Water quality reporting to EEA

6. October 2020 – WISE6 Webinar

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European Environment Agency

Technical instructions

- Thank you for participating in the Webinar.
- The Webinar will be recorded and made available after the Webinar.
- Presentations are available for download. They will also be uploaded to Eionet Forum after the Webinar.
- Use the chat for making comments or asking questions.
- Avoid detailed questions on your data, you should use the WISE SoE Helpdesk when you start reporting.

Agenda

1) Who are we? Introductions and technical instructions (10 mins)
2) What are we doing with the data? Waterbase; water quality indicators, monitoring sites, etc. (20 mins)
3) Issues related to last years reporting including quality issues and gaps in reporting (20 mins)
4) Break (virtual coffee) (15 mins)
5) What are we doing with the data? Pesticide example (10 min.)
6) How to report in 2020 data call? Process, change from WISE4 to WISE6. Spatial data (20 mins)
7) Questions (20mins)

Objectives of meeting:

- To present EEAs uses of water quality data;
- Improve the reporting with better spatial and temperal coverage;
- Solve problems with folders/files uploaded to CDR but blocked or correction requested;
- Help countries that have stopped reporting to start reporting again.

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Waterbase Water quality – overview

Data collection

1) WISE-SoE data call
2) Communication with NRCs
3) Update Waterbase

Waterbase water quality

Data and information dissemination

Access to Waterbase water quality data

1) Publish Waterbase water quality
2) Access via Common WorkSpace (CWS)
3) *Dashboards with overview of data*
4) *Subset of data*

EEA water quality indicators

1) Preparation of data for indicators (draft dashboards)
2) Graphs in Daviz – Indicator in IMS
3) *EEA indicator model*
4) *Automatic generation of charts*
5) *Water quality assessment report*

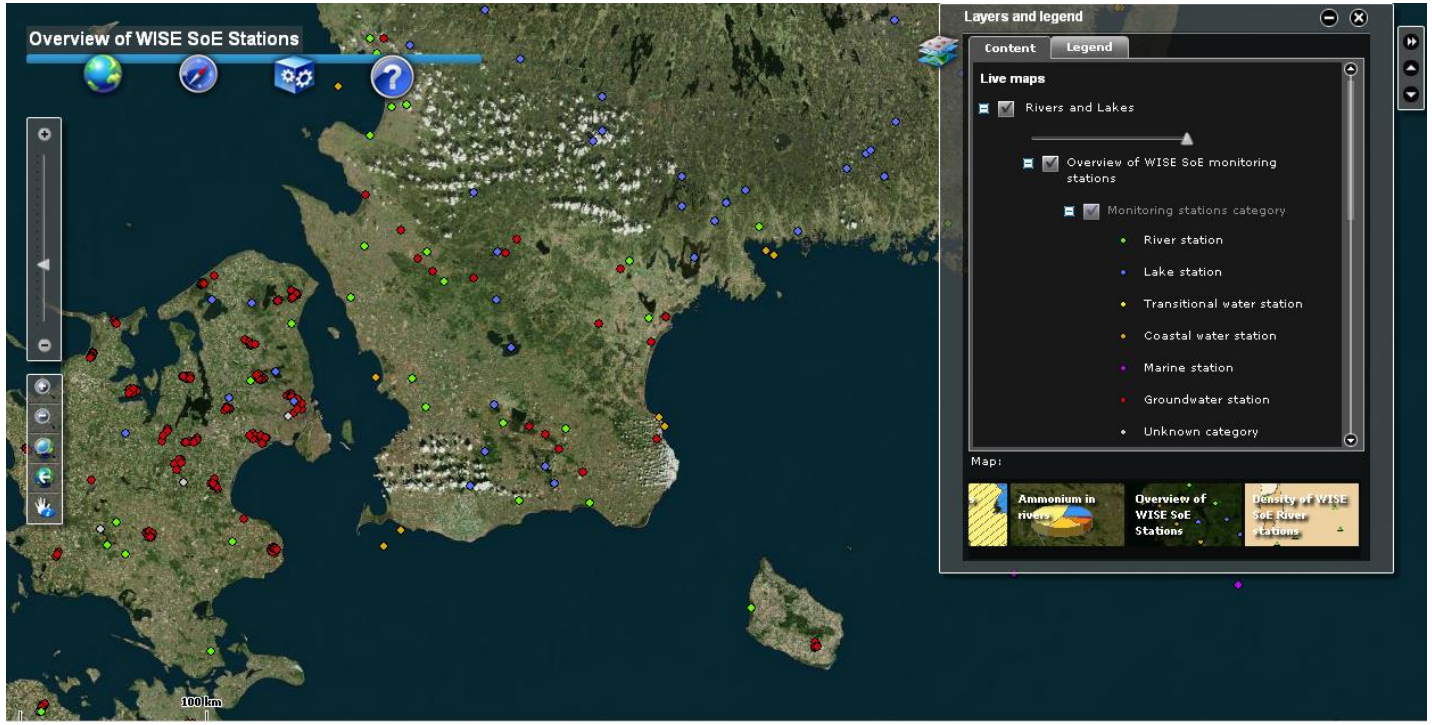
Reuse of EEA water quality indicators results

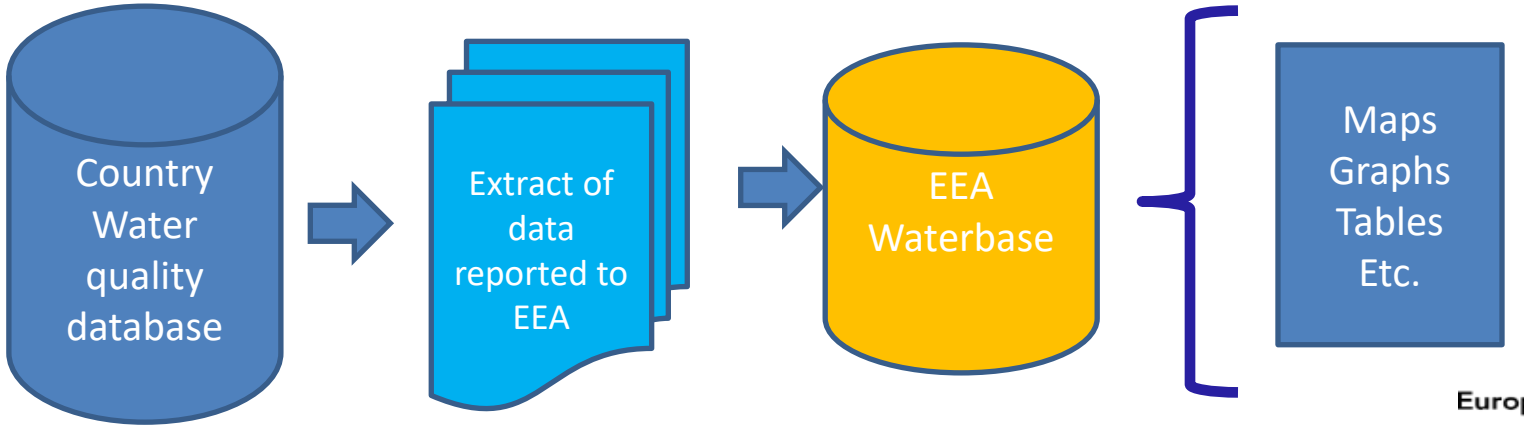
1) EU SDG indicators (water quality)
2) DG AGRI (CAP implementation indicators) and ESTAT agri-environmental indicators
3) SEBI16 water quality – EEA water quality
4) *Water quality indicators contribution to policy processes*

2. What are we doing with the data? Waterbase; water quality indicators, monitoring sites, etc.

It is the European Environment Agency's (EEA) task to provide objective, reliable and comparable information on the environment in order to allow the European Commission, Member Countries and the general public to judge the effectiveness of environmental policy and the needs for policy development. This comprises 'state of the environment' assessments using indicators to assess current status, pressures and impacts as well as trends in the mid and long-term.

Water quality based on national information





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Waterbase and dashboards, maps etc.

Waterbase water quality

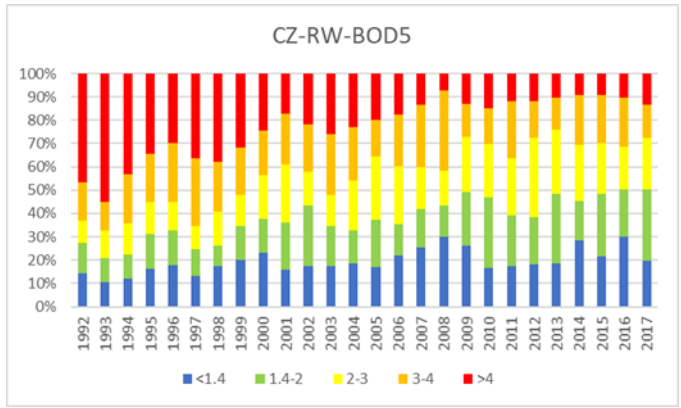
Waterbase - Water Quality ICM

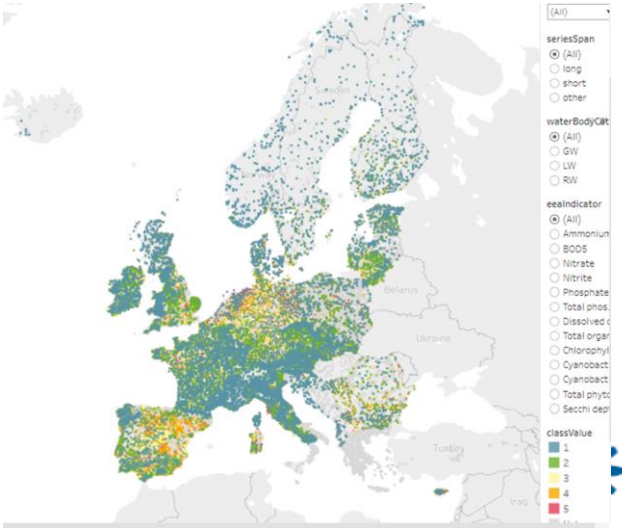
EEA dashboards & indicator

Overview of water quality information - Parameters, monitoring sites, years

SDG_GROUP	Label	2010	2011	2012	2013	2014	2015	2016	2017
1-Oxygen	BOD5	126	127	127	128	130	130	127	127
	CODCr	124	125	125	129	130	130	127	127
	CODMn	55	56	57	61	61	62	60	60
	Dissolved oxygen	124	125	125	129	130	130	127	127
2-Salinity	Electrical conductivity	125	126	126	129	130	130	127	127
	Total dissolved solids	123	123	123	128	130	130	127	126
3-Nitrogen	Ammonium	126	127	127	129	130	130	127	127
	Nitrate	126	127	127	129	130	130	127	127
	Nitrite	124	125	125	129	130	130	127	127
4-Phosphorus	Phosphate	51	53	53	56	69	70	68	69
	Total phosphorus	126	127	127	129	130	130	127	127
5-Acidification	pH	125	126	126	129	130	130	127	127

Water quality indicators and maps





Waterbase - Water Quality ICM

- Waterbase – Water quality (Inland, Coastal and Marine waters) published **June 2020** - https://www.eea.europa.eu/data-and-maps/data/waterbase-water-quality-icm
  - Four tables: DisaggregatedData (39 mio. records); AggregatedData (3.5 mio. records), AggregatedDataByWaterBody (20 000 records), SpatialObject_DerivedData (62000 records)
  - 33 000 groundwater monitoring sites in 38 countries
  - 20 800 river monitoring sites in 39 countries,
  - 5 250 lake monitoring sites in 37 countries, and
  - 280 transitional and 270 coastal monitoring sites in 20 countries (most from Italy)
- more than 600 water quality determinants

Monitoring sites by category and country

Category	Monitoring sites	Countries	CountryCodes (monotoring sites)
Groundwater GW	**32981**	**38**	AL (43),AT (2212),BA (49),BE (454),BG (356),CH (50),CY (483),CZ (762),DE (1656),DK (2087), EE (996),EL (1854),ES (2378),FI (113),FR (2901),HR (93),IE (483),IS (8),IT (6496),LI (8),LT (247), LU (7),LV (296),ME (8),MK (80),MT (9),NL (199),NO (88),PL (1302),PT (440),RO (569),RS (159),SE (209),SI (55),SK (774),TR (118),UK (4899),XK (40) – *nine countries more than 1000 sites*
Lakes LW	**5249**	**37**	AL (18),AT (342),BA (43),BE (5),BG (15),CH (26),CY (4),CZ (13),DE (93),DK (45),EE (95),EL (56),ES (177),FI (390),FR (206),HR (6),HU (43),IE (786),IS (41),IT (523),LT (323),LV (85),ME (11),MK (22),MT (3),NL (127),NO (296),PL (663),PT (2),RO (7),RS (116),SE (198),SI (25),SK (9),TR (14),UK (416),XK (5) - *13 countries more than 100 sites*
Rivers RW	**20831**	**39**	AL (105),AT (407),BA (66),BE (208),BG (168),CH (112),CY (76),CZ (1149),DE (287),DK (82),EE (313),EL (591),ES (3163),FI (233),FR (1929),HR (85),HU (196),IE (400),IS (6),IT (3827),LI (18),LT (505),LU (5),LV (177),ME (50),MK (22),MT (5),NL (117),NO (336),PL (2351),PT (167),RO (188),RS (89),SE (282),SI (29),SK (150),TR (16),UK (2870),XK (51) - *14 countries more than 200 sites*
CW Coastal	**271**	**10**	ES (2),IS (1),IT (192),LT (5),LV (1),MT (5),NO (1),SE (60),SI (2),UK (2)
TW Transitional	**281**	**15**	BE (3),BG (13),DE (5),ES (21),FR (12),HR (2),IE (2),IT (161),LT (15),LV (1),MT (1),NL (5),PT (22),RO (2),UK (16)
TeW Territorial waters	**18**	**2**	EE (11),LT (7)

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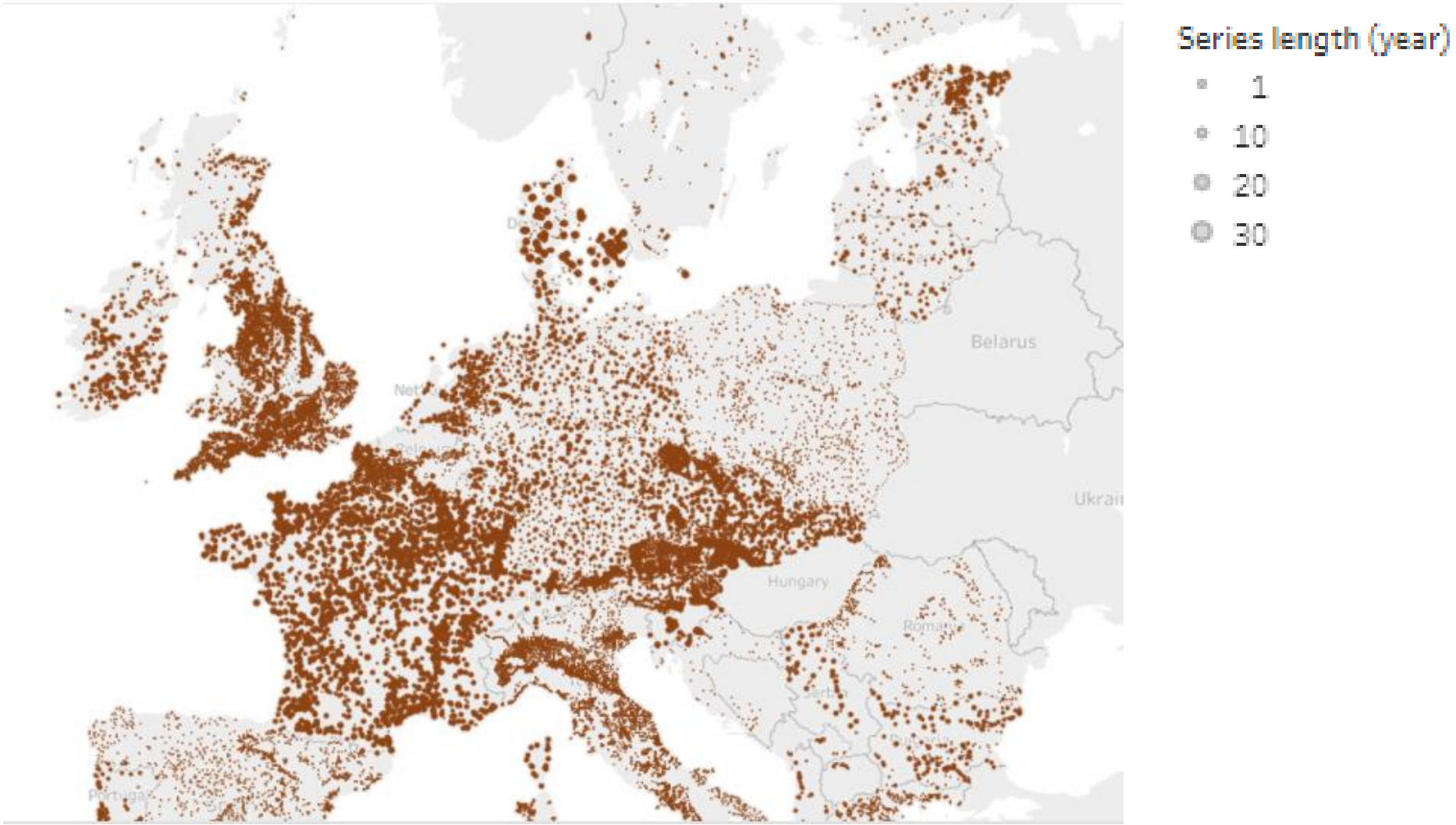
Overview of monitoring sites – Nitrate in groundwater

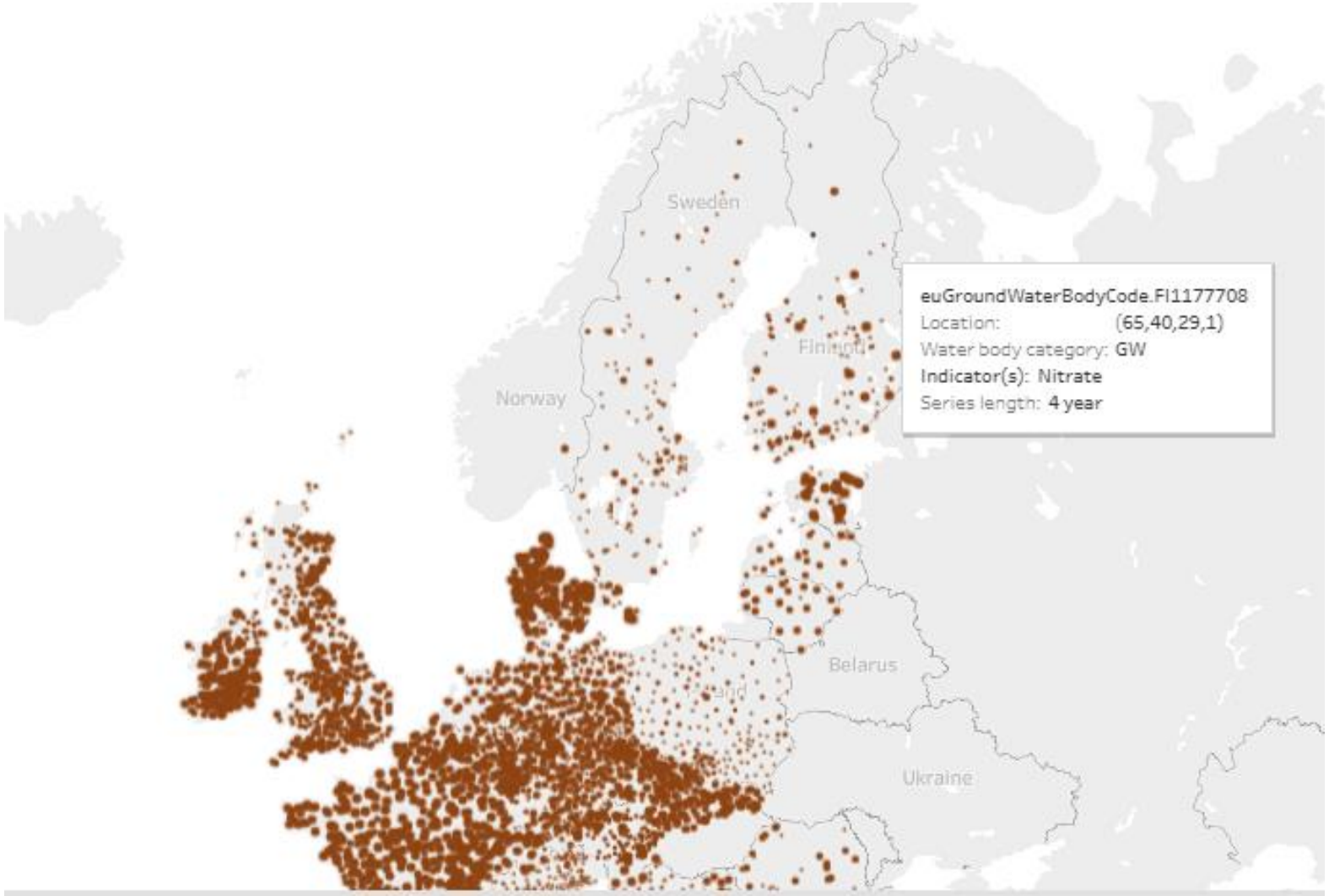
33 000 groundwater monitoring sites in 38 countries



[Series Length by Site - Map - Nitrate in GW]

European Environment Agency

Overview of water bodies – Nitrate in groundwater



Series length (year)

- 1
- 10
- 20
- 30

[Series Length by Water Body - Map - Nitrate in GW]

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Overview of monitoring sites – Nitrate in rivers

20 800 river monitoring sites in 39 countries

Series length (year)

- 1
- 10
- 20
- 30

Series Length by Site - Map -

European Environment Agency

Overview of monitoring sites – Total phosphorus in lakes

5 250 lake monitoring sites in 37 countries

Series Length by Site - Map -

European Environment Agency

Access to Waterbase water quality data

- Waterbase – Water quality (Inland, Coastal and Marine waters) published June 2020 - https://www.eea.europa.eu/data-and-maps/data/waterbase-water-quality-icm
- Dashboards with overview of data
- Extraction of a subset of data
  - All groundwater data from X-country
  - All observation of glyphosate and AMPA
- Water quality indicators and maps

Overview of water quality information
- Parameters, monitoring sites, years

SDG_GROUP	Label	2010	2011	2012	2013	2014	2015	2016	2017
1-Oxygen	BOD5	126	127	127	128	130	130	127	127
	CODCr	124	125	125	129	130	130	127	127
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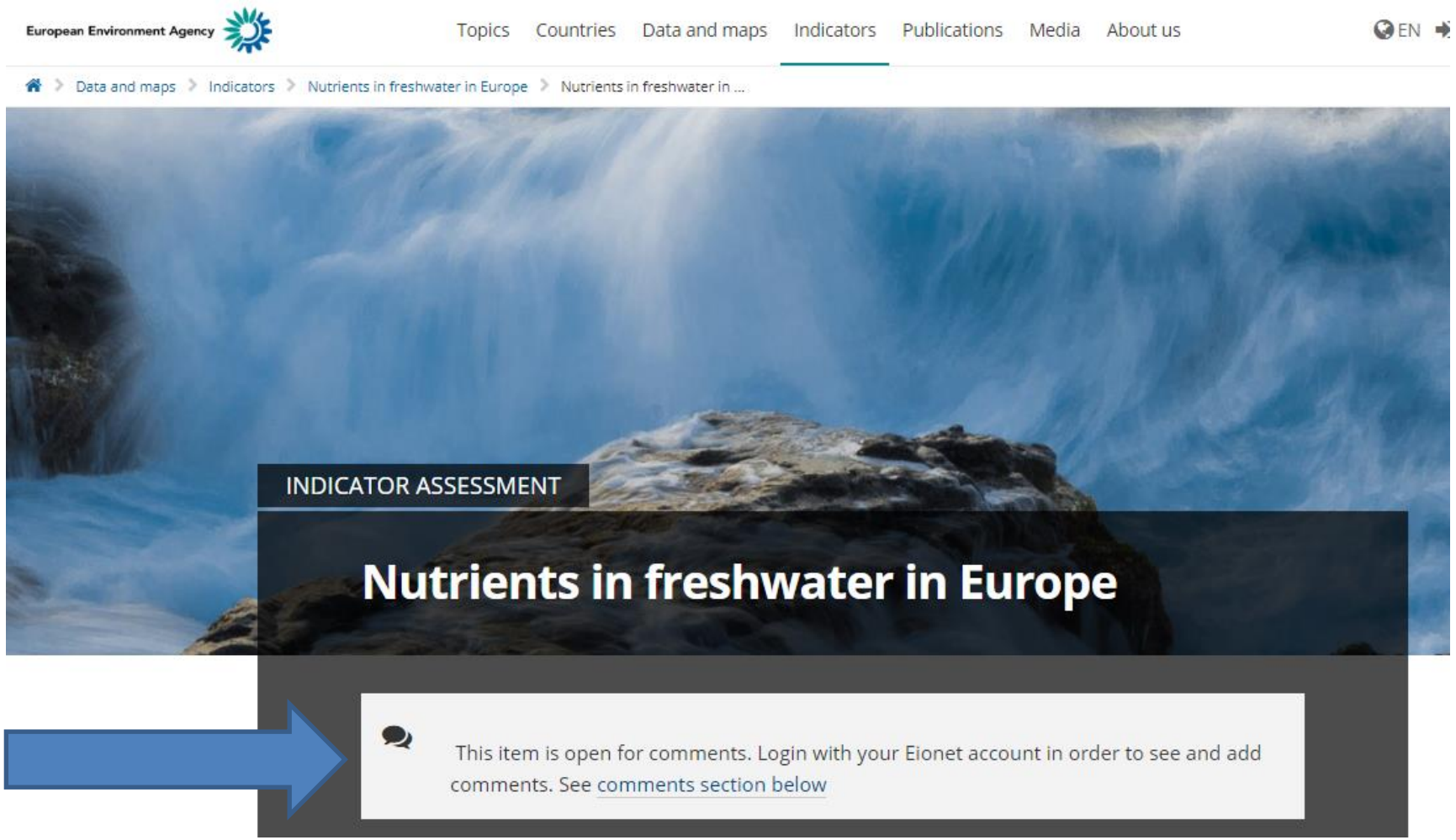
EEA water quality indicators



Eionet consultation **until 26 October**

Links: Nutrients in freshwater in Europe - Oxygen consuming substances in European rivers

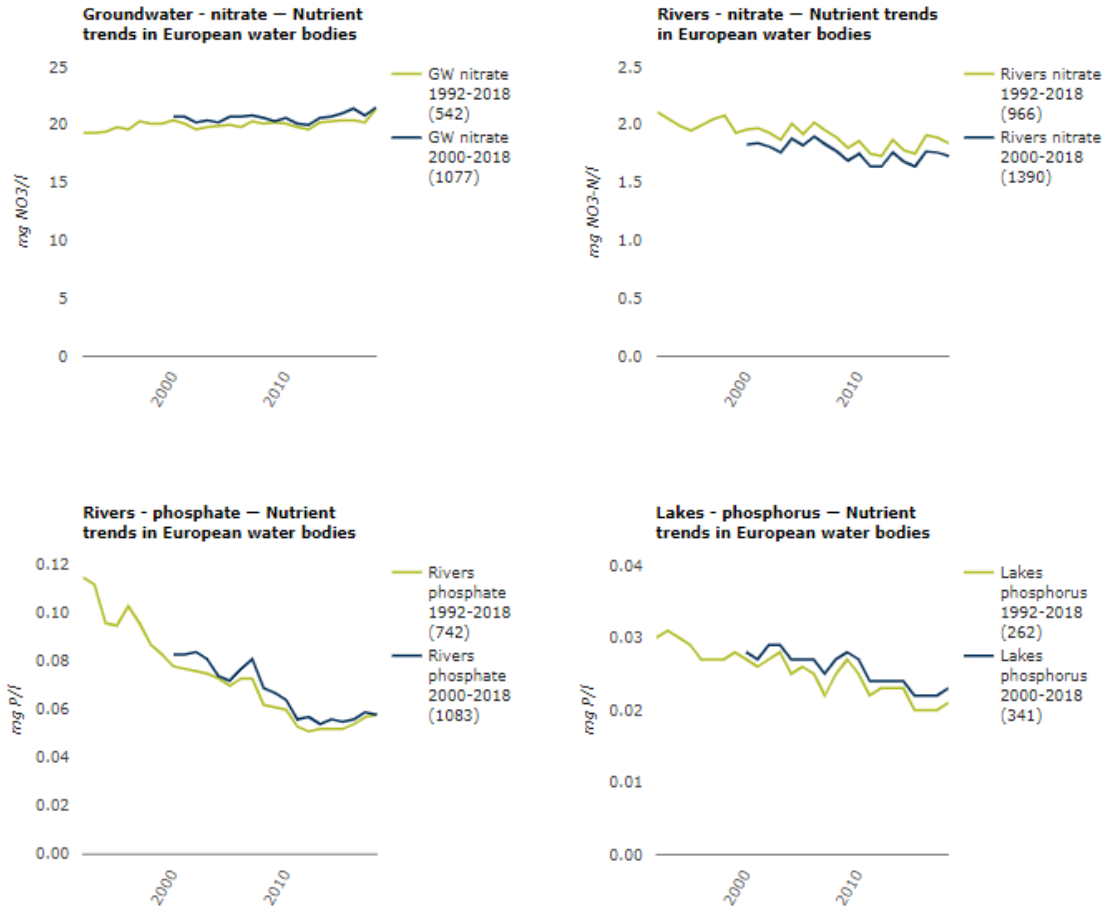
EEA water quality indicators

- Annual update of water quality indicators (in 2020 updated with 2018 data)
  - Assessment part with charts and a methodology section
- Nutrients in freshwater in Europe (nitrate in groundwater and rivers; phosphate in rivers; total phosphorus in lakes)
- Oxygen consuming substances in European rivers (BOD and ammonium in rivers)
  - main diagram illustrating overall European trend
  - Charts illustrating trend for specific pollutants (and by country)
  - Embedded in text: links to pollutants per country (2016-2018) and table with statistical results on trend.
- Indicator results reused:

i. biochemical oxygen demand (BOD) in rivers; nitrate in groundwater and phosphate in rivers for the EU Sustainable development indicators (SDGs) (time series) for Eurostat;
ii. nitrate in groundwater and rivers (indicator C40) for DG AGRI (CAP implementation indicators);
iii. nitrate in groundwater and rivers for Eurostat's agri-environmental indicators;
iv. information for the SEBI water quality indicator (combining results from the two water quality indicators)
v. water quality information to UNEP GEMS water and reuse of information for UNEP SDG

Water quality indicator – main diagram – charts per pollutant

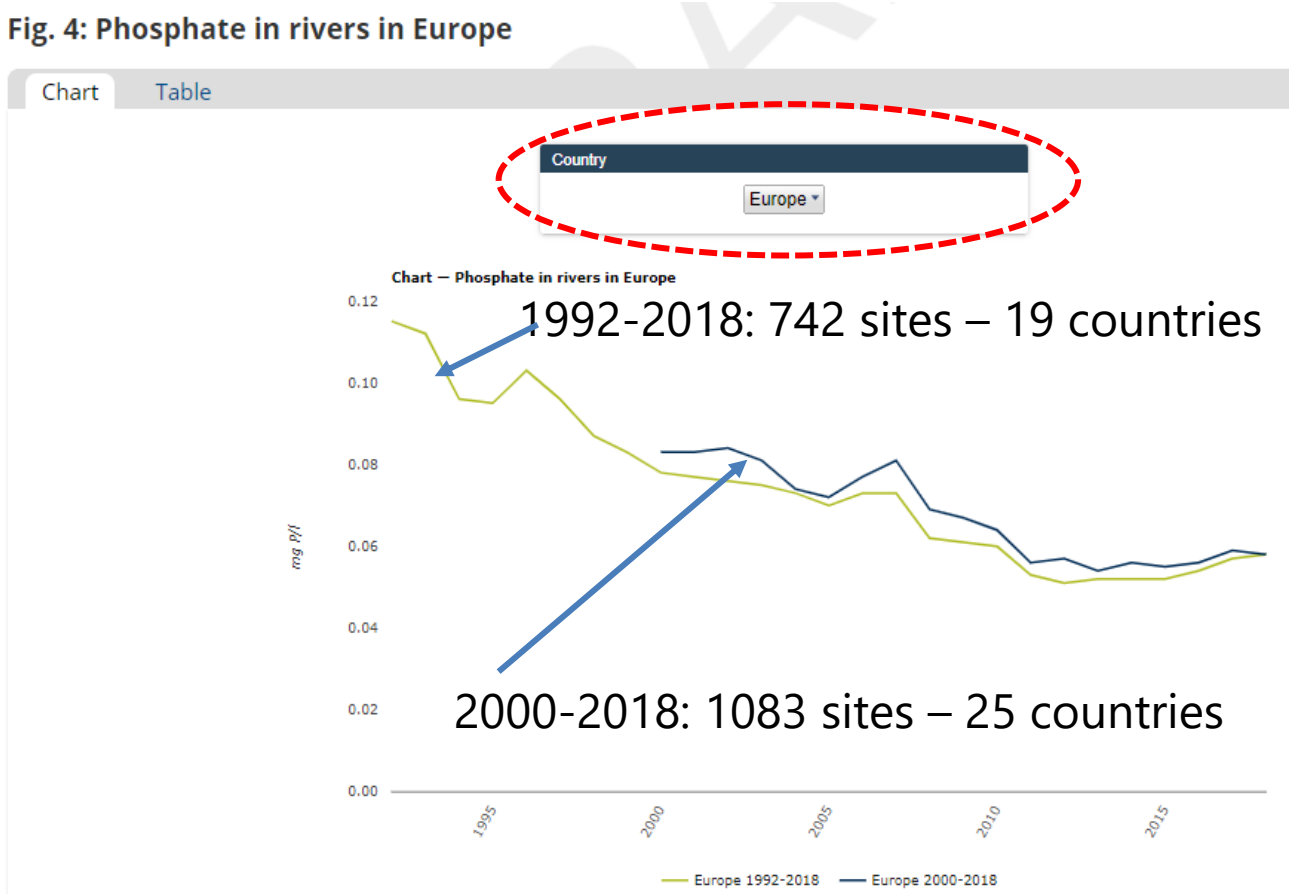
Nutrients in freshwater in Europe



Nutrient trends in European water bodies 1992-2018

Phosphate in European rivers

Europe



Phosphate in rivers

Eionet consultation running until 26 October 2020

Also Oxygen consuming substances in European rivers

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Statistical results on trend (link to table embedded into indicator text)

Country

Europe

Country	Period	Monitoring sites	Very negative	Marginally negative	No change	Marginally positive	Very positive	Sen
Europe	1992-2018	742	366	52	267	9	48	
Europe	2000-2018	1,083	342	82	577	23	59	

Phosphate in rivers – statistical results

Statistical results on trend

Country

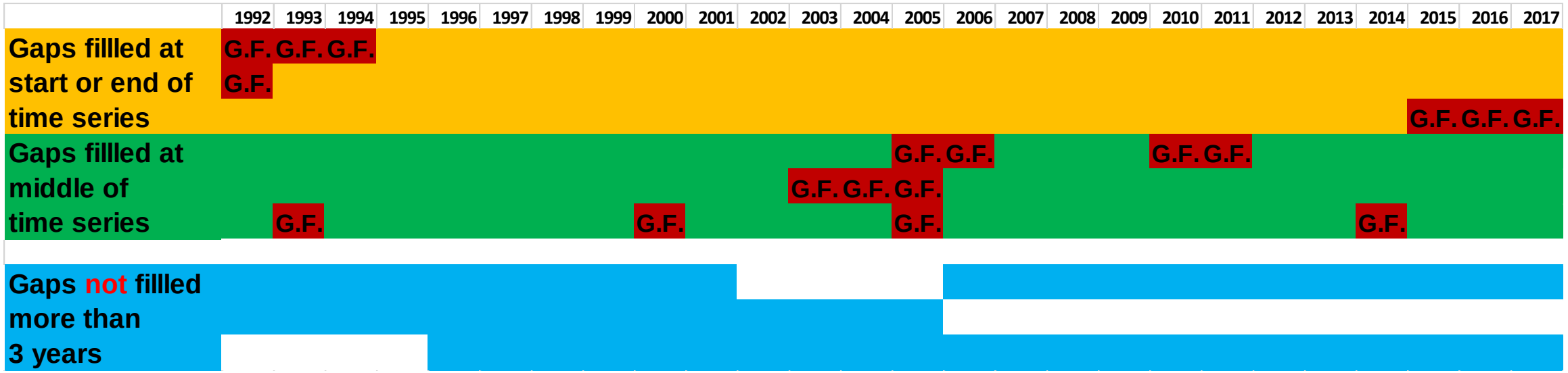
Denmark

Country	Period	Monitoring sites	Very negative	Marginally negative	No change	Marginally positive	Very positive	Sen
Denmark	1992-2018	39	20	2	13	0	4	
Denmark	2000-2018	40	15	2	18	1	4	

[Phosphate in rivers – statistical results]

Gap filling – consistent time series

In time series 1992-2018 or 2000-2018 **gaps in data are filled up to three years**.
Either equal to first value at the start or equal to last value at the end; interpolation other gaps

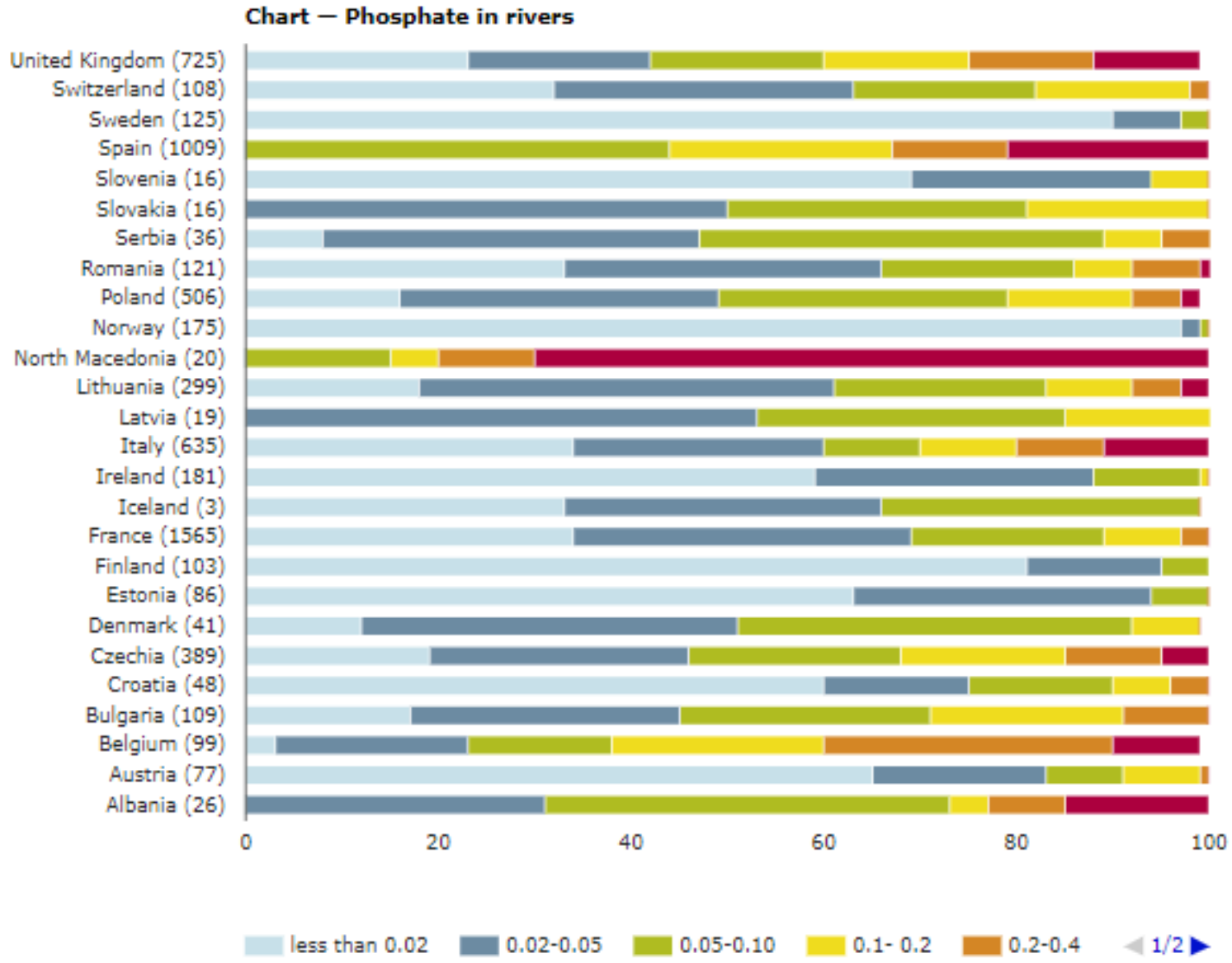


Loosing timeseries

Three types of monitoring sites/water bodies:

- **Long (1992-2018)** consistent and gap filled time series
- **Short (2000-2018)** consistent and gap filled time series
- **Other** e.g. sites with few years or time series not fitting short or long (e.g. 1992-2008 or 2005-2018)

Phosphate in rivers – 2016-2018 – total 6537 monitoring sites



Link to chart embedded into indicator text

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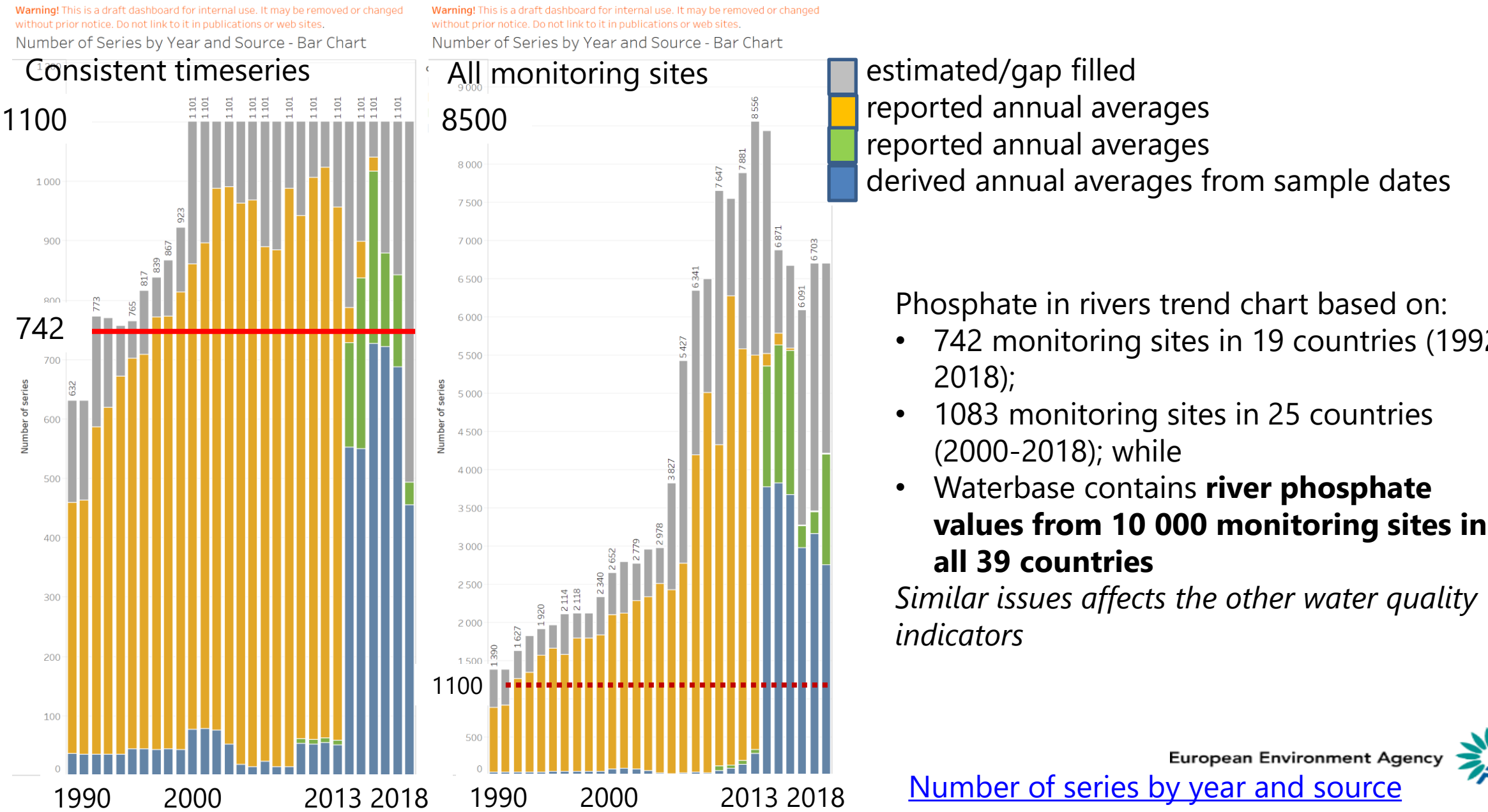
Consistent time series – Other monitoring sites – phosphate in rivers



Phosphate in rivers trend chart based on:

- 742 monitoring sites in 19 countries (1992-2018);
- 1083 monitoring sites in 25 countries (2000-2018); while
- Waterbase contains **river phosphate values from 10 000 monitoring sites in all 39 countries**

Similar issues affects the other water quality indicators

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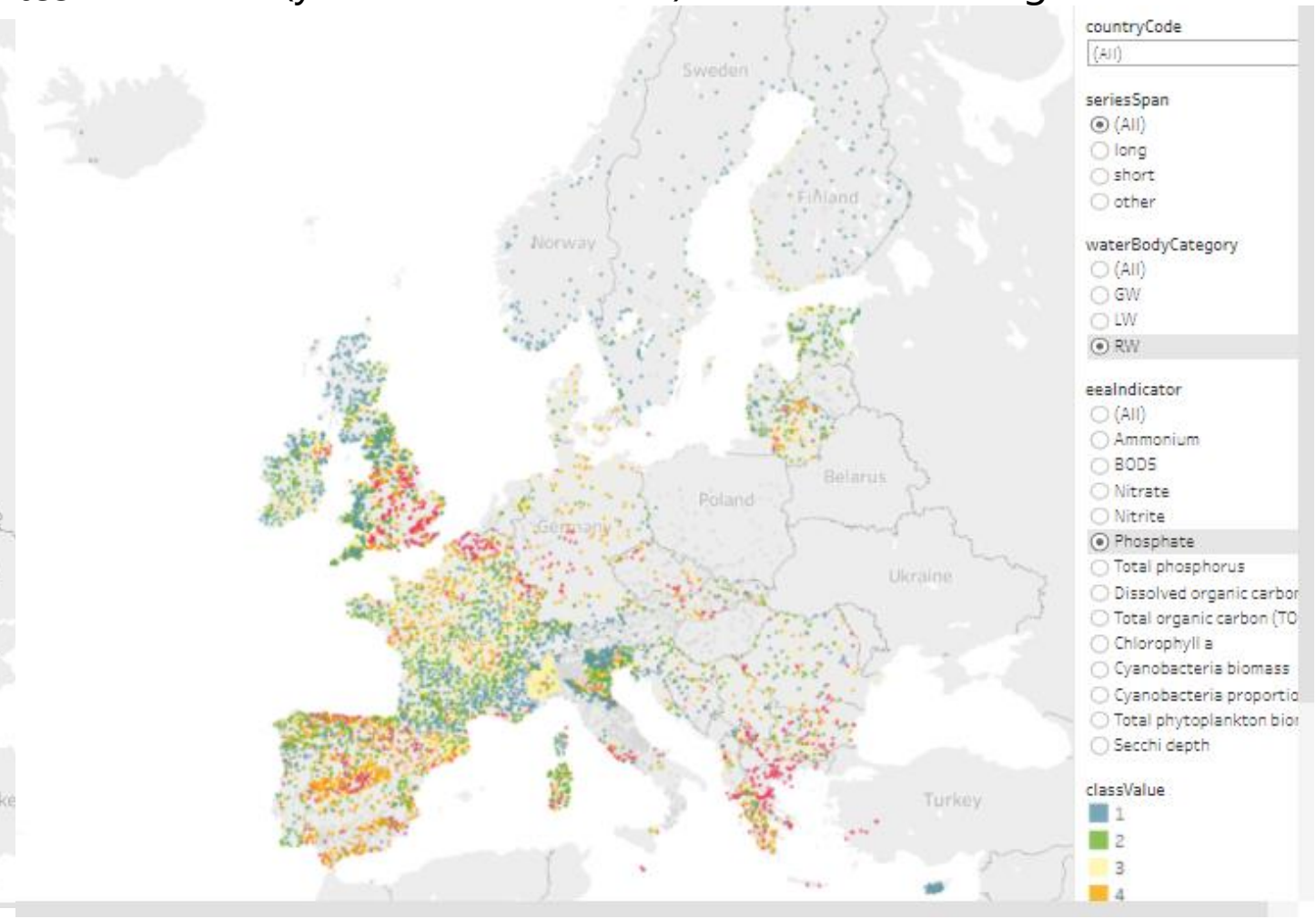
[Number of series by year and source]

Phosphate in rivers – monitoring sites

Long (1992-2018) time series – 742 monitoring sites

2012 (year with most sites) - 8542 monitoring sites



[Map – phosphate in rivers]

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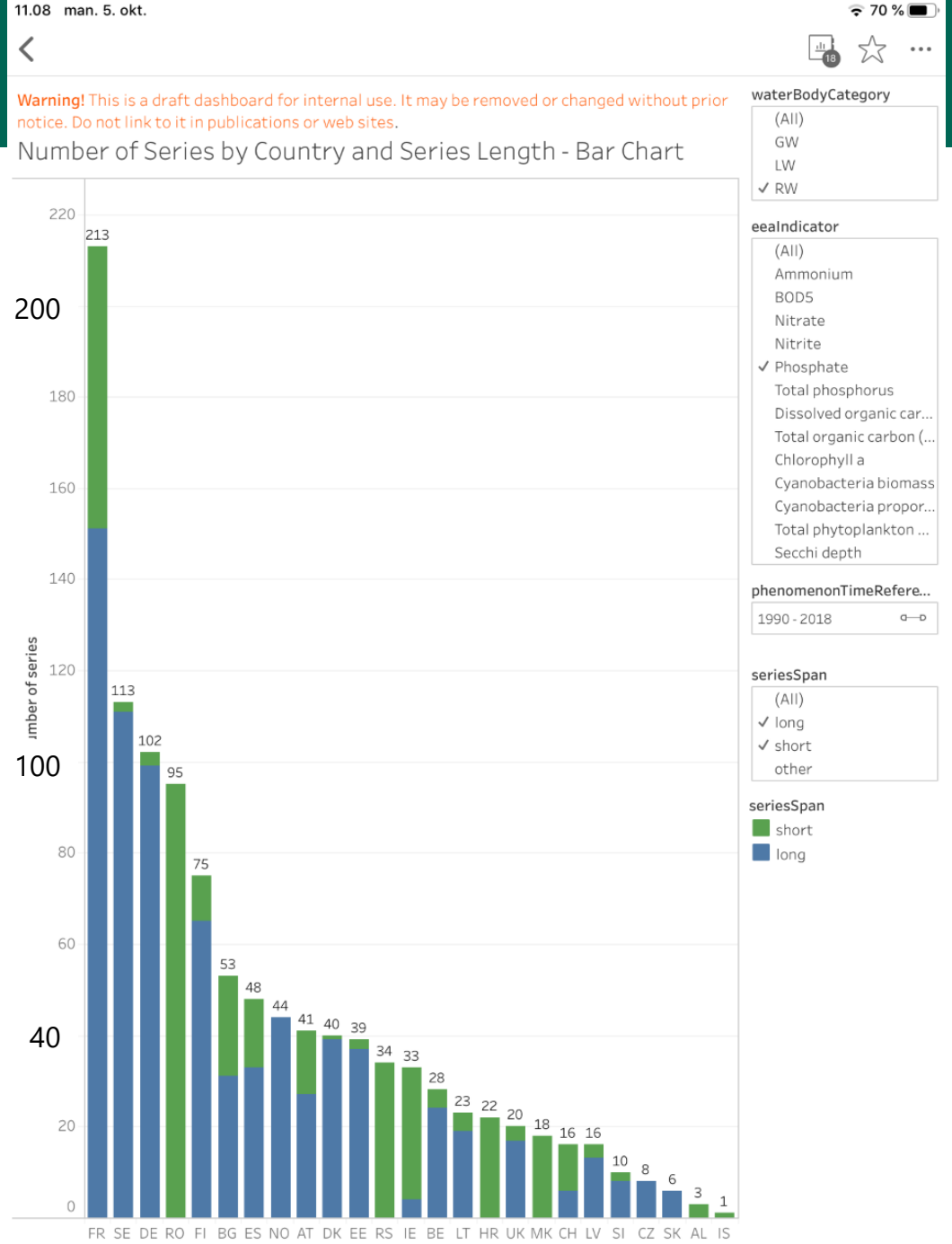
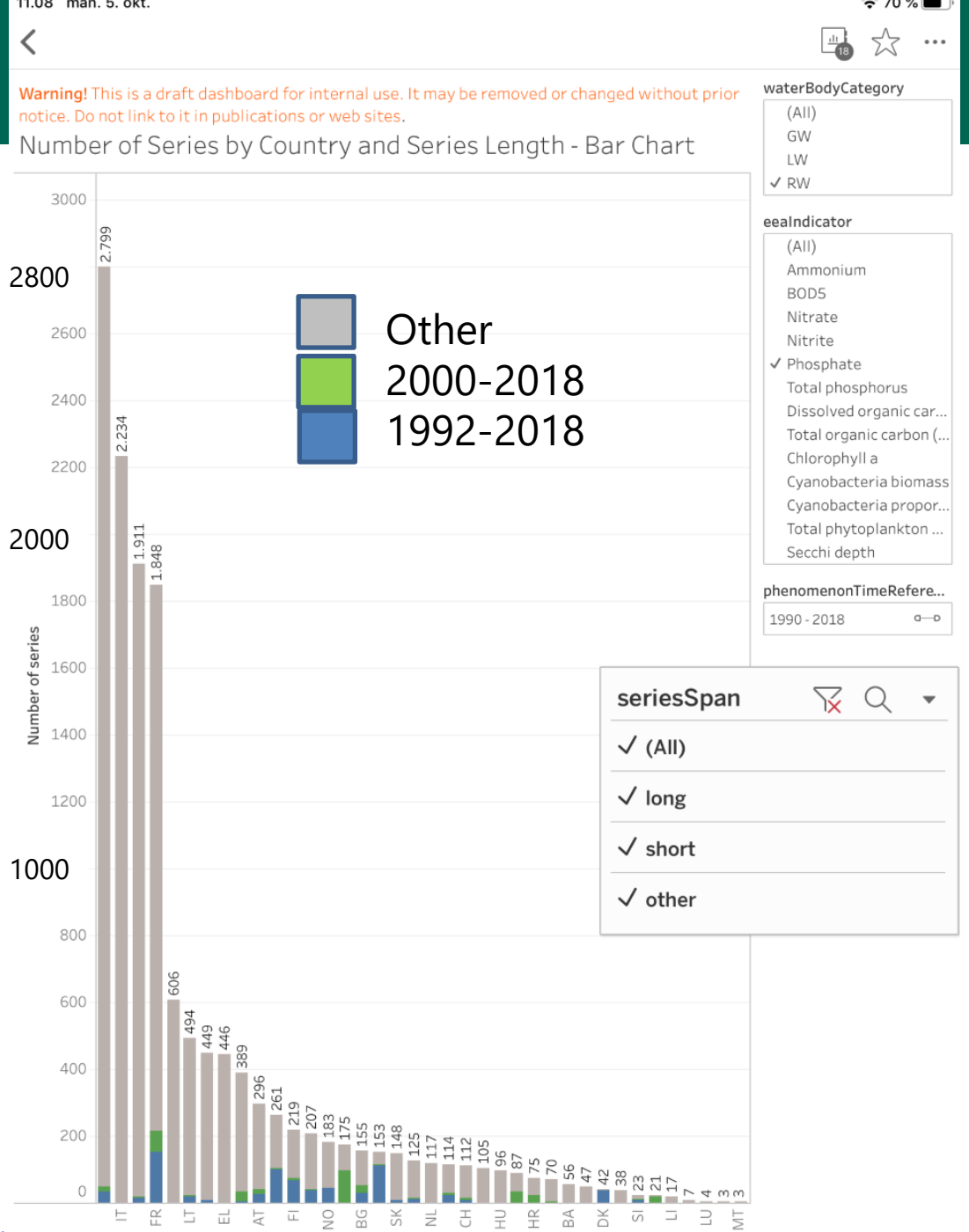




[Number of Series by Country and Series Length - Bar Chart]

All Waterbase data used to illustrate trend and spatial differences

Statistics - Phosphate Annual average - Rivers

	Phosphate (mg P/L)
Number	84282
Mean	0.135
Median	0.044
Percentile 20%	0.011
Percentile 40%	0.030
Percentile 60%	0.060
Percentile 80%	0.139

Threshold values based on percentiles

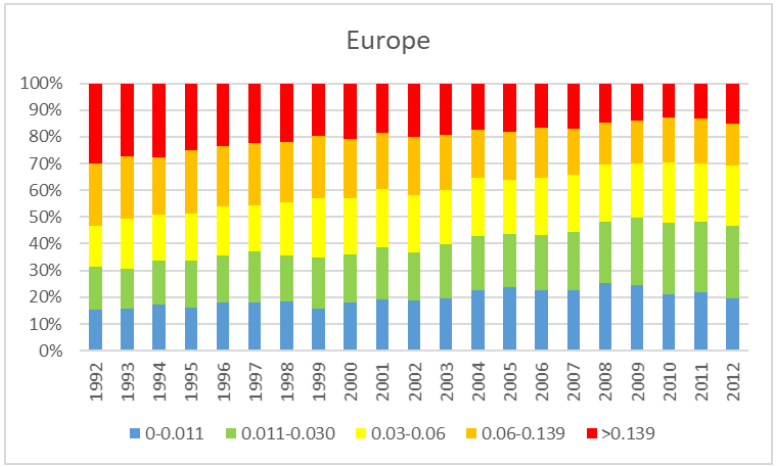
Threshold values
<0.011
0.011-0.030
0.03-0.06
0.06-0.139
>0.139

Threshold values applied on European data

Europe - aggregated

Threshold values	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Grand Total
<0.011	15%	16%	17%	16%	18%	18%	18%	16%	18%	19%	19%	20%	23%	24%	22%	22%	25%	25%	21%	22%	19%	21%
0.011-0.030	16%	15%	16%	17%	18%	19%	17%	19%	18%	20%	18%	20%	20%	20%	21%	22%	23%	25%	27%	27%	27%	22%
0.03-0.06	15%	19%	17%	18%	18%	17%	20%	22%	21%	22%	22%	20%	22%	20%	21%	22%	21%	20%	23%	22%	23%	21%
0.06-0.139	23%	23%	22%	24%	23%	24%	23%	23%	22%	21%	22%	21%	18%	18%	19%	17%	16%	16%	17%	17%	15%	19%
>0.139	30%	27%	28%	25%	23%	22%	22%	20%	21%	18%	20%	19%	17%	18%	17%	17%	15%	14%	13%	13%	15%	18%

In Waterbase there are +84 000 annual average river phosphate values for the period 1992-2018



Indicator showing improvements over time
less red/orange
more blue/green/yellow

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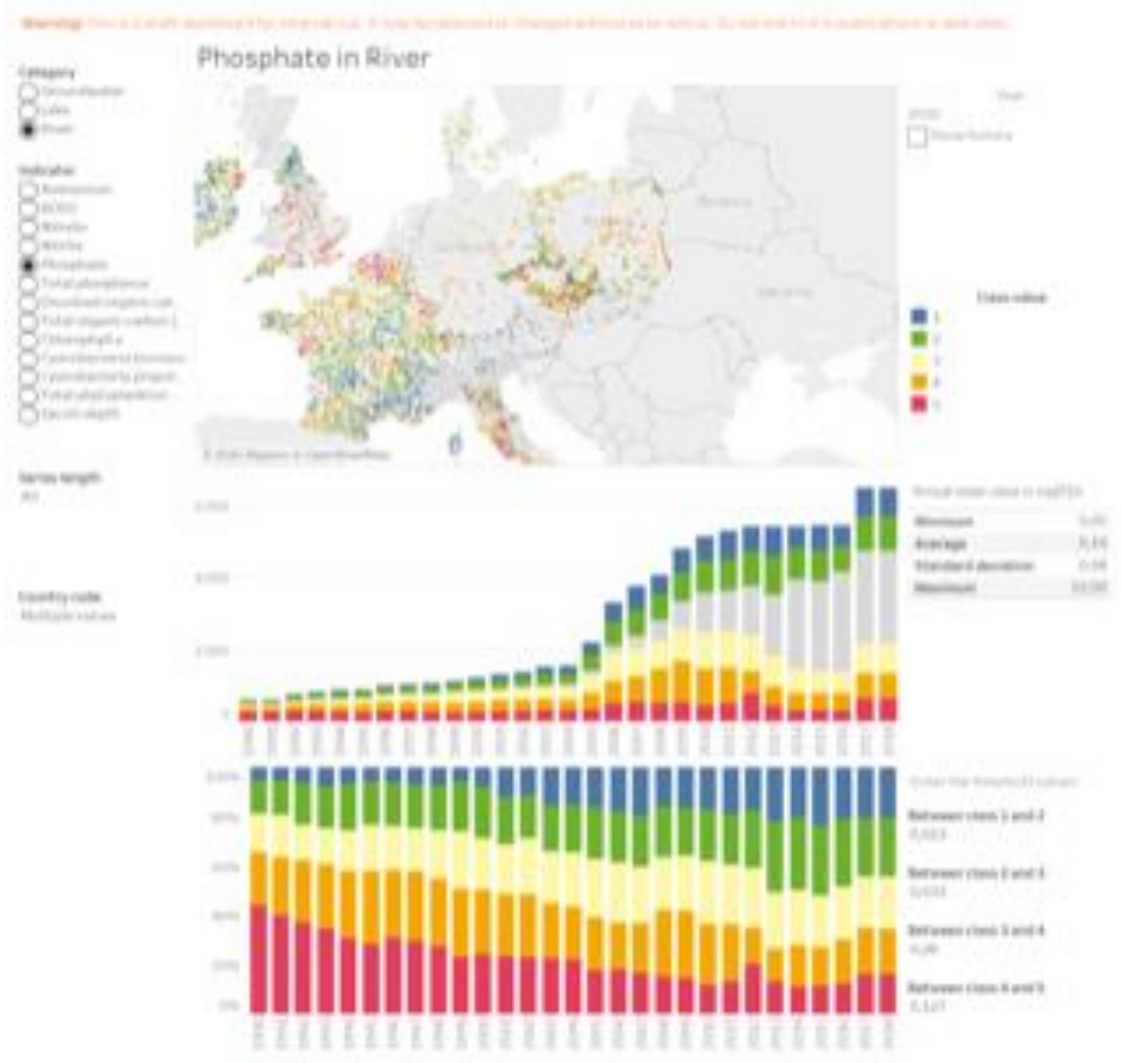
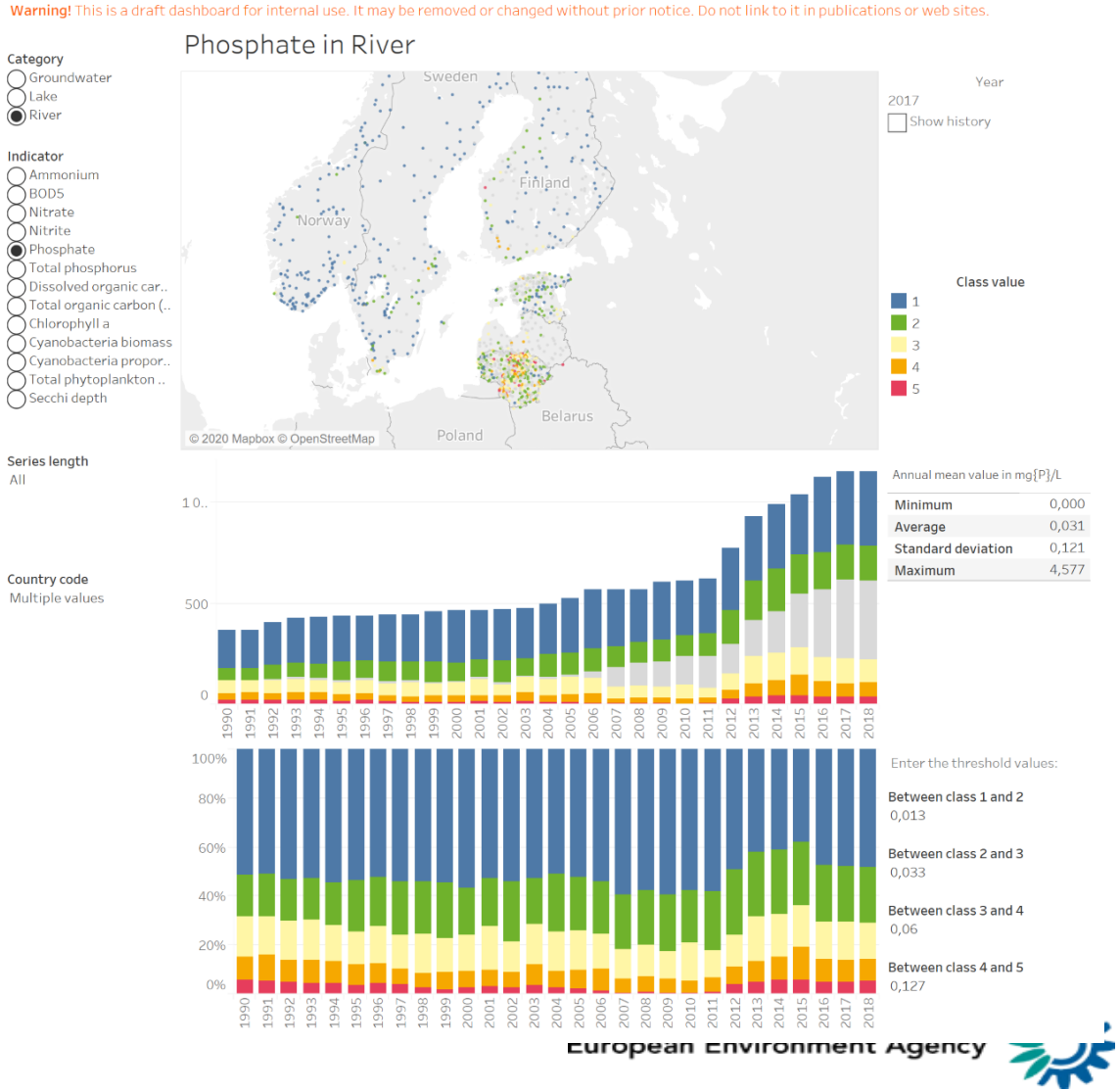
Phosphate in rivers

IE, UK, FR, IT, BE, NL, DE, DK, CH, AT, PL



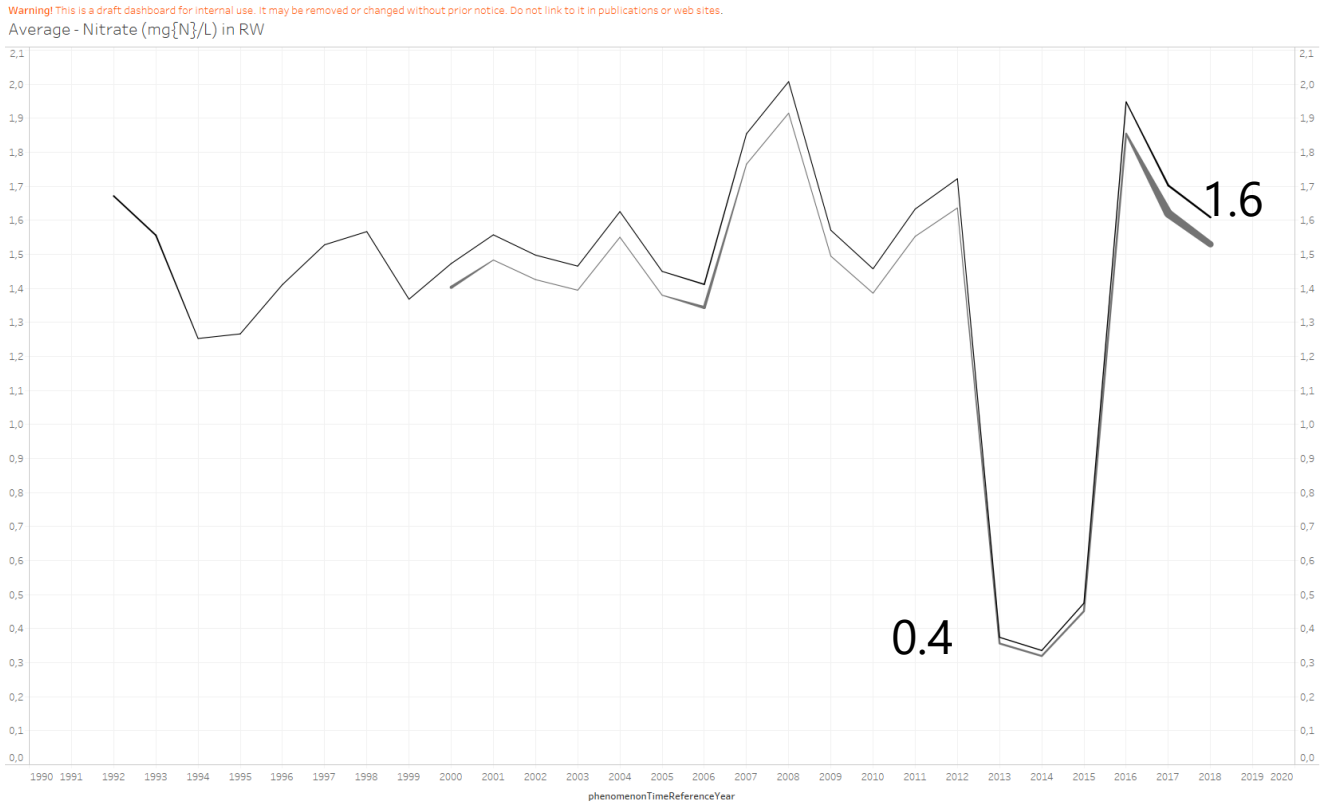
NO, SE, FI, EE, LV, LT



[Map - Phosphate in River](#) (quintiles)

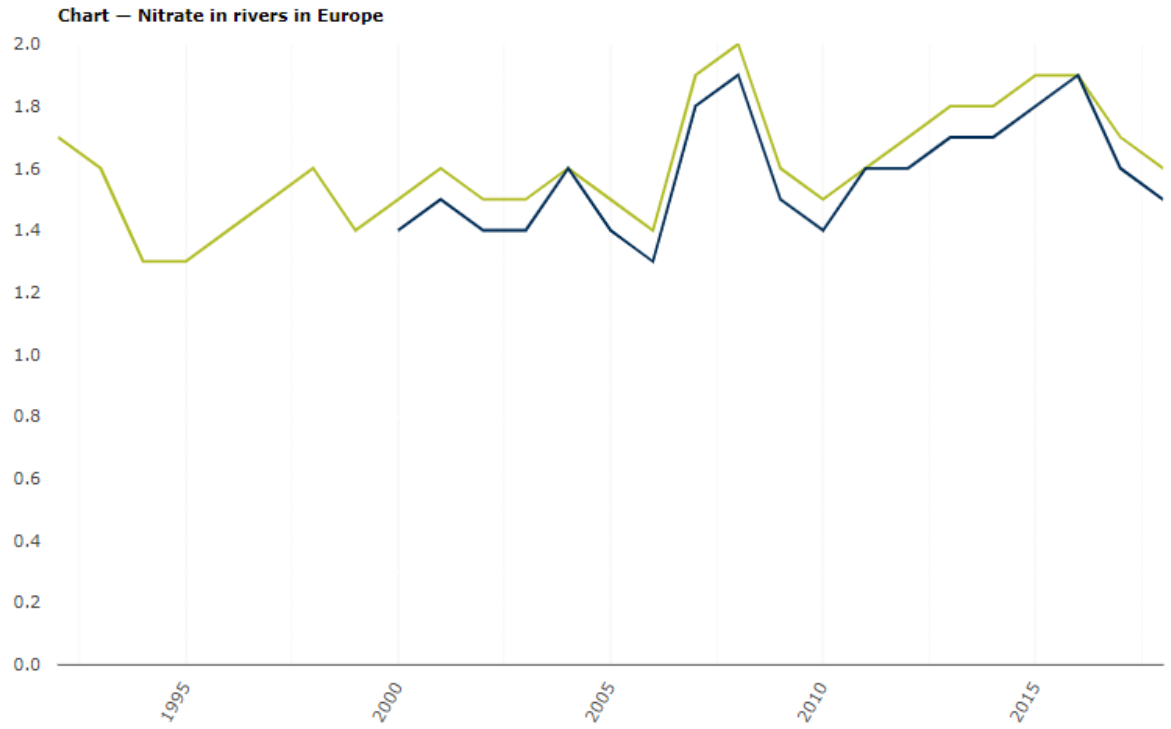
Quality issues on indicators – examples

Waterbase – Y country – nitrate in rivers (40 monitoring sites)



1992 2000 2018

In the indicator the 2013-15 values are corrected



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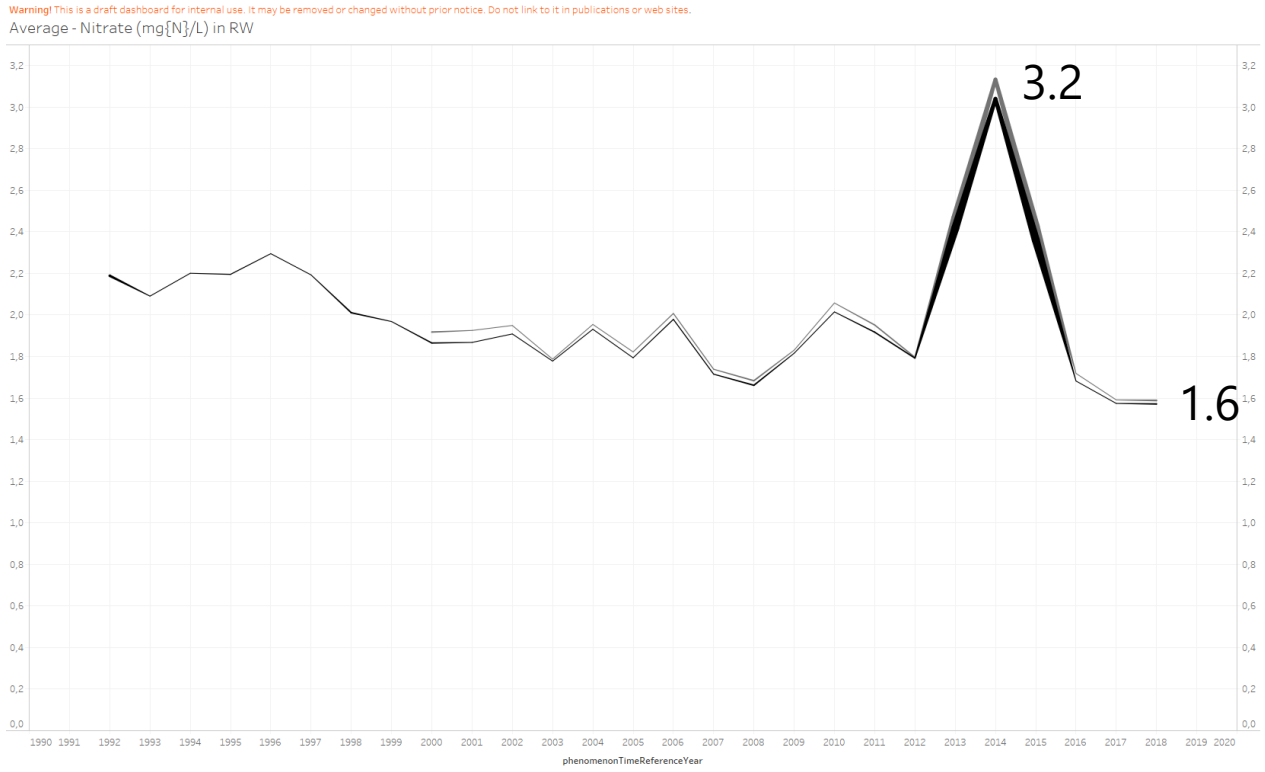
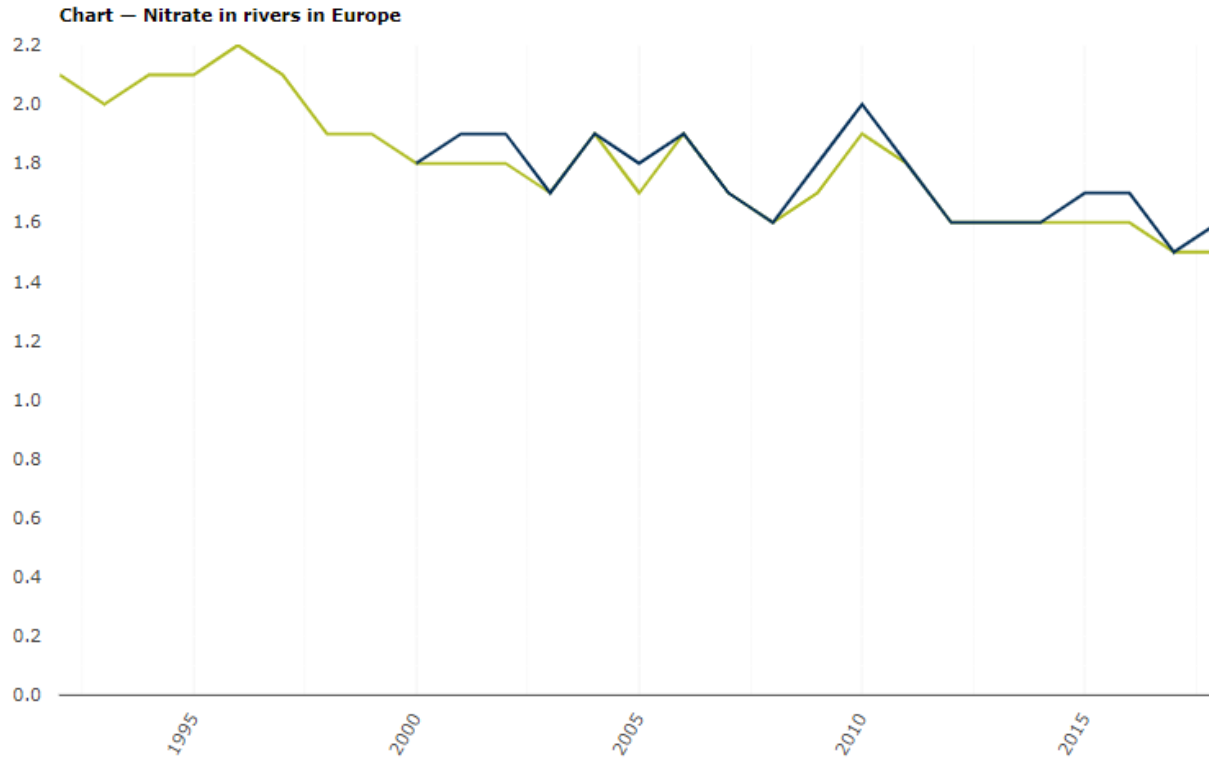
Quality issues on indicators – examples

Waterbase – X country – nitrate in rivers (40 monitoring sites)



1992 2000 2018

In the indicator the 2014 values replace by extrapolation 2013&2015



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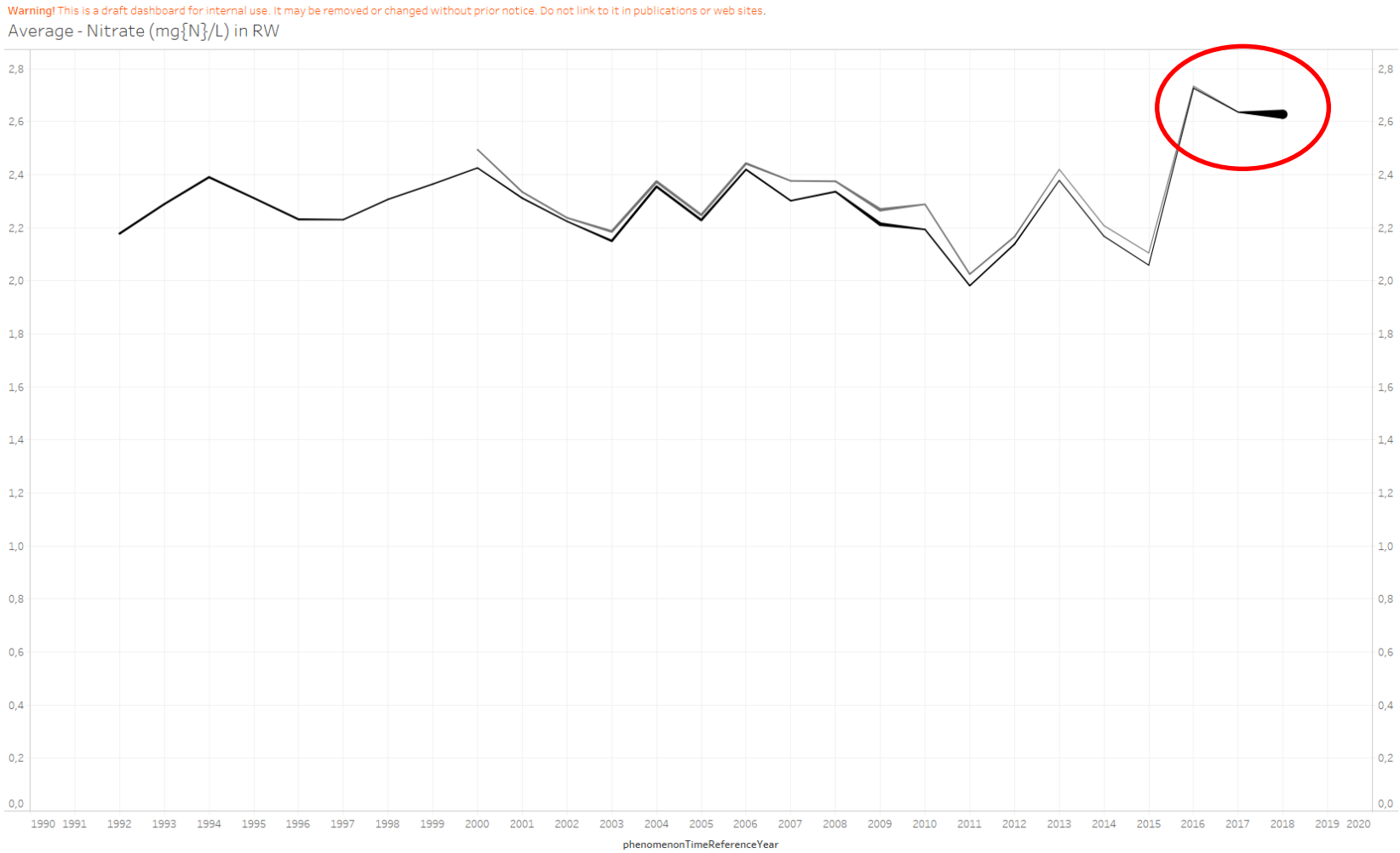
Quality issues on indicators – examples

Similar graph
In indicator

Waterbase – Z country – nitrate in rivers (180-238 monitoring sites)



Question to country – What happened in 2016-18?

1992 2000 2018

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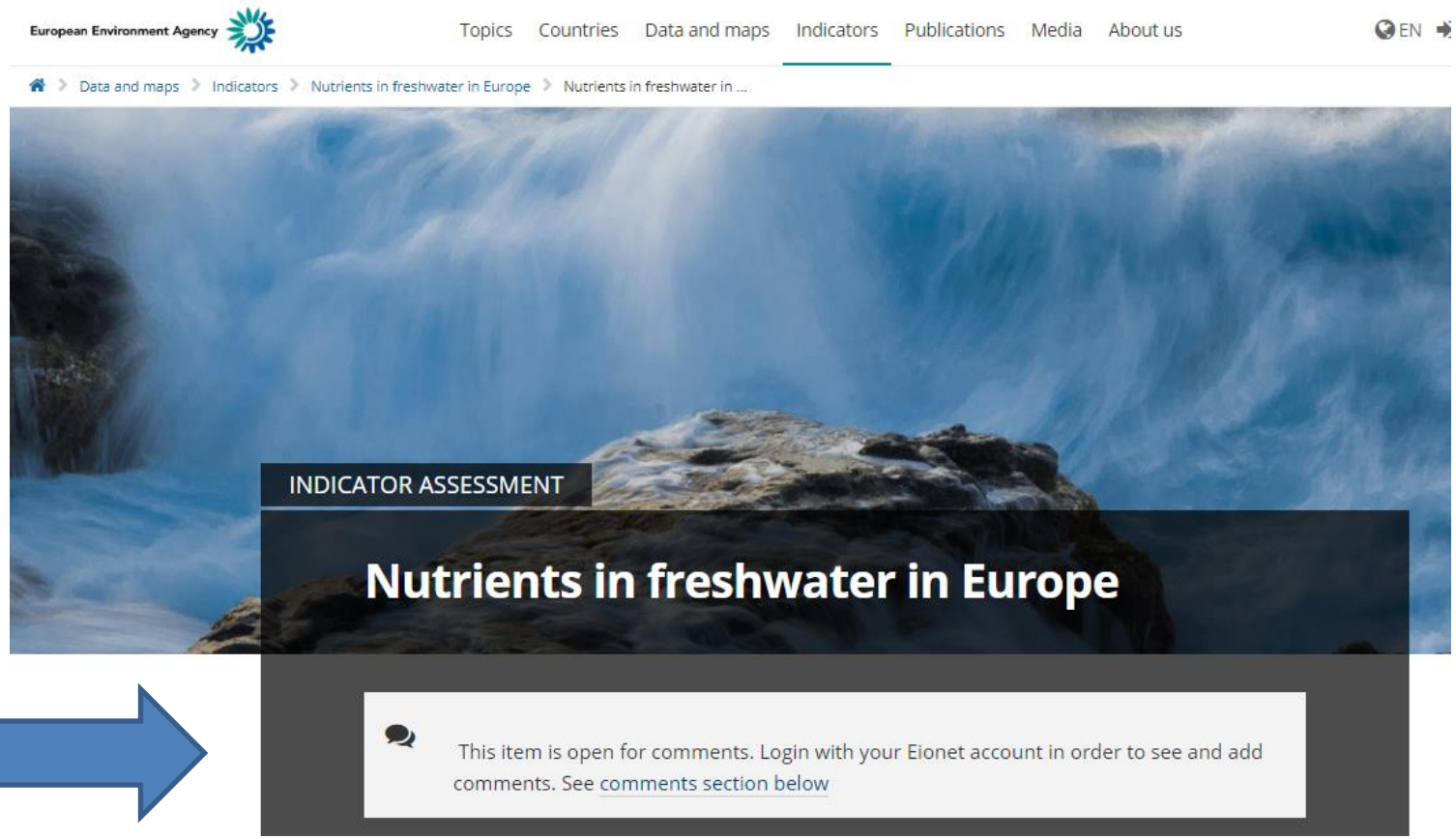
EEA water quality indicators



Eionet consultation
until 26 October

Links: Nutrients in freshwater in Europe - Oxygen consuming substances in European rivers

2020 reporting: EEA communication with reporters on gaps and results that look wrong
Countries to report data for missing years and determinands (if available)
Session on pesticides later

3. Overview of the 2019 WISE-4/6 datacall

Overview of the 2019 WISE-4/6 data call

- 2013-2019 reporting following the new model: observations (WISE4/6) reported annually.
- Reporting: Water quality rivers, lakes, groundwater, transitional and costal waters and WFD Watchlist.
- Spatial data (WFD or WISE5) reported once or when there are changes. Alignment of WISE-5 (spatial) & WFD Spatial – if monitoring sites/water bodies in WFD they supersede WISE-5.
- Countries have started (2013-2019)
  - WISE4: 521 Folders; 387 completed (in Waterbase); 88 pending correction requested; and 41 in draft and 5 Final Feedback (reported after the deadline).
  - WISE6: 79 Folders; 56 completed (in Waterbase); 7 pending correction requested; and 14 in draft and 2 Final Feedback (reported after the deadline).
- Cleanup: *Folders in draft, correction requested, with blockers or errors and have been replaced by a new folder can be deleted*.

Overview of the 2013-2018 reporting - examples

Country	Category	Indicator	2013	2014	2015	2016	2017	2018	All water quality	Indicator	Missing categories/years/parameters
									(year*category)	(year*category)	
X-country	Groundwater (GW)	NO3	Indicator	Indicator	Indicator	Indicator	Indicator	Indicator	6	6	All years in Waterbase
	Lakes (LW)	PTOT	Indicator	Indicator	Indicator	Indicator	Indicator	Indicator	6	6	All years in Waterbase
	Rivers (RW)	BOD, NH3, NO3; PO4	Indicator	Indicator	Indicator	Indicator	Indicator	Indicator	6	6	All years in Waterbase
									18	**18**	All years in Waterbase
Y-country	Groundwater (GW)	NO3	Indicator	Indicator	Indicator	Indicator	Indicator	Indicator	6	6	All years in Waterbase
	Lakes (LW)	PTOT	Indicator	Indicator	Indicator			Indicator	4	4	Missing 2016-2017
	Rivers (RW)	BOD, NH3, NO3; PO4	Indicator	Indicator	Indicator			Indicator	4	4	Missing 2016-2017
									14	**14**	LW&RW (2016-17)
Z-country	Groundwater (GW)	NO3	Indicator	Indicator	Indicator	Indicator	Indicator	Indicator	6	6	All years in Waterbase
	Lakes (LW)	PTOT	Indicator	Indicator	Indicator	Watchlist		Indicator	5	4	Missing indicator 2016-2017
	Rivers (RW)	BOD, NH3, NO3; PO4	Indicator	Indicator	Indicator	Watchlist		Indicator	5	4	Missing indicator (NO3) 2016-2017
									16	**14**	LW indicators (2016-17); RW indicators (NO3) (2016-17)
W-country	Groundwater (GW)	NO3						Indicator	1	1	Missing 2013-2017
	Lakes (LW)	PTOT						Indicator	1	1	Missing 2013-2017
	Rivers (RW)	BOD, NH3, NO3; PO4						Indicator	1	1	Missing 2013-2017
									3	**3**	GW&LW&RW (2013-17)

Explanations:

- X-country: Missing all years for (GW, LW, RW) in Waterbase
- Y-country: LW&RW (2016-2017) are missing in Waterbase
- Z-country: LW indicators (2016-17); RW indicators (NO3) (2016-17) are missing in Waterbase
- W-country: Missing GW,LW,RW (2013-17)

Ten countries with all years*categories 2013-2018 in Waterbase

Country	All (years*categ	Indicator (years*category)	Categories	Missing years-categories
Albania	18	18	3	All years (GW, LW, RW) in Waterbase
Bulgaria	18	18	3	All years (GW, LW, RW) in Waterbase
Estonia	18	18	3	All years (GW, LW, RW) in Waterbase
Finland	18	18	3	All years (GW, LW, RW) in Waterbase
Ireland	18	18	3	All years (GW, LW, RW) in Waterbase
Iceland	18	18	3	All years (GW, LW, RW) in Waterbase
Lithuania	18	18	3	All years (GW, LW, RW) in Waterbase
Latvia	18	18	3	All years (GW, LW, RW) in Waterbase
Serbia	18	18	3	All years (GW, LW, RW) in Waterbase
United Kingdom	18	18	3	All years (GW, LW, RW) in Waterbase

Nine countries with no/limited data for the period 2013-2018 in Waterbase

Country	All (years*categ	Indicator (years*category)	Categories	Missing years-categories
Bosnia-Herzegovina	0	0	0	
Lichtensten	0	0	0	
Hungary	3	0	1	Watchlist
Luxembourg	3	0	1	Watchlist
Montenegro	1	1	1	GW, LW (2013-18); RW (2013-14; 2016-18)
Malta	2	2	2	GW (2013-18) LW&RW (2014-18)
Turkey	3	3	3	GW&LW (2013-18); RW (2016-18)
Italy	4	3	3	GW, LW, RW (2013-17)
Greece	9	9	3	GW, LW, RW (2016-18)

Remarks

- Four countries have not reported to EEA for the period 2013-2018
- Three countries have limited reporting e.g. only river data from 2015
- Italy has reported much data for 2018 but data are missing data from 2013-17
- Greece are missing data from the last three years

20 countries with gaps in data in Waterbase for the period 2013-2018

Country	All (years*categ	Indicator (years*category)	Categories	Missing years-categories
Cyprus	18	9	3	RW indicator (PO4) (2013-2018); LW indicators (PTOT) (2016-18)
Norway	10	10	2	GW (2013-18); LW, RW (2018)
Portugal	10	10	2	LW (2013-18); RW (2013-14)
Slovakia	12	11	2	LW (2013-18); RW indicator (2018)
Switzerland	12	12	2	LW (2014-18); RW (2017)
North Macedonia	12	12	1	GW, LW (2016-18)
Kosovo under UNSCR	12	12	2	GW (2013-18)
Poland	13	12	3	GW, LW, (2016-17), RW indicator (2016-17)
Germany	15	12	3	GW (2013-15); RW indicators (BOD) (2013-2015)
Spain	15	12	3	GW (2013-15); RW-LW indicators (2016-2017)
Czechia	16	12	3	GW&LW (2017); LW indicators (PTOT) (2013-17)
Netherlands	18	12	3	RW-LW indicators (2016-2018)
Denmark	17	13	3	LW (2015, 16, 18), RW indicators (nutrients, BOD) (2018)
Romania	14	14	3	GW (2016-18); LW&RW (2018)
Sweden	16	14	3	LW&RW (2013-2014)
Croatia	16	15	3	GW, LW, (2018); RW indicator (2018: PO4 (2013-14))
Austria	18	16	3	RW indicators (nutrients, BOD) (2013, 2015)
Belgium	18	16	3	LW indicators (PTOT) (2017-18)
Slovenia	18	16	3	RW indicator (2016-17)
France	18	17	3	RW indicators (nutrients, BOD) (2018)

Gaps in reporting - example

- Gaps missing one or several years (all parameters) (stopped reporting, forgotten a year, or late reporting (after deadline))
- Gaps may also be because of uploaded files and blocked (correction requested) and therefore not harvested and included in Waterbase.
- Gaps in determinands/parameters (either not monitored or not included in reporting)

Number of monitoring sites

Group	Observed Property Determinand Code	Label	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
1-Oxygen	EEA_3133-01-5	BOD5	39	39	39	39	42	42	42	42	41	41	41	2	4						
3-Nitrogen	CAS_14798-03-9	Ammonium	38	38	38	38	42														
	EEA_3161-02-2	Total oxidised nitrogen	40	40	40	40	41	41	41	42	41	40	41	40	40	40	41	41	40	41	
4-Phosphorus	CAS_14265-44-2	Phosphate	42	41	42	42	42	42	42	42	41	41	41	40	40	40	41	41	40	41	
	CAS_7723-14-0	Total phosphorus	42	42	42	42	42	42	42	42	41	41	41	40	40	40	41	41	40	41	

No reporting
Stopped reporting of ammonium
Stopped reporting of BOD5

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Gaps in reporting - example

- Gaps missing one or several years (all parameters) (stopped reporting, forgotten a year, or late reporting (after deadline))
- Gaps may also be because of uploaded files are blocked (correction requested) and therefore not harvested and included in Waterbase.
- Gaps in determinands/parameters (either not monitored or not included in reporting)

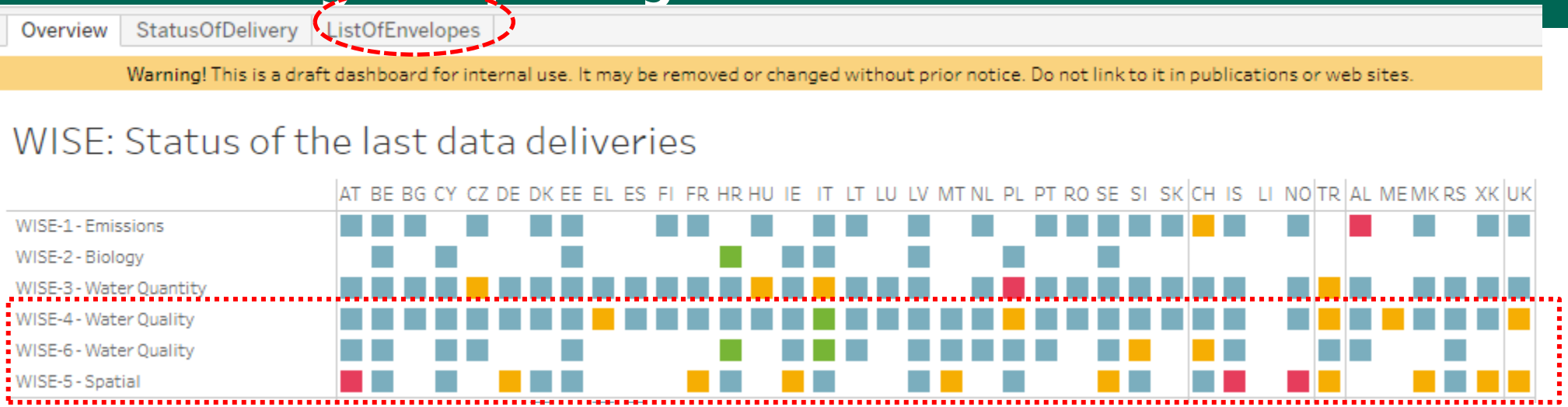
Number of monitoring sites

Group	Observed Property	Label	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
1-Oxygen	EEA_3133-01-5	BOD5	130	130	130	130	128	134	136	129	115	111	27	281	729	840	863	911			515
3-Nitrogen	CAS_14797-55-8	Nitrate	130	130	130	130	107	133	136	133	112	98	28	117	227	539	483	480			513
	CAS_14798-03-9	Ammonium	131	131	131	131	116	136	137	133	4	4		58	117	120	120	121			514
4-Phosphorus	CAS_14265-44-2	Phosphate	131	131	131	131	127	135	137	4	4	4			1						506
	CAS_7723-14-0	Total phosphorus	127	131	127	131	128	135	137	133	122	114	26	272	723	771	812	858			512

No reporting
Stopped reporting of ammonium
Stopped reporting of phosphate
2010 low number monitoring sites

European Environment Agency

Monitoring of reporting



Check your folders at CDR:

- WISE4: http://cdr.eionet.europa.eu/dk/eea/wise_soe/wise4/ (country code)
- WISE6: http://cdr.eionet.europa.eu/cz/eea/wise_soe/wise6/ (country code)

Link

List of envelopes (selection WISE4, WISE6, country)

reportingObligation	cover..	coverageName	title	statusInCDR	qcResult	
WISE-4 - Water Quality	BE	Belgium	BE - Wallonia - Delivery 2016 - Water Quality- Groundwater	Complete	hasWARNING	
			2017 BE_Wachtlist	Complete	hasWARNING	
			2018 BE_Watchlist	Complete	hasWARNING	
			181128 BE_WFD_Watchlist 2017-18_final + Add Inform	Complete	hasWARNING	
			18 BE-VL_WISE 4_WaterQuality	Complete	hasBLOCKER	
			BE - Wallonia - Delivery 2018 - Water Quality	Complete	hasWARNING	
			190131 BE_WFD_Watchlist 2015-16_final + Add Inform	Complete	hasWARNING	
			190131 BE_WFD_Watchlist 2016-17_final + Add Inform	Complete	hasWARNING	
			BE - Flanders - Delivery 2015 - Water Quality	Complete	hasWARNING	
			BE - Wallonia - Delivery 2015 - Water Quality	Complete	hasWARNING	
			BE - Flanders - Delivery 2015 - Water Quality- Groundwater	Complete	hasWARNING	
			BE - Watchlist - 2016	CorrectionReque..	hasWARNING	
			BE - Watchlist - 2016 v2	Complete	hasWARNING	
			BEVL_WiseSoE_WQLT_RY2016	Complete	hasWARNING	
			BE - Wallonia - Delivery 2016 - Water Quality - River water	Complete	hasWARNING	
			18 BE-VL_WISE 4_WaterQuality_Corr	Complete	hasWARNING	
WISE-6 - Water Quality	BE	Belgium	191213 BE Watchlist 2019	CorrectionReque..	hasINFO	
			191223 BE Watchlist 2019	Complete	hasINFO	
			BE - Wallonia - Delivery 2019 - WISE-6	Complete	hasWARNING	
			200221 WISE5 BE_FL W QLT	Complete	hasINFO	

Delete obsolete folders

Example of a countries folder and reporting under WISE 4

Overview | StatusOfDelivery | ListOfEnvelopes

Warning! This is a draft dashboard for internal use. It may be removed or changed without prior notice. Do not link to it in publications or web sites.

WISE: Data deliveries in "All" status

reportingObligation	coverageCo..	coverageName	title	statusInCDR	qcResult
WISE-4 - Water Quality	DK	Denmark	WISE-4 - watch list 2017	Complete	hasWARNING
			Wise Soe Wise 4 Groundwater quality 2..	Complete	hasWARNING
			Wise Soe Wise 4 Groundwater quality 2..	Complete	hasWARNING
			WISE-4 - Watch list 2018	Complete	hasWARNING
			WISE-4 - Watch list 2018 - supplement	Complete	hasWARNING
			Lakes2016	Draft	hasBLOCKER
			DK_lakes_2017	Complete	hasWARNING
			WISE SoE - Water Quality (WISE 4) DK G..	Draft	hasBLOCKER
			EWN rivers nutrients 2016-17	Complete	hasWARNING
			WISE SoE - Water Quality (WISE 4) DK la..	CorrectionRequest..	isUNKNOWN
			EWN rivers nutrients 2013-2014	Complete	hasWARNING
			EWN rivers ecology 2013-2014	Complete	hasWARNING
			lakes2013-14	Complete	hasWARNING
			WISE SoE - Water Quality 2016	Complete	hasWARNING
			WISE SOE Water Quality Groundwater 2..	Complete	hasWARNING
			EWN rivers ecology 2015	Complete	hasWARNING
			EWN rivers nutrients 2015	Complete	hasWARNING
			Lakes2015	Complete	hasWARNING
			LakeData2015	CorrectionRequest..	hasBLOCKER
			EWN rivers ecology 2016-17	Complete	hasWARNING

Quality control results:

- hasBLOCKER
- hasWARNING
- isUNKNOWN

title	statusInCDR	qcResult
Lakes2016	Draft	hasBLOCKER
WISE SoE - Water Quality (WISE 4) DK G..	Draft	hasBLOCKER

[Link]

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Example of a blocked files and not being harvested and included in Waterbase

Lakes2016

Description Lake data 2016
Obligations WISE SoE - Water Quality (WISE-4)
Period 2016 - Not applicable
Coverage Denmark
Status Task(s) waiting to be assigned: **Draft**
The last AutomaticQA run has flagged this envelo

Note

If you want to stay updated about events in this envelope Su
dataflow(s).

Files in this envelope

1	WISE-Soe-WaterQuality_2016.xls	Excel
2	WISE-Soe-WaterQuality_2016_AggregatedData.xml	Conve Water

Remember to release the envelope when you have uploaded all t

Feedback for this envelope

[BLOCKER] AutomaticQA result for file WISE-Soe-WaterQu aggregated-data (Posted automatically on 22 Feb 2019)

- 1. Mandatory values test - OK
- 2. Record uniqueness test - OK
- 3. Data types test - OK
- 4. Valid codes test - WARNING
- 5. Monitoring site identifier format test - OK
- 6. Monitoring site identifier reference test - BLOCKER
- 7. Unit of measure test - OK
- 8. Reference year test - OK
- 9. Sampling period test - OK
- 10. Result values - limits test - OK
- 11. Result values - mathematical relation rules test - OK
- 12. LOQ test - ERROR
- 13. Sample depth test - OK

BLOCKER - some of the monitoringSiteIdentifier values are missing in the reference list.

Denmark – lake monitoring sites with total phosphorus or total nitrogen

Observed Propert	Label	Agg_Diss	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
CAS_7723-14-0	Total phosphorus	Aggregate	19	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	19	15	18	18	18	18			9
EEA_31615-01-7	Total nitrogen	Aggregate	19	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	19	15	18	18	18	18			9

2015: data also in a folder, with corection requested

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Next steps on gaps and blocked files

- Tables in previous slides provides an overview of missing years per country
- Countries can also review folders (WISE4/6) on CDR and see if there are blocked/correction requested folders that have the missing data
- During October EEA and WISE-SoE helpdesk will contact data reporters on issues related to previous years data (gaps, suspecious values etc.)

4. Break (virtual coffee) (15 mins)

5. What are we doing with the data? Pesticide

6. How to report in 2020 data call? Process, change from WISE4 to WISE6. Spatial data

Waterbase Water quality – Data call

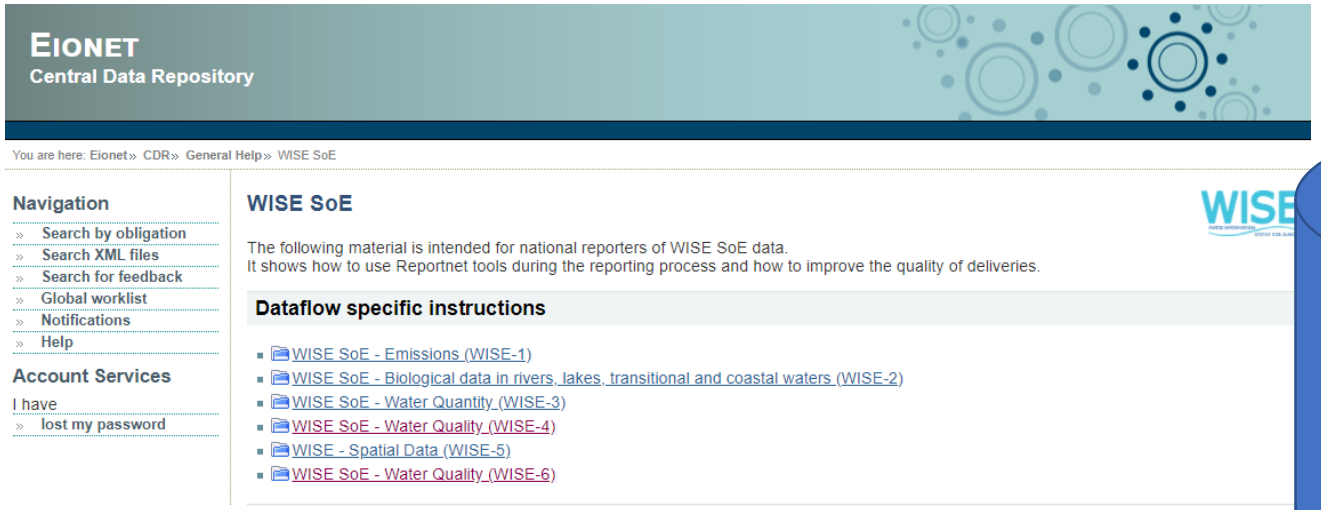
Data call

1) WISE-SoE data call
- Preparation (update to model, codelists and data dictionary)
- QC checks updates
- Data call letter, CDR help

2) Communication with NRCs
- Helpdesk
- Webinars
- QC issues
- Data gaps

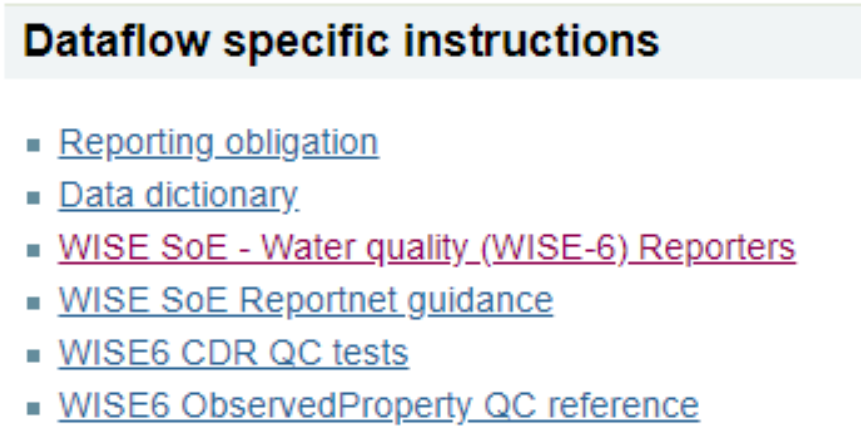
3) Update Waterbase
- Harvest data
- Spatial reference update
- QCs
- Flag QC issues

http://cdr.eionet.europa.eu/help/WISE_SoE



Waterbase water quality

WISE SoE - Water Quality (WISE-6)
http://cdr.eionet.europa.eu/help/WISE_SoE/wise6



If you need support please contact WISE SoE Helpdesk
mailto:wisesoe.helpdesk@eionet.europa.eu

2020 data call - WISE-6

We will present the following:

- WISE-4 and WISE-6 differences
- Preparation of the data set
- WISE SoE helpdesk functions
- Quality controls (warnings, errors, blockers)
- How to solve problems if a file has blockers?
- Release of the folder.

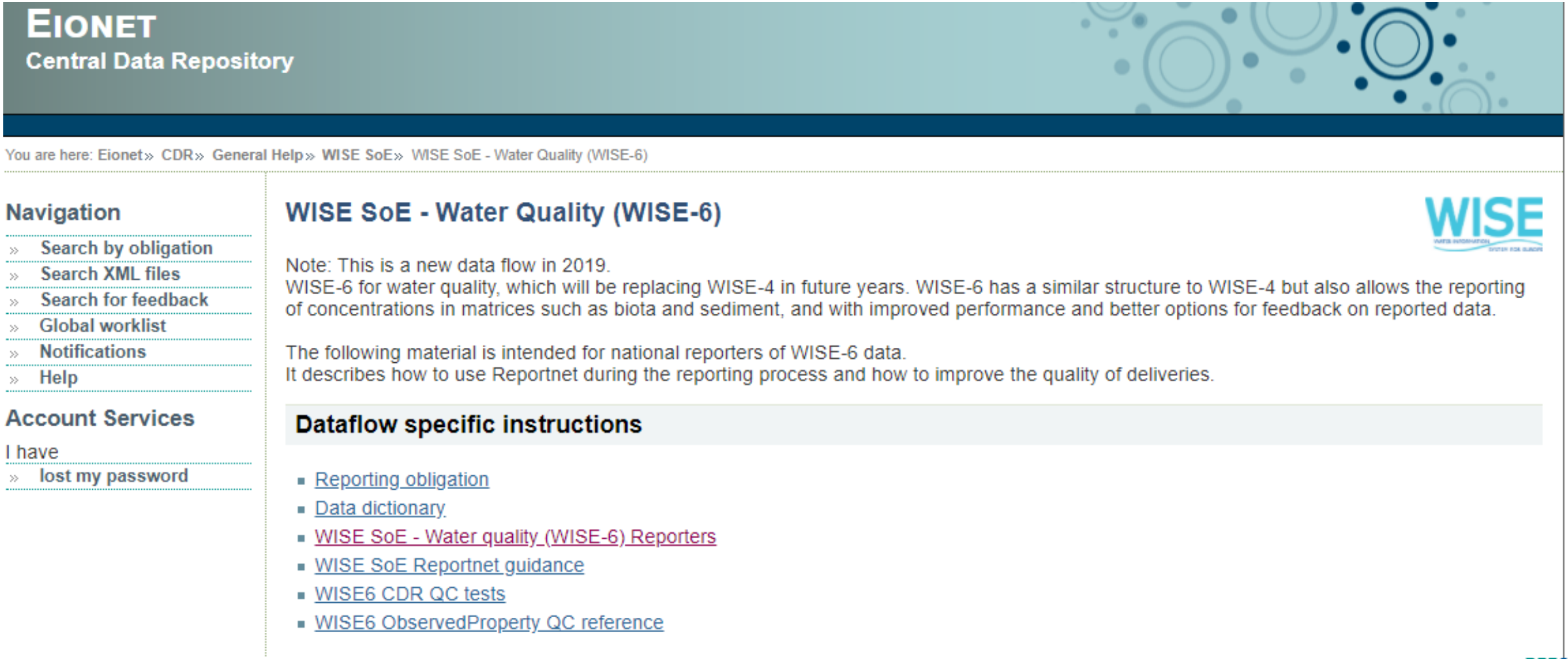
Reading the WISE SoE Reportnet Guidance is a good cookbook for the reporting process - http://cdr.eionet.europa.eu/help/WISE_SoE/wise6/WISE_SoE_ReportnetGuidance_v1.9_2019-10-23.pdf - updates see http://cdr.eionet.europa.eu/help/WISE_SoE/wise6

2020 data call

- This year WISE-6 for water quality should be used. WISE-4 has been stopped. WISE-6 has a similar structure to WISE-4 but also
  - Nearly no size limitation of files – no need to split reporting in many files;
  - Some time needed for conversion of Excel to XML (30.000 rows 1½ hour; 130.000 rows 8 hours)
  - Uploaded files are included in a working database and QC are run on this database (in WISE-4 on XML files);
  - With improved performance and better options for feedback on reported data.
  - Allows the reporting of concentrations in matrices such as biota and sediment, and
  - In the future comparison with previous years.
- Only WISE-6 will be open in 2020 – No reporting of biology data in WISE-2.
- Clean-up of WISE-4 may be needed – obsolete folders replaced by revised folders to be deleted. **Blocked (not harvested) folders, errors should be corrected, and the new file reported under WISE-6**.
- EEA's future developments on improvements in reporting and of Quality Controls (QC) and feedback information (dashboards) will be concentrated on WISE-6 water quality.

2020 data call – one important webpage

http://cdr.eionet.europa.eu/help/WISE_SoE/wise6



EIONET
Central Data Repository

You are here: Eionet» CDR» General Help» WISE SoE» WISE SoE - Water Quality (WISE-6)

Navigation

- » Search by obligation
- » Search XML files
- » Search for feedback
- » Global worklist
- » Notifications
- » Help

Account Services

I have

- » lost my password

WISE SoE - Water Quality (WISE-6)

Note: This is a new data flow in 2019.
WISE-6 for water quality, which will be replacing WISE-4 in future years. WISE-6 has a similar structure to WISE-4 but also allows the reporting of concentrations in matrices such as biota and sediment, and with improved performance and better options for feedback on reported data.

The following material is intended for national reporters of WISE-6 data.
It describes how to use Reportnet during the reporting process and how to improve the quality of deliveries.

Dataflow specific instructions

- Reporting obligation
- Data dictionary
- WISE SoE - Water quality (WISE-6) Reporters
- WISE SoE Reportnet guidance
- WISE6 CDR QC tests
- WISE6 ObservedProperty QC reference

2020 data call - WISE-6

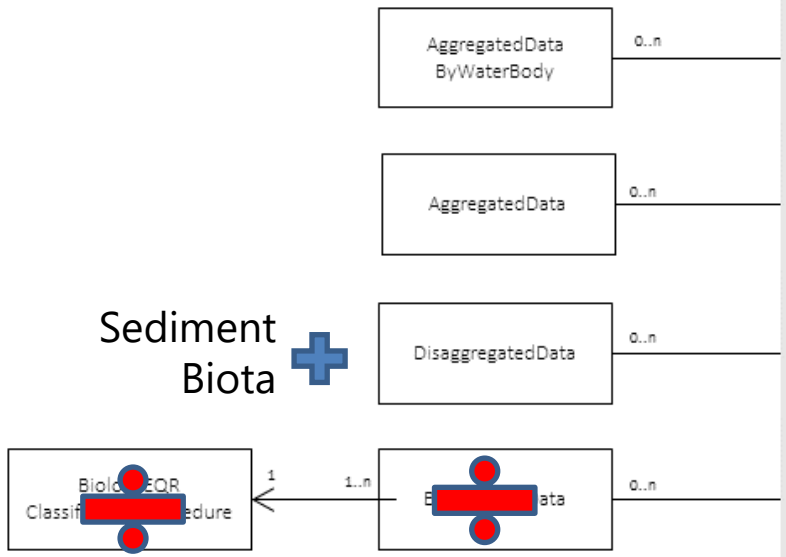
WISE SoE Water Quality (WISE-4)

~~X~~

6

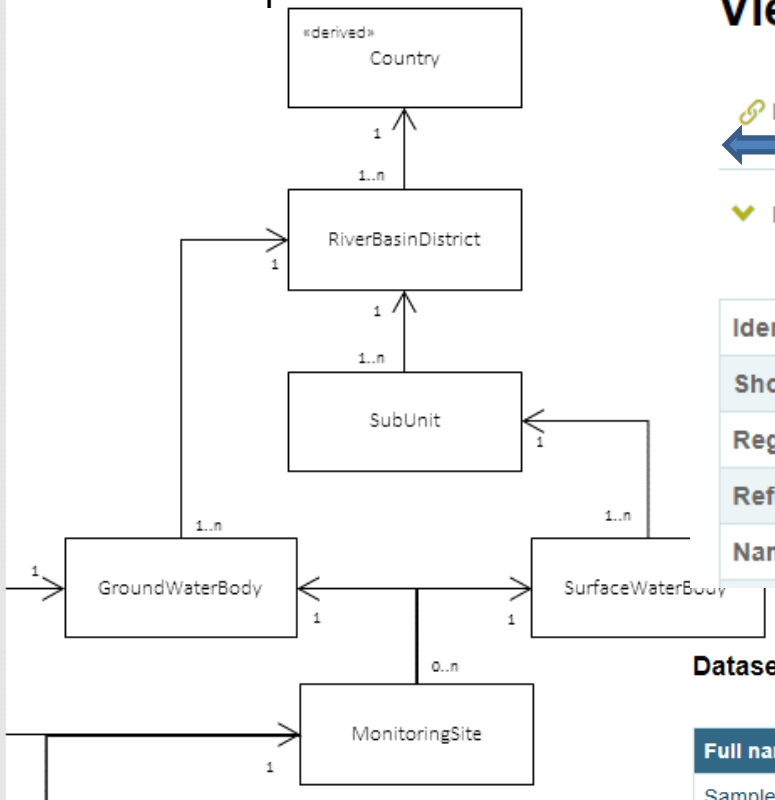
Sediment

Biota



WISE Spatial Data (WISE-5)

WFD spatial data



View dataset definition

Data model Tables

Exports

Identifier	**WISE-SoE_WaterQuality**
Short name	WISE SoE - Water Quality
Registration status	Released 21 November 2017
Reference URL	http://dd.eionet.europa.eu/datasets/latest/WISE-
Name	WISE SoE - Water Quality (WISE-4)

Dataset tables

Full name	Short name
Sample data by monitoring site	DisaggregatedData
Annual statistics data by monitoring sit ...	AggregatedData
Annual statistics data by water body	AggregatedDataByWaterBody
Annual biolog data by monitoring si ...	BiologyEQRData
Classification proc for ecological ...	BiologyEQRClassificationProcedu

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2020 data call – WISE-6

- **Disaggregated data** (sampling dates); **aggregated data** (annual average); **aggregated by water body**
- **Where** (Monitoring site Identification, category (rivers, lakes, groundwater, transitional and coastal waters etc.))
- **When** (sampling date (disaggregated); year (aggregated); groundwater body (year, period))
- **What** (*determinands - parameters*; - observedPropertyDeterminandCode)
- **Result** (*observation*; resultObservedValue (disaggregated); mean, minimum, maximum, number of samples etc. (aggregated))
- **Parameter** (sampledepth; sediment depth; species (biota))
- **How** (procedureAnalysedMatrix; procedureLOQValue)
- **Obs** (remarks)

2020 data call – WISE-6 adding pollutants observed in sediment or biota

WISE-4 (only water samples) -> WISE-6 (Analysed fraction + Analysed matrix merged)

- **WISE-4:** Analysed fraction (procedureAnalysedFraction – total, dissolved, suspended) and analysed media (procedureAnalysedMedia - water)
- **WISE-6:** Analysed matrix (procedureAnalysedMatrix - Water total (W); Water dissolved (W-DIS); Water suspended particulate mater (W-SPM))

WISE-6 (extra for sediment and biota samples)

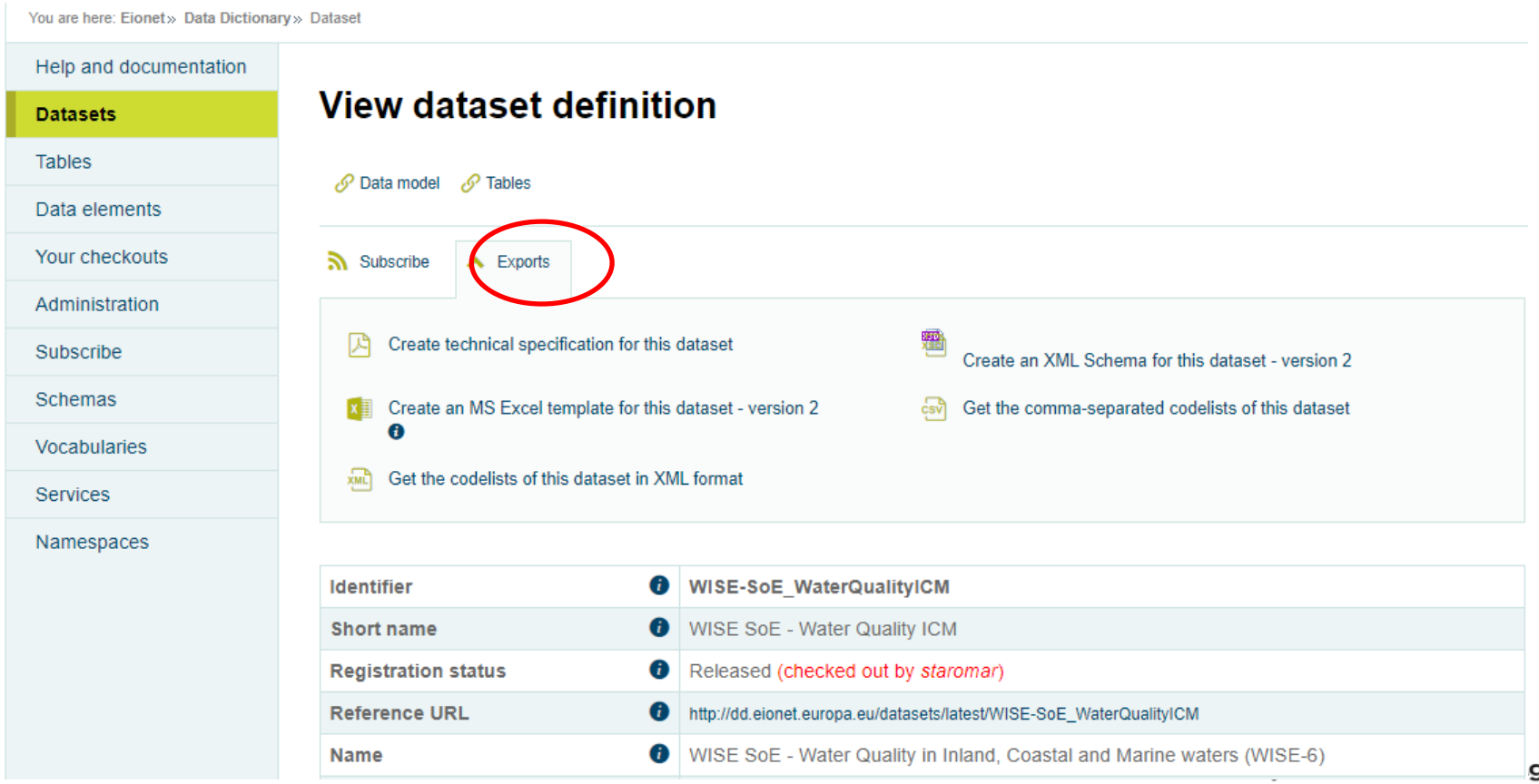
- **procedureAnalysedMatrix;** Water (Total, dissolved, suspended), sediment, biota
- **Sediment/biota**
  - resultMoisture; resultFat; resultLipid and resultExtratableLipid
  - parameterSedimentDepthSampled and parameterSpecies
- observedPropertyDeterminand and UoM (Unit of Measure) codelists updated including information on determinands that can be monitored in sediments or biota; including the range minimum or maximum for limit tests.

2020 data call – Preparation of the data set and steps

- Use the Data Dictionary http://dd.eionet.europa.eu/datasets/latest/WISE-SoE_WaterQualityICM
- Export the needed template(s) and codelists (if needed)
- Follow the instructions in the WISE SoE Reportnet Guidance the latest version can always be found here http://cdr.eionet.europa.eu/help/WISE_SoE/wise6
- Test your files in the https://cdrsandbox.eionet.europa.eu/
  - Username: datareporter
  - Password: datareporter
- Correct blockers, errors and check warnings – ask the WISE SoE Helpdesk for help
- Upload

2020 data call – Preparation of the data set and steps

- Using the Data Dictionary http://dd.eionet.europa.eu/datasets/latest/WISE-SoE_WaterQualityICM
- Export the needed template(s) and codelists (if needed)
- Follow the instructions in the WISE SoE Reportnet Guidance



gency

WISE6 - Quality control - 1st level quality control

0.a Data type test - OK
0.b Data constrains test - OK
1 Mandatory values test - OK
2.a Mandatory values test - conditional - missing result values unjustified - OK
2.b Mandatory values test - conditional - missing result values justified - OK
3.a Mandatory values test - conditional - [parameterSpecies] - OK
3.b Mandatory values test - conditional - [procedureLOQValue] - OK
4.a Conflicting values test - 'missing' result values - OK
4.b Conflicting values test - Biota - OK
4.c Conflicting values test - Sediment - OK
5.a Record uniqueness test - Water - OK
5.b Record uniqueness test - Biota - OK
5.c Record uniqueness test - Sediment - OK
6.a Valid codes test - OK
6.b Suggested codes test - OK
7.a Monitoring site identifier test - format - OK
7.b Monitoring site identifier test - reference - OK
7.c Monitoring site identifier test - retired and deprecated identifiers - OK
7.d Monitoring site identifier test - water body category - ERROR
8 The [observedPropertyDeterminandCode] test - unexpected - OK
9 The [observedPropertyDeterminandCode] and [resultUom] coherence test - OK
10.a Value constraints test - numeric parameter and result values - OK
10.b Value constraints test - [phenomenonTimeSamplingDate] - OK
11.a The [resultObservedValue] limit test - acceptable limits - OK
11.b The [resultObservedValue] limit test - expected range - OK
11.c The [resultObservedValue] limit test - confirmed outliers - OK
12 Logical coherency rule test - [resultQualityObservedValueBelowLOQ], [resultObservedValue] and [procedureLOQValue] - OK

7.d Monitoring site identifier test - water body category
Tests whether the reported [parameterWaterBodyCategory] matches the category ([specialisedZoneType]) of the water body, to which the respective monitoring site is officially assigned, as reported in the WFD or WISE-5 reporting.

ERROR - some of the [parameterWaterBodyCategory] do not match the officially reported water body data
Number of detected records: 580

Reported as Rivers but in Spatial data Transitional WB

Error should either be corrected in Spatial (WISE5/WFD) or WISE6

Document at WISE-SoE help [WISE-6 Quality control rules]

2020 data call – Overview and description for the different QC rule categories

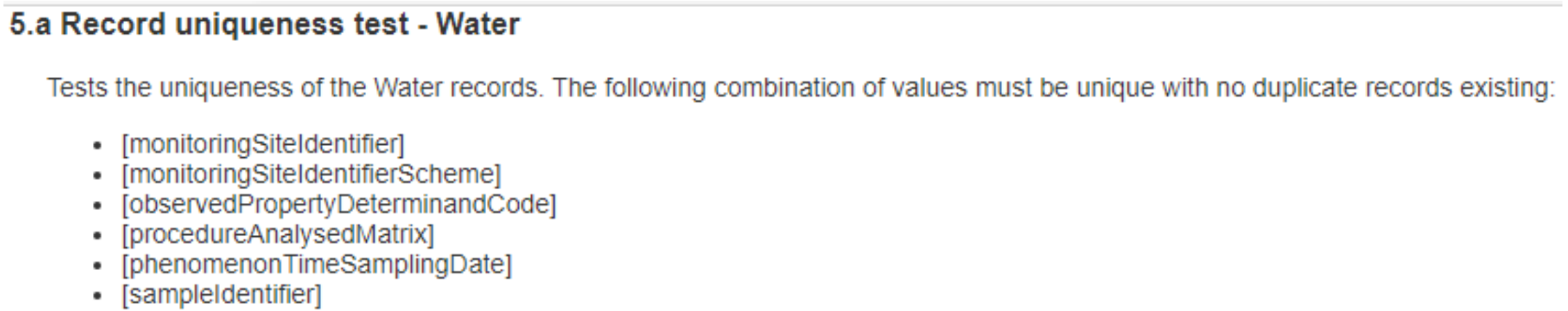
- **BLOCKER**. A critical error. The envelope cannot be released. Normally, a blocker is an error in the format of the file, or in the structure or content of the data. Such a critical error makes it impossible for the delivery to be harvested and integrated into the European database. The envelope can only be released if every incorrect file is removed and replaced by corrected files
- **ERROR**. A non-critical error. The envelope can be released, but part of its content may be excluded from the European database (or be marked as having low reliability). Data Reporters are strongly advised to correct the non-critical errors. If the automated QC returned errors, a clarification or a resubmission may be requested by the Data Client, when the data is processed, and the final feedback is added to the envelope.
- **WARNING**. An issue that may be an error. Data Reporters are advised to check the correctness of the records or values that raised the warning. The envelope can be released. If the automated QC returned warnings, a clarification may be requested by the Data Client, when the data is processed and the final feedback is added to the envelope.
- **INFO**. Other issues related to the quality of the data. The envelope can be released. A clarification may be requested by the Data Client, when the data is processed and the final feedback is added to the envelope. Note that the observation status and the remarks fields can be used to provide include the clarifications in the delivery itself.
- **OK**. The automatic QC did not detect quality issues. The envelope can be released.
- In addition to the tests described in this document, a result values -**limits test** is implemented in WISE-6 (Water Quality). The test checks if the resultObservedValue is within the acceptable value range for each determinand.

2020 data call – 1. Level qualiy controls

- **Envelope tests.** Tests that the XML files reported in the CDR envelope are of the expected schema, and that they are not empty.
- **Mandatory values tests (basic and conditional).** Tests the presence of mandatory values. Conditional tests look at the presence of a value if a specific condition is met (e.g. all Biota records must have Species value)
- **Data type and constraints tests**. Tests that the data type of the reported values matches the data definitions, which are critical for successful import into the database (e.g. no text is reported where a number is expected).
- **Conflicting values tests**. Tests that values are reported only if the specific condition is met (e.g. Species can be reported only for Biota records).
- **Valid codes tests**. Tests the validity of the values against the respective code lists.

2020 data call – 1. Level qualiy controls

- **Record uniqueness tests.** Tests the uniqueness of the records. No duplicate records can exist with the same combination of values, which must be unique for each record in the delivery. These tests run both on file and on envelope level.
  Special case sampling depth



5.a Record uniqueness test - Water

Tests the uniqueness of the Water records. The following combination of values must be unique with no duplicate records existing:

- [monitoringSiteIdentifier]
- [monitoringSiteIdentifierScheme]
- [observedPropertyDeterminandCode]
- [procedureAnalysedMatrix]
- [phenomenonTimeSamplingDate]
- [sampleIdentifier]

2020 data call – 1. Level qualiy controls

Tests the uniqueness of the records. No duplicate records can exist. BLOCKER

Row	monitorin	monitorin	paramete	observedPropertyDetermi	procedureAnalyse	procedure	phenomenonTimeS	paramete	resultUom	resultObs	resultO
2	NL001	eionetMo	GW	CAS_14797-55-8	dissolved	water	5/11/2006	NA	mg{NO3}/	0.062	NA
12	NL001	eionetMo	GW	CAS_14797-55-8	dissolved	water	5/11/2006	NA	mg{NO3}/	0.062	NA
6	NL001	eionetMo	GW	CAS_14797-55-8	dissolved	water	4/26/2010	NA	mg{NO3}/	0.062	NA
13	NL001	eionetMo	GW	CAS_14797-55-8	dissolved	water	4/26/2010	NA	mg{NO3}/	0.062	NA
10	NL001	eionetMo	GW	CAS_14797-55-8	dissolved	water	3/31/2014	NA	mg{NO3}/	0.31	NA
14	NL001	eionetMo	GW	CAS_14797-55-8	dissolved	water	3/31/2014	NA	mg{NO3}/	0.31	NA

Tests that the format of reported values matches the Data Dictionary specifications. BLOCKER

Data Element	Description/Unit	Error	Correct
parameterSampleDepth	Depth at which sample was taken in meter below water surface.	0.3 m	0.3
parameterSampleDepth	Depth at which sample was taken in meter below water surface.	NA	0

parameterSampleDepth

2020 data call – Monitoring sites

- **Spatial identifier tests**. Tests syntax of the spatial identifiers and their presence in the reference database.
- **Monitoring site identifier reference test**. Tests the presence of the monitoringSiteIdentifier and its respective monitoringSiteIdentifierScheme in the Vocabulary: Monitoring sites. The list has been created from previously reported data on monitoring sites.

7.b Monitoring site identifier test - reference
Tests the presence of the [monitoringSiteIdentifier] and its respective [monitoringSiteIdentifierScheme] in the official reference list. Only the valid, retired and deprecated identifiers are accepted. Superseded or non-existing are not.

The list has been created from previously reported data on monitoring sites. New monitoring sites must be reported via WISE-5 reporting, well before the timeseries reporting. The time is needed for processing of the delivery and update of the reference list.

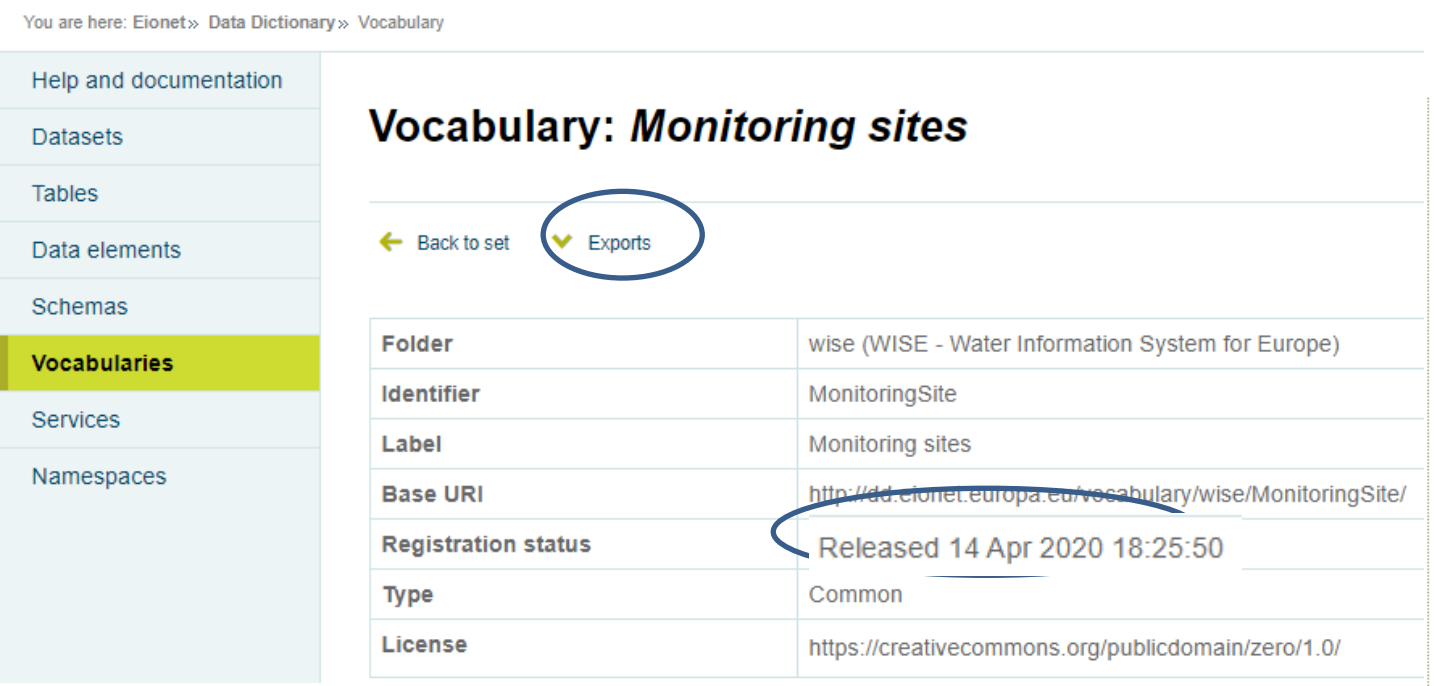
BLOCKER

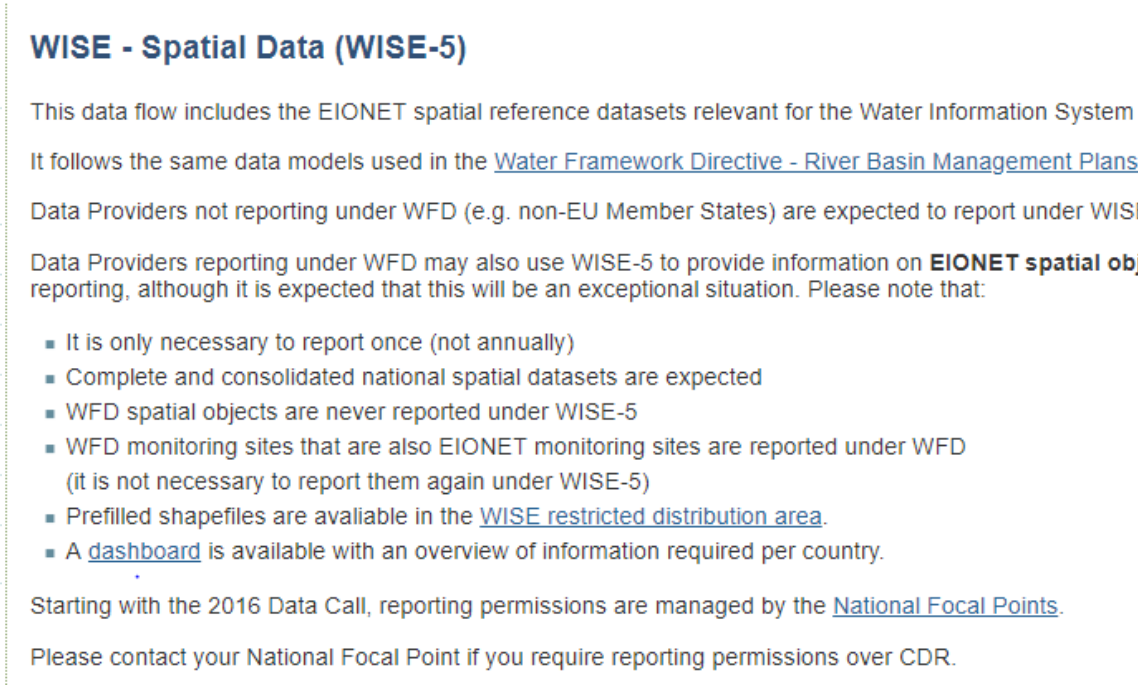
Solution update spatial data, or split data set into two one with accepted monSites and one with missing monSites

2020 data call – Monitoring sites

https://dd.eionet.europa.eu/vocabulary/wise/MonitoringSite

https://cdr.eionet.europa.eu/help/WISE_SoE/wise5





+330 000 monitoring sites (WFD, Eionet, superceded)
+60 000 monitoring sites with water quality data

In 2013-2016 more than 600 000 records have been reported with unknown identifier and are therefore not in published Waterbase (dashboard)

Check if monitoringSiteIdentifier in monitoring sites vocabulary – if not check for errors or update WISE5

European Environment Agency

2020 data call – 1. level quality controls

- **Observed property tests**. Tests that the reported observed property is expected/allowed in the specific table and that only the allowed unit of measure is used.
- **Value constraints tests**. Tests that the specific values match the data definitions (e.g. that the sample depth value is not negative).
- **Result value limit tests**. Tests that the result values are reported in the expected ranges (basic outlier detection).
- **Logical coherency tests**. Tests logical relation between values (e.g. that minimum value is not higher than the maximum).
- **LOQ test**. Tests the correctness of the values in the LOQ fields: The procedureLOQValue must be reported for hazardous substances and selected determinands for physicochemical conditions
  - If resultQualityObservedValueBelowLOQ = True then resultObservedValue=procedureLOQValue

8 The [observedPropertyDeterminandCode] test - unexpected - OK
9 The [observedPropertyDeterminandCode] and [resultUom] coherence test - OK
10.a Value constraints test - numeric parameter and result values - OK
10.b Value constraints test - [phenomenonTimeSamplingDate] - OK
11.a The [resultObservedValue] limit test - acceptable limits - OK
11.b The [resultObservedValue] limit test - expected range - OK
11.c The [resultObservedValue] limit test - confirmed outliers - OK
12 Logical coherency rule test - [resultQualityObservedValueBelowLOQ], [resultObservedValue] and [procedureLOQValue] - ERROR

2020 data call – 1. Level qualiy controls

Tests whether the correct result Unit of Measure (Uom) value has been used for the reported determinand.

	resultUom	Determinand codes (correct UoM)	Number of records
☐	mg{NH4}/l	CAS_14798-03-9 (mg{NH4}/L)	9
☐	mg{N}/l	EEA_31615-01-7 (mg{N}/L)	9
☐	mg{P}/l	CAS_7723-14-0 (mg{P}/L)	9
☐	mmol/l	EEA_3151-01-7 (mmol/L)	9

mg{N}/L	CAS_14798-03-9 (mg{NH4}/L) , CAS_14797-55-8 (mg{NO3}/L) , CAS_14797-65-0 (mg{NO2}/L)	56

BLOCKER

mg{NH4}/l ≠ mg{NH4}/L

BLOCKER

mg{N}/L ≠ mg{NO3}/L

Tests whether the resultObservedValue value is within the acceptable range for the reported determinand.
E.g. pH greater than 14. – WARNING – or BLOCKER

Rules for automatic quality control (QC) - Upper and lower limits (Excel sheet)

2020 data call – next steps

- Announcement letter 1 July 2020
- **The call for spatial data (WISE-5) is open from now until October 31st 2020.**
  - **Important to check that the monitoring sites you want to report data from are in the monitoringSite vocabulary http://dd.eionet.europa.eu/vocabulary/wise/MonitoringSite/view**
- **The call for the other WISE dataflows will run from Monday 12th October 2020 until Friday 15th January 2021.**
- **Download templates for data; - test the data set in https://cdrsandbox.eionet.europa.eu/**
- **If there are Blockers that prevent release of the folder**
  - **correct the issues;**
  - **contact the helpdesk for help; or**
  - **split the data set into two files (one data set without Blockers and a separate file with problematic records).**
- **Upload the files to CDR.**

Discussion, comments and questions?

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Thanks to Member States, reporters, IT consultants and colleagues at EEA