

# 10. MONITORING PROGRAMMES AND WATER BODIES' STATUS

## Monitoring programmes

Article 8 of the Water Framework Directive establishes that the Member States of the European Union should design the follow-up and monitoring programmes that provide enough information to assess the status of water bodies. These programmes should include, for surface waters, measurement of volume and flow level, ecological status/potential, and chemical status. With regards to groundwater, the programmes should allow to assess the chemical status and quantitative status.

The establishment of monitoring and follow-up programmes has involved an adaptation of the monitoring networks already existing in the District. Depending on the purposes of each programme and on the parameters on which the follow-up may be conducted, there are surveillance programmes, operation, protected areas programmes and quantitative programmes.

Taking into account all the programmes, the number of monitoring stations used to assess the status of river-type surface body water has been 325, whereas in the case of lakes, transitional waters and coastal waters, the number of monitoring stations used has been 19, 31 and 222, respectively, with respect to groundwater bodies, 615 monitoring stations have been used.

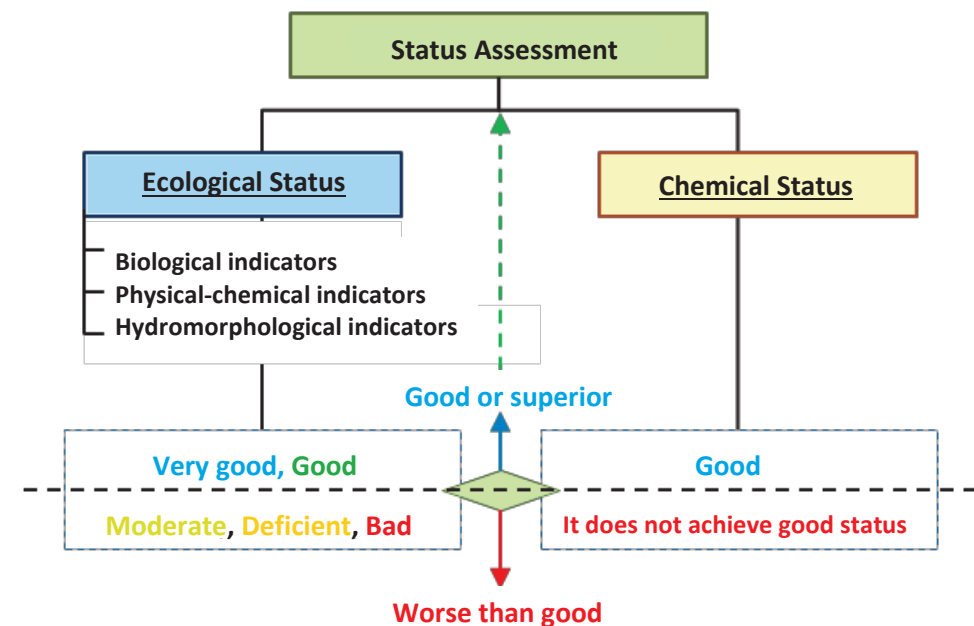
## Assessment of the status

The assessment of water bodies' status is conducted both on surface and groundwater bodies with the purpose of assessing their status with regard to the reference status, which is the ideal status corresponding to zero or very low pressure levels.

In the case of surface water bodies, and in compliance with the guidelines of Royal Decree 17/2015 dated September 11, establishing the follow-up criteria and the assessment of surface waters' status and the environmental quality standards, the status is determined as the worst value of the status or ecological potential and of the chemical status. In the first case, biological quality elements, physicochemical elements and hydro-morphological elements, are assessed whereas the second case includes the analysis of all substances collected in the environmental quality standards.

The status of groundwater bodies is assessed on the basis of the quantitative and chemical status. In order to assess the quantitative status, different aspects related to pressure caused by human activity and impact caused by the abstraction of groundwater are analysed from the information provided by the piezometry and quality network (nitrates, pesticides, chlorides, sulphates, heavy metals, etc.).

The criteria to assess the chemical status are defined by Directive 2006/118/EC and Royal Decree 1514/2009, which transposes national legislation; therefore, they are considered environmental quality standards –nitrates and pesticides– and threshold values of pollutants and pollution indicators that have been identified as elements that contribute to water bodies not achieving good status.



Scheme of the status assessment of surface water bodies





Image: Júcar River in Cuenca

The direct benefits of having water bodies in good qualitative and quantitative status will result in a better assurance of meeting demands and in a recovery of the conditions of the aquatic and terrestrial ecosystems associated, and of the flora and fauna present in these ecosystems.

In addition, there are also other indirect benefits such as increased opportunities of recreational uses such as swimming, fishing or kayaking.



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## Results of the status assessment: Surface water bodies

The percentage of surface water bodies achieving good status is 35%. In the case of water bodies of river category, water bodies in poor status are concentrated mainly in middle and low sections of rivers and, to a greater extent, in the southernmost part of the District.

In addition, all water bodies have been assessed in this planning cycle, including bodies called Without Water at Sampling (WWS), which due to their seasonal and ephemeral character do not carry water permanently. This assessment has been conducted based on an analysis of their hydrological, morphological and point-source pressures (resulting from urban, industrial and/or hazardous substance discharges).

With respect to reservoirs, the majority of them achieve the objectives set for good status, which does not occur in lakes as only two lakes are in good status.

Finally, with respect to coastal water bodies, the majority of natural water bodies achieve the conditions for good status, unlike ports, where only one achieved good status. With regards to transitional water bodies, two out of the three water bodies have good status.

The primary reasons why good status is not achieved derive from point-source urban and industrial pollution, diffuse pollution mainly due to agricultural use, and from the modification of the natural morphological conditions of the river basin.

Surface water category	River Basin Management Plan, 2016-2021			
	Good or superior		Worse than good	
	Number	%	Number	%
River	104	34	200	66
Lake	2	11	17	89
Transition	2	50	2	50
Coastal	14	64	8	36
<b>Total</b>	<b>122</b>	<b>35</b>	<b>227</b>	<b>65</b>

Status of surface water bodies: Summary per number and percentage in each water body category



Status on surface water bodies





Image: Servol River in Vallibona

The JRBA participates with other Administrations and Universities, in the LIFE TRIVERS project (2014-2018), related to the analysis and study of temporary and ephemeral water bodies.

Its primary task is to determine the methodology to define environmental objectives and to assess the status for this type of temporary rivers.

The results of this LIFE project should indicate progress on this subject and help the European Commission and the Member States in the inter calibration of this type of water bodies, typical of arid and semi-arid environments.



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## Results of the status assessment: Groundwater bodies

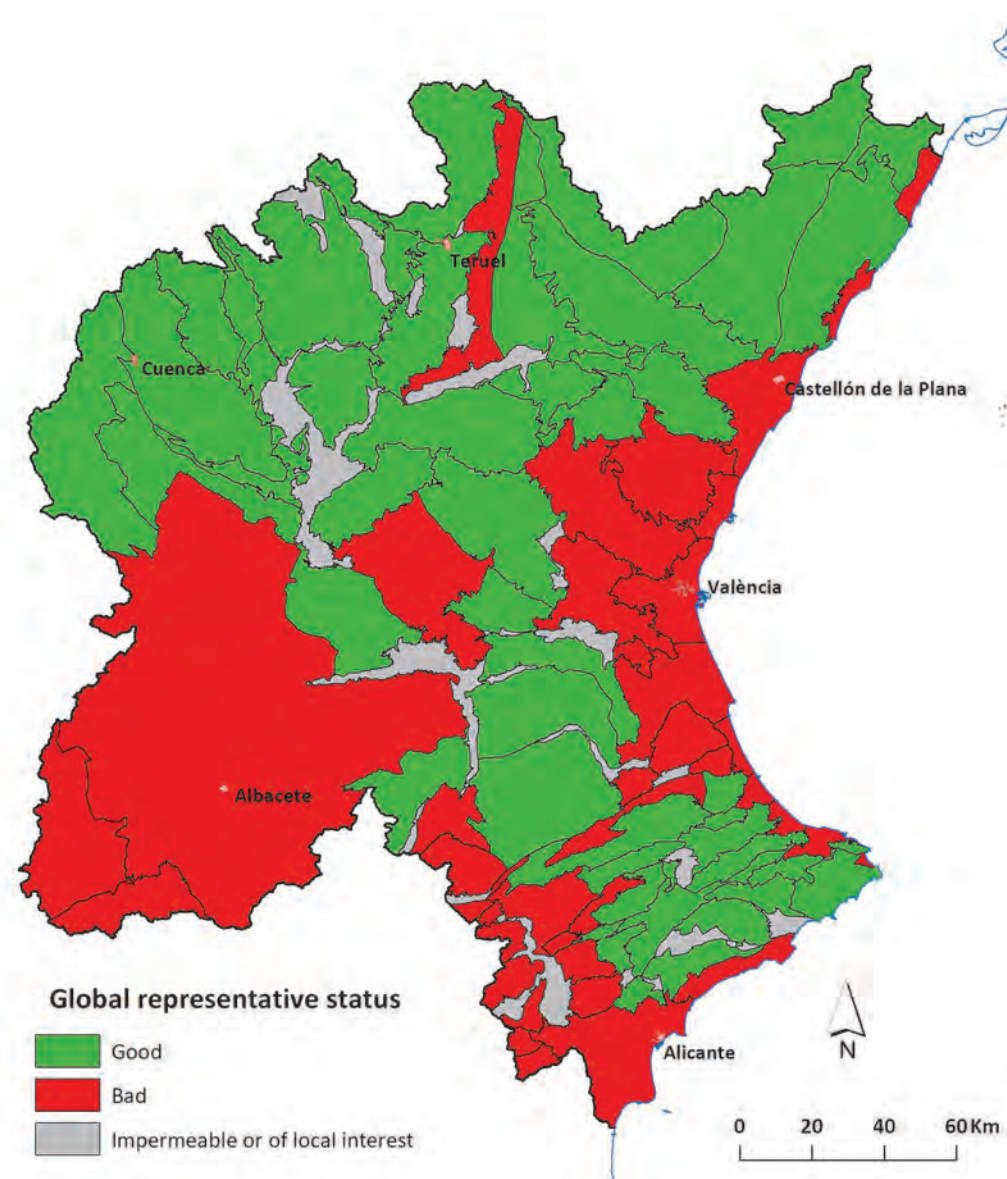
Out of the 90 groundwater bodies, 60 have a good quantitative status and 67 have a good chemical status, although when assessing global status, combining previous status, the result is that 49 bodies, which represent 54% of the total, achieve good status.

The majority of groundwater bodies in the coastal area, where the population is primarily concentrated and which therefore have a higher pressure, have an overall poor status due to non-compliance with the quantitative status, chemical status, or both. Many of the bodies of the Vinalopó-Alacantí system are also in poor status, primarily due to overexploitation, except for coastal areas, which are non-compliant due to nitrates, and the bodies of the area of Eastern La Mancha, which are non-compliant both in terms of quantitative and chemical status.

The primary reasons why the good status is not achieved derive from the intensive exploitation of groundwater bodies and from diffuse pollution due to agricultural use which causes the presence of pesticides and nitrates in some water bodies, with nitrates being the primary cause of the poor chemical status in the Júcar River Basin District. The bodies with problems due to high content of nitrates are located primarily along the coastal strip. Twenty-three of these groundwater bodies have a poor chemical status due to nitrates, which represents 25% of the total bodies.

Rating	River Basin Management Plan 2016-2021	
	Number of water bodies	%
Good	49	54
Poor	41	46
Total	90	-

Status on groundwater bodies



Assessment of the status of groundwater bodies





Image: Pool and pumping station of the Júcar-Vinalopó pipeline at Llanera de Ranos

In the Vinalopó-Alacantí system, there are some water bodies with a significant imbalance between resources and abstractions.

The programme of measures of the River Basin Management Plan includes a series of actions aimed at providing enough resources to replace groundwater abstractions in this area, balancing groundwater bodies and ensuring the sustainability of the system exploitations.

One of the primary actions in this respect is the provision of surface resources from the Júcar river system through the Júcar-Vinalopó pipeline.