EEAs assessments of the status of Europe's waters

Description of the report and draft outline

Background document for EIONET NRC Freshwater meeting 19-20 June 2017

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European Environment Agency (EEA)

European Environment Agency

Background document for EIONET NRC Freshwater meeting 19-20 June 2017

- This document aims at introducing the EEA 2018 State of Water assessment and
- Presenting the draft outline of the report including some preliminary results.
- The background documents should make it possible for participants to prepare for the workshops including relevant consultation in national networks.
- An EIONET consultation on the draft State of water report will be run in the autumn (October).
- At the NRC Freshwater workshop a presentation of the report will be made (*not all the slides in this background document*) and there will be group discussions on the specific topics.

Outline of background document

Introduction to EEA State of Water assessment 2018

Outline and preliminary results from status and pressures chapters (The start of each chapter is marked with a light blue background as this slide):

- Ecological status
- Chemical status of surface waters,
- Chemical status of groundwater,
- Groundwater quantitative status

Outlook and integrated assessment chapter

Next steps including consultation with NRC and others

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Introduction to EEA State of Water assessment 2018

Why, what, for who and when

- 2018 is the year in which the European Commission published its report on "Implementation of WFD and the review of the 2nd River Basin Management Plans (RBMPs)" and start the process of reviewing the Water Framework Directive. To accompany and inform this process, the EEA has long planned a report of "*State of European waters*"

The report aims to present results on:

- What is the status of European waters?
- Which pressures is causing less than good status;
- What progress has been achieved in the 1st River Basin Management cycle (2009-2015)?

The target audience is EU institutions (EP, COM, JRC); countries (national, River Basin District administrations working with WFD and other water policy implementation); International River Basin and Regional Sea Conventions; water experts and scientists; and general public.

EEA will in addition to WFD results try to **include results from non-WFD countries**.

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EEA's 2018 State of Water Assessment (report/portal)

- The first EEA report was published in 2012, the second is planned for March 2018.

- Overview of status (quantitative, chemical and ecological), pressures and impacts
- Change in status and pressures from 1st to 2nd RBMPs
- Relationship between pressure and status (what is causing less than good status) –pressures-driving force relationship.
- Effect of measures (implemented during the 1st RBMP period from 2010-2015).
- Other information on status of European water including results from non-WFD countries

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Introduction to EEA State of Water assessment 2018






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Overall outline of the state of water report

1. Introduction
2. Ecological status and pressures
3. Chemical status of surface waters
4. Chemical status of groundwater
5. Groundwater quantitative status
6. Overall status, integrated assessment and outlook (examples of measures, implemented during 1st RBMP period (2010-2015), other water policies and sector activities, emerging issues)

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Chapter 1: Introduction

1.1 EEA State of Water assessment and EU water policy context.

1.2 Data sources and methodology used

1.3 Structure and method of the report

Expected content of the chapter

The chapter will presents information on the EEA state of water reports and the geographical settings, including an overview of European river basin and sea regions.

The chapter also contains a description of European water policies with particular focus on the different elements of the WFD.

A section in the chapter will summarise data sources and methodology used for data handling, and explains the various assumptions made in relation to the analyses.

The following slides presents information from chapter 1

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EEA State of Water assessment and EU water policy context.

The 2018 SoW report will be an important building block for water aspects to be included **EEA SOER2020.** The results will also be used for many EEA products e.g. EEA Environmental Indicators, briefings, thematic reports (e.g. chemicals and water); etc.

The 2018 SoW will be background for Commissions WFD implementation report and inform the WFD review process.

WFD Article 18: *The EU Commission shall publish a report on the implementation of the directive two years after the Member States have delivered the RBMPs.*

- *The report shall include **a review of the status of surface water and groundwater** in the Community undertaken in coordination with the European Environment Agency (EEA).*

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1.2 Data sources and methodology used
1.3 Structure and method of the report

The following slides illustrate different aspects of the way EEA wants to illustrate:

- An overview of the data sources including water bodies
- The methodology used – aggregation of results to European, national and river basin level (maps)
- The storyline use for the status chapters
- Issues related to comparison
  - Results from 1st to 2nd RBMP periods
  - Comparison of RBDs (maps) and countries/Member States.

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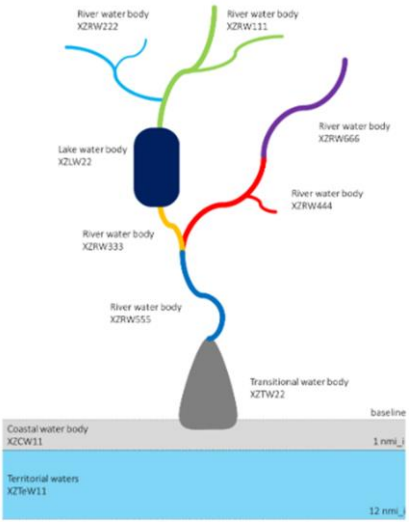
1.2 Data sources and methodology used

Reporting May 2017– 20 Member States – 125 RBDs

(Germany, Luxembourg and Malta (are now in WFD database, but not used in diagrams); data not yet available from Austria, Denmark, Greece, Ireland, Lithuania, Norway)

- **63 000 river water bodies** 936 000 km – average length 15 km
- **16 125 lake water bodies** – 2/3 from Sweden and Finland - avg area 4.9 km^2
- **772 transitional water bodies** (avg area 18.4 km^2)
- **2632 coastal water bodies** (avg area 94 km^2)
- **32 territorial waters**
- **11 700 Groundwater bodies** (3.9 million km^2)



Preliminary results – 20 MS – May 2017

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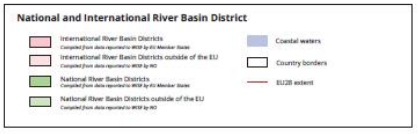
Map of National and International River Basin Districts

Draft map 26 January 2017



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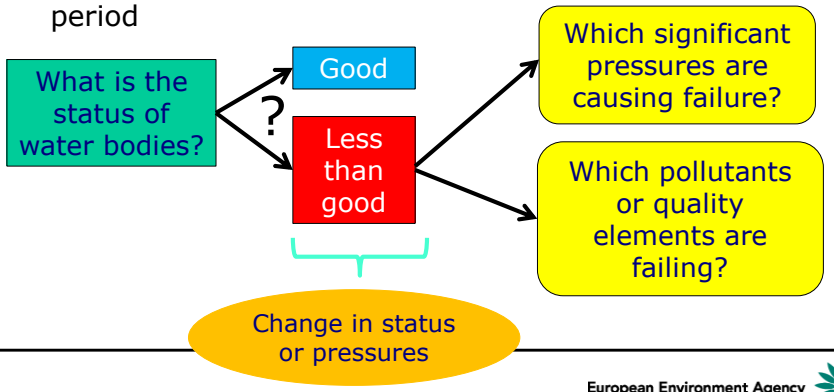
General storyline for the status chapters

- What is the status
- What is causing not achieving good status (e.g. significant pressures, pollutants causing failure etc.)
- Comparison between results from 1st and 2nd RBMP period



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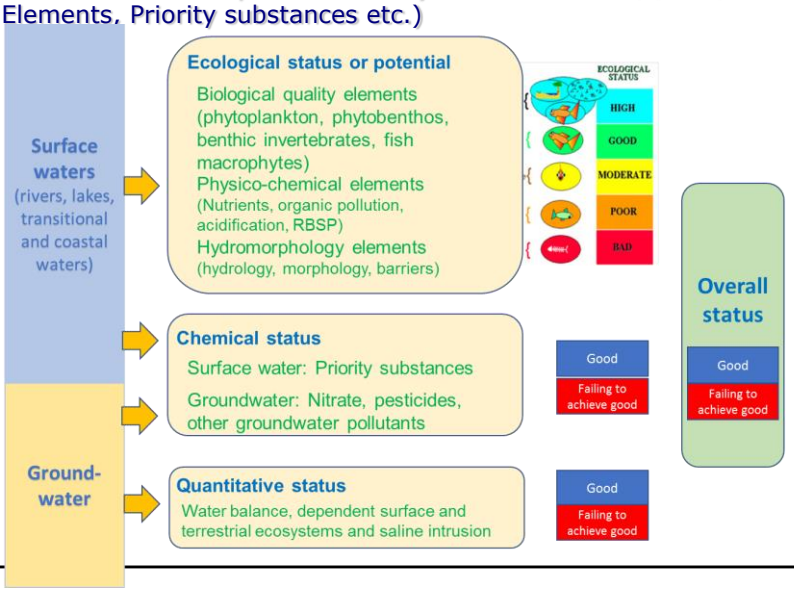
The report will cover all status (ecological, chemical and quantitative) and details (Quality Elements, Priority substances etc.)



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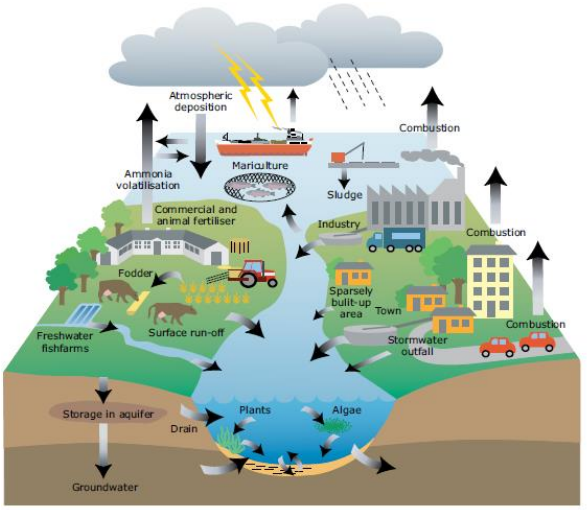
Pollutants pressures causing failure

The report will provide and overview of the pressures causing failure to achieve good status



Source: EEA 2012

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Hydromorphological pressures causing failure

The report will provide and overview of the pressures causing failure to achieve good status

Driving forces	Physical modifications Pressures and activities	Habitat alteration Impacts on hydromorphology
Agriculture	Water storage, transfers and abstraction	Change in flow (+/-), regime, seasonality, and hydropeaking
Urban	Cross-profile constructions (dams, weirs, locks/sluices, culverts, impoundments)	River and habitat continuity interruption
Hydropower	Longitudinal profile construction (dykes and levees)	Change in sediment transport and erosion
Navigation	Bank reinforcement and embankments	Change in lateral connectivity, loss of floodplains or intertidal area, disconnection of wetlands and oxbow lakes
Flood protection and defence	Deepening and mineral extraction (channel maintenance, dredging)	Change in river profile and estuaries (length and transverse profile)
Mineral extraction	Channelisation and straightening	Change in connection with groundwater
Fishing	Land drainage and sealing	

Barriers and dams

Alteration of morphology

Source: EEA 2012

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Pollutants causing failure

The report will provide and overview of the pollutants causing failure to achieve good status

3.3 Priority substances causing failure in achieving good status

Top 14 Priority substances - Bold ubiquitus substances (uPBT)

Priority substance	WBs failing	Categories	Member States	MS % of total
Mercury and its compounds	28305	4	19 SE (82%); FI (12%)	30 %
Brominated diphenylethers	23263	4	7 SE (99.7%)	3 %
Total Benzo(g,h,i)perylene + Indeno(1,2,3-cc	2250	4	12 FR (64%)	
Fluoranthene	788	4	12 NL (39%); CZ (32%	
Cadmium and its compounds	716	4	18 ..	0.5-1 %
Nickel and its compounds	662	4	18 ..	
Lead and its compounds	479	4	16 ..	
Tributyltin-cation	465	4	13 ..	
Benzo(a)pyrene	462	4	9 CZ (43%); NL (30%	
Total Benzo(b)fluor-anthene + Benzo(k)fluo	285	4	9 CZ (50%)	< 0.5 %
4-nonylphenol	177	4	8 FR (55%)	
Isoproturon	125	2	5 FR (72%)	
Hexachlorocyclohexane	108	4	10 ..	
Anthracene	107	4	9 SE (66%)	

Except for mercury and brominated diphenylethers, priority substances are causing failure in a limited number of water bodies

Preliminary results – 20 MS – April 2017

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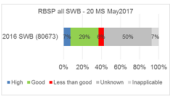
River Basin Specific Pollutants (RBSPs) – preliminary results

- At EU level, 6% water bodies not achieving good status owing to RBSPs.
- Where there was failure, most (>80%) owed to one or two substances.
- Most widely reported failing RBSPs are metals and pesticides.



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Arsenic	4	12	210
Selenium	3	4	206
Metolachlor	3	4	93
Chromium	4	8	89
Barium	2	4	59
MCPA	2	4	55
Total cyanide	1	4	49
Terbuthylazine	2	4	40
Boron	3	4	17
Fluoride	1	4	15

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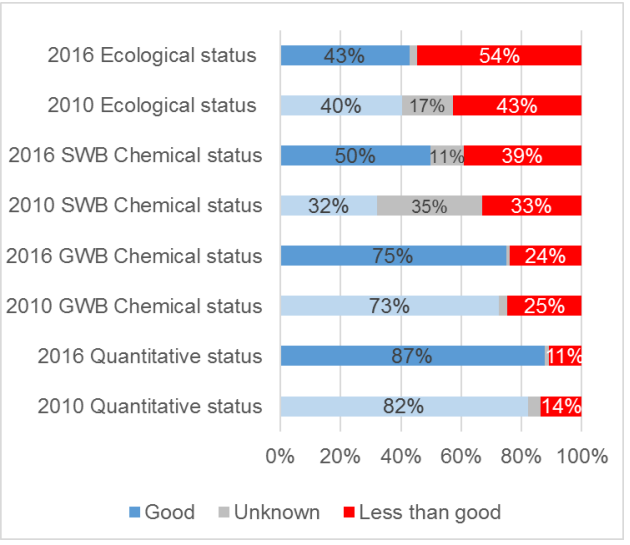
Comparison of status in 1st and 2nd RBMP period



The diagram illustrate

- A marked reduction in unknowns from 1st to 2nd RBMPs
- There are an increase in the proportion of water bodies in Good and Less than Good status.

Preliminary results – 18-20 MS – May2017

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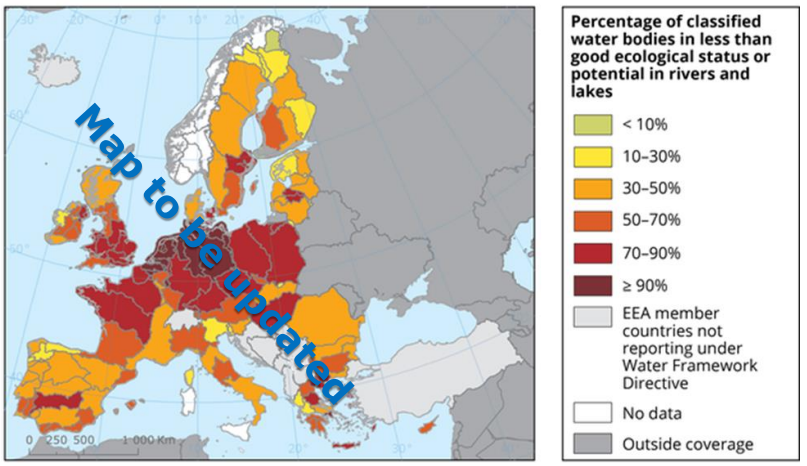
Status and pressures by River Basin Districts
Ecological status of rivers and lakes (2012 results)



Source: https://www.eea.europa.eu/data-and-maps/figures/proportion-of-classified-surface-water-3

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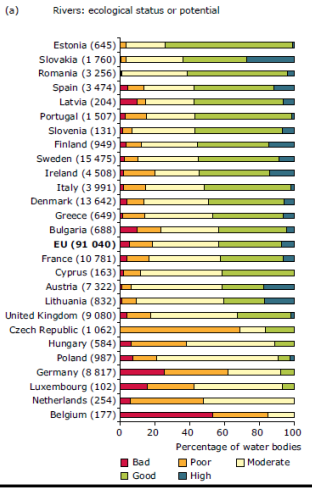
Comparison of status and pressures by country

After EEAs 2012 State of water assessment, countries have raised concerns on the diagrams illustrate Member State comparison/ranking of Member State results on status.

EEA understands this concern and wants to consult with countries on different approaches to illustrate results on status and quality elements.

Diagram from 2012 water assessment
River ecolological status by Member States



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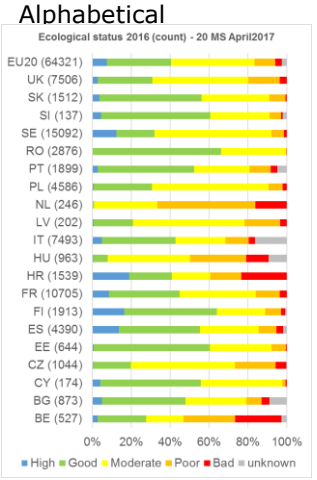
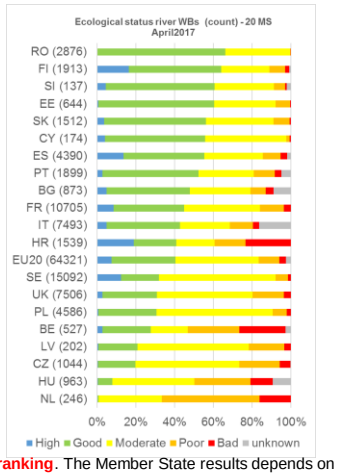
Comparison of status and pressures by country

Ecological status or potential – river water bodies

Alphabetical



Ranked by proportion at least good



Caution should be made in using the results on Member State ranking. The Member State results depends on the monitoring activities and the number of quality elements used.
The results should be interpreted together with the results on confidence in ecological status and number of Biological Quality Elements used and the details on Biological Quality Elements.

Preliminary results – 20 MS – end April 2017

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Chapter 2: Ecological status and pressures

2.1 Introduction

2.2 Ecological status in 2nd RBMPs

2.3 Status by quality elements

2.4 Pressures causing not achieving good ecological status

2.5 Change in ecological status between 1st and 2nd RBMP

Expected content of the chapter

The chapter will update the European overview of ecological status or potential. The overview of ecological status will related to population density and agricultural area and presented for broad water types.

The chapter will also focus on the status by quality elements in particular biological quality elements.

Results on the pressures causing failure to achieve good ecological status will be presented.

Results on ecological status and quality elements from the 1st to 2nd RBMP period will be compared.

2.1 Introduction
Ecological status and potential

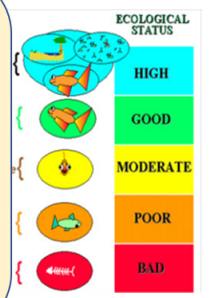
Surface waters (rivers, lakes, transitional and coastal waters)

Ecological status or potential

Biological quality elements (phytoplankton, phytobenthos, benthic invertebrates, fish macrophytes)

Physico-chemical elements (Nutrients, organic pollution, acidification, RBSP)

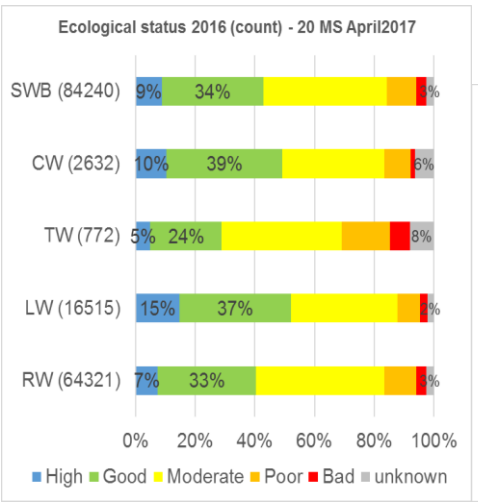
Hydromorphology elements (hydrology, morphology, barriers)



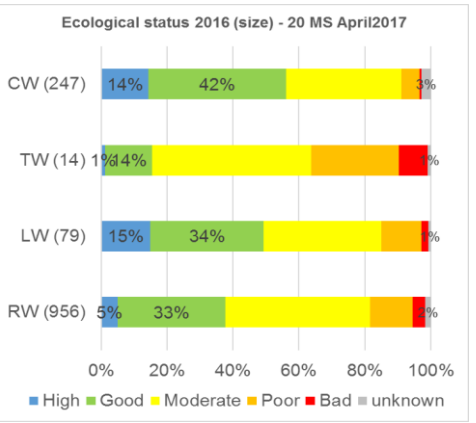
One-out all out principle,

2.2 Ecological status in 2nd RBMPs

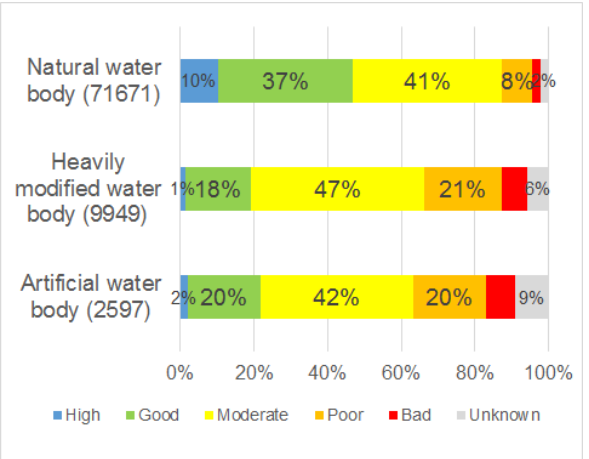
Ecological status – by count of water bodies (left) – by size (right)



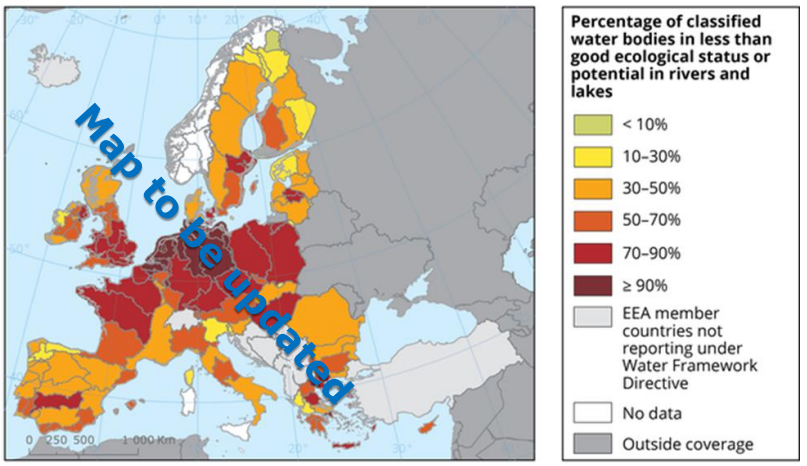
RW = rivers TW = transitional
LW = lakes CW = coastal



Ecological status and potential by natural, heavily modified and artificial water bodies



Ecological status of rivers and lakes by River Basin Districts (2012 results)



Source: https://www.eea.europa.eu/data-and-maps/figures/proportion-of-classified-surface-water-3

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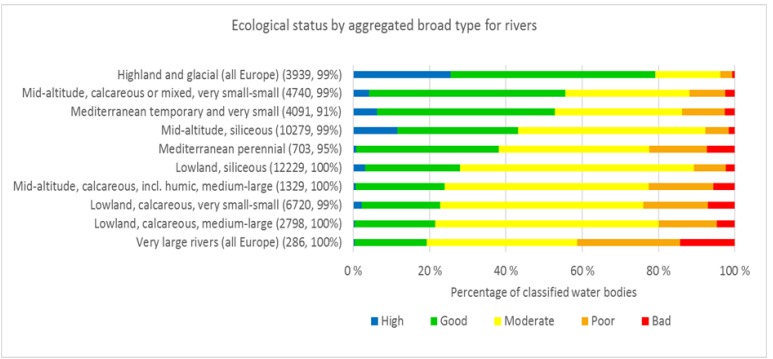
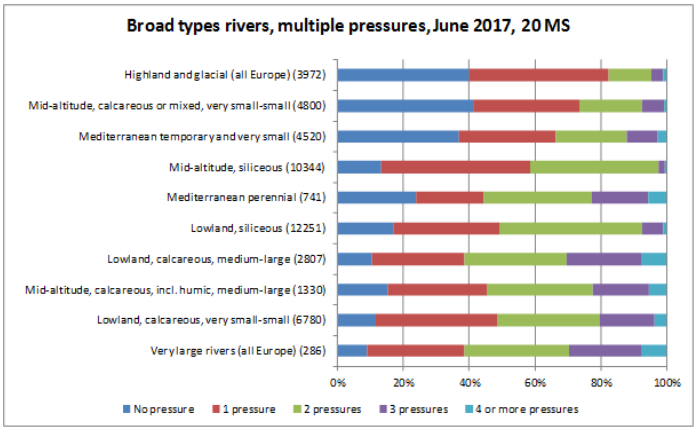
Ecological status and potential by aggregated broad types

Example of river broad types (similar results is available for lakes)



The ecological status for river water bodies and lake water bodies aggregated to major broad types is best for highland rivers and lakes with 80-90% of classified water bodies in good or better ecological status.
Mid-altitude small calcareous rivers, mid-altitude siliceous rivers and Mediterranean rivers have 40-55% of their water bodies in good or better ecological status.
The lowland rivers and large rivers have only 20-30% of their water bodies in good or better status.

Multiple pressures on SWB per broad types for rivers and lakes. Percentages are based on the num-ber of water bodies in each broad types.



Highland and glacial rivers which have typically a high proportion of water bodies meeting good status are also those with the least number of water bodies with more than one significant pressure. In contrast, a large proportion of water bodies in very large rivers does not meet good ecological status and are under multiple pressures.

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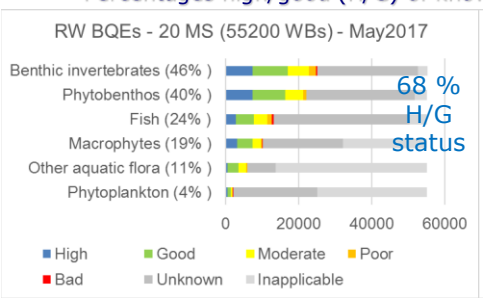
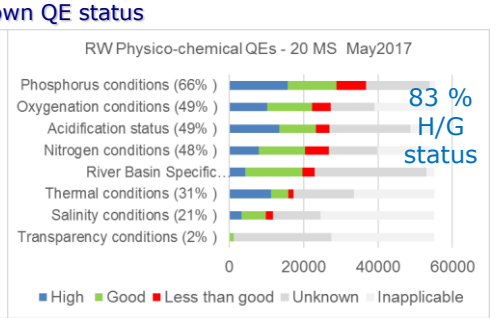
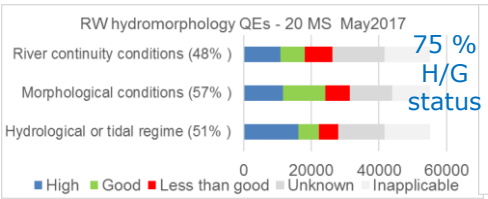
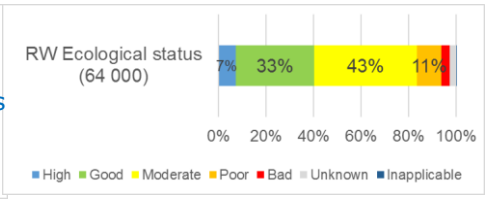
2.3 Status by quality elements

River water bodies – ecological status by quality elements
Percentages high/good (H/G) of known QE status









Preliminary results – 20 MS – May 2017

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Quality element status compared to overall ecological status

Status for dominant BQEs/phys-chem QEs versus overall ecological status

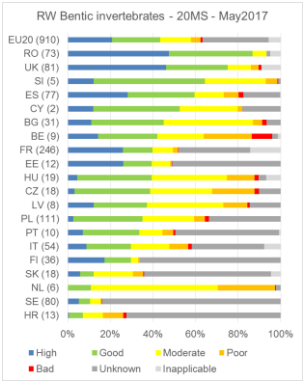
(numbers show % high + good)

Overall or BQE/QE status	Rivers	Lakes	Transitional	Coastal
Overall Ecological status	*41%*	*53%*	*31%*	*53%*
Phytoplankton status		63%	77%	67%
Phytobenthos status	73%			
Benthic invertebrates	69%		58%	73%
Phosphorus	75%	78%	72%	64%
Nitrogen	78%	72%	55%	53%

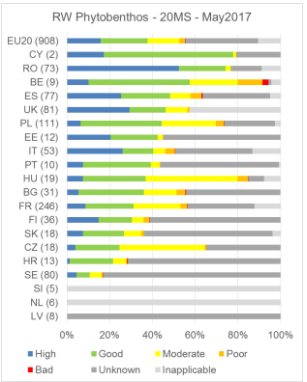
Comparison of Member States ecological status by different BQEs – river water bodies

All three diagrams are ranked by proportion in high/good status

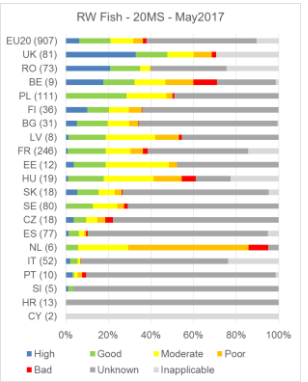
Benthic invertebrates



Phytobenthos



Fish



River Basin Specific Pollutants (RBSPs) – preliminary results

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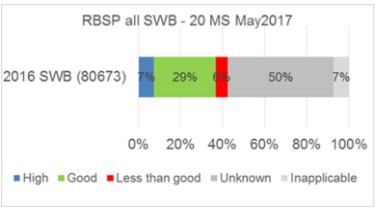

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Total cyanide	1	4	49
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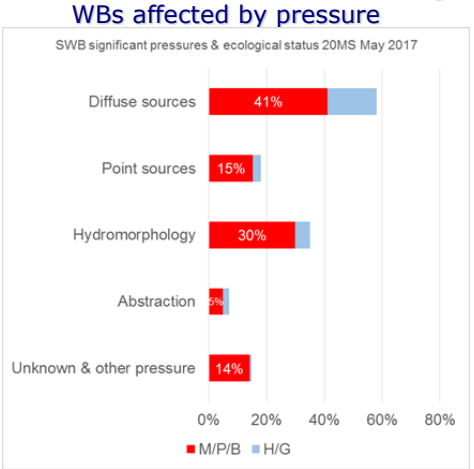
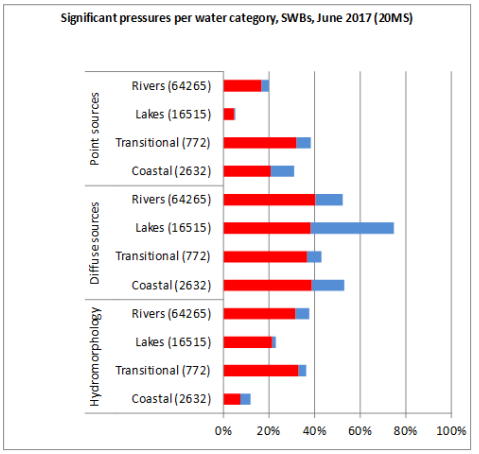
2.4 Pressures causing not achieving good ecological status

Pressures – relevant for ecological status - proportion of surface WBs affected by pressure





Preliminary results – 20 MS – May2017

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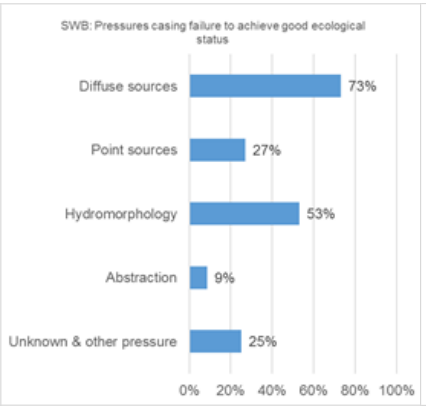
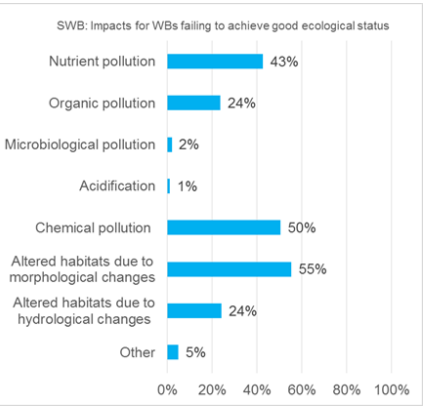
Overview of pressures causing failure to achieve good ecological status

Main significant pressures



Diffuse pollution, hydromorphological and point pollution sources are the main significant pressures of surface water bodies in less than good ecological status.

Main impacts



Altered habitats (morphological and hydrological change), chemical and nutrient pollution are the main impacts on surface water bodies in less than good ecological status

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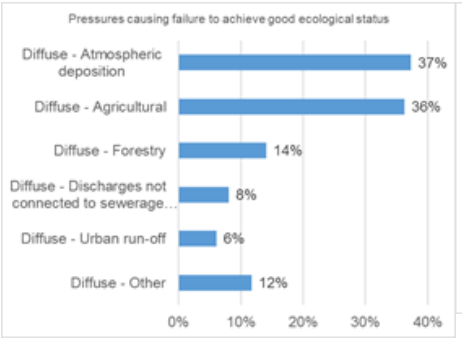
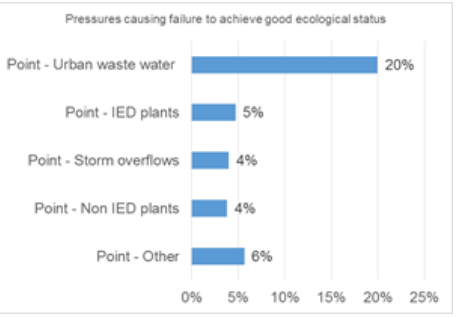
Detailed diffuse and point pollution pressures – proportion of water bodies in less than good ecological status affected by the pressures

Diffuse source pressures



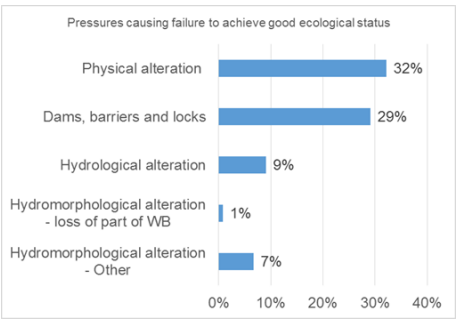
Point source pressures



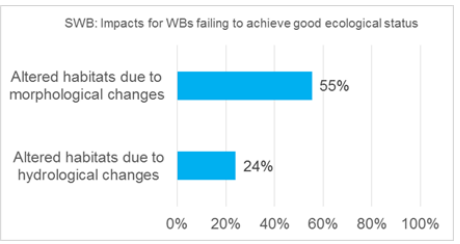
European Environment Agency

Detailed hydromorphological pressures and impacts
Proportion of water bodies in less than good ecological status affected by the hydromorphological pressures

Hydromorphological pressures

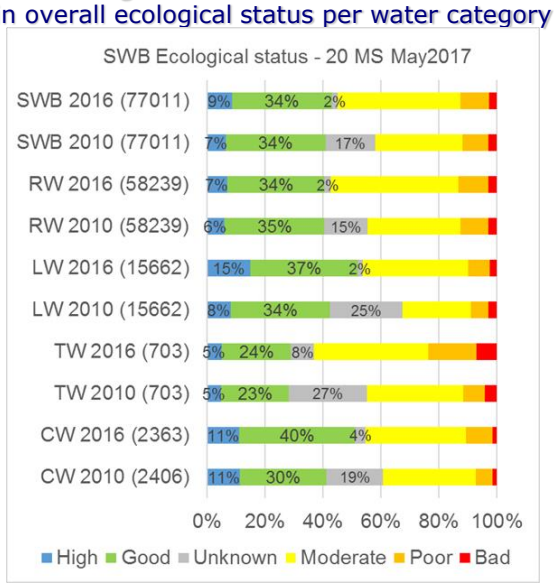


Hydromorphological impacts



European Environment Agency

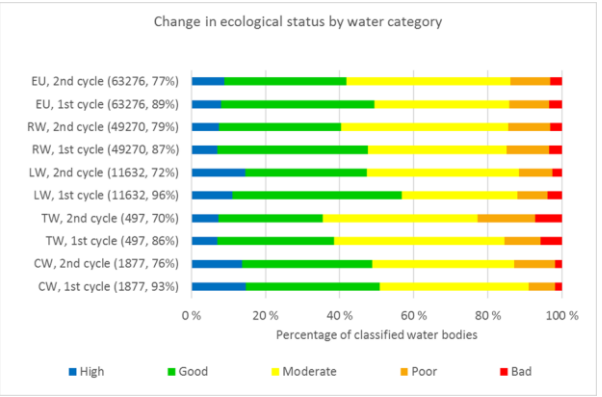
2.5 Change in ecological status between 1st and 2nd RBMP
Minor change in overall ecological status per water category



Preliminary results – 20 MS – May 2017

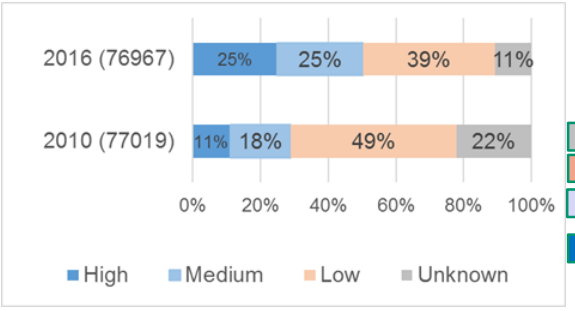
European Environment Agency

Change in ecological status between 1st and 2nd RBMP (same as previous diagram without unknowns)



The ecological status or potential of Europe's waters has not improved since the 1st cycle of RBMPs. At EU-level, the proportion of classified water bodies in high or good status has decreased from 49% in 2010 to 42% in 2016.
If Swedish results are excluded, the deterioration from the 1st to the 2nd cycle becomes less (from 46% to 44% in high or good status).
The reason for the deterioration can be more sensitive assessment methods and more quality elements.

Improved confidence in ecological status assessment

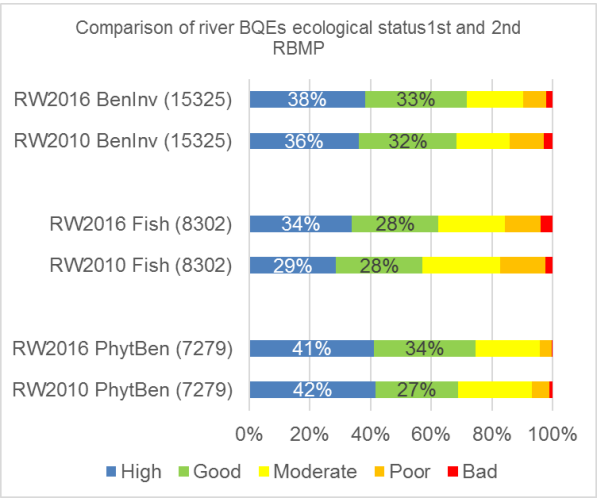


According to the reporting guidance Member States should for each water body report the ecological assessment confidence.

The confidence level is divided into four classes with the following general guidance

- Unknown ecological status
- Low = no monitoring data;
- Medium = supporting QE data and/or limited data on one BQE;
- High = good data for at least one BQE and the most relevant supporting QE.

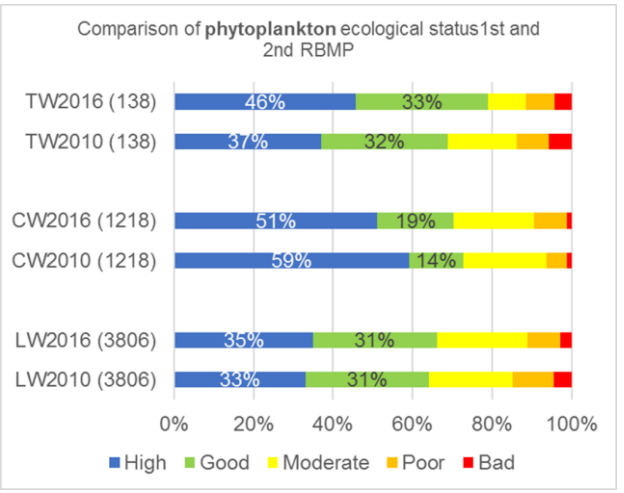
Comparison of river BQEs ecolological status 1st and 2nd RBMP period



Preliminary results – 20 MSs – June 2017

European Environment Agency

Comparison of phytoplankton ecolological status 1st and 2nd RBMP period



Preliminary results – 20 MSs – June 2017

European Environment Agency

Chapter 3: Chemical status of surface water bodies and pressures

3.1 Introduction

3.2 Chemical status of surface waters

3.3 Chemical substances causing failure in achieving good status

3.4 Pressures causing not achieving good chemical status

3.5 Change in status between 1st and 2nd RBMP period

Expected content of the chapter

The chapter will update the European overview of chemical status of surface water bodies. Chemical status with and without ubiquitous substances will be described.

An overview of the priority substances causing failure to achieve good chemical status will be provided.

Results on the pressures causing failure to achieve good chemical status will be presented.

Results on chemical status from the 1st to 2nd RBMP period will be compared.

European Environment Agency

3.1 Introduction
WFD and chemical status of surface waters

- Precautionary principle; preventive approach; polluter should pay.
- Discharges controlled (WFD Art 10)
- Good Chemical Status – for "priority substances" in surface waters (WFD Art 16)

Priority substances

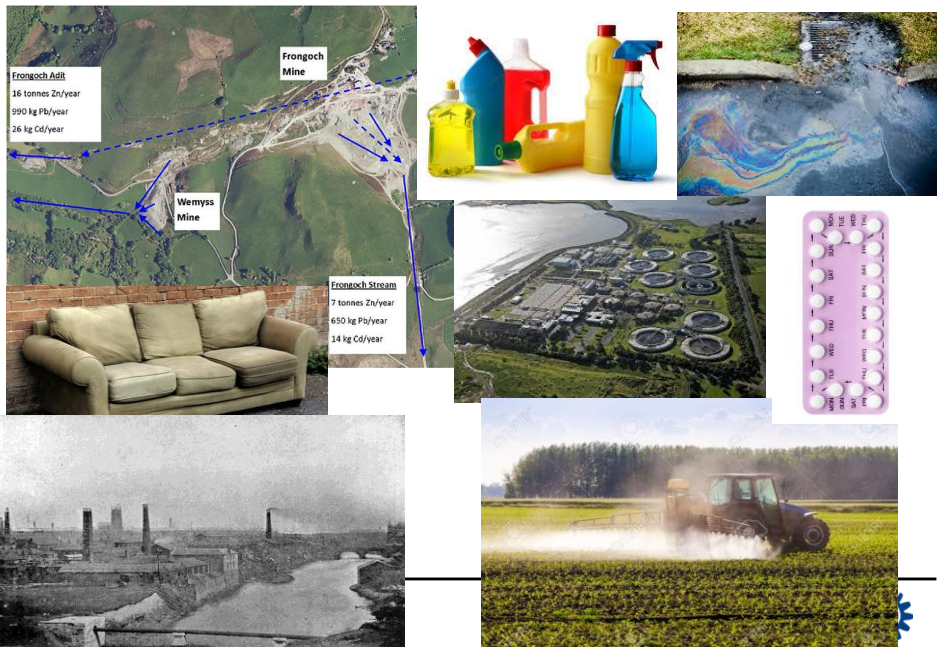
- "present a significant risk to or via the aquatic environment"
- Are of EU-wide concern (in practice, in at least four Member States)
- Aim at progressive reduction of emissions
- Subset of priority hazardous substances for which aim is cessation or phasing out of discharges, emissions or losses.

Environmental Quality Standards (EQS)

- Set to protect the most sensitive species, including humans via secondary poisoning.
- EQS set for chronic exposure (annual average) and some for acute exposure (maximum allowable concentration)

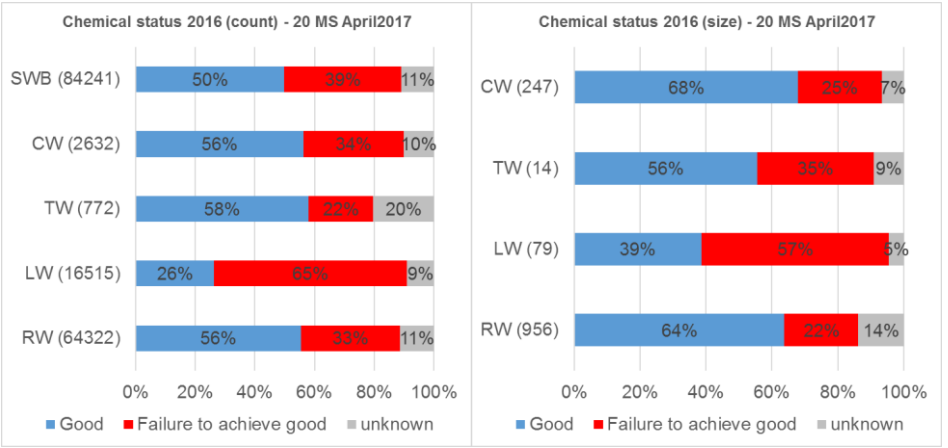
European Environment Agency

Pressures and pollutants causing failure - chemicals



3.2 Chemical status of surface waters

Chemical status of SWBs by count of water bodies (left) – by size (right)

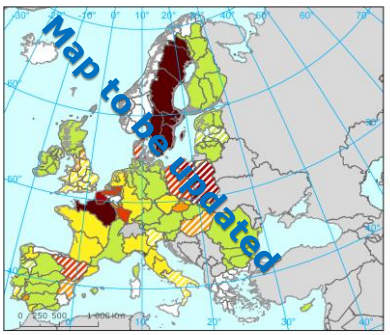


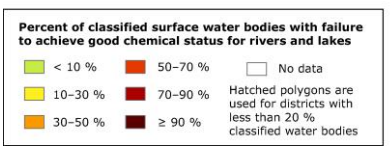
RW = rivers TW = transitional
LW = lakes CW = coastal

Preliminary results – 20 MSs – May 2017

European Environment Agency

Chemical status of rivers and lakes by River Basin Districts (2012 results)





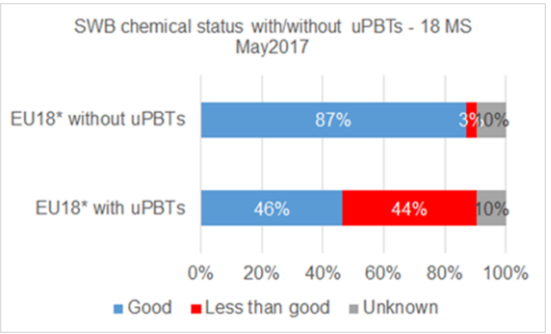
Source:https://www.eea.europa.eu/data-and-maps/figures/chemical-status-of-rivers-and

European Environment Agency

uPBTs – ubiquitous, persistent and toxic

Subset of priority substances identified in 2013 directive:

- Brominated diphenylethers
- Mercury
- PAHs*
- Tributyltin
- Widespread pollutants for which significant measures have already been applied (eg use restrictions)



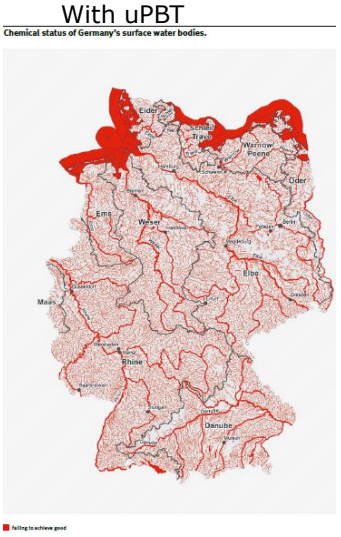
*PAHs = Benzo(a)pyrene, benzo(g,h,i)perylene, indeno(1,2,3-cd)pyrene, benzo(b)fluor-anthene and benzo(k)fluor-anthene

Preliminary results – 20 MSs – May 2017

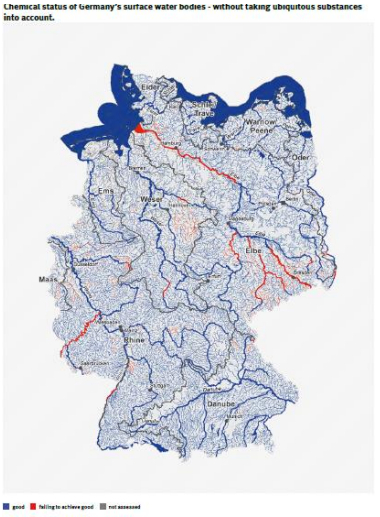
European Environment Agency

Chemical status with and without ubiquitous substances - Germany

With uPBT



Without uPBT

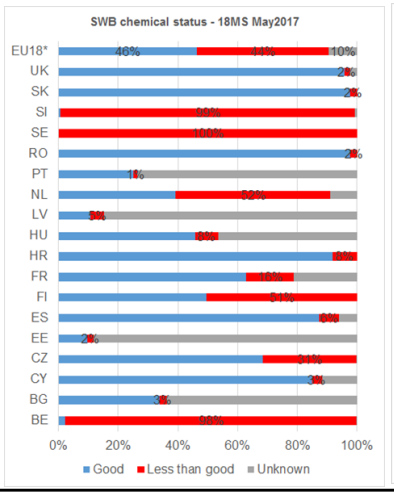


Source: BMUB/UBA 2016: Water Framework Directive The status of German waters 2015
http://www.umweltbundesamt.de/publikationen/water-framework-directive

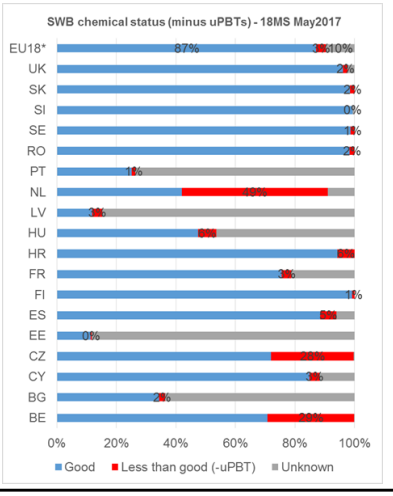
European Environment Agency

Chemical status – surface water bodies

Chemical status with uPBTs



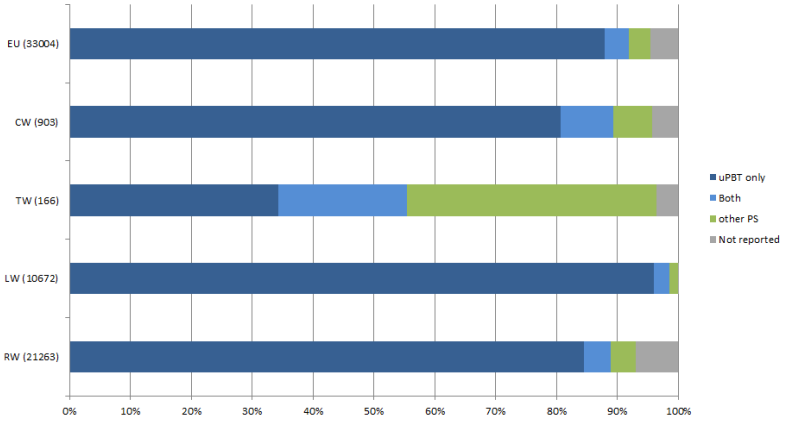
Chemical status without uPBTs



Preliminary results – 20 MS – May2017

European Environment Agency

Failures of chemical status owing to uPBTs



Preliminary results – 20 MS – May2017

European Environment Agency

3.3 Priority substances causing failure in achieving good status

Top 14 Priority substances - Bold ubiquitus substances (uPBT)

Priority substance	WBs failing	Categorie	Member State	MS % of total
Mercury and its compounds	28305	4	19	SE (82%); FI (12%)
Brominated diphenylethers	23263	4	7	SE (99.7%)
Total Benzo(g,h,i)perylene + Indeno(1,2,3-cc	2250	4	12	FR (64%)
Fluoranthene	788	4	12	NL (39%); CZ (32%
Cadmium and its compounds	716	4	18	..
Nickel and its compounds	662	4	18	..
Lead and its compounds	479	4	16	..
Tributyltin-cation	465	4	13	..
Benzo(a)pyrene	462	4	9	CZ (43%); NL (30%
Total Benzo(b)fluor-anthene + Benzo(k)fluo	285	4	9	CZ (50%)
4-nonylphenol	177	4	8	FR (55%)
Isoproturon	125	2	5	FR (72%)
Hexachlorocyclohexane	108	4	10	..
Anthracene	107	4	9	SE (68%)

30 %

3 %

0.5-1 %

< 0.5 %

Except for mercury and brominated diphenylethers, priority substances are causing failure in a limited number of water bodies

Preliminary results – 20 MS – April 2017

European Environment Agency

Priority substances improved since RBMP1

	No of WBs improved (2016)	No of WBs failing (2016)	No of MS
Cadmium	353	712	12
Lead	279	428	10
Mercury	270	28276	9
Nickel	201	554	9
DEHP	46	90	8
TBT	39	464	8
Benzo(g,h,i)perylene + Indeno(1,2,3-cd)pyrene	306	2219	7
Benzo(a)pyrene	59	447	7
4-nonylphenol	38	177	7
Isoproturon	103	125	6
Benzo(b)fluor-anthene + Benzo(k)fluor-anthene	87	272	6
Hexachlorocyclohexane	36	106	6
Chlorpyrifos	22	67	6
Fluoranthene	18	721	6
Alachlor	13	5	6
Diuron	141	49	5
Endosulfan	46	75	5
Octylphenol	24	40	5
Trifluralin	14	12	5
Hexachlorobenzene	13	33	5

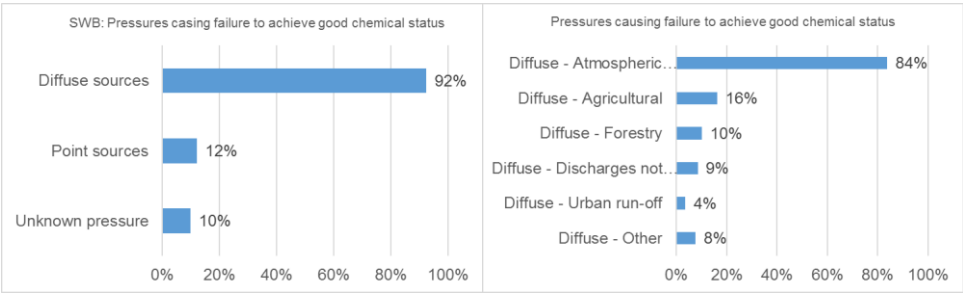
Preliminary data, 20MS, May 2017

Total no. water bodies reported = 154024

nvironment Agency

3.4 Pressures causing not achieving good chemical status - Diffuse and point chemical pressures

Pressures causing failure to achieve good chemical status of **surface water bodies**



Preliminary data, May 2017, 20MS

European Environment Agency

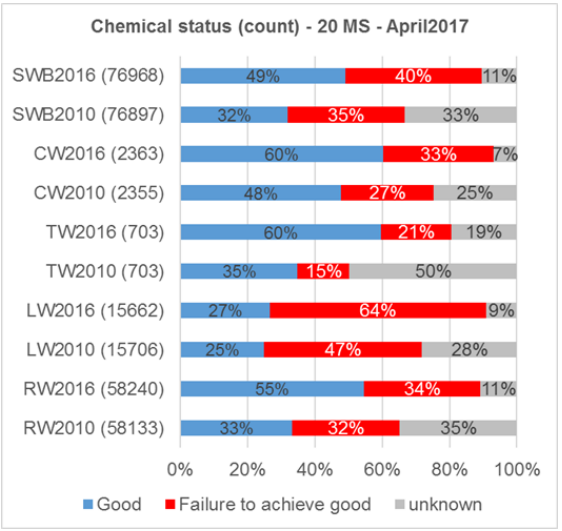
Main pressures – preliminary findings, May 2017

- Atmospheric deposition leads to contamination with mercury and BDEs in most water bodies failing good chemical status.
- Atmospheric emissions include those from combustion of fossil fuels (PAHs).
- Inputs from urban waste water treatment plants are less significant but lead to contamination with PAHs, mercury, cadmium, lead and nickel.

European Environment Agency

3.5 Change in status between 1st and 2nd RBMP period

Change in chemical status per water category



Preliminary results – 20 MSs – end-April 2017

European Environment Agency

4. Groundwater chemical status and pressures

4.1 Introduction

4.2 Chemical status at risk and chemical status

4.3 Chemical substances causing failure in achieving good status

4.4 Pressures causing not achieving good chemical status

4.5 Change in status between 1st and 2nd RBMP period

Expected content of the chapter

The chapter will update the European overview of groundwater chemical status.

An overview of the pollutants causing failure to achieve good chemical status will be provided.

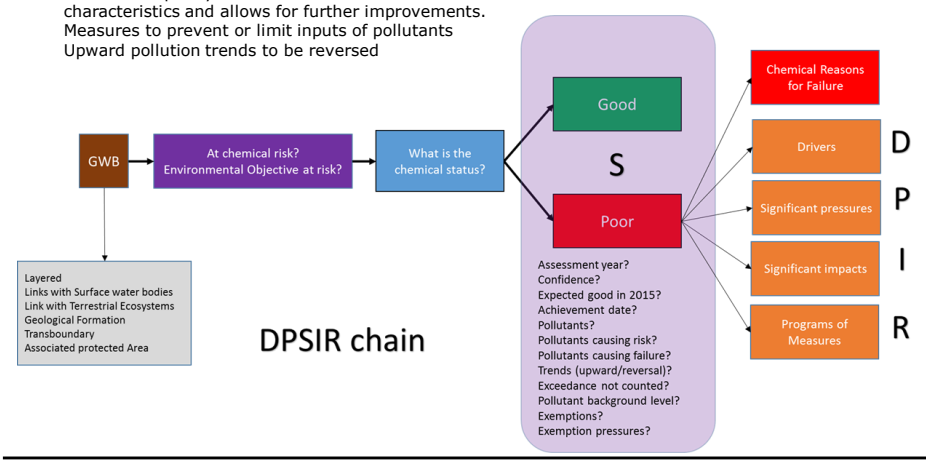
Results on the pressures causing failure to achieve good chemical status will be presented.

Results on chemical status from the 1st to 2nd RBMP period will be compared.

European Environment Agency

4.1 Introduction
- Groundwater chemical status

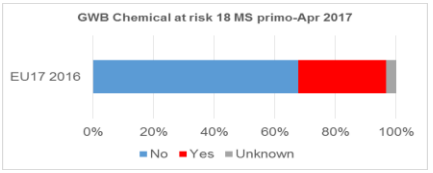
Groundwater Directive
Sets groundwater quality standards and introduces measures to prevent or limit inputs of pollutants into groundwater.
Establishes quality criteria that takes account local characteristics and allows for further improvements.
Measures to prevent or limit inputs of pollutants
Upward pollution trends to be reversed

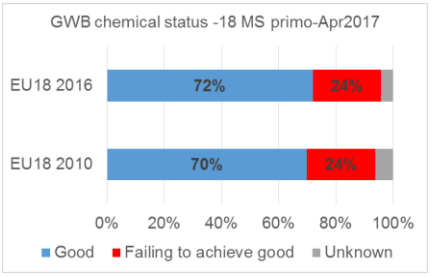


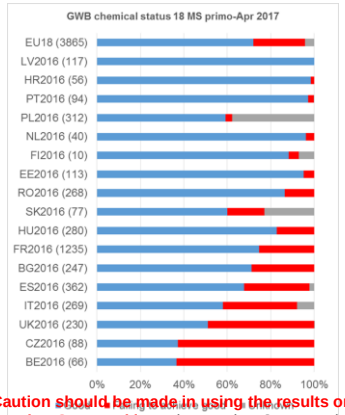
DPSIR chain

European Environment Agency

4.2 Chemical status at risk and chemical status







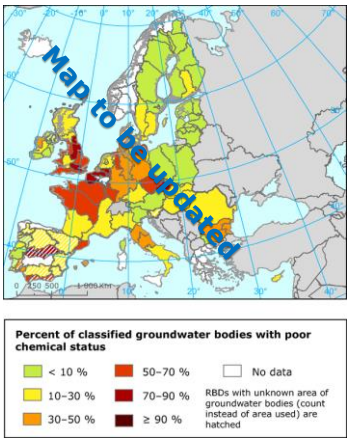
Caution should be made in using the results on Member State ranking. The Member State results depends on the approach taken to monitoring, modelling etc.

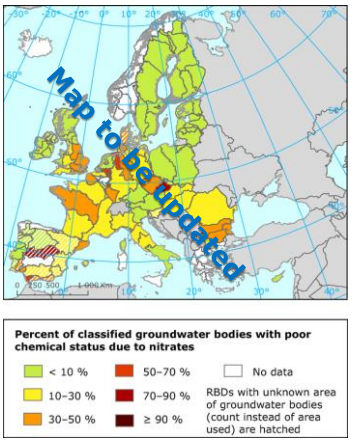
Based on the data for 18 MS, 72 % of the groundwater bodies (by area) are in good chemical status and 24 % fail to reach good chemical status.
The change in status between the 1st and 2nd River Basin Management Plan is limited.

Preliminary results – 18 MS – April 2017

European Environment Agency

Groundwater chemical status and groundwater failing good chemical status due to nitrate (2012 results)

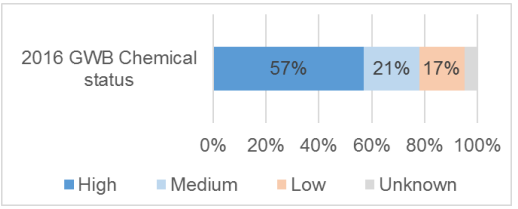




Source:https://www.eea.europa.eu/data-and-maps/figures/chemical-status-of-groundwater-bodies-1

European Environment Agency

Confidence in chemical status assessment



According to the reporting guidance Member States should for each water body report the chemical assessment confidence.

The confidence level is divided into four classes with the following general guidance

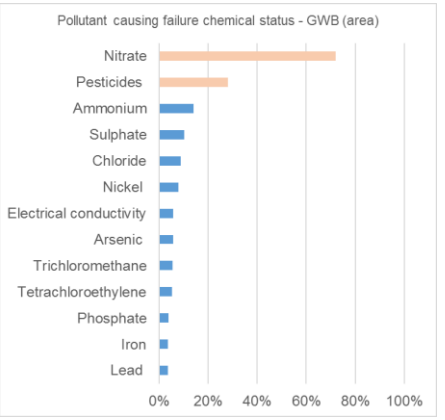
- Unknown chemical status
- Low = no monitoring data, or no conceptual model or understanding of the system;
- Medium = limited or insufficiently robust monitoring data and expert judgment plays a significant role in assessment of status;
- High = good monitoring data, and a good conceptual model or understanding of the system based on information on its natural characteristics and its pressures.

European Environment Agency

4.3 Pollutants causing failure in achieving good status – preliminary results

Top 13 pollutants causing failure

- In total, 154 chemicals were reported as causing poor chemical status.
- The main pollutant causing failure to achieve good chemical status is nitrate.
- There is also a large number of pesticides causing failure.
- The numbers of chemicals monitored and causing failure varies a lot among Member States



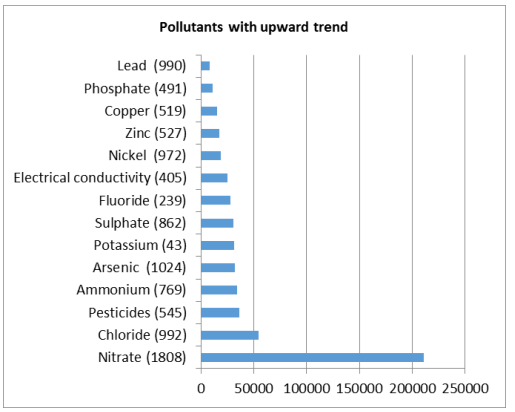
% of GWBs in less than good status

64 Preliminary data, May 2017, 20MS

European Environment Agency

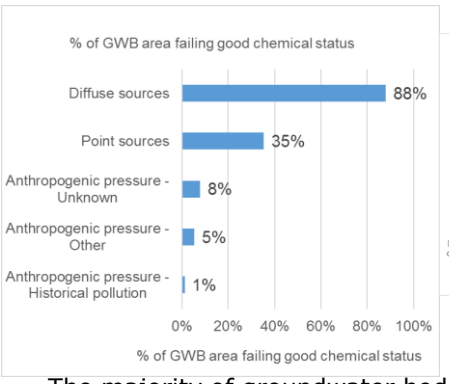
Pollutants with upward trends

- A significant and sustained upward trends were identified mainly for nitrate, which were detected in 13 Member States.
- Other substances with upward trends are similar to the top pollutants.
- Groundwater bodies with an upward trend for chloride was reported in nine Member States, sulphates and ammonium in seven countries.
- Generally, the number of groundwater bodies and countries reporting upward trends is very low, only 23% of assessed groundwater bodies for nitrate.

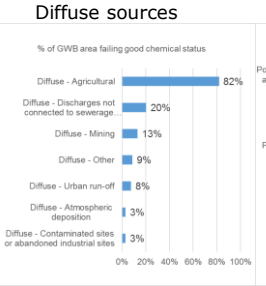


European Environment Agency

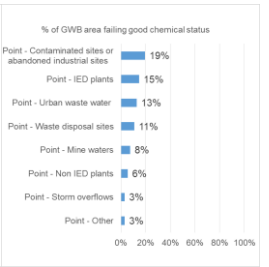
4.4 Pressures causing not achieving good chemical status



Diffuse sources



Point sources



The majority of groundwater bodies failing good chemical status are due to pressure from diffuse and point sources.
Diffuse sources for agriculture is the main pressures identified as causing failure.
In addition, many groundwater bodies fail good chemical status due to contaminated sites (industrial, waste disposal and mining).

[66] Preliminary data, May 2017, 18MS

European Environment Agency

5. Groundwater quantitative status and pressures

5.1 Introduction

5.2 Quantitative status at risk and quantitative status

5.3 Reason for failure and pressures causing not achieving good quantitative status

5.4 Change in status between 1st and 2nd RBMP period

5.5 Water Exploitation Index and water abstraction by sectors

Expected content of the chapter

The chapter will update the European overview of groundwater quantitative status.

An overview of the reason for failing good quantitative status will be provided.

Results on the pressures causing failure to achieve good quantitative status will be presented.

Results on quantitative status from the 1st to 2nd RBMP period will be compared.

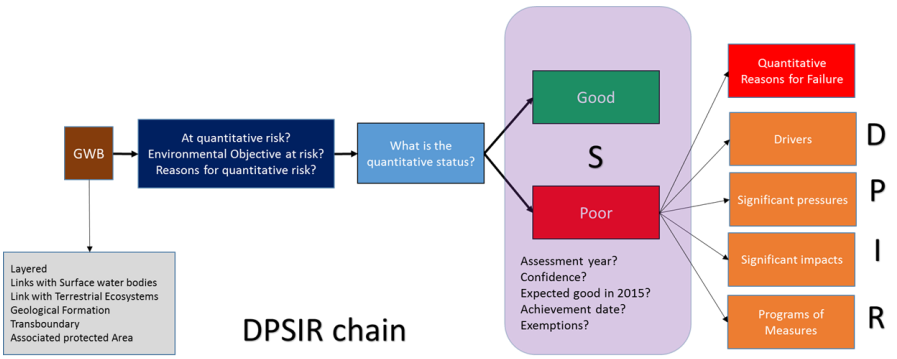
Results from EEAs indicator on water resources (CSI019) will be included.

European Environment Agency

5.1 Introduction

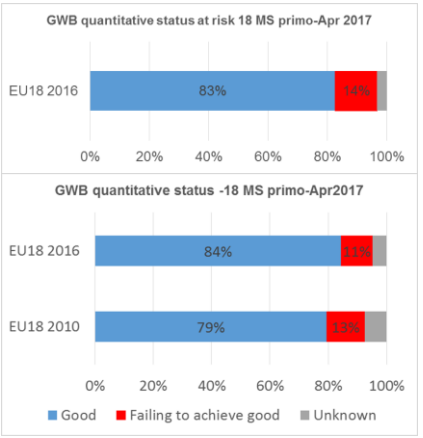
To ensure a stable quantity of groundwater, the WFD requires the long-term sustainable use of groundwater. Thus, extraction of water from a groundwater body must not exceed the rate at which freshwater replenishes it.

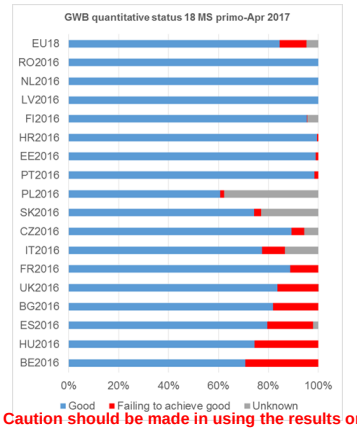
The definition of good groundwater quantitative status according to the WFD requires that the level of groundwater in a groundwater body (GWB) is such that the available groundwater resource is not exceeded by the long-term annual average (LTAA) rate of abstraction. Thus, adequate groundwater levels are an inherent and important element of the good status assessment, which cannot be reached if groundwater-dependent ecosystems do not have enough water available.



European Environment Agency

5.2 Quantitative status at risk and quantitative status





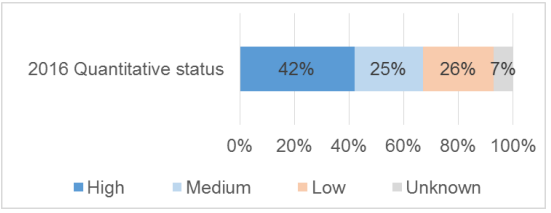
Caution should be made in using the results on Member State ranking. The Member State results depends on the approach taken to monitoring, modelling etc.

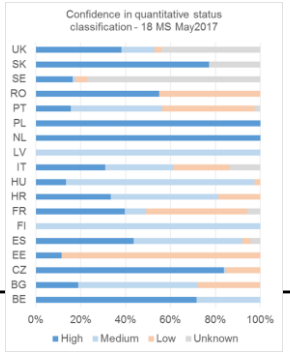
In 2nd RBMPs , 84 % of the groundwater bodies in the EU are in good quantitative status.
The quantitative status improved by five percentage points from 1st to 2nd RBMP period.

Preliminary results – 18 MS – May 2017

European Environment Agency

Confidence in quantitative status assessment





According to the reporting guidance Member States should for each water body report the chemical assessment confidence.

The confidence level is divided into four classes with the following general guidance

- Unknown chemical status
- Low = no monitoring data, or no conceptual model or understanding of the system;
- Medium = limited or insufficiently robust monitoring data and expert judgment plays a significant role in assessment of status;
- High = good monitoring data, and a good conceptual model or understanding of the system based on information on its natural characteristics and its pressures.

Preliminary results – 18 MS – May 2017

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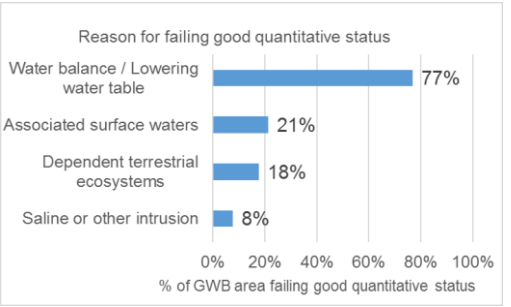
5.3 Reason for failing not achieving good quantitative status

'Water balance' = Exceedance of available groundwater resource by long-term annual average rate of abstraction that may result in a decrease of groundwater levels.

'Surface water' = Failure to achieve Environmental Objectives for associated surface water bodies resulting from anthropogenic water level alteration or change in flow conditions; significant diminution of the status of surface waters resulting from anthropogenic water level alteration or change in flow conditions.

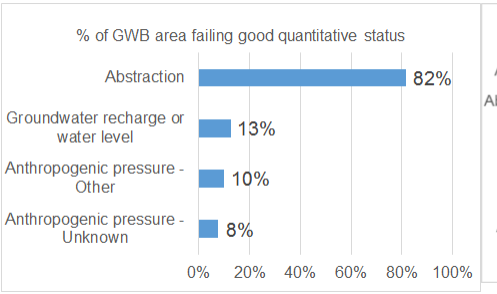
'Groundwater dependent terrestrial ecosystems' = Significant damage to groundwater dependent terrestrial ecosystems resulting from an anthropogenic water level alteration.

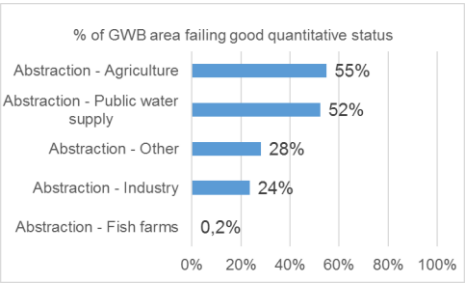
'Saline or other intrusion' = Regional saline or other intrusions resulting from anthropogenically induced sustained changes in flow direction.



The main reason for failing to achieve good quantitative status are "*exceedance of available groundwater resource by long-term annual average rate of abstraction that may result in a decrease of groundwater levels*".

Pressures causing not achieving good quantitative status

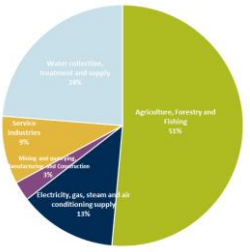




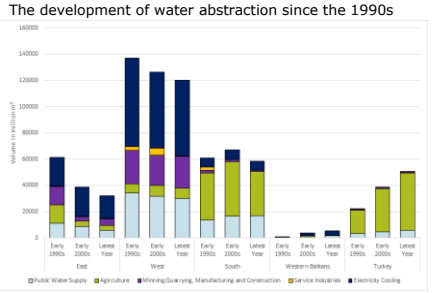
The majority of groundwater bodies failing good quantitative status are due to pressure from abstraction.
Abstraction for agriculture and for public water supply are the two main pressures identified as causing failure.

5.5 Water Exploitation Index and water abstraction by sectors

Water abstraction by economic sector



The development of water abstraction since the 1990s



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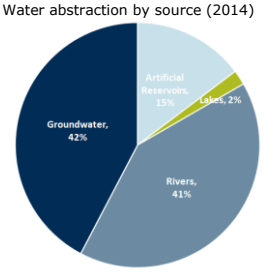
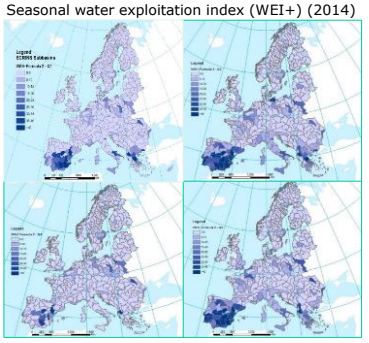
Water Exploitation Index

Water abstraction by source (2014)



Seasonal water exploitation index (WEI+) (2014)



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6. Overall status, integrated assessment and outlook

This chapter is less developed as the results are not available yet

6.1 Overall status (ecological, chemical and quantitative)

6.2 Pressures causing not achieving good status and impacts.

6.3 Measures implemented during 1st RBMP period.

6.4 Integrated assessment of status, pressures and sectors.

6.5 Outlook – what will the status be in 2021, 2027 and beyond.

Expected content of the chapter

The chapter will an overview of status (ecological, chemical and quantitative) including an assessment of change of the underlying causes of limited change from 1st to 2nd RBMP period.

An overview of the pressures causing failure to achieve good status will be provided. This overview will also focus on the main sectors and activities causing failure.

We aim to provide an overview of the measures implemented during the 1st RBMP period (the good messages).

We aim to include an integrated assessment of other water policies and sector activities. This may also cover relevant emerging issues.

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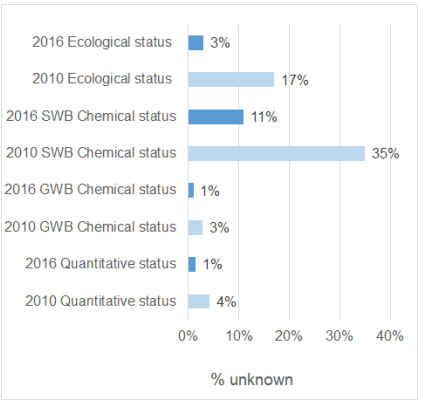
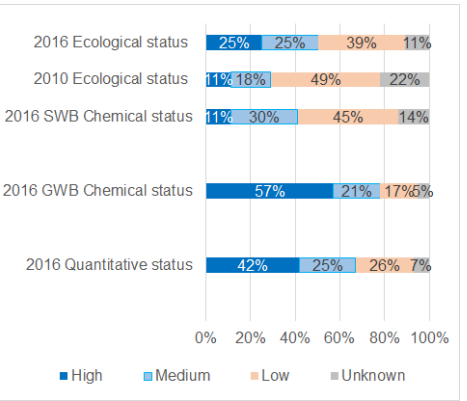
6.1 Overall status

Less unknowns, higher confidence in status assessments, more monitoring and stricter standards

% unknowns



confidence in status assessments



The proportion of water bodies with unknown status decreased from 1st to 2nd RBMP period. The confidence in the status assessments have also improved.

Preliminary results – 20 MS – May 2017

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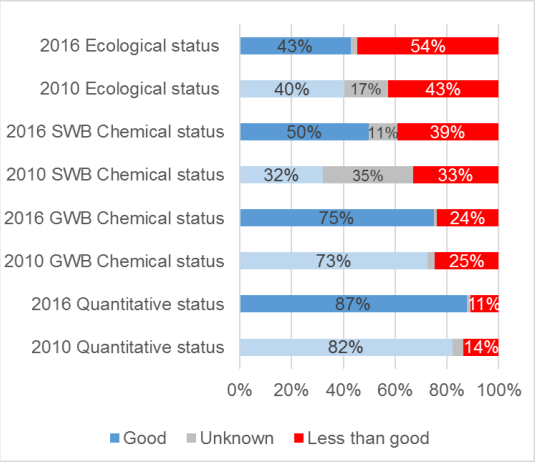
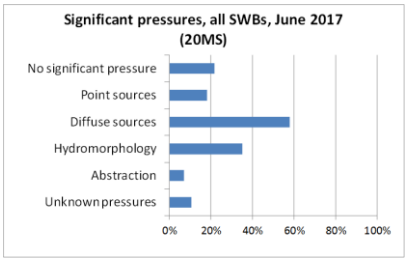
Overall status (ecological, chemical and quantitative)

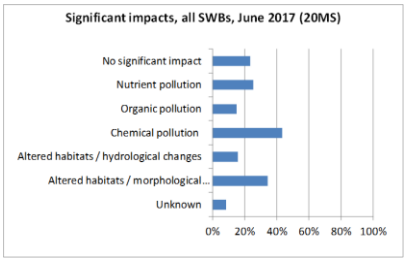


In the 2nd RBMPs only 43% of surface water bodies were in high or good ecological status or potential compared to 40 % in the 1st RBMPs. There was also a marked increase in the proportion of water bodies of water bodies in less than good ecological status.
In the 1st RBMPs less than one third of the surface water bodies were in good chemical status, in the 2nd RBMPs half of the surface water bodies had good chemical status but also 39 % failed to achieve good status.
There was a slight improvement in groundwater chemical status and quantitative status from 1st to 2nd RBMP period.

6.2 Pressures causing not achieving good status and impacts.

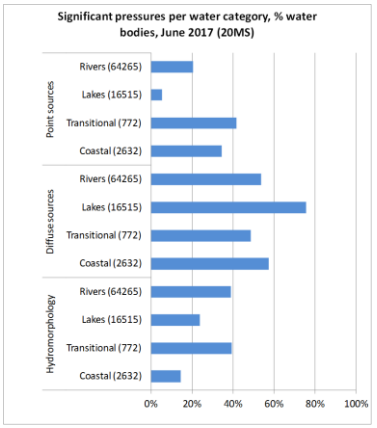
Overview of significant pressures and impacts affecting surface water bodies

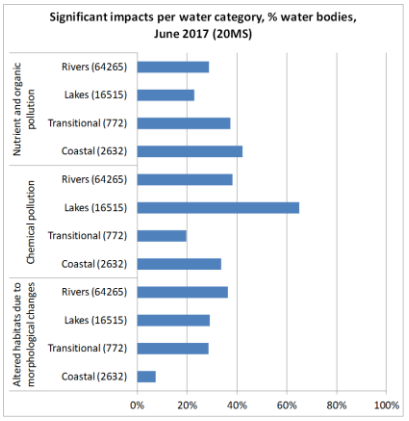




Diffuse pollution (58% of SWBs) and hydromorphological pressures (35% of SWBs) are the main significant pressures on surface water bodies, followed by point sources (18% of SWBs) and abstraction (7% of SWBs).
The main significant impacts on SWBs are chemical pollution (43% of SWBs), followed by altered habitats due to morphological changes (34% of SWBs) and nutrient pollution (25% of SWBs).

Overview of main significant pressures and impacts affecting the surface water body categories – Similar results is available for groundwater





The majority of lakes (ca. 80% of lakes) are affected by diffuse pollution, but this is also the main pressure in rivers, transitional and coastal water bodies which are affected to a similar extent (ca. 50-60% of water bodies in each category).
Hydromorphological pressures are more significant in rivers and transitional water bodies (affecting ca. 40% each). Point pollution pressures are present to a larger extent in transitional and coastal waters (affecting ca. 40 and 30% respectively).
•Chemical pollution affects the majority of lakes (ca. 60% of lakes) and is the main impact in rivers (ca. 40%), while nutrient and organic pollution are the main impacts in transitional and coastal waters (ca. 40%). Altered habitats due to hydromorphological changes affect a similar proportion of rivers, lakes and transitional waters (ca. 30%)

Preliminary results – 20 MS – June 2017

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6.3 Measures implemented during 1st RBMP period.

This section is less developed and results are not available yet

Examples of measures implemented during 1st RBMP period (2010-2015) (Key Types of Measures (KTMs))

Pollution measures

KTM1 – Construction or upgrades of wastewater treatment plants.

KTM16 – Upgrades or improvements of industrial wastewater treatment plants (including farms).

KTM2 – Reduce nutrient pollution from agriculture.

KTM21 – Measures to prevent or control the input of pollution from urban areas, transport and built infrastructure

KTM22 – Measures to prevent or control the input of pollution from forestry.

KTM25 – Measures to counteract acidification.

Water abstraction

KTM8 – Water efficiency, technical measures for irrigation, industry, energy and households

KTM9 – Water pricing policy measures for the implementation of the recovery of cost of water services from households

Chemical measures

KTM15 – Measures for the phasing-out of emissions, discharges and losses of Priority Hazardous Substances or for the reduction of emissions, discharges and losses of Priority Substances.

KTM3 – Reduce pesticides pollution from agriculture.

KTM4 – Remediation of contaminated sites (historical pollution including sediments, groundwater, soil).

Hydromorphological measures

KTM5 – Improving longitudinal continuity (e.g. establishing fish passes, demolishing old dams)

KTM6 – Improving hydromorphological conditions of water bodies other than longitudinal continuity

KTM7 – Improvements in flow regime and/or establishment of ecological flows

Other measures

KTM18 – Measures to prevent or control the adverse impacts of invasive alien species and introduced diseases

KTM24 – Adaptation to climate change

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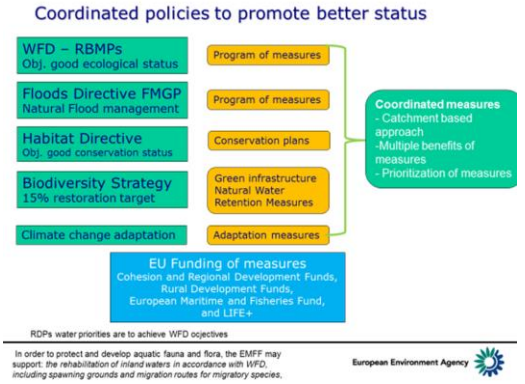
6.4 Integrated assessment of status, pressures and sectors.

This section is less developed as the results are not available yet

The section will consider other water policies and sector activities and relevant emerging issues.



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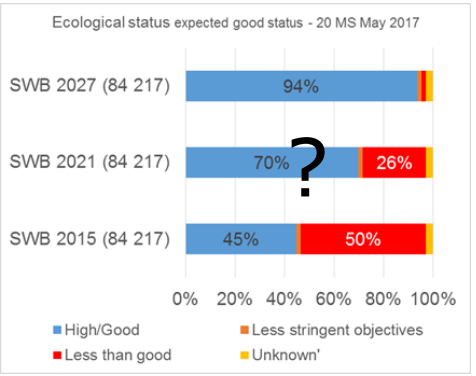
6.5 Outlook – what will the status be in 2021, 2027 and beyond.

2021 & 2027 status based on Member States expected to be good

This section is less developed as the results are not available yet



Member States have for water bodies failing to achieve good status (in 2015) indicated in the reporting the expected time (2021, 2027 or beyond 2027) to achieve good status:
The results of the achievement year of good **ecological** status is summarized in the diagram.

The results are probably optimistic and it is uncertain if they will be included.
Should EEA include graphs like this?

Preliminary results – 20 MS – May 2017

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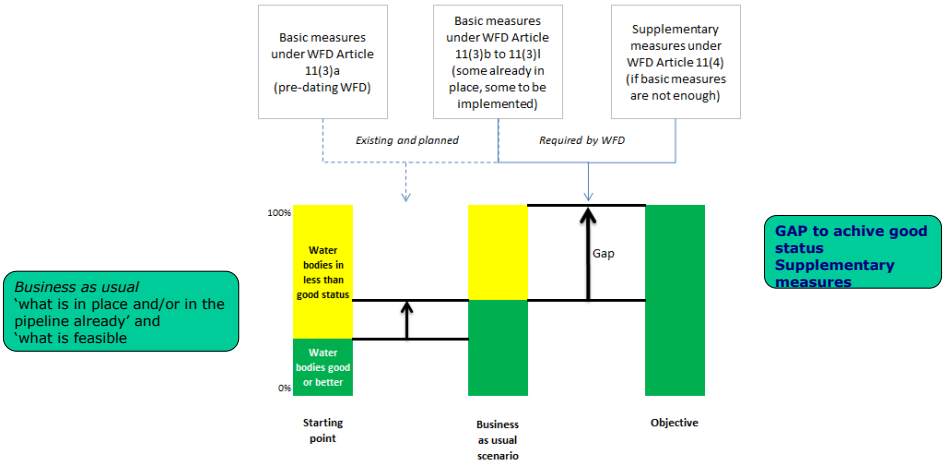
Can we achieve good status with the current measures?



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EEA State of water report 2018, next steps

- June-September EEA to develop an advanced draft of the report
- **October 2017: consultation of draft report: Eionet & CIS (WG-DIS and other WGs)**
- November-December 2017: last update of diagrams and textual content based on consultation.
- Winter/spring 2018: Final production of report and publication.

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EEA's 2018 State of Water Assessment (report/portal)

- The first EEA report was published in 2012, the second is planned for March 2018.

- Overview of status (quantitative, chemical and ecological), pressures and impacts
- Change in status and pressures from 1st to 2nd RBMPs
- Relationship between pressure and status (what is causing less than good status) –pressures-driving force relationship.
- Effect of measures (implemented during the 1st RBMP period from 2010-2015).
- Other information on status of European water including results from non-WFD countries

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Thank you

Your comments and inputs are highly appreciated.