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Second River Basin Management Plans – Member State: Slovenia
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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Second River Basin Management Plans – Member State: Slovenia

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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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Table of Contents

<i>Acronyms and definitions</i>	5
<i>Foreword</i>	6
<i>General Information</i>	7
<i>Status of second river basin management plan reporting</i>	8
<i>Key strengths, improvements and weaknesses of the second River Basin Management Plans</i> ...	9
<i>Recommendations</i>	18
<i>Topic 1 Governance and public participation</i>	21
1.1 Assessment of implementation and compliance with WFD requirements in the second cycle	21
1.2 Main changes in implementation and compliance since the first cycle	23
1.3 Progress with Commission recommendations.....	24
<i>Topic 2 Characterisation of the River Basin District</i>	25
2.1 Assessment of implementation and compliance with WFD requirements in the second cycle	25
2.2 Main changes in implementation and compliance since the first cycle	36
2.3 Progress with Commission recommendations.....	36
<i>Topic 3 Monitoring, assessment and classification of ecological status in surface water bodies</i>	38
3.1 Assessment of implementation and compliance with WFD requirements in the second RBMPs.....	38
3.2 Main changes in implementation and compliance since the first RBMPs	54
3.2 Progress with Commission recommendations.....	55
<i>Topic 4 Monitoring, assessment and classification of chemical status in surface water bodies</i>	59
4.1 Assessment of implementation and compliance with WFD requirements in the second cycle	59
4.2 Main changes in implementation and compliance since the first cycle	72
4.3 Progress with Commission recommendations.....	73

<i>Topic 5</i>	<i>Monitoring, assessment and classification of quantitative status of groundwater bodies</i>	75
5.1	Assessment of implementation and compliance with WFD requirements in the second cycle	75
5.2	Main changes in implementation and compliance since the first cycle	79
5.3	Progress with Commission recommendations	79
<i>Topic 6</i>	<i>Monitoring, assessment and classification of chemical status of groundwater bodies</i>	80
6.1	Assessment of implementation and compliance with WFD requirements in the second cycle	80
6.2	Main changes in implementation and compliance since the first cycle	85
6.3	Progress with Commission recommendations	86
<i>Topic 7</i>	<i>Designation of Heavily Modified and Artificial Water Bodies and definition of Good Ecological Potential</i>	87
7.1	Assessment of implementation and compliance with WFD requirements in the second cycle	87
7.2	Main changes in implementation and compliance since the first cycle	89
7.3	Progress with Commission recommendations	89
<i>Topic 8</i>	<i>Environmental objectives and exemptions</i>	92
8.1	Assessment of implementation and compliance with WFD requirements in the second cycle	92
8.2	Main changes in implementation and compliance since the first cycle	97
8.3	Progress with Commission recommendations	98
<i>Topic 9</i>	<i>Programme of measures</i>	99
9.1	Assessment of implementation and compliance with WFD requirements in the second cycle	99
9.2	Main changes in implementation and compliance since the first cycle	115
9.3	Progress with Commission recommendations	116
<i>Topic 10</i>	<i>Measures related to abstractions and water scarcity</i>	117

10.1	Assessment of implementation and compliance with WFD requirements in the second cycle.....	117
10.2	Main changes in implementation and compliance since the first cycle	118
10.3	Progress with Commission recommendations	118
<i>Topic 11</i>	<i>Measures related to pollution from agriculture.....</i>	<i>119</i>
11.1	Assessment of implementation and compliance with WFD requirements in the second cycle and Main changes in implementation and compliance since the first cycle ...	119
11.2	Main changes in implementation and compliance since the first cycle	120
11.3	Progress with Commission recommendations	121
<i>Topic 12</i>	<i>Measures related to pollution from sectors other than agriculture.....</i>	<i>122</i>
12.1	Assessment of implementation and compliance with WFD requirements in the second cycle.....	122
12.2	Main changes in implementation and compliance since the first cycle	123
12.3	Progress with Commission recommendations	124
<i>Topic 13</i>	<i>Measures related to hydromorphology.....</i>	<i>127</i>
13.1	Assessment of implementation and compliance with WFD requirements in the second cycle.....	127
13.2	Main changes in implementation and compliance since the first cycle	129
13.3	Progress with Commission recommendations	129
<i>Topic 14</i>	<i>Economic analysis and water pricing policies</i>	<i>132</i>
14.1	Assessment of implementation and compliance with WFD requirements in the second cycle and main changes in implementation and compliance.....	132
14.2	Progress with Commission recommendations	133
<i>Topic 15</i>	<i>Considerations specific to Protected Areas (identification, monitoring, objectives and measures).....</i>	<i>136</i>
15.1	Assessment of implementation and compliance with WFD requirements in the second cycle.....	136
15.2	Main changes in implementation and compliance since the first cycle	139
15.3	Progress with Commission recommendations	139
<i>Topic 16</i>	<i>Adaptation to drought and climate change.....</i>	<i>140</i>

16.1	Assessment of implementation and compliance with WFD requirements in the second cycle.....	140
16.2	Main changes in implementation and compliance since the first cycle	140
16.3	Progress with Commission recommendations	140
<i>Appendix A</i>	<i>Topic 9 Programme of Measures: Table 1</i>	<i>142</i>

Acronyms and definitions

EQS Directive	Environmental Quality Standards Directive
FD	Floods Directive
Km	Kilometre
km ²	Kilometre squared
KTM	Key Type of Measure
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 RBMPs prepared earlier. The situation in the Member States may have changed since then.

General Information

There are four major European geographic regions that meet in Slovenia: the Alps, the Dinaric area, the Pannonian plain and the Mediterranean. In the west, it is bounded by the Adriatic Sea.

Slovenia is divided into two RBDs: Danube and Adriatic. Slovenia shares catchments with Member States and third countries.

The information on areas of the national RBDs including sharing countries is provided in Table A.

Table A *Overview of Slovenia's RBDs*

RBD	Name	Size (km ²)	Countries sharing borders
SIRBD1	Danube	16440	AT, HR, HU, IT
SIRBD2	Adriatic	3941	HR, IT

Source: WISE electronic reporting

The share of Slovenia in the respective international RBDs (Table B) is 2.0% (Danube) and 66.7% (Adriatic).

Table B *Transboundary river basins by category and % share in Slovenia*

Name international river basin	National RBD	Countries sharing RBD	Co-ordination category			
			1		2	
			km ²	%	km ²	%
Danube	SIRBD1	AT, HR, HU, IT	16440	2.0		
Adriatic	SIRBD2	HR, IT			3941	66.7

Source: WISE electronic reporting

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 total of two RBMPs of Slovenia (Danube, Adriatic) were published on 28 October 2016. 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 Plans

The main strengths and shortcomings of the second RBMPs of Slovenia are as follows:

- **Governance and public consultation**
 - Slovenia coordinated the preparation of its RBMP via the international commissions for the Sava and Danube and also via bilateral commissions with neighbouring Member States
 - Slovenia did not adopt and publish the RBMPs in accordance with the timetable in the Water Framework Directive.
- **Characterisation of the RBD**
 - Both the Danube and Adriatic RBDs are international RBDs. No surface water bodies and only one groundwater body were reported as being transboundary. Although, according to the information subsequently provided by Slovenia, transboundary water bodies were identified where relevant and when preparing a RBMP, possible transboundary pressures were taken into account, nevertheless, the transboundary character of water bodies should be made clear in the future.
 - There are still gaps in the development of reference conditions, particularly for hydromorphological quality elements, which calls into question the robustness of the subsequent classification of ecological status/potential in Slovenia.
 - The Priority Substances causing failure of good chemical status and the measures to tackle these substances to achieve good status by 2021 have been reported.
 - Inventories of emissions were established in all RBDs, each including all Priority Substances. Tier 1 of the methodology was implemented for all of the substances included in the inventories, while the CIS Guidance Document recommends using Tier 1+2. The data quality was not reported.
- **Monitoring, assessment and classification of ecological status**
 - All required biological quality elements were reported to be monitored for surveillance purposes, with the exception of fish in lakes, in the Adriatic RBD and of macrophytes in some river water bodies in the Danube RBD, where Slovenia considers that they are not relevant.

- Hydromorphological quality elements are reported to not be included in surveillance monitoring in any water category. However, the hydrological regime is included in operational monitoring in all three water categories and morphological conditions in operational monitoring of lakes and rivers but not in coastal waters.
- Surveillance monitoring was done at least at the minimum recommended frequency at all sites monitored for phytoplankton in coastal waters and lakes. For lakes, this was also the case for the other four biological quality elements used for the surveillance monitoring. All the other biological quality elements in coastal waters and all biological quality elements used in rivers were not sampled for surveillance purposes at least at the minimum recommended frequency at any of the sites used.
- In terms of operational monitoring the only biological quality element sampled at least at the minimum recommended frequency at all sites was phytoplankton in coastal waters and lakes. All other biological quality elements in all three water categories had no sites sampled at least at the minimum recommended frequency for operational purposes.¹
- In coastal waters, there was no surveillance monitoring of oxygenation conditions.
- There was a significant improvement in the level of confidence in the classification of ecological status/potential since the first RBMPs.
- Assessment methods for all the biological quality elements are developed, with the exception of fish in lakes and angiosperms in coastal waters².
- Most of the national lake types and some of the national river types are not linked to any intercalibration type. Slovenia reported that, for those types, the assessment methods are the same that are used for intercalibrated types.
- The hydromorphological methods were reported not to be related to the sensitive biological quality elements. There is still very little monitoring and classification of fish and hydromorphological quality elements in rivers and lakes.
- The hydrological regime and morphological conditions were not used in the classification of any water body, perhaps indicating some weaknesses in the assessment method for these elements.

¹ Slovenia subsequently clarified that frequency and cycle of monitoring of quality elements may have been misreported.

² Slovenia subsequently clarified that the extent of the presence of angiosperms in the coastal waters is too small for them to be relevant for the classification of ecological status of the whole water bodies.

- There are gaps in the standards established for general physicochemical quality elements in rivers and coastal waters and some of those established are not consistent with the good-moderate status boundary of the relevant sensitive biological quality elements.
- **Monitoring, assessment and classification of chemical status in surface water bodies**
 - All but one waterbodies are classified for chemical status. Territorial waters are also classified.
 - Between the two RBMPs, there was a large decrease in the proportion of surface water bodies with good chemical status from 95% to 0.6% and a significant increase in the proportion failing to achieve good status from 5% to 99%. The principal reason for this is the assessment of mercury in biota in the second RBMP. The relevant environmental quality standard is widely exceeded in monitored water bodies and this has been extrapolated to non-monitored water bodies.
 - All territorial waters, all coastal water bodies, and more than 80% of river and lake water bodies were monitored.
 - Only 18% of surface water bodies in Slovenia were classified with high confidence and 82% with low confidence. A low level of confidence was reported for water bodies assessed based on extrapolation of mercury data in biota. However, Slovenia clarified that for most of the waterbodies, the assessment for the other substances was based on monitoring data, and the confidence in this assessment, for these substances, was high.
 - All 41 Priority Substances were monitored in water for status assessment and the frequency of monitoring met the recommended minimum frequency for surveillance, but not for operational monitoring.
 - Mercury, hexachlorobenzene and hexachlorobutadiene were monitored in biota for status assessment, at the recommended minimum frequency. Depending on the substance, monitoring was performed at about 10 to 18% of the sites monitored for chemical status. (This leads to a low confidence in the assessment for many water bodies – see above).
 - Slovenia has monitored all required 14 Priority Substances in sediment for long-term trend assessment, at the minimum recommended frequency. Monitoring was performed in about 10 to 20% of the sites monitored for chemical status.

- **Monitoring, assessment and classification of quantitative status of groundwater bodies**
 - All 21 groundwater bodies (100%) are in good quantitative status.
 - A third of the groundwater bodies are still not subject to monitoring of quantitative status, but Slovenia subsequently clarified that the assessment of status is based on direct and indirect monitoring, where also hydrological and meteorological parameters are considered.
- **Monitoring, assessment and classification of chemical status of groundwater bodies**
 - All groundwater bodies are subject to monitoring. All substances causing risk of deterioration in chemical status are subject to surveillance monitoring. All WFD core parameters (nitrate, ammonium, electrical conductivity, oxygen and pH) are monitored.
 - The status situation has improved. The number of groundwater bodies failing good chemical status was reduced from four groundwater bodies in the first RBMP to three.
- **Designation of Heavily Modified and Artificial Water Bodies and definition of Good Ecological Potential**
 - According to information subsequently provided by Slovenia, for the second RBMPs, the characteristics of specific heavily modified water bodies were updated according to new knowledge and available data. Although expert studies that consider the designation tests were prepared for all heavily modified water bodies for the purpose of the first RBMPs, the second RBMPs do not provide specific information on how the significant adverse effects of restoration measures on the use and the wider environment (Article 4(3)(a)) have been defined. They also do not provide information on whether the beneficial objectives served by the modifications of the heavily modified water bodies can be achieved by other means.
 - According to information provided by Slovenia, significant effects of measures were considered in terms of costs of measures to achieve good status for the second RBMPs, but further work on this issue is expected as part of specific measures included in the Programme of Measures (PoM).
 - In the first RBMPs, good ecological potential was only defined for rivers (using benthic invertebrates) but not for lakes and coastal waters. According to information subsequently provided by Slovenia, an adapted methodology for ecological potential assessment is used in the second RBMP. The methodology uses relevant biological

quality elements for the assessment of the ecological potential of heavily modified and artificial water bodies, for example phytoplankton was used for lakes/reservoirs. However, no specific information could be found in the RBMPs on if and how actual values for biological quality elements for ecological potential are estimated.

- Mitigation measures for defining good ecological potential were reported at RBD level. However, no information could be found on the ecological changes that the mitigation measures are designed to achieve. According to information subsequently provided by Slovenia, the detailed estimation of ecological improvements will be performed in the context of relevant measures included in the PoM.
- **Environmental objectives and exemptions**
 - Environmental objectives for ecological and chemical status of surface water bodies have been reported in all RBDs as well as for chemical and quantitative status of groundwater. Objectives have been reported for the period 2022-2027 but not the expected progress until 2021.
 - Drivers, pressures and pollutants leading to exemptions are reported and justifications for exemptions are provided at the water body level.
 - Article 4(4) exemptions are used more widely in surface waters and groundwater in the second cycle than in the first cycle.
 - No exemptions according to Article 4(7) have been reported in the second RBMPs. There is no specific information available in the RBMPs whether the effects of any planned new modifications on water body status/potential have been assessed and whether an Article 4(7) assessment would be required.
- **Programme of Measures**
 - The level of implementation of the first PoM in both RBDs (Danube and Adriatic) was reported as “some measures completed”, with the obstacles to progress reported as lack of finance and lack of measures in both RBDs. Some costs were reported in Annex 0 relating to economic analysis and cost recovery for the first cycle, but it is not possible to compare these with investment costs for the second cycle.
 - KTMs have been reported for all significant pressures for groundwater and surface water bodies in the Danube RBD. KTMs have not been reported for all significant pressures in surface water in the Adriatic RBD (no significant pressures were identified for groundwater bodies in the Adriatic RBD).

- National basic and supplementary measures have been mapped against a limited number of predefined KTMs and a significant number of nationally developed KTMs.

The number of KTMs against which national measures have been mapped is much larger than those reported to be tackling significant pressures. Therefore it is not clear if all the national measures are relevant or will be made operational. However, Slovenia subsequently clarified that all measures are relevant and will contribute to achieving environmental objectives.
- Although the number of groundwater bodies failing to be of good status due to specific substances has been reported for the Danube RBD, no KTMs have been reported to address them, although these may be (though nitrate has been covered by more general KTMs, e.g KTM2 – “Reduce nutrient pollution from agriculture for nitrate”).
- Indicator values have been reported for most significant pressures for 2015 and 2021, but little, if any progress is expected by 2021.
- The RBMPs and Flood Risk Management Plans have not been integrated. Financial commitments are marked “not relevant” and WFD Article 9(4) has not been applied to impoundments for flood protection.
- **Measures related to abstractions and water scarcity**
 - Water abstraction pressures were reported as not relevant for Slovenia.
 - There is a concession, authorisation and/or permitting regime to control abstractions of fresh surface water and groundwater, water impoundment and a register of impoundments and register of water abstractions; but small abstractions are exempted from these controls.
 - The reporting of quantitative data on water consumption and trends can be improved.
 - The RBMPs do not include a water resource allocation and management plan.
- **Measures related to pollution from agriculture**
 - There is a clear link between agricultural pressures and agricultural measures.
 - The contribution of the Nitrate Action Program and the Rural Development program to closing the gap is known.

- Basic measures under Article 11(3)(h) for the control of diffuse pollution are implemented and cover the reduction of pesticide, nitrates and microbiological pollution. Supplementary measures are also applied.
- Safeguard zones for the protection of drinking water are established
- The financing of agricultural measures has been secured in both RBDs.
- **Measures related to pollution from sectors other than agriculture**
 - Measures were reported for all Priority Substances and River Basin Specific Pollutants causing non-compliance in Slovenia.
 - Measures were reported to tackle pollutants causing failures in groundwater in the Danube RBD (no pollutant was causing failure of groundwater in the Adriatic RBD).
 - In both RBDs there are several measures that separately deal with wastewater treatment from agglomerations larger or equal to 2000 population equivalent and smaller than 2000 population equivalent. Funding is reported to be secured for agglomerations equal or larger to 2000 population equivalent, but not for smaller agglomerations. Slovenia however expects that the objectives will be achieved in the years 2021 to 2027.
- **Measures related to hydromorphology**
 - Operational KTMs are clearly reported to deal with significant hydromorphological pressures in both RBDs. From the information reported in WISE, no progress is evident in terms of closing the gap for significant hydromorphological pressures between 2015 and 2021. This raises major concerns on the level of ambition of the second RBMPs in terms of tackling significant hydromorphological pressures.
 - According to information subsequently provided by Slovenia, for the implementation of the basic and supplementary measures included in the PoM to reduce hydromorphological pressures in the time period of 2016 – 2021, different phases are envisaged. In the first phase, prioritisation of technical measures will be performed, while in a second phase, priority technical measures will be implemented.
 - A revision of the most significant water rights is also envisaged as part of two specific measures related to achieving good ecological potential in large hydropower plants and measures for reduction of negative impacts of river/lake/coastal waters engineering works.

- Ecological flows have been derived partly, i.e. for some relevant water bodies, in the two RBDs but the work is still on-going. The ecological flows which have been derived so far have been implemented only in some relevant water bodies. A study relevant to aligning ecological flows with good status has been completed but further action may be needed in terms of updating the current legislation on ecologically acceptable flows.
- KTM 23 - "Natural water retention measures" is not reported to tackle any significant pressures. However, according to information subsequently provided by Slovenia, natural water retention measures are considered in the Flood Risk Management Plan and are synergetic to RBMP measures, for instance measures for the reduction of negative impacts of land use in riparian zones, measures for the reduction of negative impacts of river/lake/coastal waters engineering works and measures for the reduction of negative impacts of drainage systems.
- **Economic analysis and water pricing policies**
 - A wide definition of water services has been used. The RBMPs do not provide sufficiently detailed information on the methodologies and approaches used for the calculation of environmental and resource costs and cost recovery rates to allow for an exact assessment of the progress since the first cycle.
- **Considerations specific to Protected Areas (identification, monitoring, objectives and measures)**
 - The second RBMP provided summarised information on all Surface Drinking Water Protected Areas which were designated in the second cycle.
 - However, Slovenia did not report any specific monitoring programmes for Protected Areas, although this seems to be related to a gap in the information reported to WISE.
- **Adaptation to drought and climate change**
 - Slovenia has not reported an assessment and consideration of projected climate change in the second RBMP and PoM. However, according to the information subsequently provided by Slovenia, the RBMPs and the PoM include data and analyses that show the impact of climate change, for both surface and groundwater bodies.
 - KTM 24 – “adaption to climate change” is not made operational to address any of the significant pressures and specific sub-plans on climate change aspects are not

reported. However, according to the information provided by Slovenia, there is one measure addressing climate change.

- No drought management plans are established.

Recommendations

- The preparation of the next RBMPs should be carried out in accordance with the WFD timetable, to ensure the timely adoption of the third RBMPs.
- Clear information should be included in national RBMPs on international coordination efforts in order to increase transparency.
- Slovenia should further strengthen bilateral cooperation with neighbouring countries and 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.
- Slovenia needs to continue to work on reference conditions, in particular for hydromorphological Quality Elements.
- Slovenia needs to complete its review of significant pressures and impacts, in particular to reduce the significant number of pressures currently reported as “anthropogenic pressure – unknown”.
- Slovenia should continue to improve monitoring of surface waters by covering all relevant quality elements in all water categories.
- Slovenia should complete the development of assessment methods for all relevant biological quality elements in all water categories.
- The assessment of hydromorphological quality elements should be linked to sensitive biological quality elements, and a hydrological regime and morphological conditions should be used for the assessment of ecological status. Standards for general physicochemical quality elements should be set so that they are consistent with the good-moderate status boundary of the relevant sensitive biological quality elements and ensure a level of protection which is at least equivalent to that guaranteed by the repealed Freshwater Fish Directive.
- Slovenia should progress in the transfer of the results of intercalibration into all national types, and provide clear information on how boundaries are set for non-intercalibrated methods.
- Slovenia should continue improving the confidence in the assessment of status, in particular by making sure the spatial coverage of monitoring in biota is sufficient. If a

different matrix is used, the corresponding explanations should be provided, as required by the Directive.

- Slovenia should report information on trend monitoring of pentachlorobenzene as part of the third RBMPs, and should carry out trend monitoring in lakes in the Adriatic RBD.
- Further efforts are needed to develop a clear and transparent methodology for the designation of heavily modified water bodies. Significant adverse effects of restoration measures on the use or wider environment and the lack of significantly better environmental options needs to be evaluated based on clear criteria and made transparent in the RBMPs. A clear distinction needs to be made between the designation of heavily modified water bodies and the application of exemptions, particularly with regard to significant adverse effects on use and costs of measures. Similarly the definition of ecological potential requires improved transparency for objective setting, particularly if and how actual values for biological quality elements are derived at water body level based on a comprehensive set of mitigation measures.
- A significant number of Article 4(4) exemptions are still applied in the second RBMPs, which is an issue of concern. Efforts need to be continued to further improve the required assessments for the justification of exemptions, expected timeframe for the achievement of the objectives and related ambition of the PoM in order to ensure a timely achievement of the WFD objectives.
- Slovenia needs to ensure a thorough assessment of any potential planned new modifications in line with the requirements of the WFD and as further specified by the Judgment of the Court in case C-461/13. The use of exemptions under Article 4(7) needs to be based on a thorough assessment of all the steps as requested by the WFD, in particular an assessment of whether the project is of overriding public interest and whether the benefits to society outweigh the environmental degradation, and the absence of alternatives that would be a better environmental option. Furthermore, these projects may only be carried out when all practicable steps are taken to mitigate the adverse impact on the status/potential of the water bodies. Respective information on the application of Article 4(7) needs to be reported in the RBMPs.
- All KTMs should be operational and all significant pressures addressed.
- Slovenia should make sure the measures reported for individual substances causing failure are sufficient to reach the WFD objectives of good status. Slovenia should also implement and clearly report measures to suppress emissions from priority hazardous substances.

- Work should continue to ensure the implementation of measures to address hydromorphological pressures, if necessary by reviewing permits/concessions and allocating the necessary resources.
- Slovenia should continue to consider river restoration and prioritise the use of green infrastructure and/or natural water retention measures that provide a range of environmental (improvements in water quality, increase water infiltration and thus aquifer recharge, flood protection, habitat conservation etc.), social and economic benefits which can be in many cases more cost-effective than grey infrastructure.
- Slovenia should continue to apply cost recovery for water use activities having a significant impact on water bodies or justify any exemptions using Article 9(4). It should transparently present how financial, environmental and resource costs have been calculated and how the adequate contribution of the different users is ensured. Slovenia should also transparently present the water-pricing policy and provide a transparent overview of estimated investments and investment needs.
- Slovenia has set objectives for the most relevant Protected Areas but it still needs to work on the additional objectives related to the Habitat and Birds Directives. Surface Freshwater Fish Protected Areas under the repealed Directive have not been reported.
- Based on the prevalence of local drought in sub-basins, as one of the effects of climate change, Slovenia should consider preparing drought management plans where appropriate.

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 – RBDs

Slovenia has designated two RBDs, the Danube and the Adriatic. Slovenia prepared an RBMP for each of its RBDs. Both are parts of international RBDs – the first part of the Danube River Basin and the second shared with Croatia and Italy.

1.1.2 Administrative arrangements – competent authorities

Slovenia lists one Competent Authority, the Ministry of Environment and Spatial Planning, which is responsible for all main roles: monitoring and assessment of status of groundwater and surface water, enforcement of regulations, pressure and impact analysis, economic analysis, preparation of RBMPs and PoM, public participation, implementation of measures, co-ordination of implementation, and reporting to the Commission.

1.1.3 River Basin Management Plans – structure and Strategic Environmental Assessment

Both RBMPs in Slovenia underwent a Strategic Environmental Assessment.

1.1.4 Public participation and active involvement of stakeholders

For both RBDs, the public and interested parties were informed by: direct mailing, Internet, invitations to stakeholders, local authorities and media (papers, television and radio). Documents were available by direct mailing (email) and via download. Documents were available for the requisite six months.

The following mechanisms were used for the active involvement of stakeholders: involvement in drafting, workshops for stakeholders (agriculture, energy, and water management operations) and regional workshops³ for the public, NGOs and small or large industrial companies.

³ Slovenia subsequently informed that regional institutions, such as development agencies, higher education institutions, local governments and other national bodies such as laboratories and inspectorates also participated in these meetings.

Public consultation had the following impacts in both RBDs: adjustment to specific measures, changes to selection of measures, commitment to action in the RBMP and commitment to further research.

1.1.5 Integration with the Floods Directive and the Marine Strategy Framework Directive

Slovenia's RBMPs have a measure for the implementation of the Flood Risk Management Plans, indicating a close link between the plans. Moreover, Slovenia reported that joint consultation was held for the separate RBMPs and Flood Risk Management Plans. Further information on integration with respect to measures is provided in Chapter 9 of this report.

Joint consultation was held for the RBMPs and for the Marine Strategy Framework Directive⁴.

1.1.6 International coordination and co-operation

For Slovenia's Danube RBD an international agreement, permanent co-operation body and international RBMP are all in place (designated as category 1 cooperation). Explicit links have been made with national RBMPs within the international RBMP. For Slovenia's Adriatic RBD, which has catchments shared with Croatia and Italy, an international agreement and permanent co-operation body are in place (designated as category 2 cooperation). For both RBDs, there was international coordination of public participation. The RBMPs provide information on bilateral international cooperation and, for the Danube RBMP, within the Danube and Sava international IRBDs.

As noted, co-operation in the Danube is in category 1: Slovenia is a party to the 1994 Danube River Protection Convention and the 2002 Framework Agreement on the Sava River Basin. Under these agreements, Slovenia cooperates with other countries sharing RBDs via the International Commission for the Protection of the Danube River and the International Sava River Basin Commission. For further information see the reports on international coordination on the Water Framework Directive.

Slovenia also has a range of bilateral agreements on freshwater management with neighbouring Member States, including the following:

- With Austria: Agreement between Yugoslavia and Austria Concerning Water Management Questions in respect of the Frontier Sector of the Mura River and the

⁴ 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>

Agreement between the Governments of Yugoslavia and Austria concerning Water Management related to the Drava River, and co-operation via Permanent Commissions for these two rivers (in place from the early 1990s).

- With Croatia: Agreement between the Government of the Republic of Croatia and the Government of the Republic of Slovenia on the Settlement of Water Management Relations (1996), and co-operation via the Permanent Slovenian – Croatian Commission for Water Management.
- With Hungary: Agreement between the Government of the Republic of Hungary and the Government of the Republic of Slovenia on the Issues of Water Management, and co-operation via the Permanent Slovenian – Hungarian Commission for Water Management.
- With Italy: Agreement on the activity of Yugoslavian – Italian commission on water management, and co-operation via the Permanent Slovenian – Italian Commission for Water Management.

According to information in the second RBMPs:

- Slovenia coordinated the preparation of the second RBMP for the Danube with the international Danube and Sava River RBMPs with officials of the international commissions included as experts, ensuring that content is harmonised. Moreover, this national RBMP took into account planning documents under international commissions.
- Cooperation with neighbouring countries was ensured via the international Commissions as well as bilateral Commissions and working groups.
- Cooperation included participation in international monitoring networks.

1.2 Main changes in implementation and compliance since the first cycle

In the first cycle, Slovenia prepared a single document that provided the RBMP for both its RBDs. In the second cycle Slovenia prepared separate RBMPs for the two RBDs.

A minor change (at least for the purposes of this assessment) is that Slovenia's national authority for the WFD is again named the Ministry of Environment and Spatial Planning (from early 2012, the authority was the Ministry of Agriculture and Environment, and the last reorganisation appears to have restored the original Ministry).

1.3 Progress with Commission recommendations

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

- Recommendation: *Coordinate the preparation of the next RBMPs with the preparation of the international Danube RBMP and the Sava RBMP and ensure that co-operation with the neighbouring countries extends to all shared catchments. A link should be established to existing international RBMPs and international monitoring networks in the RBMPs. The RBMPs should provide information on key issues (e.g. PoM) subject to international co-ordination. Slovenia should enhance international cooperation with neighbouring countries, mainly for the river basins in the Adriatic RBD.*

Assessment: The first RBMP did not provide information on international RBDs or RBMPs, nor describe coordination on RBMPs with other Member States: Slovenia was recommended to coordinate the preparation of the second RBMPs with the international Danube and Sava River RBMPs, to ensure co-operation with neighbouring countries and to provide links to existing international RBMPs and monitoring networks in the RBMPs, as well as information on key issues subject to international coordination, such as the PoM.

This co-operation has taken place, both on a bilateral basis with Slovenia's neighbours and for the international Danube and Sava RBMPs: Slovenia's Danube RBMP, for example, describes Slovenia's cooperation within these two international RBDs and bilateral cooperation with Austria, Croatia and Hungary. In separate documents, bilateral monitoring networks with neighbouring countries are described⁵. Slovenia has fulfilled this recommendation.

⁵ For example, *Monitoring in ocenjevanje stanja površinskih in podzemnih voda v Sloveniji*, available at: <http://www.arso.gov.si/vode/poro%C4%8Dila%20in%20publikacije/>

Topic 2 Characterisation of the River Basin District

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

2.1.1 Delineation of water bodies and designation of heavily modified and artificial water bodies

Overall, the number of water bodies remained largely the same between the first and second RBMPs (Table 2.1). According to the data reported to WISE, there was one less coastal water body, two less lake water bodies and two additional river water bodies in the second RBMPs.⁶ The numbers of groundwater bodies remained the same (Table 2.2).

In the second RBMPs, 85% of identified surface water bodies were natural with 12% being designated as heavily modified and 3% artificial. This was also the situation in the first RBMPs (Figure 1). The water uses and physical alterations have been reported for each heavily modified water body category.

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

Year	RBD	Rivers		Lakes		Coastal	
		Number of water bodies	Total length of water body (km)	Number of water bodies	Total area (km ²) of water bodies	Number of water bodies	Total area (km ²) of water bodies
2016	Danube	112	4 103	9	30		
2016	Adriatic	25	631	3	2	5	85
2016	Total	137	4 734	12	32	5	85
2010	Danube	110	2 226	11	36		
2010	Adriatic	25	393	3	2	6	404
2010	Total	135	2 620	14	38	6	404

Source: WISE electronic reporting

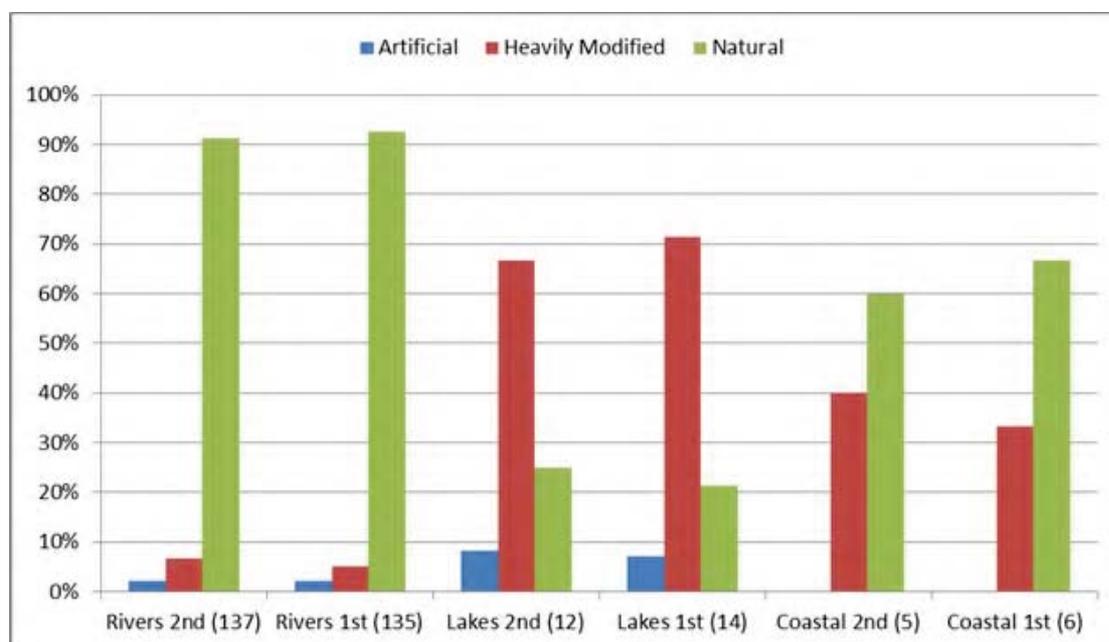
⁶ Slovenia subsequently indicated that the number of water bodies in each category has not changed for the 2nd RBMP, although this is different from what was reported to WISE.

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

Year	RBD	Number	Area (km ²)		
			Minimum	Maximum	Average
2016	Danube	18	97.2	3357.44	913.48
2016	Adriatic	3	817.67	1589.87	1283.72
2016	Total	21	97.2	3357.44	966.37
2010	Danube	18			
2010	Adriatic	3			
2010	Total	21			

Source: WISE electronic reporting

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



Source: WISE electronic reporting

The minimum size criteria reported for the surface area for lakes was 0.5 km², but the minimum size for the catchment area of rivers was not reported to WISE. The RBMPs indicate

that the criteria for delineation of rivers was catchment larger than 100 km². The RBMPs also reported that smaller water bodies that were not individually delineated were included as tributaries to delineated larger surface water bodies. For rivers with a catchment area between 10 and 100 km², and where the water body status was significantly different from the larger water bodies to which they are connected, these smaller water bodies were also delineated separately.

Table 2.3 summarises the information provided by Slovenia on how water bodies have evolved between the two cycles. Table 2.4 shows the differences in size distribution of surface water bodies in Slovenia between the first and the second cycles. It is notable that both the minimum sizes of rivers and lakes have remained largely the same but the maximum size of rivers has increased.

Table 2.3 *Type of change in delineation of groundwater and surface water bodies in Slovenia between the second and the first cycles*

Type of water body change for the second cycle (wiseEvolutionType)	Groundwater	Rivers	Lakes	Coastal	
Change	21	137	12	5	
Aggregation					
splitting					
Aggregation and splitting					
Change in code					
Extended area					
Creation					
Deletion					
Total water bodies before deletion	21	137	12	5	
Delineated for the second cycle (after deletion from first cycle)	21	137	12	5	

Source: WISE electronic reporting

Table 2.4 *Size distribution of surface water bodies in Slovenia in the second and the first cycles*

Year	RBD	River length (km)			Lake area (km ²)			Coastal area (km ²)		
		Min	Max	Average	Min	Max	Average	Min	Max	Average
2016	Danube	1.38	168.26	37.3	0.59	19.93	3.33			
2016	Adriatic	1.9	84.89	25.25	0.3	0.72	0.53	0.7	34.71	18.12
2010	Danube	1.25	85.04	20.24	0.62	19.93	3.32			
2010	Adriatic	1.93	41.02	15.73	0.31	0.75	0.54	0.72	342.38	67.34

Source: WISE electronic reporting

2.1.2 Identification of transboundary water bodies

Both the Danube and Adriatic RBDs are international RBDs. No transboundary surface water bodies were reported in WISE and one groundwater body was reported in the Danube RBD⁷.

2.1.3 Typology of surface water bodies

There was a slight decrease in the number of types between the first and second RBMPs (approximately 15%), mostly for river water bodies, whereas there was an increase in the number of lake water body types, as shown in Table 2.5.

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

RBD	Rivers		Lakes		Coastal	
	2010	2016	2010	2016	2010	2016
SIRBD1	52	39	2	7	0	0
SIRBD2	21	13	0	2	2	3
Total	73	52	2	9	2	3

Source: WISE electronic reporting

Many national types (heavily modified, artificial and natural) have been intercalibrated. In each of the RBDs there are several river and lake water bodies that were reported not to have corresponding intercalibration types (7 lake water bodies and 20 river water bodies).⁸

⁷ Slovenia subsequently clarified that transboundary water bodies of surface and groundwater were identified where relevant and when preparing a river basin management plan, possible transboundary pressures are also taken into account.

2.1.4 Establishment of reference conditions for surface water bodies

Table 2.6 shows the percentage of surface water body types in Slovenia with reference conditions established for the first and the second cycles, as reported in WISE. Type-specific reference conditions have been established for some or all relevant biological quality elements for lakes and almost all rivers. Type-specific reference conditions have only been established for some physicochemical quality elements for lakes (20%), rivers (98%) and coastal (67%). Type-specific reference conditions have not been established for hydromorphological quality elements with the exception of 9% of river water body types. The RBMPs, however, report that reference conditions have been defined for each surface water type for each relevant biological element.

Table 2.6 *Percentage of surface water body types in Slovenia 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			
	Some	100%		22%
	None		100%	78%
Rivers	All	57%		
	Some	42%	9%	98%
	None	2%	91%	2%
Coastal	All	67%		
	Some			67%
	None	33%	100%	33%

Source: WISE electronic reporting

The RBMPs also describe how reference conditions were defined for locations in which natural conditions exist. If there were no places with natural conditions, the reference conditions were defined by modelling using historical data or by expert judgment.

⁸ Slovenia subsequently clarified that for river and lake water bodies that do not to have corresponding intercalibration types, national ecological types were set and corresponding values for biological quality elements were set according to intercalibrated methodology.

There is no specific information in the RBMPs or background documents on coordination of the type-specific reference conditions with other Member States and third countries.

2.1.5 Characteristics of groundwater bodies

The geological formation of the aquifer types in which groundwater bodies reside was reported, along with details of whether groundwater bodies are layered or not. Further characterisation work has been reported since the first RBMPs, with the inclusion of the assessment of linkages to surface water bodies and terrestrial ecosystems for both RBDs.

2.1.6 Significant pressures on water bodies

In the second RBMPs, ‘anthropogenic pressure – unknown’ was reported to affect the largest proportion of surface water bodies (99%)⁹, followed by ‘point - urban waste water’ (73%) (Figure 2). In the first RBMPs, Slovenia only reported pressures at an aggregated level. Overall it appears there was a large increase from the first to the second RBMPs in the reporting of point, diffuse and hydromorphological pressures were reported (Figure 2.3), with a significant decrease in the reporting of “No pressures”, from 99% to 0.

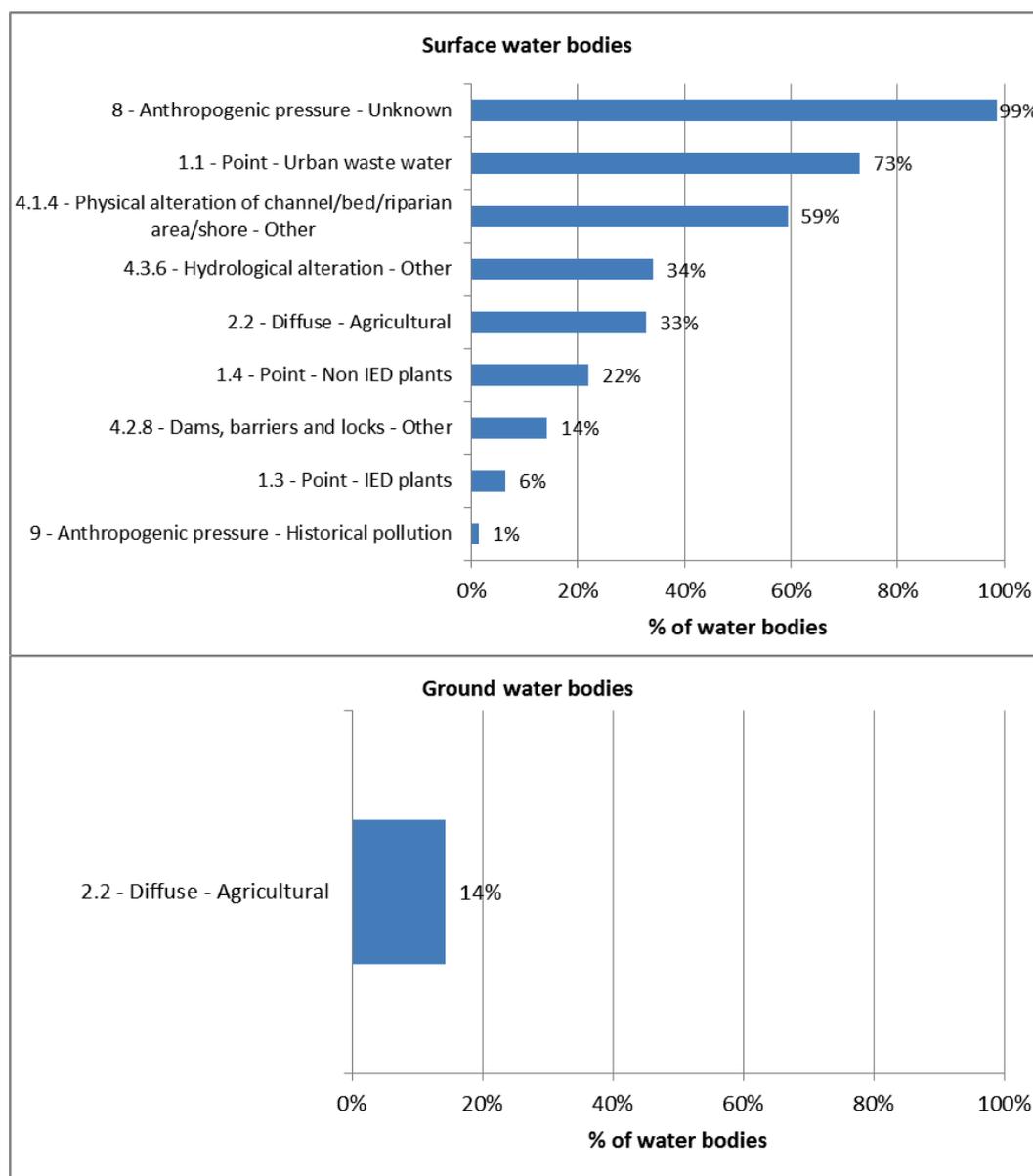
For the second cycle, it was reported that 13 pressures were not assessed for surface waters. The RBMPs did not provide any information about why some pressures were excluded from status assessment. For example, significant pressures from community wastewater systems were considered as a diffuse pressure, however, based on available data, it was not possible to assess them with a high level of confidence. In addition, the RBMPs reported that pressures from diffuse urban runoff, abstractions, wastewater discharges, diversion of flood waters, abstraction of alluvial deposits and “mariculture” were considered a significant pressure but data was not available to assess them with a high level of confidence.

For groundwater bodies, the majority were reported to have “no significant pressures” (86%), with the only pressures reported to be ‘diffuse – agricultural’ (14%) (Figure 2.2). For groundwater, it was reported that 39 significant pressures were not assessed, 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 which were not assessed, such as contaminated sites and mining. The RBMPs reported that pressures from mining sites were analysed for the first cycle and significant pressures were identified; however, the

⁹ Slovenia subsequently clarified that atmospheric deposition is actually thought to be responsible for pollution with mercury in 92% of the surface water bodies. However, as it was not possible to determine the contribution of atmospheric deposition with precision, this was reported as “anthropogenic pressure – unknown”.

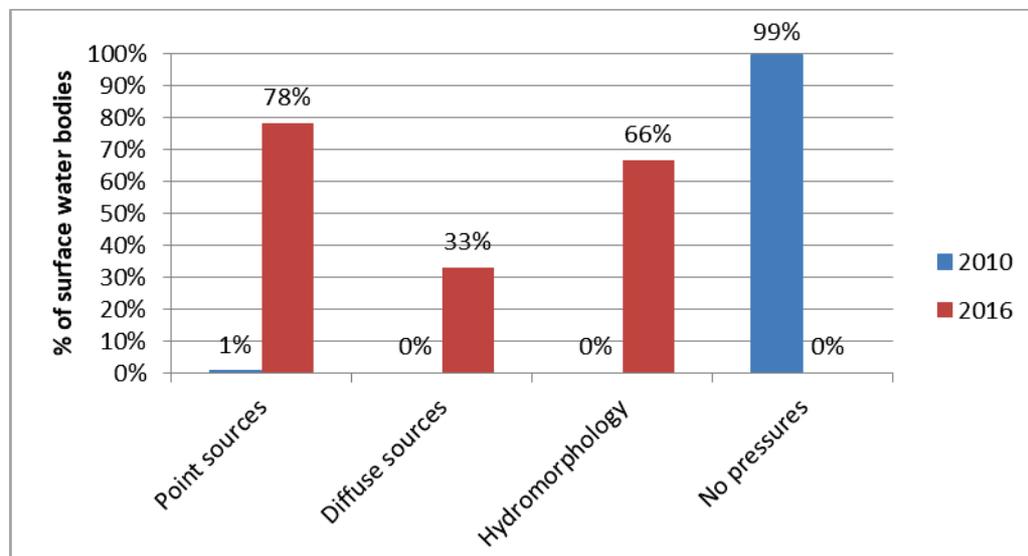
methodology was not further developed. Landfills and other dumping areas were reported as significant point source pressures in the RBMPs; however, there was limited knowledge on loads and risks of possible contamination and therefore the assessment of risk was not done and is planned for the future. Water abstractions for geothermal energy, which are generally followed by water reinjection, were also reported not to have been assessed because of gaps in data.

Figure 2.2 *The most significant pressures on surface water bodies and groundwater bodies in Slovenia for the second cycle*



Source: WISE electronic reporting

Figure 2.3 *Comparison of pressures on surface water bodies in Slovenia in the first and the second cycles. Pressures presented at the aggregated level. Note there were 155 identified surface water bodies for both the second cycle and for the first cycle*



Source: WISE electronic reporting

2.1.7 Definition and assessment of significant pressures on surface waters

For surface waters, a combination of numerical tools and expert judgement were used for defining significant pressures from point sources, diffuse and other significant pressures. Expert judgement was used for defining significant pressures from abstraction and water flow pressures. For surface water bodies, significance of pressures was reported as being linked to the potential failure of good status, meaning that if a significant pressure is identified, a water body is failing, or at risk of failing, good status.

The RBMPs do not provide any information on changes in the methodology or the criteria for the assessment of significance between the first and second RBMPs, but they describe the methods and thresholds for the second cycle. For point sources, significant pressures from industrial discharges are defined for rivers and lakes when: (1) excessive loading is assessed based on monitoring results; or (2) the concentration of pollutants exceeds the values for the environmental quality standard in the catchment.

For diffuse pressures, significant pressures of nutrients from agriculture for rivers and lakes are identified when: (1) the quantity of nitrate or phosphorus in the catchment exceeds 23% of the

quantity of nitrate or phosphorus from the area of Slovenia, or (2) when the quantities are smaller, but there is more than 14% of the RBD covered by irrigation systems.

Significant hydrological pressures due to abstractions were considered when abstraction of water from a water body exceeds: (1) 50% of medium-low flow at the bottom part of a water body if the ratio between medium flow and medium-low flow is more than 20; or (2) 50% of medium flow at the bottom part of a water body in other cases.

An example of how the significance of hydromorphological pressures were determined is for morphological pressures from transverse barriers, when: (1) the passage of aquatic organisms is not ensured; or (2) due to a barrier, an accumulation has been formed on the main flow of a water body that is larger than 0.5 km² or is more than 10 km long. Significant hydromorphological pressures due to river regulation were identified when at least 30% of the length of a water body is heavily regulated.

2.1.8 Definition and assessment of significant pressures on groundwater

A combination of expert judgement and numerical tools were used for defining significant pressures on groundwater from point sources and artificial recharge. For diffuse and abstraction pressures, numerical tools were used.

For groundwater bodies, the significance of pressures was reported to be linked to the potential failure of objectives and is defined in terms of thresholds, but further details were not provided in the RBMPs.

The RBMPs do not provide any information on changes in the methodology or the criteria for the assessment of significance for the second RBMPs, but did describe the methods. Quantities of nitrogen and phosphorus from point sources were considered in discharges of wastewaters into the ground from industry, landfills, community wastewater treatment plants and roads. The calculated data from monitoring (or data from literature) was taken and integrated into the overall mathematical model used to calculate nutrients on a groundwater body level.

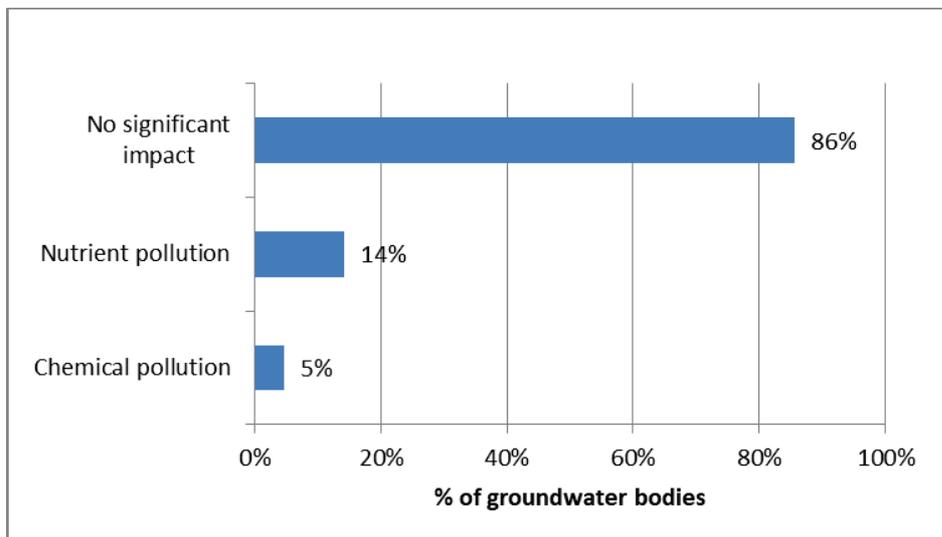
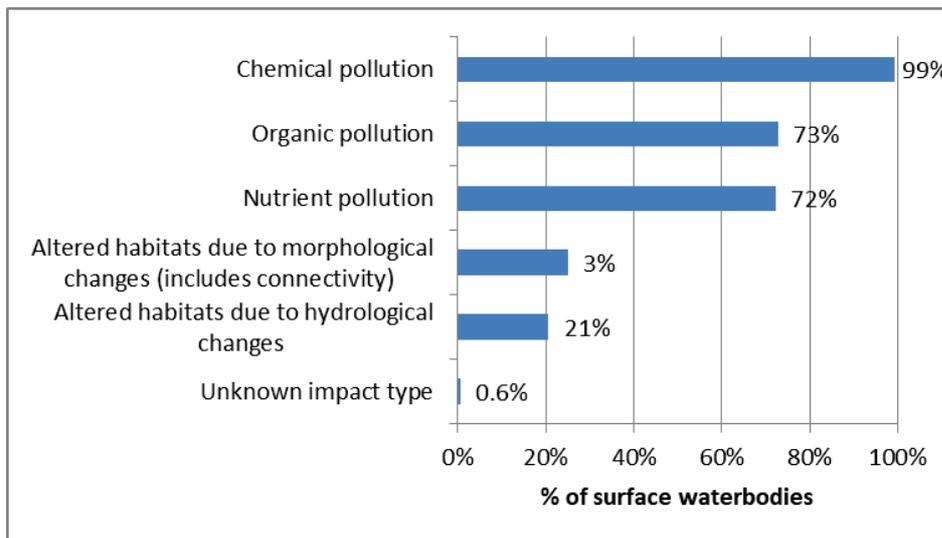
Diffuse pollution of nutrients (nitrogen and phosphorus) was modelled using data on land use and use of nutrients in agriculture. The model for calculation of diffuse pollution from pesticides has not been updated for the second cycle.

A preliminary assessment of 25 areas of ecosystems that are dependent on groundwater was undertaken and showed that these pressures are mainly local pressures and therefore require more detailed analysis.

2.1.9 Significant impacts on water bodies

In the second RBMPs, the most significant impact on surface water bodies is chemical pollution (affecting 99% of surface water bodies), followed by organic pollution (73%) and nutrient pollution (72%) (Figure 2.4). For groundwater “no significant impacts” were reported for 86% of groundwater bodies, followed by nutrient pollution (14%) (Figure 2.4). Slovenia did not report on impacts in the first RBMPs.

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



Source: WISE electronic reporting

2.1.10 Quantification of the gap and apportionment of pressures

The Priority Substances causing failure of good chemical status and the measures to tackle these substances to achieve good status by 2021 has been reported. The indicator of the gap to achieve good chemical status by 2021 was reported. However, for mercury and its compounds the reported indicator shows no reduction of the gap in 2021, which could indicate that the link between measures and pressures is not sufficiently strong in this instance.

2.1.11 Groundwater bodies at risk of not meeting good status

In the Danube RBD, 17% of groundwater bodies were reported to be at risk of failing to meet good chemical status. For the Adriatic RBD, no groundwater bodies were reported to be at risk of failing good chemical status. For the groundwater bodies at risk of failing good chemical status, the pollutants causing this risk have been reported. It was reported that no groundwater bodies in either RBD are at risk of failing to meet good quantitative status.

2.1.12 Inventories of emissions, discharges and losses of chemical substances

Article 5 of the Environmental Quality Standards Directive (EQS Directive)¹⁰ requires Member States to establish an inventory of emissions, discharges and losses of all Priority Substances and the eight 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 (or suppressing) emissions, discharges and losses for priority substances.

Slovenia reported inventories for each RBD. All priority substances were included in each of the inventories,.

The two step approach from the Common Implementation Strategy Guidance Document n°28 was not reported to have been used (except for two substances in both RBDs). Tier 1 of the methodology was implemented for all of the substances included in the inventories. The data quality was not reported.

The Adriatic RBMP provides a list of substances and information from an inventory of emissions, discharges, and losses of chemical substances for the period 2009-2012. It was also

¹⁰ 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 <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02008L0105-20130913>

reported that available data in an inventory was used to perform a trend analysis for 19 Priority Substances and 29 specified certain other pollutants.

2.2 Main changes in implementation and compliance since the first cycle

Overall the number and characterisation of water bodies remained largely the same between the first and second RBMPs.

There was a slight decrease in the number of types between the first and second RBMPs (approximately 15%), mostly for river water bodies, whereas there was an increase in the number of lake water bodies types.

In the first cycle, Slovenia reported pressures at an aggregated level. Overall it appears there was a large increase from the first to the second RBMPs in the reporting of point, diffuse and hydromorphological pressures, while the reporting of “No pressures” dropped from 99% to none.

2.3 Progress with Commission recommendations

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

- Recommendation: *Determine (as a priority) which stretches between 10 and 100 km² deserve delineation as water bodies (to ensure that significant impacts are not being overlooked).*

Assessment: In the first RBMPs, small rivers with a catchment area between 10 and 100 km² were not delineated as stand-alone surface waters bodies. In the second RBMPs a minimum size was not reported for the catchment area of rivers. The RBMPs indicate that the criteria for delineation of rivers was catchment larger than 100 km². The RBMPs also reported that smaller water bodies that were not individually delineated were included as tributaries to delineated larger surface water bodies. For rivers with a catchment area between 10 and 100 km², and where the status was significantly different from the larger water bodies to which they are connected, these smaller water bodies were also delineated separately. Significant impacts on smaller river water bodies are therefore addressed.

This recommendation can be considered as fulfilled.

- Recommendation: *Review the pressures and impacts analysis and status assessment in the second RBMPs and ensure that the measures are based on the updated pressures and impacts analysis and status assessment of water bodies.*

Assessment: The RBMPs do not provide information on any changes in the methodology or the criteria for the assessment of significance of pressures and impacts. For both surface water and groundwater bodies, the significance of pressures was reported to be linked to the potential failure of objectives and is defined in terms of thresholds. Since the first cycle, it appears that there has been progress in the identification of pressures, as there is a large increase in the reporting of point, diffuse and hydromorphological pressures. In addition there was a significant decrease in the reporting of “No pressures”, from 99% to 0.

Significant pressures have been reported and measures mapped against most of these. For Priority Substances causing failure of good chemical status, measures to tackle these substances to achieve good status by 2021 have been reported. However, for mercury and its compounds the reported indicator shows no reduction of the gap in 2021, which could indicate that the link between measures and pressures is not sufficiently strong in this instance.

This recommendation has been partially 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 the 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.

Slovenia reported 10 monitoring programmes. Monitoring programmes were reported for each RBD with separate ones for surveillance and operational monitoring covering all water categories in the RBD.

Monitoring sites

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

Overall in Slovenia there was a decrease in the number of surveillance sites and an increase in the number of operational sites from the first to the second RBMPs: more sites are used for operational monitoring than for surveillance monitoring. There are two fewer surveillance sites in coastal waters and 23 fewer in rivers for the second RBMPs compared to the first. In lakes there were two fewer in the Danube RBD and two more in the Adriatic RBD.

In contrast to surveillance monitoring, there was a 20% increase in the number of operational monitoring sites in Slovenia from the first to second RBMPs. Most sites are in rivers and hence the largest increase was in river sites though there was an increase by one site in coastal waters and a decrease by one in lakes¹¹.

¹¹ Slovenia subsequently explained that the increase in the number of operational monitoring sites in the 2nd RBMPs was due to reporting monitoring stations for hydrology in WISE which were all determined as operational, but in the first RBMPs some were operational and some surveillance

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

	Rivers		Lakes		Coastal		Territorial	
	Surv.	Op	Surv.	Op	Surv.	Op	Surv.	Op
second RBMP								
Danube	19	208	2	11				
Adriatic	6	40	2	3	2	6	1	1
<i>Total by type of site</i>	25	248	4	14	2	6	1	1
<i>Total number of monitoring sites</i>	260		15		8		1	
first RBMP								
Danube	36	172	4	12				
Adriatic	12	28	0	3	4	5		
<i>Total by type of site</i>	48	200	4	15	4	5	0	0
<i>Total number of monitoring sites</i>	248		19		9		0	

Sources: WISE electronic reporting

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

Monitoring Purpose	Rivers	Lakes	Coastal	Territorial
OPE - Operational monitoring	248	14	6	1
SUR - Surveillance monitoring	25	4	2	1
Total sites irrespective of purpose	260	15	8	1

Source: WISE electronic reporting

Monitored quality elements (except for River Basin Specific Pollutants)

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

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

Biological quality elements										Hydro morphological quality elements		
	Phytoplankton	Macrophytes	Phytobenthos	Benthic invertebrates	Fish	Angiosperms	Macroalgae	Other aquatic flora	Other species	Hydrological or tidal regime	Continuity conditions	Morphological conditions
Lakes	Yes	Yes	Yes	Yes	Yes			No	No	Yes		Yes
Rivers		Yes	Yes	Yes	Yes			No	No	Yes	No	Yes
Coastal	Yes			Yes		No	Yes	No	No	Yes		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
Rivers		Yes	Yes	Yes	Yes	Yes	Yes		No
Coastal	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No

Source: WISE electronic reporting

There have been some changes in the monitored quality elements between the two RBMPs. Fish were reported not to be monitored in lakes for the first RBMPs but were reported for the second RBMPs. Angiosperms are not monitored in coastal waters for the second RBMPs. Morphological conditions were not monitored in coastal waters in for both the first and second RBMPs. Morphological conditions were not monitored in lakes for the first RBMP but were for the second RBMPs. River continuity was not reported as being monitored in both the first and second RBMPs. Oxygenation conditions were monitored in coastal waters for the second RBMPs but not used for status assessment.

All required biological quality elements are reported to be monitored in water bodies subject to surveillance monitoring in coastal waters, and in lakes and rivers in one of the two RBDs. Fish

are not included in any of the lakes in the Adriatic RBD and macrophytes¹² are not monitored in some river water bodies included in surveillance monitoring in the Danube RBD.

Hydromorphological quality elements are reported to not be included in surveillance monitoring in any water category. However hydrological regime is included in operational monitoring in all three water categories and morphological conditions in operational monitoring of lakes and rivers but not in coastal waters.

All required general physicochemical quality elements are monitored in rivers and lakes included in surveillance monitoring. In coastal waters oxygenation conditions are not monitored in water bodies included in surveillance monitoring.

Annex V of the WFD provides guidance on the frequency of monitoring of the different biological quality elements. Surveillance monitoring should be carried out for each monitoring site for a period of one year during 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.

Monitoring was done at least at the minimum recommended frequency for all monitored quality elements.

Monitoring of River Basin Specific Pollutants

Slovenia reported 36 different River Basin Specific Pollutants to be monitored only in water. River Basin Specific Pollutants were reported to be monitored at five sites in coastal waters, eight sites in lakes, 151 sites in rivers and one site in territorial waters.

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.

¹² Slovenia subsequently stated that macrophytes are not monitored in some river water bodies in the Adriatic and Danube RBDs since they are not relevant

Of the 22 River Basin Specific Pollutants included in surveillance monitoring of coastal waters, 12 were sampled at least at the recommended minimum frequency at all sites, and nine pollutants were sampled at lower frequency than the recommended minimum at all sites. Of the 36 River Basin Specific Pollutants included in surveillance monitoring of rivers 12 were sampled at least at the minimum frequency at all sites and three substances were sampled at lower frequency than the recommended minimum at all sites. No River Basin Specific Pollutant was reported to be monitored in lakes for either surveillance or operational purposes. In terms of operational monitoring River Basin Specific Pollutants were sampled at least at the minimum recommended frequency at almost all sites¹³.

Table 3.4 shows the number of sites used to monitor River Basin Specific Pollutants in the first and second RBMPs.

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

RBMP		Rivers	Lakes	Coastal	Territorial
second	Sites used to monitor River Basin Specific Pollutants	151	8	5	1
first	Sites used to monitor non-priority specific pollutants and/or other national pollutants	131	5	3	0

Source: WISE electronic reporting

Surveillance monitoring of surface water bodies

Overall in Slovenia the same proportion (20%) of surface water bodies were included in surveillance monitoring for the first and second RBMPs, though there were two fewer coastal water bodies and two more lake water bodies in the second RBMPs.

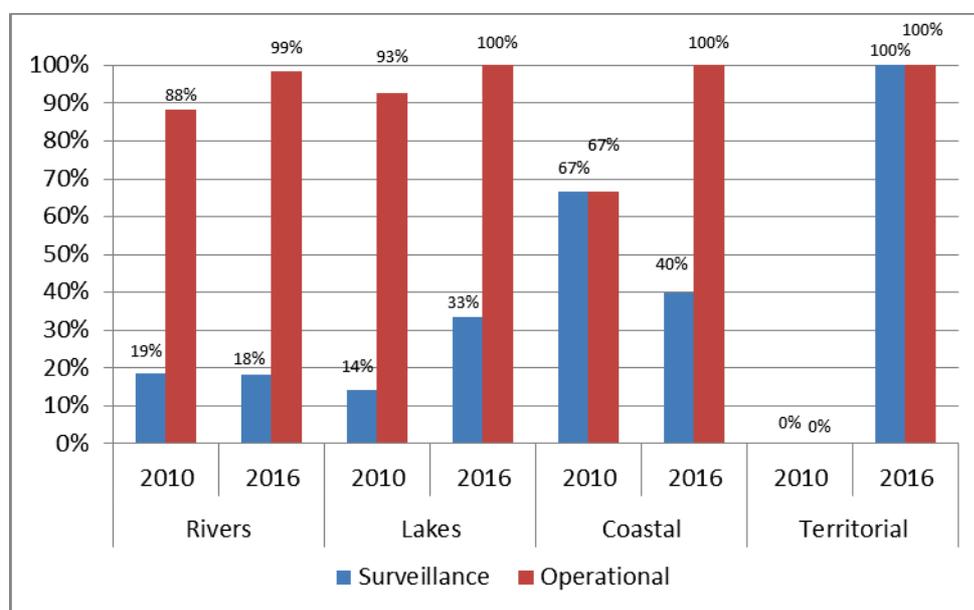
In contrast there was an increase from 88% to 99% of surface water bodies included in operational monitoring from the first to the second RBMPs, largely due to a 13% increase in

¹³ Slovenia subsequently stated that frequency and cycle of monitoring of chemical substances may have been misreported.

the number of river water bodies included though there was also one more in coastal water and one fewer in lakes¹⁴.

Figure 3.1 shows the proportion of water bodies subject to surveillance and operational monitoring. Figure 3.2 shows the proportion of water bodies subject to surveillance monitoring.

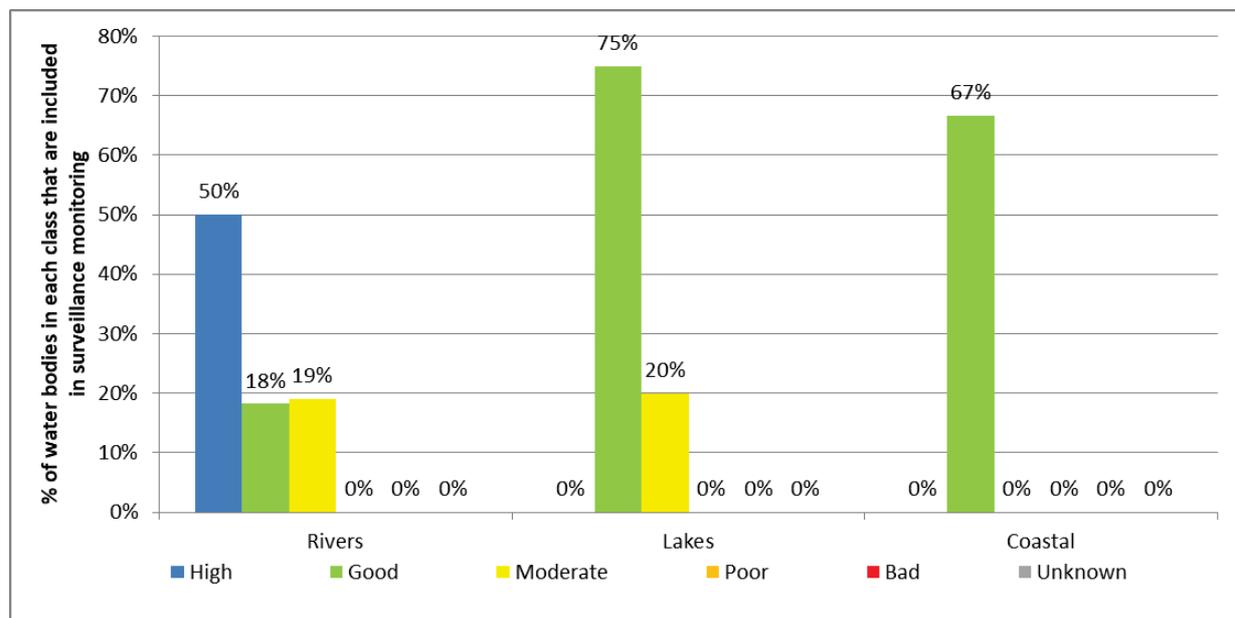
Figure 3.1 *Percentage of water bodies included in surveillance and operational monitoring in Slovenia for the first RBMP and second RBMP. Note no differentiation is made between water bodies included in ecological and/or chemical monitoring*



Source: WISE electronic reporting

¹⁴ Slovenia subsequently stated that the reason for increase of surface water bodies included in operational monitoring is that in the 2nd RBMPs monitoring stations for hydrology were all determined as operational, but in the first RBMPs some were operational and some surveillance.

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



Source: WISE electronic reporting

Operational monitoring of surface water bodies

Most relevant biological quality elements are included in the operational monitoring of lakes though fish is included in only one water body. Phytobenthos and benthic invertebrates were the predominantly used biological quality element in rivers though macrophytes and fish were used to a lesser extent. Phytoplankton, macroalgae and benthic invertebrates were equally used in coastal waters.

Transboundary surface water body monitoring

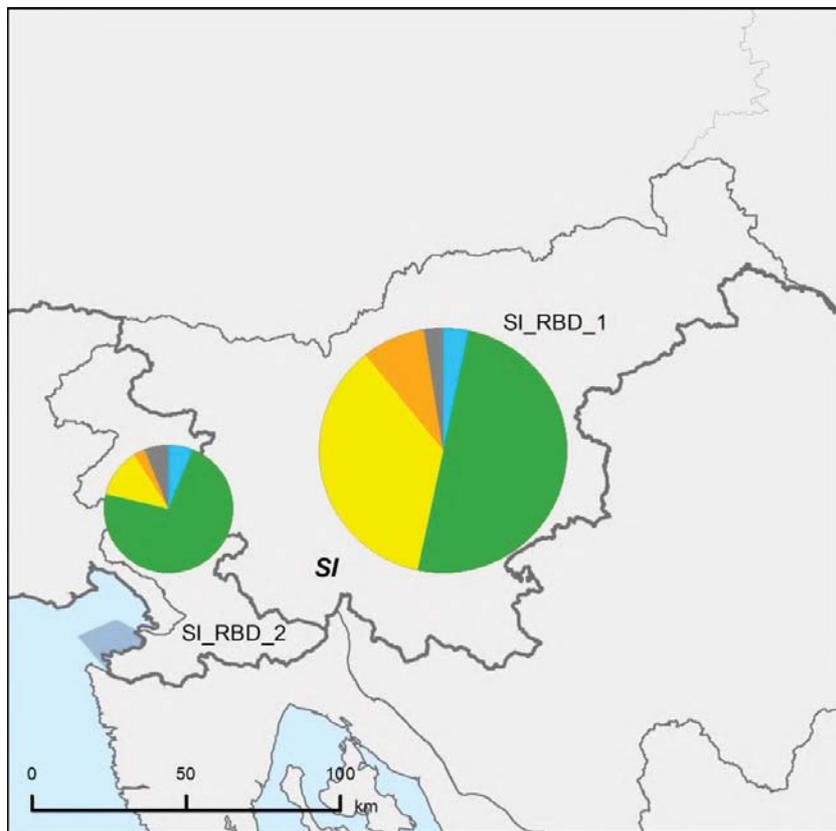
Slovenia did not report any monitoring sites that are part of international networks.

Slovenia subsequently indicated that bilateral monitoring is done with neighbouring countries and that Slovenia is involved in transnational monitoring networks according to the Danube and Barcelona Conventions.

3.1.2 Ecological Status/potential of surface water

The ecological status/potential of surface water bodies in Slovenia for the second RBMPs is illustrated in Map 1. This is based on the most recent assessment of status.

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



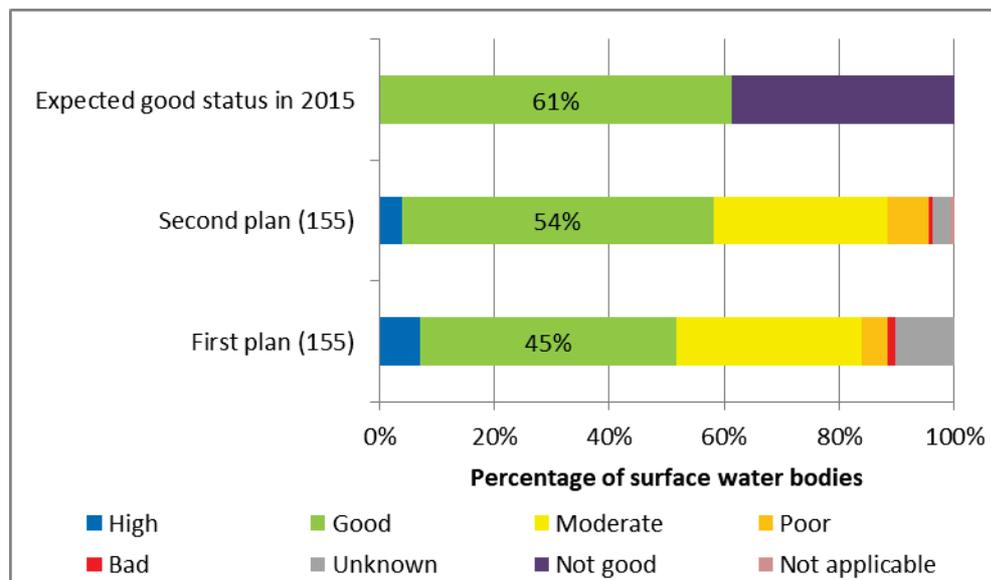
Note: Standard colours based on WFD Annex V, Article 1.4.2(i).

Source: WISE electronic reporting

The ecological status/potential is good or better in most of the natural lakes and rivers, and in all coastal water bodies. There are very few unknowns (five artificial or heavily modified water bodies). The confidence in lake assessment is mostly high or medium, which is a major improvement since the first RBMP.

Figure 3.3 compares the ecological status of surface water bodies in Slovenia for the first RBMPs with that for the second (based on the most recent assessment of status/potential) and that expected by 2015.

Figure 3.3 *Ecological status or potential of surface water bodies in Slovenia for the second RBMPs, for the first RBMPs and expected in 2015. The number in the parenthesis is the number of surface water bodies for each cycle. Note the period of the assessment of status for the second RBMPs was 2009 to 2015. The year of the assessment of status for the first RBMPs is not known*



Source: WISE electronic reporting

The total number of surface water bodies remained the same between the first and second RBMPs though there were small differences within the water categories e.g. 135 river water bodies for the first RBMP, 137 for the second. The proportion of surface water bodies at less than good status/potential (38%) was the same for the first and second RBMPs. There was an increase in the proportion at good or better status/potential from 52% to 58% which was mirrored by a decrease in the proportion with unknown status from 10% to 3% from the first to the second RBMPs.

There is a small improvement in the proportion of lakes in good or better status/potential from 55% to 60% from the first to the second RBMPs.

Member States were asked to report the expected date for the achievement of good ecological status/potential. The information for Slovenia is shown in Figure 3.4. Further improvement is only expected in 2022-2027.

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

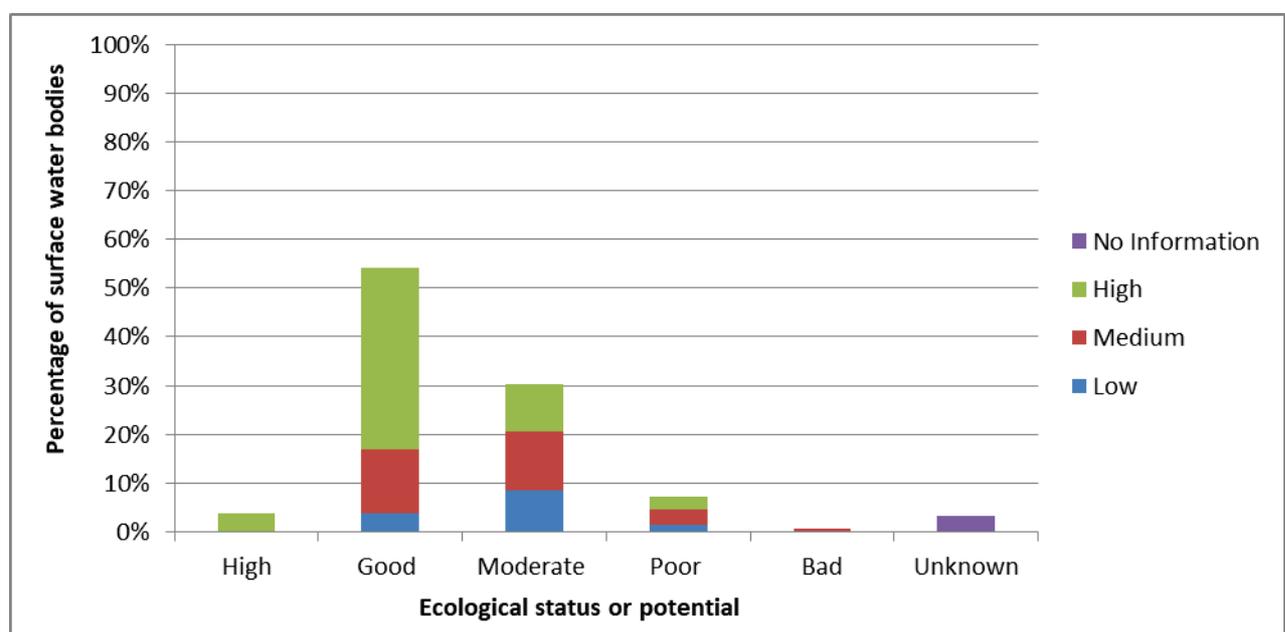
Source: WISE electronic reporting

Confidence in ecological status assessment

Figure 3.5 shows the confidence in the classification of ecological status/potential.

There was a significant improvement in the confidence in the classification of ecological status/potential from the first to the second RBMPs. For example, 3% of surface water bodies were classified with high confidence for the first RBMPs but this increased to 54% for the second.

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



Source: WISE electronic reporting

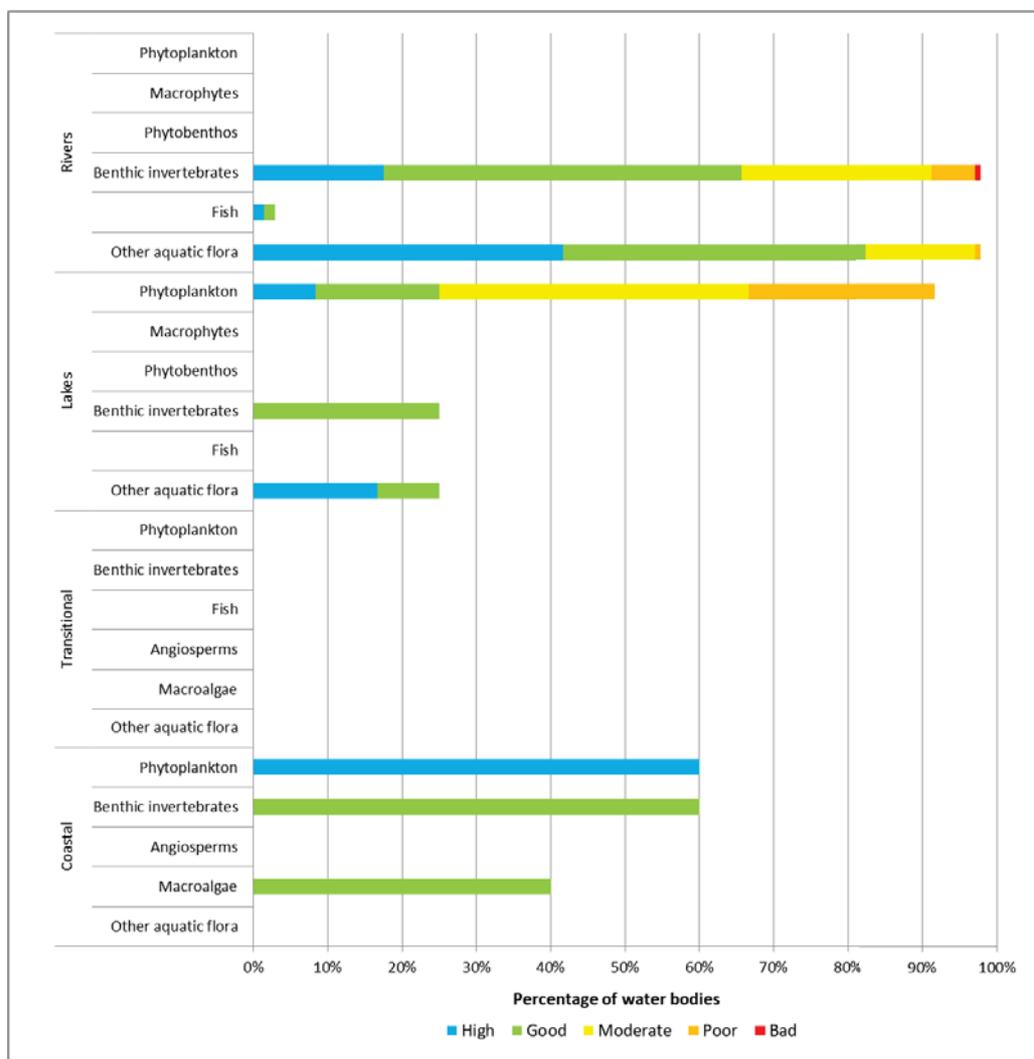
Classification of ecological status at the quality element level

Figure 3.6 shows the percentage of water bodies in terms of the biological quality element used for classification.

Figure 3.7 compares the classification of biological quality elements in terms of ecological status/potential for the first and second RBMPs. 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 from the first to the second RBMPs.

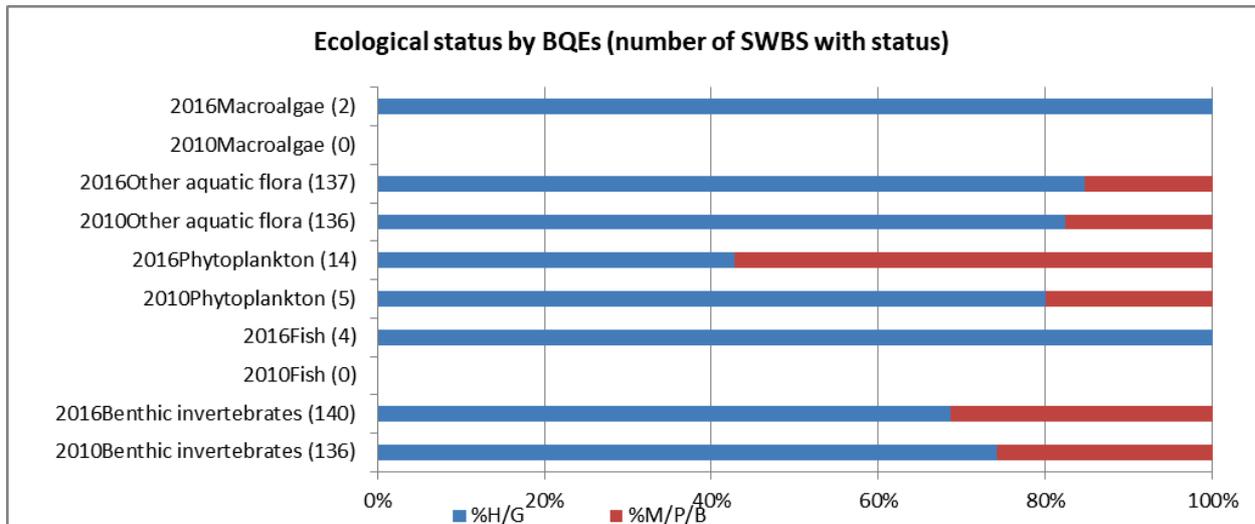
Figure 3.9 illustrates the basis of the classification of ecological status/potential of surface waters in Slovenia for the second RBMPs.

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



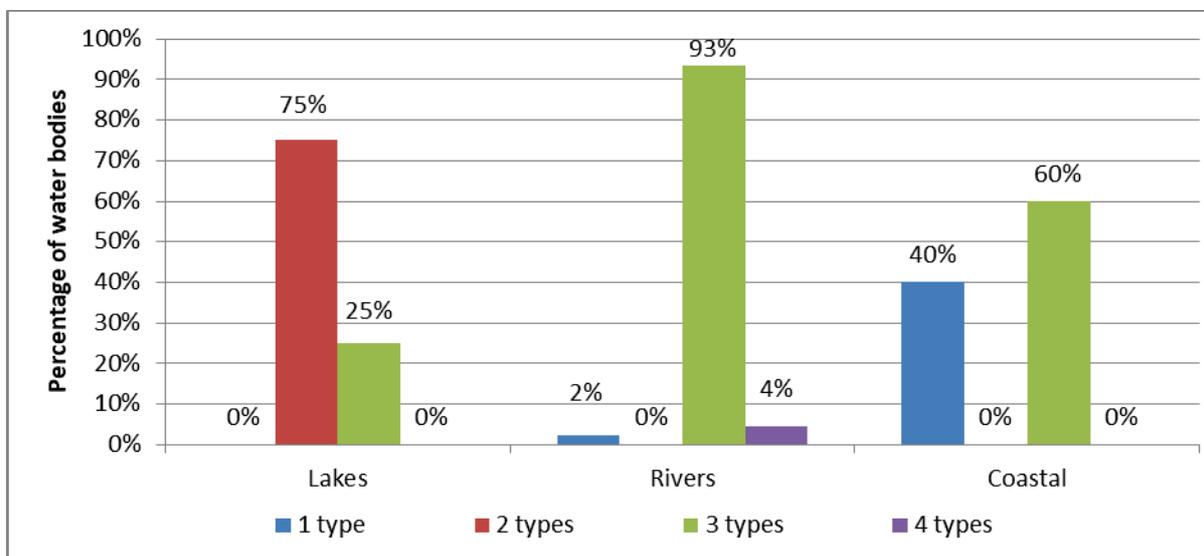
Source: WISE electronic reporting

Figure 3.7 Comparison of ecological status/potential in Slovenia according to classified biological quality elements in surface waters between the first and second RBMPs



Source: WISE electronic reporting

Figure 3.8 The classification of the ecological status or potential of surface waters in Slovenia using 1, 2, 3 or 4 types of quality element. Note: The four types are: biological; hydromorphological, general physicochemical and River Basin Specific Pollutants. Types for territorial waters were not reported.



Source: WISE electronic reporting

Most rivers are classified with “other aquatic flora” and benthic invertebrates, as well as nutrients and oxygenation conditions. Most of the lakes are classified with phytoplankton and some for “other aquatic flora” and benthic invertebrates, as well as nutrients, transparency, oxygen, and acidification. Coastal waters are classified with phytoplankton, macroalgae and

benthic invertebrates and nutrients. Most of the classified quality elements are in good or better status.

Fish and hydromorphological quality elements have not been classified in lakes. Many quality elements are classified in quite few water bodies, e.g. fish in rivers, and several others are missing: angiosperms in coastal waters, hydromorphological quality elements in all water categories, (although a few are monitored), some physicochemical quality elements, e.g. transparency and oxygenation in coastal waters. Physicochemical quality elements are not classified in artificial and heavily modified lakes.

There are also a few quality elements with changes in status/potential from the first to the second RBMPs, with slightly more changing to a better class than to a worse class. A few of these changes are consistent, but most are due to changes in monitoring and assessment systems.

Assessment methods and classification of biological quality elements

An assessment method for macroalgae in coastal waters has been developed, in line with recommendations arising from the assessment of the first RBMPs. There are still some biological quality element methods missing: fish¹⁵ in lakes and angiosperms¹⁶ in coastal waters. All the other biological quality elements are developed.

The sensitivity of several of the biological quality element methods to different impacts have been reported with logical combinations of biological quality elements and impacts.

Intercalibration of biological assessment methods

Most of the national lake types and some of the national river types are not linked to any intercalibration type. Slovenia reported that, for those types, the assessment methods are the same that are used for intercalibrated types.

¹⁵ Slovenia subsequently stated that type specific methods for classification of fish in rivers are being developed since 2010. In the 2nd RBMPs, four of the alpine river water bodies were classified and more were monitored to get the data for developing methods for other types. A method for classification of fish in lakes has been adapted from the Italian Lake Fish Index in 2017.

¹⁶ Slovenia subsequently stated that in Slovenian coastal waters there is only one meadow of *Posidonia oceanica*. Its length is only 1 km and is therefore not considered sufficiently large for the assessment of the ecological status of the whole water body. Nevertheless, the meadow of *Posidonia oceanica* is designated as Natura 2000 area and is monitored and assessed (and managed) as such

Assessment methods for hydromorphological quality elements

Methods for the hydromorphological quality element methods have been developed for all quality elements in rivers, thus partly addressing a recommendation arising from the first RBMPs. Hydromorphological methods were reported not to be related to the sensitive biological quality elements. There is still very little monitoring and classification of fish and hydro morphological quality elements in rivers and lakes.

Classification methods for physicochemical quality elements

Physicochemical standards are only established for oxygenation conditions and nutrients in rivers which were reported to be consistent with the good-moderate status boundary of the relevant sensitive biological quality elements. There are standards for transparency, oxygenation conditions, acidification status and nutrients in lakes: only the nutrient standards were reported to be consistent with the good-moderate status boundary of the relevant sensitive biological quality elements. The only physicochemical quality element standards established for coastal waters are for nutrients which were reported to be consistent with the good-moderate status boundary of the relevant sensitive biological quality elements. In conclusion, there are gaps in the standards established for physicochemical quality elements in rivers and coastal waters and some of those established are not consistent with the good-moderate status boundary of the relevant sensitive biological quality elements.

The nutrient standards for coastal waters are given as 35 micrograms nitrogen per litre for nitrate, 13 micrograms phosphorus per litre for total phosphorus and 4.6 micrograms phosphorus per litre for orthophosphate, defined as the geometric mean of the values of nutrients measured at different depths. Methods for transparency and oxygenation conditions are missing in coastal waters.

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

There is no information in the RMPs on how the River Basin Specific Pollutants have been selected. Slovenia subsequently stated that the methodology is available in a document published in the Ministry's website.

Environmental quality standards for water have been set for 33 River Basin Specific Pollutants, both metals and many organic substances, but the 2011 Technical Guidance Document No 27¹⁷ has not been used for 31 of the substances. The values of the environmental quality standard

¹⁷<https://circabc.europa.eu/sd/a/0cc3581b-5f65-4b6f-91c6-433a1e947838/TGD-EQS%20CIS-WFD%2027%20EC%202011.pdf>

are the same for coastal waters and for freshwater. However there is an on-going national process to improve this.

The analytical methods used for 31 substances meet the minimum performance criteria laid down in Article 4.1 of the Quality Assurance / Quality Control Directive (2009/90/EC) for the strictest standard applied. For the other two substances the analytical methods comply with the requirements laid down in Article 4.2 of the Quality Assurance / Quality Control Directive for the strictest standard applied.

Use of monitoring results for classification

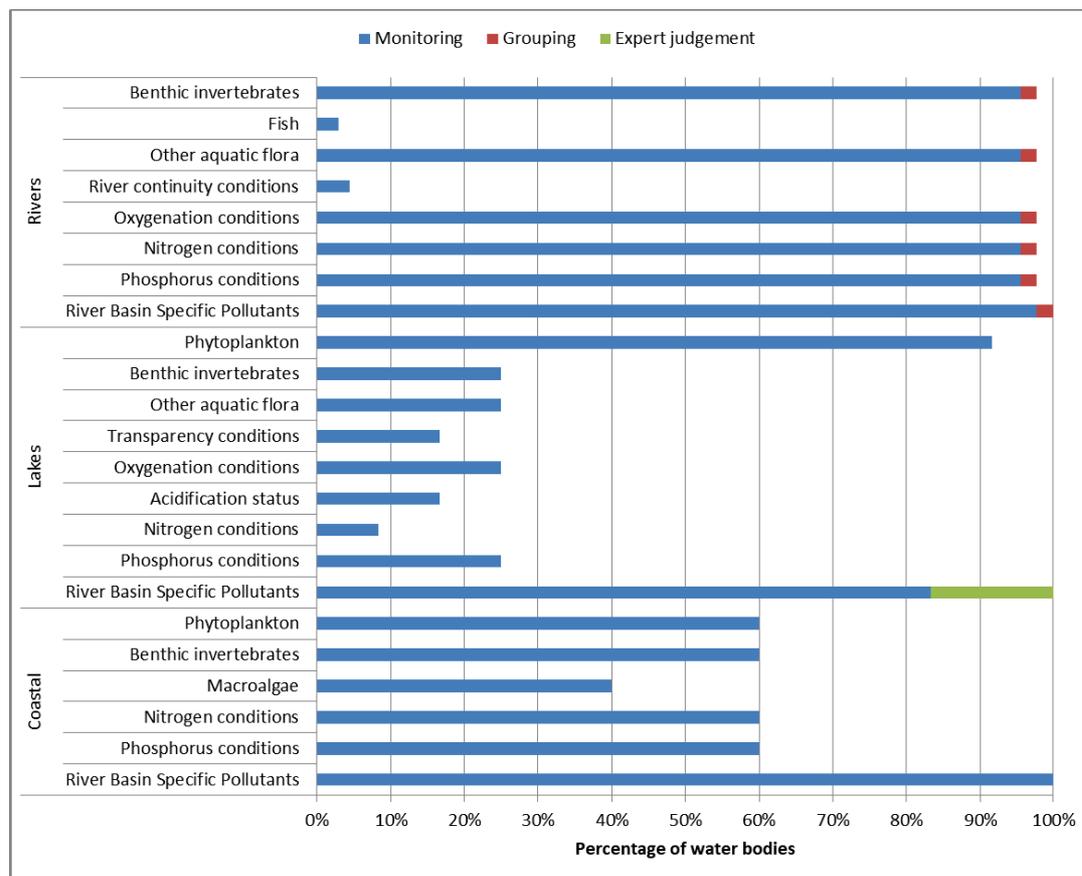
The classification of the individual quality elements is illustrated in Figure 3.9.

Generally the results of monitoring are used in the classification of the ecological status/potential of the various quality elements. There are also examples of grouping (e.g. benthic invertebrates in rivers) and expert judgement (e.g. River Basin Specific Pollutants in lakes) being used. Often more water bodies were monitored for particular quality elements than were subsequently used in their classification. Not all quality elements were used in the classification: angiosperms were neither monitored nor classified in coastal waters. More physicochemical quality elements were monitored than used in the classification (just nutrient conditions) perhaps indicating a lack of assessment methods (e.g. environmental quality standards) for some elements in coastal waters.

In lakes, the classification of "aquatic flora" was reported rather than the two component elements which have been reported as being monitored. Fish in lakes are not used in the classification though they are monitored again indicating some potential weaknesses in the assessment methods. A greater number of physicochemical quality elements were used in the classification of lakes compared to coastal waters. River Basin Specific Pollutants have been used in the classification of coastal waters, lakes and rivers.

Other aquatic flora were again reported for the classification of rivers even though the component quality elements are monitored: it is therefore not clear which of the two component elements have been used in the classification in each case. Fewer river water bodies were monitored for fish than the other biological quality elements and even fewer were subsequently classified, again perhaps indicating some weaknesses in the assessment method.

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



Source: WISE electronic reporting

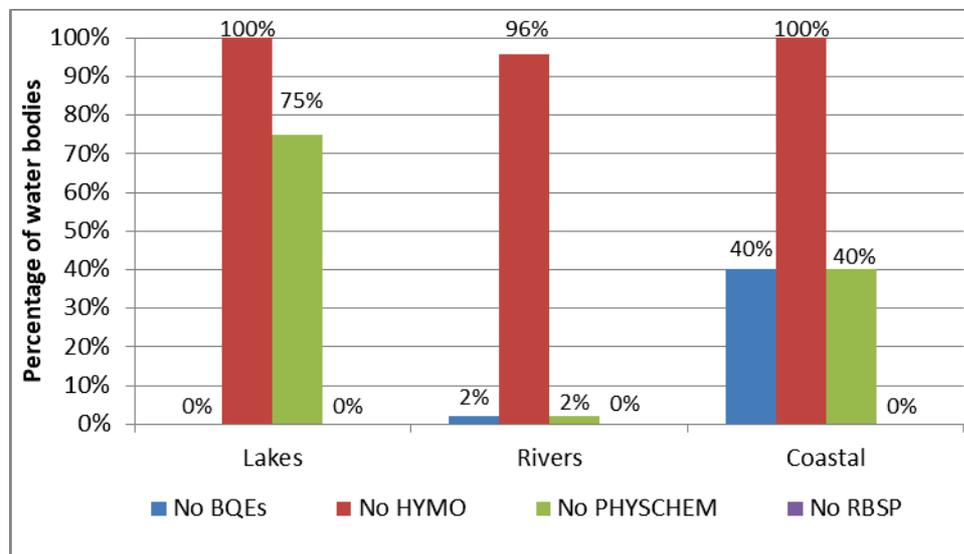
Hydrological regime and morphological conditions were not used in the classification of any water body perhaps indicating some weaknesses in the assessment method for these elements. River continuity was used in the classification of water bodies based on monitoring results even though it was not reported to be monitored.

Only two types of physicochemical quality elements (oxygenation and nutrient conditions) were used in the classification of lakes even though three other types were extensively monitored.

Overall classification of ecological status

Figure 3.10 illustrates the basis of the classification of ecological status/potential of surface water bodies in Slovenia for the second RBMPs.

Figure 3.10 *The percentage of surface water bodies in Slovenia 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 reporting

The one-out, all-out principle has been used in both RBDs, but the details on combination rules applied for the biological quality elements versus the supporting quality elements are not clear.

3.2 Main changes in implementation and compliance since the first RBMPs

The confidence in classification of ecological status has improved significantly from the first RBMPs when only 3% of surface water bodies were classified in high or medium confidence to the second RBMPs when all the lakes, 85% of the rivers and 67% of the coastal water bodies are classified with high or medium confidence. The number of water bodies with unknown status/potential has also decreased from 15 to 5 water bodies from the first to the second RBMPs.

The time for achieving the objective has been postponed from 2015 to 2022-2027 for around 30% of the surface water bodies.

Overall there was a decrease in the number of surveillance sites and an increase in the number of operational sites from the first to the second RBMPs: more sites are used for operational monitoring than for surveillance monitoring. There are two fewer surveillance sites in coastal

waters and 23 fewer in rivers for the second RBMPs compared to the first. In lakes there were two fewer in the Danube RBD and two more in the Adriatic RBD.

In contrast to surveillance monitoring, there was a 20% increase in the number of operational monitoring sites from the first to second RBMPs. Most sites are in rivers and hence the largest increase was in river sites though there was an increase by one site in coastal waters and a decrease by one in lakes.

There have been some changes in the monitored quality elements from the first to the second RBMPs. Fish were reported not to be monitored in lakes for the first RBMP but were reported for the second RBMP. Angiosperms are not monitored in coastal waters for the second RBMPs. Morphological conditions were not monitored in coastal waters in for both the first and second RBMPs. Morphological conditions were not monitored in lakes for the first RBMP but were for the second RBMP. River continuity was not reported as being monitored in the first and second RBMPs. Oxygenation conditions were not reported to be monitored in coastal waters for the second RBMP¹⁸.

There was an increase from 88% to 99% of surface water bodies included in operational monitoring from the first to the second RBMPs, largely due to a 13% increase in the number of river water bodies included though there was also one more in coastal water and one fewer in lakes.

3.2 Progress with Commission recommendations

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

- Recommendation: *The assessment methods for the classification of ecological status are not fully developed for all biological quality elements in all water categories. All assessment methods for the status assessments should be developed.*

Assessment: Assessment methods for macroalgae in coastal waters have been developed. However, an assessment method for fish in lakes is missing. All the other biological quality elements are developed.

This recommendation has been partially fulfilled.

- Recommendation: *Include the standards related to the repealed Freshwater Fish Directive in the ecological status parameters in the second RBMPs.*

¹⁸ This may be a reporting error as Slovenia stated that this quality element is monitored in coastal waters

Assessment: Standards for some of the physicochemical quality elements relevant to the repealed Freshwater Fish Directive have been reported for river and lakes.

Standards were reported for Oxygen saturation (%), pH and Total Phosphorous in lakes. The standard for oxygen saturation was expressed as annual average % saturation whereas the Directive specifies a standard as mg/l O₂. The reported pH standard is expressed as an annual average whereas in Freshwater Fish Directive it is a 95thile. The standards cannot therefore be compared. The standards for oxygen saturation and pH were reported not to be related to the sensitive biological quality element. The total phosphorus standards in lakes seem to be compliant with the Directive and are related to the sensitive biological quality element.

Three relevant standards were reported for rivers, total phosphorus, nitrates and 5-day biochemical oxygen demand. The biochemical oxygen demand standard is expressed as a 90thile whereas the Directive is a 95thile. The values for Total Phosphorus standard seem to be compliant with the repealed Directive. All standards were reported to be related to the sensitive biological quality element.

No standards were reported for river and lakes for the other relevant physicochemical quality elements: temperature, suspended solids, nitrates, non-ionised ammonia, and total ammonium.

Fish were reported to be monitored in two lake water bodies and 26 river water bodies. two river water bodies were classified as high ecological status, two as good ecological status and the remaining 133 classified water bodies as unknown status/potential. It is not known whether any of the lakes or rivers was formally designated as Freshwater Fish waters under the repealed Directive. However, no surface water bodies were reported to be associated with Freshwater Fish Protected Areas.

Based on Slovenia's electronic reporting to WISE, and given that a full comparison of the level of protection guaranteed by the former Freshwater Fish Directive and the one guaranteed by the standards being used for the WFD was not reported by Slovenia, this recommendation cannot be considered as having been fulfilled

- Recommendation: *Include the monitoring of fish in the monitoring of ecological status in the second RBMPs.*

Assessment: In the first RBMP, surveillance monitoring of fish in lakes was missing. Fish were reported to be monitored in the Danube RBD for the second RBMP but not

in the other RBD (Adriatic). In addition macrophytes are not monitored in all river water bodies included in surveillance monitoring and angiosperms¹⁹ are reported not to be monitored in coastal waters at all. Therefore there has been some progress with regards to monitoring of fish but there are still gaps in the required monitoring.

This recommendation has been partially fulfilled.

- Recommendation: *The national EQSs for specific pollutants in transitional and coastal waters have been set at the same level as those for freshwaters, which may not be appropriate in the light of the latest technical guidance. Reference should be made to the latest version of the Technical Guidance Document on the Derivation of Environmental Quality Standards published under the Common Implementation Strategy for the WFD*

Assessment: Slovenia reported EQS for 33 River Basin Specific Pollutants in water in rivers, lakes, transitional and coastal waters. Slovenia did not report any transitional water bodies for the second RBMPs. The type and values of the standards were the same for each water category. None of the standards have been derived in accordance with the 2011 Technical Guidance Document No 27. However there is an on-going national process to improve this.

This recommendation has not been fulfilled.

- Recommendation: *Complete the development of hydro morphological methods for the status assessment of water bodies and definition of reference conditions and apply them through the implementation of robust monitoring programmes (start monitoring hydromorphological parameters in lakes and coastal waters). An adequate WFD compliant assessment and monitoring framework is a necessary pre-requisite to design effective Programmes of Measures and ultimately to achieve the WFD objectives.*

Assessment: Methods for the assessment of hydromorphological quality element have been developed for all quality elements in rivers. Hydromorphological quality elements are not included in surveillance monitoring in any water category. However hydrological regime is included in operational monitoring in all three water categories and morphological conditions in operational monitoring of lakes and rivers but not in coastal waters. Hydrological regime and morphological conditions were not used in the classification of any water body perhaps indicating some weaknesses in the assessment method for these elements. River continuity was used in the classification of water

¹⁹ Slovenia subsequently indicated that the one *Posidonia oceanica* meadow in Slovenia is designated as Natura 2000 area and is monitored and assessed (and managed) as such

bodies based on monitoring results even though it was not reported to be monitored. It appears that whilst monitoring of some but not all hydromorphological quality elements is undertaken for the second RBMPs, there are still weaknesses in using the results of monitoring to assess and classify the status/potential of water bodies using these elements.

This recommendation has been 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

4.1.1 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 Member States 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.

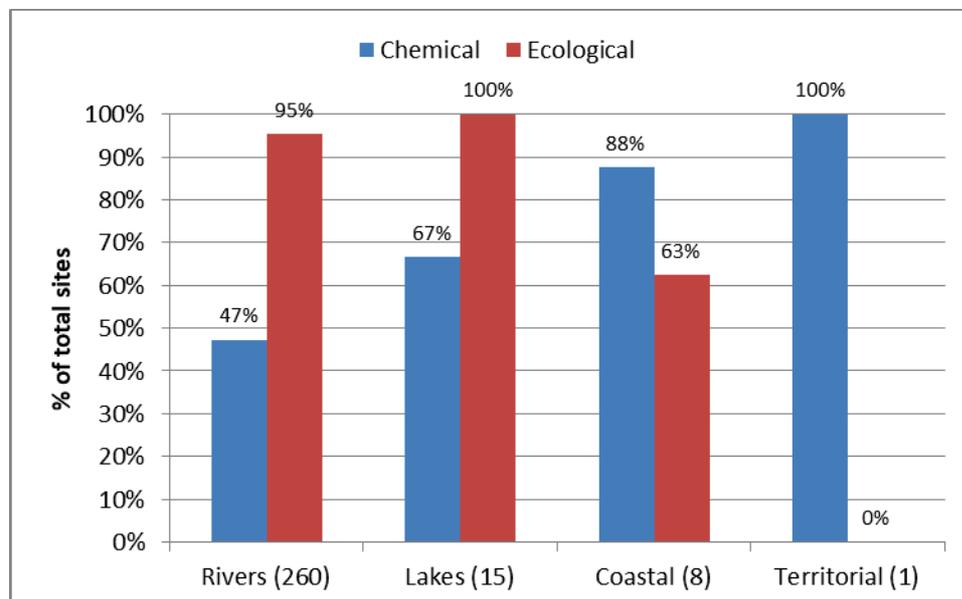
Section 3.1.1 of this report summarises the characteristics of the surveillance and operational monitoring programmes in Slovenia for the second RBMP.

Figure 4.1 summarises the proportion of sites used for the monitoring of chemical status in lakes and rivers for the second RBMP. Sites used for monitoring of ecological status are provided for comparison. 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 Agency²⁰.

There are relatively few lake and coastal water monitoring sites overall (15 and 8 respectively, reflecting the small number of water bodies in these water body categories) but 67%, 88% and 100% of these sites are used for monitoring of chemical status. Of the 260 river monitoring sites, around half are monitored for chemical status. There is also one monitoring site in territorial waters.

²⁰ <https://www.eea.europa.eu/publications/state-of-water>

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

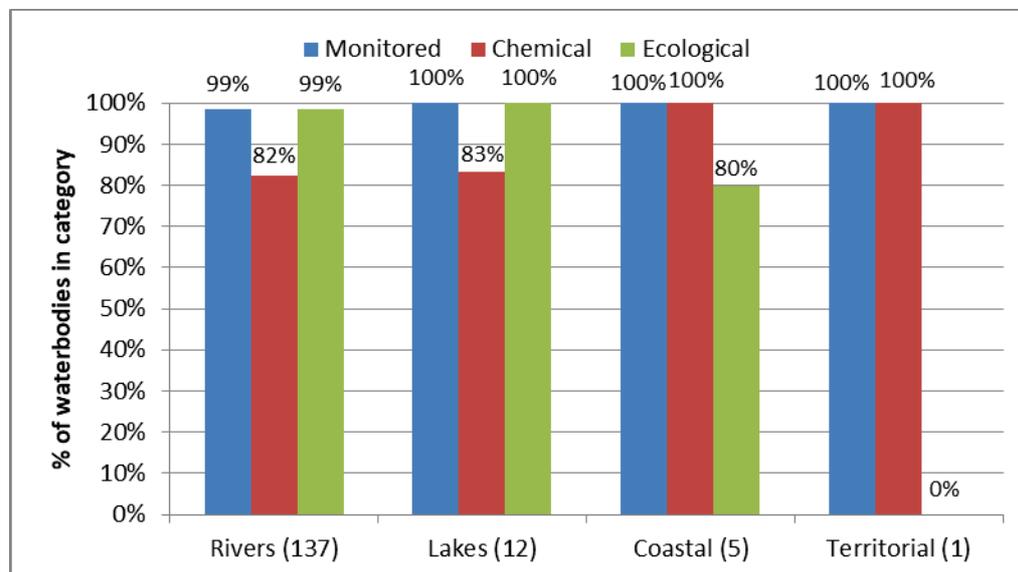


Source: WISE electronic reporting

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

All five coastal water bodies and the territorial waters were reported to be monitored for chemical status. The majority of the 12 lakes (83%) and the 137 river water bodies (82%) are monitored for chemical status.

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



Source: WISE electronic reporting

With regard to water bodies failing to achieve good chemical status, 83% of these water bodies were reported to be monitored as part of the operational monitoring programme in Slovenia 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 Member States 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 Member States derived a standard for another matrix, which is at least as protective as the biota standard.

Spatial coverage

56% of lake water bodies in the Danube RBD were monitored for more than ten Priority Substances and this was the case for 33% of lake water bodies in the Adriatic RBD. The remainder of the lake water bodies in the Adriatic RBD were not monitored for any Priority Substances, whereas the remainder of the lake water bodies in the Danube RBD were monitored for three, four or six to ten Priority Substances. In the Adriatic RBD, 80% of coastal water bodies were monitored for more than 10 priority substances whereas the remainder were not monitored for any Priority Substances. The number of substances monitored in river water bodies in both RBDs varied considerably from 0 to more than 10.

Where monitored, up to 41 Priority Substances were reported to be monitored in water at the monitoring site level in water bodies across Slovenia.

Slovenia has reported monitoring of the required three Priority Substances in biota for status assessment in river and lake water bodies in the Danube RBD and in coastal and river water bodies in the Adriatic RBD.

The highest number of sites monitored for biota in Slovenia as a whole is 26 for mercury. The lowest number of sites monitored was 16, for both hexachlorobenzene and hexachlorobutadiene.

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. In all cases greater intervals can be applied by Member States if justified on the basis of technical knowledge and expert judgement.

A large range of monitoring frequencies are reported in WISE, for biota and water. These frequencies are sometimes below the recommended minimum frequencies from the WFD.

However Slovenia subsequently clarified that Priority Substances were monitored in water 12 times per year once per cycle. While this meets the requirements for surveillance monitoring, it does not meet the requirements for operational monitoring (12 times per year; every year in the monitoring cycle). Slovenia also clarified that monitoring of the three required substances in biota for status assessment is undertaken once per year, in accordance with the Directive. Only drinking water abstraction points (identified as protected areas) were monitored with lower

frequencies (according to the WFD, the monitoring frequency for these points depend on the size of the community served)²¹.

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 priority substances²² 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

Slovenia has monitored all 14 of the required Priority Substances in lake and river water bodies in the Danube RBD and coastal and river water bodies in the Adriatic RBD, apart from pentachlorobenzene. This was reported as not monitored in coastal waters in the Adriatic RBD. Slovenia subsequently informed that monitoring for pentachlorobenzene commenced in 2014 (in the Adriatic RBD) which was outside the assessment period (2009 to 2013) reported in the second RBMP.

The greatest number of sites monitored for sediment in Slovenia is 33 for lead, mercury and cadmium. Slovenia subsequently mentioned that sediment monitoring of lakes sediments in the Adriatic RBD is not undertaken because no emissions of Priority Substances exist in any of these three reservoirs and, for this reason, no sediment monitoring is undertaken²³.

Frequencies

While monitoring frequencies reported in WISE are sometimes lower than the recommended minimum frequencies, Slovenia subsequently clarified that the sampling frequency is at least once every year which is above the recommended minimum frequency in the Directive.

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

²¹ Slovenia subsequently clarified that no emission of priority substances was identified in these water bodies. However it is unclear how far diffuse pollutions were taken into account, as the information reported in WISE shows that only point source emissions were considered in the inventories of emissions.

²² Anthracene, brominated diphenylether, cadmium, C10-13 chloroalkanes, DEHP, fluoranthene, hexachlorobenzene, hexabutadiene, hexachlorocyclohexane, lead, mercury, pentachlorobenzene, PAH, Tributyltin.

²³ As mentioned above, it is not clear whether diffuse pollutions were taken into account when making this assessment, as they are not considered in the inventories of emissions.

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.”

Member States are therefore required to monitor all Priority Substances which are discharged into the river basin or sub-basin.

All Priority Substances are monitored in each of the two RBDs, which of course include the substances identified as discharged in the inventories.

Performances of analytical methods used

For 34 Priority Substances in the Danube RBD and for 35 Priority Substances in the Adriatic RBD, the analytical methods used meet the minimum performance criteria laid down in Article 4(1) of the Technical specifications for chemical analysis and monitoring of water status²⁴ for the strictest standard applied. For the remaining substances reported, the analytical methods complied with the requirements laid down in Article 4(2) of the Technical specifications for chemical analysis and monitoring of water status based on best available techniques.

The method of dealing with measurements of Priority Substances lower than the limit of quantification is as specified in Article 5 of the Technical specifications for chemical analysis and monitoring of water status.

4.1.2 Chemical Status of surface water bodies

Member States are required to report the year on which the assessment of chemical status is 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.

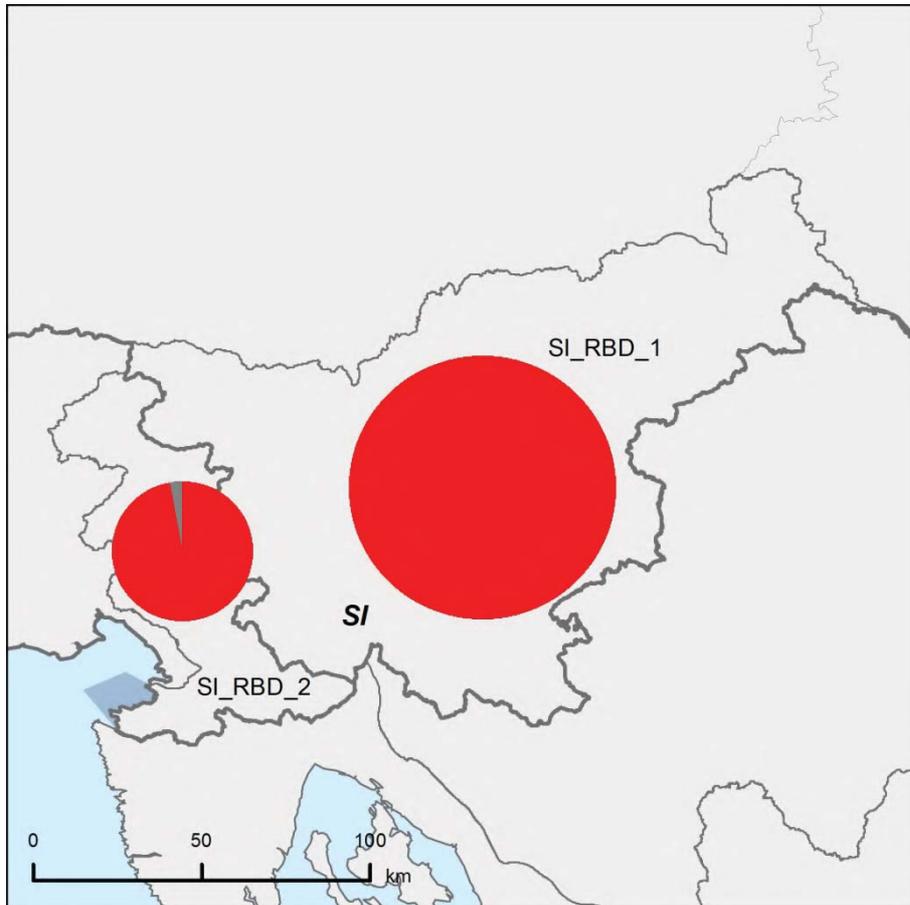
²⁴ Directive 2009/90/EC of 31 July 2009 laying down, pursuant to Directive 2000/60/EC of the European Parliament and of the Council, technical specifications for chemical analysis and monitoring of water status <http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1524565750309&uri=CELEX:32009L0090>

In Slovenia as a whole, the chemical assessments were carried out in the period from 2009 to 2013 for 84% of water bodies (with no specific years reported) and for almost all the remaining water bodies assessed, the period was from 2009 to 2014 (with no specific years reported).

The chemical status of surface water bodies in Slovenia for the second RBMP is illustrated in Map 4.1. This is based on the most recent assessment of status. Overall, between the two cycles there was a large decrease in the proportion of surface water bodies with good chemical status from 95% to 0.6% and a significant increase in the proportion failing to achieve good status from 5% to 99%. This general pattern occurred across both RBDs and all Natural/Heavily Modified/Artificial water body categories. This results from the monitoring in biota of the three relevant substances, and the extrapolation of these data to non-monitored waterbodies.

The chemical status of surface waters in Slovenia for the first and second RBMPs is given in Table 4.1.

Map 4.1 *Chemical status of surface water bodies in Slovenia 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 electronic reporting

Table 4.1 *Chemical status of surface water bodies in Slovenia for the second and first RBMPs. Note: the number in parenthesis next to the water category is the number of water bodies. Note: Chemical status assessment is based on the new, more stringent Environmental Quality Standards from Directive 2013/39/EU. Some Member States did not implement the Directive (version in force in 2009) in the first RBMPs as the transposition deadline was in July 2010, after the adoption of the first RBMPs*

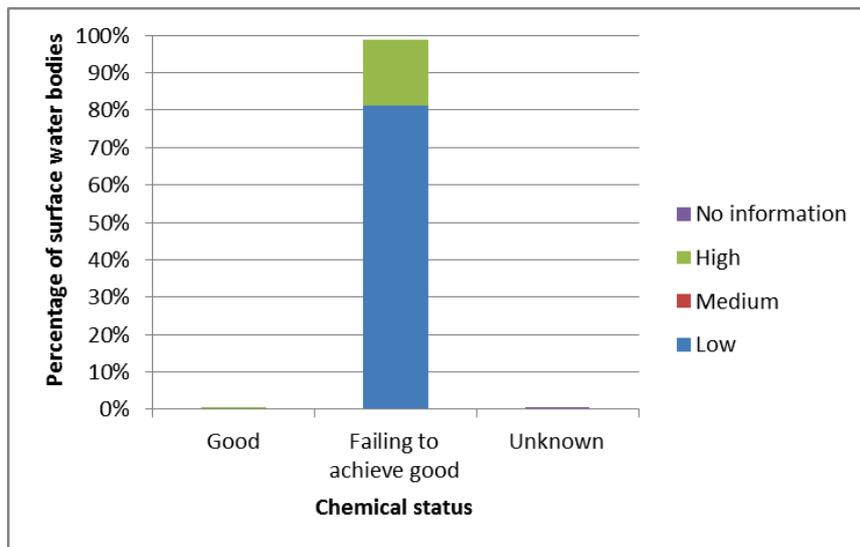
Category	Good		Failing to achieve good		Unknown	
	Number	%	Number	%	Number	%
Second RBMP						
Rivers (137)	1	0.70%	136	99%		
Lakes (12)			12	100%		
Coastal (5)			4	80%	1	20%
Territorial (1)			1	100%		
Total (155)	1	0.6%	153	98.7%	1	0.6%
First RBMP						
Rivers (135)	133	99.00%	2	1.00%		
Lakes (14)	14	100.00%				
Coastal (6)			5	83.00%	1	17%
Total (155)	147	95%	7	5%	1	1%

Source: WISE electronic reporting

Figure 4.3 shows the confidence in the classification of chemical status for the second RBMP. Most of the classifications are given a low level of confidence. Confidence in the classification of chemical status for the first RBMPs was not reported.

Overall 18% of surface water bodies in Slovenia were classified for chemical status with high confidence and 82% with low confidence. For lakes and rivers only between 15 and 17% of surface water bodies were classified with high confidence and the remainder with low confidence. However, all coastal and territorial water bodies were classified with high confidence. Slovenia informed that the reason for low level of confidence was that many water bodies were assessed based on extrapolation of mercury in biota, which is the main reason for not achieving good chemical status for all surface water bodies in Slovenia. However, for Priority Substances in water where monitoring has been undertaken, the level of confidence is high for most of the water bodies.

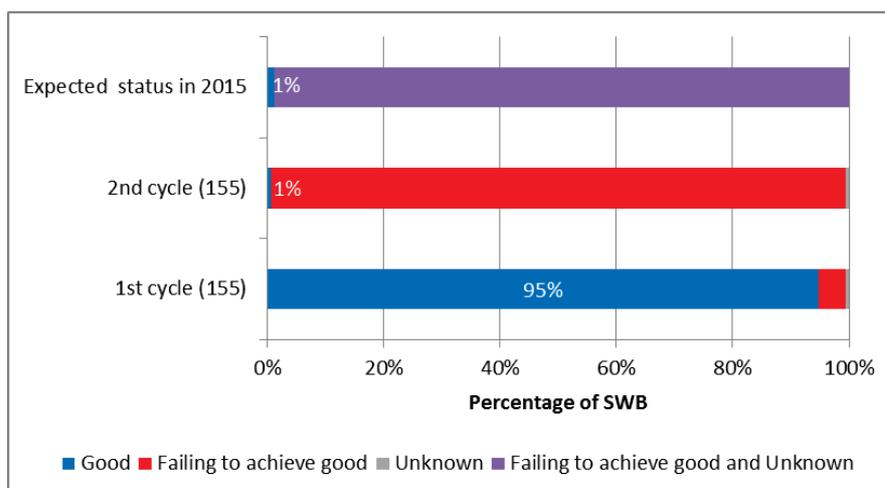
Figure 4.3 *Confidence in the classification of chemical status of surface water bodies in Slovenia based on the most recently assessed status/potential*



Source: WISE electronic reporting

Figure 4.4 compares the chemical status of surface water bodies in Slovenia for the first RBMP with that for the second RBMP (based on the most recent assessment of status) and that expected by 2015. Figure 4.4 reflects the changes in status described above and illustrates that these changes were expected.

Figure 4.4 *Chemical status of surface water bodies in Slovenia 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 2009 to 2013. The year of the assessment of status for the first RBMP is 2006-2008.*



Source: WISE electronic reporting

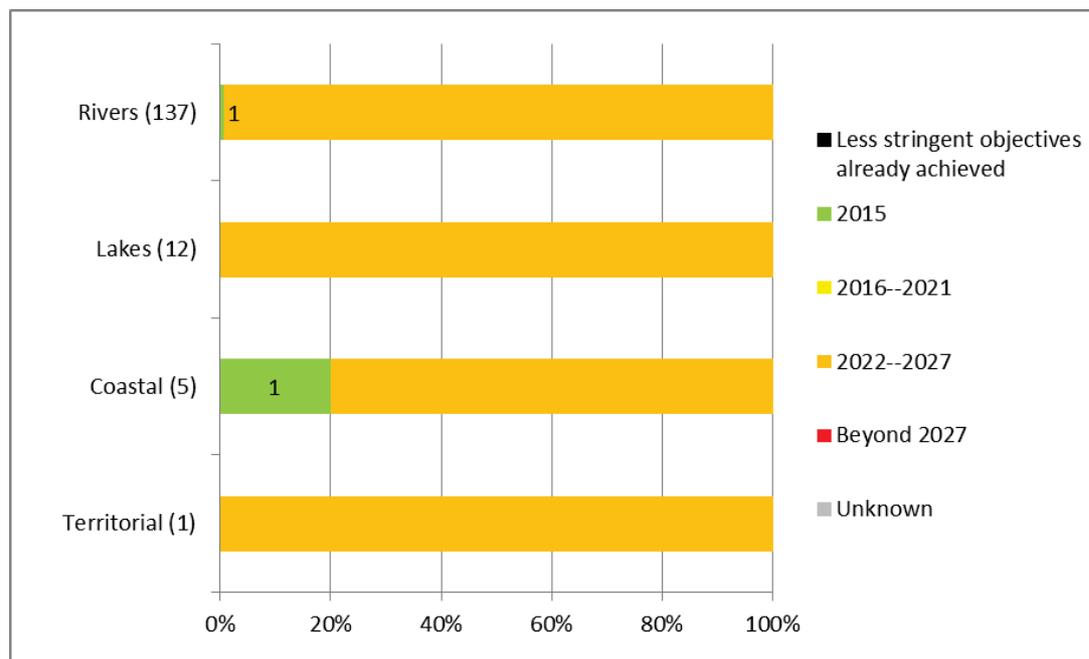
The large difference in the assessment of status between the two RBMPs results in particular from the use of biota monitoring data, then extrapolated to water bodies in which this biota monitoring hasn't been undertaken.

Directive 2013/39/EU amended the EQS Directive²⁵. In particular, it sets more stringent environmental quality standards for seven substances²⁶. Slovenia reported that chemical status has not deteriorated in any of water body due to the more stringent standards.

Good chemical status should be reached by 2021 in relation to the revised environmental quality standards, unless Member States 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 Slovenia is shown in Figure 4.5. All water bodies are expected to achieve good chemical status by 2027; which seems like an ambitious expectation based on the current status assessment.

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



²⁵ Please note that following Directive 2013/39/EU, which amended the Environmental Quality Standards Directive, introduced a less stringent annual average EQS for naphthalene in transitional waters and in coastal 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.

²⁶ Anthracene, Brominated diphenylether, Fluoranthene, Lead and its compounds, Naphthalene, Nickel and its compounds, Polyaromatic hydrocarbons (PAH)

Source: WISE electronic reporting

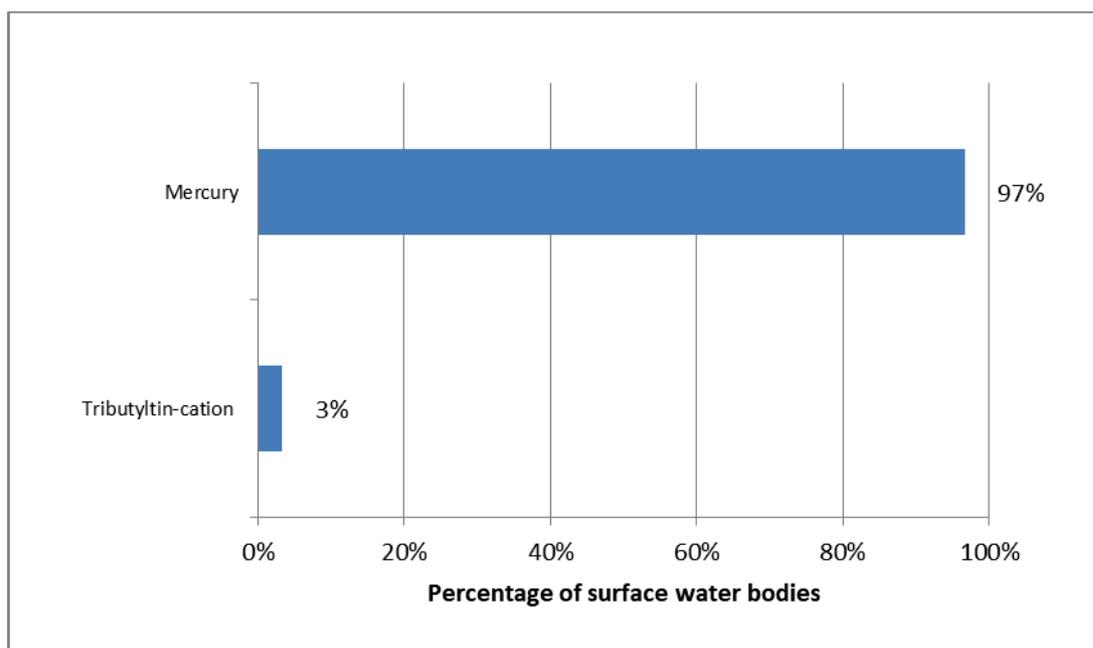
Priority substances causing failure of good chemical status

Slovenia reported exceedances based on the more stringent standards from Directive 2013/39/EC.

The substance causing the greatest proportion of water bodies to fail good chemical status was mercury in biota (for 97% of surface water bodies failing good status). This is clearly illustrated in Figure 4.6.

Overall for surface water bodies in Slovenia, the largest proportion of exceedances was for the annual average environmental quality standard for mercury in biota (97%). There were no exceedances for maximum allowable concentration environmental quality standards alone. In terms of exceedance of both types of standard, the largest proportion was for the tributyltin-cation (3%).

Figure 4.6 *Priority Substances causing failure to achieve good chemical status in surface water bodies in Slovenia²⁷*



Source: WISE electronic reporting

²⁷ Slovenia subsequently clarified that tributyltin-cation is causing failure to achieve good chemical status in 99% of coastal water bodies in Slovenia.

Ubiquitous persistent, bioaccumulative and toxic Priority Substances

According to article 8(a) of the EQS Directive²⁸, eight priority substances and groups of priority substances are behaving like ubiquitous, persistent, bioaccumulative and toxic substances²⁹. 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, Member States have the possibility to present the information related to chemical status separately for these substances.

The assessment of chemical status for the surface waters in Slovenia is driven primarily by the exceedance of the biota environmental quality standard for mercury in water bodies where this is monitoring and other water bodies to which this classification has been extrapolated. Mercury is a ubiquitous persistent, bioaccumulative and toxic Priority Substance. Consequently, the influence of these substances on the failure of good chemical status in Slovenia is significant.

This is illustrated in the 2018 State of Water report of the European Environment Agency³⁰.

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

Where monitoring of Priority Substances was undertaken in Slovenia, all 41 Priority Substances were reported to be used in the assessment of chemical status and were monitored.

Slovenia further clarified that exceedances for the substances monitored in biota were assessed based on extrapolation for most of the water bodies; however this was not the case for substances monitored in water, for which monitoring was performed in most of water bodies (monitoring was performed in water in 87% of water bodies in the Danube RBD and in 68% of water bodies in Adriatic RBD).

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

According to the EQS Directive, Member States 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 the other matrix

²⁸ Amended by Directive 2013/39/EU

²⁹ Brominated diphenylether, Mercury and its compounds, Polyaromatic hydrocarbons (PAH), Tributyltin, PFOS, dioxins, hexabromocyclodecane and heptachlor

³⁰<https://www.eea.europa.eu/publications/state-of-water> (p40-41 of the report). Also available in a more interactive format at :

https://tableau.discomap.eea.europa.eu/t/Wateronline/views/WISE_SOW_SWB_Chemical_Status_Maps/SWB_Failing_Good_Chemical_Status_RBD?iframeSizedToWindow=true&:embed=y&:showAppBanner=false&:display_count=no&:showVizHome=no

(or matrices) offers at least the same level of protection as the standard established in the directive.

Slovenia have applied all the environmental quality standards laid down in Part A of Annex I of the EQS Directive for assessment of the chemical status.

Use of mixing zones

Article 4 of the EQS Directive provides Member States 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. Member States 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 have not been designated in Slovenia.

Background Concentrations and Bioavailability

The EQS Directive stipulates that Member States 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.

Slovenia clarified that for the second RBMP, nickel and lead did not exceed the quality standards in any of the water bodies and so the use of bioavailability was not necessary. Slovenia however reported that a methodology exists in Slovenia to take into account bioavailability when assessing compliance with metals. Slovenia also reported in WISE that natural background concentrations for metals and their compounds are not taken into consideration (Slovenia clarified that this results from the absence of exceedance for these substances; otherwise, in accordance with Slovene regulation, the natural background could be taken into account for mercury and cadmium).

4.2 Main changes in implementation and compliance since the first cycle

Between the two cycles for Slovenia overall, there was a large decrease in the proportion of surface water bodies with good chemical status from 95% to 0.6% and a significant increase in the proportion failing to achieve good status from 5% to 99%. This general pattern occurred

across both RBDs and all Natural/Heavily Modified/Artificial water body categories. The main difference may be due to the presence of mercury in biota as Slovenia states that the chemical status of surface water bodies between the first RBMP and second RBMP in the Adriatic RBD, without taking mercury in biota into consideration, would be the same for both cycles and would actually be slightly better for the Danube RBD. Furthermore in the both RBMPs it is stated that mercury is being transmitted over large distances through atmospheric deposition, and in Europe it is generally present in biota in surface waters in concentrations that exceed the relevant environmental quality standard for mercury.

The Priority Substances causing failure of good chemical status for the first cycle were not systematically reported, making comparison with the data from second cycle difficult. However, it shows that for the first cycle mercury and tributyltin were identified as the Priority Substances causing environmental quality standards exceedances but for only very small percentages of water bodies failing good status.

In Slovenia, a single Priority Substance (tributyltin-cation) was reported to have improved from failing to achieve good status to good chemical status since the first RBMP in just one river water body in the Danube RBD³¹.

4.3 Progress with Commission recommendations

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

- Recommendation: *Complete the development of methods for the status assessment of water bodies and definition of reference conditions and apply them through the implementation of robust monitoring programmes (start monitoring hydromorphological parameters in lakes and transitional and coastal waters and fish in lakes). An adequate WFD compliant assessment and monitoring framework is a necessary pre-requisite to design effective PoMs and ultimately to achieve the WFD objectives.*

Assessment: With respect to the assessment of chemical status in surface waters, Slovenia has applied the required analytical methods and environmental quality standards in each of the required matrices for all relevant Priority Substances. Monitoring has been undertaken in a very significant proportion of water bodies; at the

³¹ Slovenia subsequently clarified that two Priority Substances (tributyltin-cation and mercury) were reported to have improved from failing to achieve good to good chemical status since the first RBMP in two river water bodies in the Danube RBD

recommended minimum frequencies with the exception of operational monitoring in water which is not undertaken 12 times per year in every year in the monitoring cycle. No explanation could be found for these reduced frequencies. Monitoring of Priority Substances is not undertaken in all surface water bodies but an assessment of chemical status in all surface water bodies has been made by expert judgement or extrapolation. The confidence in the assessment of status is low in a very significant proportion of water bodies, based on extrapolation of biota monitoring data. Very significant progress has been made. This recommendation is almost fulfilled.

- Recommendation: *The biota standards for mercury, hexachlorobenzene and hexachlorobutadiene in the EQSD should be applied for the chemical status assessment, unless water EQS providing an equivalent level of protection are derived; the plan does not appear to indicate which EQSs were used. Biota EQS should also be considered for the other substances where analysis in water is problematic. The trend monitoring in sediment or biota specified for several substances in Directive 2008/105/EC Article 3(3) will also need to be reflected in the next RBMP.*

Assessment: Slovenia reports that all standards in the EQS Directive have been applied and that no alternative or additional standards have been derived. Slovenia has monitored the required three Priority Substances in biota in all water categories, for the purpose of status assessment. The sampling frequency is at least once every year, which is the recommended minimum frequency. The highest number of sites monitored for biota in Slovenia as a whole is 26 for mercury. The lowest number of sites is 16 for hexachlorobenzene and the same number for hexachlorobutadiene.

For long-term trend assessment, Slovenia has monitored all required 14 Priority Substances in all water categories in both RBDs, apart from pentachlorobenzene, which was not monitored at a coastal water body site in this RBD. Slovenia subsequently informed that monitoring for pentachlorobenzene commenced in 2014 (in the Adriatic RBD) which was outside the assessment period (2009 to 2013) reported in the second RBMP. The sampling frequency is at least once every three years which meets the recommended frequency in the Directive. This recommendation is almost fulfilled.

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

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

5.1.1 Monitoring of quantitative status in groundwater

The total number of groundwater bodies in Slovenia is 21 (Table 2.4), of which seven are not subject to monitoring for quantitative status (Table 4.1). This means that 33% of groundwater bodies are not monitored³². The review of RBMPs and background documents found no indication that grouping was applied in either RBD.

The number of groundwater bodies and the total groundwater body area did not change from the first RBMP.

The number of monitored groundwater bodies increased from 13 in the first cycle to 14 in the second RBMP. The number of monitoring sites for quantitative status is listed in Table 4.2 and shows a significant increase by 18% from 115 in the first cycle to 136 in the second RBMP. The number of monitoring sites and their purpose is listed in Table 4.3.

All 21 groundwater bodies have been reported as associated with Drinking Water Protected Areas. In all the cases groundwater bodies overlap with more than one Protected Area which are designated as Drinking Water Protected Areas.

Table 4.1 *Number of water bodies in Slovenia directly monitored and the purpose of monitoring*

RBD	Total groundwater bodies directly monitored	Monitoring Purpose		
		OPE - Operational monitoring	QUA - Quantitative status	SUR - Surveillance monitoring
SIRBD1	18	12	11	18
SIRBD2	3	2	3	3

Source: WISE electronic reporting

³² Slovenia subsequently clarified that direct and indirect (based on regional modelling) monitoring is used for status assessment wherein both, hydrological and meteorological parameters are considered. References to monitoring in this report refer to direct monitoring.

Table 4.2 *Proportion of groundwater bodies in Slovenia monitored for quantitative status*

RBD	No of groundwater bodies with quantitative monitoring	Total groundwater bodies	No.	% of total groundwater bodies monitored for quantitative status
SIRBD1	11	18		61.11%
SIRBD2	3	3		100.00%

Source: WISE electronic reporting

Table 4.3 *Number of groundwater monitoring sites in Slovenia and their purpose*

RBD	Total groundwater monitoring sites	Monitoring Purpose		
		OPE - Operational monitoring	QUA - Quantitative status	SUR - Surveillance monitoring
SIRBD 1	287	135	127	160
SIRBD 2	25	11	9	16

Source: WISE electronic reporting

5.1.2 Assessment and classification of quantitative status for groundwater

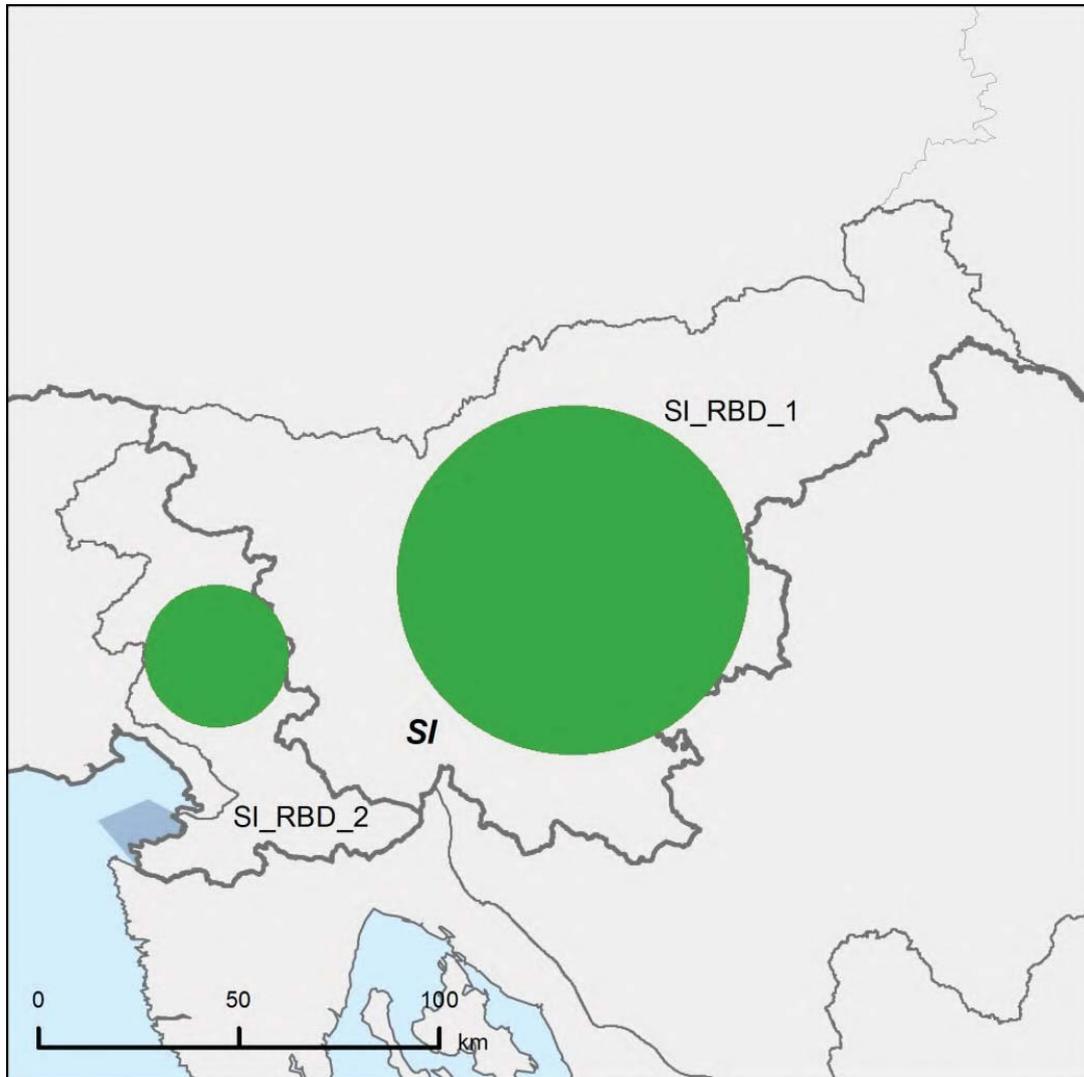
Map 5.1 displays the most recently assessed quantitative status of groundwater bodies.

It shows that all 21 groundwater bodies (100%) were of good quantitative status (Figure 5.1) and they had already been in good status in the first RBMP. Figure 5.2 shows that all groundwater bodies have medium or high confidence in status classification. All groundwater bodies had and still have a clear status, in the first and in the second RBMP.

For both RBDs, water balance was assessed by a comparison of annual average groundwater abstraction against the ‘available groundwater resource’ for every groundwater body. In both RBDs, the criterion of ‘available groundwater resource’ has been fully applied in accordance with WFD Article 2(27) and all environmental objectives have been considered in status assessment.

Figure 5.2 shows the confidence in status classifications, with all the unknown status classifications at low confidence.

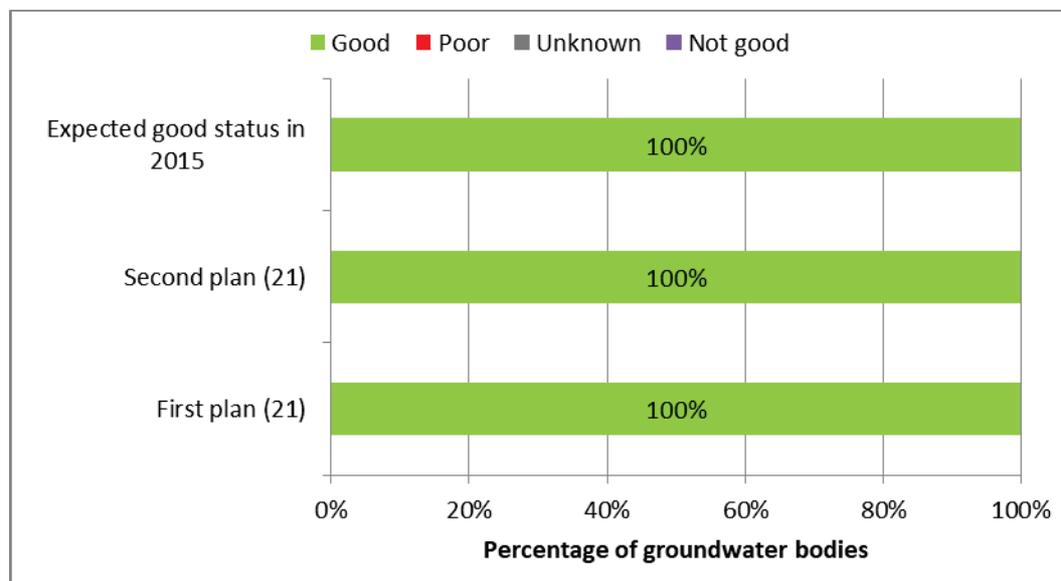
Map 5.1 *The most recently assessed quantitative status of groundwater bodies based on status of the groundwater water bodies*



Source: WISE electronic reporting

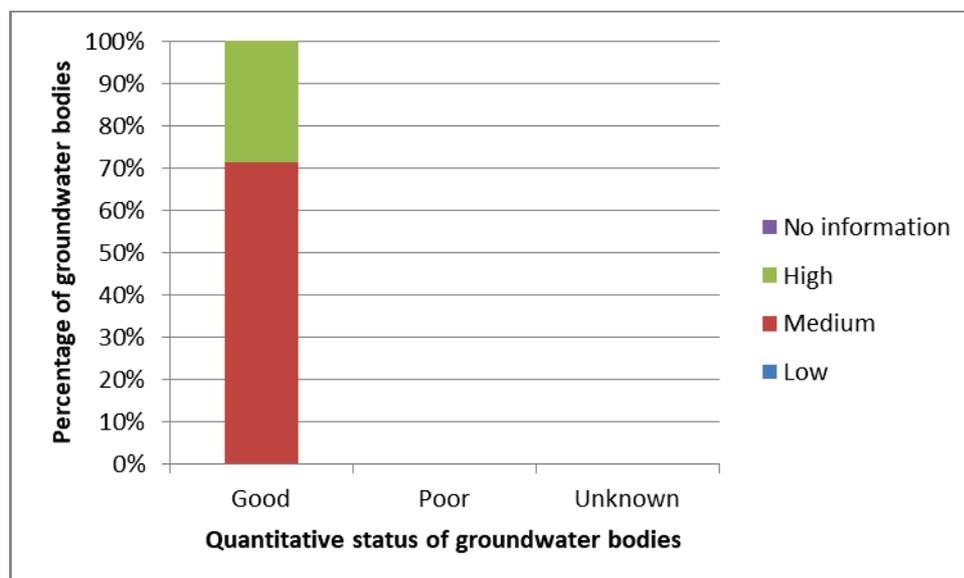
Note: Standard colours based on WFD Annex V, Article 2.2.4.

Figure 5.1 *Quantitative status of groundwater bodies in Slovenia 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 2008 to 2013. The year of the assessment of status for first RBMP was 2006-2008.*



Source: WISE electronic reporting

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



Source: WISE electronic reporting

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

All groundwater bodies are associated with surface waters and there is no related risk. Groundwater associated surface waters have been considered in status assessment in both RBDs.

In the Danube RBD, nine groundwater bodies are linked with groundwater dependent terrestrial ecosystems. There is no related risk and groundwater dependent terrestrial ecosystems have been considered in status assessment; also the needs of terrestrial ecosystems have been considered in status assessment in both RBDs.

5.2 Main changes in implementation and compliance since the first cycle

The quantitative status of all 21 groundwater bodies remained unchanged since the first RBMP.

Changes and/or updates were not explicitly described in the second RBMP on the key aspects (e.g. assessment methodologies).

The monitoring situation improved as the number of sites increased by 18% from 115 to 136.

5.3 Progress with Commission recommendations

There were no Commission recommendations based on the first RBMPs and 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 the second cycle

6.1.1 Monitoring of chemical status in groundwater

The total number of groundwater bodies in Slovenia is 21 (Table 4) and all (100%) groundwater bodies are subject to surveillance monitoring (Table 7). Altogether three groundwater bodies (14%) are at risk and 14 are subject to operational monitoring.

The number of groundwater bodies and the total groundwater body area did not change since the first RBMP.

All groundwater bodies were subject to surveillance monitoring in the first RBMP and they are still covered by surveillance monitoring in the second RBMP. The number of monitoring sites is listed in Table 14 and shows an increase from 104 in the first cycle to 176 in the second RBMP. The number of operational monitoring sites increased since the first RBMP from 29 to 146.

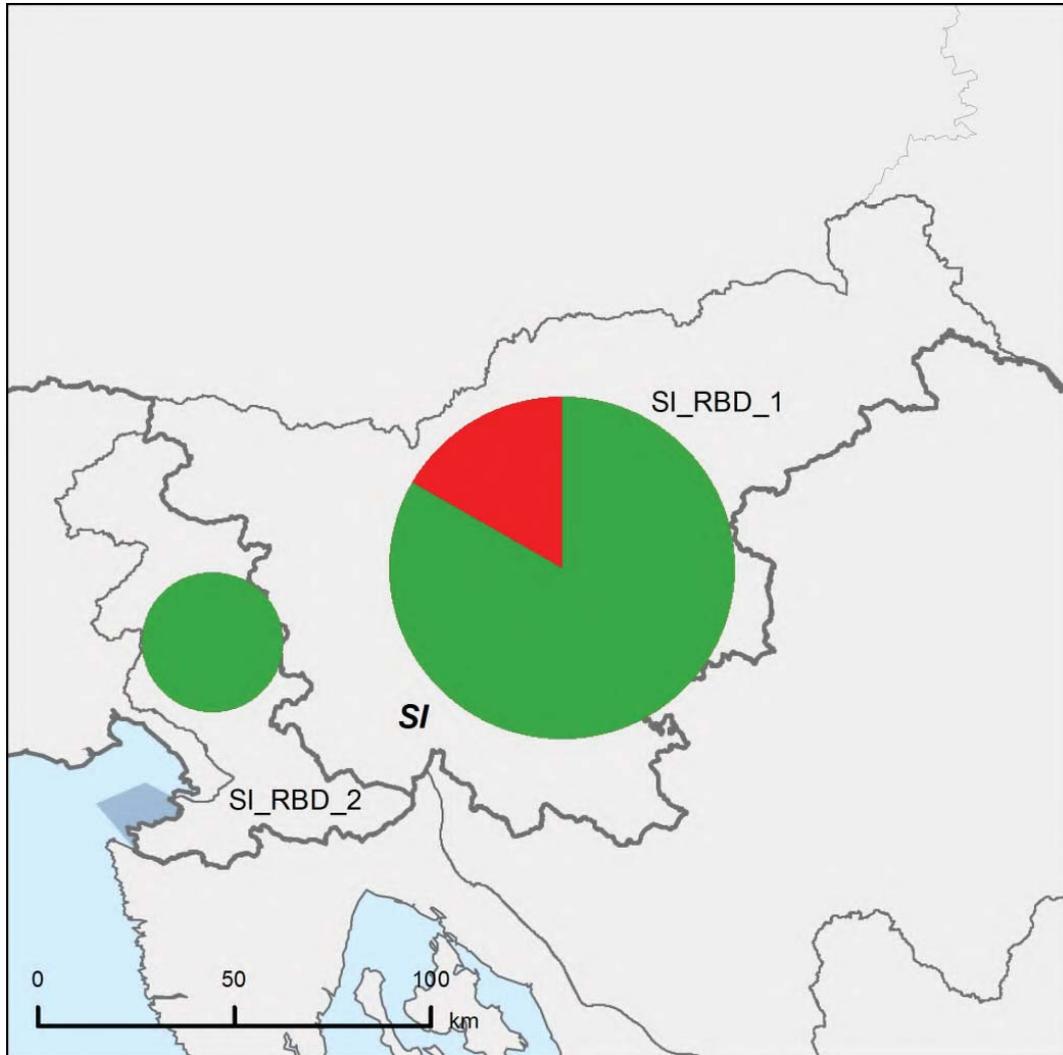
All substances causing risk of deterioration in chemical status are subject to surveillance monitoring. All WFD core parameters (nitrate, ammonium, electrical conductivity, oxygen and pH) are monitored.

6.1.2 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 18 of 21 groundwater bodies (86%) were of good chemical status, and the remaining three groundwater bodies (14%) are failing good status. In terms of area, this means that about 5% are failing good chemical status. Figure 6.2 shows that the confidence in status classification is medium and high. All groundwater bodies had, and still have, a clear status, in the first and in the second RBMP.

The total number of groundwater bodies failing good chemical status decreased from four (19%) in the first RBMP to three (14%) groundwater bodies in the second (Figure 6.1). The expected date of achievement of good chemical status in Slovenia is shown in Figure 6.3.

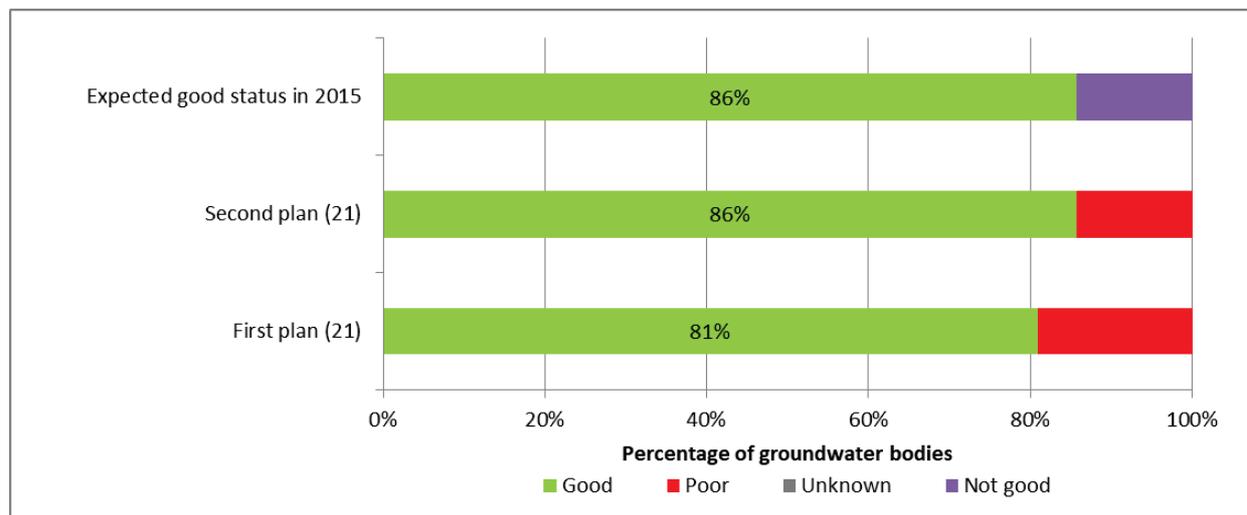
Map 6.1 *Map of chemical status of groundwater bodies in Slovenia based on the most recently assessed status of the groundwater water bodies*



Source: WISE electronic reporting

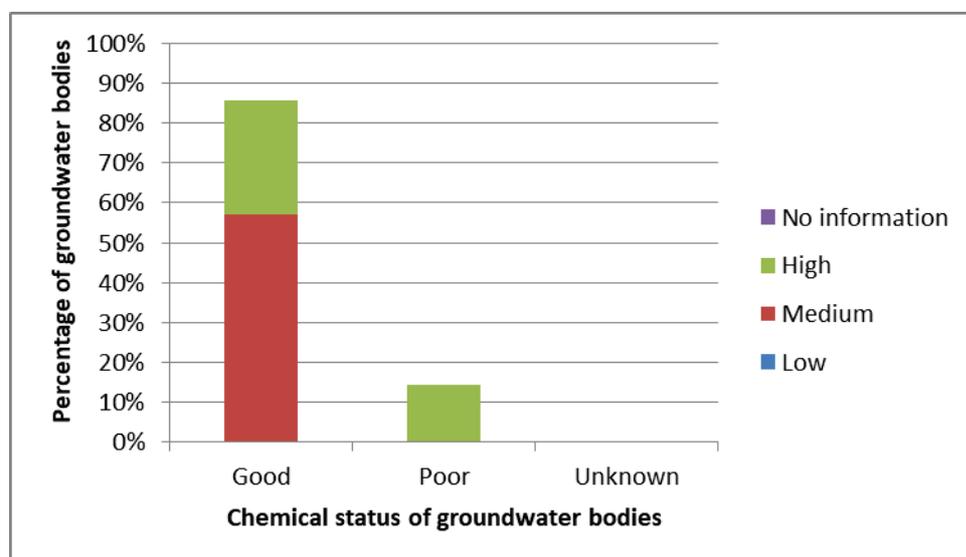
Note: Standard colours based on WFD Annex V, Article 2.4.5.

Figure 6.1 *Chemical status of groundwater bodies in Slovenia as reported in the second RBMP, the first RBMP and expected in 2015. The number in the parenthesis is the number of groundwater bodies in each cycle. Note the period of the assessment of status as reported in the second RBMP was 2009 to 2013. The year of the assessment of status as reported in the first RBMP is not known*



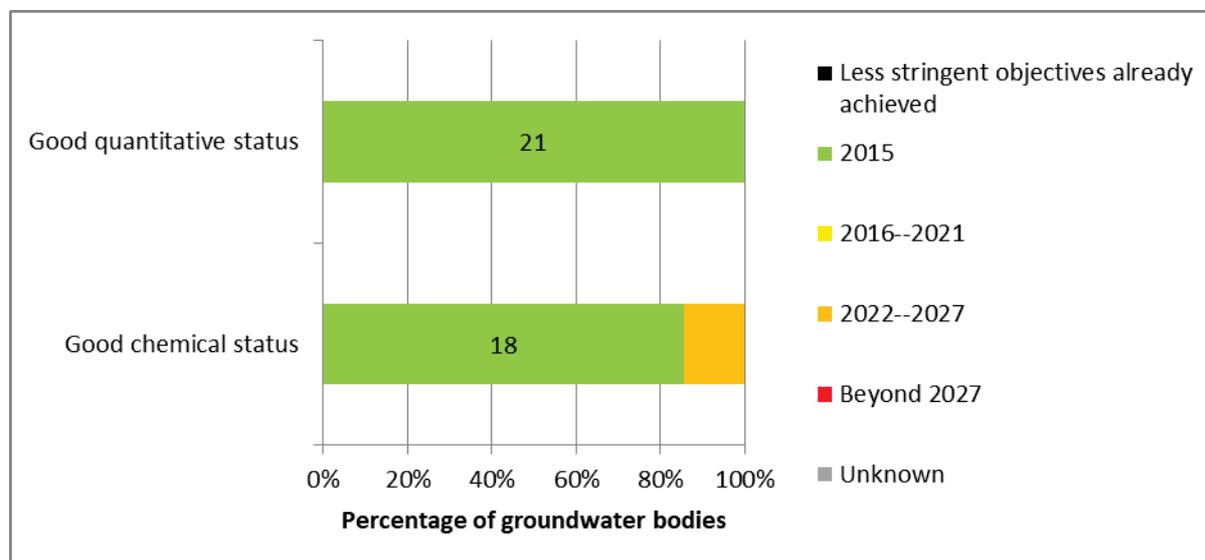
Source: WISE electronic reporting

Figure 6.2 *Confidence in the classification of chemical status of groundwater bodies in Slovenia based on the most recent assessment of status*



Source: WISE electronic reporting

Figure 6.3 *Expected date of achievement of good quantitative and good chemical status of groundwater bodies in Slovenia. 21 groundwater bodies delineated as reported in the second RBMPs*



Source: WISE electronic reporting

The reasons for the failure of good chemical status of groundwater bodies are shown in Figure 6.4. For all three groundwater bodies, the general assessment of the chemical status for the groundwater body as a whole was failed. This assessment considers the significant environmental risk from pollutants across a groundwater body and a significant impairment of the ability to support human uses. Figure 6.5 shows the pollutants causing failure of status.

The calculation of the extent of exceedance of a groundwater quality standard or a groundwater threshold value is in both RBDs based on the number of monitoring sites in the groundwater body.

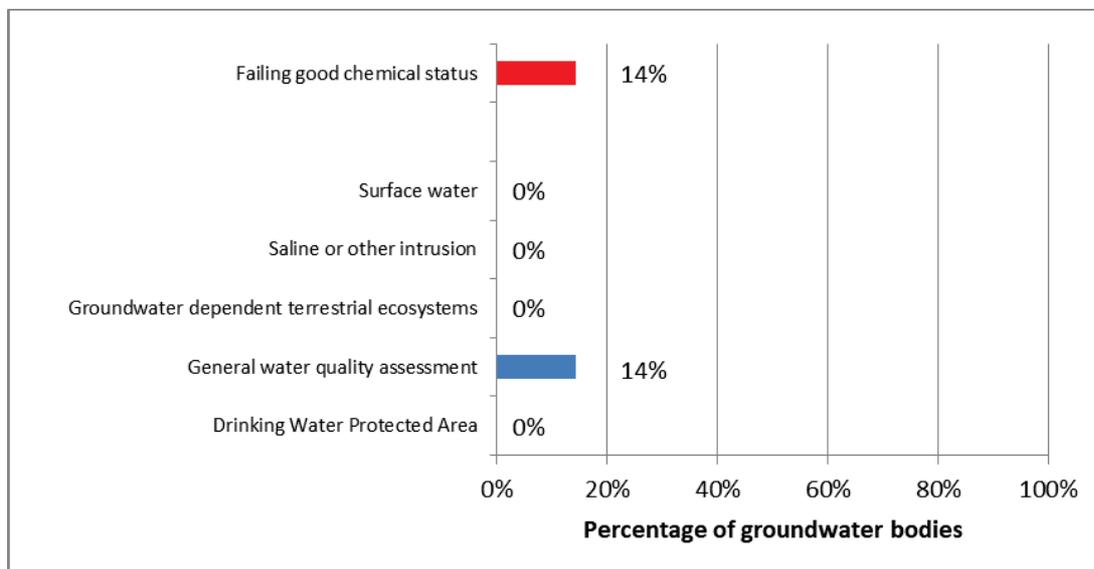
In both RBDs, groundwater threshold values have been established for all pollutants or indicators of pollution causing a risk of failure of good chemical status. Further assessment of the Danube RBMP found that only some but not all Groundwater Directive³³ Annex II substances had been considered, but there was no explanation for this. The threshold values are the same as for drinking water or more stringent. Natural background levels have not been considered in the establishment of groundwater threshold values.³⁴

³³ 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>

³⁴ Slovenia subsequently clarified that all substances of Annex II of the Groundwater Directive have been considered in setting threshold values but only for volatile halogenated hydrocarbons which causes risk, a

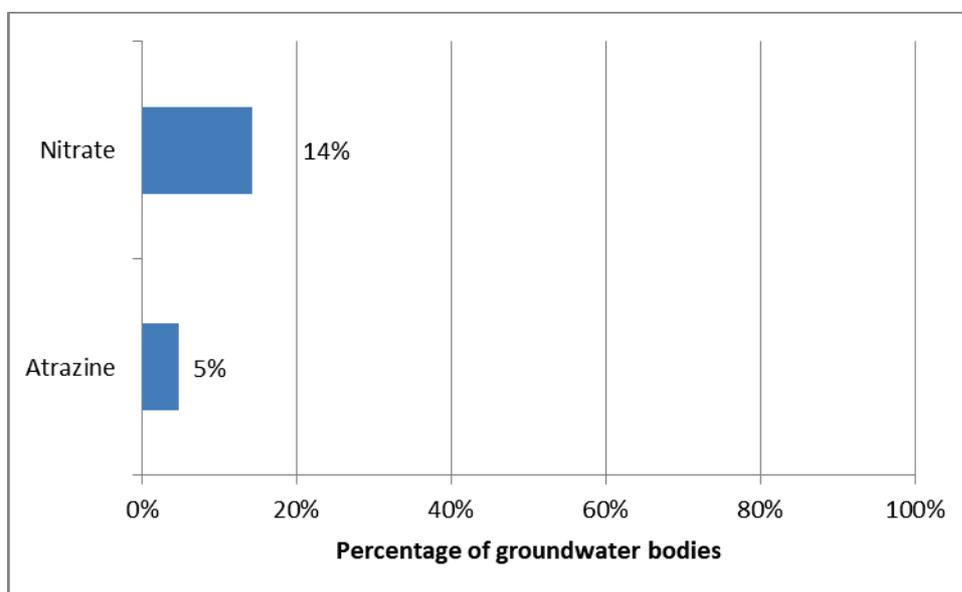
A trend and trend reversal methodology is available and assessments have been performed in both RBDs.

Figure 6.4 *Reasons for failing good chemical status in Slovenia for the most recent assessment of status*



Source: WISE electronic reporting

Figure 6.5 *Top groundwater pollutants causing failure of good chemical status in Slovenia*



Source: WISE electronic reporting

threshold value had been set. As this substance is not of natural origin, natural background values have not been considered.

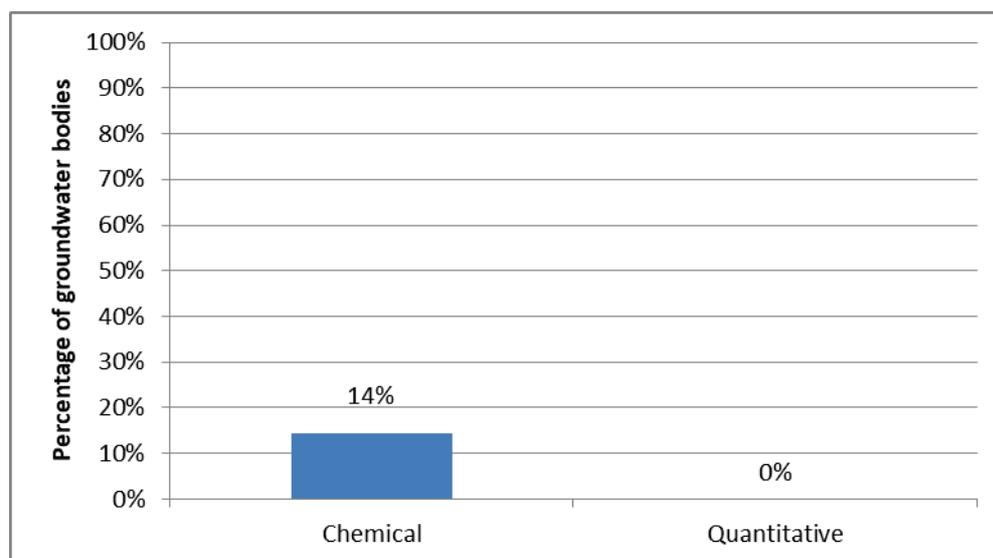
6.1.3 Consideration of groundwater associated surface waters and/or groundwater dependent ecosystems

All groundwater bodies are associated with surface waters and there is no related risk. Groundwater associated surface waters have been considered in status assessment in both RBDs. Figure 6.6 shows the percentage of groundwater bodies at risk of failing good chemical status and good quantitative status.

In the Danube RBD, nine groundwater bodies are linked with groundwater dependent terrestrial ecosystems. There is no related risk and groundwater dependent terrestrial ecosystems have been considered in status assessment.

Groundwater associated aquatic ecosystems and groundwater dependent terrestrial ecosystems have not been considered in threshold value establishment in those RBDs where such ecosystems exist; however, there is no related risk.

Figure 6.6 *Percentage of groundwater bodies in Slovenia at risk of failing good chemical status and good quantitative status as reported in the second RBMPs*



Source: WISE electronic reporting

6.2 Main changes in implementation and compliance since the first cycle

Changes and/or updates were not explicitly described in the second RBMP on the key aspects (e.g. assessment methodologies).

The chemical monitoring situation improved. The number of surveillance monitoring sites increased from 104 to 176 and operational monitoring sites from 29 to 146. The methodologies

used were the same as in previous reporting period. The status situation also improved; the number of groundwater bodies failing to achieve good chemical status reduced from four groundwater bodies in the first RBMP to three groundwater bodies in the second RBMP.

6.3 Progress with Commission recommendations

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

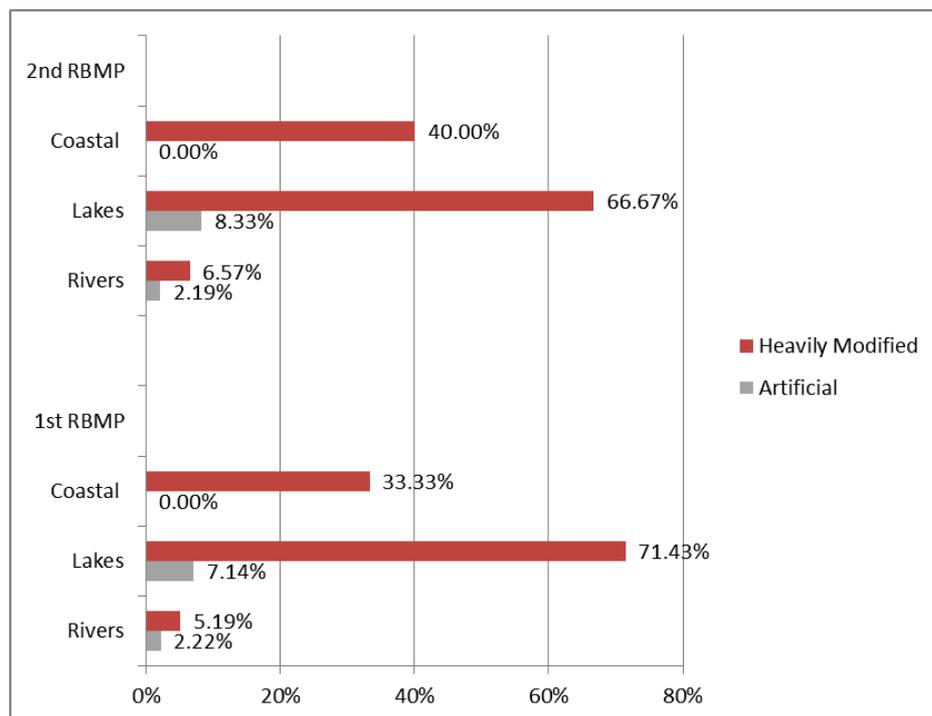
Topic 7 Designation of Heavily Modified and Artificial Water Bodies and definition of Good Ecological Potential

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

7.1.1 Designation of Heavily Modified and Artificial Water Bodies

The WFD requires a review of designation every six years. In Slovenia, the designation of HMWB was updated in 2011 and minor changes have been reported in the designation of river and lake heavily modified water bodies (Figure 7.1). In the Danube RBD, the number of lake heavily modified water bodies reduced from seven to five and the number of river heavily modified water bodies increased from six to eight. Based on new data and development of knowledge, the characteristics of specific heavily modified water bodies were updated and the category of specific heavily modified water bodies was changed. No changes took place for artificial water bodies.

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



Source: WISE electronic reporting

Several of the designated heavily modified water bodies are reservoirs. 17 water bodies are reservoirs which were originally rivers; eight of these are designated as river heavily modified

water bodies and nine are designated as lake heavily modified water bodies. According to Common Implementation Strategy guidance³⁵ on this issue, though, if reservoirs were originally rivers, it is recommended to designate them as river heavily modified water bodies.

The main water use for which river water bodies are designated as heavily modified water bodies is hydropower. The main water uses of lake water bodies designated as heavily modified water bodies are flood protection and irrigation. The two coastal heavily modified water bodies are designated due to transport and wider environment.

The main physical alterations of river and lake heavily modified water bodies are weirs/dams/reservoirs. Coastal heavily modified water bodies are affected by land reclamation/coastal modifications/ports.

The RBMPs do not provide specific information on how the significant adverse effects of restoration measures on the use or the wider environment (Article 4(3)(a)) have been defined. They also do not provide specific information on whether the beneficial objectives served by the modifications of the heavily modified water bodies can be achieved by other means. The Slovenian authorities have informed that expert studies that consider the designation tests were prepared for all heavily modified water bodies for the purpose of the first RBMPs. Significant effects of restoration measures on use or wider environment were addressed in workshops with relevant stakeholders. For the purpose of the second RBMPs, significant effects of measures were considered again in terms of costs of measures to achieve good ecological status (not potential) on heavily modified and artificial water bodies. Further work on this issue is expected as part of specific measures included in the PoM, e.g. in terms of analysis of measures related to achieving good ecological potential in large hydropower, and assessment of measures for the reduction of negative impacts of river/lake/coastal waters engineering works.

7.1.2 Definition of good ecological potential for Heavily Modified and Artificial Water Bodies

Good ecological potential was reported as defined at water body level in both RBDs. The approach used for good ecological potential definition in both RBDs is the Common Implementation Strategy Guidance approach.

Good ecological potential is also reported to have been defined in terms of biology in both RBDs. It is also reported in WISE that a comparison between good ecological potential and good ecological status has been made. The biological quality elements for which biological

³⁵ [https://circabc.europa.eu/sd/a/f9b057f4-4a91-46a3-b69a-e23b4cada8ef/Guidance%20No%204%20-%20heavily%20modified%20water%20bodies%20-%20HMMWB%20\(WG%202.2\).pdf](https://circabc.europa.eu/sd/a/f9b057f4-4a91-46a3-b69a-e23b4cada8ef/Guidance%20No%204%20-%20heavily%20modified%20water%20bodies%20-%20HMMWB%20(WG%202.2).pdf)

values have been derived to define maximum ecological potential and good ecological potential are benthic invertebrates, other aquatic flora, and phytoplankton. However, the RBMPs do not provide any further information on if and how actual values for biological quality elements are estimated for good ecological potential.

According to information provided by Slovenia, an adapted methodology for ecological potential assessment is used compared to the first RBMPs. The methodology uses relevant biological quality elements for the assessment of the ecological potential of heavily modified and artificial water bodies, for example phytoplankton was used for lakes/reservoirs.

For rivers, methods for assessing fish and benthic invertebrates were reported as sensitive to altered habitats due to both hydrological and morphological changes. For lakes and coastal waters, there are methods sensitive to hydromorphology for benthic invertebrates only.

Mitigation measures for defining good ecological potential have been reported for both RBDs. The RBMPs however do not provide any information on the ecological changes that the mitigation measures are designed to achieve, or how are the ecological benefits of the measures assessed. Slovenian authorities have informed that the detailed estimation of ecological improvements will be performed in the context of relevant measures included in the PoM.

7.2 Main changes in implementation and compliance since the first cycle

The RBMPs mention that the designation of heavily modified water bodies was updated in 2011 but they do not describe any changes made to the heavily modified water body designation methodology since the first RBMPs. The methodology for ecological potential assessment has been adapted since the first cycle, according to information provided by Slovenia.

7.3 Progress with Commission recommendations

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

- Recommendation: *The designation of HMWBs 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 RBMPs. This is needed to ensure transparency of the designation process.*

Assessment: See next recommendation.

- Recommendation: *Develop objective criteria for second RBMPs for assessing "significant adverse effects on the water use" and "better environmental option" in the context of the heavily modified water body designation process. Good Ecological Potential should be developed in terms of biology and mitigation measures at water body level and reported in the second RBMPs.*

Assessment: The second RBMPs do not provide specific information on how the significant adverse effects of restoration measures on the use or the wider environment (Article 4(3)(a)) have been defined. They also do not provide information on whether the beneficial objectives served by the modifications of the heavily modified water bodies can be achieved by other means. The Slovenian authorities have informed that expert studies that consider the designation tests were prepared for all heavily modified water bodies for the purpose of the first RBMPs. Significant effects of restoration measures on use or wider environment were addressed in workshops with relevant stakeholders. For the purpose of the second RBMPs, significant effects of measures were considered again in terms of costs of measures to achieve good ecological status (not potential) on heavily modified and artificial water bodies. Further work on this issue is expected as part of specific measures included in the PoM, e.g. in terms of analysis of measures related to achieving good ecological potential in large hydropower, and assessment of measures for the reduction of negative impacts of river/lake/coastal waters engineering works).

Therefore, the part of the recommendation on the designation of HMWB has partially been fulfilled.

Concerning good ecological potential, in the first RBMPs, it was only defined for rivers (using benthic invertebrates) but not for lakes and coastal waters. For the second RBMPs, good ecological potential was reported in WISE as defined at water body level also in terms of biology. According to WISE, the biological quality element for which biological values have been derived to define maximum and good ecological potential are benthic invertebrates, other aquatic flora, and phytoplankton. Also mitigation measures for defining good ecological potential were reported at RBD level. However, no information could be found on if and how actual values for biological quality elements for ecological potential are estimated and no information could be found on the ecological changes that the mitigation measures are designed to achieve. Slovenian authorities have informed that the detailed estimation of ecological improvements will be performed in the context of relevant measures included in the PoM.

Therefore, the part of the recommendation on good ecological potential has partially been fulfilled.

Topic 8 Environmental objectives and exemptions

8.1 Assessment of implementation and compliance with WFD requirements in the 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, i.e. 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 2015³⁶), 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 water and quantitative and chemical status in groundwater have been reported in both RBDs.

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

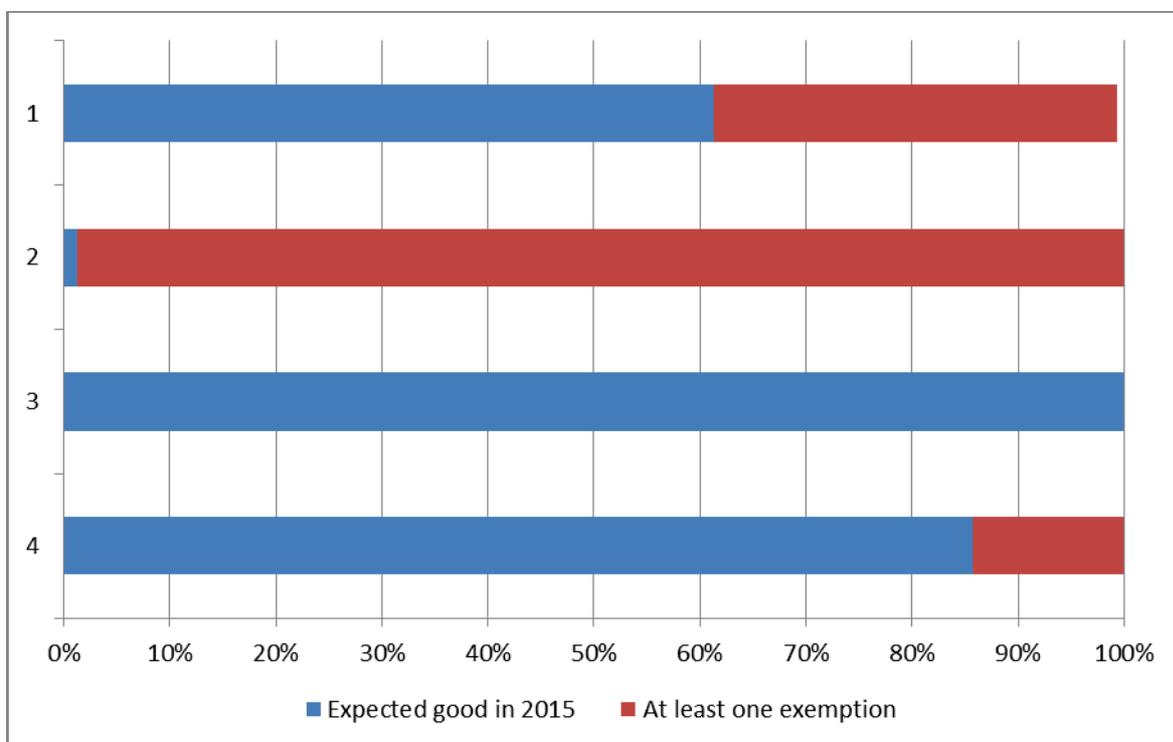
Slovenia did not report any progress towards achieving environmental objectives in the period of the second cycle (2016-2021). This leads to a significant number of water bodies which are expected to achieve the objectives only in the period 2022-2027, raising the question regarding the level of ambition of the second RBMPs.

³⁶ 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.

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 in Slovenia for the four main sets of environmental objectives.

Figure 8.1 *Water bodies in Slovenia 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*



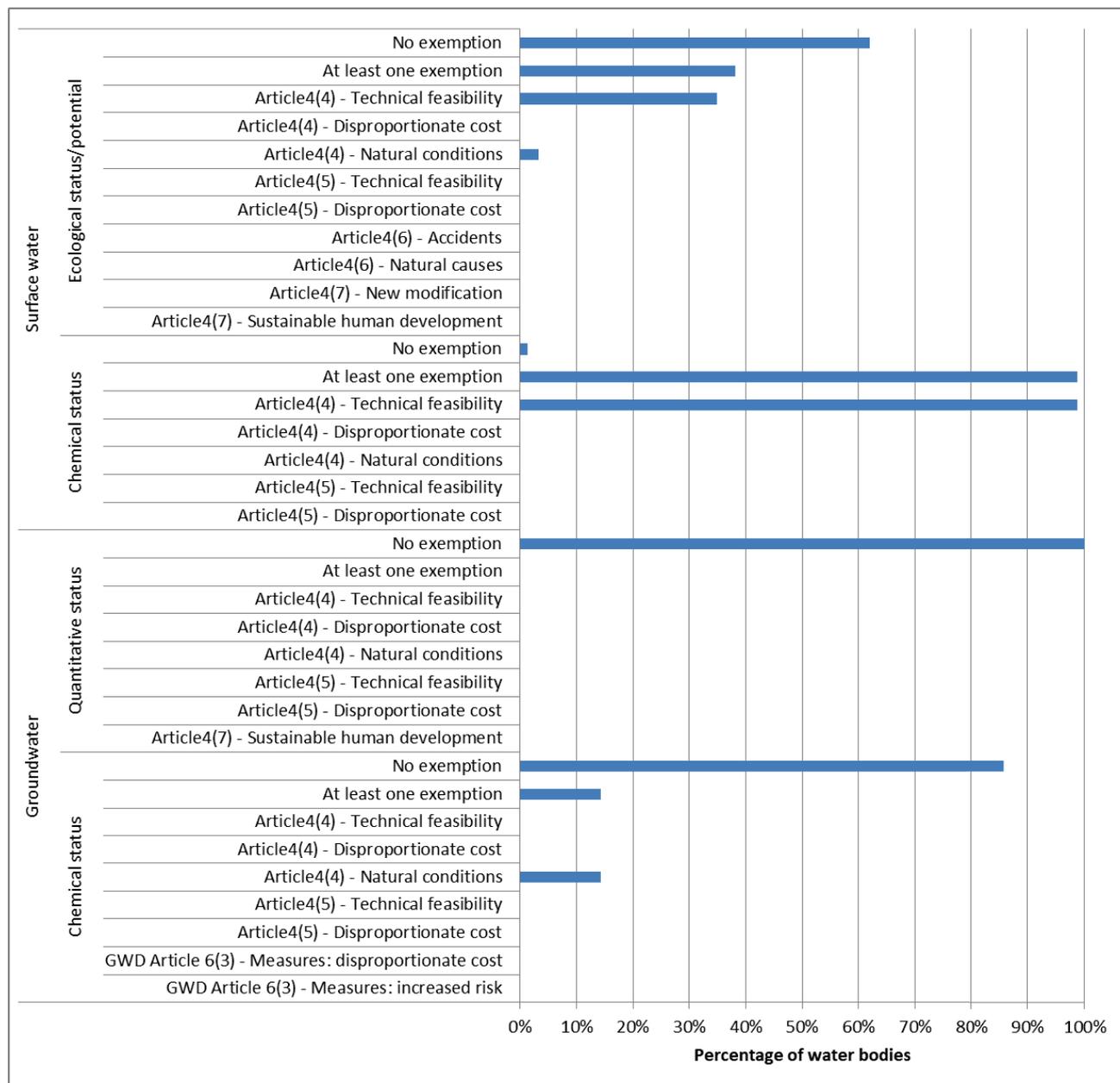
Source: WISE electronic reporting

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, 4(5) - lower objectives, 4(6) - temporary deterioration, and 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 for 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 objective in Slovenia. Table 8.1 shows the pressures responsible for exemptions in surface waters and Table 8.2 shows the pressures responsible for exemptions in groundwater.

Figure 8.2 *Type of exemptions applied to surface water and groundwater bodies for the second RBMP in Slovenia. 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*



Source: WISE electronic reporting

Application of Article 4(4)

Article 4(4) was used more widely in surface water and groundwater in the second cycle than in the first cycle. In the first cycle, the justification for surface water in relation Article 4(4) referred to technical feasibility and natural conditions (reestablishment of fauna and flora). Disproportionate costs were not used as justification for any exemptions and this remains the case in the second cycle. For groundwater, the justification refers to natural conditions as in the first cycle.

The main pressures to surface water in the Danube RBD, for example, come from a broad range of activities including urbanisation, industry, agriculture and activities causing changes in hydromorphology (the pressure responsible for Priority Substances failing to achieve good chemical status is ‘anthropogenic pressure – unknown’ (Table 8.1)).

In the Danube RBD, the main pressure to surface water is point source pollution from urban waste water and physical alterations. The main drivers behind these pressures are agriculture, hydropower and flood protection in both RBDs and also industry in the Adriatic RBD. The main pressure/driver acting on groundwater in the Danube RBD is diffuse pollution from agriculture (Table 8.2).

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

Significant pressure on surface water bodies	Failing Priority Substances	Article 4(4) - Technical feasibility exemptions	Article 4(5) - Technical feasibility exemptions
	Number	Number	Number
8 - Anthropogenic pressure - Unknown	2	155	0

Source: WISE electronic reporting

Table 8.2 *Pressure responsible for pollutants in Slovenia 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				
		Article 4(4) - Disproportionate cost	Article 4(4) - Natural conditions	Article 4(4) - Technical feasibility	Article 4(5) - Disproportionate cost	Article 4(5) - Technical feasibility
2.2 - Diffuse Agricultural	1	0	3	0	0	0

Source: WISE electronic reporting

Application of Article 4(5)

No exemptions according to Article 4(5) have been applied.

Application of Article 4(6)

No exemptions according to Article 4(6) were applied.

Application of Article 4(7)

No exemptions according to Article 4(7) were applied in the second RBMP, although it was applied in the first RBMP. No specific information is provided in the RBMPs whether an Article 4(7) assessment was required for any potential new modifications or new sustainable human development activities.

Application of Article 6(3) GWD

No exemptions according to Article 6(3) of the Groundwater Directive³⁷ were applied.

8.2 Main changes in implementation and compliance since the first cycle

Article 4(4) is used more widely in surface waters and groundwaters in the second cycle than in the first cycle. Article 4(7) was applied in the first cycle, but is no longer applied in the second cycle. For Article 4(5) and Article 4(6) no changes have been detected (not applied).

³⁷ 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>

8.3 Progress with Commission recommendations

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

- Recommendation: *Make sure that new hydromorphological modifications, such as new hydropower plants, comply with the WFD requirements for these exemptions. They should also be adequately justified and supported by a proper strategic assessment of cumulative effects and alternative solutions and include all necessary mitigation measures. Exemptions should be adequately justified at water body level.*

Assessment: 4(7) was applied in the first RBMP but not in the second RBMP. There is no information available in the RBMPs whether the effects of any planned new modifications on water body status/potential have been assessed and whether an Article 4(7) assessment would be required. Slovenia subsequently informed the Commission of the publication of guidelines for assessment of impacts on ecological status due to new hydromorphological modifications, according to which the impacts would have to be considered within the preparation of the strategic impact assessment and the environmental impact assessment in the permitting procedure for water rights.

However, these guidelines have not been assessed by the Commission. Therefore further information is needed to assess whether the recommendation has been fulfilled.

Topic 9 Programme of measures

The aim of this chapter is to provide an overview of the PoM reported by 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 the PoM, which target the same pressure or purpose. The individual measures included in the Programme of Measure (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 Type 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 Types of Measure may be one national measure but it would typically comprise more than one national measure. 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 the second cycle

9.1.1 General issues

An indication of whether or not measures have been made operational is when they have been reported as being planned to tackle significant pressures (Key Types of Measure level). Significant pressures are also reported at the water body level. It would be expected that there would be measures planned to tackle all significant pressures. For surface waters, KTMs were reported for all significant pressure types reported in the Danube RBD. For the Adriatic RBD, KTMs were reported for only three of the eight significant pressures identified as causing a failure of good status. For both RBDs, KTMs were also reported for a number of chemical substances. For groundwater, one significant pressure type (diffuse agricultural) causing failure of objectives was reported for the Danube RBD and this is covered by a KTM. No significant

pressures causing groundwater bodies to fail to be of good status were reported for the Adriatic RBD.

Slovenia has mapped 18 national basic measures against nine predefined KTMs and all of the measures are applicable to both RBDs. A further 35 national basic measures have been mapped against 23 nationally developed KTMs. 28 of those measures, covering 19 KTMs, apply in both RBDs. 11 national supplementary measures have been mapped against six predefined KTMs. No national supplementary measures have been mapped against the nationally defined KTMs. 9.4% of the national basic measures, and 26% of the national supplementary measures have been mapped against KTM 6 - "Improving hydromorphological conditions of water bodies other than longitudinal continuity". KTM 1 - "Construction or upgrades of wastewater treatment plants" and the national measure "Construction or upgrades of wastewater sewage system" have each had 7.5% of national basic measures mapped against them. None of the basic measures have been reported³⁸ as relating to 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). Links to documents on Article 11(3)(c-k) basic measures have been provided. An inventory of national basic measures, which includes some supplementary measures, was also reported.

For both RBDs, the KTMs reported to be tackling significant pressures are covered by KTMs against which national measures have been mapped, although the number of KTMs against which national measures have been mapped is much larger than those reported to be tackling significant pressures. Therefore it is not clear if all the national measures are relevant or will be made operational.³⁹

KTMs are in place to address a number of substances that have been reported for the Danube RBD. Information has been provided on the number of groundwater bodies failing to be of good status due to nitrate and atrazine in the Danube RBD, but no KTMs have been specifically reported as addressing these pressures (though nitrate has been covered by KTM2 – "Reduce nutrient pollution from agriculture"). There is no information for the Adriatic RBD.⁴⁰

38 Slovenia subsequently clarified that 16 of the basic measures were reported to address the issue of Priority Substances.

39 Slovenia subsequently clarified that all measures are relevant and will contribute to achieving environmental objectives.

40 Slovenia subsequently provided clarification that in the whole territory of Slovenia, measures are in place to reduce pollution by nitrates from agricultural sources. For the Adriatic RBD, the load analysis showed the presence of agriculture, but taking into account the criteria for assessing significant pressures, they were not recognized as significant pressures.

One Priority Substance (mercury) has been reported to cause failure of good status in 120 surface water bodies in the Danube RBD, and two substances (mercury, in 30 water bodies and tributyltin in five water bodies) in the Adriatic RBD. These Priority Substances are covered by KTM 14 - "Research, improvement of knowledge base reducing uncertainty".

Slovenia reported quantitative values of indicators of the gap to good status, as well as indicators of the level of progress expected in the implementation of the measures for significant pressures (including individual chemical / Priority Substances) on surface water for both RBDs and for groundwater for the Danube RBD for 2015 and 2021. No significant pressures were reported on groundwater in the Adriatic RBD. No indicator values were presented for 2027. In most cases, little, if any, improvement is expected in the status of water bodies by 2021.

In the Danube RBD, indicators have been reported for most pressures on surface water bodies, with most of the gap indicators as "number of water bodies failing objectives due to specific pressures" or for specific substances "number of water bodies failing Environmental Quality Standard". No improvements are predicted by 2021, except for point source pressures from urban waste water. The situation is similar for the Adriatic RBD but a considerable number of pressures are not covered by gap analyses. For groundwater in the Danube RBD, indicators were reported for diffuse agricultural pollution but no improvements are expected by 2021. No indicators were reported for the pollutants nitrate and atrazine.

Cost-effectiveness analysis is an appraisal technique that provides a ranking of alternative measures on the basis of their costs and effectiveness, where the most cost-effective has the highest ranking. No information was available to identify whether cost-effectiveness analysis was used as a tool included in the prioritisation Annex VI and Annex VII of the PoM in for the first cycle PoM RBMPs. For the second cycle PoM, it has been reported that quantitative cost-effectiveness analyses were carried out in both RBDs to support the selection of measures proposed under the 2015-21 PoM. Links to relevant documents are provided. Further investigation in the RBMPs and background documents found that prioritisation selection of the measures was based on a cost-effectiveness analysis only for additional for supplementary measures with more than one possible alternative for reaching the WFD objectives. These were supplementary measures for the reduction of diffuse pollution with nutrients from agriculture and for additional supplementary measures for the reduction of hydromorphological pressures.

A critical factor in the success of the implementation of the PoM is the availability of funding to support the investments required. The investment costs for the first cycle PoM (2009-2015) were reported for all types of measure in Annex 0 under economic analysis and cost recovery.

Investment requirements for the second cycle have been reported at the Member State level for the years 2016-21. The capital investment required for the implementation of Article 11(3)(a) requirements (measures required to implement Community legislation for the protection of water) was reported to be €864.4 m with annual operation and maintenance costs of €14.4 m. The capital investment required for the implementation of measures required by and Article 11(3)(b-1), Article 11(4) and Article 11(5) (all other measures) was reported to be €744 m with annual operation and maintenance costs of €157.4 m. Depreciation has not been included in any calculations.

It is estimated that €271.8 m of European Union investment funding will be received for the second cycle PoM. No figures were reported for the first cycle but the Urban Wastewater Directive⁴¹ is indicated.

A clear financial commitment has been secured for the implementation of the second cycle PoM in both RBDs. Commitments have been secured for both RBDs for the agriculture, industry, hydropower, energy, aquaculture and recreation sectors. The urban, transport, and flood protection sectors were reported to be not applicable in both RBDs.

Information on the co-ordination of the WFD with the Marine Strategy Framework Directive⁴², including links to documents, is available for both RBDs although it is noted that the Danube RBD is landlocked in Slovenia. Joint consultation on the RBMPs and the Marine Strategy was reported for both RBDs, as was co-ordination of the preparation of the RBMPs and PoM with the Marine Strategy Framework Directive in the Adriatic RBD. It was reported that no assessment of the need for additional measures had been undertaken. No information was reported on any of the other relevant issues. National /RBD specific measures that are relevant to the Marine Strategy Framework Directive and the relevant basic measure types are listed for both RBDs, but the number of basic measures are all marked zero.

The RBMPs and Floods Directive⁴³ Flood Risk Management Plans have not been integrated in either RBDs. However, in both RBDs, joint consultation of RBMPs and Flood Risk Management Plans was carried out, the objectives and requirements of the Floods Directive were considered in the second RBMPs and PoM, drought management and use of Natural Water Retention Measures have been included in the PoM, and the design of new and existing structural measures, such as flood defences, storage dams and tidal barriers, has been adapted

⁴¹Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31991L0271>

⁴²Directive 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>

⁴³Directive 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>

to take account of WFD environmental objectives in both RBDs. Financial commitments are marked “not relevant” and WFD Article 9(4) has not been applied to impoundment for flood protection.

9.1.2 Measures related to other significant pressures

Other significant pressures reported are “Anthropogenic pressures – unknown” in surface water in both RBDs; and “Anthropogenic pressures - historical pollution” in the Danube RBD. Gap indicators and indicators of the level of progress with the implementation of the measures were reported for 2015 and 2021 (none for 2027), but no improvements are expected during this time. No “Other significant pressures” have been reported for groundwater.

9.1.3 Mapping of national measures to Key Types of Measure

It was expected that Member States would be able to report their PoM by associating their national measures with predefined Key Types of Measure. Key Types of Measure 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 measure. Member States are required to report on the national measures associated with the Key Types of Measure, and whether the national measures are basic (Article 11(3)(a) or Article 11(3)(b-l)) or supplementary (Article 11(4)).

Table 9.1 summarises the number of national measures that have been mapped to the relevant KTM in Slovenia. 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 Slovenia*

Key Type of Measure	National basic measures	National supplementary measures	Number of RBDs where reported
KTM1 - Construction or upgrades of wastewater treatment plants	4		2
KTM13 - Drinking water protection measures (e.g. establishment of safeguard zones, buffer zones etc)	1		2
KTM14 - Research, improvement of knowledge base reducing uncertainty		2	2
KTM15 - Measures for the phasing-out of emissions, discharges and losses of Priority Hazardous Substances or for the reduction of	2		2

Key Type of Measure	National basic measures	National supplementary measures	Number of RBDs where reported
emissions, discharges and losses of Priority Substances			
KTM17 - Measures to reduce sediment from soil erosion and surface run-off		1	2
KTM2 - Reduce nutrient pollution from agriculture	2	2	2
KTM21 - Measures to prevent or control the input of pollution from urban areas, transport and built infrastructure	1	1	2
KTM3- Reduce pesticides pollution from agriculture.	1	2	2
KTM5 - Improving longitudinal continuity (e.g. establishing fish passes, demolishing old dams)	1		2
KTM6 - Improving hydro morphological conditions of water bodies other than longitudinal continuity	5	3	2
KTM8 - Water efficiency, technical measures for irrigation, industry, energy and households	1		2
KTM99 - Other key type measure reported under PoM - Bathing Water Directive	1		2
KTM99 - Other key type measure reported under PoM - Construction or upgrades of collection systems and/or wastewater treatment plants	3		1
KTM99 - Other key type measure reported under PoM - Construction or upgrades of drinking water supply system	1		2
KTM99 - Other key type measure reported under PoM - Construction or upgrades of wastewater sewage system	4		2
KTM99 - Other key type measure reported under PoM - Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register of water abstractions and a requirement for prior authorisation of abstraction and impoundment and establishment of ecological	2		2
KTM99 - Other key type measure reported under PoM - Controls, including a requirement for prior authorisation of artificial recharge or augmentation of groundwater bodies.	1		2
KTM99 - Other key type measure reported under PoM - Drinking Water Directive	1		2
KTM99 - Other key type measure reported under PoM -	2		2

Key Type of Measure	National basic measures	National supplementary measures	Number of RBDs where reported
Environmental Impact Assessment Directive			
KTM99 - Other key type measure reported under PoM - Environmental Liability Directive	1		2
KTM99 - Other key type measure reported under PoM - Habitats Directive or Birds Directive	1		2
KTM99 - Other key type measure reported under PoM - Major Accidents (Seveso) Directive	1		2
KTM99 - Other key type measure reported under PoM - Measures to control any other significant adverse impact on the status of water, and in particular hydro morphological impacts	1		2
KTM99 - Other key type measure reported under PoM - Measures to reduce the impact of accidental pollution incidents	1		2
KTM99 - Other key type measure reported under PoM - Measures for the reduction of emissions and discharges	2		1
KTM99 - Other key type measure reported under PoM - Measures to prevent or control the input of pollutants from diffuse sources liable to cause pollution.	2		2
KTM99 - Other key type measure reported under PoM - Measures to promote efficient and sustainable water use	2		2
KTM99 - Other key type measure reported under PoM - Measures to reduce the input of pollutants from point and diffuse sources liable to cause pollution.	1		2
KTM99 - Other key type measure reported under PoM - Measures of compensation for reduction of income from agricultural activities because of adaptation to the drinking water protection regime	1		2
KTM99 - Other key type measure reported under PoM - Plant Protection Products Directive	1		2
KTM99 - Other key type measure reported under PoM - Protection against the harmful effects of water	1		1
KTM99 - Other key type measure reported under PoM - Sewage Sludge Directive	1		2
KTM99 - Other key type measure reported under PoM - Water pricing policy measures	3		2
KTM99 - Other key type measure reported under PoM - Water regulation	1		1
Total number of Mapped Measures	53	11	2

Source: WISE electronic reporting

Table 9.2 Type of basic measure mapped to Key Type of Measure in Slovenia

Key Type of Measure	Basic Measure Type													
	Accidental pollution	Controls water abstraction	Cost recovery water services	Efficient water use	Habitats or Birds	Hydromorphology	IPPC IED	Nitrates	Other	Point source discharges	Pollutants diffuse	Protection water abstraction	Recharge augmentation groundwaters	Urban Waste Water
KTM1 - Construction or upgrades of wastewater treatment plants											2			2
KTM13 - Drinking water protection measures (e.g. establishment of safeguard zones, buffer zones etc)												1		
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						1			1					
KTM2 - Reduce nutrient pollution from agriculture							1			1				
KTM21 - Measures to prevent or control the input of pollution from urban areas, transport and built infrastructure										1				
KTM3 - Reduce pesticides pollution from agriculture.								1						
KTM5 - Improving longitudinal continuity (e.g. establishing fish passes, demolishing old dams)						1								
KTM6 - Improving hydromorphological conditions of water bodies other than longitudinal continuity						5								
KTM8 - Water efficiency, technical measures for irrigation, industry, energy and households				1										
KTM99 - Other key type measure reported under PoM	1	2	4	5	1	4	2		7		5	2	1	4

Source: WISE electronic reporting

Key

‘Accidental pollution’ = Article 11(3)(l): 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.

‘Cost recovery water services’ = Article 11(3)(b): Measures for the recovery of cost of water services (Article 9).
‘Efficient water use’ = Article 11(3)(c): Measures to promote efficient and sustainable water use.
‘Habitats or Birds’ = Habitats Directive (92/43/EEC) or Birds Directive (2009/147/EC)
‘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).
‘Other’ = Other Directives mentioned in Part A of Annex VI of the WFD.
‘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.
‘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.
‘Recharge augmentation groundwaters’ = Article 11(3)(f): Controls, including a requirement for prior authorisation of artificial recharge or augmentation of groundwater bodies.
‘Urban Waste Water’ = Urban Waste Water Treatment Directive (91/271/EEC).

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

Member States 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. Member States 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.

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 the first cycle

The level of implementation of the first cycle of PoM in both RBDs was reported as “some measures completed”, with the obstacles to progress reported as lack of finance and lack of measures in both RBDs. Significant pressures have been reported and measures mapped against most of these in the Danube RBD (fewer in the Adriatic RBD), and an analysis of the gap to good status has been reported for 2015 and 2021. New legislation or regulations to

implement the PoM in the first cycle was reported necessary and in progress for both RBDs⁴⁴. The RBMPs did not include a summary of the main changes for this topic so no further information could be obtained from the RBMPs and background documents.

9.3 Progress with Commission recommendations

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

- Recommendation: *Ensure that the RBMPs clearly identify the gap to good status, and that the Programme of Measures are designed and implemented to close that gap (making clear how the assessment of the expected effects of supplementary measures has been performed).*

Assessment: Gap analyses have been reported for 2015 and 2021, but very few gaps are expected to be reduced by 2021, and it was not clear from the data reported to WISE if the PoM was designed to close the gaps. This was therefore further examined in RBMPs and background documents where it was found that the PoM was designed to close the gaps. This was true for basic measures, which have the aim to prevent further deterioration of the environment when new impacts or uses are introduced or to improve the general status of water bodies, as well as for supplementary measures, which are designed to close the gaps at those water bodies where it is expected that the WFD goals will probably not be achieved just by implementing basic measures. This ambition does not appear to be reflected in the gap analysis and the lack of indicators for 2027 (although reporting for 2027 was not obligatory) makes it difficult to further assess this recommendation.⁴⁵ It can therefore be concluded from the information available that this recommendation has been partially fulfilled.

⁴⁴ Slovenia subsequently clarified that all relevant legislation is listed in RBMPs and PoM.

⁴⁵ Slovenia subsequently clarified that the PoM, which was adopted with RBMPs, determines measures for the period up to 2021. For the preparation of next RBMP the measures will be revised and updated to the period up to 2027, if necessary.

Topic 10 Measures related to abstractions and water scarcity

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

10.1.1 Water exploitation and trends

Water abstraction pressures were not reported as relevant for Slovenia. The Water Exploitation Index+ has not been reported⁴⁶; but water quantity data have been reported to support the European State of the Environment Report in relation to Water Quantity. On the basis of the first RBMPs, the Commission recommended that water demand trends and water availability trends should be calculated.

In both the Danube and Adriatic RBDs, water consumption pressures have decreased in the recent past. The Adriatic RBMP stated that the quantities of water provided as drinking water supply to various sectors increased from 16 m cubic metres in 2002 to 22 m cubic metres in 2005, and then slightly dropped to above 20 m cubic metres in 2012. In the Danube RBD, the quantities of water provided as drinking water supply to various sectors slightly decreased from 2002 to 2004 to reach 121 m cubic metres, and then increased to 154 m cubic metres in 2008, and then again decreased to slightly under 140 m cubic metres in 2012. This information is based on abstraction data. No other information was found in the RBMPs.

The RBMPs did not include a water resource allocation and management plan.

10.1.2 Main uses for water consumption

No information was reported for the uses of water consumption, as water quantity pressures were not reported as significant. The only relevant water use assessed as trends in the RBMPs was drinking water supply, with the data referred to above⁴⁷.

10.1.3 Measures related to abstractions and water scarcity

Regarding basic measures (Article 11(3)(e)), there is a concession, authorisation and/or permitting regime to control abstractions of fresh surface water and groundwater, water

⁴⁶ Slovenia subsequently clarified that the Water Exploitation Index + for Slovenia is calculated on a yearly basis at lower than 5% of water available, and does not show any significant trend (http://kazalci.arso.gov.si/?data=indicator&ind_id=761).

⁴⁷ Slovenia subsequently noted that trends for all water uses were assessed.

impoundment and a register of impoundments and register of water abstractions; and small abstractions are exempted from these controls.

Measures promoting efficient and sustainable water use (Basic Measure Article 11(3)(c)) were 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 or significant changes are planned for the next period.

Complementary measures under KTMs are not reported for addressing abstraction pressures.

Water reuse is not foreseen as a measure.

10.2 Main changes in implementation and compliance since the first cycle

No information was reported to WISE for the uses of water consumption, or the Water Exploitation Index +. The Commission recommended that “Water demand trends and water availability trends should be calculated”. This was not formally reported; however, the RBMPs included trend assessment of drinking water supply over the past year, with this consumption being the only significant trend reported.

10.3 Progress with Commission recommendations

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

- Recommendation: *In the context of water scarcity and droughts, water demand trends and water availability trends should be calculated.*

Assessment: No data have been reported for the uses of water consumption and the Water Exploitation Index +. Therefore, water demand trends and water availability trends have not formally been reported; however, the RBMPs include trend assessment of drinking water supply over the past year, with this consumption being the only significant trend reported. Therefore, this recommendation has been partially fulfilled⁴⁸.

⁴⁸ Slovenia subsequently clarified that abstractions, other than drinking water supply, were considered as well (all together 26 types of water of water uses) – RBMP Chapter 2.3.6.

Topic 11 Measures related to pollution from agriculture

11.1 Assessment of implementation and compliance with WFD requirements in the second cycle and Main changes in implementation and compliance since the first cycle

As in the first cycle the most important pressures regarding surface water quality were related to diffuse pollution and hydromorphological pressures (hydrological and morphological changes). A few surface water bodies indicated high pressure from agriculture due to nitrogen, phosphorus and plant protection products and this did not change in the second cycle. In the Danube RBD, agriculture was recognised as a significant pressure at three groundwater bodies (14% of groundwater bodies) and at five lake water bodies (42% of lake water bodies especially due to nitrogen, phosphorus, and pesticides. In the Adriatic RBD, agriculture was recognised as a significant pressure in one lake water body (8% of lake water bodies) especially due to phosphorus and pesticides. The estimate of pollution with pesticides has a very high level of uncertainty.

Up to eleven water bodies are failing to reach good status because environmental quality standards for pesticides originating from diffuse agricultural pollution will not be met. For up to sixteen surface water bodies and three groundwater bodies it was reported that targets will not be achieved by 2021 because of pressures from agriculture. The measures proposed reflected the pressures and cover basic (the minimum requirement to be complied with) and supplementary measures. A number of technical measures were selected to address the pressures including reduction of nitrogen and pesticide pollution, Natural Water Retention Measures, measures to reduce sediment from soil and surface run off and drinking water measures. The RBMPs rely mainly on mandatory measures.

Basic measures under Article 11(3)(h) cover the reduction of pesticide, nitrates and microbiological pollution. The implementation of basic measures Article 11(3)(h) for the control of diffuse pollution from agriculture at source was used and the same rules applied to the whole Member State.

In relation to drinking water, Slovenia applied Article 11(3)(d) of the WFD. Safeguard zones have been established around 1,947 sources of drinking water covering almost 17% of all Slovenian territory with clear measures to prevent or limit the inputs of pollutants at the source. In both RBMPs, there was information that there have been some regulatory changes related to drinking water safeguard zones. Most of them were additions to older regulations. The Adriatic

RBMP mentions that, with a change of regulation of drinking water safeguard zones for the water body of aquifers of Rižana, three sources of surface waters were protected. The RBMPs indicated that drinking water safeguard zones and measures had been enhanced since the first RBMPs. The PoM (measure “OPZ1.1a – Vodovarstvena območja”) contains a detailed lists of all legal acts that were adopted regarding drinking water safeguard zones together with the year of adoption or year of adoption of amendments and supplements and also shows progress made regarding this issue. There were still approximately 300 old municipality ordinances in place to safeguard drinking water sources. There was also a measure (OPZ1.2b) in place to reinforce and accelerate the acceptance of regulations regarding the designation of safeguard zones for drinking water sources on a national level through providing manpower and sources for background documents that will serve as a technical expert base for changing current regulations.

There are additional control measures on land (not just in safeguard zones but in the wider catchment) to prevent nitrogen, phosphorus or pesticides from entering drinking water sources. In 2001, Slovenia declared its entire territory as a vulnerable area due to nitrates from agriculture. Therefore, measures for reducing the pollution of water by nitrogen are regulated for all agricultural activities in Slovenia that apply animal manure to the fields (basic measure ON3a). The Water Law also prohibits the use of fertilizers and phyto-pharmaceutical substances along all surface waters (basic measure ON4a) in an area 15 m wide along river banks for rivers and 5 m for other water streams.

Farmers and Farmers' Unions have been consulted under the public consultation process in both RBDs.

The financing of agricultural measures has been secured in both RBDs.

11.2 Main changes in implementation and compliance since the first cycle

The second RBMPs indicate that drinking water safeguard zones and measures had been enhanced since the first RBMPs. The Programmes of Measures in the plans contain lists of the legal acts that were adopted regarding drinking water safeguard zones and describes the progress made towards protecting drinking water sources. There is also a measure in place to reinforce and accelerate the acceptance of regulations regarding the designation of safeguard zones for drinking water sources on a national level through providing manpower and sources for background documents that will serve as a technical expert base for changing current regulations.

11.3 Progress with Commission recommendations

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

- Recommendation: *Calculate and include transparently in the second RBMPs the contribution that the Nitrate Action Programme will deliver in closing the nutrient gap to WFD good status.*

Assessment: The Nitrate Action Programme is transferred with a Decree on the protection of waters against pollution caused by nitrates from agricultural sources and has to be updated at least every four years (Article 21 of the Decree). The contribution of the Nitrate Action Programme (the Decree) is summarized in both RBMPs. An overall assessment of contribution of the Nitrate Action Programme has been performed. The gap assessment for nitrogen in surface waters was performed on national level, while the gap assessment for groundwaters was prepared on GWB level. The RBMPs state that the contribution of the Nitrate Action Programme is expected to be positive with a high level of uncertainty. The recommendation has been fulfilled.

- Recommendation: *Develop indicators of farmers' compliance with the measures in the Nitrates Directive⁴⁹ (e.g. farmers' awareness of rules, uptake of measures, slurry storage) as this is necessary to track progress on implementation of measures and to understand the gap to be closed through additional measures.*

Assessment: The PoM provides information that Rural Development Programme measures related to the reduction of dispersed pollution with nutrients in agriculture include indicators related to agricultural advisory service that include these issues. This recommendation has been fulfilled.

- Recommendation: *Include clear targets/expectations in RBMPs for the Rural Development Programme measures so that it is clear how they should contribute to close the gap to achieve good status.*

Assessment: Slovenia subsequently clarified to the Commission that the assessment of the contribution of the Rural Development Programme is included in the Nitrate Directive implementation report. This recommendation has been fulfilled.

⁴⁹ 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>

Topic 12 Measures related to pollution from sectors other than agriculture

12.1 Assessment of implementation and compliance with WFD requirements in the 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. Key types of measures (KTM) are groups of measures identified by Member States in their Programmes of Measures which target the same pressure or purpose. A KTM would be one national measure but 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.

Two KTMs relevant to non-agricultural sources of pressures causing failure of WFD objectives have been reported for both Slovenian RBDs KTM14- "Research, improvement of knowledge base reducing uncertainty" and KTM99 - "Other key type measure reported under PoM - (Administrative) measures which should help achieving the good status or facilitate the implementation of other measures from the PoM"). Under KTM 99 the two the two types of measures listed are "Construction or upgrades of collection systems and/or wastewater treatment plants" and "Measures for the reduction of emissions and discharges". These KTMs did not include those measures that are more relevant to this topic such as 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" and KTM 16 - "Upgrades or improvements of industrial wastewater treatment plants (including farms)".

The WFD specifies that the PoM 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 the chapter 9 in this report). Quantitative information on basic and supplementary measures used to tackle pollution from non-agricultural sources in Slovenia was provided for the Danube and Adriatic RBD. Quantitative information on basic measures to tackle pollution from non-agricultural sources is provided for 10 measure types for the Danube and Adriatic RBD. Slovenia subsequently reported that basic measures to tackle pollution from non-agricultural sources are included in the PoM for both the Danube and Adriatic river basins.

Slovenia provided more targeted information on basic measures required under Article 11(3)(c-k). An authorization and/or permitting regime to control waste water point source discharges is in place in both RBDs for surface and groundwater and also the register of waste water discharges (Basic measures Article 11(3)(g)) is available in both RBDs for surface and groundwater. In both Slovenian RBDs all discharges require permits and are subject to registration (Basic measure Article 11(3)(g)) i.e. there are no thresholds below which waste water discharges do not require permits. But Slovenia explained that the statement "Some direct discharges to groundwater are authorised in accordance with Article 11(3)(j) in both Slovenian RBDs" is incorrect and should be revised. Direct discharges of waste water into groundwater are not allowed.

Electronic reporting shows that there are measures in place to eliminate or reduce pollution from Priority Substances and other substances in both RBDs.

12.2 Main changes in implementation and compliance since the first cycle

In the first RBMP there were substance-specific measures in the PoM targeted to reduce or phase out Priority Substances and non-priority specific pollutants or River Basin Specific Pollutants. In the second RBMP, several substances causing failure were linked to KTMs.

According to information reported to WISE, measures have been put in place to eliminate or reduce pollution from Priority Substances and other substances (Basic measures Article 11(3)(k)) in both RBDs and information reported to WISE shows that KTMs have been made operational based on pressures from specific Priority Substances and River Basin Specific Pollutants causing non-compliance.

The Priority Substances that were causing chemical status to be less than good are identified as being due to unknown anthropogenic pressures, and are as follows: (1) mercury and its compounds for lake water bodies and river water bodies in both RBDs, and also in coastal water bodies in the Adriatic RBD; (2) tributyltin-cation in coastal water bodies and territorial water bodies in the Adriatic RBD. For each of them there are basic measures in place. For mercury and its compounds, the measure is designed to reduce emissions. Measures to reduce emissions of tributyltin-cation are included in the Maritime Marine Environment Management Plan.

There were seven River Basin Specific Pollutants (glyphosate, terbuthylazine, molybdenum and its compounds, cobalt and its compounds, zinc and its compounds, sulphate and metolachlor) exceeding their environmental quality standards in surface waters in the Danube RBD, and three in the Adriatic RBD (absorbable organic halogens, total hydrocarbons -

mineral oils and tributyltin compounds). For all of them, there were KTMs in place to reduce pesticides pollution from agriculture and/or to improve the knowledge base to eliminate uncertainty. In the Danube RBD, the WFD objectives regarding River Basin Specific Pollutants will not be achieved by 2021 by implementing the measures in some of the water bodies, while in the Adriatic RBD, the objectives regarding River Basin Specific Pollutants will be achieved.

Pollutants causing failure of good chemical status in groundwater are Atrazine and Nitrate in the Danube RBD. The Adriatic RBD has no groundwater bodies that fail good chemical status. There are measures in place to deal with nitrates from agriculture and several measures that separately deal with wastewater treatment from agglomerations larger or equal to 2000 population equivalent and those smaller than 2000 population equivalent, as well as several other measures to deal with herbicides where Atrazine is included. All these measures are being implemented in both RBDs.

12.3 Progress with Commission recommendations

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

- Recommendation: *A link between pollutants and specific measures that aims to prevent / limit them should be established.*

Assessment: Information reported to WISE indicates that measures to eliminate / reduce pollution from Priority Substances and other substances (Basic measures Article 11(3)(k) have been applied in all Slovenian RBDs. In the second RBMPs, measures were reported for both Priority Substances and River Basin Specific Pollutants causing non-compliance in Slovenia as well as for groundwater pollutants.

The recommendation is fulfilled.

- Recommendation: *Provide all the information on the level of compliance, and timing to reach compliance, by agglomerations, including information on funding, in accordance with the Urban Wastewater Directive⁵⁰ (Article 15 and following). Prioritize the agglomerations with more than 2.000 population equivalent in terms of the WFD principles and financing in the second RBMPs, but also assess the pressures due to*

⁵⁰ Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment <http://eur-lex.europa.eu/legal-content/EN/TEXT/?uri=CELEX:31991L0271>

waste water from small agglomerations (less than 2.000 population equivalent) in the second RBMPs cycle.

Assessment: Measures to tackle urban point sources were reported in both RBDs in WISE.

The PoM (in the description of some measures) provided information that the operative programme of wastewater collection and treatment for the period 2005-2017 defines agglomerations with 2000+ population equivalent and agglomerations with less than 2000 population equivalent and provides further demands regarding the level of treatment for these agglomerations. The RBMPs state that resources for implementation of measures in agglomerations equal to or larger than 2000 population equivalent are ensured by European Union Funds on the basis of an operative programme for implementation of European Union cohesion policy in the period 2014-2020. European Union funds for agglomerations smaller than 2000 population equivalent are not ensured, however those that are the cause of failure to achieve WFD objectives are prioritised for financing. The RBMP also states that according to the analysis of trends for achieving the WFD objectives and based on data from 2008 and 2012, it is expected that the objectives will be achieved in the years 2021 to 2027.

The recommendation is fulfilled.

- Recommendation: *Ensure the compliance of Article 5 of the Urban Wastewater Directive⁵¹ for more stringent treatment, especially in big cities.*

Assessment: Measures to tackle urban point sources were reported in both RBDs but there were no types of basic measures and no quantification of basic and supplementary measures reported for the Adriatic RBD⁵². Slovenia ensured fulfilment of the obligation to implement measures in order to protect the waters of the Black Sea coast, which are adversely affected by discharges from wastewater treatment plants (Article 9 of the WFD). This was done with the change of the Decree on the emission of substances in wastewater discharged from urban wastewater treatment plants (OG,45/07, 63/09, 105/10, 98/15). Slovenia applied Article 5(2) of the Urban Wastewater Directive and requires more stringent treatment for wastewater treatment plants larger or equal to 10,000 population equivalent, while for wastewater treatment plants between 2000 and

⁵¹ Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31991L0271>

⁵² Slovenia subsequently clarified that quantitative information on basic and supplementary measures used to tackle pollution is available for the Adriatic RBD, and that this is a reporting error.

10,000 population equivalent more stringent requirements are obligatory only in those nationally defined as sensitive. These obligations are reflected in the operative program for wastewater collection and treatment for the period 2005-2017.

The recommendation is fulfilled.

Topic 13 Measures related to hydromorphology

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

Significant hydromorphological pressures were reported in both RBDs. However, the pressures assessment seems to be not very specific. Especially, the uses and sectors related to the reported significant hydromorphological pressures are not specified according to the uses listed in WISE but are reported as related to “other” uses. Slovenia subsequently informed that usually more than one key driver causes hydromorphological pressures and thus the reporting option “other” was selected as driver of the hydromorphological pressures.

Slovenia further clarified that the RBMPs include a detailed and comprehensive analysis of the link between the hydromorphological pressures and the ecological status, in particular for water abstractions, sediment management, reservoirs (dams), drainage systems, land use within catchment areas and within riparian zones, morphological alterations, etc.

Operational KTM to deal with significant hydro morphological pressures were reported in both RBDs. The main KTM reported as operational to tackle hydro morphological pressures are KTM 6 - "Improving hydro morphological conditions of water bodies other than longitudinal continuity", KTM 99 - "Other key type measure reported under PoM - (Administrative) measures which should help achieving the good status or facilitate the implementation of other measures from the PoM" and KTM 14 - "Research, improvement of knowledge base reducing uncertainty".

The types of specific hydromorphological measures planned include fish ladders, sediment management, setting of ecological flows, restoration of modified morphological conditions, increasing the knowledge base as support for administrative procedures (water permits, guidelines) and land use restrictions in riparian areas. Overall management objectives in terms of restoring river continuity have not been reported as set in WISE, although river continuity is part of specific measures addressing large dams, smaller dams, weirs and other barriers.

In terms of basic measures, there is an authorisation and/or permitting regime in place to control physical modifications in both 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.

Win-win measures in terms of achieving the objectives of the WFD and Floods Directive⁵³, drought management and use of Natural Water Retention Measures were reported to be included in the PoM of both RBDs. The design of new and existing structural measures, such as flood defences, storage dams and tidal barriers, is also reported to have been adapted to take into account WFD objectives in both RBDs. However, KTM 23 - "Natural water retention measures" is not reported to tackle any significant pressures. However, Slovenian subsequently clarified that natural water retention measures are considered in the Flood Risk Management Plan and are synergetic to RBMP measures such as guidelines for spatial planning, guidelines for water rights, measures for reduction of negative impacts of land use in riparian zones, measures for reduction of negative impacts of river/lake/coastal waters engineering works and measures for reduction of negative impacts of drainage systems.

Ecological flows have been derived partly in the two RBDs, i.e. for some relevant water bodies, but the work is still on-going. The ecological flows which have been derived so far have been implemented only in some relevant water bodies. Slovenia subsequently clarified that a basic measure is already in place, namely the Decree on the criteria for determining and the method of monitoring and reporting ecologically acceptable flow (Official Gazette of the Republic of Slovenia, No. 97/09). The Decree sets out the criteria for determining the ecologically acceptable flow and the method of monitoring and reporting of the ecologically acceptable flow. This regulation applies to special use of surface water which may lead to a reduction in water flow, a decrease in water level or deterioration in the status of waters.

There is a specific measure that includes ecological flows in Natura 2000 areas. Basic measures under Article 11(3), which impose controls on uses impacting the flow regime, are included but there is no explicit discussion in the RBMP on whether and how these measures can support the implementation of ecological flows. At the same time, ecological flows are addressed by a specific Decree No. 97/09 on "criteria for determination and on the mode of monitoring and reporting of ecologically acceptable flow" (basic measure). This regulation applies to special use of surface water which may lead to a reduction in water flow, a decrease in water level or deterioration in the status of waters.

In terms of the level of ambition in tackling significant hydromorphological pressures, relevant indicators on the pressure gap to be filled and KTM value indicators were reported for 2015 and 2021 (but not for 2027). From the information available in WISE, it is concluded that no progress will be made in terms of closing the gap for significant hydromorphological pressures

⁵³ 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>

between 2015 and 2021, as the number of water bodies where hydromorphological alterations are preventing the achievement of objectives remains unchanged. This raises important concerns on the level of ambition of the second RBMPs in terms of tackling significant hydromorphological pressures.

Slovenia subsequently informed that for the implementation of the basic and supplementary measures included in the PoM to reduce hydromorphological pressures in the time period of 2016 – 2021 include measures to prevent deterioration and measures for achieving the environmental objectives. Different phases are envisaged. In the first phase, prioritising of technical measures will be performed, while in a second phase, priority technical measures will be implemented.

13.2 Main changes in implementation and compliance since the first cycle

Slovenia subsequently clarified that an assessment of hydromorphological improvements due to implemented hydromorphological measures from the first RBMP has been included in the risk assessment. Implemented technical measures are listed and described in the RBMPs.

13.3 Progress with Commission recommendations

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

- Recommendation: *Ensure implementation of measures to address hydro morphological pressures, if necessary by reviewing permits/concessions and allocating the necessary resources.*

Assessment: Operational KTMs are clearly reported to deal with significant hydromorphological pressures in both RBDs. Slovenia subsequently informed that for the implementation of the basic and supplementary measures included in the PoM to reduce hydromorphological pressures in the time period of 2016 – 2021, different phases are envisaged starting with a prioritisation of technical measures; in a second phase, priority technical measures will be implemented. Concerning a review of permits (pre-WFD concessions) where necessary, a revision of the most significant water rights is envisaged as a part of two measures (“detailed analysis of measures related to achieving good ecological potential considering energy production in large hydropower plants and preparation of detailed guidelines for application of measures” and “measures for reduction of negative impacts of river/lake/coastal waters engineering works”).

Therefore, this recommendation is so far partially fulfilled.

- Recommendation: *Ensure that the study on aligning environmental flows with good ecological status is completed and used to inform future review of concessions/permits in the second RBMP.*

Assessment: The "ecologically acceptable flow" was first introduced into Slovenian legislation in 2002 (Waters Act) together with a requirement that an ecologically acceptable flow (Qes) is defined in water permits and concession contracts. In 2009, the methodology for defining ecologically acceptable flow has been decreed.⁵⁴ The Qes Decree in principle establishes a hydrological regime consistent with the achievement of the environmental objectives of the WFD in natural surface water bodies as mentioned in Article 4(1), and as defined in the Common Implementation Strategy Guidance No 31 on ecological flows.⁵⁵ The Qes Decree sets out the criteria for determining ecologically acceptable flow (Qes) and the method of monitoring it and reporting on it. To verify whether the Qes determined in such a way does indeed ensure in practice good surface water body status in accordance with the WFD, a project/study on the elements of the status of water for determining ecologically acceptable flow was finished in the second cycle. However, no information on the results of the study is available in the second RBMPs and, so far, the Qes Decree has not been changed.

Therefore, although the study on aligning ecological flows with good status is completed, further action is pending and the recommendation has not been yet fulfilled.

- Recommendation: *Consider and prioritise the use of green infrastructure and/or natural water retention measures that provide a range of environmental improvements in water quality, increase water infiltration and thus aquifer recharge, flood protection, habitat conservation etc.), social and economic benefits which can be in many cases more cost-effective than grey infrastructure.*

Assessment: KTM 23 - "Natural water retention measures" is not reported to tackle any significant pressures. However, Slovenia subsequently clarified that natural water retention measures are considered in the Flood Risk Management Plan and are synergetic to RBMP measures such as guidelines for spatial planning, guidelines for water rights, measures for reduction of negative impacts of land use in riparian zones, measures for

⁵⁴ Decree on Criteria for Determination and on the Mode of Monitoring and Reporting of Ecologically Acceptable Flow (OG RS, No. 97/2009)

⁵⁵ <https://circabc.europa.eu/sd/a/4063d635-957b-4b6f-bfd4-b51b0acb2570/Guidance%20No%2031%20-%20Ecological%20flows%20%28final%20version%29.pdf>

reduction of negative impacts of river/lake/coastal waters engineering works and measures for reduction of negative impacts of drainage systems. Thus, this recommendation is partially fulfilled.

Topic 14 Economic analysis and water pricing policies

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

Slovenia defined 26 water services in the second RBMPs. The basis for this definition as a water service is whether or not water charges are defined for the service. The water services are aggregated into five sectors: agriculture, industry, energy, communal services and other services (which include construction, trade, tourism etc.).

The situation regarding cost recovery rates is not entirely clear. For services of drinking water supply and communal waste water collection and treatment, the financial cost recovery calculation have been prepared at RBD level separately for cost recovery of financial costs of services (all close to 100%) and cost recovery of financial costs of distribution networks and facilities (generally between 70 and 90%). For other sectors, estimates of cost recovery have been made at the state level as follows: industry, energy and other services ca. 50%, communal services ca. 50%, agriculture ca. 0.1%.

There is no description or explanation of whether the cost recovery rates are "adequate" or not. Instead, the RBMPs mention the different water charges that exist, i.e. a water right payment, a water use fee, and an environmental tax for pollution. Three types of contribution of users to the recovery of costs are taken into account: water use fees, building land development fees and payments for the implementation of measures for reaching the environmental objectives.

The environmental and resource costs are stated to be calculated and partially internalised (in WISE, they are reported to be significant). Resource costs are estimated as "lost opportunities for other uses" and environmental costs according to the "costs principle", with consideration of the costs of measures in the PoM for water management, and costs of measures in the PoM for marine environmental management. Also, the costs of measures to achieve good ecological status are considered.

The RBMPs do not provide sufficiently detailed information on the methodologies and approaches used for the calculation of environmental and resource costs and cost recovery rates to allow for an exact assessment of the progress since the first cycle. In the first cycle, cost recovery was not calculated for all defined water services and the estimate of financial cost recovery was provided only for public services of water supply and collection and

treatment of communal waste water. Cost recovery for other water services was then not possible to estimate, because of a lack of data.

The economic analysis is reported to be updated.

14.2 Progress with Commission recommendations

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

- Recommendation: *Develop fully the economic analysis of water use, including the calculation of Environmental and Resource Costs and ensure that the water tariff and the water fees lead to adequate recovery of the costs of water services. Measures that foster introduction of individual metering, where shared metering is in place, should be proposed.*
- 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 they are "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 shall be included in the costs recovered. Information should also be provided on the incentive function of 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 RBMPs.*

Assessment: Slovenia defined 26 water services in the second RBMPs. The basis for this definition is whether or not for the service water charges were defined: either a water right payment, a water use fee, or an environmental tax for pollution.

The water services are aggregated into five sectors: agriculture, industry, energy, communal public services and other activities (which include construction, trade, tourism etc.). The water services were:

- Wastewater collection and treatment for households
- Wastewater collection and treatment for industry
- Water abstraction for drinking water supply
- Water abstraction for technological purposes
- Water abstraction for technological purposes for cooling thermal and nuclear power plants
- Water abstraction for drink industry

- Water abstraction for swimming pools open to public, natural spas
- Water abstraction for snowmaking
- Water abstraction for irrigation in agriculture
- Water abstraction for irrigation of non-agricultural activities
- Water abstraction from public water supply services for the drinks industry
- Water abstraction from public water supply services for technological purposes where water is main ingredient
- Water abstraction from public water supply services for swimming pools open to public and natural spas
- Water abstraction from public water supply services for irrigation
- Electricity production in hydropower plants below 10 MW
- Electricity production in hydropower plants from 10 MW and above
- Water used for water driven mills, saws and other similar devices
- Water used for heat production
- Water abstraction for aquaculture of salmonid fish
- Water used for cyprinid fish aquaculture
- Water used for mariculture
- Water used for commercial pond fishing
- Sediment extraction
- The use of water areas for the operation of ports to vessels
- The use of water areas for the operation of anchoring vessels
- The use of water areas for operation of bathing places

However, the water services reported to WISE include only drinking water abstraction/treatment/distribution and sewage collection/wastewater treatment. All the other services are grouped into the "other" water service category.

For services of drinking water supply and communal waste-water collection and treatment, additional financial cost recovery calculations were prepared at RBD level for cost recovery of financial costs of services (all close to 100%) and cost recovery of financial costs of distribution networks and facilities (generally between 70 and 90%). For some sectors estimates of cost recovery were made at state level as follows: industry, energy and other activities ca. 50%, public services ca. 50%, agriculture ca. 0,1%.

It was not explained in detail if these are contributions of users to water service costs, or how the cost recovery rates were calculated. Hence, there seems to be cost recovery rates in the RBMPs per water user, but these are not linked to the water services and not reported.

There is no description or explanation of whether the cost recovery rates are "adequate" or not. Instead, the RBMPs mention the different water charges that exist, i.e. a water right payment, a water use fee and an environmental tax for pollution. As evident from the Decree on the water fee (OG 103/02 and 122/07), cost recovery for water services is based on volumetric charging (cubic metres), charging on a base of surface area (square metres) or charging on a base of availability of water for production of electricity (megawatt hours), depending on the type of service. In the calculation of cost recovery, some costs that polluters themselves were paying, as well as environmental and resources costs, were also included.

The environmental and resource costs are stated to be calculated and partially internalised (on WISE, they are reported to be significant). It is stated that resource costs were estimated as "lost opportunities for other uses" and environmental costs according to the "costs principle", with consideration of the costs of measures in the PoM for water management, and the costs of measures in the PoM for marine environmental management. Also costs of measures to achieve good ecological status were considered.

The obligation of individual metering in buildings where shared metering is in place is provided for by the Decree on drinking water supply and is, according to national legislation, subject of separate legal act.

The RBMPs do not provide sufficiently detailed information on the methodologies and approaches used for the calculation of environmental and resource costs and cost recovery rates to allow for an exact assessment of the progress since the first cycle. In the first cycle, cost recovery was not calculated for all defined water services and the estimate of financial cost recovery was provided only for public services of water supply and collection and treatment of communal waste water. Cost recovery for other water services was not possible to estimate, because of a lack of data. There was, however, some progress in the approaches and methodologies used.

Hence, there has been little progress on the recommendation which is therefore 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 the second cycle

Protected Areas of all types have been reported with the exception of those related to the Nitrates Directive, which is consistent with the Slovenia implementation of the ‘whole territory’ approach under the Nitrates Directive, so reporting of individual areas is not required.

Table 15.1 Number of Protected Areas associated with water categories in Slovenia

Protected Area type	Number of Protected Areas in				
	Rivers	Lakes	Transitiona l	Coastal	Groundwa ter
Abstraction of water intended for human consumption under Article 7	4				1259
Recreational waters, including areas designated as bathing waters under Directive 76/160/EEC ⁵⁶	18	7		21	
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) ⁵⁷	9	2		3	
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) ⁵⁸	192	12		11	40

⁵⁶ 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>

⁵⁷ 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>

⁵⁸ Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31992L0043>

Protected Area type	Number of Protected Areas in				
	Rivers	Lakes	Transitional	Coastal	Groundwater
Nutrient-sensitive areas, including areas designated as vulnerable zones under Directive 91/676/EEC (Nitrates Directive) ⁵⁹ and areas designated as sensitive areas under Directive 91/271/EEC (Urban Wastewater Treatment Directive) ⁶⁰	39	10	1	4	
Areas designated for the protection of economically significant aquatic species				3	

Source: WISE electronic reporting

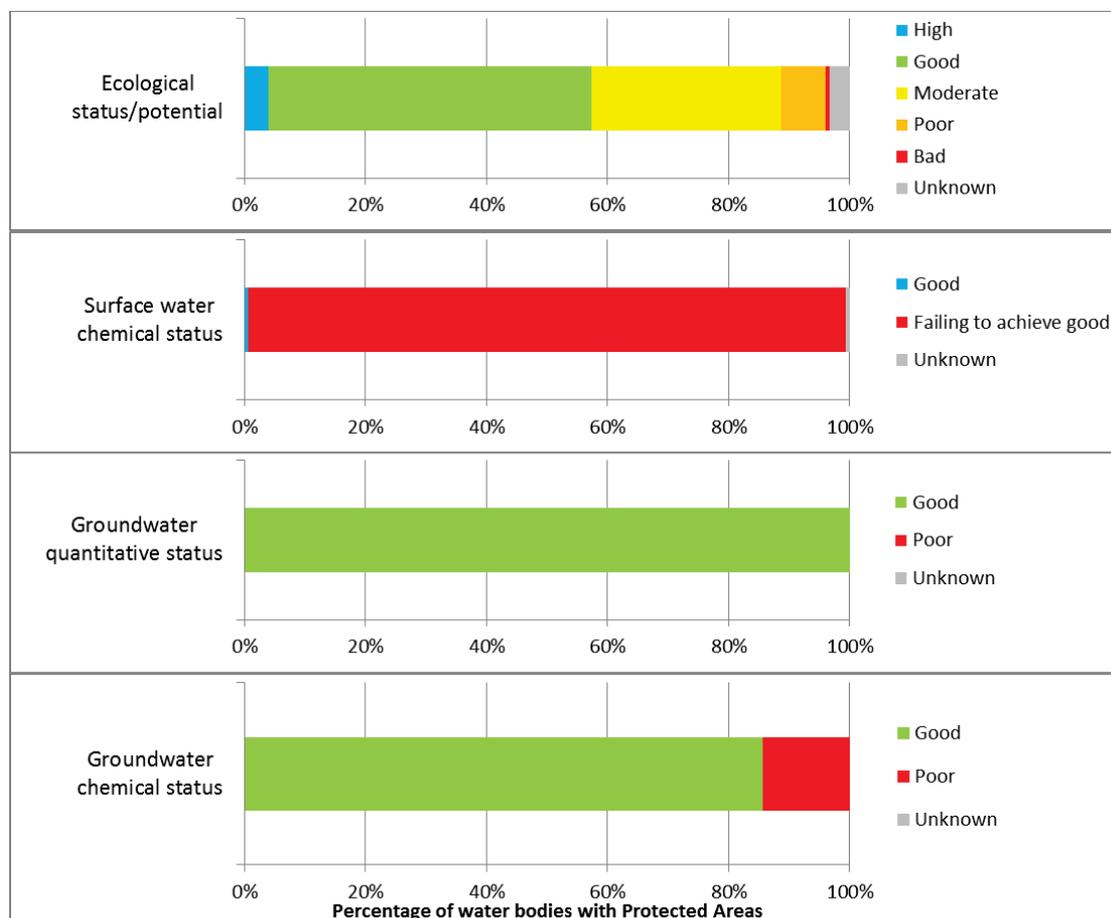
An overview of the status assessment of all water bodies within Protected Areas is shown in Figure 15.1. The vast majority of water bodies associated with Protected Areas have been allocated a status class. It should be noted that Protected Areas may cover many water bodies or parts of water bodies so status of water bodies associated with Protected Areas is not directly equivalent to the status of the individual Protected Areas.

⁵⁹ 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>

⁶⁰ Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31991L0271>

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

Source: WISE electronic reporting



The RBMP stated that additional objectives were set for Drinking Water Protected Areas (both ground and surface water), as well as Protected Areas for Bathing Waters and economically important species (fish and shellfish). For the Habitat and Birds Protected Areas, no additional objectives were set because the requirements of water dependent interest features were not known yet. This was the case for all such Protected Areas and indicates that an assessment of requirements by individual Protected Area has not been performed⁶¹.

⁶¹ Slovenia subsequently clarified that the assessment of the requirements has been performed, nevertheless, there are no specific additional objectives defined at this stage.

Slovenia reports no monitoring programmes in relation to types of Protected Areas.⁶²

No exemptions from Protected Area objectives were applied.

15.2 Main changes in implementation and compliance since the first cycle

The number of Protected Areas has decreased for the Birds and Habitats Directive Protected Areas from around 400 in the first cycle of River Basin Management Plans to approximately 275 in the second cycle. In the first cycle, Protected Areas related to the repealed Freshwater Fish Directive⁶³ and the Nitrates Directives were reported; however, no Protected Areas were reported for these Directives in the second cycle as a whole territory approach was used for Nitrates Directive designation and the Freshwater Fish Directive had been repealed.

15.3 Progress with Commission recommendations

The Commission recommendations based on the first cycle of River Basin Management Plans and PoM requested action on the following:

- Recommendation: *Assess what additional measures are required to achieve the additional objectives for Protected Areas (Species and Habitats, Drinking Water, Bathing Water) and include them in the second RBMPs.*

Assessment: In the second RBMP, objectives were set for Drinking Water Protected Areas (both ground and surface water), as well as for the bathing water areas and Protected Areas for economically significant species (fish and shellfish). For the Habitats and Birds Protected Areas, no additional objectives were set because the requirements of water dependent interest features were not known yet, so there was no basis to assess if additional measures were needed.

This recommendation has been partially fulfilled.

- Recommendation: *Slovenia should close the gap in designating Surface Drinking Water Protected Areas.*

Assessment: four Surface Drinking Water Protected Areas were designated in the second cycle. This recommendation has been fulfilled.

⁶² Slovenia subsequently informed that monitoring programmes are in place for Protected Areas, but as these have not been explicitly reported to WISE and therefore cannot be described in this assessment.

⁶³ https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2006.264.01.0020.01.ENG

Topic 16 Adaptation to drought and climate change

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

16.1.1 Climate change

Climate change was considered in the first cycle, but Slovenia reported that they have not considered climate change aspects in the second RBMPs and PoM⁶⁴. KTM 24 – “Adaptation to climate change” was not made operational to address any of the significant pressures and specific sub-plans on climate change aspects were not reported.

16.1.2 Effects and impacts of prolonged droughts, as well as related measures

According to the 2012 Topic Report on Water Scarcity and Drought in RBMPs⁶⁵, droughts are relevant for Slovenia in local sub-basins. No exemptions have been applied 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 Management Plans are in place, despite the recommendation by the Commission. This situation is similar to the situation reported in the 2012 Report.

16.2 Main changes in implementation and compliance since the first cycle

Climate change was considered in the first cycle and according to the updated information from Slovenia it was also considered in the second cycle.

16.3 Progress with Commission recommendations

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

⁶⁴ Slovenia subsequently clarified that RBMP's and the PoM also take into account the projected climate change. The RBMP's and the PoM include available data and analyses that show the impact of climate change in the Republic of Slovenia. The issue is addressed in the chapter dealing with important water management issues that address changes in hydrological variables and trends, climate change and a change in the outflow in Slovenia, etc. The quantitative status of groundwater was also estimated for forecasting periods, also estimating the extrapolation of the trend of groundwater levels and the outflows from groundwater in the period 2013-2021. Assessment of changes in the supply of groundwater according to the climate change scenarios in the period 2021-2050, etc.

⁶⁵ <http://ec.europa.eu/environment/water/quantity/pdf/Assessment%20WSD.pdf>

- Recommendation: *The content and provisions of drought management plans should be taken into account in the RBMPs.*

Assessment: Slovenia has taken into account the projected climate changes in the second RBMP and PoM. Moreover, Slovenia identified one measure related to climate change: measure OS3.2b8 “Preparation of selection of indicators for the proclamation of different levels of strength and thresholds of droughts”. Therefore the recommendation is fulfilled.