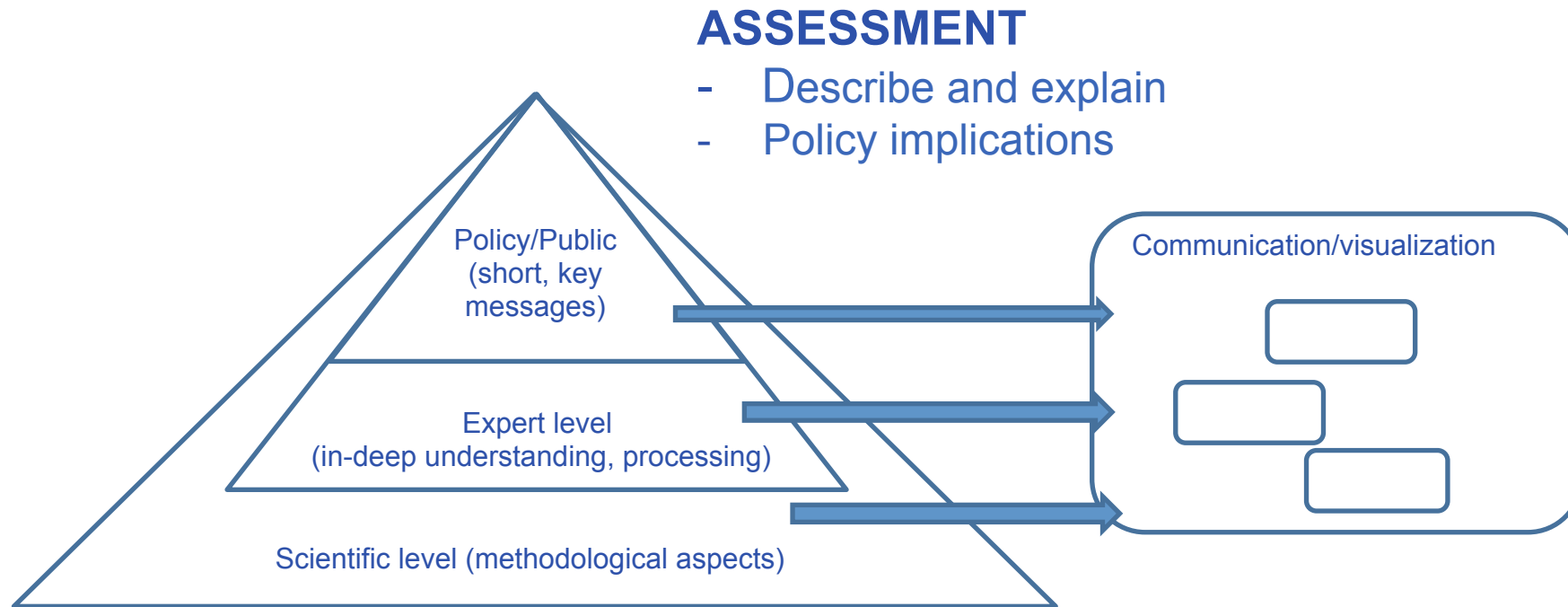


Indicator assessment: C10 as an example



Indicator implementation



Indicator implementation

- Data collection and storage
- Data extraction and selection
- Data analysis
 - Methods for spatial and temporal analysis
 - Visualisation: Graphs, maps, tables
- Assessment
 - Describe and explain
 - Policy implications



C10: Oxygen consuming substances in rivers

- **Key message (EEA web site):** „Concentrations of biochemical oxygen demand (BOD) and total ammonium have decreased in European rivers in the period 1992 to 2012 (Fig. 1), mainly due to general improvement in waste water treatment“.



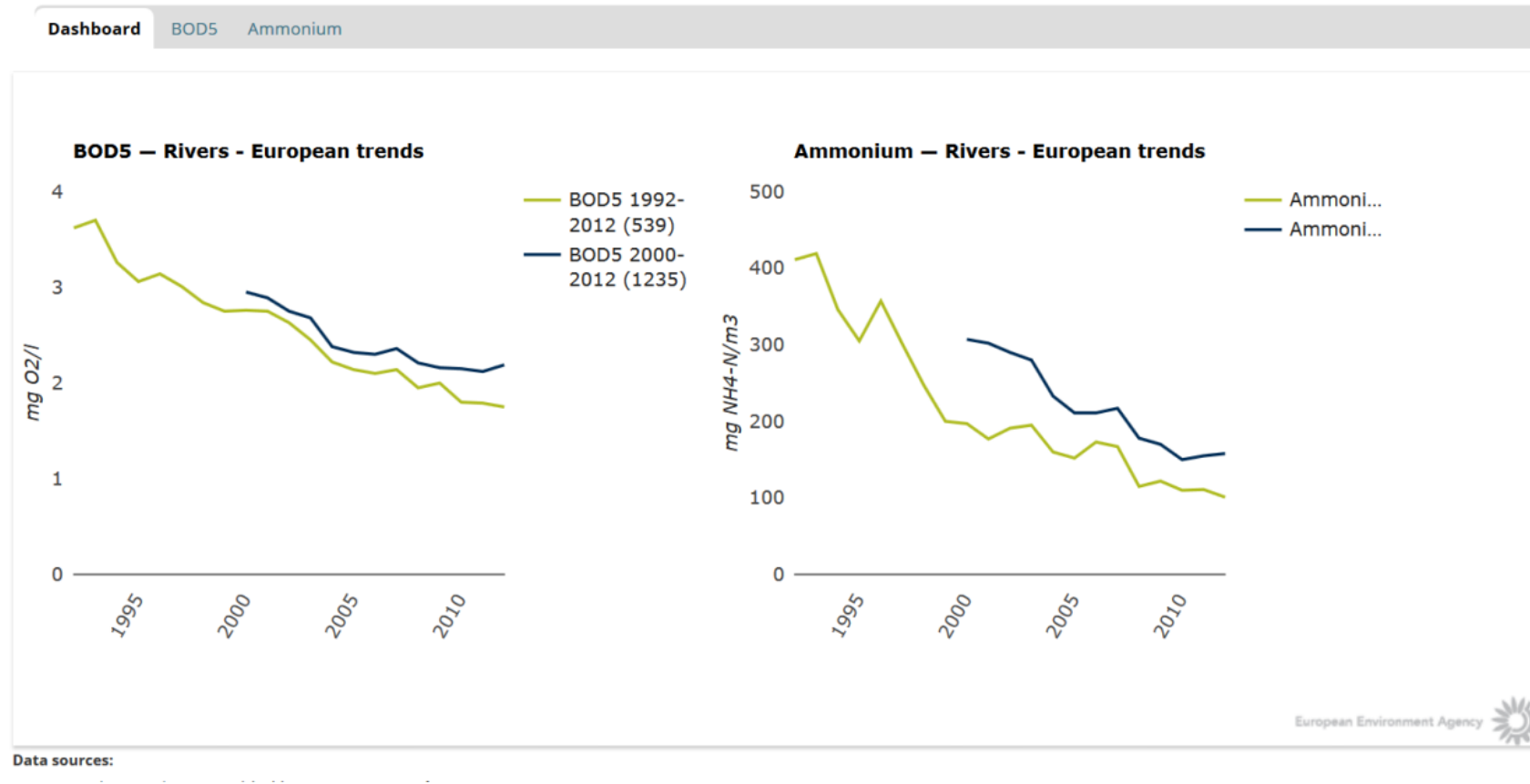
Policy question:

- „Is organic matter and ammonium pollution of rivers decreasing?“



Assessment:

Fig. 1: Rivers - European trends



Assessment:

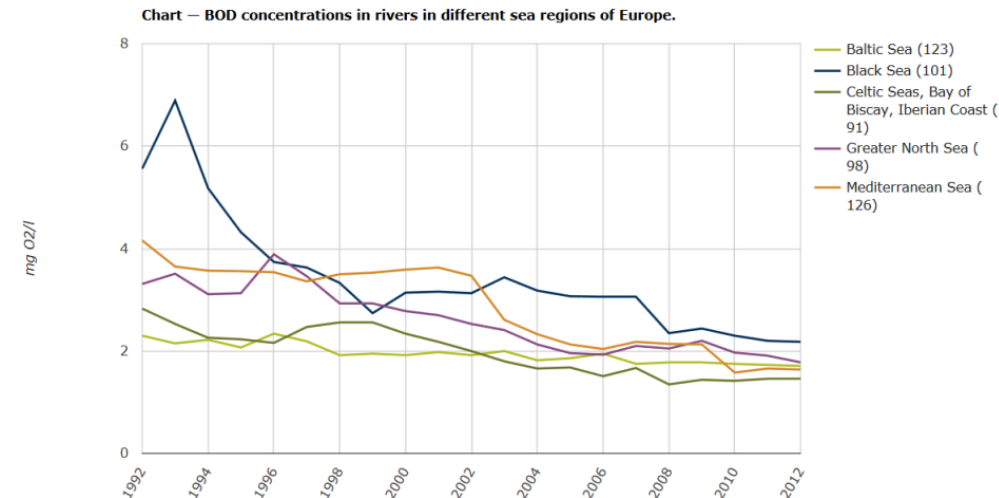
1) Introduction

Biochemical oxygen demand (BOD) and ammonium are key indicators of organic pollution in water. BOD shows how much dissolved oxygen is needed for the decomposition of organic matter present in water. Concentrations of these parameters normally increase as a result of organic pollution caused by discharges from waste water treatment plants, industrial effluents and agricultural run-off. Severe organic pollution may lead to rapid de-oxygenation of river water, high concentration of ammonia and disappearance of fish and aquatic invertebrates. Some of the year-to-year variation can be explained by variation in precipitation and runoff.

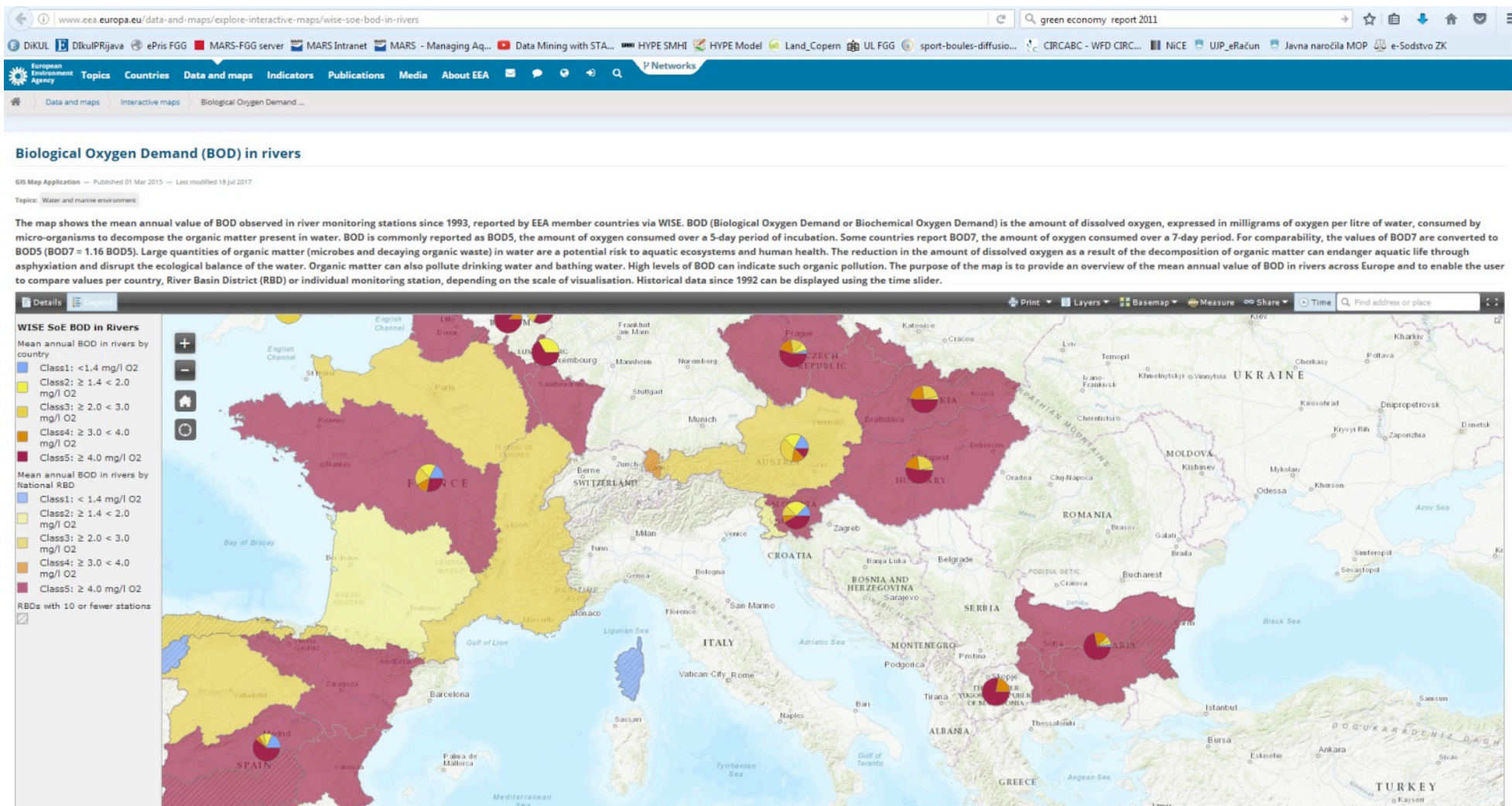
The most important sources of organic waste load are: household wastewater; industries, such as paper or food processing; and silage effluents and manure from agriculture. Increased industrial and agricultural production in most European countries after the 1940s, coupled with a greater share of the population connected to sewerage systems, initially resulted in increases in the discharge of organic waste into surface water. Over the past 15 to 30 years, however, the biological treatment (secondary treatment) of waste water has increased, and organic discharges have consequently decreased throughout Europe. See also [CSI 024: Urban waste water treatment](#).

2) Analysis:

- [Present concentrations per country](#)
- Overall trend in [BOD](#) and [total ammonium](#)
- [BOD](#) and [total ammonium](#) time series and trends per geographical region
- [BOD](#) and [total ammonium](#) time series and trends per sea region



Present BOD concentrations per country



Assessment:

- 3) Indicator specification and metadata
- 4) Indicator definition
- 5) Units
- 6) Rationale (Justification for indicator selection)
- 7) Policy context, targets, Related policy documents
- 8) Methodology (Methodology for indicator calculation, Station selection, Determinants, Quality checked data, mean, Aggregation of time series, Trend analyses, Present concentration distributions, Methodology for gap filling, Methodology references)
- 9) Uncertainties Methodology uncertainty, Data sets uncertainty, Rationale uncertainty)
- 10) Data sources (<https://www.eea.europa.eu/data-and-maps/data/waterbase-rivers-10>)
- 11) Contacts and ownership



Data sources:

(<https://www.eea.europa.eu/data-and-maps/data/waterbase-rivers-10>)

Waterbase - Rivers

Data — Prod-ID: DAT-4-en — expired — Created 12 Jun 2014 — Published 13 Jun 2014 — Last modified 05 Dec 2016 — 16 min read



Topics: [Water and marine environment](#)



This content has been archived on 05 Dec 2016, reason: Other (The dataset is replaced by Waterbase - Water Quality dataset, which combines Waterbase - Rivers, Lakes and Groundwater into one. It's available at <http://www.eea.europa.eu/data-and-maps/data/waterbase-water-quality/>.)

Waterbase is the generic name given to the EEA's databases on the status and quality of Europe's rivers, lakes, groundwater bodies and transitional, coastal and marine waters, and on the quantity of Europe's water resources

[European data](#) [Additional information](#) [Metadata](#)

Waterbase - Rivers (6 tables)

The dataset contains data on nutrients, organic matter, hazardous substances and other chemical determinands in water, proxy pressure data on the upstream catchments, physical characteristics of the WISE-SoE river monitoring stations and biological quality elements (BQEs) phytobenthos and macroinvertebrates from WISE-SoE river monitoring stations. The biological data data are reported as ecological quality ratios (EQRs) (for more explanation, see illustration in additional information part). ***WARNING:*** Records, where errors and other quality issues and inconsistencies have been detected, have been removed from the dataset only in the most severe cases (missing primary key values, duplicates...). The other "problematic" records are left in. Each data table contains a set of special QA fields which are used to flag the particular quality issues detected in the individual records. The QA fields and flag codes are described in the QA documentation.

[+] Show table definition

- **Waterbase-Rivers (Microsoft Access database file)** (ZIP archive)
58.58 MB [Download file](#)
- **Waterbase-Rivers (CSV files)** (ZIP archive)

Database:

Waterbase_rivers_v14_Nutrients - Microsoft Access

RecordID	RecordRepc	CountryCod	Waterbasell	NationalSta	Year	Aggregation	Aggregation	Aggregation	Aggregation	Determinand_Nutri	Unit_Nutrie
84302	NA	HU	HU_RV_04FB36	04FB36	1987	Annual	Annual			12 Total ammonium	mg/l N
84303	NA	HU	HU_RV_04FB36	04FB36	1987	Annual	Annual			12 Total inorganic nitrog	mg/l N
84304	NA	HU	HU_RV_04FB36	04FB36	1987	Annual	Annual			12 Total nitrogen	mg/l N
84305	NA	HU	HU_RV_04FB36	04FB36	1987	Annual	Annual			12 Total oxidised nitroge	mg/l N
923951	2013-12-31	LT	LT_RV_LTR137	LTR137	2009	Annual	Annual	01-12		12 Orthophosphates	mg/l P
923952	2013-12-31	LT	LT_RV_LTR137	LTR137	2009	Annual	Annual	01-12		12 Oxygen saturation	%
84306	NA	HU	HU_RV_04FB36	04FB36	1987	Annual	Annual			12 Total phosphorus	mg/l P
84307	NA	HU	HU_RV_04FB36	04FB36	1987	Summer	Summer			3 BOD5	mg/l O2
84308	NA	HU	HU_RV_04FB36	04FB36	1987	Summer	Summer			3 CODMn	mg/l O2
84309	NA	HU	HU_RV_04FB36	04FB36	1987	Summer	Summer			3 CODCr	mg/l O2
84310	NA	HU	HU_RV_04FB36	04FB36	1987	Summer	Summer			3 Dissolved oxygen	mg/l O2
84311	NA	HU	HU_RV_04FB36	04FB36	1987	Summer	Summer			3 Nitrate	mg/l N
84312	NA	HU	HU_RV_04FB36	04FB36	1987	Summer	Summer			3 Nitrite	mg/l N
84313	NA	HU	HU_RV_04FB36	04FB36	1987	Summer	Summer			3 Total organic nitroge	mg/l N
84314	NA	HU	HU_RV_04FB36	04FB36	1987	Summer	Summer			3 Orthophosphates	mg/l P
84315	NA	HU	HU_RV_04FB36	04FB36	1987	Summer	Summer			3 Oxygen saturation	%
84316	NA	HU	HU_RV_04FB36	04FB36	1987	Summer	Summer			3 Total ammonium	mg/l N
84317	NA	HU	HU_RV_04FB36	04FB36	1987	Summer	Summer			3 Total inorganic nitrog	mg/l N
84318	NA	HU	HU_RV_04FB36	04FB36	1987	Summer	Summer			3 Total nitrogen	mg/l N
84319	NA	HU	HU_RV_04FB36	04FB36	1987	Summer	Summer			3 Total oxidised nitroge	mg/l N

