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Second River Basin Management Plans - Member State: Austria

Accompanying the document

**REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND
THE COUNCIL**

**on the implementation of the Water Framework Directive (2000/60/EC) and the Floods
Directive (2007/60/EC)
Second River Basin Management Plans
First Flood Risk Management Plans**

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Acronyms and definitions

EQS Directive	Environmental Quality Standards Directive
Km	Kilometre
km ²	Kilometre squared
KTM	Key Type of Measure
NGO	Non-Governmental Organisation
PoM	Programme of Measures
RBD	River Basin District
RBMP	River Basin Management Plan
WFD	Water Framework Directive
WISE	Water Information System for Europe
Annex 0	Member States reported the structured information on the second RBMPs to WISE (<u>Water Information System for Europe</u>). Due to the late availability of the reporting guidance, Member States could include in the reporting an Annex 0, consisting of a short explanatory note identifying what information they were unable to report and the reasons why. This Annex was produced using a template included in the reporting guidance. If Member States reported all the required information, this explanatory note was not necessary.

Foreword

The Water Framework Directive (WFD) (2000/60/EC) requires in its Article 18 that each Member State reports its River Basin Management Plan(s) (RBMPs) to the European Commission. The second RBMPs were due to be adopted by the Member States in December 2015 and reported to the European Commission in March 2016.

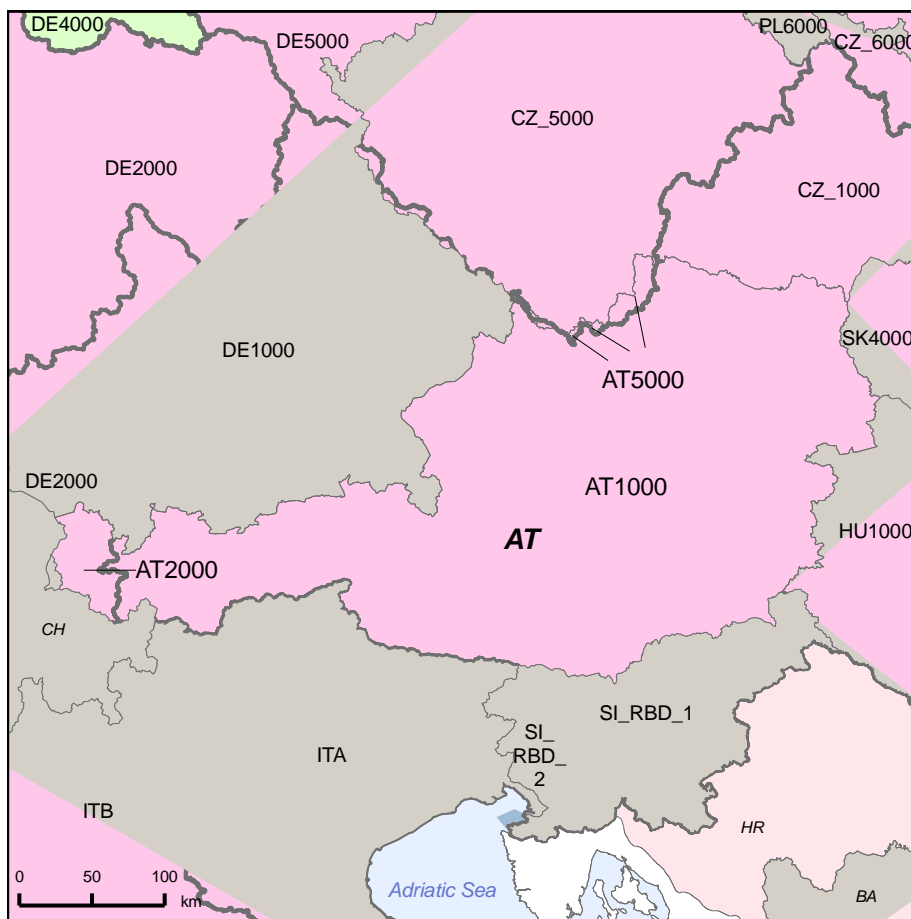
This Member State Assessment report was drafted on the basis of information that was reported by Member States through the Water Information System for Europe (WISE) electronic reporting.

The Member State Reports reflect the situation as reported by each Member State to the European Commission in 2016 or 2017 and with reference to River Basin Management Plans (RBMP) prepared earlier. The situation in the Member States may have changed since then.

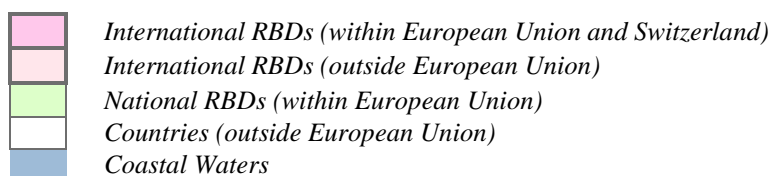
General Information

Austria (Map A) has a population of 8.3 million¹ and an area of 83 870 km².

Map A Map of RBDs



Source: WISE, Eurostat (country borders)



Austria has three RBDs which are all transboundary/international river basin districts: Danube, Rhine and Elbe. It is a land locked country and hence has no transitional or coastal waters.

Information on the extent of the national river basin districts, including countries sharing parts of the entire RBD, is provided in Table A:

¹ Eurostat, 2007

Table A *Overview of Austria's RBDs*

RBD	Name	Size (km ²)	% National territory within transboundary RB	Countries sharing RBD
AT1000	Danube	80 565	96%	AL, BA, BG, CH, CZ, DE, HR, HU, IT, MD, ME, FYROM, PL, RO, RS, SI, SK, UA
AT2000	Rhine	2 365	3%	BE, CH, DE, FR, IT, LI, LU, NL
AT5000	Elbe	921	1%	CZ, DE, PL

Source: River Basin Management Plans reported to WISE

The three international river basins on the Austrian territory all have transboundary cooperation. The Rhine, Elbe and the Danube are all governed by international River Basin Commissions. Austria acts as a party in the Danube and has observer status in the Rhine and Elbe commissions. In addition, bilateral agreements exist.

The share of Austria in the respective international RBDs (Table B) is 10 % (Danube), 1 % (Rhine) and 0.6 % (Elbe).

Table B *Transboundary river basins by category and percentage share in Austria*

Name international river basin	National RBD	Countries sharing RBD	Co-ordination category	
			1	
			km ²	%
Danube	AT1000	AL, BA, BG, CH, CZ, DE, HR, HU, IT, MD, ME, FYROM, PL, RO, RS, SI, SK, UA	80 565	10.0
Rhine	AT2000	BE, CH, DE, FR, IT, LI, LU, NL	2 365	1.0
Elbe	AT5000	CZ, DE, PL	921	0.6

Source: WISE electronic reports

Category 1: International agreement, permanent co-operation body and international RBMP in place.

Category 2: International agreement and permanent co-operation body in place.

Category 3: International agreement in place.

Category 4: No co-operation formalised.

Status of second river basin management plan reporting

A single RBMP for Austria (covering the three RBDs: Danube, Rhine, Elbe) was published on 30 June 2017. Documents are available from the European Environment Agency EIONET Central Data Repository <https://cdr.eionet.europa.eu/>.

Key strengths, improvements and weaknesses of the second River Basin Management Plan(s)

The main strengths and shortcomings of the second RBMP of Austria are as follows:

- **Governance and public consultation**
 - Austria cooperates via the international commissions for the Danube, Elbe and Rhine, and also via bilateral agreements with neighbouring Member States and third countries.
 - A broad range of stakeholder groups were actively involved in the development of the RBMP. Mechanisms for active involvement included advisory groups.
 - Austria used information websites on water issues in order to stimulate public awareness of the RBMP's development and encourage participation.
 - Austria did not adopt and publish the RBMP in accordance with the timetable in the Water Framework Directive.
- **Characterisation of the RBD**
 - There were significant differences in the number of delineated surface water bodies, due to new or better information that became available during the planning process. However, it is unclear, based on information from the RBMP, what the consequences of these changes on the classification of status were².
 - Type specific reference conditions have been established for all relevant biological quality elements, physicochemical quality elements and hydromorphological quality elements for all river water body types and lake water body types.
 - Further characterisation work has been reported since the first cycle with the inclusion of the assessment of linkages between groundwater bodies and terrestrial ecosystems for all RBDs. Linkages with surface water bodies in each of the RBDs were not reported, but Austria clarified that there are no instances where the groundwater body is relevant for the status of the associated surface water body.

² Austria subsequently stated that the new water body delineation allows for a more detailed picture of the actual status of rivers.

- For surface waters and groundwater, significance of pressures was linked to failure of objectives and thresholds are used.
- For groundwater bodies 97 % of water bodies had no pressures reported (this was included in Annex 0) and only 3 % appear to be found to have pressures from diffuse agriculture.
- For groundwater, expert judgement was used for defining significant pressures from point sources, artificial recharge and other pressures. This may indicate potential shortcomings in the assessment of these pressure types.
- The Priority Substances causing the failure of good chemical status and the measures to tackle these substances to achieve good status by 2021 were reported. The indicator gap was reported for 2021 for all substances, however, for some substances (for example, mercury and its compounds in surface water in the Danube RBD) it appears as if the measures may not be sufficient to close the gap to good status by 2027³.
- Austria reported complete inventories, including all the 41 Priority Substances for each of the RBDs. The inventories were developed according to the methodology developed at EU level, and presented in CIS Guidance Document n°28. As recommended in the guidance document, the analysis was limited to the first tier of the methodology only for substances judged not relevant at RBD level, and a more complete assessment was carried out for substances deemed relevant at RBD level. The input data was generally assessed as of uncertain quality.
- **Monitoring, assessment and classification of ecological status**
 - There was a significant increase in the proportion of rivers included in operational monitoring, from 6 % reported in the first RBMPs to 20 % in the second. There are no operational monitoring programmes for lakes, although all lakes at risk of failing good ecological status are covered by surveillance monitoring.
 - All expected biological quality elements were reported to be monitored in rivers, but benthic invertebrates are not monitored in lakes. The assessment method for benthic invertebrates in lakes is part of the 2018 Intercalibration Decision.

³ Austria subsequently clarified that measures at the national level are not expected to significantly reduce the diffuse aerial pollution coming from outside of Austria.

- Over 98 % of river water bodies were reported to be monitored for all required biological quality elements for surveillance monitoring, none were for lakes.
- All of the seven biological quality elements used for the surveillance monitoring of rivers and lakes were sampled at least at the minimum recommended frequency at all sites where they were monitored. However, this was almost never the case for the operational monitoring of biological quality elements.
- Hydromorphological quality elements were not reported to be monitored in rivers and lakes in Austria. Austria subsequently clarified that hydromorphological quality elements are monitored in rivers and lakes, but the monitoring is continuous and not related to sites and was for that reason not reported to WISE.
- Eleven River Basin Specific Pollutants were reported to be monitored in Austria, only in rivers. One RBSP is monitored in fish, eight in settled sediment and ten in water. All sites included in surveillance monitoring were sampled at least at the recommended minimum frequency for all ten RBSP in water, but this was not the case at any of the sites used for operational monitoring.
- The confidence in the classification of ecological status/potential has significantly decreased between the two cycles. This was an effect of changes of the assessment methodology.
- Chemical pollution was reported to impact all river and lake water bodies in Austria but none of the biological assessment methods were reported to be sensitive to this impact, which is a significant gap in the assessment methodology.
- All the relevant hydromorphological and general physicochemical quality elements in rivers and lakes were assessed in terms of ecological status/potential and the classification boundaries are related to the class boundaries for the sensitive biological quality elements.
- Expert judgement was reported to be used extensively in the classification of the biological quality elements in rivers and lakes⁴.
- General physicochemical quality elements were reported not to be used in the classification of rivers and lakes even though they were reported to be extensively

⁴ Austria subsequently stated that this is a reporting error and that most of the results that were reported as expert judgement were obtained by a grouping procedure.

monitored. Austria subsequently clarified that physicochemical quality elements are used as supportive elements for the assessment of the ecological status.

- **Monitoring, assessment and classification of chemical status in surface water bodies**
 - In its second RBMPs, in accordance with the EQS Directive, Austria applied the environmental quality standard for mercury in biota, and extrapolated the results to non-monitored waterbodies. As a consequence, the proportion of surface water bodies with good chemical status decreased from 99.5 % to 0 % between the two RBMPs and the proportion of waterbodies failing to achieve good status increased from 0.2 % to 100 %.
 - A small proportion of river monitoring sites (6 %) (none of the lake (0 %)) are used for the assessment of chemical status. A correspondingly small proportion of river water bodies were monitored (2 %). Austria explained this on the basis of the risk assessment undertaken as part of the characterisation process where a low percentage of water bodies were expected to be at risk from substances other than mercury. It is not entirely clear whether this monitoring can fulfil all the objectives of the surveillance monitoring programmes, in particular validating the results from the impact assessment procedure or assessing long term changes in natural conditions and long term changes resulting from widespread anthropogenic activity, especially in waterbodies where no risk is expected at the moment from substances other than mercury.
 - The confidence in the assessment is reported as low for almost all water bodies classified. However, this applies only to the assessment of chemical status including the ubiquitous substances (i.e. mercury). The chemical status assessment when omitting ubiquitous substances is associated to medium confidence.
 - Some, but not all, discharged substances were monitored in each RBD. The frequency of monitoring generally met the recommended minimum frequency for surveillance monitoring but not for operational monitoring.
 - Hexachlorobenzene, mercury and hexachlorobutadiene were monitored in biota in rivers in the Danube (up to 22 sites) and Rhine RBDs (up to four sites) but not the Elbe RBD. Austria clarified that the biota monitoring was carried out once in each monitoring site, which is below the minimum recommended frequency. No explanation was provided for the reduced frequency.

- In the Danube RBD all 14 of the Priority Substances are reported to be monitored for long-term trends in sediment and/or biota in river water bodies but not in lakes, nor in the other RBDs. Spatial coverage appears to be very limited with only five sampling locations being monitored for each substance. The frequency of monitoring meets the recommended minimum frequency.
- **Monitoring, assessment and classification of quantitative status of groundwater bodies**
 - The number of monitored groundwater bodies increased, as well as the reported number of monitoring sites. However, 17 groundwater bodies were not monitored in the second cycle. According to Austria, where no monitoring sites were available, the quantitative status assessment was based on the water balance test.
 - Groundwater dependent terrestrial ecosystems were considered in all river basin districts.
- **Monitoring, assessment and classification of chemical status of groundwater bodies**
 - 97 % of groundwater bodies are directly monitored for chemical status. However, it is unclear whether all the core parameters are subject to monitoring.
 - There is high confidence in the status of all groundwater bodies.
 - It was reported that surface water bodies have been considered in the assessment of chemical status of groundwater bodies, which is described in Annex 0.
 - 77 groundwater dependent terrestrial ecosystems in the Danube RBD, two in the Rhine RBD, and one in the Elbe RBD have been considered in the status assessments.

- **Designation of Heavily Modified and Artificial Water Bodies and definition of Good Ecological Potential**
 - The significant adverse effects of restoration measures on the use and the wider environment - Article 4(3)(a) - have been defined on the basis of criteria for different activities.
 - Improvements to the method for good ecological potential definition have been reported since the first RBMP. A key change for both rivers and lakes seems to be the inclusion of biological quality elements other than fish, and the inclusion of physico-chemical and hydromorphological quality elements.
 - The ecological changes expected due to the mitigation measures are described in the guidance document for assessing good ecological potential in heavily modified water bodies.

- **Environmental objectives and exemptions**
 - Environmental objectives for surface and groundwater bodies have been reported in all RBDs at water body level. The numbers of exemptions applied show a decrease in surface waters. There are tables for each water body (separate tables for groundwater, lakes, and rivers) providing the justification for the exemption.
 - Drivers, pressures and pollutants leading to exemptions are reported, although some uncertainties remain. Also impacts due to exemptions are reported.
 - Information on clear criteria developed for the application of ‘technical unfeasibility’, ‘disproportionate costs’ and ‘natural conditions’ is not provided. The application of exemptions might be an issue of implementation of WFD requirements as only limited information is provided in the plan.

- **Programme of Measures**
 - A financial commitment has been secured for the implementation of the Programme of Measures (PoM) in all three RBDs albeit for a much reduced budget compared to the first cycle.
 - All of the significant pressures identified in surface water and groundwater in the Danube RBD are covered by operational KTMs. Also all, except one pressure for

each RBD, are covered for the Rhine and Elbe RBDs (only surface water is relevant in these).

- There are 24 national measures to tackle River Basin Specific Pollutants (KTM 15 - “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”). However, for Zinc (in the Danube RBD) no measures have been reported as due to the source of zinc from historic mining a lower standard was defined. There is no information on KTMs for River Basin Specific Pollutants in the Rhine and the Elbe RBDs, as these are not considered to be significant pressures.
- There are 24 national measures to tackle Priority Substances (KTM 15 - “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”). Most Priority Substances seem to be subject to KTM 14 - “Research, improvement of knowledge base reducing uncertainty”. Benzo(a)pyrene and lead identified as causing failure of objectives in surface water in the Danube RBD, do not seem to be addressed by any measures (the nationally derived KTM “No measures in this cycle – review of less stringent target in next cycle” is reported).
- Gap indicators and measure indicators are listed for most significant pressure types in all three RBDs, together with gap values and measure indicator values for 2015 and 2021. However, reported improvements are mainly modest, with most gaps far from being closed by 2021, and no gap analyses have been performed for 2021-2027.
- **Measures related to abstractions and water scarcity**
 - Water quantity pressures were not reported as relevant for Austria. The RBMP included a water resource allocation and management plan.
 - There is a concession, authorisation, and/or permitting regime to control surface and groundwater abstractions and water impoundment.
 - Article 11(3)(c) and 11(3)(f) measures have been implemented in the previous cycle.

- **Measures related to pollution from agriculture**
 - There is a clear link between agricultural pressures and agricultural measures.
 - A general management objective for nutrient pollution (related to nitrogen surplus) is set.
 - A comprehensive gap assessment for nutrients and pesticides has not been undertaken in any of the RBDs.
 - Basic measures for the control of diffuse pollution are implemented and several supplementary measures are foreseen.
 - Financing of measures is considered as secured in all the RBDs.
 - It is not clear from the RBMP to which extent mandatory or voluntary measures will contribute to achieving the WFD objectives.
 - The RBMP document provides a map showing the areas to which additional supplementary measures are to be applied.
- **Measures related to pollution from sectors other than agriculture**
 - KTMs have been reported to WISE in relation to significant pressures from Priority Substances and River Basin Specific Pollutants causing failure.
 - Austria reported that 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") has been mapped against national measures, and that it is tackling significant pressures in all Austrian RBDs.
 - Measures to tackle nitrate pollution in groundwater have been partly successful.
 - Information on point sources of pollution by Priority Substances and River Basin Specific Pollutants, that can be used to identify appropriate measures, is limited.
 - Information on diffuse sources of pollution is also limited, and since diffuse sources of certain pollutants (metals, ubiquitous substances) are apparently the main cause of failure, the lack of knowledge and lack of measures makes progress assessment difficult.

- Almost all the measures listed are research/knowledge-building measures, in particular the evaluation of the potential effectiveness of measures against point and/or diffuse sources, therefore there is currently no indication of the practical measures that will finally be taken, nor of their effectiveness.
- The identification of measures to tackle non-nitrate pollution of groundwaters is not yet complete.
- **Measures related to hydromorphology**
 - Significant hydromorphological pressures and operational KTMs to tackle these are clearly identified in all RBDs. The priority areas/priority rivers ('Sanierungsraum') have been extended and, as a result, the rehabilitation area has been enlarged from the first to the second RBMP. However, a comprehensive instrument for funding hydromorphological measures is not described.
 - From the information available, there will be an approximately 10 % to 20 % reduction of significant hydromorphological pressures between 2015 and 2021. After 2021, a still considerable effort in measures is planned to achieve objectives, either in terms of number of water bodies required to be covered by measures or number of barriers that need to be tackled.
 - Ecological flows have been derived and implemented partly, that is, for some relevant water bodies, in the three RBDs but the work is still on-going.
 - Austria follows a prioritisation approach, which is based on a long-term ecological concept and phases necessary actions for three management cycles. This includes also the revision of permits. The permit regime for new installations is described (as a measure) in the RBMP as well as new requirements for minimum ecological flows through the new 2010 legislation.
- **Economic analysis and water pricing policies**
 - Cost recovery calculations remain limited – methodologies for calculating environmental and resource costs have not been adequately explained.
 - No detailed information on the application of the polluter pays principle was reported.

- A narrow definition of water services has been used. It is unclear why Article 9(4) has been used even if the five water uses are not regarded as water services.
- **Considerations specific to Protected Areas (identification, monitoring, objectives and measures)**
 - Habitat and Birds Directive Protected Areas dependent on groundwater have been identified.
 - There is a seemingly default assessment that good ecological status is sufficient to reach more stringent objectives according to other Directives. Austria subsequently clarified that if more stringent objectives are required this will be reported by the competent authorities and will be taken into account for objective setting under the WFD.
- **Adaptation to drought and climate change**
 - Climate change was considered in all RBDs and the Common Implementation Strategy guidance document on how to adapt to climate change was used.
 - A climate check of the PoM was carried out.

Recommendations

- Austria should carry out the preparation of the next cycle of RBMPs in accordance with the WFD timetable, to ensure the timely adoption of the third RBMPs.
- Austria should continue to improve international cooperation, including coordinated assessments of the technical aspects of the WFD such as ensuring a harmonized approach for status assessment and a coordinated PoM in order to ensure the timely achievement of the WFD objectives.
- Austria should try to be more precise in analysing and linking pressures and impacts, and to ensure that appropriate measures are included in the Programmes of Measures to address significant pressures at water body level.
- Austria should continue to expand operational monitoring. In particular, operational monitoring should include lakes which are at risk of failing good status.
- Austria should present clearly the relationship between monitoring and classification of ecological status/potential. Whenever possible, classification should be predominantly based on monitoring.
- Austria should complete the development of assessment methods which are sensitive to all significant pressures.
- Confidence in the assessment of surface water chemical status for all water categories should continue to improve. The monitoring programmes should fulfil all the objectives set in Annex V of the WFD.
- Trend monitoring should be performed in all RBDs, for all substances, in a way that provides sufficient temporal resolution and spatial coverage.
- The results of the assessment of significant adverse effects on the use or the wider environment and better environmental options should be provided at water body level. This will improve transparency of the designation process of heavily modified water bodies.
- Although the number of exemptions has decreased since the first RBMP, a significant number of exemptions remains in the second RBMP. Clear criteria for the application of Article 4(4) and 4(5) exemptions need to be further elaborated to improve

transparency in the decision making process. Efforts need to continue to implement the required measures for the timely achievement of the WFD objectives. Ensuring the provision of the required funding for measure implementation is crucial in that respect, particularly with regard to measures addressing the significant amount of hydromorphological pressures. The justifications for the application of Article 4(7) exemptions need to be further clarified in the third RBMP.

- KTMs should cover all the pressures causing failure to meet the WFD objectives. In particular, all Priority Substances and River Specific Pollutants identified as causing failure should be associated with KTMs.
- Similarly, the gap analysis of the measures required to achieve good status in the light of the pressures should be more strongly elaborated.
- Austria should complete a comprehensive gap assessment for diffuse pollutant loads from agriculture (nutrients, agri-chemicals, sediment, organic matter) across all waters in all RBDs and link it directly to mitigation measures in the third RBMPs (as per WFD Article 11(3)(h)), to facilitate the achievement of WFD objectives.
- In the third RBMPs, Austria should state clearly to what extent, in terms of area covered and pollution risk mitigated, basic measures (minimum requirements to be complied with) or supplementary measures (designed to be implemented in addition to basic measures) will contribute to achieving the WFD objectives. It should ensure that correct balances between basic and supplementary measures as well as mandatory and voluntary measures are reached. Sources of funding (e.g. CAP Pillar 1, Rural Development Programmes) should be identified, as appropriate, to facilitate successful implementation of these measures.
- Austria should provide more information about measures taken or to be taken to address diffuse sources of pollutants in particular (e.g. existing laws better enforced; action plans or guidance modified in order to specifically support the achievement of WFD objectives), and about how effective they are expected to be.
- In order to take an ambitious approach to combatting chemical pollution, Austria needs to move as soon as possible from knowledge-gathering measures to putting practical measures in place.

- Austria should continue the work on reducing significant hydromorphological pressures in order to achieve the environmental objectives in the third cycle, in particular ensuring the necessary funding of hydromorphological measures.
- Austria should continue the use of green infrastructure and/or natural water retention measures that provide a range of environmental (improvements in water quality, flood protection, habitat conservation, etc.), social and economic benefits.
- Austria should apply cost recovery for water use activities having a significant impact on water bodies or justify any exemptions using Article 9(4). It is recommended to present in a transparent manner how financial, environmental and resource costs have been calculated and how the adequate contribution of the different users is ensured. It should also transparently present the water-pricing policy and provide a transparent overview of estimated investments and investment needs.
- Austria should ensure that all relevant Protected Areas are properly monitored.

Topic 1 Governance and public participation

1.1. Assessment of implementation and compliance with WFD requirements in the second cycle

1.1.1. Administrative arrangements – river basin districts

Austria has three RBDs, each part of international RBDs: Danube; Rhine; and the Elbe. The Danube RBD covers 96 % of Austria's territory. Austria prepared a single national RBMP for all three RBDs.

Due to delays, Austria did not adopt and publish the RBMP in accordance with the timetable in the Water Framework Directive.

1.1.2. Administrative arrangements – competent authorities

The Federal Ministry for Sustainability and Tourism has the main roles for the monitoring and assessment of groundwater and surface water, enforcement of regulations, pressure and impact analysis, economic analysis, preparation of the RBMP and PoM, public participation, implementation of measures and coordination of implementation, as well as reporting to the European Commission.

Nine regions (specifically the Landeshauptmann, or Governor, of each region) have the same roles, apart from the coordination of WFD implementation and reporting to the European Commission.

Three Federal Ministries have main roles for the preparation of the RBMP and the implementation of measures: (1) Health; (2) Transport, Innovation and Technology; and (3) Science, Research and Economy. The Science, Research and Economy Ministry, however, only has a role for the implementation of measures.

1.1.3. River Basin Management plans – structure and Strategic Environmental Assessment

Austria did not prepare sub-plans for its RBMP. A Strategic Environmental Assessment was prepared for Austria's RBMP.

1.1.4. Public consultation

A broad range of stakeholder groups were actively involved in the development of the RBMP.

The public and interested parties were informed of the public consultation via the internet, invitations to stakeholders, local authorities, meetings, printed material, social network and written consultation. Documents were made available for the required six months. Documents were available for download and paper copies were distributed at exhibitions.

The following stakeholder groups were actively involved in the development of the RBMP: agriculture/farmers, energy/hydropower, fisheries/aquaculture, industry, local/regional authorities, navigation/ports, NGOs/nature protection and water supply and sanitation; specific groups included the Confederation of Cities, Federation of Municipalities, Chamber of Commerce and Chamber of Labour.

Mechanisms for active involvement of stakeholders included advisory groups and regular exhibitions. In addition, the Federal Ministry for Sustainability and Tourism had three informational websites: the Water Information System Austria (WISA)⁵ provides technical information for the interested public; the Wasseraktiv website⁶ provides information on the Austrian water sector to support public involvement in the WFD; and the Generation Blue website⁷ provides information on water to young people in Austria.

Public consultation had the following impacts on the RBMP: Addition of new information, adjustment to specific measures, changes to the selection of measures, changes to the methodology used, commitment to action in the next RBMP and commitment to further research.

1.1.5. Integration with the Floods Directive

Austria did not combine its RBMP and its Flood Risk Management Plans under the Floods Directive⁸ into a single plan, but there was joint consultation for the plans.

1.1.6. International coordination

Each of Austria's three RBDs is part of an international RBD: the Danube, the Rhine and the Elbe international RBDs. An international agreement, permanent co-operation body and international RBMP are in place in all RBDs (such level of cooperation is designated as “Category 1” cooperation in the context of this assessment). Explicit links have been made with national RBMPs within the international RBMP. There was international coordination on

⁵ <https://www.bmnt.gv.at/wasser/wisa/>

⁶ www.wasseraktiv.at

⁷ www.generationblue.at

⁸ Directive 2007/60/EC on the assessment and management of flood risks entered into force on 26 November 2007 <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32007L0060>

public participation in all of Austria' RBDs (for further information see the reports on international coordination on the Water Framework Directive).

In addition, Austria has established bilateral agreements and commissions with neighbouring Member States, cited in the RBMP: The Czech Republic, Germany⁹, Hungary, Slovakia and Slovenia. Other cooperation mechanisms include the Austrian-Swiss Commission for the Joint Use of the Upper Inn and an agreement with Liechtenstein.

1.2. Progress with Commission recommendations

The Commission did not have recommendations on governance for Austria based on the first RBMP and first PoM.

⁹ Including the International Water Protection Commission for Lake Constance.

Topic 2 Characterisation of the River Basin District

2.1. Assessment of implementation and compliance with WFD requirements in the second cycle

1.2.1. Delineation of water bodies and designation of heavily modified and artificial water bodies

There was an overall increase in the number of delineated river water bodies (36 %) and this increase was apparent in all RBDs (Table 2.1). The RBMPs stated that the delineation of water bodies can change in the process of the planning due to new or better information¹⁰. The numbers of lake water bodies remained the same. The numbers of groundwater bodies increased in one RBD by 2 % and there was no change in other RBDs (Table 2.2).

In 2016, 91 % of identified surface water bodies were natural, 8 % were designated as heavily modified and 1 % as artificial. Overall, there has been an increase in the number of natural and heavily modified river water bodies of approximately 10 % between 2010 and 2016 but as a proportion of the total they remained the same (Figure 2.1). There has been about a 4 % decrease in the number of artificial water bodies but again as a proportion of the total it remained at 1 %. The water uses and physical alterations have been reported for each heavily modified water body category.

Table 2.3 shows the differences in size distribution of surface water bodies in Austria between the second and first cycles, it shows there were no significant changes. The minimum size criteria reported were a 10 km² catchment area for rivers and a 0.5 km² surface area for lakes. The RBMP states that there is no ‘spatially inclusive and comprehensive planning’ for water bodies smaller than the minimum size. However, it is stated that ‘the objectives and methodological rules for delineation’ do apply to these water bodies and that objectives focus more on conservation, as most small water bodies are not impacted by human activities.

Table 2.4 summarises the information provided by Austria on how water bodies have evolved between the two cycles. The water body type with the most changes was river water bodies, with water bodies created (n = 159), split (n = 1 623), and deleted (n = 125).

¹⁰ Austria further clarified by providing an example where one part of the water body is in good condition – delineation into two parts for getting water bodies with uniform status.

Table 2.1 *Number and area/length of delineated surface water bodies in Austria for the second and first cycles*

Year	RBD	Rivers		Lakes	
		Number of water bodies	Total length of water body (km)	Number of water bodies	Total area (km ²) of water bodies
2016	AT1000	7 752	30 933	55	481
2016	AT2000	214	893	5	39
2016	AT5000	99	451	2	1
2016	<i>Total</i>	8 065	32 278	62	522
2010	AT1000	7 054	30 089	55	399
2010	AT2000	194	860	5	534
2010	AT5000	91	444	2	1
2010	<i>Total</i>	7 339	31 392	62	934

Source: WISE electronic reports.

Table 2.2 *Number and area of delineated groundwater bodies in Austria for the second and first cycles*

Year	RBD	Number	Area (km ²)		
			Minimum	Maximum	Average
2016	AT1000	130	12.06	9 569.29	713.68
2016	AT2000	7	48.22	564.42	333.21
2016	AT5000	1	921.3	921.3	921.3
2016	<i>Total</i>	138			
2010	AT1000	128	12	9 563.00	724.05
2010	AT2000	7	48	564	333
2010	AT5000	1	921	921	921
2010	<i>Total</i>	136			

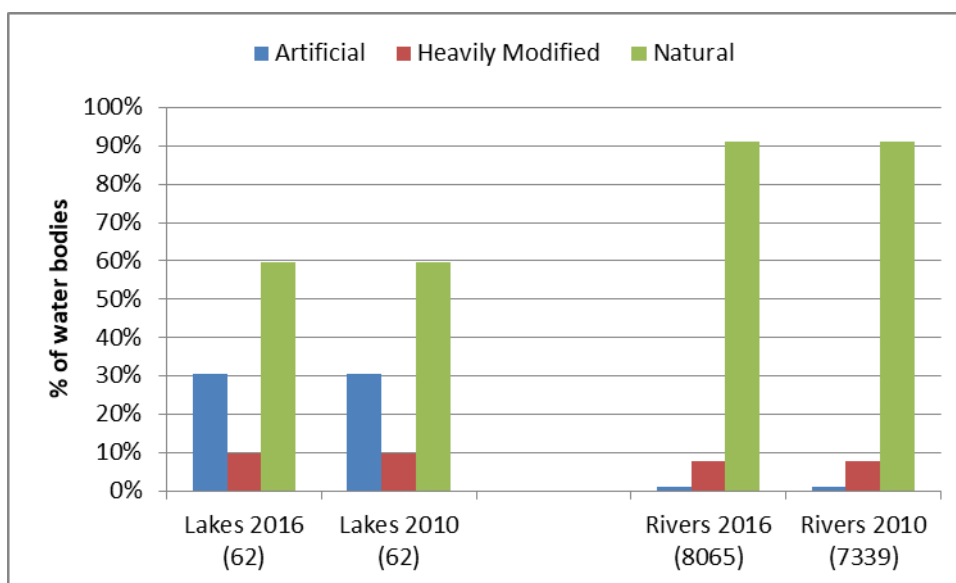
Source: WISE electronic reports

Table 2.3 *Size distribution of surface water bodies in Austria in the second and first cycles*

Year	RBD	River length (km)			Lake area (km ²)		
		Minimum	Maximum	Average	Minimum	Maximum	Average
2016	AT1000	0.03	84.6	3.99	0.47	244.14	8.75
2016	AT2000	0.5	20.64	4.17	0.55	34.92	7.81
2016	AT5000	0.86	17.74	4.56	0.54	0.56	0.55
2010	AT1000	0.03	83.75	4.27	0.51	161.02	7.25
2010	AT2000	0.5	20.59	4.43	0.54	530.03	106.84
2010	AT5000	0.31	15.18	4.87	0.54	0.56	0.55

Source: WISE electronic reports.

Figure 2.1 *Proportion of surface water bodies in Austria designated as artificial, heavily modified and natural for the second and first cycles. Note that the numbers in parenthesis are the numbers of water bodies in each water category*



Source: WISE electronic reports

Table 1.4 *Type of change in delineation of groundwater and surface water bodies in Austria between the second and first cycles*

Type of water body change for second cycle	Lakes	Rivers	Groundwater
Change		121	11
Aggregation		116	
Splitting		1 623	4
Aggregation and splitting		330	
Extended area			
Creation		159	
Deletion		125	
Change in code		31	
No change	62	5 685	123
Total water bodies before deletion	62	8 190	138
Delineated for second cycle (after deletion from first cycle)	62	8 065	138

Source: WISE electronic reports

1.2.2. Identification of transboundary water bodies

Transboundary river water bodies were identified in each RBD and lake water bodies were identified in the Danube and Rhine RBDs. The RBMP stated that delineation of transboundary water bodies has been coordinated with the respective neighbouring countries but no further information was provided.

Austria identified 20 transboundary groundwater bodies in the Danube RBD. They were delineated with the respective neighbouring countries (Germany, Slovenia and Hungary) in the framework of the ‘boundary water commissions’. However the RBMP does not explain whether these are the respective international river basin commissions, or other bodies/authorities.

1.2.3. Typology of surface water bodies

Based on the data reported to WISE there appeared to be a significant decrease of approximately 70% of the number of types between the first and second RBMP for both rivers and lake water bodies (Table 2.5)¹¹. The RBMP did not provide an explanation for this; it only stated that the typology for water bodies in each surface water category ‘has been checked’, and that in individual cases changes to the typology was carried out. No further details were provided and no background document was referenced.

Member States were asked to report ‘Not applicable’ if there is no corresponding intercalibration type for national types. Many national types (heavily modified, artificial and natural) have been intercalibrated. In each of the RBDs there are several river and lake water body types that were reported not to have corresponding intercalibration types (six lake water body types and seven river water body types). Whilst the delineation of water bodies has been coordinated with neighbouring countries in all three Austrian RBDs, the second RBMP do not explicitly mention whether the typology was coordinated with the Member States within the intercalibration process¹².

¹¹ Austria subsequently clarified that typology was not changed between first and second RBMPs and that the Austrian typology is a complex system with types for each biological quality element separately. Austria further stated that the WISE reporting was based on broad types and may therefore have caused these discrepancies.

¹² Austria subsequently clarified that even though it is not mentioned in the RBMPs, the typology was coordinated with the Member States within intercalibration process.

Table 2.5 *Number of surface water body types at RBD level in Austria for the ^t first and second cycles*

RBD	Rivers		Lakes	
	2010	2016	2010	2016
AT1000	150	45 ¹³	43	12
AT2000	73	15	5	2
AT5000	14	2	1	1
TOTAL	169	49	46	14

Source: WISE electronic reports. Note that the total is not the sum of the types in each RBD as some types are shared by RBDs.¹⁴

1.2.4. Establishment of reference conditions for surface water bodies

Table 2.6 shows the percentage of surface water body types in Austria with reference conditions established for the first and second cycles. Type specific reference conditions have been established for all relevant biological quality elements, physicochemical quality elements and hydromorphological quality elements for all river water body types and lake water body types.

The RBMP does not mention whether the identification of type-specific reference conditions was coordinated with other Member States¹⁵.

Table 2.6 *Percentage of surface water body types in Austria with reference conditions established for all, some and none of the biological, hydromorphological and physicochemical quality elements*

Water category	Water types	Biological quality elements	Hydromorphological quality elements	Physicochemical quality elements
Lakes	All	100%	100%	100%
	Some			
	None			
Rivers	All	100%	100%	100%
	Some			
	None			

Source: WISE electronic reports

¹³ Austria subsequently informed that the correct number is 39 and not 45.

¹⁴ Austria subsequently informed that the data for 2010 do not reflect the real number of water body types, WISE reporting was based on broad types and may therefore have caused these discrepancies. Austria subsequently informed that typology was not changed between first and second RBMPs.

¹⁵ Austria subsequently highlighted that the comparison of reference conditions was a major part of the intercalibration exercise where Austria was included in all steps.

1.2.5. Characteristics of groundwater bodies

The geological formation of the aquifer types in which groundwater bodies reside were reported. However, details of whether groundwater bodies are layered or not does not appear to be reported (marked as ‘No information’)¹⁶. Further characterisation work has been reported since the first RBMP with the inclusion of the assessment of linkages to terrestrial ecosystems for all RBDs. However, the assessment of linkages with surface water bodies in each of the RBDs was not reported and was included in Annex 0¹⁷. Austria stated that the status of the surface water bodies was assessed and for surface water bodies which were not at good status it was further assessed if the associated groundwater body had a negative impact on the surface water body. It was determined that there were no instances where the associated groundwater body is relevant for the status of the associated surface water body.

1.2.6. Significant pressures and impacts on water bodies

For the second RBMP, all significant pressures that were assessed for surface waters were reported. In the first RBMP, pressures were reported at an aggregated level. Overall, it appears there was a large increase in the reporting of diffuse and point pollution between the two cycles¹⁸ with a decrease in the reporting of hydromorphological, abstraction and flow pressures (Figure 2.2). In the second RBMP, atmospheric deposition was reported as a pressure on all surface water bodies, followed by dams, barriers and locks (27 %) (Figure 2.3).

For groundwater bodies 97 % of water bodies had no pressures reported for them (Annex 0) and only 3 % appear to be assessed and determined to have pressures from diffuse agriculture pollution (Figure 2.3). For groundwater it was reported that 39 pressures were not assessed¹⁹, many of which were related to surface water specific pressures such as dams and hydrological changes. However, there were some pressures that could impact groundwater that were not assessed, such as discharges not connected to a sewerage network, and mining. According to the background documentation, no pressures were excluded (that is, all pressures were assessed).

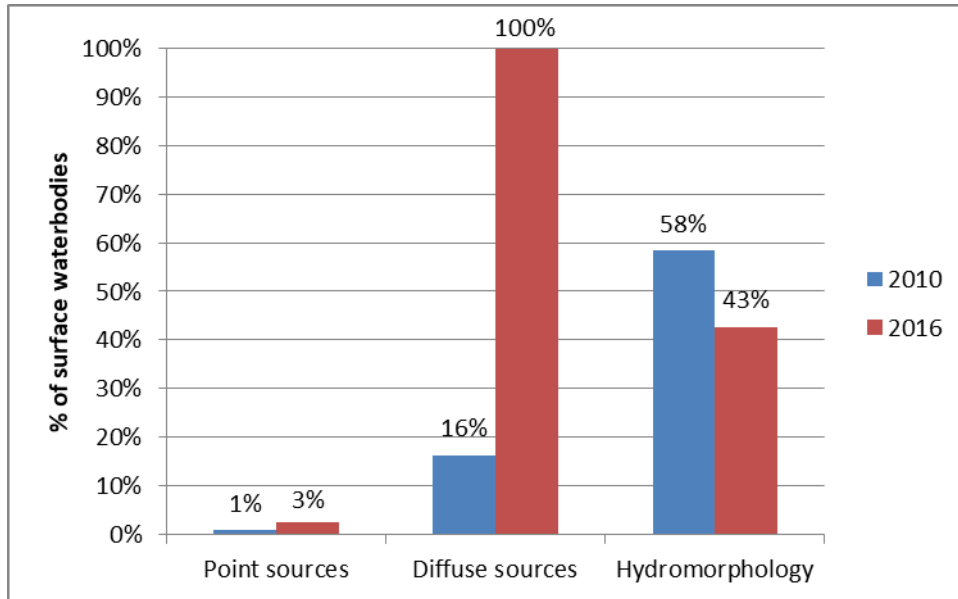
¹⁶ Austria subsequently highlighted that in Austria there are no layered geological structures.

¹⁷ Annex 0: A document produced by the Member State giving a short explanation why certain element could not be reported. The Annex 0 is ratified by the Commission.

¹⁸ Austria subsequently stated that this was due to new data.

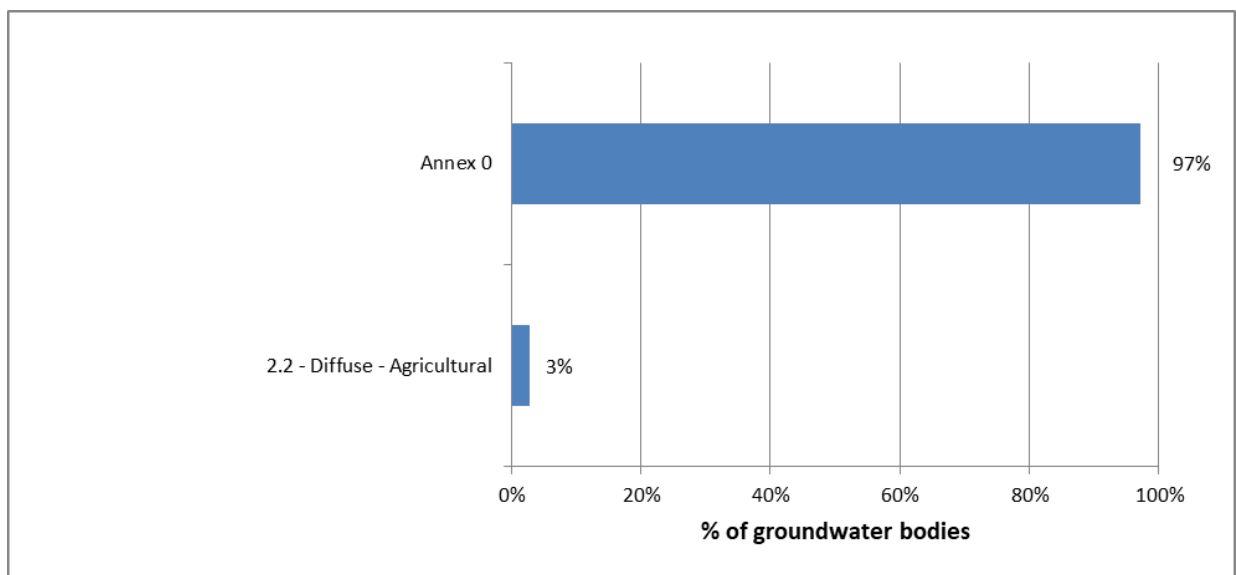
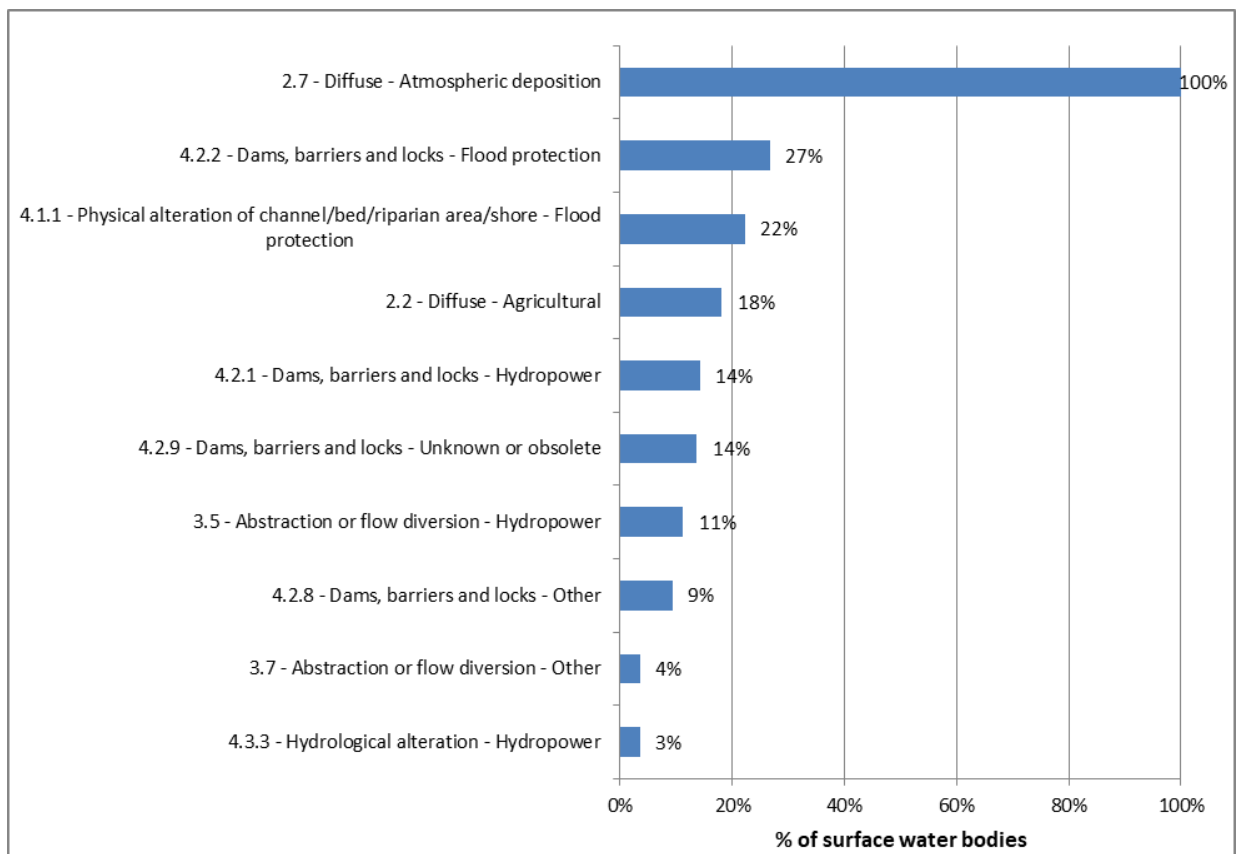
¹⁹ Austria subsequently clarified that these pressures have not been considered because they were not deemed to be important in the RBD.

Figure 2.2 Comparison of pressures on surface water bodies in Austria in the first and second cycles. Pressures presented at the aggregated level. Note there were 8 127 identified surface water bodies for the second cycle and 7 401 for the first cycle



Source: WISE electronic reports

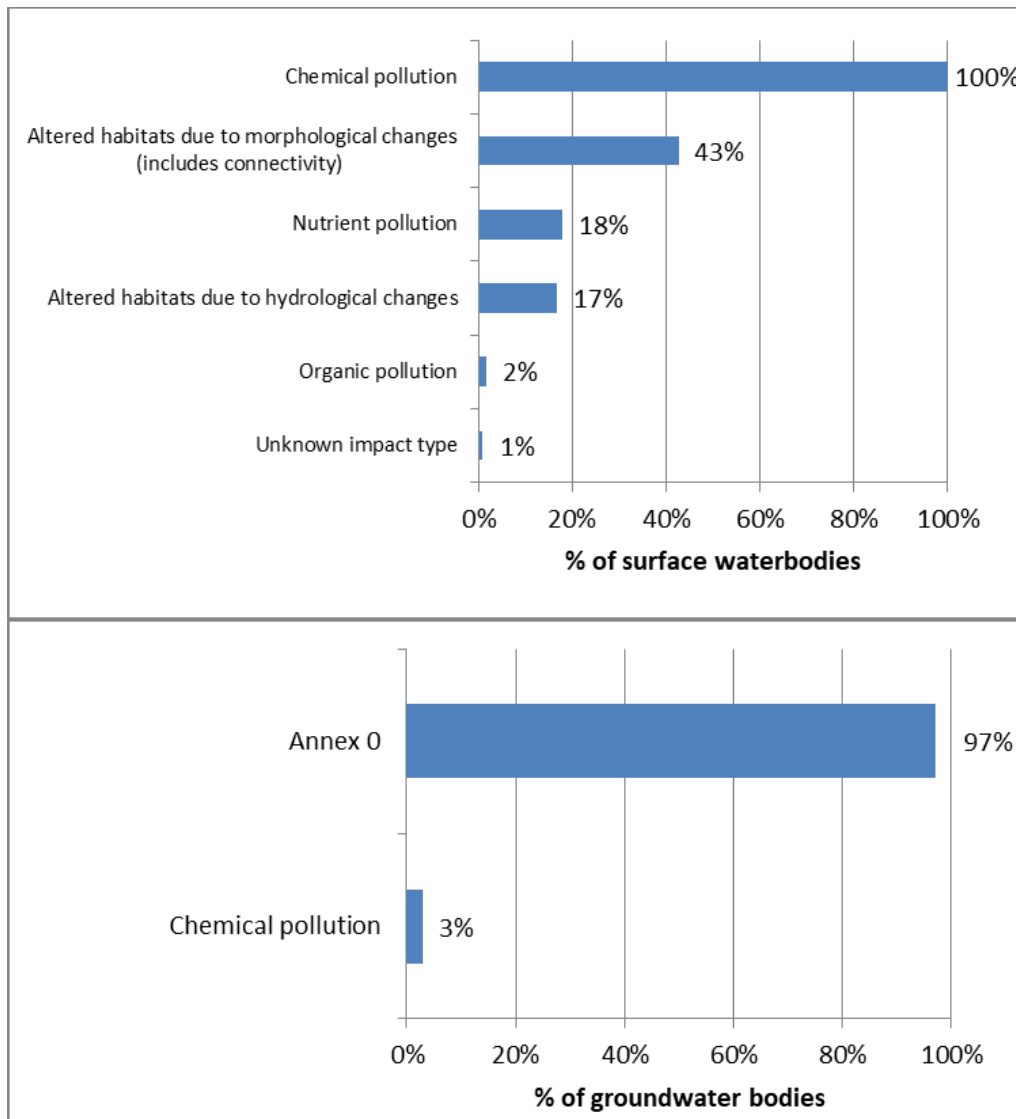
Figure 2.3 The most significant pressures on surface water bodies and groundwater bodies in Austria for the second cycle



Source: WISE electronic reports

In the second RBMP, the most significant impact on surface water bodies was chemical pollution (affecting 100 % of surface water bodies), followed by altered habitats due to morphological changes (43 %) (Figure 2.4). For groundwater, Annex 0 was reported for the majority of impacts, with chemical pollution only reported for four water bodies in the Danube RBD (3 %). Austria did not report on impacts in the first RBMP.

Figure 2.4 Significant impacts on surface water and groundwater bodies in Austria for the second cycle. Percentages of numbers of water bodies



Source: WISE electronic reports

1.2.7. Definition and assessment of significant pressures on surface and groundwater

For surface waters numerical tools were used for defining significant pressures from point sources and a combination for numerical tools and expert judgement were used for defining significant pressures from diffuse sources, abstraction and water flow pressures. According to the RBMP, the assessment of chemical pollution from point sources remained the same as 2010, whereby a significant pressure was determined when the loading of the discharge exceeded a certain threshold related to the environmental quality standard. For diffuse nutrient pressures a new methodology was developed, whereby the loads were calculated by modelling²⁰ and thresholds for phosphate and nitrates were applied to determine the significance of the pressure. This change in methodology may account for the minor increase in water bodies with diffuse pressures in relation to nutrients shown in Figure 2.2.

For groundwater, expert judgement was used for defining significant pressures from point sources, artificial recharge and other pressures, but no further information was found in the RBMP. For diffuse and abstraction pressures numerical tools were used. For nutrients (nitrates) INVEKOS data²¹, European Monitoring and Evaluation Programme and statistical data were used to calculate input and output per agricultural area. For pesticides, an Austrian database called GeoPEARL was used. For abstraction pressures the abstraction volumes were calculated using statistics and estimations of per capita consumption. For agriculturally irrigated areas and industry, abstractions were calculated based on average values taken from reports and studies.

For both surface water and groundwater bodies the significance of pressures were reported to be linked to the potential failure of objectives and were reported to be defined in terms of thresholds. The RBMP reported that the existence of a ‘potential significant pressure’ was linked to the potential failure of objectives by examining the status of the water body, then it is checked if measures are planned in the water body which will potentially change the status and eliminate the risk to the water body.

1.2.8. Groundwater bodies at risk of not meeting good status

In the Danube RBD 14 % of groundwater bodies were reported to be at risk of failing to meet good chemical status. For the Rhine and Elbe RBDs the risk of failing good chemical status does not appear to have been reported. The pollutants putting groundwater bodies at risk of failing good chemical status have been reported.

²⁰ MONERIS - Modelling Nutrient Emissions to River Systems

²¹ INVEKOS is the ‘Integriertes Verwaltung- und Kontrollsystem’, that is, the system for managing the Common Agricultural Policy payments in Austria.

In the Danube RBD 1.5 % of groundwater bodies were reported to be at risk of failing to meet good quantitative status. For the Rhine and Elbe RBDs there was reported to be no risk of failing good quantitative status.

1.2.9. Quantification and apportionment of pressures

There were some inconsistencies in the pressures for which measures were planned and the significant pressures reported at the water body level. For example, in the Rhine RBD, dams, barriers and locks - unknown or obsolete, was reported at the surface water body level but this pressure was not reported as being tackled in the PoM.

According to the RBMPs, agriculture, for diffuse sources, and waste water treatment plants, for point sources, were the main responsible sectors/activities causing failure of good chemical status.

1.2.10. Quantification of gap to be filled for pressures causing failure of status objectives

The Priority Substances causing failure of good chemical status and the measures to tackle these substances to achieve good status by 2021 were reported. The indicator gap was reported for 2021 for all substances, however, for some substances (for example, mercury and its compounds in surface water in the Danube RBD) it appears as if the measures may not be sufficient to close the gap to good status by 2027. The reasons for this were not clear in the RBMP²².

1.2.11. Inventories of emissions, discharges and losses of chemical substances

Article 5 of the Environmental Quality Standards Directive 2008/105/EC²³ (EQS Directive) requires Member States to establish an inventory of emissions, discharges and losses of all Priority Substances and the 8 other pollutants listed in Part A of Annex I of the EQS Directive for each RBD, or part thereof, lying within their territory. This inventory should allow Member States to further target measures to tackle pollution from priority substances. It should also inform the review of the monitoring networks, and allow the assessment of progress made in reducing (respectively suppressing) emissions, discharges and losses for priority substances (respectively priority hazardous substances).

²² Austria subsequently clarified that measures at the national level are not expected to significantly reduce the diffuse aerial pollution coming from outside of Austria.

²³ Directive 2008/105/EC of the European Parliament and of the Council of 16 December 2008 on environmental quality standards in the field of water policy, amending and subsequently repealing Council Directives 82/176/EEC, 83/513/EEC, 84/156/EEC, 84/491/EEC, 86/280/EEC and amending Directive 2000/60/EC of the European Parliament and of the Council

Austria reported that 41 Priority Substances were included in the inventories for each of the RBDs. Austria implemented the two step approach from CIS Guidance Document n°28²⁴ on establishing inventories of emissions. Tier 1 of the methodology was implemented for substances deemed not relevant at RBD level. For substances relevant at RBD level, either Tier 3 (pathway oriented approach) or Tier 1 (point source information) + Tier 2 (riverine load approach) were applied, in line with the recommendation from the Guidance Document.²⁵ The quality of the input data was assessed as uncertain in most cases.

2.1. Main changes in implementation and compliance since first cycle

There was an overall increase in the number of river water bodies (36 %) and this increase was the case for all RBDs. The numbers of lake water bodies remained the same. The numbers of groundwater bodies increased in the Danube RBD by 2 % and there was no change in the other RBDs.

Since the first RBMP it appears there was a large increase in the number of occasions where diffuse and point source pressures were reported, with a decrease in the reporting of hydromorphological, abstraction and flow pressures.

2.2. Progress with Commission recommendations

The Commission recommendations based on the first RBMP and first PoM requested action on the following:

- Recommendation: *Make sure that RBMP are more precise in analysing and linking pressures and impacts (information regarding status and the scale of the pressures is not always clear).*

Assessment: This recommendation applies to a number of Topics. In terms of characterisation, there appeared to be a link between the pressures and impacts with the key pressures on surface waters being atmospheric deposition and dams, barriers and locks and the associated impacts being chemical pollution and altered habitats due to morphological changes. Austria reported that 41 Priority Substances were included in the inventories for each of the RBDs. In terms of characterisation, therefore this recommendation has been fulfilled.

²⁴ Guidance Document No. 28 - Technical Guidance on the Preparation of an Inventory of Emissions, Discharges and Losses of Priority and Priority Hazardous Substances.

²⁵ An increase in tier is associated with an improved understanding of sources and pathways, resolution and detail, all of which helps the identification of appropriate measures.

- Recommendation: *Clarify delineation of small water bodies in the second RBMP.*

Assessment: The minimum size criteria reported were 10 km² catchment area for rivers and 0.5 km² surface area for lakes. The RBMP states that there is no ‘spatially inclusive and comprehensive planning’ for water bodies smaller than the minimum size. However, it is stated that ‘the objectives and methodological rules for delineation’ do apply to these water bodies and that objectives focus more on conservation, as most small water bodies are not impacted by human activities. An adequate explanation has been provided and this recommendation has been fulfilled.

- Recommendation: *Make clearer the approach regarding consideration of uncertainties in the Article 5 pressures and impacts analysis; monitoring and classification of status has influenced the targeting of measures.*

Assessment: The approach regarding consideration of uncertainty in the Article 5 pressures and impacts analysis was not described in the RBMP and in the background documentation, therefore this recommendation has not been fulfilled.

Topic 3 Monitoring, assessment and classification of ecological status in surface water bodies

3.1. Assessment of implementation and compliance with WFD requirements in second RBMPs

3.1.1. Monitoring of ecological status/potential

Monitoring programmes

Article 8(1) of the WFD requires Member States to establish monitoring programmes for the assessment of the status of surface water and of groundwater in order to provide a coherent and comprehensive overview of water status within each RBD.

Austria reported that there were separate surveillance and operational monitoring programmes for rivers in each RBD. There were two lake surveillance programmes, one each in the Danube RBD and the Rhine RBD. There were no operational monitoring programmes for lakes: No information was found in the assessed RBMP explaining the reason for this²⁶.

Monitoring sites

Table 3.1 compares the number of monitoring sites used for surveillance and operational purposes for both plans, and Table 3.2 gives the number of sites used for different purposes for the second RBMPs.

Table 3.1 *Number of sites used for surveillance and operational monitoring in Austria for the second second and first RBMPs. Note that for reasons of comparability with data reported for the first RBMP, the second RBMP data does not take into account whether sites are used for ecological and/or chemical monitoring*

	Rivers		Lakes	
	Surveillance	Operational	Surveillance	Operational
Second RBMP				
AT_1000	68	1 903	32	0
AT_2000	7	78	1	0
AT_5000	1	44	0	0
<i>Total by type of site</i>	76	2 025	33	0

²⁶ Austria subsequently informed that all lakes at risk of failing the objectives are included in the surveillance monitoring.

	Rivers		Lakes	
	Surveillance	Operational	Surveillance	Operational
<i>Total number of monitoring sites</i>	2 117		33	
First RBMP				
AT_1000	68	537	32	1
AT_2000	7	33	1	0
AT_5000	1	15	0	0
<i>Total by type of site</i>	76	585	33	1
<i>Total number of monitoring sites</i>	635		33	

Source: WISE electronic reports

Table 3.2 *Number of monitoring sites in relevant water categories used for different purposes in Austria*

Monitoring Purpose	Rivers	Lakes ²⁷
OPE - Operational monitoring	2 025	0
SUR - Surveillance monitoring	76	33
<i>Total sites irrespective of purpose</i>	<i>2 101</i>	<i>33</i>

Source: WISE electronic reports

The number of monitoring of sites for the surveillance monitoring of rivers and lakes remained the same between the two RBMPs. For the first RBMP there was one operational monitoring site in lakes, but none for the second. All lakes with risk for failure are included in the surveillance network. In rivers, there was a 3.5 fold increase in operational sites between the first and second RBMPs.

Monitored quality elements (excluding River Basin Specific Pollutants)

Table 3.3 illustrates the quality elements used for the monitoring of lakes and rivers for the second RBMP: no differentiation is made between purposes of monitoring.

²⁷ Austria subsequently informed that there were 28 monitoring sites for Surveillance monitoring of lakes.

Table 3.3 *Quality elements monitored for the second RBMPs in Austria (excluding River Basin Specific Pollutants). Note: quality elements may be used for surveillance and/or operational monitoring*

Biological quality elements									
	Phytoplankton	Macrophytes	Phytobenthos	Benthic invertebrates	Fish	Angiosperms	Macroalgae	Other aquatic flora	Other species
Lakes	Yes	Yes	No	No	Yes			No	
Rivers		Yes	Yes	Yes	Yes			No	

Hydromorphological quality elements ²⁸		
Hydrological or tidal regime	Continuity conditions	Morphological conditions
No		No
No	No	No

General physicochemical quality elements									
	Transparency conditions	Thermal conditions	Oxygenation conditions	Salinity conditions	Acidification status	Nitrogen conditions	Phosphorus Conditions	Silicate	Other determinant for nutrient conditions
Lakes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Rivers	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No

Source: WISE electronic reports

In the second RBMPs, all expected biological quality elements were reported to be monitored in rivers in Austria whereas phytobenthos and benthic invertebrates were not monitored in lakes²⁹. Hydromorphological quality elements were not reported in WISE to be monitored in rivers and lakes in Austria. All expected general physicochemical quality elements were monitored in rivers and lakes.

In the first RBMP, all required biological quality elements were reported to be monitored for rivers in all RBDs. All required biological quality elements were monitored in lakes in one RBD. In the Rhine RBD, benthic invertebrates were not monitored in lakes and in the Elbe RBD, the two lakes were not monitored at all³⁰. Hydromorphology and general physicochemical quality elements were also reported as fully monitored in the first RBMP.

²⁸ Austria subsequently indicated that hydromorphological quality elements are monitored in rivers and lakes, but the monitoring is continuous and not related to sites, and therefore, is not reported in WISE.

²⁹ Austria subsequently stated that for benthic invertebrates the assessment method is currently (2018) intercalibrated. For phytobenthos the justification for omitting this biological quality element was accepted by the European Commission during the intercalibration exercise 2017.

³⁰ Austria subsequently indicated that the two lakes are artificial and do not have a risk of failure.

Annex V of the WFD provides guidance on the frequency of monitoring of the different quality elements. Surveillance monitoring should be carried out for each monitoring site for a period of one year over the period covered by a RBMP, i.e. six years. For phytoplankton, this equates to twice during the monitoring year and the other biological quality elements once during the year. As a guideline, operational monitoring should take place at intervals not exceeding once every six months for phytoplankton and once every three years during the six year cycle for the other biological quality elements. Greater intervals may be justified on the basis of technical knowledge and expert judgement.

All of the seven biological quality elements used for the surveillance monitoring of rivers and lakes were sampled at least at the minimum recommended frequency at all sites where they were monitored. Conversely, only one of the 1 533 sites used for the operational monitoring of fish in rivers was sampled at the recommended minimum frequency. The other two biological quality elements (phytobenthos and benthic invertebrates) used in the operational monitoring of rivers were not sampled at least at the recommended minimum frequency at any of the sites where they were monitored. Lakes were not included in operational monitoring.

Monitoring of River Basin Specific Pollutants

In the second RBMP, 11 River Basin Specific Pollutants were reported to be monitored in Austria, only in rivers. One (dibutyltin) was monitored in fish, eight in settled sediment and ten in water. Seven substances are monitored at 107 sites including copper and zinc, the other four at fewer sites.

As mentioned above, Annex V of the WFD provides guidance on the frequency of monitoring of the different quality elements: Once every three months is recommended for river basin specific pollutants. Surveillance monitoring should be carried out for each monitoring site for a period of one year during the period covered by a river basin management plan i.e. six years. For river basin specific pollutants this would equate to four times for the surveillance year, and for operational monitoring four times a year for each year of the cycle.

All sites for all ten River Basin Specific Pollutants in water included in surveillance monitoring were sampled at least at the recommended minimum frequency. Conversely, none of the sites used for the operational monitoring of the ten pollutants in water were sampled at least at the recommended minimum frequency: It was reported that the monitoring will be implemented once per cycle and, depending on the results, future monitoring will be decided.

Annex V, section 1.3.4 of the WFD does not explicitly define the matrices to which the recommended minimum frequency of monitoring of River Basin Specific Pollutants (“Other

Pollutants”) applies. Recommended minimum monitoring frequencies are specified for Priority Substances in biota in Article 3(2)(c) of EQS Directive 2008/105/EC: this is once per year for operational and surveillance monitoring purposes. For consistency, this recommended minimum frequency of once per year has been applied to the monitoring of River Basin Specific Pollutants in biota/sediment.

Of the 32 sites monitored for dibutyltin in fish none was sampled at least at the recommended minimum frequency. All five sites where eight River Basin Specific Pollutants were monitored in settled sediment were not sampled at the recommended minimum frequency.

Table 3.4 shows the number of sites used to monitor River Basin Specific Pollutants reported in the second RBMP and non-priority specific pollutants and/or other national pollutants reported in the first RBMP. The data from both plans may not be fully comparable as different definitions were used (in the first RBMP, some MS sometimes reported more than just the River Basin Specific Pollutants), but it points to an apparent decrease in the number of sites between the two plans.

Table 3.4 *Number of sites used to monitor River Basin Specific Pollutants reported in the second RBMP and non-priority specific pollutants and/or other national pollutants reported in the first RBMP in Austria. Note the data from both plans may not be fully comparable as different definitions were used.*

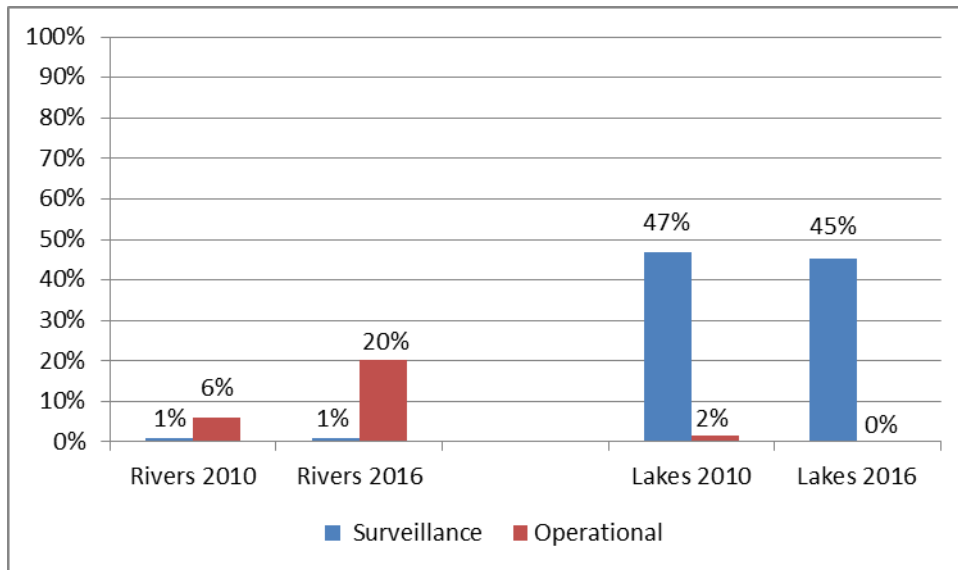
RBMP		Rivers
second	Sites used to monitor River Basin Specific Pollutants	113
first	Sites used to monitor non-priority specific pollutants and/or other national pollutants	185

Source: WISE electronic reports

Surveillance and operational monitoring of surface water bodies

Figure 3.1 shows the percentage of surface water bodies that have been subject to surveillance and operational monitoring in the first and second RBMPs.

Figure 3.1 *Percentage of water bodies included in surveillance and operational monitoring in Austria as reported in the first RBMP (2010) and second RBMP (2016). Note no differentiation is made between water bodies included in ecological and/or chemical monitoring*



Source: WISE electronic reports

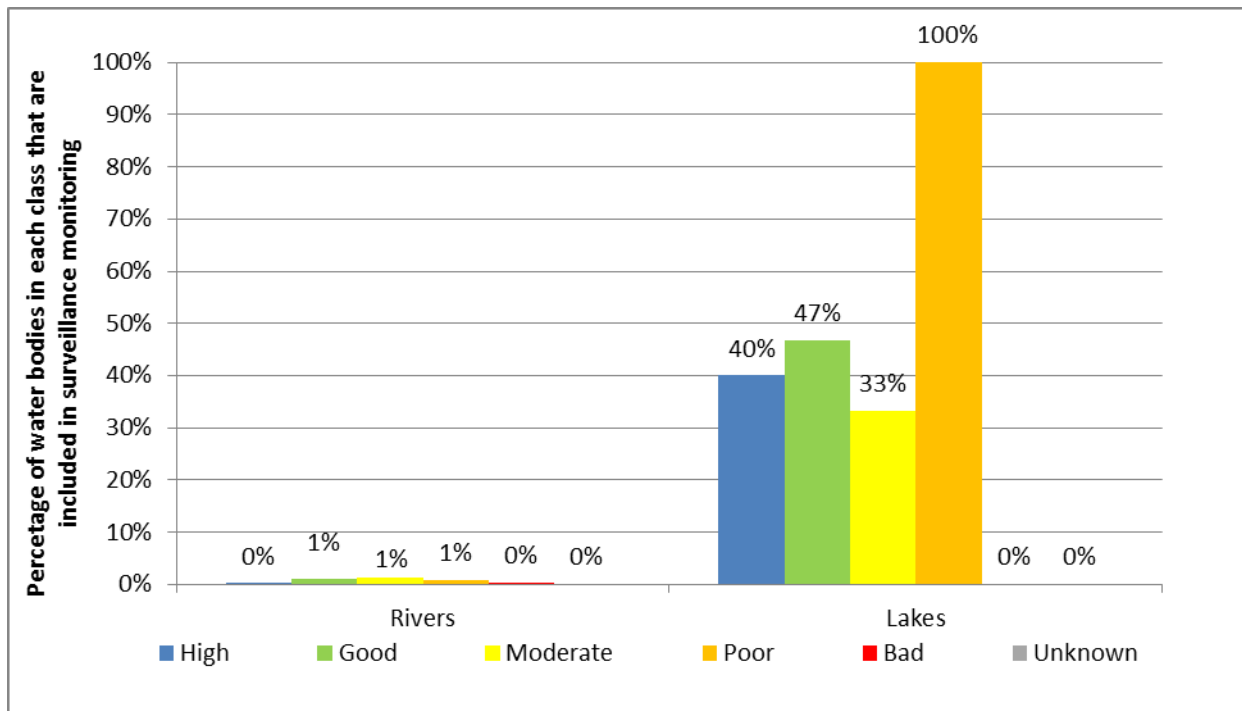
Over 98 % of the monitored river water bodies were reported to be monitored for all required biological quality elements for surveillance monitoring, none of the lakes in surveillance monitoring were sampled for all required biological quality element.

The number of delineated lakes remained the same between the first and second RBMPs. In rivers, there was a 10 % increase in the number of water bodies. The proportion of lakes and rivers included in surveillance monitoring remained virtually the same or slightly fell: approximately 1 % of river water bodies and 45 % of lakes.

In contrast there was a significant increase in the proportion of rivers included in operational monitoring overall in Austria from 6 % for the first RBMP to 20 % for the 2nd RBMP. 2 % of lakes were included in operational monitoring for the first RBMPs; none were for the second.

Figure 3.2 illustrates the proportion of water bodies in each ecological status/potential class that are included in surveillance monitoring.

Figure 3.2 *Proportion of water bodies in each ecological status/potential class that are included in surveillance monitoring in Austria*



Source: WISE electronic reports

In the second RBMP it is reported that three biological quality elements were used in the operational monitoring of rivers: Fish were predominantly used (in 77 % of water bodies in operational monitoring), followed by benthic invertebrates (28 %) and phytobenthos (21 %). Lakes were not included in operational monitoring³¹ even though some (seven) in the Danube RBD were at less than good status and lakes were subject to significant pressures (for example, diffuse pressures from atmospheric deposition) in all three RBDs.

Transboundary surface water body monitoring

Austria reported two lakes and 128 rivers as transboundary water bodies. Austria did not report any monitoring sites as being part of international programmes³².

³¹ Austria subsequently stated that all lakes at risk of failing the objectives are included in the surveillance monitoring.

³² Austria subsequently indicated that the water bodies treated in the transboundary commissions were reported in WISE. However, the monitoring sites were all reported in the same category and there was no distinction between national and international monitoring.

3.1.2. Assessment and classification of ecological Status/potential of surface water

Ecological status or potential of surface water

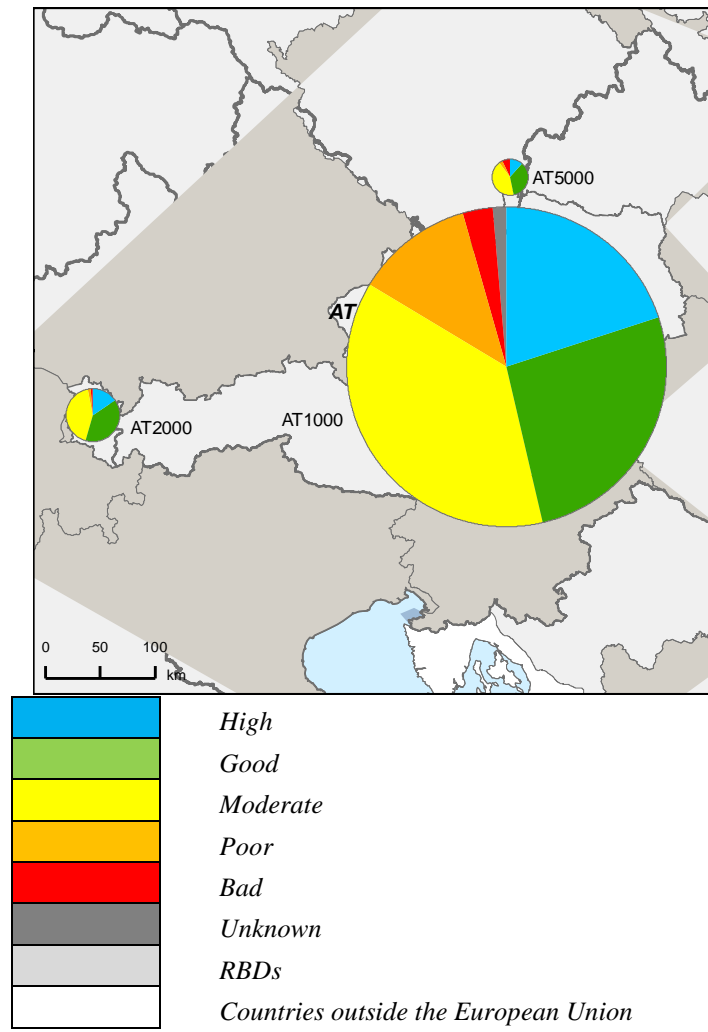
The ecological status/potential of surface water bodies in Austria reported in the second RBMP is illustrated in Map 3.1. This is based on the most recent assessment of status.

There was a decrease in the proportion of lakes at good or better ecological status/potential between the two RBMPs (from 95 % to 89 %), in contrast there was a 4 % increase in the proportion of river water bodies at good or better ecological status/potential (from 42 % to 46 %). There were 17 (0.2 %) surface water bodies with unknown ecological status/potential for the first RBMP, this increased to 107 (1.3%) surface water bodies for the second RBMP. Many of the changes in ecological status/potential at the water body level were reported to be due to a significant change in monitoring (site, methodology) since the first RBMP.

Figure 3.3 compares the ecological status of surface water bodies in Austria for the first RBMPs with that for the second RBMPs and that expected by 2015.

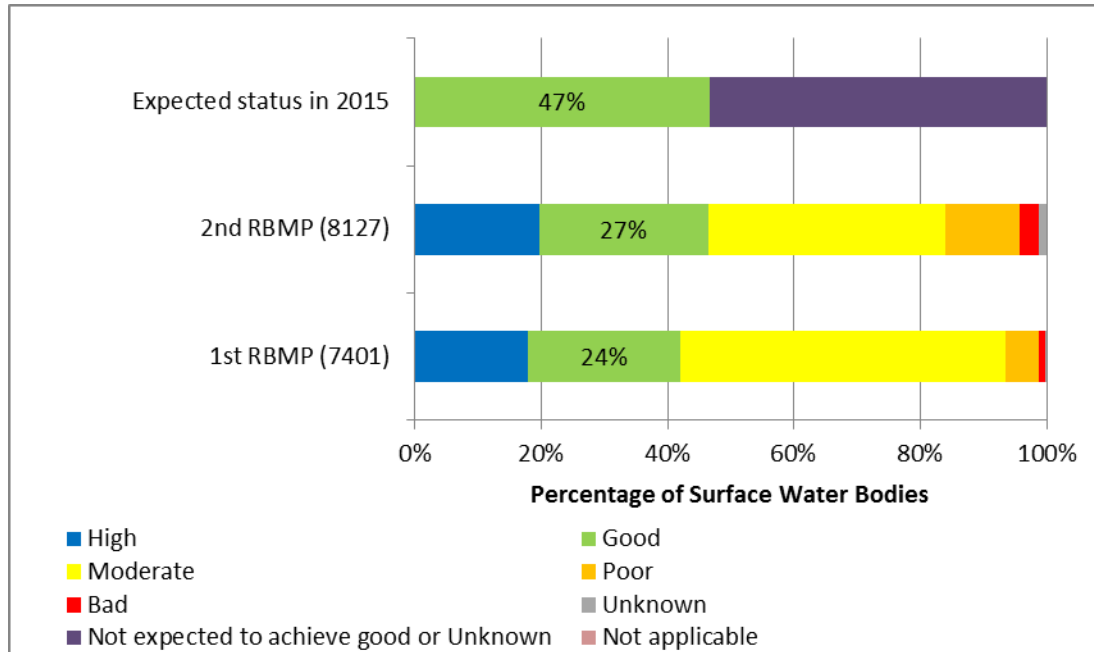
Member States were asked to report the expected date for the achievement of good ecological status/potential. The information for Austria is shown in Figure 3.4.

Map 3.1 *Ecological status or potential of surface water bodies in Austria based on the most recently assessed status/potential of the surface water bodies*



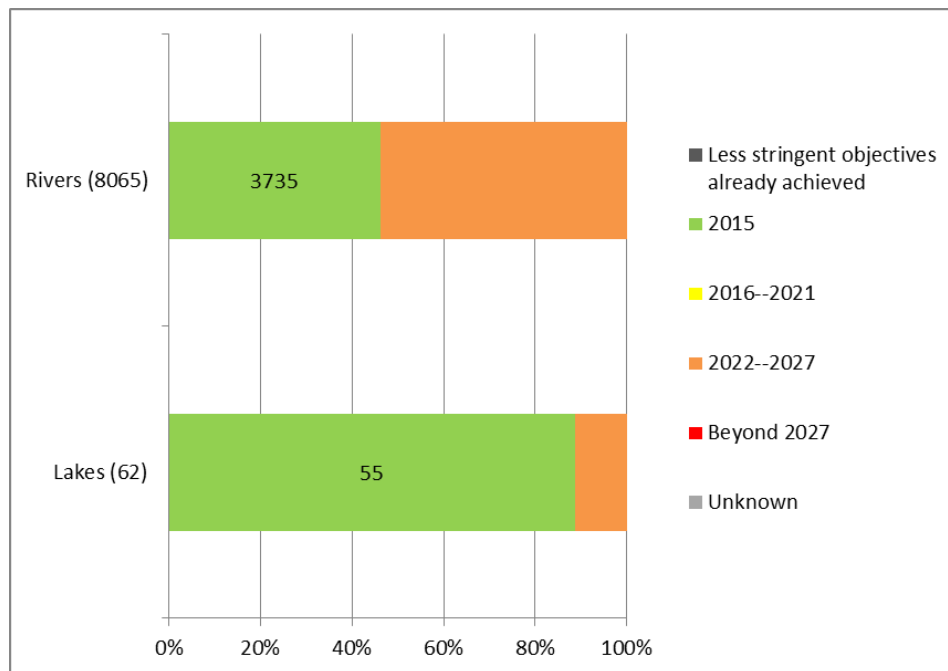
*Note: Standard colours based on WFD Annex V, Article 1.4.2(i).
Source: WISE, Eurostat (country borders)*

Figure 3.3 *Ecological status or potential of surface water bodies in Austria reported in the second RBMPs, in the first RBMPs and expected in 2015. The number in parenthesis is the number of surface water bodies for each cycle. Note the period of the assessment of status for the second RBMP was 2010 to 2015. The year of the assessment of status for the first RBMPs is not known*



Source: WISE electronic reports

Figure 3.4 *Expected date of achievement of good ecological status/potential of surface water bodies in Austria. The number in the parenthesis is the number of water bodies in each category*



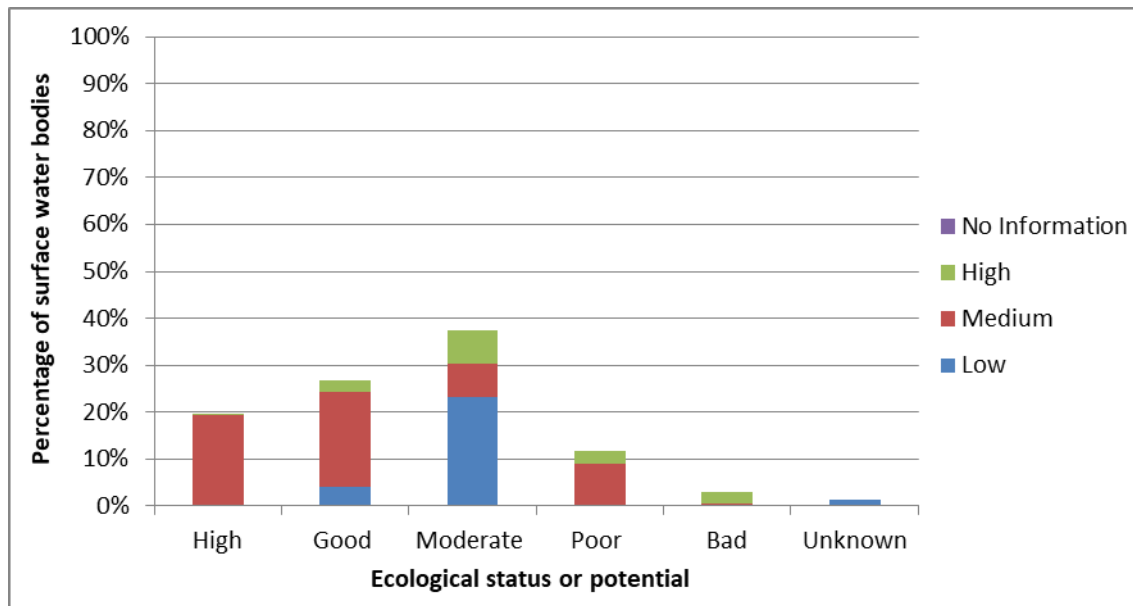
Source: WISE electronic reports

Confidence in ecological status assessment

Figure 3.5 shows the confidence in the classification of ecological status/potential. No surface water bodies were classified for ecological status/potential with medium confidence in the first RBMP: 84 % were classified with high confidence and 16 % with low. The proportion of surface water bodies classified for ecological status/potential with high confidence in the second RBMP decreased to 15 %, with 57 % having medium confidence and 28 % low confidence. In conclusion, the confidence in the classification of ecological status/potential has significantly decreased between the first and second RBMPs³³.

³³ Austria subsequently indicated that this is caused by a change of methodology for the assignment of confidence to assessment results.

Figure 3.5 *Confidence in the classification of ecological status or potential of surface water bodies in Austria based on the most recently assessed status/potential*



Source: WISE electronic reports

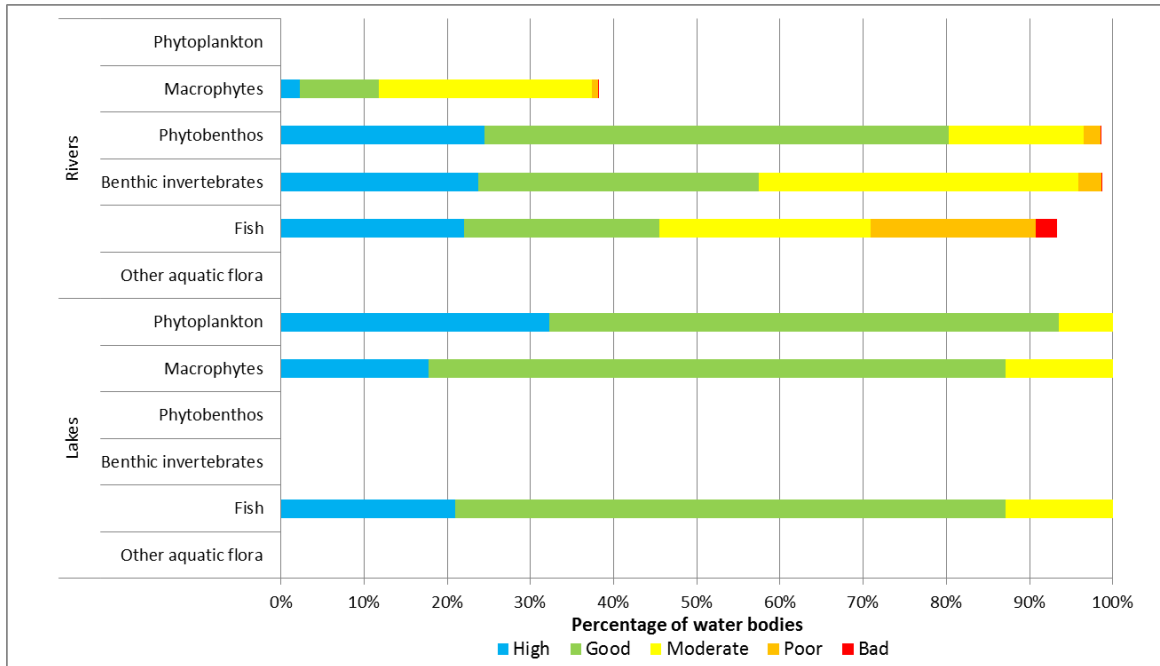
Classification of ecological status at the quality element level

Figure 3.6 shows the ecological status/potential of the biological quality elements used in the classification of surface waters.

Figure 3.7 compares the classification of biological quality elements in terms of ecological status/potential for the two cycles. It should be noted that this comparison should be treated with some caution as there are differences between the numbers of surface water bodies classified for individual elements between the two cycles.

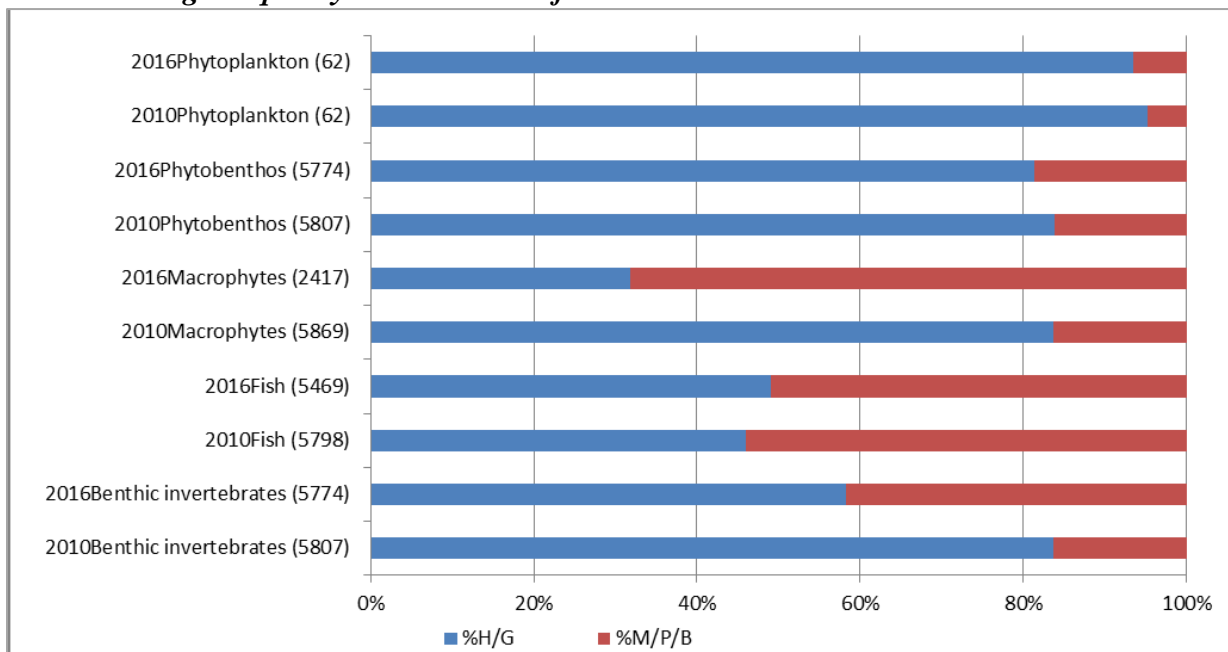
Figure 3.8 illustrates the basis of the classification of ecological status/potential of rivers and lakes for the second RBMP.

Figure 3.6 Ecological status/potential of the biological quality elements used in the classification of surface water bodies in Austria. Note that water bodies with unknown status/potential, and those that are monitored but not classified or not applicable, are not presented



Source: WISE electronic reports

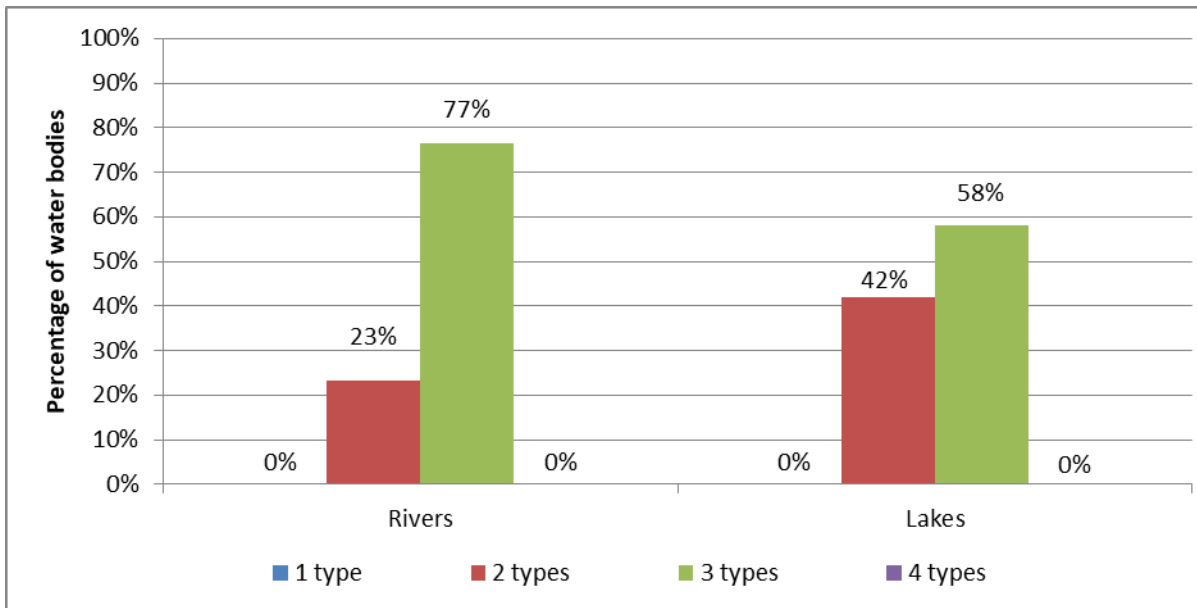
Figure 3.7 Comparison of ecological status/potential in Austria according to classified biological quality elements in surface water bodies between the two RBMPs



Source: WISE electronic reports

Figure 3.8 *The classification of the ecological status or potential of surface water bodies in Austria using one, two, three or four types of quality element.*

Note: The four types are: biological, hydromorphological, general physicochemical and River Basin Specific Pollutants.



Source: WISE electronic reports

Assessment methods for the biological quality elements

There were gaps in the methods reported for the assessment of biological quality elements: phytoplankton in (very large) rivers and for benthic invertebrates and phytobenthos in lakes. The assessment methods were reported to be sensitive to some but not all relevant impacts: Chemical pollution was reported to impact all river and lake water bodies in Austria but none of the biological assessment methods were reported to be sensitive to this impact: This is evaluated as a gap in the assessment methods that requires attention.

Assessment of hydromorphological quality elements

There are assessment methods for all relevant hydromorphological quality elements in rivers and lakes, and the classification boundaries for these supporting quality elements are related to the class boundaries for the sensitive biological quality elements.

Classification methods for general physicochemical quality elements

All the relevant general physicochemical quality elements in rivers and lakes are assessed in terms of ecological status/potential and the classification boundaries are related to the class boundaries for the sensitive biological quality elements. Standards have been reported for all

the relevant general physicochemical quality elements in river and lakes and the standard are consistent to the good-moderate status boundary of the relevant sensitive biological quality elements.

Selection of River Basin Specific Pollutants and use of Environmental Quality Standards

Environmental quality standards have been set for 35 River Basin Specific Pollutants: For copper, zinc and nitrite, there were different standards relating to the hardness of the water. All standards are for water only. Ten River Basin Specific Pollutants were reported to be monitored in water.

Standards are set for rivers and lakes and all are in accordance with the 2011 Technical Guidance Document No 27³⁴ and the analytical methods used for all substances meet the minimum performance criteria laid down in Article 4(1) of the QA/QC Directive (2009/90/EC³⁵) for the strictest standard applied.

Use of monitoring results for classification

The classification of the individual quality elements is illustrated in Figure 3.9.

Use of monitoring results for classification in lakes

Expert judgement was used extensively in the classification of the biological quality elements in lakes. Monitoring results and grouping were also used. In some cases the number of directly monitored water bodies was above or below to those that were subsequently used in the classification of ecological status/potential. In the Elbe RBD, lakes were not directly monitored but were reported as being classified by expert judgment³⁶.

The classification of the hydrological regime and morphological conditions in lakes was solely based on monitoring results even though these elements were reported not to be monitored in WISE: This is a possible reporting error³⁷. General physicochemical quality elements were

³⁴ <https://circabc.europa.eu/sd/a/0cc3581b-5f65-4b6f-91c6-433a1e947838/TGD-EQS%20CIS-WFD%2027%20EC%202011.pdf>

³⁵ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:201:0036:0038:EN:PDF>

³⁶ Austria subsequently stated that they were not classified by expert judgement but by grouping.

³⁷ Austria subsequently stated that hydromorphological quality elements are monitored in rivers and lakes, but the monitoring is continuous and not related to sites. Thus the hydromorphological monitoring was not included in the WISE templates.

reported not to be used in the classification of lakes even though they were reported to be extensively monitored³⁸.

River Basin Specific Pollutants were used in the classification of lakes, all based on grouping even though monitoring results were reported not to be used at all, which makes it difficult to understand how lakes have been classified using River Basin Specific Pollutants³⁹.

Use of monitoring results for classification in rivers

Overwhelmingly, expert judgment was used in the classification of the biological quality elements for rivers: 63 % of classification determinations using biological quality elements were based on expert judgment, 30 % on grouping and only 7 % of monitoring results. The classification of macrophytes was reported as not based on monitoring results for any river water body even though this element was directly monitored⁴⁰. This may indicate some uncertainty in the assessment and classification methods for macrophytes in rivers. This was also the case for the other three biological quality elements used for classification of rivers where more water bodies were directly monitored than were subsequently classified using monitoring results⁴¹.

All the relevant hydromorphological quality elements have been reported as being used in the classification of status/potential of rivers, all based on monitoring results. However, these elements were reported as not being monitored.⁴²

There was extensive monitoring of general physicochemical quality elements in rivers but these elements were reported not to be used in the classification of status⁴³. River Basin Specific Pollutants were used in the classification of rivers, mainly based on grouping, to a lesser extent on monitoring and for some water bodies on expert judgement.

³⁸ Austria subsequently stated that general physicochemical quality elements are used as supportive element for the assessment of the ecological status.

³⁹ Austria subsequently clarified that the analysis of pressure and impacts undertaken according to article 5 of the Water Framework Directive identified an absence of significant pressure by specific pollutants on lakes.

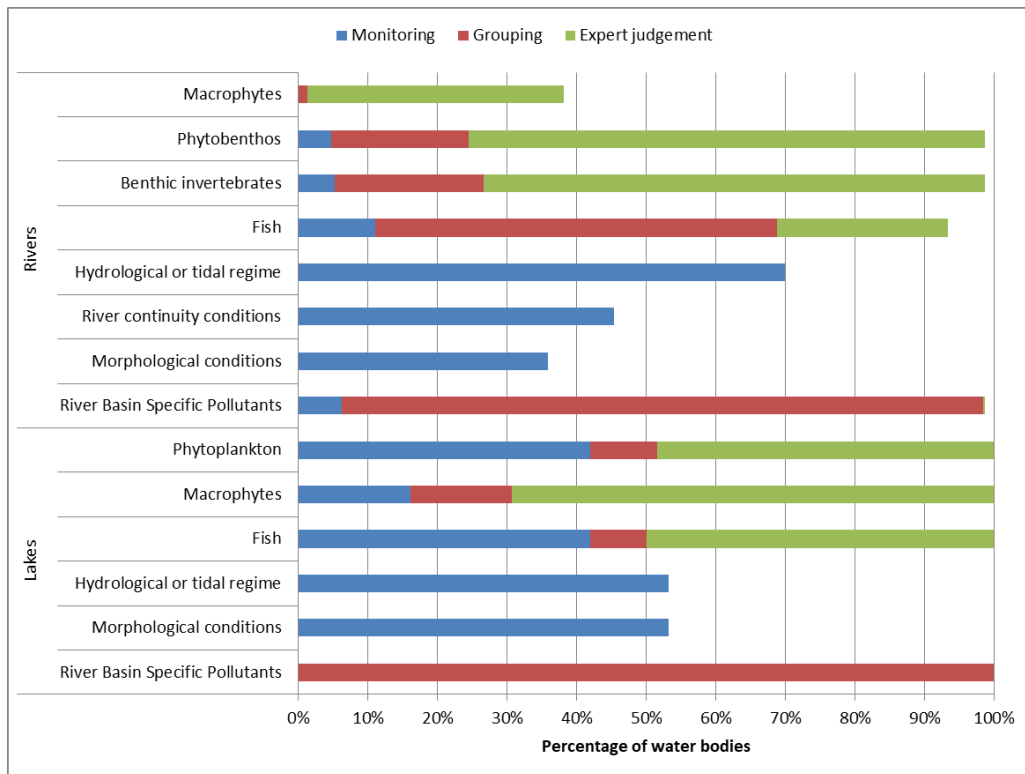
⁴⁰ Austria subsequently stated that it is a reporting error.

⁴¹ Austria subsequently explained that some sampling sites were afterwards considered as not representative.

⁴² Austria subsequently stated that hydromorphological quality elements are monitored in rivers and lakes, but the monitoring is continuous and not related to sites. Thus the hydromorphological monitoring was not included in the WISE templates.

⁴³ Austria subsequently stated that general physicochemical quality elements are used as a supportive element for the assessment of the ecological status.

Figure 3.9 *Basis of the classification of ecological status/potential in Austria. The percentages are in terms of all waterbodies in each category.*



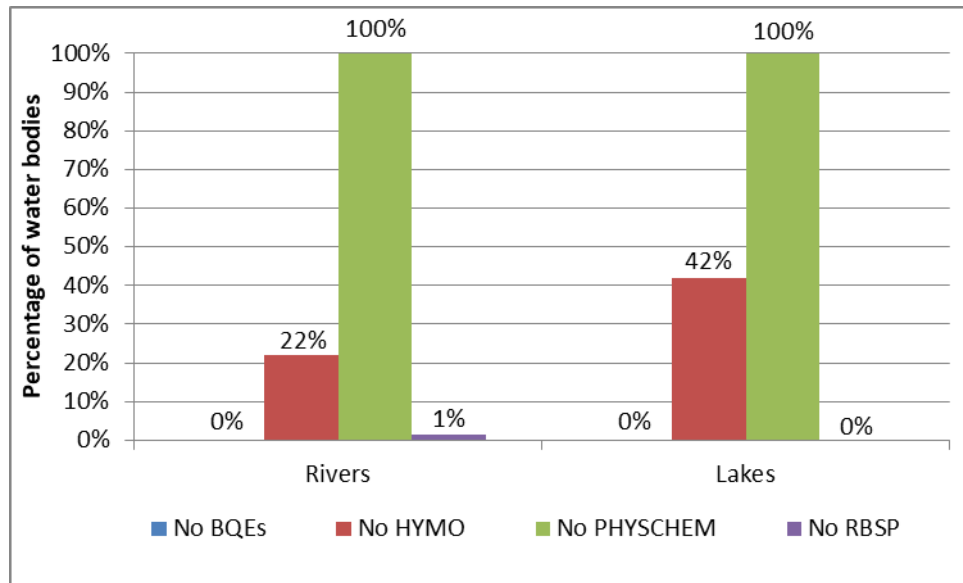
Source: WISE electronic reports

Overall classification of ecological status (one-out, all-out principle)

The ‘one-out, all-out’ principle was applied in all RBDs in deriving the overall classification of the ecological status of a water body.

Figure 3.10 shows the percentage of surface water bodies that have not used particular types of elements in classifying ecological status or potential.

Figure 3.10 *Percentage of surface water bodies in Austria where no biological quality element or no hydromorphological (HYMO) or no general physicochemical (PHYSICHEM) or no river basin specific pollutant (RBSP) has been used in the classification of ecological status or potential*



Source: WISE electronic reports

3.2. Main changes in implementation and compliance between first and second RBMPs

There was a significant increase in the proportion of rivers included in operational monitoring overall in Austria: from 6 % reported in the first RBMP to 20 % in the second. For lakes, there were two operational monitoring sites reported in the first RBMP, but none in the second. The number of monitoring of sites for the surveillance monitoring of rivers and lakes remained the same.

All expected biological quality elements were reported to be monitored in rivers in Austria in the second RBMP, it was also the case in the first RBMP. In lakes, phyto-benthos and benthic invertebrates were reported as not monitored in the second RBMP⁴⁴, whereas in the first RBMP all required biological quality elements were reported to be monitored in lakes in one RBD, in the Rhine RBD, benthic invertebrates were not monitored in lakes and in the Elbe RBD the two lakes were not monitored at all.

⁴⁴ Austria subsequently stated that for benthic invertebrates the assessment method is currently (2018) intercalibrated. For phyto-benthos the justification for omitting this biological quality element was accepted by the European Commission during the intercalibration exercise 2017.

In the second RBMP, hydromorphological quality elements were reported not to be monitored in WISE in rivers and lakes in Austria⁴⁵, whereas they were monitored for the first RBMP.

All expected general physicochemical quality elements were monitored in rivers and lakes in both RBMPs.

3.3. Progress with Commission recommendations

The Commission recommendations based on the first RBMP and first PoM requested action on the following:

- Recommendation: *Further details on how the monitoring relates to the classification of water bodies would better support the selection of monitoring sites and their use for ecological status/potential classification.*
- Recommendation: *Although most biological quality elements are used for the classification of ecological status it should be clearer why some biological quality elements have not been considered for certain water body types.*

Assessment: Further details are still required and the reported information in WISE is not clear. Whilst all the required biological quality elements are monitored in rivers, there are now gaps in lakes⁴⁶. In addition, hydromorphological quality elements were reported not to be monitored in WISE (Austria clarified subsequently that hydromorphological elements are monitored in rivers and lakes, but the monitoring is continuous and not related to sites, thus they were not included in WISE).

The classification of macrophytes was not based on monitoring results for any river water body even though this element was directly monitored⁴⁷. This was also the case for the other three biological quality elements used for classification of rivers where more water bodies were directly monitored than were subsequently classified using monitoring results. Expert judgement was used extensively. The justification for this is not known. Overall therefore, not enough information on progress regarding this recommendation could be found in the RBMP.

⁴⁵ Austria subsequently stated that hydromorphological quality elements are monitored in rivers and lakes, but the monitoring is continuous and not related to sites. Thus the hydromorphological monitoring was not included in the WISE templates.

⁴⁶ Austria subsequently stated that for benthic invertebrates, the assessment method is now intercalibrated. For phytobenthos the justification for omitting this biological quality element was accepted by the European Commission during the intercalibration exercise in 2017.

⁴⁷ Austria subsequently stated that this is a reporting error.

Overall, there appears to be a deterioration in implementation, therefore, this recommendation has not been fulfilled.

- Recommendation: *The identification of River Basin Specific Pollutants needs to be more transparent, with clear information on how pollutants were selected, how and where they were monitored, where there are exceedances and how such exceedances have been taken into account in the assessment of ecological status. It is important that to take an ambitious approach to combatting chemical pollution and that adequate measures are put in place.*

Assessment: Detailed information on the monitored River Basin Specific Pollutants and their exceedances has been reported, all water River Basin Specific Pollutants included in surveillance monitoring were sampled at least at the recommended minimum frequency, but this wasn't the case for operational monitoring in water and for biota and sediments. Classification of rivers for Specific Pollutants was mainly based on grouping for rivers and exclusively for lakes, whereas no monitoring was reported in the second RBMP.

Therefore, this recommendation is partially fulfilled.

Topic 4 Monitoring, assessment and classification of chemical status in surface water bodies

4.1. Assessment of implementation and compliance with WFD requirements in the second cycle

1.2.12. Monitoring of chemical status in surface waters

Monitoring sites and monitored water bodies used for monitoring of chemical status

Member States have to implement surveillance and operational monitoring programmes in accordance with the requirements of the WFD and of the EQS Directive, for the assessment of ecological status/potential and chemical status.

Surveillance monitoring programmes should allow MS to supplement and validate the impact assessment procedure, to efficiently and effectively review the design of their monitoring programmes, and to assess the long-term changes in natural conditions and those resulting from widespread anthropogenic activity. For operational purposes, monitoring is required to establish the status of waterbodies identified as being at risk of failing to meet their environmental objectives, and to assess any changes in the status of such waterbodies resulting from the PoM.

Section 3.1.1 of this report summarises the characteristics of the surveillance and operational monitoring programmes in Austria for the second RBMP.

Figure 4.1 summarises the proportion of sites used for the monitoring of chemical status in lakes and rivers for the second RBMP. In this figure, no distinction is made between sites used for surveillance and/or operational purposes. More detailed information can be found on the website of the European Environment Agency⁴⁸.

The vast majority of sites were used for monitoring of ecological status in rivers (99%) and all sites were used for monitoring of ecological status in lakes but no site was used for the monitoring of chemical status in lakes and only 6% of sites were used for monitoring of chemical status in rivers. Hence the spatial coverage of the chemical monitoring programme appears to be limited. Austria explained that they designed their chemical monitoring programme on the basis of their pressure-impact assessment: Apart from mercury, the other priority substances are expected to cause a risk in a very low number of waterbodies and water bodies without risk from substances other than mercury were not monitored. Hence the limited number of water bodies monitored. However, it is not entirely clear how these monitoring programmes allow the assessment of the long-term changes in natural conditions and those resulting from

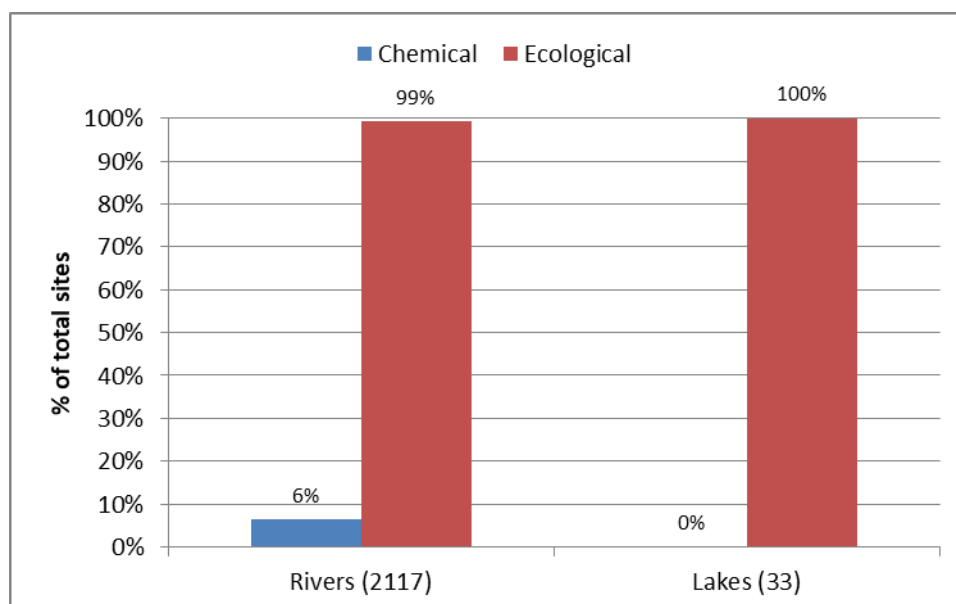
⁴⁸ <https://www.eea.europa.eu/publications/state-of-water>

widespread anthropogenic activity in waterbodies where no risk is expected at the moment. It is also not entirely clear how the monitoring programmes allow a validation of the impact assessment procedure for waterbodies in which no risk is expected from substances other than mercury.

In comparison to monitoring for chemical status in the first RBMP, there is a reduction in monitoring for lakes (13 sites and 10 water bodies reported in the first RBMP). To explain this reduction, Austria mentioned that they used the possibility offered in WFD, Annex V, 1.3.1. to monitor certain waterbodies every three cycles, when “the previous surveillance monitoring exercise showed that the body concerned reached good status and there is no evidence from the review of impact of human activity in Annex II that the impacts on the body have changed”. Overall, the number of sites used to monitor priority substances also decreased between the first RBMP (186 sites reported) and the second RBMP (127 sites reported).

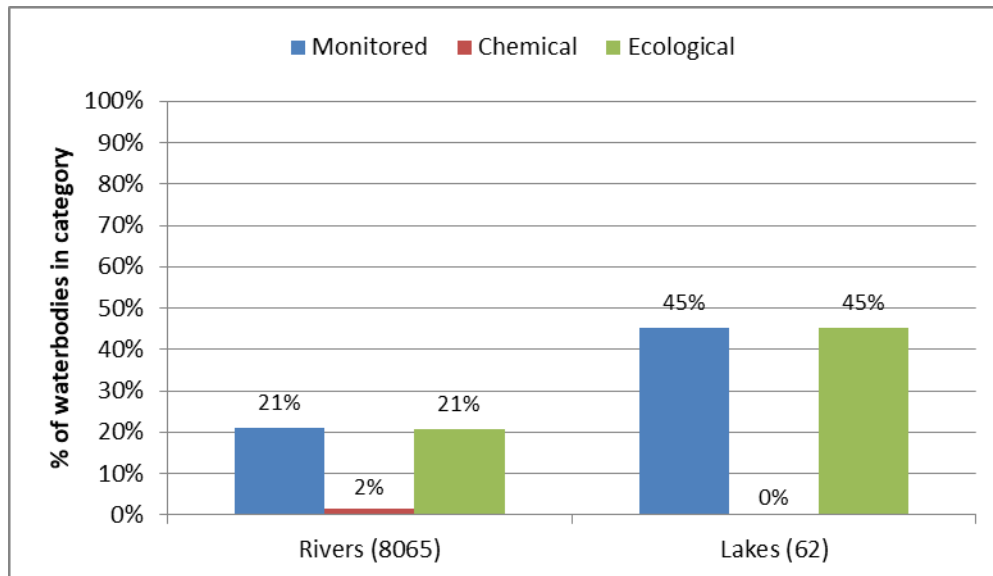
Figure 4.2 summarises the proportion of water bodies monitored for chemical status in lakes and rivers for the second RBMP. In this figure, no distinction is made between water bodies monitored for surveillance and/or operational purposes. Also given is the proportion of water bodies monitored for any purpose and, for comparative purpose, those for ecological status.

Figure 4.1 *Proportion of sites used for monitoring of chemical status and, for comparison, ecological status, in Austria. The number in parenthesis next to the category is the total number of monitoring sites irrespective of their purpose*



Source: WISE electronic reporting

Figure 4.2 *Proportion of total water bodies in each category monitored, monitored for chemical status and, for comparison, monitored for ecological status, in Austria. The number in parenthesis next to the category is the total number of water bodies in that category*



Source: WISE electronic reporting

45 % of river waterbodies and 21 % of lake waterbodies were reported to be monitored in the second RBMP. All of these were included in the monitoring of ecological status. For chemical monitoring, no lakes and only 2 % of river water bodies were monitored. Water bodies where no ubiquitous substance was expected to cause a risk were not monitored. Only 0.4 % of river waterbodies and none of the lakes are identified to be at risk of failing good chemical status when mercury is not considered.

Only 1.4 % of water bodies failing to achieve good chemical status were reported to be monitored in Austria as a whole.

Long-term trend monitoring and monitoring of Priority substances in water, sediment and biota for status assessment

Monitoring for status assessment

Requirements

Article 8(1) of the WFD requires MS to establish monitoring programmes in order to provide inter alia a coherent and comprehensive overview of water status within each RBD. The amount of monitoring undertaken in terms of priority substances, frequency and numbers of sites should be sufficient to obtain a reliable and robust assessment of status. According to the EQS Directive (version in force in 2009), mercury, hexachlorobenzene and hexachlorobutadiene have to be

monitored in biota for status assessment, unless MS derived a standard for another matrix, which is at least as protective as the biota standard.

Spatial coverage

As stated above, for chemical monitoring, no lakes and only 2 % of river water bodies were monitored (according to Austria this is based on their pressure-impact assessment, which has determined that 0.4 % of river water bodies and lo lakes are at risk of failure of good chemical status – please note these numbers do not include the ubiquitous substance mercury). Water bodies without risk from substances other than mercury were not monitored.

Between 93 and 99 % of river water bodies in each of the three RBDs were reported not to be monitored for Priority Substances. However, 67, seven and one river water bodies in the Danube, Rhine and Elbe RBDs respectively were monitored for more than ten Priority Substances.

Austria reported monitoring data for mercury, hexachlorobenzene and hexachlorobutadiene in biota (fish) for status assessment at 27 to 31 sites (depending on the substance) in the Danube RBD and in the Rhine RBD. In the Elbe RBD, mercury is monitored in the water column only for status assessment (hexachlorobenzene and hexachlorobutadiene are not monitored).

Frequencies

The WFD indicates that, for the surveillance and operational monitoring of Priority Substances in water, the frequency of monitoring should be at least monthly for one year during the RBMP cycle and at least monthly every year, respectively. Monitoring in biota for status assessment should take place at least once every year according to the EQS Directive. MS can choose to monitor less frequently for any matrix, provided they can justify greater intervals on the basis of technical knowledge and expert judgement. Monitoring frequencies were reported for 17 Priority Substances at site level in the Danube RBD, 15 in the Rhine RBD and nine in the Elbe RBD. All parameters with an environmental quality standard in water were reported to be monitored at least 12 times the year(s) they were monitored (one or two years per cycle), which is in accordance with the minimum recommended frequency for surveillance but not for operational monitoring. According to WISE, the parameters with an environmental quality standard in biota were monitored once or twice per cycle. Austria clarified that the biota monitoring was carried out once in each monitoring site, which is below the minimum recommended frequency. No explanation was provided for the reduced frequency.

Monitoring for long-term trend assessment

Requirements

Article 3(3) of the EQS Directive (version in force in 2009) requires Member States to monitor 14 substances⁴⁹ that tend to accumulate in sediment and/or biota, for the purpose of long-term trend assessment. Monitoring should take place at least once every three years, unless technical knowledge and expert judgment justify another interval.

Spatial coverage

In the Danube RBD all 14 relevant Priority Substances are reported to be monitored in biota / sediment for long-term trends in river water bodies but no such substance is reported to be monitored in lakes⁵⁰. Only five sampling locations are monitored for each substance hence the spatial coverage appears to be very limited. No long-term trend monitoring is reported in sediment and/or biota in either of the other two RBDs.

Frequencies

Where priority substances are monitored for long-term trends (in river water bodies in the Danube RBD only), monitoring is reported to be performed once every three years, in accordance with the WFD.

Monitoring of Priority Substances that are discharged in each RBD

Annex V of the WFD states, in Section 1.3.1 (Design of surveillance monitoring), that “Surveillance monitoring shall be carried out for each monitoring site for a period of one year during the period covered by a river basin management plan for [*inter alia*]: priority list pollutants which are discharged into the river basin or sub-basin.” Section 1.3.2 (Design of operational monitoring) of the Directive states that “In order to assess the magnitude of the pressure to which bodies of surface water are subject Member States shall monitor for those quality elements which are indicative of the pressures to which the body or bodies are subject. In order to assess the impact of these pressures, Member States shall monitor as relevant [*inter alia*]: all priority substances discharged, and other pollutants discharged in significant quantities.” MS are therefore required to monitor all Priority Substances which are discharged into the river basin or sub-basin.

⁴⁹Anthracene, brominated diphenylether, cadmium, C10-13 chloroalkanes, DEHP, fluoranthene, hexachlorobenzene, hexabutadiene, hexachlorocyclohexane, lead, mercury, pentachlorobenzene, PAH, Tributyltin.

⁵⁰ Austria subsequently informed that lakes were not submitted to point source pressures and therefore were not covered by trend monitoring. However, trend monitoring should not be performed only where point sources have been identified (as diffuse sources may also exist), and consequently trend monitoring should be performed in lakes as well as in rivers.

Austria reported that for all three RBDs, at least some discharged substances were not monitored. This was the case for chlorpyrifos in the Danube RBD, nonylphenol in the Rhine RBD and for tributyltin and brominated diphenylethers in the Elbe RBD. This seems to be in contradiction with the requirement of the WFD.

Performance of analytical methods used

For 33 of the 41 (groups of) Priority Substances, the analytical methods meet the minimum performance criteria laid down in Article 4(1) of Directive 2009/90/EC⁵¹, in all three RBDs. For the remaining eight substances, the analytical methods complied with the requirements laid down in Article 4(2) of Directive 2009/90/EC in all RBDs (i.e. for these substances Austria used the best available analytical techniques not entailing excessive costs).

The method of dealing with measurements of Priority Substances lower than the limit of quantification is as specified in Article 5 of Directive 2009/90/EC.

1.2.13. Chemical Status of surface water bodies

MS are required to report the year on which the assessment of chemical status was based. This may be the year that the surface water body was monitored. In case of grouping this may be the year in which monitoring took place in the surface water bodies within a group that are used to extrapolate results to non-monitored surface water bodies within the same group. In Austria, the chemical assessments were carried out in the period of 2010 to 2015 for all three RBDs, but the specific years have not been reported.

The one-out-all-out approach was used for classification.

The chemical status of surface water bodies in Austria for the second RBMP is illustrated in Map 4.1. This is based on the most recent assessment of status and shows that all surface water bodies were classified as failing to achieve good chemical status.

The assessment of chemical status for the second RBMP was expected to be based on the standards laid down in the EQS Directive (version in force on 13 January 2009⁵²). Some

⁵¹ Directive 2009/90/EC of 31 July 2009 laying down, pursuant to Directive 2000/60/EC of the European Parliament and of the Council, technical specifications for chemical analysis and monitoring of water status <http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1524565750309&uri=CELEX:32009L0090>

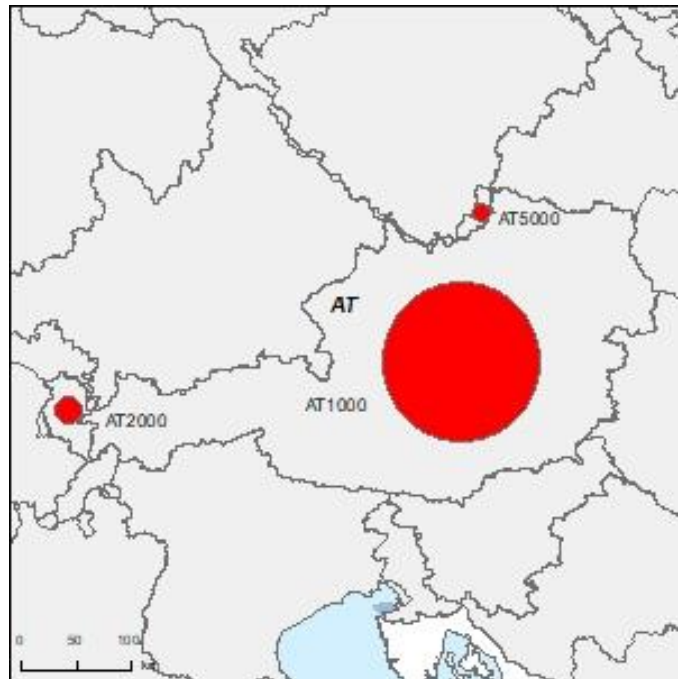
⁵² Directive 2013/39/EU, which amended the Environmental Quality Standards Directive, introduced a less stringent annual average EQS for naphthalene in transitional waters. This less stringent environmental quality standard should be taken into account for the determination of surface water chemical status by the 2015 deadline laid down in Article 4 of the WFD.

Member States did not fully implement the Directive in the first RBMPs as the transposition deadline was in July 2010, after the adoption of the first RBMPs⁵³.

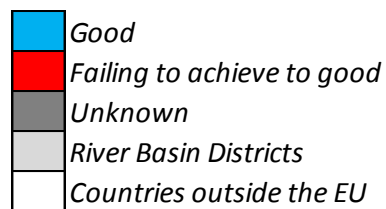
⁵³ According to the European Overview on the Implementation of the first RBMP “It is stated in the [Austrian] RBMPs that the priority substances and other pollutants in the EQSD were used in the assessment of chemical status. The chemical pollution by-law in force at the time of the RBMP includes national standards that are less stringent than those in the EQSD for a number of priority substances. In addition, the following substances are missing: chloroalkanes, fluoranthene, nickel, polyaromatic hydrocarbons (PAH) and tributyltin compounds (TBT).” This document is available at: http://ec.europa.eu/environment/water/water-framework/impl_reports.htm

Map 4.1 *Chemical status of surface water bodies in Austria based on the most recently assessed status of the surface water bodies*

Note: Standard colours based on WFD Annex V, Article 1.4.3.



Source: WISE, Eurostat (country borders)



The chemical status of lakes and rivers in Austria for the first and second RBMP is given in Table 4.1. More information on the chemical status in each RBD and water category can be found on the website of the European Environment Agency⁵⁴. Table 4.1 shows that there was a considerable shift in status from good to failing to achieve to good between the two RBMPs.

⁵⁴ <https://www.eea.europa.eu/publications/state-of-water>

Table 4.1 Chemical status of surface water bodies in Austria for the second and first RBMP.

Note: the number in parenthesis next to the water category is the number of water bodies. Note: Chemical status assessment is based on the standards laid down in EQS Directive 2008/105/EC (version in force on 13 January 2009). Some Member States did not fully implement the Directive in the first RBMPs as the transposition deadline was in July 2010, after the adoption of the first RBMPs

Category	Good		Failing to achieve good		Unknown	
	Number	%	Number	%	Number	%
Second RBMP						
Lakes (62)			62	100%		
Rivers (8 065)			8 065	100%		
Total (8127)			8127	100%		
First RBMP						
Lakes (62)	62	100%				
Rivers (7 339)	7 299	99%	18	0.2%	22	0.3%
Total (7401)	7361	99.5%	18	0.2%	22	0.3

Source: WISE electronic reporting

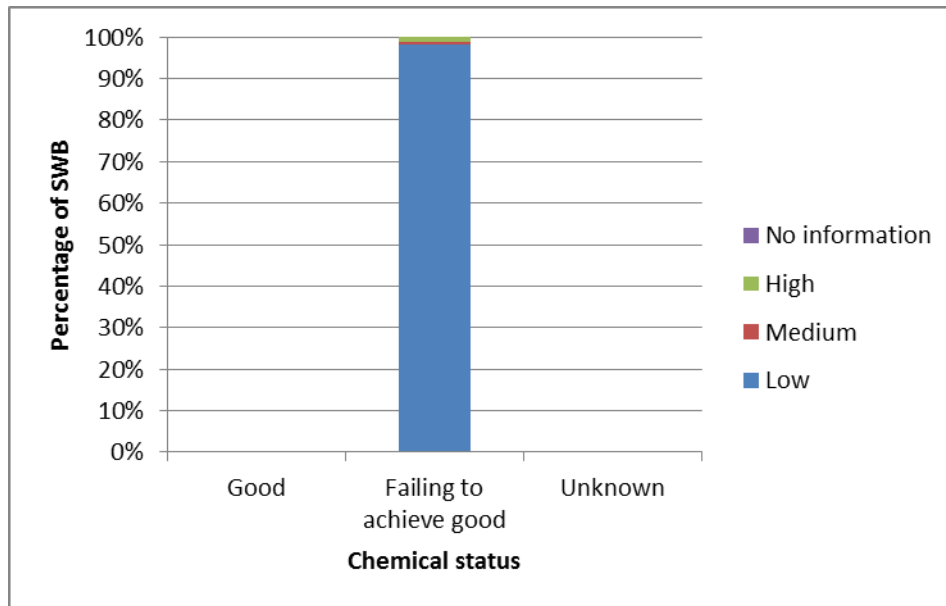
The considerable change in chemical status between the first and second RBMP is attributable to the assessment of mercury in biota in the second RBMP. This change in status therefore results from a more accurate assessment of status in the second RBMP.

Figure 4.3 shows the confidence in the classification of chemical status for the second RBMP. Almost all of the classifications were given a low level of confidence⁵⁵. Confidence in the classification of chemical status for the first RBMP was generally not reported by Member States⁵⁶.

⁵⁵ Austria subsequently informed that this is a reporting error and that at national level all chemical status assessments without monitoring (by grouping) have medium confidence.

⁵⁶ Austria subsequently stated that for the first RBMP the confidence in the classification was reported.

Figure 4.3 *Confidence in the classification of chemical status of surface water bodies in Austria based on the most recently assessed status/potential*

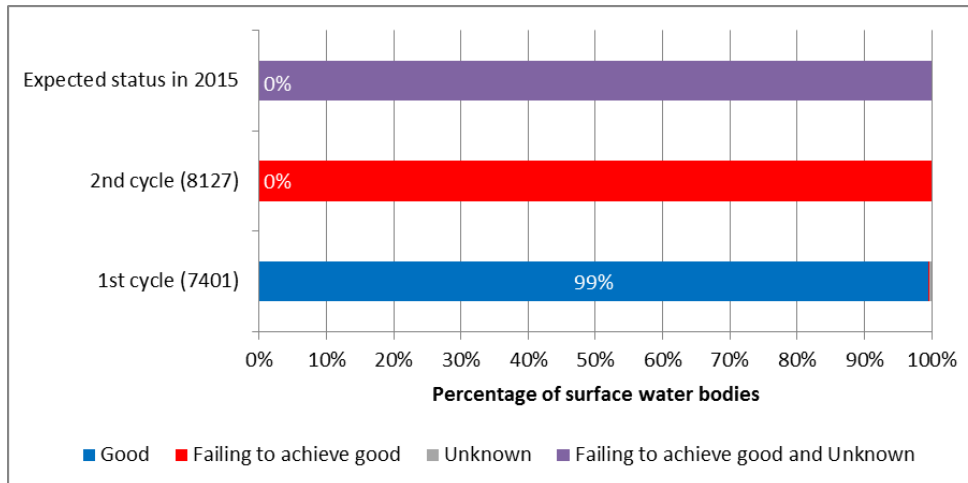


Source: WISE electronic reporting

In Austria as a whole, 98 % of water bodies were classified for chemical status with low confidence and 1.2 % with high confidence. All lake water bodies and 98 % of river water bodies were classified with low confidence and only 1.2 % of river water bodies were classified with high confidence⁵⁷. Austria subsequently clarified that a medium level of confidence is associated to the assessment of chemical status when omitting ubiquitous, persistent bioaccumulative and toxic substances. Figure 4.4 compares the chemical status of surface water bodies in Austria for the first RBMP with that for the second RBMP (based on the most recent assessment of status) and that expected by 2015. This again illustrates the marked change in status between the first and second RBMPs. The status given in the second RBMP is identical to the status expected in 2015.

⁵⁷ As mentioned above, Austria stated that this is a reporting error and that at national level all chemical status assessments without monitoring (by grouping) have medium confidence.

Figure 4.4 *Chemical status of surface water bodies in Austria for the second RBMP, for the first RBMP and expected in 2015. The number in the parenthesis is the number of surface water bodies for both cycles. Note the period of the assessment of status for the second RBMP was 2010 to 2015. The year of the assessment of status for the first RBMP is not known*



Source: WISE electronic reporting

As mentioned above, the considerable change in chemical status between the first and second RBMP results in particular from a more accurate assessment of status (assessment of mercury in biota).

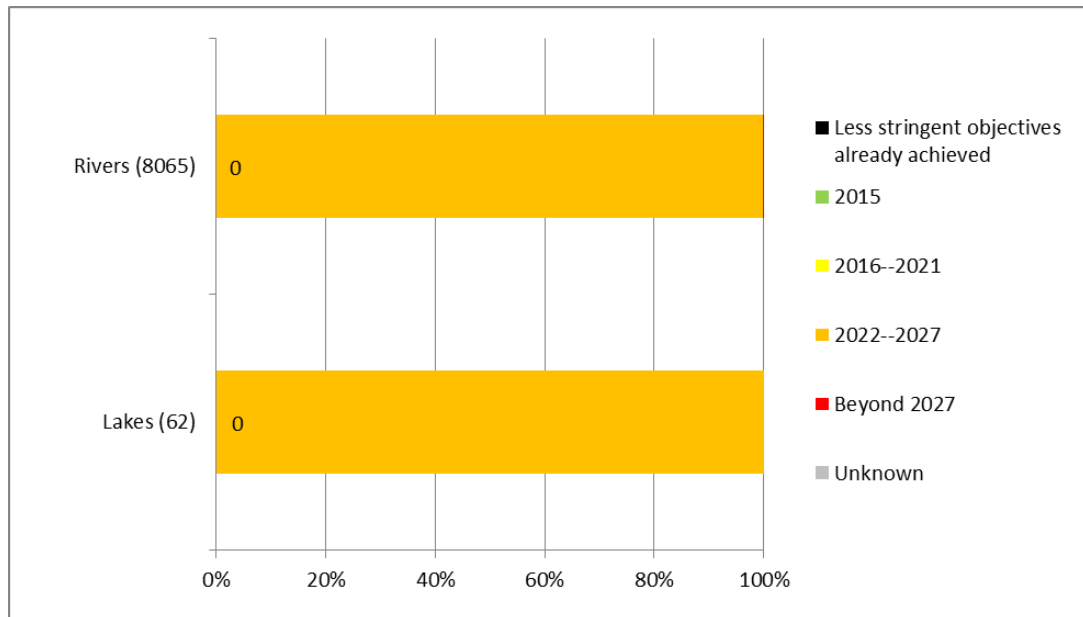
Directive 2013/39/EU amended the EQS Directive. In particular, it set more stringent environmental quality standards for seven substances⁵⁸. MS were required to indicate if the new standards caused the status of the surface water bodies to appear to deteriorate. This was not the case in Austria.

Good chemical status should be reached by 2021 in relation to the revised Environmental Quality Standards, unless MS apply exemptions under WFD article 4(4) or less stringent objectives under WFD article 4(5).

Member States were asked to report the expected date for the achievement of good chemical status. The information for Austria is shown in Figure 4.5. Good chemical status of surface water bodies is expected to be achieved by the end of the third planning cycle in the Rhine and Elbe RBDs. However it is expected that this will not be achieved in 15 river water bodies in the Danube RBD, which represents only 0.19 % of water bodies in the Danube RBD and 0.18 % of all water bodies in Austria as a whole.

⁵⁸ Anthracene, Brominated diphenylether, Fluoranthene, Lead and its compounds, Naphthalene, Nickel and its compounds, Polyaromatic hydrocarbons (PAH)

Figure 4.5 *Expected date of achievement of good chemical status of surface water bodies in Austria. The number in the parenthesis is the number of water bodies in each category*



Source: WISE electronic reporting

Priority substances causing the failure of good chemical status

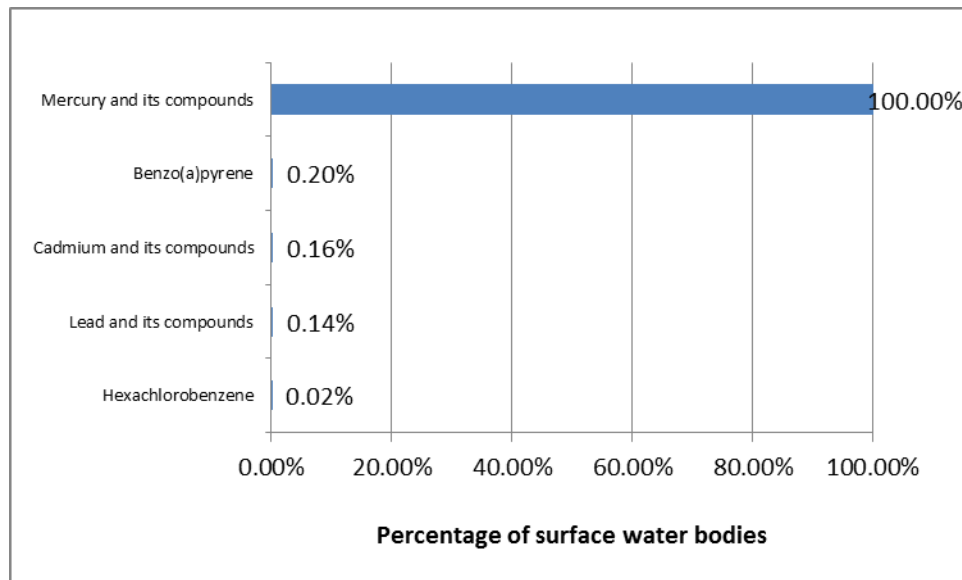
Member States were expected to report exceedances based on the revised, more stringent Environmental Quality Standards from Directive 2013/39/EU. For Austria, as mentioned earlier, no change in status is expected because of these standards, compared to the initial standards.

The substance causing the greatest proportion of water bodies to fail good chemical status was mercury (99.5 %). It appears that this substance was monitored for the first time in biota during the first cycle 2010-2015, and monitoring results in biota (which showed systematic exceedances) were then extrapolated to non monitored waterbodies. This possibly explains the considerable difference in classification between the first and second RBMPs. The “top” substances causing failure in terms of the proportion of water bodies are shown in Figure 4.6 – besides mercury there were only a few more substances of small significance. For surface water bodies, the largest proportion of exceedances were for the annual average (AA) environmental quality standard in biota for mercury (99.4 %). There was no exceedance for the maximum environmental concentration environmental quality standard for any substance (for the substances other than mercury the AA EQS was reported as being exceeded).

In the Danube RBD several Priority Substances which were causing failure in the first RBMP were reported to have reached concentrations below their environmental quality standards in several waterbodies in the second RBMP. The proportions of river water bodies where such

improvements happened were relatively small in comparison to the total number of river water bodies, but seem significant in relation to the proportion of waterbodies where these substances were failing. Improvements were identified in 0.21 % of river water bodies for benzo(a)pyrene; 0.17 % of river water bodies for cadmium; 0.14 % of river water bodies for lead; 0.12 % of river waterbodies for tributyltin-cation and 0.03 % of river waterbodies for hexachlorobenzene. Improvements in chemical status were not reported for the other two RBDs. (Austria clarified that all water bodies were already assessed as in good status in this area in the first RBMPs).

Figure 4.6 *The top Priority Substances causing failure to achieve good chemical status in surface water bodies in Austria*



Source: WISE electronic reporting

Ubiquitous persistent, bioaccumulative and toxic Priority Substances

According to article 8(a) of the EQS Directive⁵⁹, eight priority substances and groups of priority substances are behaving like ubiquitous, persistent, bioaccumulable and toxic substances⁶⁰. These substances are generally expected to cause widespread exceedances and their emissions can be challenging to tackle (e.g. due to long-range atmospheric transport and deposition). In order to show the progress made in tackling other priority substances, MS have the possibility to present the information related to chemical status separately for these substances.

These ubiquitous, persistent and bioaccumulable substances have a very significant influence on the overall chemical status in Austria, as mercury is causing failure in all waterbodies. When mercury is omitted, more than 99 % of waterbodies are assessed as being in good chemical status. This is illustrated in the 2018 State of Water report of the European Environment Agency⁶¹.

Priority substances used in the assessment of chemical status compared to those monitored

All 41 Priority Substances are reported as being taken into account in the assessment of chemical status in all three RBDs in Austria.

⁵⁹ Amended by Directive 2013/39/EU.

⁶⁰ Brominated diphenylether, Mercury and its compounds, Polyaromatic hydrocarbons (PAH), Tributyltin, PFOS, dioxins, hexabromocyclodecane and heptachlor.

⁶¹ <https://www.eea.europa.eu/publications/state-of-water> (p. 40-41 of the report).

Austria reported that in the Danube RBD, 29 of the 41 Priority Substances used in the assessment of chemical status were monitored. The following substances were used in the assessment of status but not monitored: benzene, pentachlorophenol, octylphenol, chlorfenvinphos, trifluralin, chlorpyrifos, trichlorobenzenes (all isomers), all cyclodiene pesticides (aldrin, dieldrin, endrin, isodrin), and DDT (total DDT and DDT-p,p')⁶².

In the Rhine RBD, 27 of the 41 Priority Substances were used in the assessment of chemical status and were monitored. DDT, p,p', benzene, pentachlorophenol, 4-nonylphenol, di(2-ethylhexyl)phthalate (DEHP), octylphenol, chlorfenvinphos, trifluralin, chlorpyrifos, trichlorobenzenes (all isomers) were used in the assessment of chemical status but were not monitored⁶³.

For the Elbe RBD, 22 of the 41 Priority Substances were used in the assessment of chemical status and were monitored. Benzene, hexachlorobutadiene, pentachlorophenol, 4-nonylphenol, di(2-ethylhexyl)phthalate (DEHP), octylphenol, chlorfenvinphos, hexachlorocyclohexane, pentachlorobenzene, trifluralin, chlorpyrifos, trichlorobenzenes (all isomers), tributyltin-cation, all cyclodiene pesticides (aldrin, dieldrin, endrin, isodrin), DDT (total DDT and DDT-p,p'), brominated diphenylethers (congener numbers 28, 47, 99, 100, 153 and 154) were used in the assessment of chemical status but not monitored⁶⁴.

No information was found on how the substances mentioned above were taken into account in the assessment of status, in the absence of monitoring in the matrix for which an environmental quality standard exists.

Application of alternative environmental quality standards for water, biota and sediment

According to the EQS Directive, MS may opt to apply environmental quality standards for another matrix than the one specified in the Directive for a given substance. If they do so, they have to ensure the environmental quality standard they set in other matrix (or matrices) offers at least the same level of protection as the standard established in the Directive.

Austria reported that all the environmental quality standards laid down in Part A of Annex I of the EQS Directive had been applied to assess the chemical status of surface waterbodies. Alternative and/or additional standards for particular Priority Substances had therefore not been applied.

⁶² Austria stated that for all these parameters monitoring data are available, either in biota or in sediment. It seems however that the data available would be intended for trend assessment and not used for status assessment, as Austria did not derive any environmental quality standards in these matrices for these substances.

⁶³ See footnote above.

⁶⁴ See footnote above.

Using of mixing zones

Article 4 of the EQS Directive provides MS with the option of designating mixing zones adjacent to points of discharge in surface waters. Concentrations of priority substances may exceed the relevant environmental quality standard within such mixing zones if they do not affect the compliance of the rest of the surface water body with those standards. MS that designate mixing zones are required to include within their RBMPs a description of the approaches and methodologies applied to define such zones and a description of the measures taken to reduce the extent of the mixing zones in the future.

Mixing zones were designated under Article 4 of the EQS Directive for all three RBDs in Austria. Austria stated that, for all three RBDs, the methodology for designation of Mixing Zones does not follow the tiered approach as laid down in the 'Technical Background Document on Identification of Mixing Zones'. However links to documents providing details of the alternative approach used are provided.

Background Concentrations and Bioavailability

The EQS Directive stipulates that MS have the possibility, when assessing the monitoring results against the environmental quality standard, to take into account:

- (a) natural background concentrations for metals and their compounds, if they prevent compliance with the environmental quality standard, and;
- (b) hardness, pH or other water quality parameters that affect the bioavailability of metals.

Natural background concentrations for metals were taken into consideration where such concentrations prevent compliance with the relevant environmental quality standards in all three RBDs.

In assessing results against the relevant environmental quality standards, water quality parameters that affect the bioavailability of metals (such as pH), were taken into account. This was the case in all three RBDs.

4.2. Main changes in implementation and compliance since 1st cycle

In comparison to monitoring for chemical status in the first RBMP, there has been a reduction in monitoring for lakes (13 sites and 10 water bodies reported in the first RBMP). To explain this reduction, Austria mentioned that they used the possibility offered in WFD, Annex V, 1.3.1, to monitor certain waterbodies every three cycles, when “the previous surveillance monitoring

exercise showed that the body concerned reached good status and there is no evidence from the review of impact of human activity in Annex II that the impacts on the body have changed”. Overall, the number of sites used to monitor priority substances decreased between the first RBMP (186 sites reported) and the second RBMP (127 sites reported).

Overall, between the two RBMPs there was a large decrease in the proportion of surface water bodies with good chemical status from 99.5 % to 0 % and a significant increase in the proportion failing to achieve good status from 0.2 % to 100 %. This pattern occurred across all three RBDs and all Natural/Heavily Modified/Artificial water body categories. The reason for this difference is the assessment of mercury in biota in the second RBMP, leading to assessments of widespread failure of good chemical status in water bodies. It therefore reflects the more accurate assessment of status in the second RBMP.

4.3. Progress with Commission recommendations

The Commission recommendations based on the first RBMP and first PoM requested action on the following:

- Recommendation: *The assessment of chemical status should be based on all the substances listed in the Environmental Quality Standards Directive, and on the environmental quality standards listed in that Directive, unless equivalently protective environmental quality standards are derived.*

Assessment: Austria reported that all the environmental quality standards laid down in Part A of Annex I of the EQS Directive had been applied to assess the chemical status surface waterbodies, and that alternative and/or additional standards for particular Priority Substances had not been applied. Austria also reported to have used all Priority Substances in the assessment. However several substances (including some discharged substances) were not reported to be monitored or were monitored in a matrix for which no corresponding environmental quality standards existed. Progress has therefore been made towards meeting the requirements of this recommendation, however it could not be determined how the chemical status was assessed for substances (especially discharged substances) when not monitored/ monitored in a matrix with no corresponding standard.

- Recommendation: *Mercury, hexachlorobenzene and hexachlorobutadiene should be monitored in biota for comparison with the biota standards in the Environmental Quality Standards Directive, unless water environmental quality standards providing an equivalent level of protection are derived. Trend monitoring in sediment or biota for several substances as specified in Directive 2008/105/EC Article 3(3) will also need to be reflected in the next RBMP.*

Assessment: Austria reported monitoring data for mercury, hexachlorobenzene and hexachlorobutadiene in biota (fish) for status assessment at a small number of sites in the Danube RBD and in the Rhine RBD. In the Elbe, mercury is monitored in the water column only for status assessment (hexachlorobenzene and hexachlorobutadiene are not monitored).

In the Danube RBD all 14 relevant Priority Substances are reported to be monitored for long-term trends in river water bodies but no such substances are reported to be monitored in lakes. Only five sampling locations are monitored for each substance hence the spatial coverage appears to be very limited. No long-term trend analysis is reported in sediment and/or biota in either of the other two RBDs.

Progress has therefore been made in meeting this recommendation and it is partially fulfilled.

Topic 5 Monitoring, assessment and classification of quantitative status of groundwater bodies

5.1. Assessment of implementation and compliance with WFD requirements in second cycle

5.1.1. Monitoring of quantitative status in groundwater

The number of groundwater bodies increased by 1.5 % from 136 in the first RBMP to 138 in the second RBMP, and the total groundwater body area increased by 0.1 %. 136 groundwater bodies remained unchanged since the first cycle (Table 2.2). 17 groundwater bodies were not subject to monitoring for quantitative status (Table 5.1, Table 5.2). This means that 12.3 % of groundwater bodies were not monitored for quantitative status. In the Elbe and Rhine RBDs, all groundwater bodies were subject to quantitative monitoring; in the Danube 113 out of 130 groundwater bodies were subject to quantitative monitoring (87 %).

Grouping of groundwater bodies by hydrogeology or administrative/planning boundaries was applied in all RBDs, creating 66 groups each attributed to one of three aquifer types.

The number of monitoring sites for quantitative status in the second cycle was reported as 4 169 (Table 5.3). This is an increase of 786 from the first RBMP. The reason is that for the first RBMP only monitoring sites used for the risk analysis were reported. For the second RBMP all existing monitoring sites were reported.

102 of the 138 groundwater bodies were identified as Drinking Water Protected Areas, allocated in all RBDs. In the Danube RBD, 95 out of 130 groundwater bodies were Drinking Water Protected Areas; in the Rhine RBD this was six out of seven and in the Elbe RBD it was one out of one.

Table 5.1 *Number of water bodies in Austria directly monitored and the purpose of monitoring*

RBD	Total groundwater bodies directly monitored	Monitoring Purpose	
		CHE - Chemical status	QUA – Quantitative status
AT1000	127	126	113
AT2000	7	7	7
AT5000	1	1	1

Source: WISE electronic reports

Table 5.2 *Proportion of groundwater bodies in Austria monitored for quantitative status*

RBD	No of groundwater bodies with quantitative monitoring	Total No. groundwater bodies	% of total groundwater bodies monitored for quantitative status
AT1000	113	130	86.92%
AT2000	7	7	100%
AT5000	1	1	100%

Source: WISE electronic reports

Table 5.3 *Number of groundwater monitoring sites in Austria and their purpose*

RBD	Total groundwater monitoring sites	Monitoring Purpose	
		CHE - Chemical status	QUA - Quantitative status
AT1000	5 718	1 921	3 797
AT2000	437	72	365
AT5000	21	14	7

Source: WISE electronic reports

5.1.2. Assessment and classification of quantitative status for groundwater

Map 5.1 and Figure 5.1 illustrate the most recently assessed quantitative status of groundwater bodies. All groundwater bodies met good quantitative status in both the first and second RBMP.

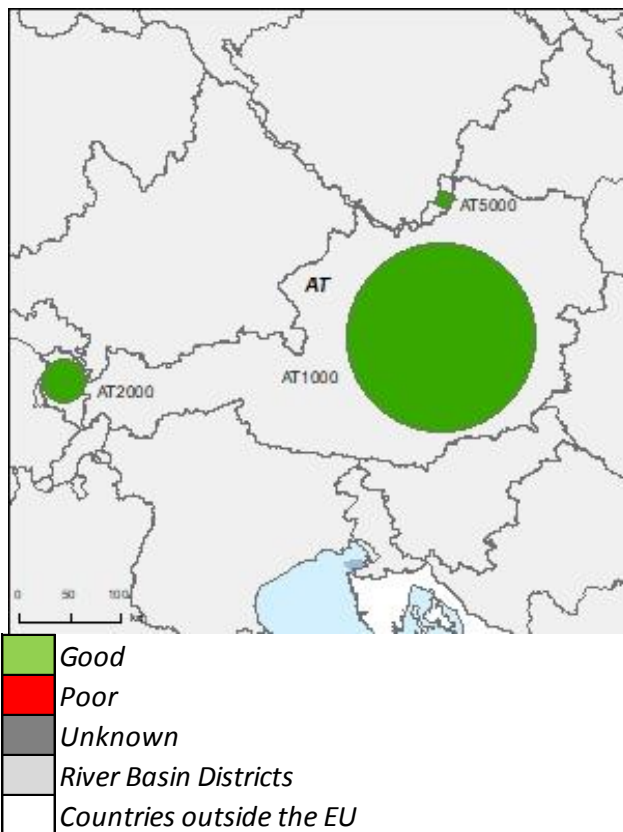
Figure 5.2 shows that with the exception of 7 % of groundwater bodies there was high confidence in status classification. All groundwater bodies had a high confidence in status in both the first and second RBMPs. 17 groundwater bodies were not subject to monitoring for quantitative status and it is unclear how their status was determined⁶⁵.

Water balance was assessed in all three river basin districts. The criterion of ‘available groundwater resource’ was fully applied in all river basin districts in accordance with WFD Article 2(27). All environmental objectives were considered in the status assessment.

In total, two groundwater bodies were at risk of failing good quantitative status, and for both the risk is attributed to uses/functions.

⁶⁵ Austria subsequently clarified that where no monitoring sites were available; the status assessment was based on the water balance test assessment, but it is still unclear how this was carried out without monitoring data.

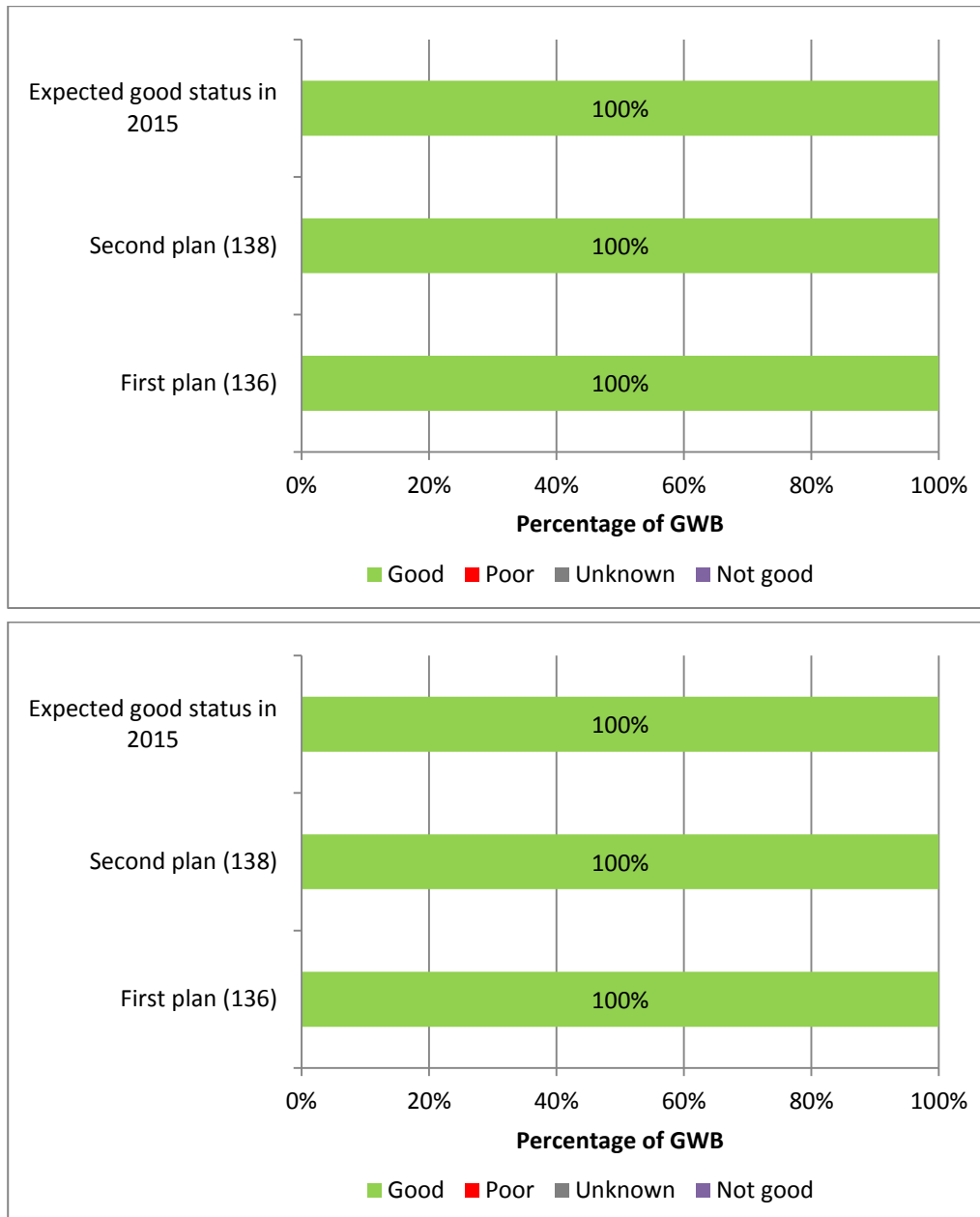
Map 5.1 *Map of the most recently assessed quantitative status of groundwater bodies*



Note: Standard colours based on WFD Annex V, Article 2.2.4.

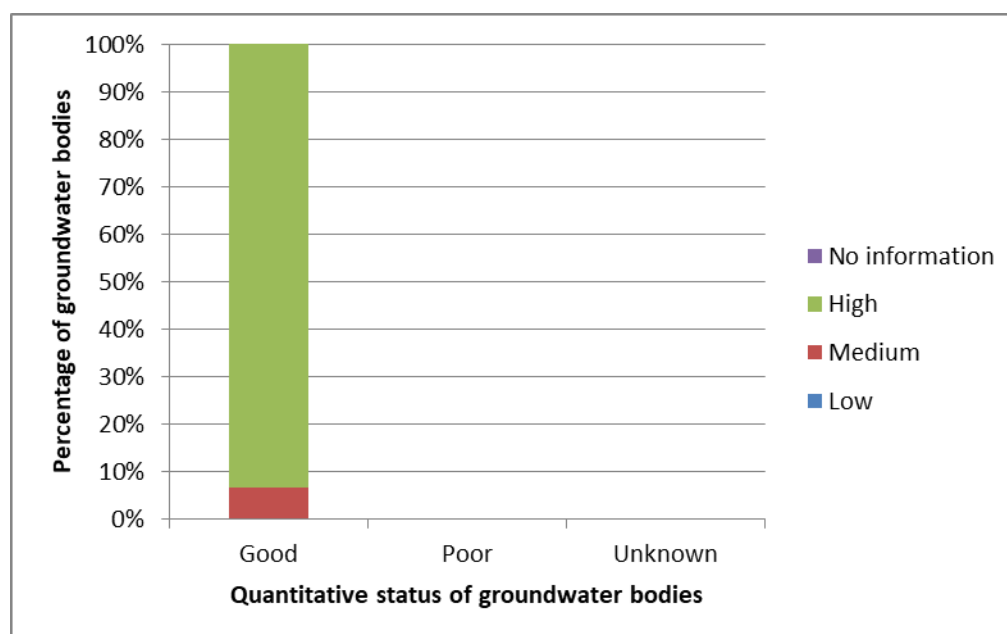
Source: WISE, Eurostat (country borders)

Figure 5.1 *Quantitative status of groundwater bodies in Austria for the second RBMP, for the first RBMP and expected in 2015. The number in parenthesis is the number of groundwater bodies for both cycles. Note the period of the assessment of status for the second RBMP was 2014. The year of the assessment of status for the first RBMP is not known*



Source: WISE electronic reports

Figure 5.2 *Confidence in the classification of quantitative status of groundwater bodies in Austria based on the most recent assessment of status*



Source: WISE electronic reports

5.1.3. Consideration of groundwater associated surface waters and/or groundwater dependent ecosystems

The assessment of linkages with surface water bodies in each of the RBDs was not reported and was included in the Annex 0. Austria stated that the status of the surface water bodies were assessed; subsequently, for the surface water bodies which were not at good status it was assessed if the associated groundwater body had a negative impact on the surface water body. There were no instances where the associated groundwater body was relevant for the status of the associated surface water body and therefore Austria did not establish an overall inventory of groundwater associated aquatic ecosystems.

80 groundwater bodies are directly linked with groundwater dependent terrestrial ecosystems, and these were considered in the status assessment in all RBDs. For groundwater bodies in the Danube RBD, damage to groundwater dependent terrestrial ecosystems is causing risk of failure. The needs of terrestrial ecosystems were considered in the status assessment in all RBDs.

5.2. Main changes in implementation and compliance since first cycle

All groundwater bodies met good quantitative status in both the first and second RBMP.

The number of monitoring sites for quantitative status in the second cycle was reported as 4 169 in which was an increase of 786 from the first RBMP (as mentioned above, due to partial reporting in the first RBMP).

5.3. Progress with Commission recommendations

There were no Commission recommendations based on the first RBMP and first PoM for this topic.

Topic 6 Monitoring, assessment and classification of chemical status of groundwater bodies

6.1. Assessment of implementation and compliance with WFD requirements in second cycle

1.2.14. Monitoring of chemical status in groundwater

The total number of groundwater bodies in Austria is 138 (Table 2.2), of which 134 were monitored for chemical status (Table 5.1), which is 97 % of groundwater bodies. The number of monitoring sites is displayed in Table 5.3, there was a total of 2 007 monitoring sites for chemical status in groundwater.

Groundwater bodies were grouped into 66 groups for the monitoring and assessment of chemical status, based on hydrogeology and administrative/planning boundaries.

It is unclear based on the reported information whether all the core parameters are subject to monitoring, specifically oxygen, conductivity and pH⁶⁶.

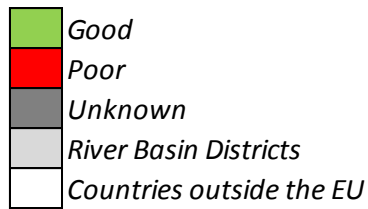
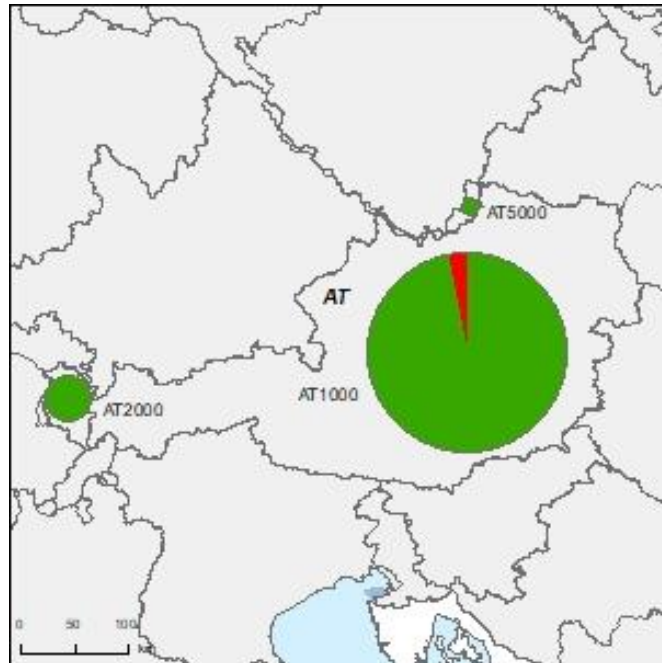
1.2.15. Assessment and classification of chemical status in groundwater

Map 6.1 and Figure 6.1 display the chemical status of groundwater bodies for the most recently assessed status. It shows that 134 of 138 groundwater bodies (97 %) were of good chemical status, and the remaining four groundwater bodies were poor status. In terms of area this means that about 3 % is failing to meet good chemical status. Figure 6.1 also shows that the percentage of groundwater bodies at good status has declined slightly since the first cycle.

Figure 6.2 shows that the confidence in the status assessment was primarily high, with less than 10 % of water bodies classified with medium confidence.

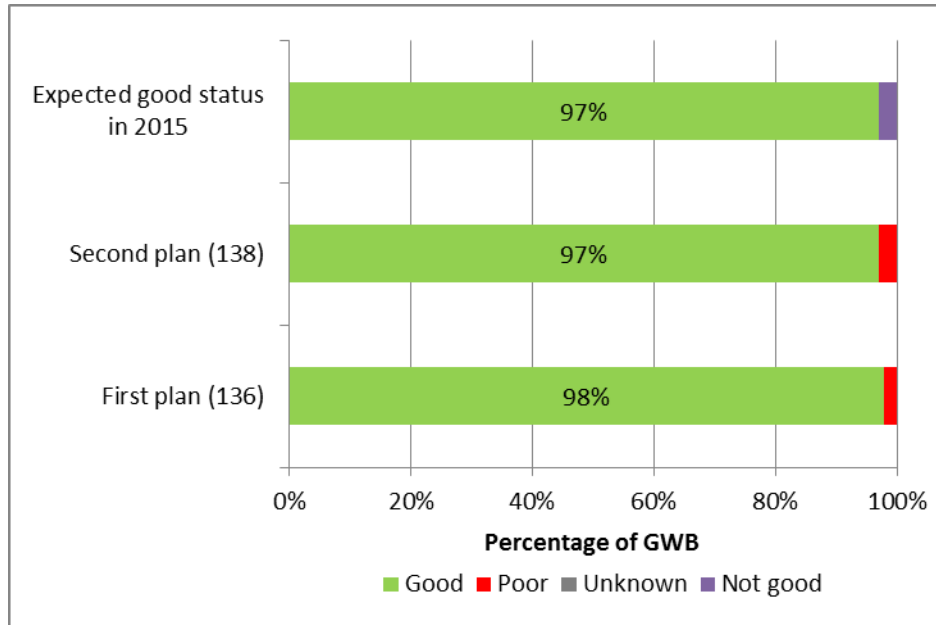
⁶⁶ Austria clarified that all WFD core parameters are subject to monitoring at all 2007 groundwater monitoring sites.

Map 6.1 *Map of chemical status of groundwater bodies in Austria based on the most recently assessed status of the groundwater water bodies*



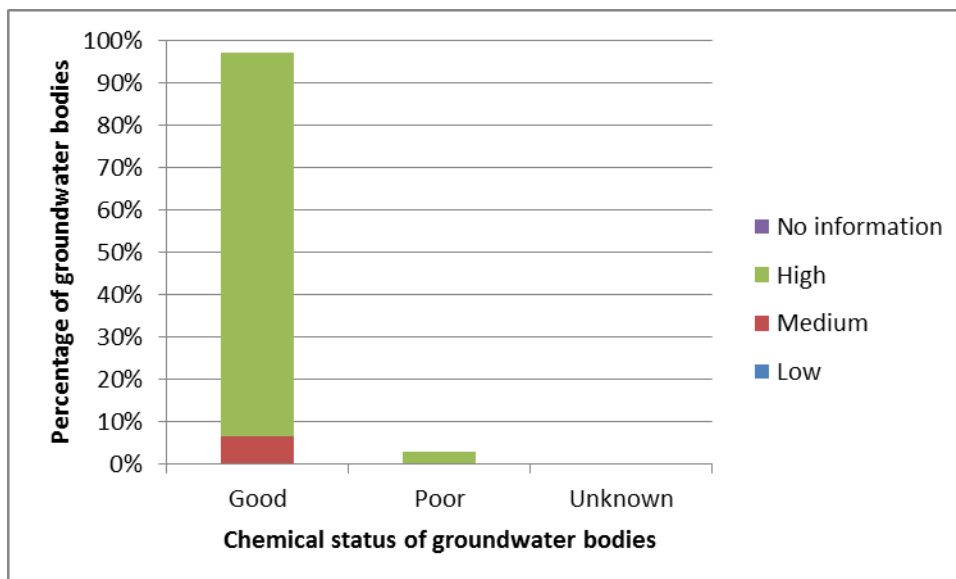
*Note: Standard colours based on WFD Annex V, Article 2.4.5.
Source: WISE, Eurostat (country borders)*

Figure 6.1 *Chemical status of groundwater bodies in Austria for the second RBMP, for the first RBMP and expected in 2015. The number in the parenthesis is the number of groundwater bodies for both cycles. Note the period of the assessment of status for the second RBMP was 2012-2014. The years of the assessment of status for the first RBMP was 2006-2008*



Source: WISE electronic reports

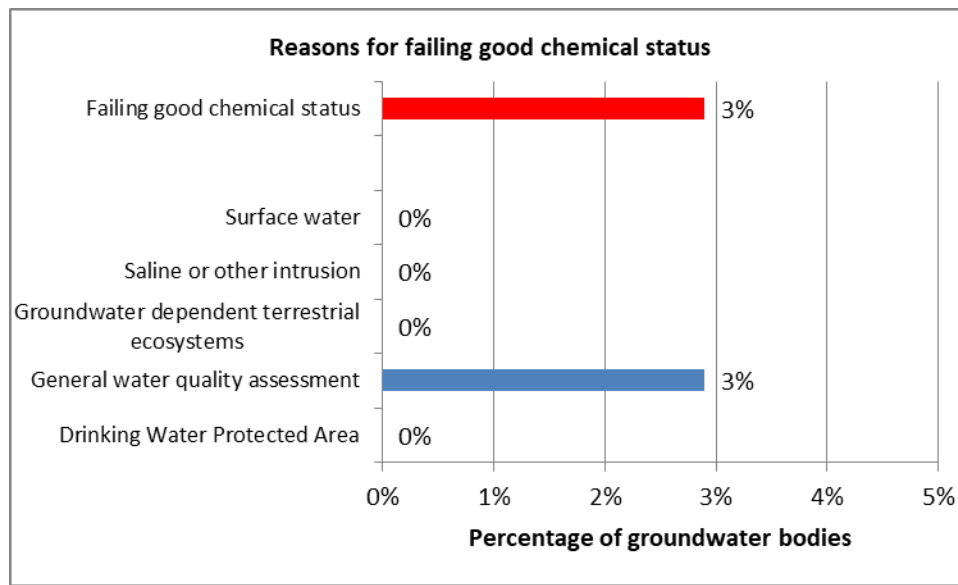
Figure 6.2 *Confidence in the classification of chemical status of groundwater bodies in Austria. 138 groundwater bodies delineated for second RBMP.*



Source: WISE electronic reports

Figure 6.3 displays the reasons for failing good chemical status. In all cases this was attributed to failing the general water quality assessment. More specifically, in all four failing groundwater bodies failure is attributed to nitrate (Figure 6.4). In one groundwater body failure is also attributed to deisopropyldeethylatrazine.

Figure 6.3 *Reasons for failing good chemical status in Austria for the most recent assessment of status*



Source: WISE electronic reports

Notes:

‘Surface water’ = Failure to achieve Environmental Objectives (Article 4 WFD) in associated surface water bodies or significant diminution of the ecological or chemical status of such surface water bodies.

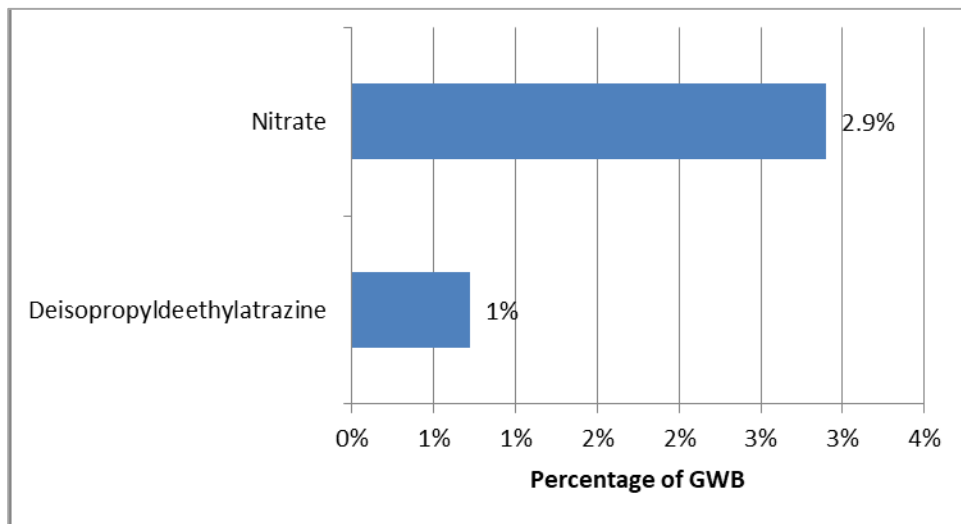
‘Groundwater dependent terrestrial ecosystems’ = Significant damage to terrestrial ecosystems which depend directly on the groundwater body.

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

‘Drinking Water Protected Area’ = Deterioration in quality of waters for human consumption.

‘General water quality assessment’ = Significant impairment of human uses; significant environmental risk from pollutants across the groundwater body.

Figure 6.4 Top groundwater pollutants causing failure of good chemical status in Austria



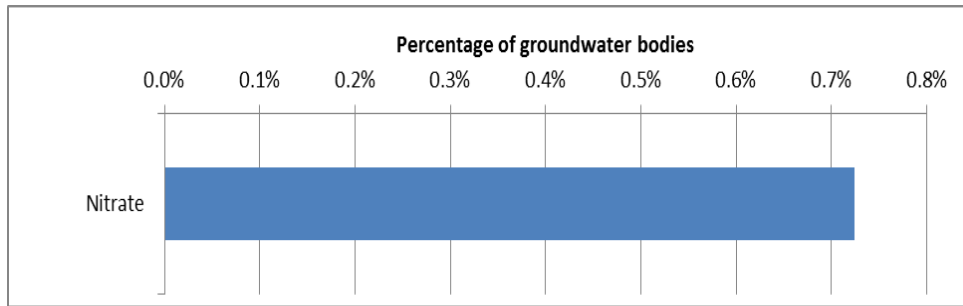
*Source: WISE electronic reports
Note: only 2 pollutants reported causing failure.*

Natural background levels have been considered in the assessment of status, but not in threshold value establishment. Assessment of upward trends was undertaken in all the Rhine and Elbe RBD groundwater bodies, with only nitrate displaying such a trend (Figure 6.5).

Figure 6.6 shows the percentage of groundwater bodies in Austria at risk of failing good chemical status and good quantitative status for the second RBMP. 18 groundwater bodies were at risk of failing to meet good chemical status (13 %) and all of them are subject to operational monitoring. For the Danube RBD it was reported to WISE that there were point source pollutants that were causing risk of failure of good chemical status, for which threshold values have not been established⁶⁷.

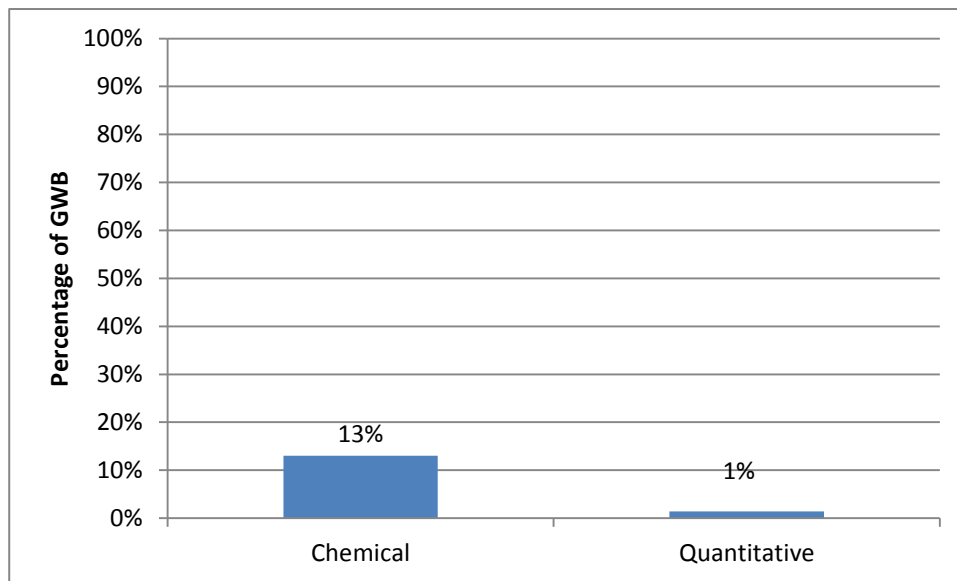
⁶⁷ Austria subsequently clarified that for all pollutants causing risk of failure good chemical status threshold values do exist.

Figure 6.5 Top pollutants with upward trends in groundwater bodies in Austria



Source: WISE electronic reports Note: only one pollutant identified as having an upward trend.

Figure 6.6 Percentage of groundwater bodies in Austria at risk of failing good chemical status and good quantitative status for the second RBMP



Source: WISE electronic reports

1.2.16. Consideration of groundwater associated surface waters and/ or groundwater dependent ecosystems

No groundwater associated surface waters were reported. The assessment of linkages with surface water bodies in each of the RBDs was not reported but was included in Annex 0. It was reported that surface water bodies have been considered in the assessment of chemical status. Annex 0 reported that firstly the status of the surface water bodies was assessed; subsequently for those surface water bodies which were not in good status it was assessed if the associated groundwater body had a negative impact on the surface water body.

There were 77 groundwater dependent terrestrial ecosystems in the Danube RBD, two in the Rhine RBD, and one in the Elbe RBD. Groundwater dependent terrestrial ecosystems were considered in the status assessments, but it was reported that the protection of groundwater dependent terrestrial ecosystems was not considered in the establishment of threshold values⁶⁸. It was reported that two groundwater bodies within the Danube RBD were at risk of failing good chemical status related to surface water or terrestrial ecosystems⁶⁹.

6.2. Main changes in implementation and compliance since first cycle

The number of groundwater bodies at poor chemical status increased from three in the first cycle to four in the second cycle. These all lie within the Danube RBD, where the total number of groundwater bodies increased from 128 to 130.

6.3. Progress with Commission recommendations

There were no Commission recommendations based on the first RBMP and first PoM for this topic.

⁶⁸ Austria commented subsequently that this could be a reporting error.

⁶⁹ Austria clarified that there is no risk related to groundwater dependent terrestrial ecosystems.

Topic 7 Designation of Heavily Modified and Artificial Water Bodies and definition of Good Ecological Potential

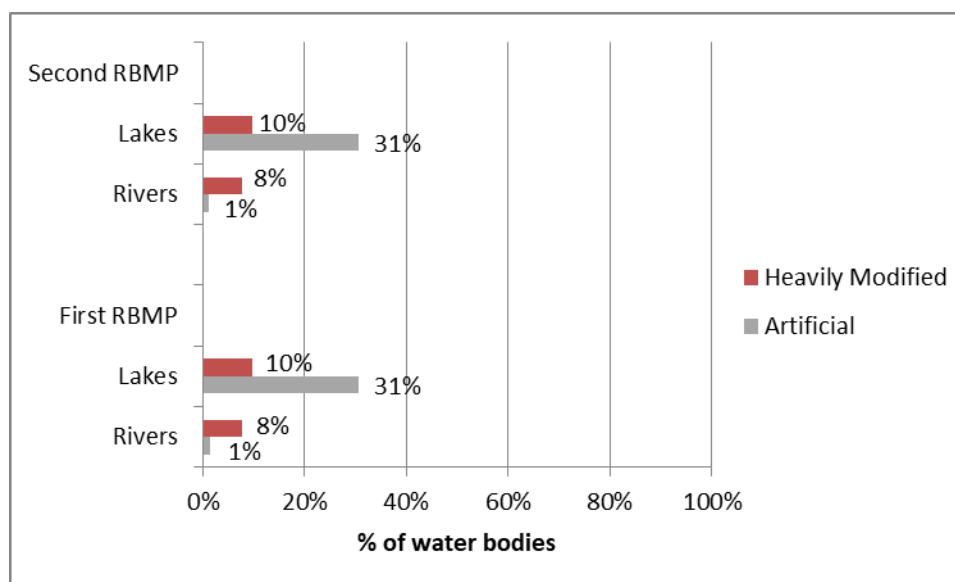
7.1. Assessment of implementation and compliance with WFD requirements in second cycle for designation

1.2.17. Designation of Heavily Modified and Artificial Water Bodies

7.8 % of total water bodies in the second RBMP were designated as heavily modified and 1.3 % as artificial. The WFD requires a review of designation every six years. As noted below, only few changes have been noted in the designation of river and lake heavily modified and artificial water bodies since the first RBMP.

Figure 7.1 shows the proportion of total water bodies in each category that are designated as heavily modified or artificial.

Figure 7.1 *Proportion of total water bodies in each category in Austria that have been designated as heavily modified or artificial*



Source: WISE electronic reports

In the Danube and Rhine RBDs, there were 13 reservoirs that were originally rivers and eight reservoirs that were originally lakes.

The water uses for which river water bodies were designated as heavily modified were mainly hydropower production and flood protection. Some heavily modified river water bodies were designated due to navigation, storage for fisheries and tourism. The main physical alterations of

heavily modified river water bodies were channelisation/straightening/bed stabilisation/bank reinforcement and weirs/dams/reservoirs. Lake heavily modified water bodies were designated due to hydropower and mainly affected by weirs/dams/reservoirs.

The approach for the designation of heavily modified water bodies and artificial water bodies followed the same national methodology as in the first cycle.

The significant adverse effects of restoration measures on the use and the wider environment under Article 4(3)(a), were defined in a background document on the designation of heavily modified water bodies and artificial water bodies, which was also used in the first RBMP. Criteria for the significant adverse effects were provided but no specific thresholds for the criteria are established: for example, criteria in the case of hydropower include loss or reduction of electricity production, loss or reduction of peak electricity generation, loss of control and reserve capacity, reduction of the regional or national energy security; in the case of flood protection: increase of flood risk, reduction in value of real estate, endangerment of bed stability, reduction of the agricultural production area; and, in the case of tourism and recreation: loss or reduction of bathing sites or water sports opportunities.

According to the background document on the designation of heavily modified water bodies/artificial water bodies, checks were made as to whether the beneficial objectives served by the modifications of the heavily modified water bodies could be achieved by other means, which would have been a better environmental option. There were no further details as to how this check was performed, except for the case of hydropower installations for which more details are given in the background document on the designation of heavily modified water bodies/artificial water bodies; for hydropower, in specific, three screening questions are provided for performing the assessment of other means⁷⁰.

1.2.18. Definition of Good Ecological Potential for Heavily Modified and Artificial Water Bodies

Good ecological potential was reported as defined at water body level in all three RBDs. The approach used for good ecological potential definition in all three RBDs is a hybrid combining elements of the CIS Guidance and the Prague approach, although good ecological potential is also reported to have been defined in terms of biology in all three RBDs. The biological quality elements for which biological values have been derived to define maximum and good ecological potential are phytobenthos, macrophytes, benthic invertebrates and fish. A comparison between

⁷⁰ Can hydropower production be moved to another water stretch? Can the electricity production (baseload) be replaced by another renewable energy form or by electricity savings? Can peak electricity production be replaced by another form of energy?

good ecological potential and good ecological status has been made in all three RBDs. Possible biological quality element values were estimated for different types of hydromorphologically modified water bodies. The definition of good ecological potential on the basis of biological quality elements is based on the same approach as for ecological status for phyto-benthos, benthic invertebrates and fish, with some adaptations. Macrophytes were mentioned as usually not applicable, as many river types are naturally lacking macrophytes, and therefore not used or very restrictively used.

For rivers, methods for assessing fish, benthic invertebrates and macrophytes were reported as sensitive to altered habitats due to morphological and hydrological changes. For lakes, methods for assessing fish and macrophytes were reported to sensitive to hydromorphological changes.

Several mitigation measures for defining good ecological potential have been reported in all three RBDs. The ecological changes expected due to the mitigation measures are described in the guidance document for assessing good ecological potential in heavily modified water bodies, in terms of a general approach. The application of the mitigation measures is water body specific. The ecological benefits/changes of the measures are assessed using in particular fish as a criterion and if relevant, also benthic invertebrates are used. For several species and age groups, a five point assessment scale is used (1 to 5, 5 being the highest possible quality improvement of the aspect), using experience and expert knowledge for evaluation. Austrian authorities have informed that as the definition of the mitigation measures necessary to achieve GEP (without significant effect on the use or wider environment as well as providing a significant ecological improvement) needs detailed planning for each HMWB, this could not be done during the first RBMP due to the high number of water bodies, lack of administrative and planning capacities, knowledge gaps etc. For this reason, nearly all HMWB in the first RBMP were classified to be at less than good ecological status.

7.2. Main changes in implementation and compliance since first cycle

Only some changes are noted in the designation of river and lake heavily modified water bodies and artificial water bodies between the first and the second RBMP. Especially in the Rhine RBD, the number of heavily modified river water bodies increased from 45 to 74 (the length of river heavily modified water bodies also increased from 213 to 345km).

An assessment has been performed whether the existing heavily modified water bodies and artificial water bodies still fulfil the criteria for designation, and whether other water bodies which were formerly not designated as heavily modified water bodies or artificial water bodies should be designated in the second RBMP. This assessment resulted in 58 newly designated

heavily modified water bodies in total. However, no explanation is provided why the 58 additional water bodies have been newly designated, except for an overall explanation covering all heavily modified water bodies.

The guidance document for assessing good ecological potential in heavily modified water bodies outlines the changes that were made to the methodology in relation to the first RBMP. It describes in detail the approach for rivers and lakes, detailing physico-chemical, hydromorphological and biological quality elements, hydromorphological characteristics under which good ecological potential can be achieved, and how a ‘measures approach’ to good ecological potential is being followed. A key change for both rivers and lakes seems to be the inclusion of biological quality elements other than fish, and the inclusion of physico-chemical and hydromorphological quality elements.

7.3. Progress with Commission recommendations

The Commission recommendations based on the first RBMP and first PoM requested action on the following:

- Recommendation (report 2012): *The designation of heavily modified water bodies should comply with all the requirements of Article 4(3). The assessment of significant adverse effects on their use or the environment and the lack of significantly better environmental options should be specifically mentioned in the RBMP. This is needed to ensure transparency of the designation process.*

Assessment: A background document provides information and criteria for the analysis of significant adverse effects of restoration measures on all uses relevant to the designation of heavily modified water bodies. There is also information provided on checking whether beneficial objectives served by the modifications of the heavily modified water bodies can be achieved by other means. However, the screening questions mentioned only address hydropower installations. Although information on these assessments is given in the methodological document, specific information on the outcome of the assessment of significant adverse effects and better environmental options was not found on water body level.

Therefore, the recommendation is considered as partially fulfilled.

- Recommendation: (report 2015) *Work in the next RBMP to improve the revision of the designation of Heavily Modified Water Bodies and methodologies for establishing Good Environmental Potential. Water Bodies below storage lakes or dams for hydropower*

production are automatically classified as heavily modified water bodies according to the Austrian RBMP provisions. There are a significant number of water bodies with water flow and morphological alterations due to hydropower plants (nearly 56 % of waterbodies).

Assessment: For issues concerning the designation of HMWB, refer to the previous recommendation.

Concerning the methodology for establishing good ecological potential, improvements have been reported since the first RBMP. A key change for both rivers and lakes seems to be the inclusion of biological quality elements other than fish, and the inclusion of physicochemical and hydromorphological quality elements. In addition, the ecological benefits/changes of the mitigation measures for defining good ecological potential are assessed using in particular fish as a criterion and if relevant, also benthic invertebrates are used. For several species and age groups, a five point assessment scale is used (1 to 5, 5 being the highest possible quality improvement of the aspect), using experience and expert knowledge for evaluation.

Therefore, the part of the recommendation referring to good ecological potential seems to have been fulfilled, although it cannot be concluded whether the methodological development of good ecological potential has been finalised.

Topic 8 Environmental objectives and exemptions

8.1. Assessment of implementation and compliance with WFD requirements in second cycle

8.1.1. Environmental objectives

The environmental objectives are defined in Article 4 of the WFD. The aim is long-term sustainable water management based on a high level of protection of the aquatic environment. Article 4(1) defines the WFD general objective to be achieved in all surface and groundwater bodies, that is, good status by 2015. Within that general objective, specific environmental objectives are defined for heavily modified water bodies (good ecological potential and good chemical status by 2015⁷¹), groundwater (good chemical and quantitative status by 2015), and for Protected Areas (achievement of the objectives of the associated Directive by 2015 unless otherwise specified).

Environmental objectives for ecological and chemical status in surface waters were reported in all RBDs, through tables⁷² for each water body (separate tables for groundwater, lakes, and rivers). There is a clear indication in the RBMP of the year in which the objectives will be reached (2015, 2021, or 2027).

Member States are also required to specify additional environmental objectives and standards in Protected Areas where these were required to ensure the requirements of the associated Directive are met. An assessment of such additional objectives for Austria is provided under Chapter 15 of this report.

Assessments of the current status of surface and groundwater bodies in Austria are provided elsewhere in this report: for ecological status/potential of surface waters in Chapter 3; for chemical status of surface waters in Chapter 4; for quantitative status of groundwater bodies in Chapter 5; for chemical status of groundwater bodies in Chapter 6; and for status of surface and groundwater bodies associated with Protected Areas in Chapter 15.

For the second RBMPs, Member States are required to report the date when they expect each surface and groundwater body to meet its environmental objective. This information is summarised for Austria elsewhere in this report: For ecological status/potential of surface waters

⁷¹ For priority substances newly introduced by Directive 2013/39/EU, good status should be reached by 2027, and for the 2008 priority substances, for which the Environmental Quality Standards were revised by Directive 2013/39/EU, good status should be reached in 2021.

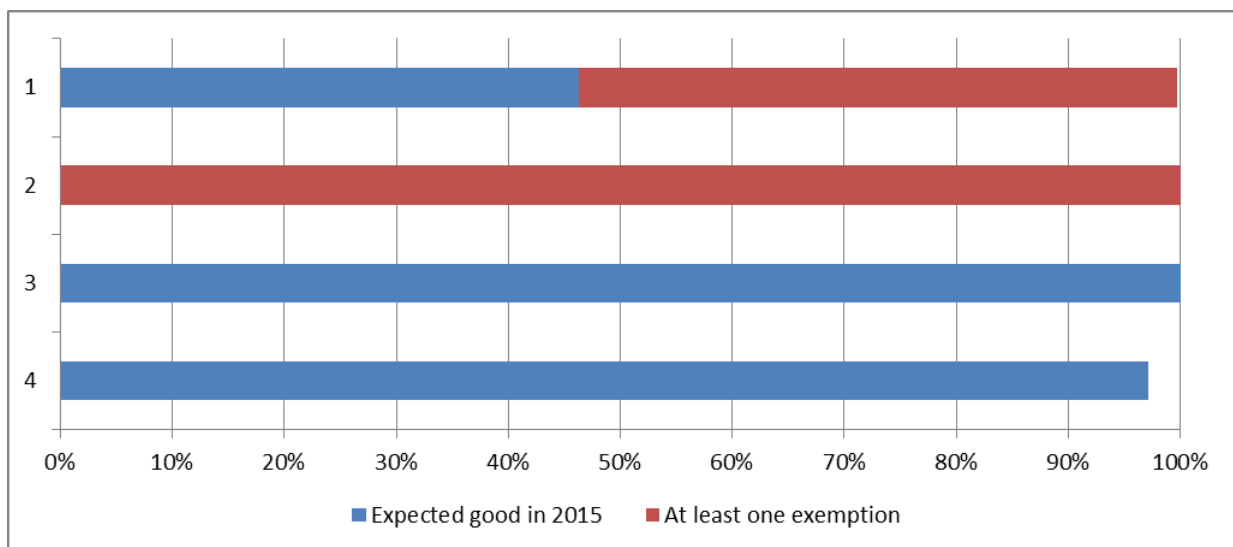
⁷² <https://www.bmnt.gv.at/wasser/wisa/fachinformation/ngp/ngp-2015.html>

in Chapter 3; for chemical status of surface waters in Chapter 4; for quantitative status of groundwater bodies in Chapter 5; and for chemical status of groundwater bodies in Chapter 6.

8.1.2. Exemptions

Where environmental objectives are not yet achieved exemptions can be applied in case the respective conditions are met and the required justifications are explained in the RBMP. Figure 8.1 summarises the percentage of water bodies expected to be at least in good status in 2015 and the use of at least one exemption for the four main sets of environmental objectives.

Figure 8.1 *Water bodies in Austria expected to be in at least good status in 2015 and use of exemptions. 1 = Surface water body ecological status/potential; 2 = Surface water body chemical status; 3 = Groundwater body quantitative status; 4 = Groundwater body chemical status*

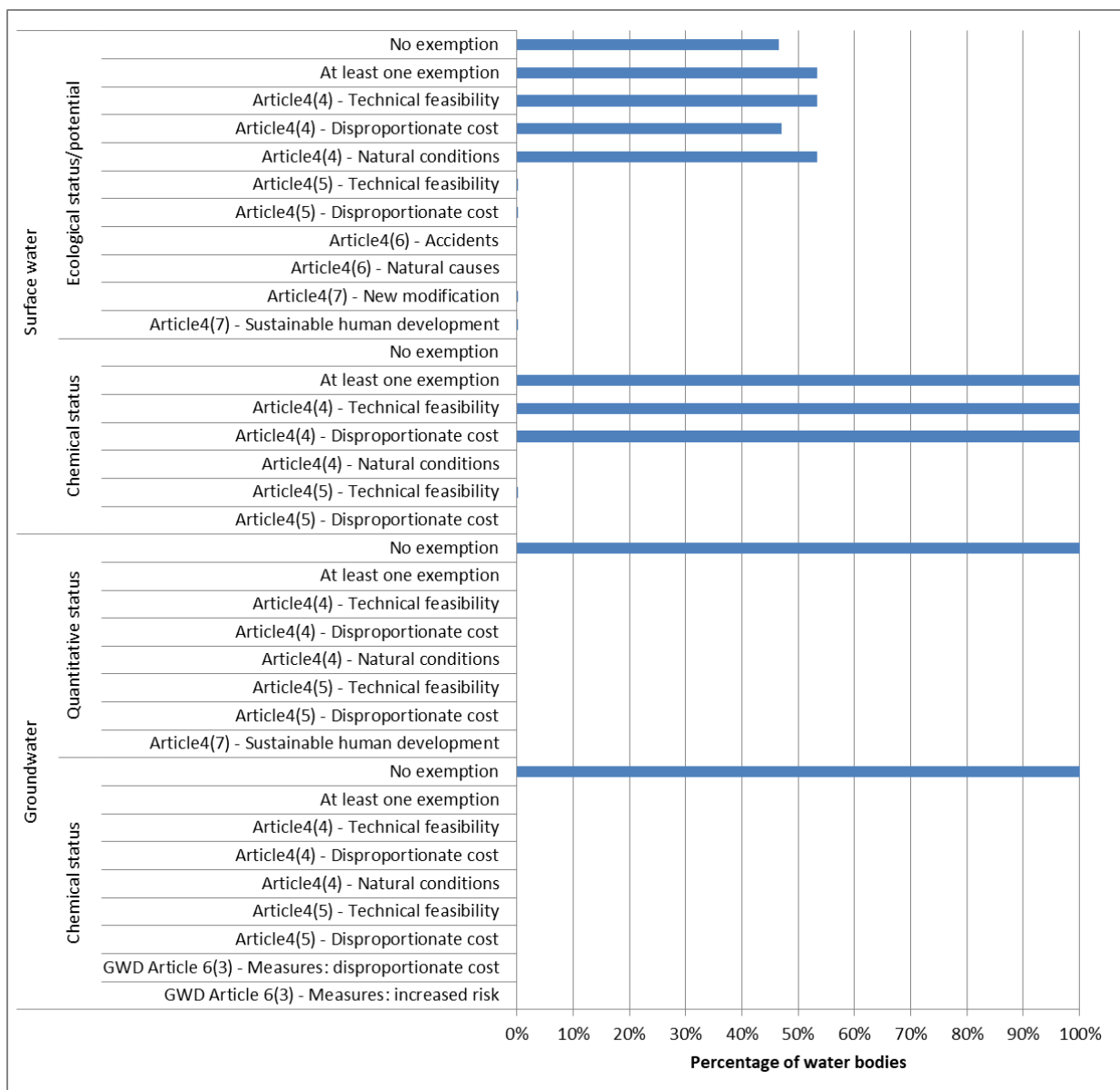


Source: WISE electronic reports. For some water bodies the date for achievement of good status is unknown.

Article 4 of the WFD allows under certain conditions for different exemptions to the objectives: An extension of deadlines beyond 2015, less stringent objectives, a temporary deterioration, or deterioration / non-achievement of good status / potential due to new modifications, provided a set of conditions is fulfilled. The exemptions under WFD Article 4 include the provisions in Article 4(4) - extension of deadline, Article 4(5) - lower objectives, Article 4(6) - temporary deterioration, and Article 4(7) - new modifications / new sustainable human development activities. Article 4(4) exemptions may be justified by: Disproportionate cost, technical feasibility, or natural conditions, and Article 4(5) by disproportionate cost or technical feasibility.

Figure 8.2 summarises the percentage of water bodies subject to each type of exemption (and reason) in relation to the four types of environmental objectives in Austria.

Figure 8.2 *Type of exemptions reported to be applied to surface water and groundwater bodies for the second RBMP in Austria. Note: Ecological status and groundwater quantitative status exemptions were reported at the water body level. Chemical exemptions for groundwater were reported at the level of each pollutant causing failure of good chemical status, and for surface waters for each Priority Substances that is causing failure of good chemical status. No data were reported for groundwaters.*



Source: WISE electronic reports

Application of Article 4(4)

Article 4(4) has been applied in the first cycle and is applied also in the second cycle. For groundwater, only exemptions in the Danube RBD are applied. It is unclear if these exemptions have been justified under Article 4(4) or Article 4(5).

As in 2010, the exemptions according to Article 4(4) in surface waters were applied due to technical feasibility, disproportionate costs and natural conditions. Disproportionate costs are justified by affordability, distribution of costs and cost effectiveness analyses in all RBDs. For groundwater, technical feasibility/technical infeasibility has not been used as an argument.

Austria reported for each water body which justification is being applied, but without providing more detailed justifications. In many cases three reasons were indicated: disproportionate costs; technical feasibility; and natural conditions.

The RBMP provides information about the application of exemptions. However, no clear and consistent justifications were reported on how exemptions are being defined.

Furthermore, there is no justification as to why the scale of improvements required under Article 4(4) can only be achieved in phases exceeding the timescale. In the RBMP, there are very general explanations why it is technically infeasible to reach the objectives in time, e.g. the number of barriers/installations, uncertainty regarding available funds, uncertainty about financing through local actors/municipalities, and low prices for electricity, and hence low amortisation for investments in small hydropower. It is also explained why certain areas have pollution problems that cannot be solved easily, including long response times in water bodies after measures have been taken, and difficulties in 'creating a cost-effective PoM targeting diffuse sources'.

The drivers for exemption are agriculture for groundwater; for surface waters they are: Agriculture, energy – hydropower, fisheries and aquaculture, flood protection, industry, tourism and recreation, transport and urban development. The pressures responsible for exemptions under Article 4(4) in surface waters in all RBDs are point pollution from urban waste water; diffuse pollution from agriculture; abstraction or flow diversion from hydropower; physical alteration of channel/bed/riparian area/shore due to flood protection, dams, barriers; and locks, resulting from hydropower and flood protection; and hydrological alteration due to hydropower and hydromorphological alterations. The main significant pressures to surface waters responsible for exemptions under Article 4(4) in relation to chemical status are diffuse atmospheric pollution

and unknown anthropogenic pressures (Table 8.1). Diffuse pollution from agriculture was reported as the main pressure on groundwater bodies responsible for exemptions (Table 8.2).

Table 8.1 *Pressure responsible for Priority Substances in Austria failing to achieve good chemical status and for which exemptions have been applied*

Significant pressure on surface water bodies	Failing Priority Substances	Article4(4) - Technical feasibility exemptions	Article4(4) – Disproportionate cost exemptions	Article4(5) - Technical feasibility exemptions	Article4(5) - Disproportionate cost exemptions
	Number	Number	Number	Number	Number
2.5 - Diffuse - Contaminated sites or abandoned industrial sites	1	2	2		
2.7 - Diffuse - Atmospheric deposition	1	8 127	8 127		
8 - Anthropogenic pressure - Unknown	3	32	32		
9 - Anthropogenic pressure - Historical pollution	2			17	17

Source: WISE electronic reports

Table 8.2 *Pressure responsible for pollutants in Austria failing to achieve good chemical status in groundwater and for which exemptions have been applied*

Significant pressure on groundwater	Number of failing pollutants	Number of exemptions
		Article4(4) - Natural conditions
2.2 - Diffuse - Agricultural	2	5

Source: WISE electronic reports

The main impacts causing exemptions in surface waters under Article 4(4) are organic pollution, nutrient pollution, altered habitats due to morphological changes (includes connectivity), altered habitats due to hydrological changes, and chemical pollution. The pressure responsible for exemptions in groundwater in the Danube RBD is diffuse pollution from agriculture with the main impact of chemical pollution.

Application of Article 4(5)

Article 4(5) has been applied in the first cycle, and is again applied to surface waters in the Danube RBD. The number of Article 4(5) cases has increased from five to 18 between the first and the second cycle. Article 4(5) was applied for technical feasibility and disproportionate costs and the information is provided at water body level.

However, with regard to Articles 4(5), there are no clear, detailed and consistent justifications in the RBMP of Austria on how exemptions are being defined.

Diffuse atmospheric deposition is the main reason for the application of Article 4(5) to surface waters. Point pollution from contaminated sites or abandoned industrial sites to groundwater were reported as the main pressures on groundwater bodies responsible for exemptions under Article 4(5). The driver behind exemptions related to Article 4(5) is industry, causing chemical pollution.

Application of Article 4(6)

Article 4(6) has not been applied.

Application of Article 4(7)

Article 4(7) has been applied in river water bodies of the Danube RBD. While in the first cycle, Article 4(7) was only reported for two cases, this number has increased to 11 in the second cycle. There is no information in the RBMP or the background documents if all steps of Article 4(7) have been performed, or if the impact of the new modifications on the water status has been assessed.

Application of Article 6(3) of the Groundwater Directive

No exemptions according to Article 6(3) of the Groundwater Directive⁷³ have been applied.

8.2. Main changes in implementation and compliance since first cycle

As in the first cycle the exemptions according to Article 4(4) were applied due to technical feasibility, disproportionate costs, and natural conditions, while Article 4(5) was applied for technical feasibility and disproportionate costs. In the first cycle only technical feasibility was reported for Article 4(5). The number of Article 4(5) cases has increased from five to 18 between the first and the second cycle.

8.3. Progress with Commission recommendations

The Commission recommendations based on the first RBMP and first PoM requested action on the following:

- Recommendation: *A significant number of exemptions have been applied in this first of RBMP. While the WFD does provide for exemptions, there are specific criteria that must*

⁷³ Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration
<http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02006L0118-20140711>

be fulfilled for their use to be justified. The application of exemptions needs to be more transparent and the reasons for the exemptions should be clearly justified in the plans. The high number of exemptions applied in these first RBMP is a cause of concern. Austria should take all necessary measures to bring down the number of exemptions for the next cycle, including the needed improvements in the characterisation process, monitoring networks and status assessment methods, as well as reducing significantly the degree of uncertainties.

Assessment: The numbers show a decrease in exemptions applied in surface waters. Objectives for surface waters and groundwater are clearly provided in the RBMP. Information on the clear criteria that have been developed for the application of ‘technical unfeasibility’, ‘disproportionate costs’ and ‘natural conditions’ are not provided. Therefore this recommendation has been partially fulfilled.

- Recommendation: *Only little improvement of the water status is expected by 2015 and the further objectives are not always clear.*

Assessment: This recommendation has been successfully implemented as objectives for surface waters and groundwater are clearly provided in the RBMP.

- Recommendation: *A significant number of exemptions have been applied in this first cycle of RBMPs. The application of exemptions needs to be more transparent and the reasons for the exemptions should be clearly justified in the plans, especially in relation to disproportionate costs.*

Assessment: See above.

- Recommendation: *Make clearer the approach regarding exemptions in the RBMP: methodology applied for defining technical feasibility and disproportionate costs; measures under Article 4(5); measures for planned new hydropower development; explanations on implementation of Article 4(7).*

Assessment: The reasons for exemptions were reported at the water body level. Information on the clear criteria that have been developed for the application of ‘technical unfeasibility’, ‘disproportionate costs’ and ‘natural conditions’ are not provided. An inventory of exemptions from measures required to prevent or limit inputs of pollutants into groundwater has not been reported. There is very limited information on Article 4(7) in the RBMP to assess if this part of the recommendation has been followed. Therefore, this recommendation has been partially fulfilled.

Topic 9 Programme of measures

The aim of this chapter is to provide an overview of the PoM reported by the Member States; more specific information on measures relating to specific pressures (for example arising from agriculture) is provided in subsequent chapters.

The Key Types of Measure (KTM) referred to in this section are groups of measures identified by Member States in their Programme of Measures, which target the same pressure or purpose. The individual measures included in the Programme of Measures (being part of the RBMP) are grouped into Key Types of Measure for the purpose of reporting. The same individual measure can be part of more than one Key Types of Measure because it may be multi-purpose, but also because the Key Types of Measure are not completely independent silos. Key Types of Measure have been introduced to simplify the reporting of measures and to reduce the very large number of Supplementary Measures reported by some Member States (WFD Reporting Guidance 2016).

A Key Type of Measure may be one national measure but it would typically comprise more than one national measures. The 25 predefined Key Types of Measure are listed in the WFD Reporting Guidance 2016.

The Key Types of Measure should be fully implemented and made operational within the RBMP planning period to address specific pressures or chemical substances and achieve the environmental objectives.

9.1. Assessment of implementation and compliance with WFD requirements in second cycle

9.1.1. General issues

An indication as to whether or not measures have been fully implemented and made operational is when they have been reported as being planned to tackle significant pressures (at the Key Types of Measure level). Significant pressures are also reported at the water body level. It would therefore be expected that there would be measures planned in the RBMP to tackle all significant pressures. A large number of pressure types causing the failure of objectives in surface waters in

all three RBDs were reported⁷⁴, and only one in groundwater in the Danube RBD⁷⁵ (diffuse agricultural pollution).

For surface waters, KTMs were reported operational for all significant pressure types causing failure of objectives in the Danube RBD. All except “Dams etc. - unknown or obsolete” in the Rhine RBD, and all except “Hydrological alteration – hydropower” in the Elbe RBD, in both cases because these pressures were not relevant in the Rhine, respectively, Elbe RBDs. KTMs for chemical substances were also included (12 in the Danube, mercury and ammonia in the Rhine, and mercury in the Elbe). For groundwater, diffuse agricultural pollution was covered by a KTM in the Danube RBD.

For each RBD, Austria has mapped the number of national basic measures and supplementary measures incorporated into a total of 14 predefined KTMs: there are 189 national basic measures against 12 of the KTMs, and 87 national supplementary measures against nine of the KTMs (see Table 9.1). The basic measure types are also indicated. A large number of national basic measures (43 %) relate to hydromorphological issues (KTM 5 – “Improving longitudinal continuity (for example, establishing fish passes, demolishing old dams)”); KTM6 – “Improving hydromorphological conditions of water bodies other than longitudinal continuity”; and KTM7 – “Improvements in flow regime and/or establishment of ecological flows”. None of the basic measures are indicated as relating to Article 11(3)(b) - measures for the recovery of cost of water services - or to Article 11(3)(f) - controls including a requirement for prior authorisation of artificial recharge or augmentation of groundwater bodies. There are no additional KTMs developed by Austria. The information is identical for the three RBDs.

The KTMs against which national measures have been mapped are the same for all three RBDs and all the KTMs reported to be tackling significant pressures have national measures mapped against them, but two of the KTMs mapped were not reported as tackling significant pressures in the Rhine and Elbe RBDs (KTM4 - “Remediation of contaminated sites (historical pollution including sediments, groundwater, soil)”, and KTM13 - “Drinking water protection measures (e.g. establishment of safeguard zones, buffer zones etc.)”). Therefore, it is not clear if these are relevant or will be made operational in these RBDs.

The percentage of water bodies not expected to achieve good status/potential by 2027 is indicated for all pressures on groundwater and surface water in the Danube RBD, and surface water in the Rhine and Elbe RBDs. In the Danube RBD, all are zero for groundwater (diffuse

⁷⁴ There is reference to Annex 0 for groundwater in all three RBDs

⁷⁵ All groundwater bodies in the Rhine and Elbe RBDs were reported as having good chemical and quantitative status in 2010.

agricultural, nitrate and a pesticide metabolite); for surface water the majority are listed as zero, with four individual substances as 0-10%, and two pressures as “no information” (Hydrological alterations – “Flood protection” and – “Other”). In the Rhine and Elbe RBDs, all water bodies are expected to reach good status by 2027.

KTMs have been mapped against pollutants causing failure of objectives in groundwater (nitrate and a pesticide metabolite) and for River Basin Specific Pollutants in surface water in the Danube RBD only (as there are no significant pressures in the Rhine and Elbe RBDs). For surface water, seven River Basin Specific Pollutants are listed and various KTMs mapped against these. For zinc, the nationally derived KTM “No measures in this cycle – review of less stringent target in next cycle” is reported. For groundwater the number of water bodies failing objectives due to pollutants is provided, but not for surface water bodies.

Priority substances have been reported to cause failure of objectives in surface water in all three RBDs: Six substances, including mercury, in the Danube RBD, mercury only in both the Rhine and Elbe RBDs. Mercury seems to be a significant problem, causing by far the most failures (7807 water bodies in the Danube, 219 in the Rhine and 101 in the Elbe).

Measures have been reported to address failures caused by all except one substance, benzo(a)pyrene in the Danube, (16 water bodies failing). For all substances measures have been adopted under KTM14 - “Research, improvement of knowledge base reducing uncertainty”, except for lead where the nationally derived KTM “No measure in this cycle – review of less stringent target in next cycle” is reported.

The gap indicator values are area or length of water bodies not achieving objectives due to the specified pressure. The measure indicators are number of water bodies requiring specified measures. Gap indicators and measure indicators are listed for all significant pressure types in groundwater and surface water in the Danube RBD (except benzo(a)pyrene in surface water), and surface water in the Rhine and Elbe RBDs (except Hydrological alterations - hydropower in the Elbe), together with gap values and measure indicator values for 2015 and 2021, none for 2027.

Reported improvements are mainly modest, with most far from being closed by 2021. Notably, no improvements are expected for atmospheric deposition and mercury in any of the three RBDs.

Qualitative cost-effectiveness analyses of measures have been carried out for all three RBDs in Austria and links to relevant documents have been provided, but there seems to be no

straightforward prioritisation of measures (based on an assessment of the RBMP and background documents).

9.1.2. Financing of measures

A critical factor in the success of the implementation of the PoM is the availability of funding to support the investments required. For the first PoM Austria reported a total investment of €3 325 m for all RBDs and all measures. For the second PoM, (2016-2021) Austria is expecting a total capital investment of €680 m in Article 11(3)(a) requirements (measures required to implement Community legislation for the protection of water) with annual operation and maintenance costs of €12.3 m. A capital investment of €310 m is expected to implement measures required by Articles 11(3)(b)(1), 11(4) and 11(5) (all other measures) with annual operation and maintenance costs of €6.2 million. Depreciation has not been included in the calculation of these investment costs. For the first PoM, Austria received €54 m from European Union funds and is anticipating receiving a further €37 m for the second PoM. Austria has reported that a financial commitment has been secured for the implementation of programmes of measures in all three RBDs, albeit for a much reduced budget compared to the first cycle. On a sectoral basis, commitments have been secured where considered relevant, that is, for agriculture, industry, urban, hydropower, aquaculture and flood protection in all three RBDs (transport, energy and recreation were not considered relevant in any of the three RBDs).

9.1.3. Co-ordination with the other Directives

Austria is landlocked, therefore co-ordination with the Marine Strategy Framework Directive⁷⁶ is not considered relevant and no Marine Strategy Framework Directive relevant KTMs were listed. A link to the national RBMP has been provided.

The RBMPs and Floods Directive⁷⁷ Flood Risk Management Plans have not been integrated into one document in any of the three RBDs, but in all RBDs (1) joint consultation of RBMPs and Flood Risk Management Plans was carried out; (2) the objectives and requirements of the Floods Directive were considered in the second RBMPs and Programmes of Measures; (three drought management measures and use of Natural Water Retention Measures have been included in the PoM; (4) the design of new and existing structural measures, such as flood defences, storage dams and tidal barriers, has been adapted to take account of WFD environmental objectives; (5) financial commitments have been secured; and (6) WFD Article 9(4) has been applied to

⁷⁶ Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008L0056>

⁷⁷ Directive 2007/60/EC on the assessment and management of flood risks entered into force on 26 November 2007 <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32007L0060>

impoundment for flood protection. Links to documents with further information have been provided.

9.1.4. Prioritisation of measures

In Austria, there is no straightforward prioritisation of measures. Instead, areas/regions are being designated as “priority areas” (Sanierungsraum), in which the objectives will be reached in 2015, 2021, or 2027, according to the Austrian concept of the “step-wise reaching of objectives” (stufenweise Zielerreichung). Such “priority areas” apply only to hydromorphological pressures (that is, mostly the hydropower and flow regulation “sectors”), as these are the most significant challenge for reaching good ecological status, due to the large number of hydromorphological alterations in Austrian water bodies. In the water bodies of these “priority areas” there is a legally binding obligation to act.

The Austrian RBMP also refers to the fact that many measures need to be implemented locally and states that the next RBMP (2021) will further define the prioritisation of measures according to the local/regional implementation process achieved.

A form of prioritisation is sometimes mentioned in relation to specific topics, such as:

- Environmental remediation/clean-up of polluted sites (according to the substances, areas polluted, and habitats/areas endangered),
- The removal of migration barriers for fish (as it makes more sense to remove downstream barriers before upstream barriers),
- Use of synergies with natural water retention/flood protection measures according to the Floods Directive.

9.1.5. Measures related to other significant pressures

Other significant pressures have been reported for surface water for all three RBDs, these are “Anthropogenic – unknown” in all three RBDs, plus “Anthropogenic - historical” in the Danube RBD. KTMs are listed for all pressures, together with gap indicators (length of water body where pressure prevents achievement of objectives) and measure indicators (length of WBs required to be covered by measure to achieve objectives) for 2015 and 2021. The gaps are expected to be closed by 2021, except for historical pollution (the Danube RBD, for which it is indicated that it should be reviewed for the next cycle in terms of a less stringent target).

9.1.6. Mapping of national measures to Key Types of Measure

It was expected that MS would be able to report their PoM by associating their national measures with predefined KTMs. KTMs are expected to deliver the bulk of the improvements through reduction in pressures required to achieve WFD environmental objectives. A KTM may be one national measure but it would typically comprise more than one national measures. MS are required to report on the national measures associated with the KTM, and whether the national measures are basic - Article 11(3)(a) or Article 11(3)(b-1) - or supplementary - Article 11(4).

Table 9.1 summarises the number of national measures that have been mapped to the relevant KTMs in Austria. Also shown is the number of RBDs for which the KTM has been reported. Table 9.2 then summarises the type of basic measures associated with the national measures mapped against the KTM.

Table 9.1 Mapping of the types of national measures to Key Types of Measure in Austria

Key Type of Measure	National basic measures	National supplementary measures	Number of RBDs where reported
KTM1 - Construction or upgrades of wastewater treatment plants	15	6	
KTM12 - Advisory services for agriculture		9	3
KTM13 - Drinking water protection measures (for example, establishment of safeguard zones, buffer zones etc.)	9	6	3
KTM14 - Research, improvement of knowledge base reducing uncertainty		3	3
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	24		3
KTM16 - Upgrades or improvements of industrial wastewater treatment plants (including farms).	12	6	3
KTM17 - Measures to reduce sediment from soil erosion and surface run-off	3	3	3
KTM2 - Reduce nutrient pollution from agriculture	15	36	3
KTM21 - Measures to prevent or control the input of pollution from urban areas, transport and built infrastructure	3		3
KTM3 - Reduce pesticides pollution from agriculture.	21		3
KTM4 - Remediation of contaminated sites (historical pollution including sediments, groundwater, soil)	6		3
KTM5 - Improving longitudinal continuity (for example, establishing fish passes, demolishing old dams)	24	6	3
KTM6 - Improving hydromorphological conditions of water bodies other than longitudinal continuity	30	12	3
KTM7 - Improvements in flow regime and/or establishment of ecological flows	27		3
Total number of Mapped Measures	189	87	3

Source: WISE electronic reports

Table 9.2 Type of basic measure mapped to Key Type of Measures in Austria

Key Type of Measure	Basic Measure Type										
	Accidental pollution	Controls water abstraction	Hydromorphology	IPPC IED	Nitrates	Point source discharges	Pollutants diffuse	Pollutants direct groundwater	Protection water abstraction	Surface Priority Substances	Urban Waste Water
KTM1 - Construction or upgrades of wastewater treatment plants						15		3			15
KTM13 - Drinking water protection measures (e.g. establishment of safeguard zones, buffer zones etc.)									9		
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							24			24	
KTM16 - Upgrades or improvements of industrial wastewater treatment plants (including farms).				12		12					
KTM17 - Measures to reduce sediment from soil erosion and surface run-off					3		3				
KTM2 - Reduce nutrient pollution from agriculture					12	3	15				
KTM21 - Measures to prevent or control the input of pollution from urban areas, transport and built infrastructure	3					3	3			3	
KTM3 - Reduce pesticides pollution from agriculture.						6	21	3			
KTM4 - Remediation of contaminated sites (historical pollution including sediments, groundwater, soil)						6		3			
KTM5 - Improving longitudinal continuity (e.g. establishing fish passes, demolishing old dams)			24								
KTM6 - Improving hydromorphological conditions of water bodies other than longitudinal continuity			30								
KTM7 - Improvements in flow regime and/or establishment of ecological flows		27	27								

Source: WISE electronic reports

Key

‘Accidental pollution’ = Article 11(3)(1): Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents.
‘Controls water abstraction’ = Article 11(3)(e): Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment.
‘Hydromorphology’ = Article 11(3)(i): Measures to control any other significant adverse impact on the status of water, and in particular hydromorphological impacts.

‘IPPC IED’ = Integrated Pollution Prevention Control Directive (96/61/EC) and the Industrial Emissions Directive (2010/75/EU) .
‘Nitrates’ = Nitrates Directive (91/676/EEC) .
‘Point source discharges’ = Article 11(3)(g): Requirement for prior regulation of point source discharges liable to cause pollution.
‘Pollutants diffuse’ = Article 11(3)(h): Measures to prevent or control the input of pollutants from diffuse sources liable to cause pollution.
‘Pollutants direct groundwater’ = Article 11(3)(j): Prohibition of direct discharge of pollutants into groundwater.
‘Protection water abstraction’ = Article 11(3)(d): Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water.
‘Surface Priority Substances’ = Article 11(3)(k): Measures to eliminate pollution of surface waters by Priority Substances and to reduce pollution from other substances that would otherwise prevent the achievement of the objectives laid down in Article 4.
‘Urban Waste Water’ = Urban Waste Water Treatment Directive (91/271/EEC).

9.1.7. Pressures for which gaps to be filled to achieve WFD objectives and the Key Types of Measure planned to achieve objectives

MS are required to report the gaps that need to be filled to achieve WFD environmental objectives in terms of all significant pressures on surface waters and groundwater, in terms of Priority Substances causing failure of good chemical status and in terms of River Basin Specific Pollutants causing failure of good ecological status/potential. MS were asked to report predefined indicators of the gaps to be filled or other indicators where relevant. Values for the gap indicators were required for 2015 and 2021, and were optional for 2027.

Table 9.3 summarises the significant pressures on groundwater and chemical substances causing failure of good chemical status of groundwater bodies for which gaps to the achievement of WFD environmental objectives have been reported by Austria.

Table 9.3 *Gaps to be filled to achieve objectives in groundwater in Austria*

Groundwater Significant Pressure Or Substance Failing	Gap indicator	Sum of gaps			Number of RBDs
		2015	2021	2027	
2.2 - Diffuse - Agricultural	Area (km ²) of water bodies not achieving objectives because of diffuse agricultural pollution	1 404.87	0	KTM3 - Reduce pesticides pollution from agriculture.	1
2.2 - Diffuse - Agricultural	Area (km ²) of water bodies not achieving objectives because of diffuse agricultural pollution	1 404.87	0	KTM12 - Advisory services for agriculture	3
2.2 - Diffuse - Agricultural	Area (km ²) of water bodies not achieving objectives because of diffuse agricultural pollution	1 404.87	0	KTM13 - Drinking water protection measures (for example,	3

				establishment of safeguard zones, buffer zones etc.)	
CAS_14797-55-8 - Nitrate	Area (km ²) of water bodies not achieving objectives because of Nitrates	1 404.87	0	KTM2 - Reduce nutrient pollution from agriculture	3
CAS_14797-55-8 - Nitrate	Area (km ²) of water bodies not achieving objectives because of Nitrates	1 404.87	0	KTM12 - Advisory services for agriculture	3

*Source: WISE electronic reports
NR = Not reported to WISE*

MS were required to report which KTMs or Measures are to be made operational to reduce the gaps to levels compatible with the achievement of WFD environmental objectives. A number of indicators were predefined for each KTM. Values of the indicators for the second and subsequent planning cycles were also to be reported to give an indication of the expected progress and achievements: the values for 2027 could be optionally reported. This means that the value of the indicator will be reduced with time as measures are implemented. A value of zero (0) is comparable with 100 % good ecological status or potential or good chemical status.

Table 9.4 summarises the KTM, indicators of the measures and the values of the indicators for this and subsequent planning cycles reported by Austria. Note that this information was reported at the RBD level: the number of RBDs for which the information applies is also given in Table 9.4.

Table 9.4 **Key Types of Measure planned to achieve objectives in groundwater in Austria**

Ground-water	Key Type of Measure	Indicator of Key Types of Measure	Value of Key Types of Measure indicator			Number of RBDs
			2015	2021	2027	
2.2 - Diffuse - Agricultural	KTM 2 - Reduce nutrient pollution from agriculture	Area (km ²) of water bodies not achieving objectives because of diffuse agricultural pollution	0	KN30 - Number of water bodies required to be covered by measures to achieve objectives	1	1
2.2 - Diffuse - Agricultural	KTM 3 - Reduce pesticides pollution from agriculture	Area (km ²) of water bodies not achieving objectives because of diffuse agricultural pollution	0	KN30 - Number of water bodies required to be covered by measures to achieve objectives	4	3
2.2 - Diffuse - Agricultural	KTM12 - Advisory services for	Area (km ²) of water bodies not achieving objectives because of	0	KN30 - Number of water bodies required to be covered by	4	3

	agriculture	diffuse agricultural pollution		measures to achieve objectives		
CAS_14797-55-8 - Nitrate	KTM 2 - Reduce nutrient pollution from agriculture	Area (km ²) of water bodies not achieving objectives because of Nitrates	0	KN30 - Number of water bodies required to be covered by measures to achieve objectives	4	3
CAS_14797-55-8 - Nitrate	KTM12 - Advisory services for agriculture	Area (km ²) of water bodies not achieving objectives because of Nitrates	0	KN30 - Number of water bodies required to be covered by measures to achieve objectives	4	3

*Source: WISE electronic reports
NR = Not reported to WISE*

The information reported in WISE on the gaps to fulfil to achieve good ecological status include detailed data on the significant pressures on surface and groundwaters that may cause failure on the environmental objectives. For chemical status, the Member States reported the specific chemical substances causing failure.

This information is reported at the sub-unit level. Sub-units are smaller geographic areas within particular RBDs identified by Member States. Not all Member States have defined and reported sub-units.

Member States were required to report which KTMs are to be made operational to reduce the gaps to levels compatible with the achievement of WFD environmental objectives. A number of indicators were predefined for each KTM. Values of the indicators for the second and subsequent planning cycles were also to be reported to give an indication of the expected progress and achievements: the values for 2027 could be optionally reported. This means that the value of the indicator will be reduced with time as measures are implemented. A value of zero is comparable with 100 % good ecological status or potential or good chemical status.

This information was reported at sub-unit level, or at RBDs level if sub-units have not been reported by the Member State.

9.2. Main changes in implementation and compliance since first cycle

The level of implementation of the first cycle of PoM in all three RBDs (Danube, Rhine and Elbe) was reported as “some measures completed”, and no obstacles were encountered. The summary indicates that the main water management issues in Austria are river hydromorphology, river continuity and diffuse pollution in groundwater, all of which are being

addressed. Austria argues that much has been achieved and in particular further deterioration has been prevented.

The changes to the first RBMP are not described in detail or in a summary. However, some guidance and background documents have been updated since the first cycle, for example, the guidance document for assessing good ecological potential in heavily modified water bodies (reference provided), the status assessment and the assessment of biological quality elements.

9.3. Progress with Commission recommendations

The Commission recommendations based on the first RBMP and first PoM requested action on the following:

- Recommendation: *Make clearer the approach regarding consideration of uncertainties in the Article 5 pressures and impacts analysis; monitoring and classification of status has influenced the targeting of measures.*

Assessment: Most identified pressures have been addressed with measures and gap analyses carried out for 2015 and 2021 only. However, as progress towards closing the gaps seems to be modest, perhaps the programme of implementation could be more ambitious. Costs of basic measures in 2015-2021 are slightly lower than those invested in 2009-2015. In terms of PoM, this recommendation has been partially met.

- Recommendation: *Meaningful information regarding the scope, the timing and the funding of the measures should be included in the Programme of Measures so that the approach to achieve the objectives is clear. All the relevant information on basic and supplementary measures should be included in the summary of the Programme of Measures to ensure transparency of the planned actions for the achievement of the environmental objectives set out in the WFD.*

Assessment: Almost all identified pressures are being addressed with measures and gap analyses performed. However, as progress towards closing the gaps seems to be very slow, perhaps it should be examined whether the programme of implementation is ambitious enough. Costs of basic measures in 2015-2021 are slightly lower than about one third of those invested in 2009-2015. Therefore this recommendation has been partially fulfilled.

- Recommendation: *Similarly, the gap analysis of the measures required to achieve good status in the light of the pressures should be more strongly elaborated.*

Assessment: Gap analyses have been completed for 2015 and 2021 in all three RBDs, with gap indicators focused on achieving WFD objectives, but there is no information on how the remaining gaps (which are considerable) are expected to be closed in the third cycle. This recommendation has been partially fulfilled.

- Recommendation: *The RBMP should provide more information about the measures, especially the expected impact/effect on the waterbody status. Other information, such as the location, timing and financing would add an additional level of concretisation to the RBMP.*

Assessment: Although certain financial commitments have been secured for all relevant sectors, and gap analyses have been performed, it is not clear whether the programme is ambitious to the extent of achieving good status. This recommendation has been partially fulfilled.

Additional information from the RBMP and background documents concerning the above recommendations:

In general, it has to be stated that the Austrian RBMP in 2015 (as in 2009) is not planning/proposing concrete measures for specific water bodies. On the basis of the RBMP detailed planning is done on regional and local level. Hence, there is not a single specified, fully described measure in the RBMP which would state the location, the effect, the costs, and the timing of finalisation of the measure. This is justified by the fact that most measures are implemented and decided upon at local level, and that all detailed information on a single, specified measure is available only when the concrete, spatially explicit planning starts. Instead, the Austrian RBMP is an overall more abstract planning document which describes measures more broadly, in terms of general impacts, costs, difficulties, importance etc. Hence, the information on financing and costs is a broad estimation. As no measures are spatially explicit, there is no assessment of the impacts/effects of the measures described. Also, the tables for surface waters (lakes and rivers separately) and groundwater bodies which state the year in which objectives will be reached has a link to a list of measures that will be implemented in the second planning period 2015-2021 but not to measures planned beyond 2021. All this is not stated explicitly, but more ‘discreetly’ in, for example, the introduction to the RBMP.

- Recommendation: *Develop fully the economic analysis of water use, including the calculation of environmental and resource costs, and how the cost effectiveness analysis influenced the selection of measures.*

Assessment: Whilst cost effectiveness analyses have been carried out for measures (qualitative only), no KTMs have been reported in relation to water efficiency and pricing policy. Therefore, this recommendation has been partially fulfilled.

Topic 10 Measures related to abstractions and water scarcity

10.1. Assessment of implementation and compliance with WFD requirements in second cycle and main changes since the first cycle

10.1.1. Water exploitation and trends

Water quantity pressures were reported as not relevant for Austria; and no groundwater body faces water quantity-related problems for achieving good quantitative status of groundwater bodies. However, water abstraction pressures mainly for hydropower use, although directly returned after use, significantly affect the flow regime of surface water bodies for 13%, 23%, and 9% for the Danube, Rhine, and Elbe RBDs respectively. These pressures cause local effects on river flows, but do not affect the overall water balance. The Water Exploitation Index + is therefore not calculated, and no water quantity data have been reported to State of the Environment. The RBMP did include a water resource allocation and management plan.

10.1.2. Main uses for water consumption

No data have been reported on the uses of water consumption for the above-mentioned reasons, and since water quantity pressures were not reported as significant.

10.1.3. Measures related to abstractions and water scarcity

Regarding basic measures - Article 11(3)(e), in Austria there is a concession, authorisation, and/or permitting regime to control surface and groundwater abstractions and water impoundment as well as a register of abstractions and impoundments; small abstractions are not exempted from these controls.

Measures on Article 11(3)(c) for sustainable and efficient water use have been implemented in the previous cycle, and no new measures and/or significant changes are planned for the 2016-2021 period.

Measures for the prior authorisation of artificial recharge or augmentation of groundwater bodies - Article 11(3)(f) have been implemented in the previous cycle, and no new measures and/or significant changes are planned for the 2016-2021 period.

Complementary measures under KTMs were reported for addressing abstraction pressures, and refer to KTM 7 - "Improvements in flow regime and/or establishment of ecological flows". Water reuse is not foreseen as a measure.

10.2. Progress with Commission recommendations

There were no Commission recommendations based on the first RBMP and first PoM.

Topic 11 Measures related to pollution from agriculture

11.1. Assessment of implementation and compliance with WFD requirements in second cycle

Pressures related to agriculture are clearly identified, both for surface and groundwater. Pressures related to groundwater are only reported in the Danube RBD. Chemical and nutrient pollution from diffuse sources are impacting water quality in surface waters in all RBDs. In addition, habitats are also being impacted (altered) due to agriculture. Organic pollution in surface waters is only reported for the Danube RBD and the Rhine RBD. Groundwater is polluted in the Danube RBD by chemical pollution.

A gap assessment was not performed, so it remains unclear how much of the gap to the achievement of the WFD objectives is expected to be achieved by the Rural Development Programme measures, Nitrates Directive, or any other measures.

KTM 2 – Reduce nutrient pollution from agriculture (five basic [the minimum requirement to be complied with] and 12 supplementary measures), KTM 3 – Reduce pesticides pollution from agriculture (7 basic measures), KTM 12 – Advisory services for agriculture (three supplementary measures), KTM 13 – Drinking water protection measures (e.g. establishment of safeguard zones, buffer zones etc., supplementary and basic), and KTM17 - Measures to reduce sediment from soil erosion and surface run-off (supplementary and basic) are applied in all RBDs. KTM 23 – Natural water retention measures are not applied.

In the second RBMP itself, however, there is no reference or link at all to the KTMs. Hence, the measures reported to WISE cannot be identified in the PoM, and it cannot be determined if these are voluntary or mandatory. The source of funding is European Union funds (mostly Common Agricultural Policy second pillar, which go into the Austrian ÖPUL programme, and LIFE funds). According to WISE, these are quantified to be at €37 m from 2015 to 2021. National funds are also mentioned, which stem from the Umweltförderungsgesetz/Law for the promotion of environment issues, and from other national regulations.

Implementation of basic measures Article 11(3)(h) for the control of diffuse pollution from agriculture at source are applied with the same rules across the whole RBD. General binding rules to control diffuse pollution from agriculture are applied to nitrates, pesticides and phosphorus.

Austria did not declare safeguard zones around drinking water protection areas according to the Nitrate Directive⁷⁸; nevertheless, 7 % of the Austrian territory are in one form or another protected areas for the abstraction of water for human use/consumption. These zones have not been enhanced since the first RBMP, but it seems that they are deemed sufficient. There is no information as to whether additional control measures have been introduced to prevent nitrogen, phosphorus or pesticides from entering drinking water sources; the basic measures according to the Nitrates and EQS Directives seem to have been implemented. Regarding additional measures, only some changes to the voluntary Rural Development Measures, related to this topic, are described.

Farmers and Farmers' Unions have been consulted under the Public Consultation process in all RBDs.

Financing of agricultural measures is considered to be secured in all the RBDs.

11.2. Main changes in implementation and compliance since first cycle

No major changes in any of the RBDs for aspects of the topic have been identified.

11.3. Progress with Commission recommendations

The Commission recommendations based on the first RBMP and first PoM requested action on the following:

- Recommendation: *For agriculture: i) there is a need to define more clearly how measures are linked to status assessment, ii) experience shows that a high level of co-operation with the farming community at the different stages of the preparation of the Programme of Measures is important as it ensures technical feasibility, acceptance and the expected success, iii) a strategy mainly built on voluntary measures will have difficulties to deliver. The correct balance between voluntary actions and a strong baseline of mandatory measures needs to be established. A clear commitment at political level is indispensable, iv) the baseline for water protection needs to be very clear so that, on the one hand any farmer knows the rules, and on the other hand, the authorities in charge of the Common Agricultural Policy funds can adequately set up Rural Development programmes and cross compliance water requirements.*

⁷⁸ Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:31991L0676>

Assessment: No gap assessment has been made and it is not clear from the RBMP to which extent mandatory (e.g. Nitrate Action Programme, CAP Pillar 1) or voluntary measures (Rural Development Programme) will contribute to achieving the WFD objectives. Mandatory actions as regard to nitrogen are part of the Nitrates Directive (applied to the whole territory of Austria). Some plant protection measures are also mandatory. Based on that baseline (and some other legal acts relate to agriculture), the Austrian Rural Development program has been developed, which includes a broad set of funded voluntary actions. The program covers all types of pressures identified. Hydro-morphological measures for farmers are voluntary. Therefore this recommendation has partly been fulfilled.

- Recommendation: *Review the degree to which the existing measures to implement the Nitrates Directive are sufficient to address agricultural pressures and ensure basic measures as per Article 11.3.h are put in place to control other diffuse pollutants – for example, phosphate, pesticides, particulate matter. These measures should be specific, have a clear legal basis, and include appropriate advice, monitoring and inspection regimes to ensure their effective implementation. In addition to the basic measures, it should be set out clearly what supplementary measures will be needed to bridge the gap to good status and which of these measures will be included in the second Programme of Measures and what funding sources will be used to deliver these. Clear references to expectations for the Rural Development Programs in this regard (and to other funding sources) are expected.*
- Assessment: No comprehensive gap assessment has been made and so it remains unclear what will be achieved through measures to implement the Nitrates Directive, through basic measures under Article 11(3) of the WFD, through basic measures included in Pillar 1 (Good Agricultural and Environmental Conditions and greening of the Common Agricultural Policy), or through supplementary measures under Pillar 2 of the Common Agricultural Policy. In addition, no evidence was found of the effectiveness of Articles 11(3)(a) or 11(3)(b). Supplementary measures (Article 11.4) have been assessed in terms of reducing the pressures from agricultural activities to levels compatible with the achievement of WFD objectives. Supplementary measures were reported to WISE. It remains unclear what the contribution of the Rural Development Programme to achieving WFD objectives will be. Therefore, this recommendation has partly been fulfilled.
- Recommendation: *Provide more information in second RBMPs about measures taken or being taken to address diffuse sources of pollutants (e.g. existing laws better*

enforced; action plans or guidance modified in order to specifically support the achievement of WFD objectives).

- Assessment: The RBMP contains a detailed description of measures to address diffuse sources of pollutants by providing information on the content of the measures, link to existing laws and measures; financial support, action plans and other relevant sources of information. Overall this recommendation has been fulfilled.

Topic 12 Measures related to pollution from sectors other than agriculture

12.1. Assessment of implementation and compliance with WFD requirements in second cycle

In the context of this topic, pollution is considered in terms of nutrients, organic matter, sediment, saline discharges and chemicals (Priority Substances, River Basin Specific Pollutants, groundwater pollutants and other physico-chemical parameters) arising from all sectors and sources apart from agriculture.

As explained earlier, Key Types of Measure (KTM) are groups of measures identified by MS in their Programmes of Measures which target the same pressure or purpose. A KTM could be limited to one national measure, but it would typically comprise more than one national measure. The same individual measure can also be part of more than one KTM because it may be multipurpose, but also because the KTMs are not completely independent of one another.

The following KTMs relevant to non-agricultural sources of pollution causing failure of WFD objectives have been reported for all RBDs in Austria:

- KTM 1 - “Construction or upgrades of wastewater treatment plants”
- KTM 15 - “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”
- KTM 16 - “Upgrades or improvements of industrial wastewater treatment plants (including farms)”
- KTM 21 - “Measures to prevent or control the input of pollution from urban areas, transport and built infrastructure”.

Two additional KTMs were reported in the Danube RBD:

- KTM 4 - “Remediation of contaminated sites (historical pollution including sediments, groundwater, soil)”
- KTM 99 - “Other key type measure reported under PoM (Historical pollution)”.

The WFD specifies that Programmes of Measures shall include, as a minimum, ‘basic measures’ and, where necessary to achieve objectives, ‘supplementary measures’ when basic measures are not enough to address specific significant pressures (see chapter 9 in this report). Austria has indicated the number of basic and supplementary measures per RBD for each KTM mentioned above.

Austria provided more targeted information on basic measures required under Article 11(3)(c to k). Basic measures corresponding to Article 11(3)(g), i.e. the use of authorisation and/or permitting regimes to control waste-water point-source discharges, and the operation of a register of waste-water discharges, are reported for all Austrian RBDs for surface and groundwater. There are no thresholds below which waste water discharges do not require permits and are not subject to registration. Some direct discharges to groundwater are authorised in accordance with Article 11(3)(j).

Measures to eliminate/reduce pollution from Priority Substances and other substances have been identified in all RBDs in Austria.

12.2. Main changes in implementation and compliance since first cycle

In the first RBMP, general information was provided on measures targeted to reduce/phase out the emissions of chemical pollutants. For the second RBMP, Austria reported to WISE the KTMs relevant to addressing significant pressures from Priority Substances and River Basin Specific Pollutants causing exceedances. Austria also reported to WISE that KTM 15 - “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” - has been mapped against national measures, and that it is tackling significant pollution pressures in all Austrian RBDs.

In the second RBMP, information on point sources of pollution by Priority Substances and River Basin Specific Pollutants (section 5.2.4) is limited; AT states that diffuse sources are more important than point sources for metals and the ubiquitous Priority Substances causing most exceedances, and that without knowledge of and measures for these diffuse sources, there can be no progress on reaching the objectives⁷⁹. The Annex to the RBMP includes a table of measures for water bodies not reaching good chemical status as a result of point source pollution and lists the substances responsible (both River Basin Specific Pollutants and Priority Substances); it

⁷⁹ Austria subsequently informed that at the moment the main sources and polluters are identified via modelling approaches. This will be the basis for monitoring programs and measures in the future – for more information see RBMP chapter 5.2.3. p129

provides an update on the measures taken and/or planned. All the listed water bodies have measures assigned to them, but almost all are research/knowledge-building measures, in particular the evaluation of the potential effectiveness of measures against point and/or diffuse sources, therefore there is currently no indication of the mitigatory measures that will finally be taken, nor of their effectiveness.

There is one groundwater body in Austria (Südliche Wiener Becken Ostrand, situated in the Danube RBD) which fails to achieve good chemical status because of pollutants other than nitrates (Desethyl- and Desisopropylatrazine), and three groundwater bodies that fail because of nitrates only. These groundwater bodies are expected to have reached their objectives in 2027. Nitrates are covered by measures, but there is no measure for Desethyl-Desisopropylatrazine in the Südliche Wiener Becken Ostrand.

12.3. Progress with Commission recommendations

The Commission made two relevant recommendations based on the first RBMPs and first Programmes of Measures:

- Recommendation: *“Provide more information in second RBMP about measures taken or being taken to address diffuse sources of pollutants (for example, existing laws better enforced; action plans or guidance modified in order to specifically support the achievement of WFD objectives).”*

Assessment: Austria has reported KTM 4 - “Remediation of contaminated sites (historical pollution including sediments, groundwater, soil)” and KTM 15 - “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” as basic measures being used to tackle diffuse pollution.

However, as noted above, little detail is given, and the focus, for both Priority Substances and River Basin Specific Pollutants (for which the significance of diffuse sources relative to point sources has not been determined), is on evaluating the potential of measures rather than on initiating concrete measures.

In relation to Mercury and Polybrominated diphenylethers (PBDEs), Austria indicates that they will still be causing failure in 2027 unless action is taken at international level; nothing is said about what is being done at the national level.

Regarding groundwater, the source of diffuse pollution is always agriculture.

There is no explicit description of specific supplementary measures targeting diffuse sources of pollution other than those from agriculture (for which there is the ÖPUL⁸⁰ programme, running since the first cycle).

Overall, there is no evaluation/prediction of how effective the final measures will be at reducing diffuse pollution to a level allowing good status to be achieved. Therefore, this recommendation has been partially fulfilled.

- Recommendation: “[The identification of river basin specific pollutants needs to be more transparent, with clear information on how pollutants were selected, how and where they were monitored, where there are exceedances and how such exceedances have been taken into account in the assessment of ecological status.] It is important to take an ambitious approach to combatting chemical pollution and that adequate measures are put in place.”

Austria reports that it achieved the objective of meeting the standard for zinc in one water body by diverting an outflow into a larger receiving water body. For two surface water bodies affected by hexachlorobutadiene, measures that had been in place for several years to restore linked groundwater quality are expected to bring about delayed recovery of the surface waters.

Austria indicates that it will not be possible to meet the EQS for some of the Priority Substances, in particular Mercury and PBDEs, by 2027 without international action, and it lists a number of water bodies where less stringent objectives are being set for various metals. It is not clear whether any measures are being taken at national level in relation to these⁸¹.

From the information available, it is not possible to say whether the final measures taken by Austria in relation to other substances/water bodies will be adequate to address the substances identified as causing problems, because Austria is still at the stage of assessing the effectiveness of potential measures. Thus, this recommendation is not considered as fulfilled.

⁸⁰ Österreichisches Programm zur Förderung einer umweltgerechten, extensiven und den natürlichen Lebensraum schützenden Landwirtschaft (https://www.bmnt.gv.at/land/laendl_entwicklung/oepul/oepul2015.html)

⁸¹ Austria subsequently informed that the source of these metals is historical mining and they found no cost efficient measure. It is not entirely clear how Austria links the concept of cost efficiency with the concepts of technical feasibility or disproportionate costs, mentioned in WFD article 4 as grounds for exemptions.

Topic 13 Measures related to hydromorphology

13.1. Assessment of implementation and compliance with WFD requirements in second cycle

Significant hydromorphological pressures are identified in all RBDs. The significant hydromorphological pressures are assigned to specific sectors for the largest share of affected water bodies. The main sectors related to significant hydromorphological pressures are flood protection and hydropower. In the WISE reporting on the Danube RBD, there was a large number of river water bodies (1082) affected by dams, barriers, or locks for which the sector or water use is unknown or obsolete. However, Austria subsequently informed the European Commission that this has been a reporting error, while the missing information refers only to single barriers within these water bodies, and not entire water bodies. This does not affect the Program of Measures.

Operational KTMs to tackle these pressures are clearly defined, specifically KTM 5 - “Improving longitudinal continuity (e.g. establishing fish passes, demolishing old dams)”, KTM 6 - “Improving hydromorphological conditions of water bodies other than longitudinal continuity”, and KTM 7 - “Improvements in flow regime and/or establishment of ecological flows”. In addition, quantitative management objectives in terms of restoring river continuity have been set in all RBDs.

In terms of basic measures, there is an authorisation and/or permitting regime in place to control physical modifications in all RBDs which covers changes to the riparian area of water bodies according to WFD Article 11(3)(i). There is also a register of physical modifications of water bodies.

The Austrian RBMP is an abstract planning instrument and does not name specific, spatially explicit measures. The general measures named in the RBMP that could be implemented for hydromorphological pressures include:

- Legal measures (already in place for the preservation of very good status and for the preservation and achievement of good status), including programmes for the rehabilitation of water bodies.
- General rehabilitation measures planned in water bodies of the ‘Sanierungsraum’ (rehabilitation area). These measures are generic: a) improvement of morphology, b) longitudinal continuity, c) reduction of the impacts of backwater, d) reduction of the impacts of surges, and e) release of compensation water. For some hydromorphological

problems, possibilities are mentioned (for example, ‘technical fish passes’, under river continuity).

- Financial incentives (national and European Union funds mentioned).
- Research.

Win-win measures in terms of achieving the objectives of the WFD and Floods Directive, drought management, and use of Natural Water Retention Measures were reported as included in the PoM of all RBDs. Furthermore, the design of new and existing structural measures, such as flood defences, storage dams and tidal barriers, was reported to have been adapted to take into account WFD objectives in all RBDs. Measures related to hydromorphology are aimed at the restoration of good ecological status. Some of these measures (e.g. reconnecting wetlands and side-arms, widening, remeandering) may also serve as natural water retention measures, but this is not their main purpose. Therefore, KTM 23- “Natural water retention measures” was not reported as such to tackle any significant pressures.

Ecological flows have been derived and implemented partly, that is, for some relevant water bodies, in the three RBDs, but the work is still on-going. The Austrian RBMP describes the permit regime for new installations (as a measure) and the new requirements for minimum ecological flows through new legislation dating to 2010, which need to be followed to obtain a permit for operating a hydropower plant or any other installation. However, this only applies to new installations, or to permits which run out and need to be reviewed. Existing installations were targeted in the first cycle, and it is stated that in most water bodies of the priority rehabilitation area, ecological flows were established. No further information was found on the timeline for completing the implementation of ecological flows for all relevant water bodies.

In the second cycle the priority area was extended to smaller catchments. Within this priority area the ecological flows are expected to be restored by 2021 and in all other water bodies measures are planned until 2027.⁸²

Indicators on the gap to be filled for significant hydromorphological pressures and KTM value indicators were reported for 2015 and 2021 (but not for 2027). From the information available,

⁸² Austria subsequently informed that the high number of hydromorphological pressures and the huge extent of restoration measures necessary to achieve the goals of the WFD pose considerable challenges for Austria. Hence, a prioritisation approach was chosen, which is based on a long term ecological concept and phases necessary actions for three management cycles. To cope with permits in place with either no expiry date or a long duration, the Austrian Water Act authorises the Länder to issue legal regulations (ordinances) with the aim of obliging all holders of permits to submit projects related to continuity and ecological minimum flow within a given time frame. Thus the existing permits do not have to be changed case by case but with a single legal regulation. These regulations can be issued for the defined priority area.

there will be approximately 10 % to 20 % reduction of significant hydromorphological pressures between 2015 and 2021. After 2021, a still considerable effort in measures is planned to achieve objectives, either in terms of number of water bodies required to be covered by measures or number of barriers that need to be tackled per water body.

A comprehensive instrument for funding hydromorphological measures is not described. For some measures, for example related to flood protection, hydropower or flow regime, it is planned that they are to be borne by the entity operating or responsible for the installation, if they are situated in the ‘Sanierungsraum’ (rehabilitation area) and a respective ordinance is issued. For other hydromorphological measures, for example, the reduction of surges, the ‘environmental support’ law applies, but it seems that only unused funds from the first cycle can be used in the second cycle. Flood protection measures or changes to such measures can also be funded by other national and European Union funds.

13.2. Main changes in implementation and compliance since first cycle

Despite the largely ongoing work, it is noted that there are new requirements for minimum ecological flows through new legislation dating from 2010 and that the priority area approach appears to be progressing.

13.3. Progress with Commission recommendations

The Commission recommendations based on the first RBMP and first PoM requested action on the following:

- *Recommendation (2015 report): Provide a clear commitment in the second RBMP to properly prioritise hydromorphological measures and to a review of hydropower permits as restoration measures and the establishment of an ecological flow downstream of hydropower plants will be necessary to achieve good surface water status.*

Assessment: The planned KTM to address significant hydromorphological pressures are clearly reported and the ambition level for reducing hydromorphological pressures between 2015 and 2021 is approximately between 10% to 20% for the different pressures and RBDs. The priority areas/priority rivers (‘Sanierungsraum’) have been extended in the second RBMP (for example, some rivers with catchment areas smaller than 100 km² have been added, but others also excluded). As a result, the rehabilitation area has been enlarged from the first to the second RBMP. However, a comprehensive instrument for funding hydromorphological measures is not described. This, in combination to funding

that despite being described as secured has been reduced compared to the previous cycle, puts the achievement of targets set into doubt.

There is no indication in the RBMP of a systematic revision of permits to address hydromorphological problems. However, the permit regime for new installations is described (as a measure) as well as new requirements for minimum ecological flows through the new 2010 legislation. It also stated that there is a possibility to change/revise existing permits, but it is not intended to systematically review all permits within a specified horizon. Concerning the review of existing permits, Austria follows a prioritisation approach, which is based on a long-term ecological concept and phases necessary actions over three management cycles.

Based on the assessment above, the recommendation is considered to be partially fulfilled.

Topic 14 Economic analysis and water pricing policies

14.1. Assessment of implementation and compliance with WFD requirements in second cycle and main changes since the first cycle

As in the first cycle, only water supply and waste water services are called ‘water services’ in the national RBMP as well as in the respective ‘Background document on the socio-economic analysis 2013’. All other uses/sectors are referred to as ‘uses’. However, there is no explanation provided as to why the two services are identified as services, while other uses linked to significant pressures not, in both the national RBMP and the ‘Background document on the socio-economic analysis 2013’. Although only two water services were defined, the use of Article 9(4) is indicated for five additional water services (flood protection, irrigation, navigation, self-abstraction, and water storage).

The incentive function of water pricing is described in the national RBMP on a very general, global level. It is not explained what ‘adequate’ means.

Metering and volumetric charges were in place for all consumptive uses and wastewater discharges, but no details on, for example, tariffs, were provided.

Cost recovery of financial costs was calculated for those regarded by Austria as water services: water supply and water treatment, with very high cost recovery rates (higher than 100%).

Environmental and resource costs were briefly defined in the national RBMP: environmental costs were defined as damage costs, while resource costs were defined as opportunity costs. As in the first cycle, it was stated that environmental and resource costs were internalised in the production costs when calculating cost recovery (only for the two defined water services), but the methodology/approach was not provided.

There was no information on the Polluter Pays Principle in the national RBMP, for example, it is not explained how a contribution from agriculture and other sectors to the environmental costs of diffuse and point-source pollution is ensured.

The economic analysis was reported to have been updated in Austria, with three additional water uses that have been incorporated into it, which were shipping, fisheries and flood protection.

14.2. Progress with Commission recommendations

The Commission recommendations based on the first RBMP and first PoM requested action on the following:

- Recommendation: *Develop fully the economic analysis of water use, including the calculation of environmental and resource costs and how the cost effectiveness analysis influenced the selection of measures.*

and

- Recommendation: *Water pricing should provide an incentive to water efficiency.*

Assessment: The incentive function of water pricing is described in the national RBMP at a very general level. It is not explained what ‘adequate’ means.

Metering and volumetric charges were in place for all consumptive uses and wastewater discharges. An overview of average price levels for water and wastewater is provided, but no details on tariff structure were provided (it is mentioned that factors other than the simple amount consumed can be factored in the tariffs).

Qualitative cost-effectiveness analyses of measures have been carried out for all three RBDs in Austria, and links to relevant documents have been provided.

These recommendations are not fulfilled.

- Recommendation: *The cost-recovery should address a broad range of water services, including impoundments, abstraction, storage, treatment and distribution of surface waters, and collection, treatment and discharge of waste water, also when either of these services are so called ‘self-services’, for instance self-abstraction for agriculture. The cost recovery should be transparently presented for all relevant user sectors, and environment and resource costs should be included in the costs recovered. Information should also be provided on the incentive function on water pricing for all water services, with the aim of ensuring an efficient use of water. Information on how the polluter pays principle has been taken into account should be provided in the RBMP.*

Assessment: Only water supply and waste water services are called ‘water services’ in the national River Basin Management Plan as well as in the respective ‘Background document on the socio-economic analysis 2013’.

All other uses/sectors are referred to as ‘uses’. However, there is no explanation provided as to why two services are identified as services, while other uses linked to significant pressures not. There is no explanation in either the national River Basin Management Plan or the ‘Background document on the socio-economic analysis 2013’.

Although only two water services are defined, the use of Article 9(4) is indicated in WISE reporting for five additional water services (flood protection, irrigation, navigation, self-abstraction and water storage).

Other activities are also linked to significant pressures, for example, agriculture, but not to quantitative pressures (that is, groundwater quantitative status related), only to qualitative ones (that is, related to surface water and groundwater qualitative status). For all other uses/sectors, it is stated that the objectives of the WFD will be reached with the planned measures, and that the instrument ‘cost recovery’ is not necessary to be employed here. This argument refers to Article 9(4) and the judgement of the European Court of Justice⁸³.

Cost recovery of financial costs is calculated for the two water services regarded by Austria as water services: water supply and water treatment, with very high cost recovery rates (higher than 100 %). However, there is no information on the contribution of households, industry and agriculture to the calculated cost recovery, except a general statement that the three sectors/uses benefit from both water services and that they do contribute to the cost recovery of these.

Environmental and resource costs are briefly defined in the national River Basin Management Plan: environmental costs as damage costs, resource costs as opportunity costs. As in the first cycle, it is stated that environmental and resource costs are internalised in the production costs when calculating cost recovery (for the two defined water services), but the methodology/approach is not provided. It is also stated that calculating and individually stating the environmental and resource costs would be a disproportionately high effort.

Although cost recovery calculations have changed since the first cycle (other figures are provided), the contribution of households, industry and agriculture to the calculated cost recovery is not described anymore (it was described in the first cycle). Hence, there is limited or no progress in relation to the first cycle regarding this recommendation.

⁸³ C-525/12, judgment of 11 September 2014

There is no information on the Polluter Pays Principle in the RBMP, for example, it is not explained how a contribution from agriculture and other sectors to the environmental costs of diffuse and point-source pollution is ensured. This recommendation is not fulfilled.

Topic 15 Considerations specific to Protected Areas (identification, monitoring, objectives and measures)

15.1. Assessment of implementation and compliance with WFD requirements in second cycle

Protected surface water areas have been identified for all relevant Directives (Habitats, Birds and Bathing), where both objectives and status assessments were included. For groundwater, Protected Areas have been identified in relation to Article 7, Habitats and Birds Directive areas dependent on groundwater. Austria has not reported Protected Areas for the Nitrates Directives as a whole territory approach was applied.

Table 15.1 *Number of protected areas of all types in each RBD of Austria, for surface and groundwater*

Protected Area type	Number of protected area Associated with		
	Rivers	Lakes	Groundwater
Abstraction of water intended for human consumption under Article 7			201
Recreational waters, including areas designated as bathing waters under Directive 76/160/EEC ⁸⁴	12	122	
Protection of species where the maintenance or improvement of the status of water is an important factor in their protection, including relevant Natura 2000 sites designated under Directive 79/409/EEC (Birds) ⁸⁵	42	9	50
Protection of habitats or species where the maintenance or improvement of the status of water is an important factor in their protection, including relevant Natura 2000 sites designated under Directive 92/43/EEC (Habitats) ⁸⁶	71	13	96
Other			

Source: WISE electronic reporting

Figure 15.1 shows the status of water bodies associated with the Protected Areas for Austria. It can be seen that less than 50 % of surface water bodies were less than good ecological status and

⁸⁴ Directive 2006/7/EC of the European Parliament and of the Council of 15 February 2006 concerning the management of bathing water quality and repealing Directive 76/160/EEC <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32006L0007>

⁸⁵ Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0147>

⁸⁶ Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wildfauna and flora <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31992L0043>

all surface water bodies failed good chemical status due to ubiquitous substances (biota monitoring). More than 99 % of surface water bodies in Austria would reach good chemical status without these ubiquitous substances. The ecological status assessment for 77 % of Protected Areas is made with either medium or low confidence, and for the chemical status assessment of surface waters, the situation is worse with nearly 100 % reported to have low confidence. This may indicate an insufficient monitoring programme, but there may be other reasons for this, such as grouping of water bodies (in particular where there is no risk of failing good status). No monitoring is reported specifically for Protected Areas, as it is included within the Surveillance and Operational monitoring networks and priority is given to areas where measures may be used to improve quality.

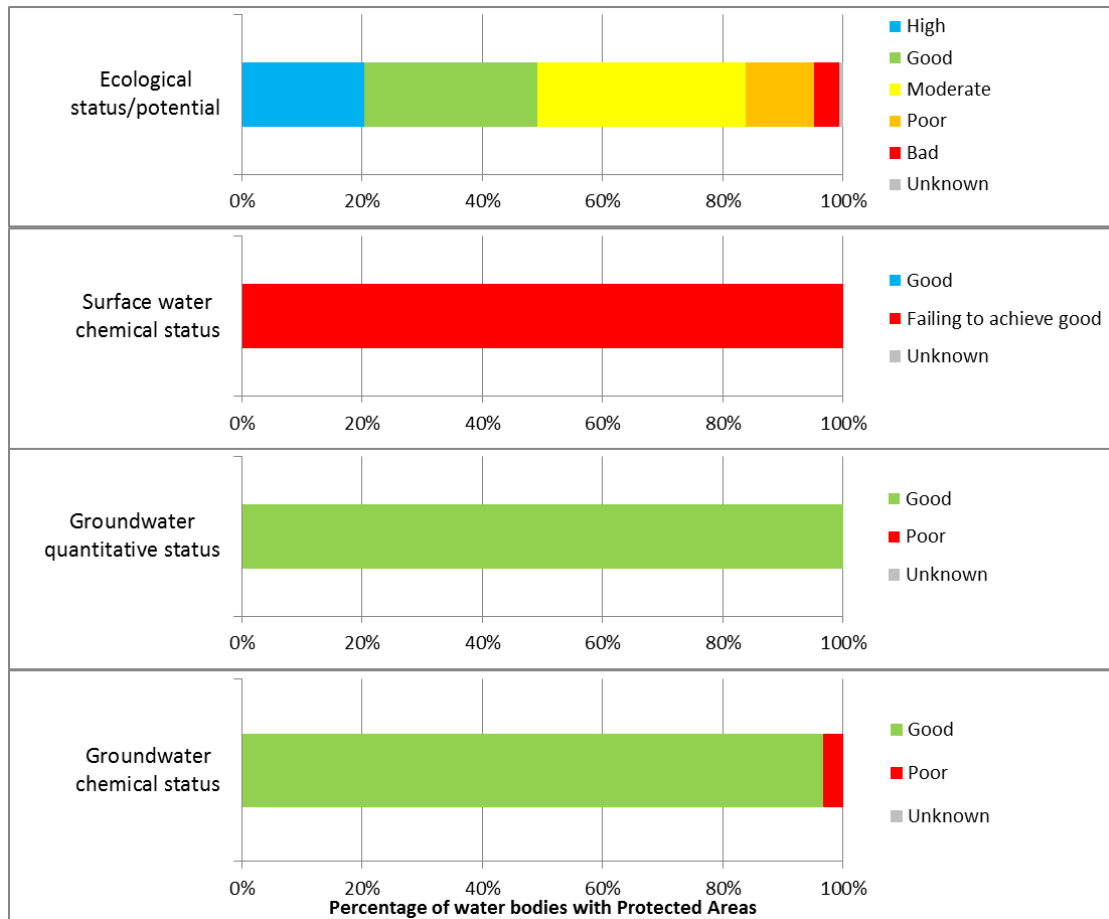
For groundwater, both the quantitative and qualitative status assessment in relation to all relevant Directives (Drinking Water, Habitats and Birds) is reported to be done with high confidence for nearly 100 % of water bodies. As stated above, monitoring is not reported specifically for Protected Areas but is included within surveillance and operational monitoring networks so this high confidence is justified.

Safeguard Zones have been reported to be in place for drinking water protected areas in both surface and groundwater bodies, with no plans to change the regulations as a result of this RBMP.⁸⁷

It was reported for all Protected Areas in relation to the Habitat and the Birds Directives (groundwater dependent and surface water), that the good ecological status is sufficient also to reach the favourable conservation status. It appears that this has been used as a default approach and not based on a specific assessment of the status and needs for each water body. This is also partly confirmed by the statement in the RBMP that ‘with the improvement of the status of water bodies, the specific objectives in the protected areas will generally be supported’. However, Austria has subsequently clarified that if more stringent objectives have to be set due to e.g. nature protection, it must be considered in Water Framework Directive assessment and reported by nature protection authorities. At present no report has been made and therefore there was no cause to set more stringent objectives.

⁸⁷ Austria subsequently clarified that the objectives are included in RBMP in combination with various measures.

Figure 15.1 *Status of water bodies associated with the Protected Areas for Austria. Note: based on status/potential aggregated for all water bodies associated with all Protected Areas*



Source: WISE electronic reports

No monitoring sites associated with Protected Areas were reported for either surface waters or groundwater in Austria. As mentioned earlier, Austria has clarified, that specific monitoring of protected areas is included within the Surveillance and Operational monitoring networks and priority is given to areas where measures may be used to improve quality.

The confidence of the assessment corresponds with the fact that no specific monitoring of protected surface water areas has been reported and with the information that the good ecological status is sufficient also to reach the objectives according to the other Directives.

Furthermore Austria subsequently clarified that since Austria has applied Article 3(5) of the Nitrates Directive, no nitrate vulnerable zones are delineated and the action program is applied to the whole territory.

No information was reported on the need for additional measures in relation to surface waters, as the good ecological status was reported to be sufficient to reach the objectives related to the Birds and the Habitats Directives. The good ecological status will generally support the specific objectives in the protected areas, but not necessarily lead to their fulfilment⁸⁸. Safeguard zones have been established and a number of restrictions applied like mandatory ban or restrictions on the use of pesticides and manure spreading.

Widespread use of exemptions has been reported. For 62 % of surface water Protected Areas (Bathing Water, Habitat and Birds), exemptions have been applied mainly related to Article 4(4), and evenly divided between disproportionate cost, natural conditions and technical feasibility exemptions. This is contradictory, considering that no additional effort to obtain the more stringent objectives should be needed assuming that the good ecological status is sufficient to obtain the objectives of the Birds and Habitats Directives⁸⁹. No exemptions have been applied in relation to groundwater Protected Areas, including groundwater dependent Habitat and Bird Directive areas.

15.2. Main changes in implementation and compliance since first cycle

Monitoring activity specifically targeted towards Protected Areas (both surface and groundwater) was not reported in the second cycle.

15.3. Progress with Commission recommendations

There were no Commission recommendations based on the first RBMP and first PoM for this topic.

⁸⁸ Austria subsequently clarified that additional measures which are not related to water may be required to fulfil the objectives of the relevant Directives but these must be set by the relevant competent authorities for nature protection.

⁸⁹ Austria informed subsequently that the exemptions refer to the WFD objectives, not to other (more stringent) objectives.

Topic 16 Adaptation to drought and climate change

16.1. Assessment of implementation and compliance with WFD requirements in second cycle

Climate change was considered in all RBDs and the guidance on how to adapt to climate change (CIS Guidance Document No. 24⁹⁰) was used. In the first cycle, no climate check of the PoM was carried out. Such a check has been now carried out for the second RBMP. Consideration of climate change has taken place for: selection of robust adaptation measures; monitoring change at reference sites; maximisation of cross-sectoral benefits; minimisation of negative effects across sectors; forecasting the economics of water supply and demand; flood risk management; drought management and water scarcity; detecting climate change signals; checking the effectiveness of measures; and assessing direct and indirect climate pressures⁹¹. No specific sub-plans addressing climate change were reported for Austria. No specific adaptation measures (KTM 24 - “Adaptation to climate change”) were reported⁹².

According to the 2012 Topic Report on “Assessment of Water Scarcity and Drought aspects in a selection of European Union RBMPs”⁹³, the relevance of droughts was unclear for the country⁹⁴. However, in the RBMP (chapters 10.1 and 10.2) it is stated that water scarcity is not relevant in Austria, and droughts occur only seasonally in some regions. No exemptions have been applied for Austria following Article 4(6) due to prolonged droughts.

Even though there is no legal obligation to prepare Drought Management Plans, many Member States have prepared them in order to cope with droughts. No Drought Risk Management Plans have been reported for Austria. This situation is similar to 2012 (Topic report on: “Assessment of Water Scarcity and Drought aspects in a selection of European Union RBMPs”), when such plans were not in place for Austria.

16.2. Main changes in implementation and compliance since first cycle

In the first cycle no climate check of the PoM was carried out. Such a check has been now carried out in the second cycle.

⁹⁰ http://ec.europa.eu/environment/water/water-framework/facts_figures/guidance_docs_en.htm

⁹¹ Austria subsequently clarified that the Austrian National Adaptation Strategy enshrines one field of action specifically addressed to water resources and water management issues.

⁹² Austria subsequently clarified that this happened as win-win measures as well as no-regret measures according to climate change adaptation were generally preferred. However, within chapter 10.3 of the Austrian RBMP options for action to address water scarcity and droughts are outlined.

⁹³ <http://ec.europa.eu/environment/water/quantity/pdf/Assessment%20WSD.pdf>

⁹⁴ Austria subsequently noted that in chapter 10.2 of the Austrian RBMP 2015 is clearly stated, that some regions are affected by seasonal droughts, while water scarcity is of no relevance in Austria.

16.3. Progress with Commission recommendations

There were no Commission recommendations based on the first RBMP and first PoM for this topic.