Quality element status

Ecological status is determined for rivers, lakes, and transitional and coastal waters based on biological quality elements (phytoplankton, macrophytes, phytobenthos, benthic invertebrate fauna and fish) and supporting physico-chemical (nutrients, oxygen condition, temperature, transparency, salinity and river basin specific pollutants (RBSPs) and hydromorphological quality elements.

The WFD specifies which elements are to be assessed for each water category and requires that biological and supporting quality elements achieve at least good status. The dashboards provide overview of the different results related to ecological status of quality elements.

In addition, further information is provided in chapter 2 of the EEA report European waters – assessment of status and pressures 2018, and section 2.4 Ecological status and exemptions of the WFD 2016 reporting guidance.

Caution is advised when comparing Member States and when comparing the first and second RBMPs, as the results are affected by the methods Member States have used to collect data and often cannot be compared directly.

Results of quality element ecological status are shown both as the status of the individual quality elements and for some quality elements as group status. The following groups are used

- 'biological quality elements' as the worst status of the available results on individual quality elements (phytoplankton, invertebrates, fish etc.);
- 'other aquatic flora' as the worst status of the available results on individual 'other flora quality elements than phytoplankton' ('other aquatic flora'; 'macroalgae', 'angiosperms' 'macrophytes', and 'phytobenthos');
- 'hydromorphological quality elements' as the worst status of the available results on individual HYMO quality elements ('hydrological or tidal regime'; ' river continuity conditions' and 'morphological conditions');
- 'general physico-chemical quality elements' as the worst status of the available results on individual physico-chemical quality elements (transparency conditions; thermal conditions; oxygenation conditions; salinity conditions; acidification status; nitrogen conditions; phosphorus conditions)
- 'nutrient conditions' as the worst status of the available results on individual nitrogen conditions or phosphorus conditions

The status of group of quality elements is calculated using the one out all out principle. The number of quality elements available per water body may vary.

The following dashboards are available (2018/07/17)

Quality element status

- Quality element status - tables overview table ; overview table of quality elements
- Quality element status - charts by category ; by quality element and category ; country comparison by quality element ; country and quality elements
- Quality element group status - graphs by category; by quality element and category ; country comparison by quality element ; country and quality elements
- Quality element status - maps by country ; by RBD - problem with link ; by country and RBD
- Quality element status in the 2nd and 1st RBMP - charts by category ; by quality element and category ; country comparison by quality element ; country and quality element

- Quality element group status in the 2nd and 1st RBMP - charts by category ; by quality element and category ; country comparison by quality element ; country and quality element

- Number of Quality Elements used in the assessment of the ecological status or potential - charts by category ; country comparison ; by country and category
- Ecological status or potential calculated from quality elements - charts by category ; country comparison ; by country and category
- River basin specific pollutants (RBSP) - tables overview table ; overview table2 ; other RBSPs ; overview graph

Quality element status

There are two **table dashboards** presenting overview of quality element ecological status: overview table and overview table of quality elements

Main features

- The overview table presents the ecological status by quality element. The table start default by biological quality and all four categories, but the filters can be used to select other quality element groups or a specific category.
- The table starts by default with number of water bodies and by percentage and with 2nd RBMPs. The filter 'measure' can change the results to by size (length in km and area in km^2) and the filter RBMP can change the results to 1st RBMPs.
- The table is by default without unknown but by selecting unknown in the filter 'quality element status' extra columns are added to the table.
- By selecting a specific quality element, for example, 'benthic invertebrates' the status by individual Member States can be compared.
- Moving the mouse to NUT0 (column with Member States) a [+] will appear and clicking on [+] will drill down to RBDs. On euRBDCode column a new [+] will appear, and by clicking on [+] it will drill down to sub-units. If a RBD has not identified sub-units RBDcode and SubunitCode are generally equal.
- Selecting 'high' and 'good' in the filter 'ecological status' all quality element status should by definition of One-out-all-out also have high and good status, however, there are some water bodies with quality element status 'less than good' and overall ecological status high or good.
- The table overview table of quality elements presents per group of quality elements and by individual quality elements overviews of the number of Member States, categories, number of water bodies, and size (km/km^2). The top table shows the group overview, while the bottom table show the overview by individual quality elements. Results are based on quality elements with known ecological status.
- Selecting a specific category, for example 'rivers', will present the overview of number of countries using the specific quality element. Selecting a specific country will provide overview of the quality elements used by the specific country (only the lower table is changed and (*) row present the total number of water bodies for the country and category).

Ecological status of quality elements is also presented in by two times four **chart dashboards**

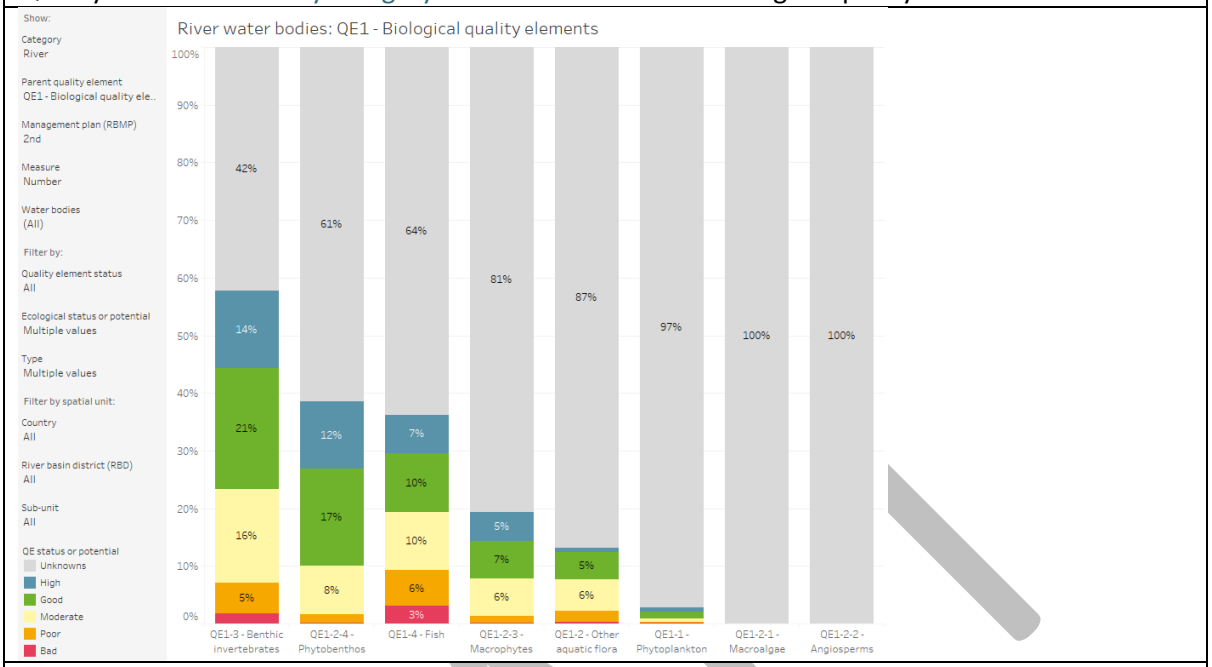
- Quality element status by category ; by quality element and category ; country comparison by quality element; and country and quality elements
- Quality element group status - by category; by quality element and category; country comparison by quality element; and country and quality elements

and by three map dashboards by country ; by RBD - problem with link ; by country and RBD.

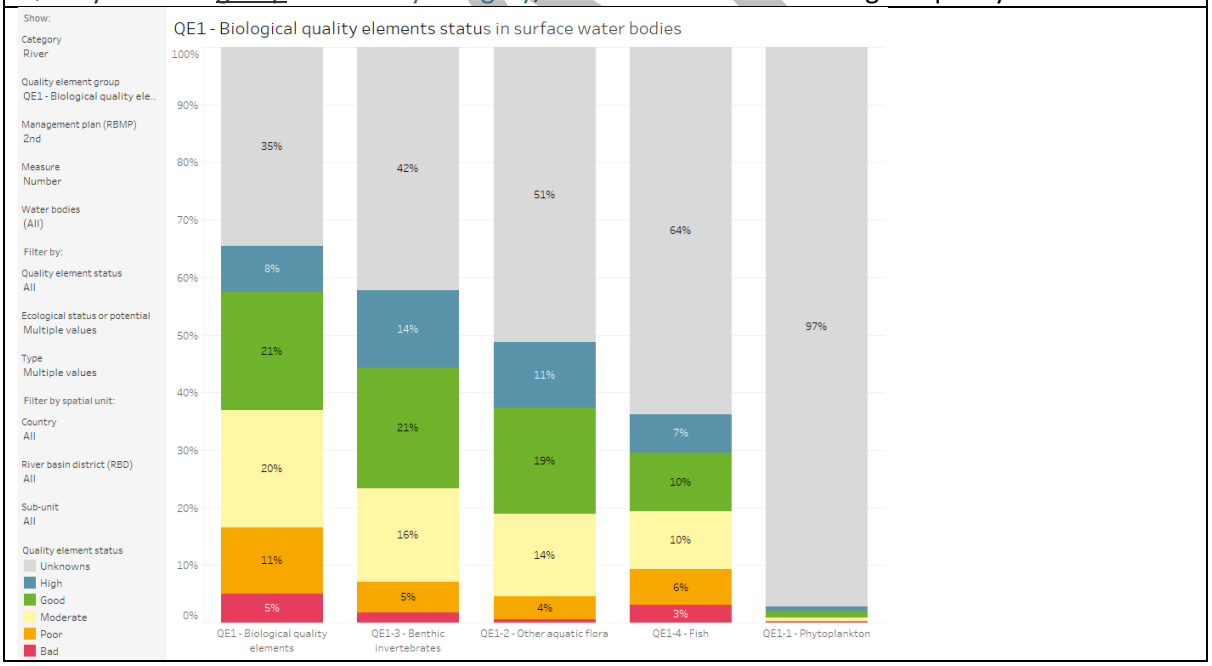
Main features

- The difference between the charts on quality element status and quality element group status is illustrated by the below diagrams.

Quality element status by category – River water bodies – biological quality elements



Quality element group status - by category; River water bodies – biological quality elements



- The results for QE group status has a bar with the overall biological quality elements ecological status, calculated as the worst status of the available BQEs.
- Both diagrams have similar results for QE1-3 Benthic Invertebrates, QE1-4 Fish and QE1-1 Phytoplankton; however, the diagrams differ for QE1-2 – the first diagram has individual bars for five different QE1-2 ('other aquatic flora'; 'macroalgae', 'angiosperms', 'macrophytes' and 'phytobenthos') while the second group status has one bar for 'QE1-2 other aquatic flora' calculated as the worst status of the available above five QE1-2 status.

- For hydromorphological and physico-chemical supporting quality element the main difference is that the group status gas an overall hydromorphological and physico-chemical status. In addition, an extra nutrient condition status combining nitrogen and phosphorus QEs is available in the group status.

- In general, the group status takes into account differences in Member States reporting of 'other aquatic flora' and makes it possible to illustrate overall group status (biological quality elements, hydromorphological and physico-chemical quality elements).
- On all chart dashboards water bodies with unknown quality element status can be excluded by click on the unknown in the legend.

Comparison of quality element ecological status in the 2nd and 1st RBMPs

Similar to the above two times four dashboards presents results on quality element and quality element group status in the 2nd and 1st RBMP

- Quality element status in the 2nd and 1st RBMP - charts by category ; by quality element and category ; country comparison by quality element ; country and quality element
- Quality element group status in the 2nd and 1st RBMP - charts by category ; by quality element and category ; country comparison by quality element ; country and quality element

Main features

- See above on the difference between quality element status and quality element group status.
- The filters (left panel) may be used to select the results presented. By default is presented the number of water bodies, but in the Measure filter results can be changed by size (length in km of rivers and area of other surface water body categories).
- The filter 'Water bodies' makes it possible to select only the water bodies that were unchanged from 1st to 2nd RBMPs; this filter will exclude countries with the majority of surface water bodies redelineated from 1st to 2nd RBMPs.
- Water bodies with unknown ecological status may be excluded by clicking on 'Unknown' in the legend.
- Clicking on for example 'bad' in 1st RBMPs in (*) will illustrate the status of these water bodies in the 2nd RBMPs. 'Ctrl' clicking on 'high' and 'good' will illustrate how many water bodies are still in high/good in 2nd RBMPs and how many water bodies that have deteriorated.
- A special feature is 'Ctrl' clicking in 'high', 'good', 'moderate', 'poor' and 'bad' in 1st RBMPs and excluding unknowns in legend will illustrate the ecological status of water bodies with known status in 1st and 2nd RBMPs. Filter 'Water bodies' should also be set to 'unchanged'.
- Caution is advised when comparing the first and second RBMPs, as the results are affected by the methods Member States have used to collect data and often cannot be compared directly.
- In the first RBMPs Member States did only report details on biological quality element status, but only aggregated status for supporting hydromorphology and physico-chemical quality element status.

Number of quality elements used in the assessment of the ecological status

Three **chart dashboards** present number of quality elements used in the assessment of the ecological status: by category; country comparison; and by country and category.

Main features

- Remark that the ecological status filter by default is set to water bodies with known ecological status. Adding unknown in this filter will present the proportion of water bodies with quality element status.

Three chart dashboards present a comparison of reported ecological status and ecological status or potential calculated from quality elements using the one-out-all-out principle: Dashboards present the results by category; country comparison; and by country and category.

River basin specific pollutants (RBSP)

Similar to priority substances a set of table dashboards have been produced to illustrate the River basin specific pollutants (RBSP) causing failure to achieve good ecological status. The identification of RBSPs in these tables indicate that the RBSP exceed the threshold set for the specific water body. The thresholds may for a specific RBSP may vary between Member States or RBDs (dashboards illustrating the thresholds used will be produced).

- tables table RBSPs by country ; overview table ; other RBSPs ; overview graph
- The functionality of the RBSP dashboards are similar to the priority substance dashboards. (see the description for chemical status of surface water *further description may be added later*)
- Selecting a specific Member State will illustrate the RBSP causing failure to achieve good ecological status (there are some water bodies with high or good ecological status or potential and reported RBSPs (59 water bodies)). The (*) indicate the discrete number of water bodies (if filter River basin specific pollutants (RBSP) without 'none' only the water bodies with exceedance of threshold (EQS), while if filter RBSP including 'none'/'all' (*) is count of all water bodies. 'none' indicate water bodies without RBSPs failing, this may be due to unknown RBSP status or 'high'/'good' ecological status in relation to RBSPs.
- For RBSPs Member States had the possibility to report RBSPs not in the standard chemical substance codelist (+700 substances). These other substances are in general causing failure in few water bodies and are listed in the separate 'other RBSPs' dashboard.