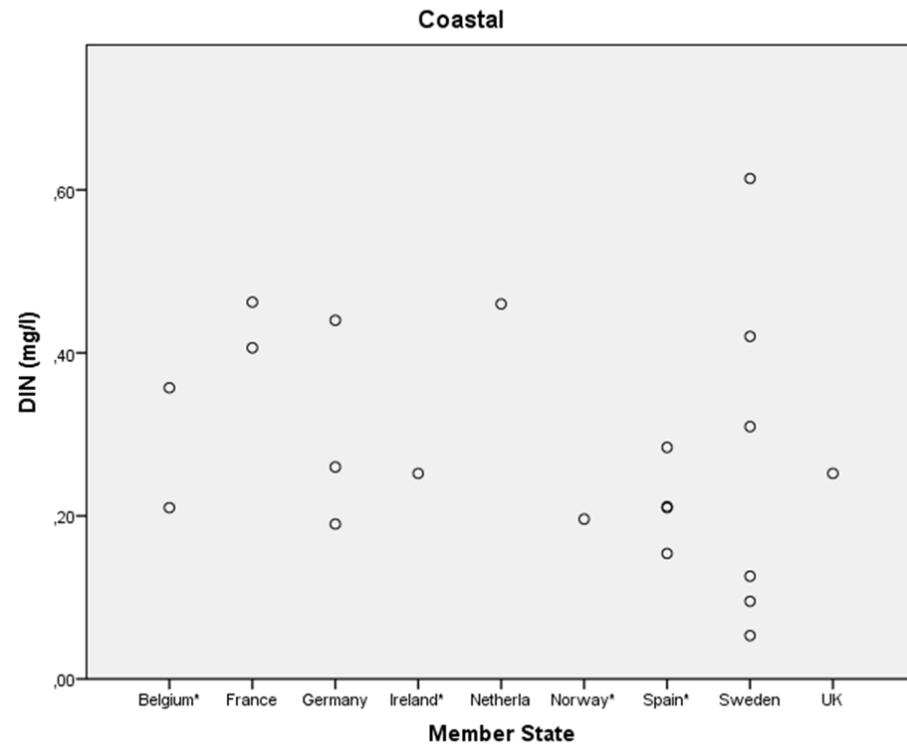
Baltic Sea – G/M boundaries for coastal waters



Baltic Sea – G/M boundaries for marine waters

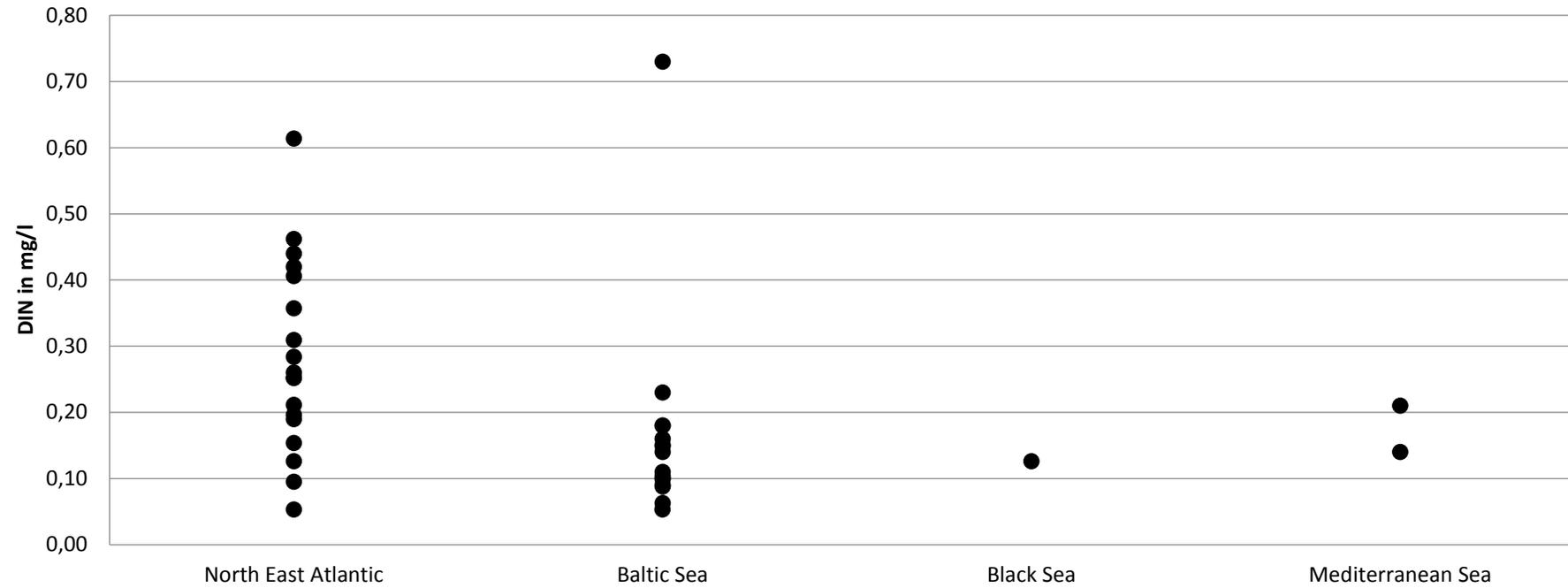


North East Atlantic – G/M boundaries for marine waters



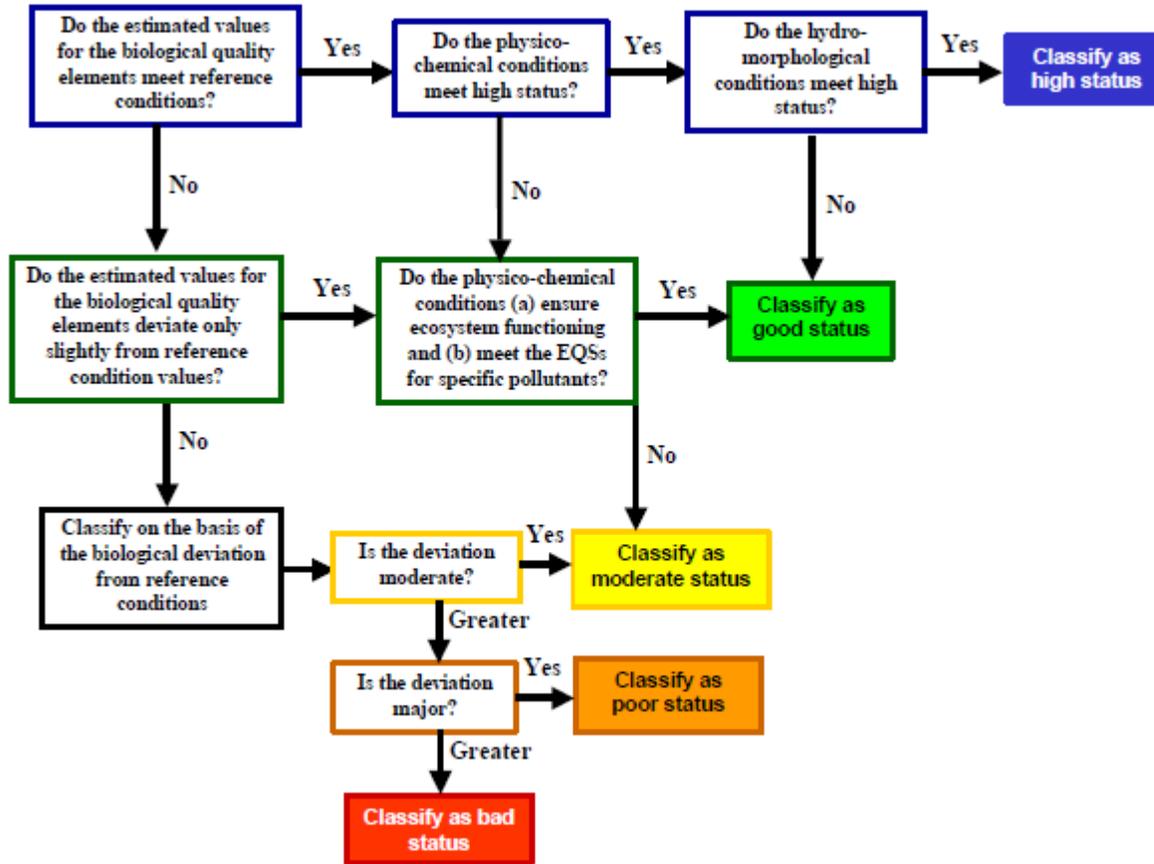
Pan-European comparisons

Comparison of DIN G/M boundaries between the regional seas

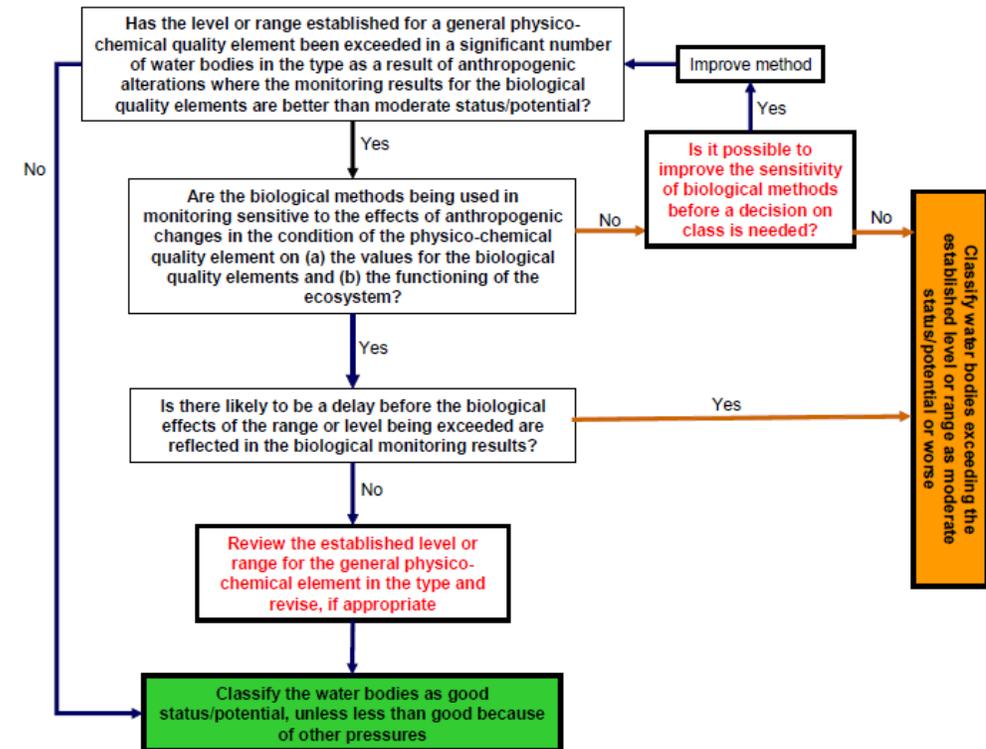


3. Application of nutrient boundaries – provisions of the CIS guidance

According to the CIS-guidance No.13 (Classification)



In case of a consistent mismatch between nutrients and biological quality elements a checking procedure applies



3. Application of nutrient boundaries

Few MS replied to the set of questions relating to the application of nutrient boundaries and mismatches

Some MS do not seem to follow the CIS guidance (e.g. a water body is classified as in good status even if the nutrients are not in good status)

- Why were there so few responses on the questions concerning the mismatches?
- Where there is a mismatch of classification for biology and nutrients, how does the assessment of nutrient concentrations affect the classification of the overall ecological status and vice versa?
- How are nutrient boundaries used in the assessment of ecological status? Purely as supporting parameters? Do they have any legal status and if so, to what extent? Do they drive measures?
- Do the characteristics of the nutrient boundaries set, affect their use in the assessment of ecological status? If yes, how?

4. Comparison of the methods used to derive reference conditions and to set nutrient boundary values

To derive reference conditions predominantly use of historic nutrient inputs/nutrient concentrations and extrapolation into the sea along salinity gradients

Use of different historic years – DE 1880, DK 1900, NL 1930s, BE 1950s/2, PL 1950s?, HR 1972-2010, EE 1993-2008 sites with low impact, F 2006-2011, FI 1900 & recent, IE – unimpacted sites; SE – historical data ?, not further specified:?, LV 60s and 1973, NO-recent data?, PT – not yet defined, RO-1959-2011, SI – recent, UK?

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Regional Sea	Country	Transitional	Coastal	Marine	
Baltic Sea	Denmark	Not defined	No data submitted	No data submitted	Have not set general nutrient limits for high/good and good/moderate status in coastal waters. Have not established general nutrient limits for the nutrient content in the marine waters, but specific nutrient load limits (catchment related) targeted to specific coastal water bodies.
	Estonia	Not defined	G/M and reference values submitted	No data submitted	
	Finland	Not defined	G/M and reference values submitted	G/M and reference values submitted	
	Germany	Not defined	G/M and reference values submitted	G/M and reference values submitted	
	Latvia	G/M and reference values submitted	G/M and reference values submitted	Only G/M values submitted	Do not have reference values for marine waters as not required under MSFD
	Lithuania	G/M and reference values submitted	G/M and reference values submitted	Only G/M values submitted	Have not defined reference conditions for marine waters
	Poland	G/M and reference values submitted	G/M and reference values submitted	G/M and reference values submitted	
	Sweden	G/M and reference values submitted	G/M and reference values submitted	Only G/M values submitted	

Regional Sea	Country	Transitional	Coastal	Marine	
Black Sea	Bulgaria	G/M and reference values submitted	Only G/M values submitted	Only G/M values submitted	Reference conditions for coastal waters are established in the first RBMP and still are not validated against collected data after its adaption. Reference conditions are not developed for marine waters . The targets are established on the base of available data and information until 2012. At the moment still do not have standards for assessment of the state on the new types.
	Romania	G/M and reference values submitted	G/M and reference values submitted	G/M and reference values submitted	

Mediterranean	Croatia	G/M and reference values submitted	G/M and reference values submitted	G/M and reference values submitted	
	Cyprus	Not applied	G/M and reference values submitted	No data submitted	Do not have information on marine waters
	France	Only G/M values submitted	No data submitted	No data submitted	Nutrient values have only been set for the lagoons waters. The other mediterranean transitional and coastal waters are not evaluated by nutrients. They are considered as not relevant because of the oligotrophic classification of the Mediterranean waters. Have not not yet define good/moderate thresholds for marine waters .
	Greece	G/M and reference values submitted	G/M and reference values submitted	Only reference values submitted	Information concerning the reference conditions will be updated after the elaboration of new/more data available from the National Monitoring Network.
	Italy	Only G/M values submitted	G/M and reference values submitted	No data submitted	Have not yet set any limit values for marine waters.
	Malta	Not applied	No data submitted	No data submitted	No boundaries have been set for nutrients in coastal waters as there is currently very little available temporal data on the status of marine biological elements and nutrient levels in coastal waters. Following a review of the monitoring programme that was established in the first WFD cycle, Malta is now monitoring N and P parameters in coastal and marine waters.
	Slovenia	Not applied	G/M and reference values submitted	G/M and reference values submitted	
	Spain	Only G/M values submitted	Only G/M values submitted	Only G/M values submitted	

Regional Sea	Country	Transitional	Coastal	Marine	
North East Atlantic	Belgium	Only G/M values submitted	G/M and reference values submitted	G/M and reference values submitted	Don't have any data on reference conditions for transitional waters
	France	Only G/M values submitted	Only G/M values submitted	No data submitted	Do not use reference conditions because there is no reference conditions for the physico-chemical parameters indicated in the Guidance 5 document. Have not yet defined good/moderate thresholds for marine waters.
	Germany	G/M and reference values submitted	G/M and reference values submitted	G/M and reference values submitted	
	Ireland	G/M and reference values submitted	G/M and reference values submitted	G/M and reference values submitted	
	Netherlands	Only G/M values submitted	Only G/M values submitted	No data submitted	Have no legal binding objectives for marine waters yet
	Norway	Not applied	Only G/M values submitted	No data submitted	There is no reference condition for nutrients in the NO classification system. Has not implemented the MSFD. Marine waters (open ocean) will be covered by a national management plan including nutrients as a describing factor.
	Portugal	Only G/M values submitted	Only G/M values submitted	No data submitted	Are still working on the definition of classification systems for transitional and coastal waters.
	Spain	Only G/M values submitted	Only G/M values submitted	Only G/M values submitted	
	Sweden	G/M and reference values submitted	G/M and reference values submitted	Only G/M values submitted	
	UK	G/M and reference values submitted	G/M and reference values submitted	G/M and reference values submitted	