



**SPECIAL  
SECRETARIAT  
FOR WATER**



**MINISTRY OF  
ENVIRONMENT  
& ENERGY**



# **1<sup>ST</sup> UPDATE OF RIVER BASIN MANAGEMENT PLANS**

## **River Basin District of Central Macedonia (EL10)**

### **SUMMARY**



**European Union**  
European Regional  
Development Fund

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**HELLENIC REPUBLIC**

MINISTRY OF ENVIRONMENT & ENERGY

SPECIAL SECRETARIAT FOR WATER

**DEVELOPMENT OF THE 1<sup>st</sup> UPDATE OF RIVER BASIN MANAGEMENT PLANS FOR THE 14 WATER DISTRICTS OF GREECE, IN ACCORDANCE WITH THE DIRECTIVE 2000/60/EC, THE LAW 3199/2003 AND THE P.D. 51/2007 – STUDY M4: RIVER BASIN DISTRICTS OF WESTERN MACEDONIA (EL09) AND CENTRAL MACEDONIA (EL10)**

**JOINT VENTURE: Joint Venture for the 1<sup>st</sup> Update of River Basin management Plans of RBDs of Western and Central Macedonia**

- ECOS Consulting S.A.,
- STAVROPOYLOS & PARTENERS.
- KOSTAKOS CHRYSANTHOS

**RIVER BASIN OF CENTRAL MACEDONIA (EL10)**

**SUMMARY**

*Government Gazette approving the 1<sup>st</sup> Revision of RBMP: [B 4675/29.12.2017](#)*



## **1<sup>ST</sup> UPDATE OF THE RBMP OF THE RBD OF CENTRAL MACEDONIA (EL10)**

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## ABBREVIATIONS/ACRONYMS

RBD	River Basin District
RB	River Basin
WB	Water Body/Bodies
SWB	Surface Water Body/Bodies
GWB	Groundwater Body/bodies
HMWB	Heavily Modified Water Body/ bodies
AWB	Artificial Water Body/bodies
RBMP	River Basin Management Plan
GOLR	General Organization of Land Reclamation
LOLR	Local Organization of Land Reclamation
MEWSS	<a href="#">Municipal Enterprise for Water Supply and Sewerage</a>
MEE	Ministry of Environment and Energy
WFD	Water Framework Directive
JMD (MD)	Joint Ministerial Decision (Ministerial Decision)
PD	Presidential Degree
EC	European Council
EEC	European Economic Community
EU	European Union



## 1 INTRODUCTION – DEVELOPMENT OF 1<sup>ST</sup> UPDATE OF RIVER BASIN MANAGEMENT PLAN

### 1.1 INTRODUCTION

Since the beginning of 2000, the European Union has had a new policy on water resource management. The basic tool for promoting the new policy is the Water Framework Directive 2000/60/EC.

The harmonization of the Greek legislation with the Water Framework Directive 2000/60/EC was done with the Law 3199/2003 (Government Gazette A' 280) and the PD 51/2007 (Government Gazette A' 54).

Priority and necessary step for the implementation of the Directive in our country was the development of the River Basin Management Plans of the country's 14 Water Districts (WD) as established by the Decision No. 706/2010 of the National Water Committee (Government Gazettes 1383/B'/02-09-2010 and 1572/B'/28-09-2010 that corrects Annex II), and as it applies after the approval of the country's RBMP's.

The River Basin Management Plans (RBMPs) are revised and updated every six years. The first approved RBMPs relate to the 1st Management Cycle (2009-2015) and are valid until their update. The RBMP's to be established by the 1st Update of the RBMPs concern the 2nd Management Cycle (2016-2021).

The 1<sup>st</sup> RBMP of the River Basin District of Central Macedonia (EL10) was approved by the National Water Committee in 2014 (Government Gazette 181/B/31.1.2014).

In November 2015, the Special Secretariat for Water (SSW) of the Ministry of Environment and Energy was invited to open an international tender for awarding the study **“Development of 1<sup>st</sup> Update of River Basin Management Plans for the 14 Water Districts of Greece, in accordance with the Directive 2000/60/EC, the Law 3199/2003 and the P.D. 51/2007. – Study M4: RIVER BASIN DISTRICT OF WESTERN MACEDONIA (EL09) AND CENTRAL MACEDONIA (EL10)”**.

Further to the tender, the contract 09-01-2017 was assigned by the Special Secretariat for Water to prepare the above study in the Joint Venture with the name **Joint Venture for the 1<sup>st</sup> Update of River Basin Management Plans of RBDs of Western and Central Macedonia**.

### 1.2 DEVELOPMENT OF 1ST UPDATE OF RIVER BASIN MANAGEMENT PLAN

In the framework of the 1<sup>st</sup> Update of River Basin Management Plan, the following actions are undertaken:

- Update of the identification and characterization of surface (river, lake, transitional and coastal) and groundwater bodies.
- Review and update of the standardized reporting conditions and assessment/classification of the status/potential of surface water bodies (ecological and chemical status), including highly modified and artificial water bodies, and groundwater bodies (quantitative and qualitative status), based on new data available from the operation of the National Water Monitoring Network.

- Re-evaluation of the surface water bodies with significant hydromorphological modifications in order to determine those that are highly modified (HMWB) and artificial (AWB).
- Update of the list of significant pressures, as included in the approved Management Plans, and their impacts.
- Update of the Register of Protected Areas, based on new data that have resulted from the implementation of relevant EU Directives.
- Review of environmental objectives for all surface and groundwater bodies, including highly modified and artificial.
- Assessment of the progress in relation to the achievement of the environmental objectives of the Directive, as set out in the first Management Plan.
- Revision of the Program of Basic and Supplementary Measures for the protection and rehabilitation of the water resources of each RBD, as contained in the approved/first Management Plan, in accordance with article 11 and Annex VI of Directive 2000/60/EC (article 12 and Annex III of PD 51/2007).
- Update of the economic analysis of water uses (including cost estimation with expected new EU guidelines), taking into account the Joint Ministerial Decision 135275/22.05.2017 (Government Gazette 1751 B') and based on the most recent data from relevant water services.
- Recording of the transboundary partnerships so far and promotion of the implementation of joint or compatible Management Plans in transboundary river basins, in line with the SSW guidelines.
- Revision of the Strategic Environmental Impact Assessment (SEIA) to identify, describe and assess the environmental impacts of the implementation of the aforementioned Program of Measures and the Management Plan.
- Informing the public and promoting its active participation, as well as publicizing the Management Plan, six months before their completion, in accordance with article 14 of Directive 2000/60/EC and article 15 of PD 51/2007.
- Covering the country's reporting and other obligations in the EU on the Management Plans, including the WISE (Water Information System for Europe) electronic system, according to the standards established by the European Environmental Agency (EEA).

The impacts of implementing the Management Plan can only be positive, at a time when the country's water resources face increasing pressures. The implementation will provide the basis for supporting a sustainable water management policy that will lead to effective protection and rational use of our valuable water resources.

## 1.3 PUBLIC CONSULTATION

### 1.3.1 Consultation procedure

The Consultation process of the 1<sup>st</sup> Update of RBMP lasted from 30/11/2015 to 15/12/2017 and included the following:

- **Phase A:** In November 2015, the planned activities of the 1<sup>st</sup> Update of RBMP, as well as the detailed timetable of those, were posted on the website of the Ministry of Environment and Energy ([www.ypeka.gr](http://www.ypeka.gr)) for informing the public.

- **Phase B:** In June 2016, information on the significant water management issues in each RBD, were posted on the website of the Ministry of Environment and Energy, that included the results of the National Water Monitoring Network for the RBD, the main pressures, and the definition and recording of the competent authorities and bodies involved in the consultation. Also, in December 2016, the basic common methodologies for the classification of water bodies status, the assessment of pressures and impacts including hydromorphological pressures, the identification of highly modified water bodies and the definition of the exemptions of article 4 of Directive 2000/60/EC, were posted on the website.
- **Phase C:** In June 2017, the Preliminary Draft of the 1<sup>st</sup> Update of RBMP, as well as a related questionnaire, were posted on the website of the Special Secretariat for Water (<http://wfdver.ypeka.gr>). This phase included the public consultation of the Strategic Environmental Impact Assessment.

### **The Public Consultation was completed on 15/12/2017**

For Public Consultation purposes, through the website of the Special Secretariat for Water (<http://wfdver.ypeka.gr>), the opportunity to submit comments or complete the consultation questionnaire was given.

In addition, during the consultation, it was possible to intervene in the preparation of the 1<sup>st</sup> Update of RBMP by email, fax or post, with the aim of tabling different views and providing information.

In order to encourage the active involvement of stakeholders as well as the public during the 1<sup>st</sup> Update process, the following were implemented:

- Working meetings between the Special Secretariat for Water, contractors and stakeholders (Ministries, Decentralized Administration, Prefectures and other local authorities), in order to exchange data and views.
- Special working meetings with the relevant Water Directorates for the preparation of both the preliminary RBMP and the Program of Measures.
- An Open Conference was organized by the Special Secretariat for Water with the assistance of the Decentralized Administration, in Thessaloniki on 18-09-2017 on the topic of *“Consultation of the 1<sup>st</sup> Update of the River Basin Management Plan of Central Macedonia RBD (EL10) with the aim of informing the public and the bodies of the RBD”*. It is noted that this conference was organized within the framework of the two-day public information for both the River Basin Management Plan and the Flood Risk Management Plan.

Finally, it is noted that the SEIA consultation process was carried out simultaneously with the public consultation for the RBMP, which contributed significantly to the formulation of the final Management Plan.

### **1.3.2 Consultation results**

In total, 103 people attended the conference, during which, they were given the chance of submitting consultation questionnaires and verbal intervening, whereas, by the end of the conference, they were able to submit their comments. After the completion of the conference, the list of attendees was drawn up, including their corresponding contact information. Any transcribed audiovisual material taken during the conference was omitted in the purpose of drawing up the proceedings.

The main conclusions are the following:

- Satisfactory participation of Public Administration bodies.
- Poor participation of citizens and Non-Governmental Organizations (NGOs).
- High environmental sensitivity for water resources.
- The consultation process has been successful since it has highlighted all the issues/problems/ shortcomings that have emerged in the implementation of the first RBMP, demonstrated the need for revision and eventually contributed to the final formulation of the 1<sup>st</sup> Update of the RBMP of the RBD of Central Macedonia (EL10).

Briefly, the main alterations/ supplementations/ additions, that were included in the Management Plan as a result of consultation, pertain to the following:

- Update of the data presented in the Management Plan on the basis of the information provided and/or indications raised during the consultation. These data mainly concern issues related to water abstraction in the RBD, but also data on water uses, water abstraction points, actions implemented within the framework of the approved Management Plans etc.
- Reformulation of the final Program of Measures, which includes:
  - the recasting of specific measures regarding the specification/specialization of restrictions and actions defined therein.
  - the correction of the implementing bodies of the measures.
  - differentiation in the description of certain measures to include actions already planned by implementing bodies and/or available financial instruments.
  - the introduction of targeted supplementary measures to achieve specific and locally important management objectives, enhance existing knowledge and improve environmental and water conditions.



## 2 DIFFERENCES COMPARED TO THE 1<sup>ST</sup> RIVER BASIN MANAGEMENT PLAN

### 2.1 MAIN DIFFERENCES COMPARED TO THE 1<sup>ST</sup> MANAGEMENT PLAN

The development of the 1<sup>st</sup> Update of River Basin Management Plans includes significant changes and improvements compared to the 1<sup>st</sup> Management Plan. In particular:

- The classification of the ecological and chemical status is based on the available data of the National Water Monitoring Network for 2012-2015 period.
- The results of actions that have been implemented so far in the context of increasing knowledge of water status and the pressures it receives, as well as the actions implemented to fill in the gaps identified in the 1<sup>st</sup> Management Plan are taken into account.
- The new requirements arising from the EU Directive 2000/60/EC Guidance Documents are taken into account.
- The results of the European Commission's Special Report on the Evaluation of Management Plans which was implemented as part of the European Parliament's briefing on the implementation of the Directive and is available on the EU's website are taken into account.
- The new analytical methodologies for critical aspects of the implementation of Directive 2000/60/EC are taken into account through:
  - Analysis of anthropogenic pressures and their impacts on surface and underground water systems.
  - Determination and criteria for assessment of hydromorphological alterations.
  - Determination of Heavily Modified (HMWB) and Artificial (AWB) Water Bodies.
  - Determination of the "exemptions" to the achievement of the environmental objectives of Directive 2000/60/EC:
    - Identification of the "exemptions" of paragraphs 4 to 6 of Article 4 of Directive 2000/60/EC (4.4 - 4.6).
    - Identification of the "exemptions" of paragraph 7 of Article 4 of Directive 2000/60/EC (4.7) on new modifications.
- Assessment (classification) of Surface Water Bodies status.
- Assessment of the ecological and chemical status of river water bodies.
- Assessment of the ecological and chemical status of lake water systems.
- Assessment of the ecological and chemical status of coastal and transitional water bodies
- The new analytical national assessment methodologies for individual Biological Quality Elements (BQEs), for each surface water body category that has been approved by the EU in the context of the intercalibration exercise at European level are taken into account. These methodologies concern the following:
  - Analytical methodologies for the assessment of biological quality elements in rivers.
  - Analytical methodologies for the assessment of biological quality elements in lakes.
  - Analytical methodologies for the assessment of biological quality elements in coastal and transitional water bodies.
- The 1<sup>st</sup> Update is being drawn up at the same time as the Flood Risk Management Plans pursuant to Directive 2007/60/EC and synergy of actions and program of measures has been accomplished.

- The 1<sup>st</sup> Update is also being drawn up at the same time as the programs of measures for the achievement of the good environmental status of the marine waters of the country in accordance to Directive 2008/56/EC and has achieved synergy of actions and program of measures.
- The 1<sup>st</sup> Update takes into account the National Strategy for Adaptation to Climate Change and incorporates into the program of measures sub-actions of the National Strategy for Adaptation to Climate Change.
- The 1<sup>st</sup> Update is being carried out simultaneously for the 14 River Basin Districts of the country and homogeneity has been achieved in the individual methodologies and the proposed programs of measures (basic and supplementary).

The following table summarizes the differences identified for each subject, between the 1<sup>st</sup> RBMP and the 1<sup>st</sup> Update of RBMP.

Table 2-1: Summary of the differences in the 1<sup>st</sup> Update of the RBMP in relation to the 1<sup>st</sup> Management Plan

SUBJECT OF THE UPDATED RBMP/ACRIVITY	DIFFERENCE IN RELATION TO THE 1 <sup>ST</sup> RBMP	SUMMARY OF THE RESULTS
<b>COMPETENT AUTHORITIES</b>	The competent authorities do not differ from the 1 <sup>st</sup> RBMP. In the Update, the enlisting of the main authorities involved in Water Management, complying with the existing institutional framework, is rationalized and presented in accordance to the requirements set by the new directive concerning the submission of data in EU (GD Reporting 2016).	The authorities and bodies involved in water management, as well as their responsibilities and roles in the design and implementation of Directive 2000/60 / EC, are presented in a schematic and understandable manner. The results are presented in detail in the Document "DEFINITION AND RECORDING OF COMPETENT AUTHORITIES AND DEFINITION OF AREA OF IMPLEMENTATION OF THEIR RESPONSIBILITIES".
<b>DEFINITION OF SURFACE WATER BODIES – TYPOLOGY</b>	Through the Update, new typologies for Surface Water Bodies are defined. Pursuant to the aforementioned, the number of Water Bodies is reassessed. It is noted that through the update the Water Bodies' code names are redefined. Instead of the country code "GR", the letters "EL" are used, in order to comply with other EU data bases.	No difference noted in the number of water systems in the Central Macedonia and the 1st RBMP. The variations are related to the types of the surface water bodies while practically affect the methodology for classification of their status. The results are presented in detail in the Document "CHARACTERIZATION, TYPOLOGY, TYPE-CHARACTERIZATION CONDITIONS REFERENCES AND EVALUATION / CLASSIFICATION OF THE SITUATION OF ALL CATEGORIES OF SURFACE WATER BODIES".
<b>DEFINITION OF GROUNDWATER BODIES</b>	The number of Groundwater Bodies is reassessed pursuant to the latest data provided by the National Monitoring Water Network or/and special studies that have been carried out in the elapse time between the endorsement of the 1 <sup>st</sup> RBMP and this day. It is noted that through the update the Water Bodies' code names are redefined. Instead of the country code "GR", the letters "EL" are used, in order to comply with other EU data bases.	In the Water District EL10, differentiations are identified in the definition of UWB in relation to the 1st RBMP, which were mainly based on the requirement to fill the gaps in the spatial coverage of the WD. Thus, the following were established: The GWB of Mitakas (code EL100F260, the numbering of the GWB covers the gap of No 26 existing in the 1st RBD), the GWB of Amoliani (EL1000290) and the GWB of Diaporos (EL1000300). Small areas were also incorporated into the GWBs of Krussion - Kerdylion (EL1000150), Axios (EL1000030) and Pontoiraklia-Metamorphosis (EL100F250). The results are are presented in detail in the Document "CHARACTERIZATION AND EVALUATION / CLASSIFICATION OF GROUNDWATER BODIES STATUS".

SUBJECT OF THE UPDATED RBMP/ACTIVITY	DIFFERENCE IN RELATION TO THE 1 <sup>ST</sup> RBMP	SUMMARY OF THE RESULTS
HEAVILY MODIFIED (HMWB) AND ARTIFICIAL (AWB) WATER BODIES	Heavily modified Water Bodies defined in the 1 <sup>st</sup> RBMP are reviewed pursuant to the new methodology established and the National Monitoring Network.	The implementation of the new methodology of the Initial and Definitive establishment of the HMWB and AWB does not propose any differences in the number of HMWB and AWB presented in the 1 <sup>st</sup> RBMP. The results are presented in detail in the Document "DEFINITION OF HEAVILY MODIFIED AND ARTIFICIAL WATER BODIES".
PROTECTED AREAS	<p>The Register of Protected Areas that was formed in the 1st RBMP is re-examined based on:</p> <ul style="list-style-type: none"> <li>• The new Natura 2000 sites proposed by the MEE on the basis of the provisions of the Birds Directives (2009/147 / EC) and Habitats (92/43 / EEC).</li> <li>• The results of the monitoring of the Bathing Waters and the provisions of the Bathing Water Directive (2006/7 / EC).</li> <li>• Other directives on water protection with stricter objectives such as the Drinking Water Directives (80/778 / EEC, as amended by Directive 98/83 / EC), on shellfish (2006/113 / EC), freshwater fish (2006/44/EC), protection from nitrification (91/676 / EEC) and urban waste water treatment (91/271 / EEC).</li> <li>• Latest data emerging from the confirmation of the 1<sup>st</sup> RBMP and relevant EU Guidance Documents.</li> </ul>	<p>The surface and groundwater associated with the protected areas are declared.</p> <p>Areas that have been included in the register of protected areas under the 1st RBMP are not differentiated.</p> <p>The results are presented in detail in the Document "UPDATED REGISTER OF PROTECTED AREAS".</p>
	<p>The assessment of pressures and impacts is carried out pursuant to the new methodology developed and the latest data that emerged from the approval of the 1st RBMP.</p> <p>The assessment of the pressures on the hydromorphological characteristics of the Water Bodies is considered a significant</p>	<p>In the water district EL10, the methodological approaches followed the 1st RBMP are similar to those of the Update. The resulting differentiations are mainly based on the latest available data, concerning the fuller picture of the cultivated land, the establishment of new activities, better mapping of the activities in the Water District. The pressures and loads resulting from the recorded pressures are linked to the WB so as to optimize their relation to the proposed measures.</p> <p>As far as the pressures on the hydromorphologic characteristics</p>

SUBJECT OF THE UPDATED RBMP/ACTIVITY	DIFFERENCE IN RELATION TO THE 1 <sup>ST</sup> RBMP	SUMMARY OF THE RESULTS
<b>PRESSURES AND IMPACTS</b>	differentiation. The estimation of the forementioned pressures entailed a specific methodological approach which has been developed and presented hereof more in extent.	of the water systems is concerned, they are more fully evaluated and used so as to define priliiminarily the HMWB of a WB. The results are presented in detail in the Document "ANALYSIS OF HUMAN PRESSURES AND THEIR IMPACT ON SURFACE WATER AND GROUNDWATER BODIES".
<b>CLASSIFICATION OF SURFACE WATER BODIES STATUS</b>	During the update, the classification of the SWBs' status is implemented on the basis of the new methodological approaches developed by the National Scientific Committee of the SSW to determine the methods for classifying the ecological status of all of the SWB categories and was approved by the EU and the data of the Monitoring Network of the Water Status. For the WB which are not being monitored, the classification of their status is done by grouping based on their typology and the pressures they endure.	The 1st update includes a fuller and more reliable depiction of the SWB status. The result of the methodological approach applied is the significant reduction of the WB whose status was unknown. The results are are presented in detail in the documentation "CHARACTERIZATION, TYPOLOGY, TYPE-CHARACTERIZATION CONDITIONS REFERENCES AND EVALUATION / CLASSIFICATION OF THE SITUATION OF ALL CATEGORIES OF SURFACE WATER BODIES".
<b>CLASSIFICATION OF GROUNDWATER BODIES STATUS</b>	The methodology used in classifying the GWBs' status is not differentiated in relation to the 1st RBMP. The classification of the GWB is based on the latest data obtained from the monitoring network.	The 1st update includes a more reliable depiction of the GWB status based on the latest data obtained from the monitoring network. The results are are presented in detail in the Document "CHARACTERIZATION AND EVALUATION/CLASSIFICATION OF GROUNDWATER WATER BODIES".
<b>MONITORING</b>	It includes a significant number of samples from the period 2012 – 2015 for almost all biological qualitative elements, physico-chemical and chemical qualitative elements, as well as hydromorphological qualitative elements of SWB. It also includes measurements of both the qualitative and quantitative status of the GWB.	The data exploited for the monitoring programme are presented in detail in the Document "CHARACTERIZATION, TYPOLOGY, TYPE-CHARACTERIZATION CONDITIONS REFERENCES AND EVALUATION / CLASSIFICATION OF THE SITUATION OF ALL CATEGORIES OF SURFACE WATER BODIES" and "CHARACTERIZATION AND EVALUATION/CLASSIFICATION OF GROUNDWATER WATER BODIES" for surface and groundwater WBs respectively.
<b>ECONOMIC ANALYSIS OF WATER USES</b>	For the economic analysis of water uses the predictions of the new Ministerial Decision (No. 135275/22.05.17) are followed: "Approval of general cost accounting rules and water pricing. Methodology and	The results are presented in detail in the document "ECONOMIC ANALYSIS OF WATER USE AND IDENTIFICATION OF THE EXISTING RECOVERY RATE OF WATER SERVICES COSTS (WATER SUPPLY,

SUBJECT OF THE UPDATED RBMP/ACTIVITY	DIFFERENCE IN RELATION TO THE 1 <sup>ST</sup> RBMP	SUMMARY OF THE RESULTS
	procedures for the recovery of costs of water services in various water uses" and the methodological tools which derived from the work of the SSW "CONSULTANT FOR TECHNICAL SUPPORT AND AID OF THE SSW IN MATTERS OF ORGANISATIONAL, MANAGEMENT AND PRICING OF WATER SERVICES"	IRRIGATION AND SEWERAGE) ".
<b>ENVIRONMENTAL OBJECTIVES – EXEMPTIONS</b>	In the 1st update, the definition of environmental objectives and exemptions is based on the new methodological approaches developed in accordance with the EU guidelines.	The results are presented in the document "DETERMINATION OF THE ENVIRONMENTAL OBJECTIVES, INCLUDING THE "EXEMPTIONS" OF THE ACHIEVEMENT OF THE OBJECTIVES."
<b>PROGRAM OF MEASURES</b>	<p>The programme of measures as drawn up in this 1st Update of the management plan included briefly the following new approaches in relation to the 1st RBMP:</p> <ul style="list-style-type: none"> <li>• The specialization/reformulation of measures of the 1st RBMP which continue in this management cycle.</li> <li>• The formulation of new measures to address the pressures of the WB and the achievement of the objectives set out.</li> <li>• The correlation of measures with specific significant pressures identified in the RBD.</li> <li>• The correlation of measures with main categories of measures as defined by the EU and specific indicators to monitor their implementation progress.</li> </ul> <p>The correlation of measures with national climate change adaptation actions as set out in the national strategy for adaptation to climate change (MEE 2016).</p>	<p>The new programme of measures as emerged from the consultation process of the draft and the Strategic environmental Impact Study is summarised in Chapter 9 hereof and in detail in the document "BASIC AND COMPLEMENTARY MEASURES PROGRAMMES, INCLUDING THE ANALYSIS OF THEIR COSTS IN RELATION TO THEIR PROFITABILITY".</p>

### 3 DESCRIPTION OF THE RIVER BASIN DISTRICT – COMPETENT AUTHORITIES

#### 3.1 RIVER BASINS

Central Macedonia River basin District (EL10) with surface<sup>1</sup> 10.163,38 km<sup>2</sup>, is one of the fourteen water districts in which the country was divided by Law 1739/1987 (Government Gazette 201/A/1987).

Central Macedonia River basin District consists of four (4) River Basins (RB):

- Axios (EL1003), with surface 3.327,85 km<sup>2</sup>
- Gallikos (EL1004), with surface 1.050,23 km<sup>2</sup>
- Chalkidiki (EL1005), with surface 5.545, 86 km<sup>2</sup>
- Atho (EL1043), with surface 239,44 km<sup>2</sup>.

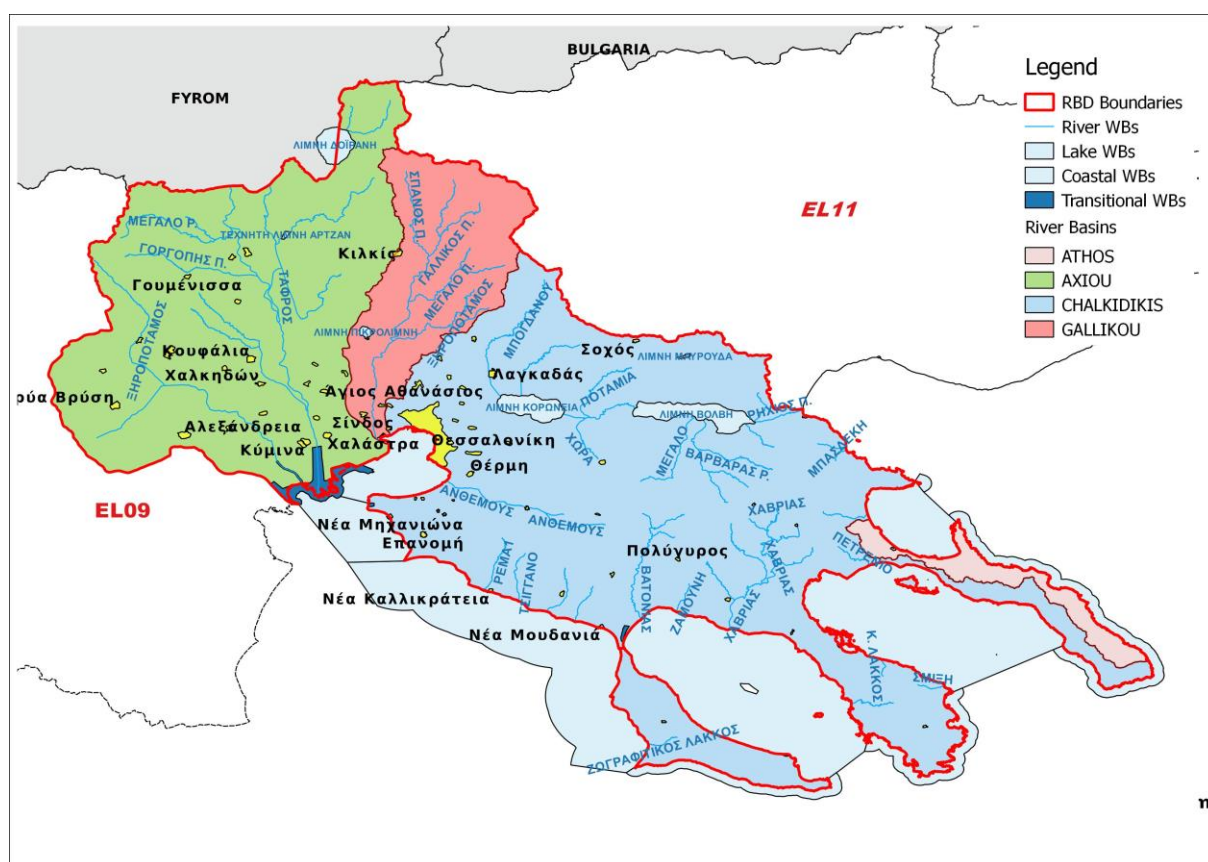


Figure 1:: Water District EL10 Boundaries – River Basins and Surface Water Bodies

##### 3.1.1 Axios River Basin (EL1003)

The Axios RB (EL1003) administratively belongs to the region of Central Macedonia, consisting mainly of the hydrological basins of the rivers Axios and Loudias, is located in the western part of the district EL10 and extends from the borders of Greece – FYROM to the shores of the RBD, west of the Thermaikos Gulf.

<sup>1</sup> It concerns the inland area. Coastal WBs with surface 3.295,17 km<sup>2</sup> are not included.



The RB is characterized by high altitudes (more than 1.000 m) in NW (Mount Paiko) and in the North (Mount Kerkini) and mild-lowland morphology in the rest of its area. Thus, more than 50% of its area has an altitude below 100m and over 75% below 200 m, while the average altitude of the RB is 180 m, approximately. The total supply of water in the Axios RB amounts to  $4,4 \times 10^9 \text{ m}^3$ , of which  $0,8 \times 10^9 \text{ m}^3$  come from EL10 district's own resources and the remaining  $3,6 \times 10^9 \text{ m}^3$  from the inflow of water from the neighbour FYROM through river Axios (the transported amount of water by river Aliakmonas was not counted in).

The main lake of Axios RB are the natural lake of Doiranis, which is "shared" between Greece and FYROM (total lake area  $38,87 \text{ km}^2$  – area of Greek section  $14,2 \text{ km}^2$ ) and the artificial reservoir of Artzan.

The most important use of water in the Axios RB is irrigation. Projects for the utilization of surface water resources that have so far been constructed and meet the irrigation needs of the plain of Thessaloniki is the water abstraction of Eleoussa by river Axios (its construction began in 1954 and its operation started from 1962 -Annual  $430 \text{ hm}^3$ , approximately) and the transport of water resources by river Aliakmonas (EL09) through the United Canal Aliakmonas-Axios (its construction was started after the operation of the Polyphytos Reservoir in 1976-transported quantity for the needs of the RBD EL10 annually  $350 \text{ hm}^3$ , approximately, of which  $300 \text{ hm}^3$ , approximately, for irrigation). The total of almost  $1,130 \text{ km}^2$ , about irrigated crops, of the Axios RB is served by the collective irrigation networks managed by GOLR of the valley of Thessaloniki-Lagada.

Other important projects in the RB, which were executed during the period 1925-1936, concern the drainage of the former Lake of Giannitsa through river Loudias and the former Lakes Amadovou and Artzan (where the homonymous reservoir was recently constructed), through the homonymous trenches to P. Axios.

### **3.1.2 Gallikos RB (EL1004)**

Gallikos RB (EL1004), is administratively located in the region of central Macedonia, includes the river basin of the homonymous river, is found almost in the center of EL10 district and extends almost from the NE boundaries of Kilkis Prefecture to the Thermaikos Gulf. The only lake WB of the RB is the natural lake of Pikrolimni. The RB is characterized by an elongated shape and high altitudes, over 1,000 m in the north (mountainous volumes of Kroussies), which gradually lower to the centre of the RB, and then there are lowland areas with the exception of the outbreak at the southeast boundaries of the RB ( Area between the Monolitha, Mesaio and Neochorouda settlements). Thus, 17% of its area has an altitude below 100m, 16% has an altitude of  $100 \div 200 \text{ m}$ , 20% has an altitude of  $200 \div 300 \text{ m}$  and the remaining 47% has higher altitude. The average altitude of the RB is 300 m, approximately. The total supply of water in the RB is  $179 \times 10^6 \text{ m}^3$ .

### **Chalkidiki RB (EL1005)**

Chalkidiki RB (EL1005), which administratively belongs to the region of Central Macedonia, is the largest RB of the EL10 district, consisting of the basins of the Lakes Volvi and Lagadas (Koronia), the artificial lake Mavroudas, the rivers of Anthemunda and Havris, the hydrological basins of the Thessaloniki Urban Complex, as well as other smaller sub-basins of the Chalkidiki Prefecture. It extends from almost the centre of the RBD to the south-eastern part, to the western and central Cape of Halkidiki. In its northern part there is the mountainous massif of Vertiskos and in the central there are the massifs of Chortiatis and Holomontas. Between the aforementioned mountainous



massifs, as well as south of them, until the capes of Chalkidiki spread lowland areas. The capes of Kassandra and Sithonia exhibit a strong relief, with the most intense the one of the Cape of Sithonia, where the highest altitudes are shown. Thus, from the total area of RB, 27% has an altitude below 100m, 20% has an altitude of 100 ÷ 200m, 14% has an altitude of 200 ÷ 300m and the remaining 39% has a higher altitude, while the average altitude of the RB is about 275 m. The total water supply to RB amounts to  $653 \times 10^6 \text{ m}^3$ .

### 3.1.3 Athos RB (EL1043)

Athos RB (EL1043) is the RB with the smallest area in the EL10 district and consists the northeastern part of the Homonymous peninsula, the easterly of the three peninsulas of Halkidiki. In the NE is limited by Orphanos Gulf (strymonic). The terrain of the Athos peninsula is mountainous and inaccessible. The shape of the peninsula is narrow and elongated, with steep coasts, without natural harbors. Thus, from the total area of RB, 37% has an altitude below 100m, 24% has an altitude of 100 ÷ 200m, 16% has an altitude of 200 ÷ 300m and the remaining 23% has a higher altitude, while the average altitude of the RB is 220 m, approximately. The total water supply to the RB amounts to  $58 \times 10^6 \text{ m}^3$ .

## 3.2 NATURAL CHARACTERISTICS

The RBD of Central Macedonia (EL10) is bounded by the mountains of Kerdylia, Vertiskos, Krousia and Beles to the east, Mount Paiko and the regional moat to the west and to the north from the mountains of Kerkinia (Beles) and the borders of Greece and FYROM. To the east it borders with the RBD of Eastern Macedonia (EL11) and to the west with the RBD of Western Macedonia (EL09). The EL10 includes extensive plains, mainly in its western part, the most important of which are those of Thessaloniki, Giannitsa and Lagada, while in its eastern part the basin of Halkidiki is distinguished. Its morphology is mainly semi-mountainous with an average altitude of 245 m, approximately, while 36% of its area has an altitude below 100 m and only 3% of its area has an altitude of over 800 m. Its coasts, total length 910 km, are characterized by intense relief, resulting in the formation of numerous rocky bays.

The RBD is characterized by a variety of climates, such as Mediterranean in the region of Halkidiki, and the coastal areas, continental in the interior and mountainous in the areas with high altitude. The average annual rainfall ranges from 400 to 800 mm, while in the mountainous areas it exceeds 1000 mm. Snowfalls are quite common during the period September-April. The average annual temperature varies between 14,5 °C and 17 °C, with a colder month in January and a warmer in July.

The average annual total water supply in the RBD of central Macedonia, amounts to  $5.3 \times 10^9 \text{ m}^3$ , of which 32% ( $1,7 \times 10^9 \text{ m}^3$ ) originates from the RBD's own resources, while the remaining 68% ( $3,6 \times 10^9 \text{ m}^3$ ) originates from the water inflow of river Axios of the neighbouring FYROM. Moreover, in the EL10 district is transferred by river Aliakmonas of the EL09, through the United Canal Aliakmonas-Axios, a quantity of water of about  $500 \times 10^6 \text{ m}^3$  to meet the irrigation needs of the GOLR of the valley of Thessaloniki – Langadas and the irrigation network Alexandria as well as a quantity of  $50 \times 10^6 \text{ m}^3$  (with a maximum  $98 \times 10^6 \text{ m}^3$  depending on the demand), to meet the water needs of the urban complex of Thessaloniki.

### 3.3 COMPETENT AUTHORITIES

The competent authorities for the implementation of Directive 2000/60/EC have been designated according to **Law 3199/2003** (Government Gazette 280A'/9.12.2003), as amended and in force, for the Protection and Management of Water. The competent authorities are:

The **National Water Committee**, has been designated as a high-level inter-ministerial body and is responsible for drawing up the policy for the management and protection of the country's water resources.

The **National Water Council**, delivers an opinion to the National Water Committee on National Water Protection and Management Plans and takes note of the Annual Report submitted by the National Water Committee on the status of the country's water environment, the implementation of the legislation on water protection and management, and the compatibility with the European acquis communautaire.

The **Special Secretariat for Water**, has the competence to prepare the programs for the protection and management of the country's water resources and the coordination of services and state bodies on all issues related to the protection and management of water. The Secretariat, in cooperation with the Water Directorates of the Decentralized Administrations, prepares the national programs for the protection and management of the country's water resources and monitors and coordinates their implementations.

Table 3-1: Identity of the National Competent Authority

- OFFICIAL NAME	- SPECIAL SECRETARIAT FOR WATER
- Acronym	S.S.W.
- Legal Status	Single Administrative Division of the Ministry of Environment and Energy
- Provisions for Creating and Defining Competencies	Law 3199/2003 (Government Gazette A' 280) for the protection and management of Water Resources, as amended and in force, more specifically the laws 4117/2013 (Government Gazette A' 29) and 4315/2014 (Government Gazette A' 269) as modified by the Government Gazette 93/A/29.06.2017 and law 4423/2016 (Government Gazette 182/A/2016). PD 132/2017 (Government Gazette A' 160) «Organisation of Ministry of Environment and Energy».
Contact Info	
Postal Address	Amaliados 17
Postal Code	11523
City	Athens
Country	Greece
Website	<a href="http://www.ypeka.gr/">http://www.ypeka.gr/</a> , <a href="http://wfdver.ypeka.gr">wfdver.ypeka.gr</a>
Contact Points	tel: 210 6475102, 2131515410 e-mail: info.egy@prv.ypeka.gr

In addition to the implementation of Directive 2000/60/EC, the following Ministries are involved at a National Level: Ministry of Foreign Affairs, Ministry of Rural Development and Food, Ministry of Infrastructure and Transport, Ministry of Finance and Development, Ministry of Health, Ministry of Maritime and Island Policy, Ministry of Interior Affairs.

The **Water Council of Decentralized Management**, which is recommended to each Decentralized Administration, according to article 6 of Law 3199/03, as amended by article 53 of Law 4423/2016 (Government Gazette A' 182/27.09.2016) and is an instrument of social dialogue and consultation on water protection and management issues.

The **Water Directorates of Decentralized Management**, through which the Decentralized Administration's responsibilities for water protection and management are exercised.

Table 3-2: Identities of the Regional Competent Authorities

OFFICIAL NAME	DECENTRALIZED ADMINISTRATION OF MACEDONIA - THRACE WATER DIRECTORATE OF CENTRAL MACEDONIA
Acronym	W.D.C.M.
Legal Status	Organic Unit of the Decentralized Administration of Macedonia – Thrace. Falls under the General Directorate for Spatial Planning and Environmental Policy.
Provisions for Creating and Defining Competencies	Law 3199/2003 (Government Gazette A' 280) for the Protection and Management of Waters, as amended and in force, in particular by Law 4117/2013 (Government Gazette A' 29) and Law 4315/2014 (Government Gazette A' 269). Law 3852/2010 (Government Gazette A' 87) Project Kallikratis, as in force. PD 142/2010 (Government Gazette A' 235) Organization of the Decentralized Administration of Macedonia Thrace.
Contact Info	
Postal Address	Georgikis Scholis Avenue 32
Postal Code	55134
City	Thessaloniki
Country	Greece
Website	<a href="http://www.damt.gov.gr">http://www.damt.gov.gr</a> <a href="http://dydaton.damt.gov.gr/">http://dydaton.damt.gov.gr/</a>
Contact Points	Tel: 2313 309483, 2313 309488 Fax: 2310 424160 e-mail: <a href="mailto:dy-km@damt.gov.gr">dy-km@damt.gov.gr</a>

Additionally for the implementation of the Directive 2000/60/EC are involved in Regional Level Local Authorities of A and B grade.



## 4 DESIGNATION AND CLASSIFICATION OF WATER BODIES

### 4.1 SURFACE WATER BODIES (SWB)

For the 1<sup>st</sup> Update of the RBMP of the Central Macedonia RBD (EL10) the 124 surface water bodies that are identified in the 1<sup>st</sup> RBMP are not changed. The aforementioned WBs are presented at the following table by category.

Table 4-1: Number of surface water bodies of Central Macedonia RBD (EL10) for each RB

Category	RBDs				Total
	Axios (EL1003)	Gallikos (EL1004)	Chalkidiki (EL1005)	Athos (EL1043)	
River WB	35	16	53	-	<b>104</b>
Lake WB	2	1	3	-	<b>6</b>
Transitional WB	1	-	2	-	<b>3</b>
Coastal WB	-	-	9	2	<b>11</b>
<b>Total</b>	<b>38</b>	<b>17</b>	<b>67</b>	<b>2</b>	<b>124</b>

#### 4.1.1 River Water Bodies

The river water bodies of the RBD under the new typology as defined by the Mediterranean Intercalibration Group, based on European Decision 2013/480EC are presented at the following table.



Table 4-2: River WBs under new typology, based on the European Decision 2013/480/EK and MED GIG, for each RB of the Central Macedonia RBD (EL10)

No (ref. Map 6)	WB NAME	WB CODE	CATEGORY	LENGTH (km)	INSTANT RUNOFF BASIN ( km <sup>2</sup> )	CUMULATIVE RUNOFF BASIN (km <sup>2</sup> )	AVERAGE ANNUAL RUNOFF (hm <sup>3</sup> )	TYPE OF WB
<b>Axios RB (EL1003)</b>								
1	Mayrorrema	EL1003R000000001N	NAT	5,97	24,66	24,66	5,09	R-M1
2	Rema2	EL1003R000000002N	NAT	3,63	11,56	95,33	19,66	R-M1
3	Xirorrema	EL1003R000000003N	NAT	10,00	83,77	83,77	17,28	R-M1
4	Loydias P.	EL1003R000400031A	AWB	21,02	187,41	1166,95	278,38	R-M3
5	Loydias P.	EL1003R000400032A	AWB	41,93	887,92	979,5	237,53	R-M2
6	Xiropotamos	EL1003R000400033N	NAT	10,70	6,95	91,62	44	R-M1
7	Xiropotamos	EL1003R000400034N	NAT	12,19	61,97	84,67	42,48	R-M1
8	Petrorrema	EL1003R000400035N	NAT	7,48	22,7	22,7	11,39	R-M1
9	Axios P. (Bardaris)	EL1003R0F0201004H	IAWB	19,59	8,47	22232,51	4009,48	R-L2
10	Bardarobasi R.	EL1003R0F0202014A	AWB	18,09	158,62	318,5	67,31	R-M2
11	Bardarobasi R.	EL1003R0F0202015N	NAT	19,29	60,8	60,8	12,45	R-M1
12	Bardarobasi R.	EL1003R0F0202116N	NAT	20,87	99,05	99,05	20,28	R-M1
13	Axios P. (Bardaris)	EL1003R0F0203005N	NAT	8,30	8,62	21905,57	3940,33	R-L2
14	Axios P. (Bardaris)	EL1003R0F0203006N	NAT	15,00	59,34	21896,95	3938,56	R-L2
15	Tafros	EL1003R0F0204017A	AWB	13,63	29,59	721,46	150,3	R-M2
16	Tafros	EL1003R0F0204018A	AWB	5,39	16,27	419,86	88,54	R-M2
17	Mpagialtzas R.	EL1003R0F0204019N	NAT	16,65	88,53	88,53	20,7	R-M1
18	Tafros	EL1003R0F0204120A	AWB	11,79	69,57	272	55,7	R-M2
19	Metallikon R.	EL1003R0F0204121N	NAT	17,50	202,43	202,43	41,45	R-M2
20	Psarorrema	EL1003R0F0204222N	NAT	1,96	27,58	315,1	64,51	R-M2
21	Psarorrema	EL1003R0F0204223N	NAT	29,31	287,47	287,5	58,86	R-M2
22	Axios P. (Bardaris)	EL1003R0F0205007N	NAT	12,81	9,08	21116,15	3776,11	R-L2
23	Gorgopis P.	EL1003R0F0206024N	NAT	14,42	78,81	163,07	41,42	R-M2
24	Gorgopis P.	EL1003R0F0206025N	NAT	8,98	36,1	84,26	25,07	R-M1
25	Gorgopis P.	EL1003R0F0206026N	NAT	5,00	48,15	48,15	9,86	R-M1

No (ref. Map G)	WB NAME	WB CODE	CATEGORY	LENGTH (km)	INSTANT RUNOFF BASIN ( km <sup>2</sup> )	CUMULATIVE RUNOFF BASIN (km <sup>2</sup> )	AVERAGE ANNUAL RUNOFF (hm <sup>3</sup> )	TYPE OF WB
26	Axios P. (Bardaris)	EL1003R0F0207008N	NAT	9,18	46,24	20943,99	3732,83	R-L2
27	Axios P. (Bardaris)	EL1003R0F0207009N	NAT	2,50	8,17	20897,76	3723,15	R-L2
28	Axios P. (Bardaris)	EL1003R0F0207010N	NAT	2,50	5,85	20889,59	3719,7	R-L2
29	Kotza R.	EL1003R0F0208027N	NAT	7,09	10,9	140,53	59,19	R-M2
30	Megalo R.	EL1003R0F0208028N	NAT	19,26	74,69	100,71	42,42	R-M2
31	Megalo R.	EL1003R0F0208029N	NAT	7,48	26,03	26,03	10,96	R-M1
32	Lykorema	EL1003R0F0208130N	NAT	9,45	28,91	28,91	12,18	R-M1
33	Axios P. (Bardaris)	EL1003R0F0209011N	NAT	6,41	49,87	20743,21	3658,05	R-L2
34	Axios P. (Bardaris)	EL1003R0F0209012N	NAT	2,50	7,46	20693,34	3637,05	R-L2
35	Axios P. (Bardaris)	EL1003R0F0209013N	NAT	2,50	17,39	20685,88	3633,96	R-L2
<b>Gallikos RB (EL1004)</b>								
36	Gallikos P.	EL1004R000201001N	NAT	0,79	3,08	1004,34	144,61	R-M3
37	Gallikos P.	EL1004R000201002N	NAT	8,40	71,44	1001,25	144,09	R-M3
38	Gallikos P.	EL1004R000201003N	NAT	9,19	60,13	929,8	129,92	R-M2
39	Gallikos P.	EL1004R000201004N	NAT	7,42	27,08	869,7	117,98	R-M2
40	Xiropotamos	EL1004R000202008N	NAT	13,73	63,82	141,4	27,98	R-M5
41	Xiropotamos	EL1004R000202009N	NAT	13,88	51,2	51,2	10,08	R-M1
42	Xiropotamos	EL1004R000202110N	NAT	10,72	26,4	26,4	5,24	R-M1
43	Gallikos P.	EL1004R000203005N	NAT	11,79	71,49	701,18	84,62	R-M2
44	Megalo P.	EL1004R000204011N	NAT	16,68	69,02	163,5	18,82	R-M2
45	Megalo P.	EL1004R000204012N	NAT	10,40	36,09	36,09	4,15	R-M1
46	Megalo P.	EL1004R000204113N	NAT	6,40	58,39	58,39	6,72	R-M1
47	Gallikos P.	EL1004R000205006N	NAT	13,51	72,55	466,19	53,66	R-M2
48	Gallikos P.	EL1004R000206014N	NAT	5,39	28,64	262,01	30,16	R-M2
49	Gallikos P.	EL1004R000206015N	NAT	16,26	93,82	93,82	10,8	R-M1
50	Gallikos P.	EL1004R000206116N	NAT	14,80	139,55	139,55	16,06	R-M2
51	Spanos P.	EL1004R000207007N	NAT	24,13	131,63	131,63	15,15	R-M2
<b>Chalkidiki RB (EL1005)</b>								
52	Mayros Lakkos	EL1005R000100021N	NAT	5,57	47,38	47,38	7,5	R-M1



No (ref. Map G)	WB NAME	WB CODE	CATEGORY	LENGTH (km)	INSTANT RUNOFF BASIN ( km <sup>2</sup> )	CUMULATIVE RUNOFF BASIN (km <sup>2</sup> )	AVERAGE ANNUAL RUNOFF (hm <sup>3</sup> )	TYPE OF WB
53	Richios P.	EL1005R000201001N	NAT	4,86	30,55	1997,96	186,77	R-M3
54	Richios P.	EL1005R000201002N	NAT	2,50	12,72	1967,41	182,23	R-M3
55	Richios P.	EL1005R000201003N	NAT	2,50	9,75	1954,69	181,39	R-M3
56	Kerasias R.	EL1005R000202010N	NAT	8,53	22,67	22,67	2,24	R-M1
57	Derbeni R.	EL1005R000203004A	AWB	5,38	16,08	1183,78	107,17	R-M3
58	Derbeni R.	EL1005R000203005A	AWB	7,49	38,53	1167,7	105,58	R-M5
59	Aspropetra	EL1005R000204011N	NAT	8,94	45,74	45,74	4,53	R-M1
60	Derbeni R.	EL1005R000205006A	AWB	0,90	4,36	988,6	87,86	R-M2
61	Cholomontas	EL1005R000206012N	NAT	8,73	16,66	214,28	21,2	R-M2
62	Cholomontas	EL1005R000206013N	NAT	6,22	45,05	124,79	12,34	R-M2
63	Koytsikarli R.	EL1005R000206014N	NAT	8,82	33,29	33,29	3,29	R-M1
64	Barbaras R.	EL1005R000206115N	NAT	19,44	72,83	72,83	7,21	R-M1
65	Cholomontas	EL1005R000206216N	NAT	10,38	46,44	46,44	4,6	R-M1
66	Derbeni R.	EL1005R000207007A	AWB	4,01	4,27	853,13	74,46	R-M2
67	Megalo	EL1005R000208017N	NAT	22,70	205,85	205,85	18,64	R-M2
68	Mpogdanoy	EL1005R000209008N	NAT	18,40	261,65	417,8	39,61	R-M2
69	Mpogdanoy	EL1005R000209009N	NAT	21,08	156,14	156,14	14,8	R-M2
70	Potamia	EL1005R000210018N	NAT	21,92	140,57	140,57	13,9	R-M2
71	Chora	EL1005R000212019N	NAT	12,72	131,11	131,11	12,97	R-M2
72	Arapitsa	EL1005R000214020N	NAT	23,47	88,2	88,2	8,36	R-M5
73	Mpasdeki	EL1005R000300022N	NAT	3,74	29,83	29,83	4,73	R-M1
74	Asprolakkas	EL1005R000500023N	NAT	9,79	92,27	92,27	16,73	R-M4
75	Petrenio	EL1005R000700024N	NAT	9,55	50,74	50,74	6,34	R-M1
76	K. Lakkos	EL1005R000900025N	NAT	4,45	12,15	12,15	1,52	R-M1
77	Smixi	EL1005R001100026N	NAT	5,30	23,03	23,03	2,84	R-M1
78	Myloy	EL1005R001300027N	NAT	11,49	49,31	49,31	6,33	R-M5
79	Zografitikos Lakkos	EL1005R001500028N	NAT	6,35	43,07	43,07	5,39	R-M1
80	Anthemoys	EL1005R001700029H	HMWB	18,03	223,64	316,2	27,42	R-M2
81	Anthemoys	EL1005R001700030N	NAT	19,48	92,54	92,54	8,02	R-M5

No (ref. Map G)	WB NAME	WB CODE	CATEGORY	LENGTH (km)	INSTANT RUNOFF BASIN ( km <sup>2</sup> )	CUMULATIVE RUNOFF BASIN (km <sup>2</sup> )	AVERAGE ANNUAL RUNOFF (hm <sup>3</sup> )	TYPE OF WB
82	Rema1	EL1005R001900031N	NAT	14,74	74	74	4,95	R-M5
83	Tsiggano	EL1005R002100032N	NAT	12,31	109,19	109,19	7,31	R-M2
84	Xirolagkas	EL1005R002300033N	NAT	12,84	105,49	105,49	7,06	R-M2
85	Salidika Mandia R.	EL1005R002500034N	NAT	9,28	45,81	45,81	3,06	R-M5
86	Batonias	EL1005R002701035N	NAT	24,89	126,98	251,99	31,86	R-M2
87	Batonias	EL1005R002702038N	NAT	5,37	27,62	27,62	4,29	R-M1
88	Batonias	EL1005R002703036N	NAT	2,36	8,48	97,39	15,14	R-M1
89	Batonias	EL1005R002704039N	NAT	2,57	1,88	44,58	6,93	R-M1
90	Batonias	EL1005R002704040N	NAT	6,18	42,69	42,69	6,63	R-M1
91	Batonias	EL1005R002705037N	NAT	4,25	44,33	44,33	6,89	R-M1
92	Zamoyini	EL1005R002900041N	NAT	7,36	28,83	28,83	2,42	R-M5
93	Chabrias	EL1005R003101042N	NAT	6,57	27,13	439,02	67,94	R-M2
94	Kaprinikia	EL1005R003102048N	NAT	13,32	53,09	53,09	6,92	R-M1
95	Chabrias	EL1005R003103043N	NAT	9,57	49,86	358,8	56,41	R-M2
96	Miliadino	EL1005R003104049N	NAT	5,54	10,63	68,42	7,93	R-M1
97	Miliadino	EL1005R003104050N	NAT	15,22	57,79	57,79	6,71	R-M1
98	Chabrias	EL1005R003105044N	NAT	7,35	27,84	240,52	43,55	R-M2
99	Xinoneri	EL1005R003106051N	NAT	10,19	65,51	65,51	12,14	R-M1
100	Chabrias	EL1005R003107045N	NAT	11,51	28,13	147,17	26,25	R-M2
101	Chabrias	EL1005R003108052N	NAT	10,18	29,3	29,3	5,44	R-M1
102	Chabrias	EL1005R003109046N	NAT	3,67	5,68	89,75	15,59	R-M1
103	Chabrias	EL1005R003110053N	NAT	4,80	14,34	14,34	2,66	R-M1
104	Chabrias	EL1005R003111047N	NAT	8,29	69,73	69,73	12,93	R-M1
NAT: Natural YΣ, HMWB: Heavily Modified Water Body, AWB: Artificial Water Body								

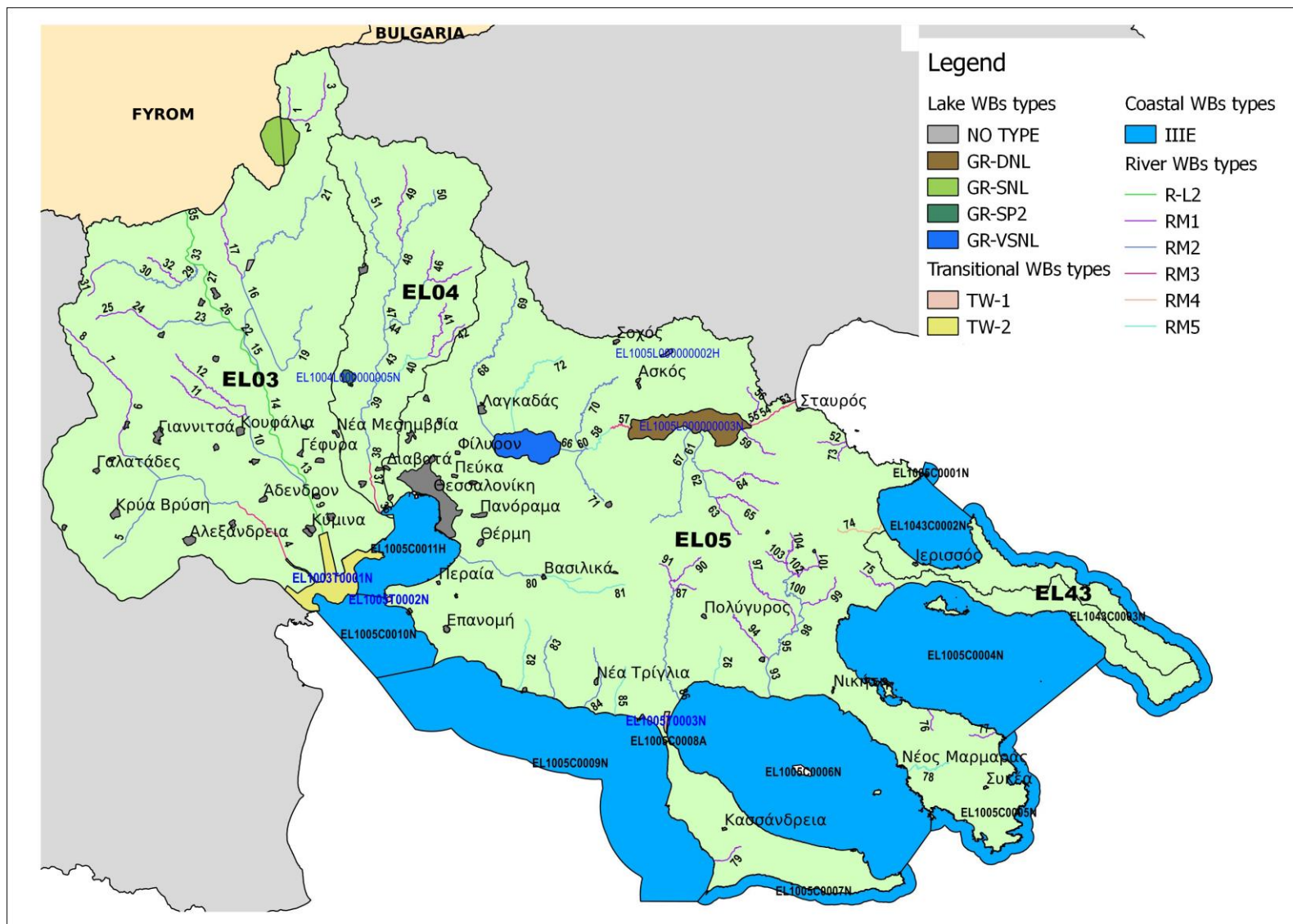


Figure 2: : Surface water bodies typology (numbering corresponds to the numbering of the table 4-2)



#### 4.1.2 Lake Water bodies

In the following table are presented the Lake WBs and their typology for the RBD

Table 4-3: Lake WBs and reservoirs (river HMWB) of Central Macedonia RBD (EL10)\*

No	WB NAME	WB CODE	CATEGORY	AREA (km <sup>2</sup> )	TYPE OF WB
<b>Axios RB (EL1003)</b>					
1	Artzan Reservoir	EL1003L000000006A	AWB	1,4	Not designated
2	Doirani Lake	EL1003L0F0000001N	NAT	38,87 (14,2 Greece)	GR-SNL
<b>Gallikos RB (EL1004)</b>					
3	Pikrolimni Lake	EL1004L000000005N	NAT	4,27	GR-SP2
<b>Chalkidiki RB (EL1005)</b>					
4	Mavrouda Lake	EL1005L000000002H	HMWB	1,13	Not designated
5	Volvi Lake	EL1005L000000003N	NAT	72,07	GR-DNL
6	Koroneia Lake	EL1005L000000004N	HMWB	48,19	GR-VSNL
NAT: natural WB, HMWB: Heavily Modified WB, AWB: Artificial WB					

\*In Athos RB Lake WBs are not identified

#### 4.1.3 Transitional Water Bodies

In the Central Macedonia RBD (EL10) are identified the transitional WBs that are presented in the following table and in the map (Figure 2).

Table 4-4: Transitional WBs of Central Macedonia RBD (EL10)\*

No	WB NAME	WB CODE	CATEGORY	AREA (km <sup>2</sup> )	TYPE OF WB
<b>Axios RB (EL1003)</b>					
1	Axios Delta System	EL1003T0001N	NAT	66,05	TW 2
<b>Chalkidiki RB (EL1005)</b>					
2	Aggelohori Lagoon	EL1005T0002N	NAT	0,65	TW 1
3	Agios Mamas Lagoon	EL1005T0003N	NAT	2,08	TW 1
NAT: natural WB, HMWB: Heavily Modified WB, AWB: Artificial WB					

\* In Athos RB Transitional WBs are not identified

#### 4.1.4 Coastal Water Bodies

In the Central Macedonia RBD (EL10) are identified 11 coastal WBs presented in the following table and in the Map 2.

Table 4-5: Coastal WBs of Central Macedonia RBD (EL10)

No	WB NAME	WB CODE	CATEGORY	AREA (km <sup>2</sup> )	TYPE OF WB
<b>Chalkidiki RB (EL1005)</b>					
1	Siggitikos Gulf (Chalkidiki)	EL1005C0004N	NAT	740,89	IIIE

No	WB NAME	WB CODE	CATEGORY	AREA (km <sup>2</sup> )	TYPE OF WB
2	Kassandrinós Gulf (Chalkidiki)	EL1005C0006N	NAT	865,45	IIIE
3	Outer Thermaikos Gulf - Kallikratia	EL1005C0009N	NAT	808,19	IIIE
4	Elefthera Cape	EL1005C0001N	NAT	5,49	IIIE
5	Kassandra Coast	EL1005C0007N	NAT	79,13	IIIE
6	Thessaloniki Gulf	EL1005C0011H	HMWB	179,94	IIIE
7	Sithonia Coast	EL1005C0005N	NAT	97,05	IIIE
8	Inner Thermaikos Gulf	EL1005C0010N	NAT	177,43	IIIE
9	Potideas Canal	EL1005C0008A	AWB	0,01	IIIE
<b>Athos RB (EL1043)</b>					
10	Athos Coast	EL1043C0003N	NAT	159,97	IIIE
11	Ierissos Gulf (Chalkidiki)	EL1043C0002N	NAT	181,62	IIIE
<b>NAT: natural WB, HMWB: Heavily Modified WB, AWB: Artificial WB</b>					

## 4.2 GROUNDWATER BODIES

The main differences in the identification of the GWBs, compared to the 1<sup>st</sup> RBMP are due to the spatial gaps existed which are filled in order to cover or the area of the RBD.

Thus resulted the following :

- GWBs Mytakas (EL100F260), Amoliani (EL1000290) and Diaporos (EL1000300) are identified.
- Small areas are integrated in the areas of the GWBs KrouSION– Kerdylon (EL1000150), Axios (EL1000030) and Pontoiraklia- Metamorfosi (EL100F250).

The 37 GWBs identified in the RBD are presented in the following table.

Table 4-6: GWBs in Central Macedonia RBD (EL10)

No	WB NAME	WB CODE	AREA (km <sup>2</sup> )
1	Loudia system	EL1000010	882,34
2	Paikou system	EL1000020	114,02
3	Axiou system	EL1000030	1340,45
4	Doiranis system	EL100F040	100,54
5	Gallikou system	EL1000050	531,74
7	Triglias subsystem	EL1000062	33,79
8	Koroneias subsystem	EL1000071	698,76
9	Volvis subsystem	EL1000072	275,74
10	Kato rou Anthemounta subsystem	EL1000081	92,03
11	Galarinou-Galatistas subsystem	EL1000082	40,2
12	Thermis-N.Risiou subsystem	EL1000083	177
13	Kassandras system	EL1000090	351,76
14	Ormylias system	EL1000100	42,14
15	Ierissou system	EL1000110	2,72
16	Mavroudas system	EL1000120	89,5
17	Asprolakka subsystem	EL1000131	5,24
18	Kokkinolakka subsystem	EL1000132	1,39

No	WB NAME	WB CODE	AREA (km <sup>2</sup> )
19	Olympiadas system	EL1000140	4,39
20	KrouSION-Kerdyllion system	EL1000150	1380,29
21	Mavroneriou system	EL1000160	24,24
22	Agiou Orous system	EL1000170	366,12
23	Sithonias system	EL1000180	403,35
24	Skourion-Mavres Petres subsystem	EL1000191	152,28
25	Olympiadas subsystem	EL1000192	196,45
26	Xolomonta-Oraiokastrou subsystem	EL1000193	1597,41
27	Neon Rodon system	EL1000200	22,2
28	Mesaiou system	EL1000210	14,17
29	Nteve Koran system	EL1000220	28,07
30	Anatolikou Paikou system	EL100F230	367,41
31	Evzonon system	EL100F240	16,39
32	Pontoirakleias system	EL100F250	94,93
33	Mitaka system	EL100F260	39
34	Vafeioxoriou system	EL1000270	37,81
35	Megalis sternas system	EL100F280	39,06
36	Amolianvs system	EL1000290	6,96
37	Diaporou system	EL1000300	3,06



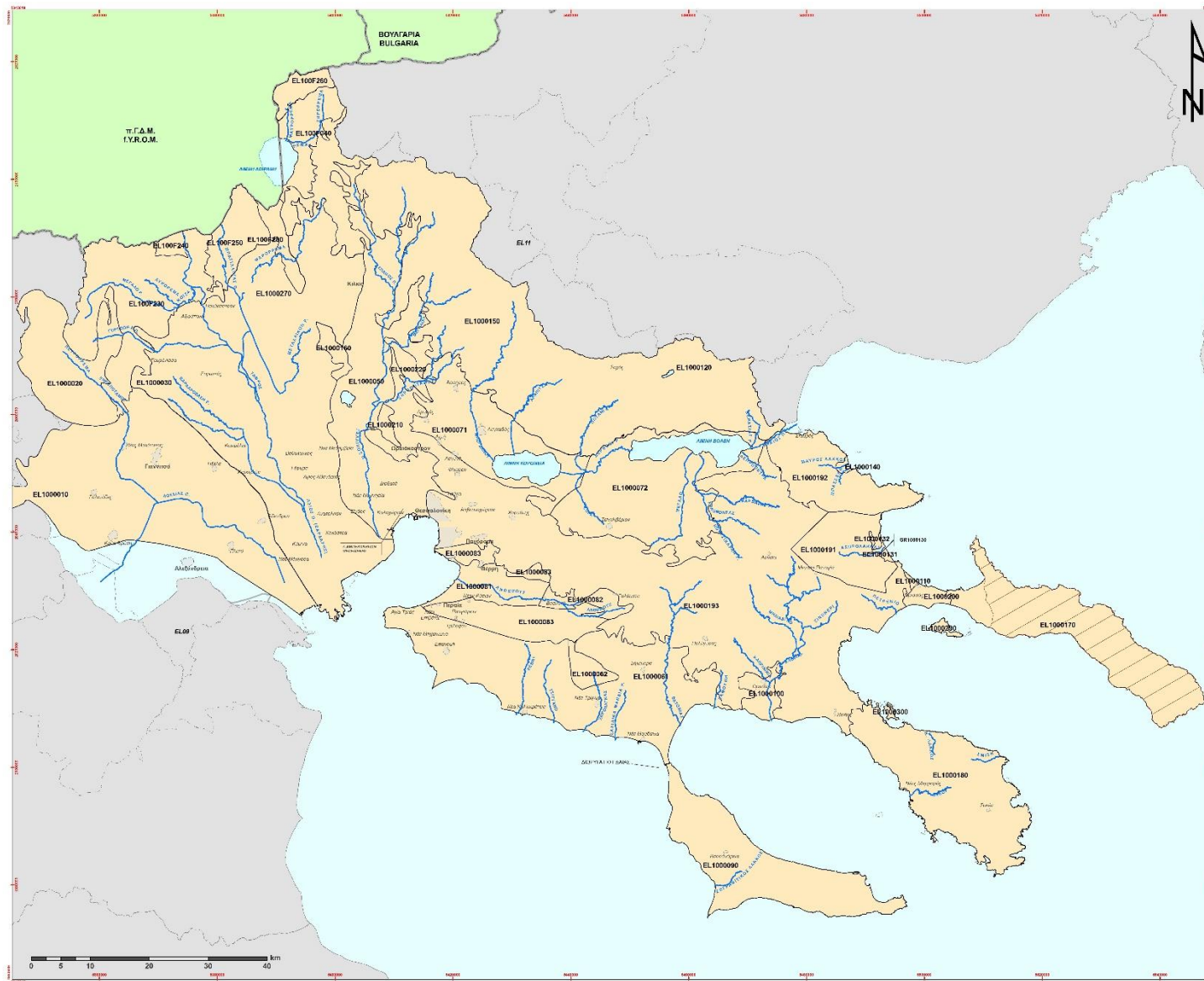


Figure 3: GWBs in Central Macedonia



### **4.3 HEAVILY MODIFIED WATER BODIES (HMWB) AND ARTIFICIAL WATER BODIES (AWB)**

Four (4) HMWBs and Twelve (12) AWBs of the total 124 SWBs are identified in the RBD (see map attached). In the following table are presented the number of HMWBs and AWBs per category and their main attributes (area or length).

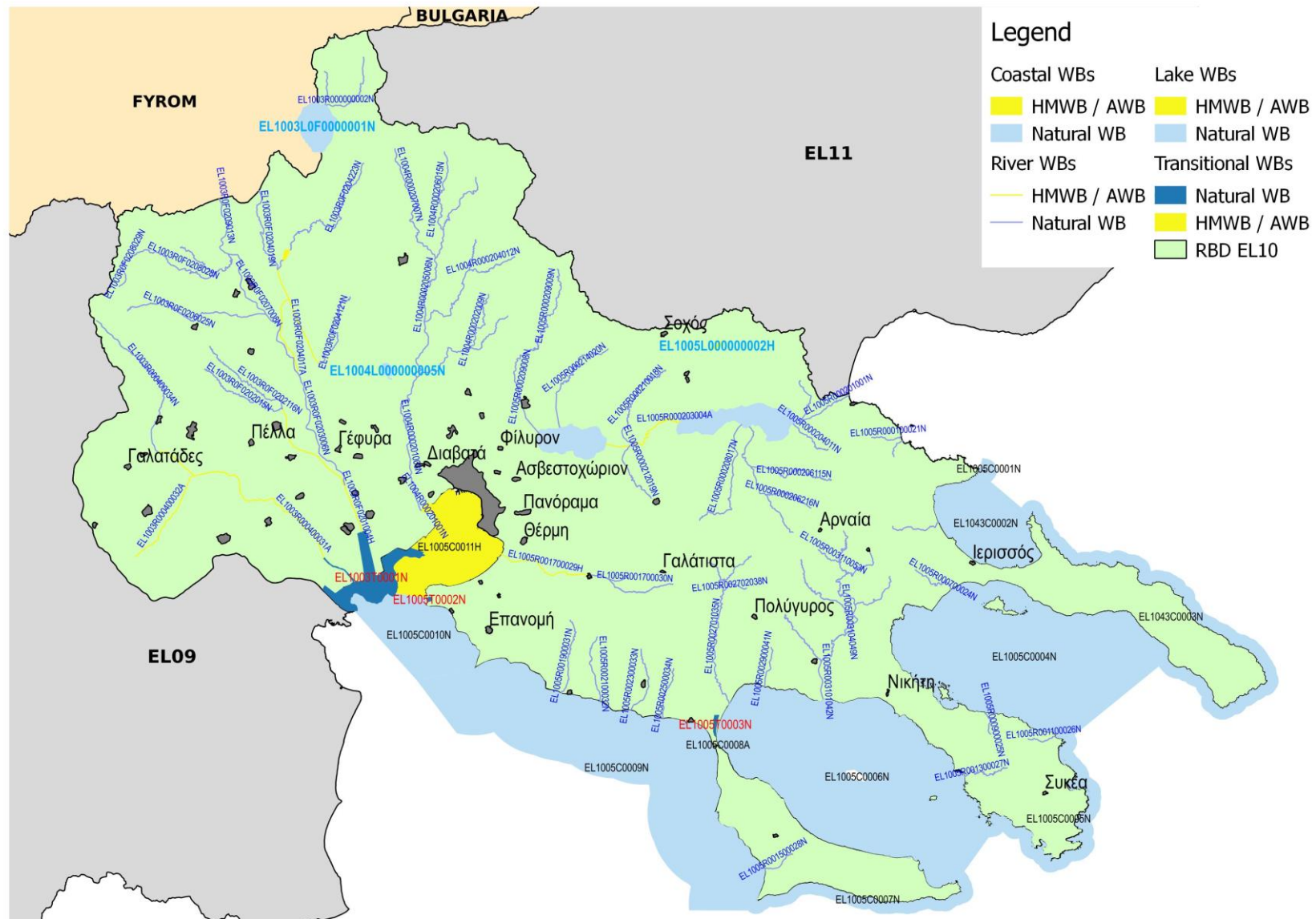


Figure 4: HMWBs and AWBs in the Central Macedonia RBD (EL10)

Table 4-7: Overview of the HMWBs and AWBs in the Central Macedonia RBD (EL10)

	HMWB		AWB	
	Number	Area - Length (%)	Number	Area - Length (%) (%)
Lake WBs	1	0,59%	1	0,73%
River WBs	2	2,37%	10	11,10%
River WBs (reservoirs)	0	0%	0	0%
Transitional WBs	0	0%	0	0%
Coastal WBS	1	5,14%	1	0,00%

#### 4.3.1 River WBs

In the following tables are presented the river HMWBs and river AWBs in the RBD and the uses/objectives they serve.

Table 4-8: HMWBs in Central Macedonia RBD (EL10)

WB Code	WB Name	Type	Length (Km)	Basin area (km <sup>2</sup> )	Uses/objectives served
<b>Axios RB (EL1003)</b>					
EL1003R0F0201004H	Axios P. (Bardaris)	R-L2	19,59	8,47	Obliquity
<b>Chalkidiki RB (EL1005)</b>					
EL1005R001700029H	Anthemous	R-M2	18,03	223,64	Obliquity - Disposition

Table 4-9: AWBs in Central Macedonia RBD (EL10)

WB Code	WB Name	Type	Length (Km)	Basin area (km <sup>2</sup> )	Uses/objectives served
<b>Axios RB (EL1003)</b>					
EL1003R000400031A	Loydias P.	R-M3	21,02	187,41	Drainage of L.ake Giannitson
EL1003R000400032A	Loydias P.	R-M2	41,93	887,92	
EL1003R0F0202014A	Bardarobasi R.	R-M2	18,09	158,62	Concentration of wider area runoff
EL1003R0F0204017A	Tafros	R-M2	13,63	29,59	Disposal of drained water in river Axios, which originated from Lake Artzan and Amatovou
EL1003R0F0204120A	Tafros	R-M2	11,79	69,57	Drainage of L.ake Amatovou
EL1003R0F0204018A	Tafros	R-M2	5,39	16,27	Drainage of L.ake Artzan
<b>Chalkidiki RB ( EL1005)</b>					
EL1005R000203005A	Derbeni R	R-M5	7,49	38,53	Hydraulic Lake Communication – L. Koroneia Rehabilitation
EL1005R000203004A		R-M3	5,38	16,08	
EL1005R000207007A		R-M2	4,01	4,27	
EL1005R000205006A		R-M2	0,90	4,36	

### 4.3.2 Lake Wbs

In the following table are presented the lake HMWBs and lake AWBs in the RBD and the uses/objectives they serve.

Table 4-10: HMWBs and AWBs in Central Macedonia RBD (EL10)

WB Code	WB Name	Type	Area (Km <sup>2</sup> )	HMWB/ AWB	Uses/objectives served
<b>Axios RB (EL1003)</b>					
EL1003L000000006A	Artzan Reservoir	-	1,4	AWB	Irrigation
<b>Chalkidiki RB (EL1005)</b>					
EL1005L000000002H	Λ. Μαυρούδα	-	1,13	HMWB	Wetland rehabilitation

### 4.3.3 Coastal Wbs

Thessaloniki Gulf is identified as HMWB due to the interventions in the coast in order to support many uses and activities. Additionally the Potidea canal (length 1250m, width 40m) which has been constructed in ancient years is identified as AWB.

Table 4-11: HMWBs in Central Macedonia RBD (EL10)

WB Code	WB Name	Type	Area (Km <sup>2</sup> )	HMWB/ AWB	Uses/objectives served
<b>Chalkidiki RB (EL1005)</b>					
EL1005C0008A	Potideas Canal	IIIE	0,01	AWB	Ship Navigation
EL1005C0011H	Thessaloniki Gulf	IIIE	179,94	HMWB	Urbanisation – Transport

## 4.4 PROTECTED AREAS

The areas that are included in the updated Register of Protected Areas, as they are defined in Annex V of PD 51/2007, are presented at the following chapters.

### 4.4.1 Areas designated for the abstraction of water intended for human consumption

#### 4.4.1.1 Surface water bodies

Water is abstracted from Varveres dam (Aliakmonas river) in RBD Western Macedonia and is conveyed in RBD Central Macedonia through the Enotiki Axiou – Aliakmona Canal. The water abstracted is used in the wider area that covered by EYATH S.A.

In the Register of Protected Areas is also included the WB Petrenia in Chalkidiki RB (EL1005R000700024N) as it is scheduled the construction of a reservoir for drinking water in order to supply the adjacent agglomerations of the Municipalities of Panagia – Stageiron and Municipality Aristotelis.

#### 4.4.1.2 Groundwater Bodies

The GWBs that are used for human consumption and are included in the Register of Protected Areas and they are given in the following table.

Table 4-12: Areas designated for the abstraction of water intended for human consumption in Central Macedonia RBD (EL10)

No	GWB NAME	GWB CODE	AQUIFER	QUALITY	QUANTITATIVE
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				STATUS	STATUS
1	Paikou system	EL1000020	karstic	Good	Good
2	Mavroneriou system	EL1000160	fractured	Good	Good
3	Nteve Koran system	EL1000220	karstic	Good	Good

#### 4.4.2 Water bodies designated as recreational waters including areas designated as bathing waters under the Directive 2006/7/EC

According to Greece's **Register of Bathing Waters** (SSW, 2016), in the Central Macedonia RBD in the year of 2016 there were **24 areas designated as bathing waters**, all of them in coastal water bodies. There were no recreational inland waters identified.

#### 4.4.3 Areas vulnerable to nitrate pollution and sensitive in urban waste water treatment

##### 4.4.3.1 Areas vulnerable to nitrate pollution from agricultural sources under Directive 91/676/EEC

The major part of the RBD EL10 included the officially designated area Thessaloniki – Pella – Imathia Valley (for surface waters and groundwaters). With JMD 147070/02.12.2014 (3224 B'/2014) the area Epanomi – Moudanion Chalkidikis (for groundwater) is added.

The vulnerable zones and the water bodies related are presented at the following tables.

Table 4-13: Groundwater Bodies

A/A	VULNERABLE ZONE NAME	WB CODE	WB name	RB
1	Chalkidiki – Epannomi Moudanionv Area	EL1000062	Triglias subsystem	CHALKIDIKI
2	Thessaloniki – Pella - Hmathia Valley Chalkidiki – Epannomi Moudanionv Area	EL1000061	Triglias Epanomis	
3	Thessaloniki Pella Hmathia Valley	EL1000192	Olympiadas subsystem	
4		EL1000072	Volvis subsystem	
5		EL1000120	Mavroudas system	
6		EL1000071	Koroneias subsystem	
7		EL1000193	Xolomonta-Oraiokastrou subsystem	
8		EL1000150	KrouSION-Kerdyllion system	
9		EL1000081	Kato rou Anthemounta subsystem	
10		EL1000083	Thermis-N.Risiou subsystem	
11		EL1000082	Galarinou-Galatistas subsystem	
12	Thessaloniki Pella Hmathia Valley	EL1000210	Mesaiou system	GALLIKOS
13		EL1000220	Nteve Koran system	
14		EL1000050	Gallikou system	
15		EL1000010	Loudia system	AXIOS
16		EL1000160	Mavroneriou system	
17		EL1000270	Vafeioxoriou system	
18		EL1000020	Paikou system	
19		EL100F240	Evzonon system	

A/A	VULNERABLE ZONE NAME	WB CODE	WB name	RB
20		EL100F230	Anatolikou Paikou system	
21		EL1000030	Axiou system	
22		EL100F280	Megalis sternas system	
23		EL100F250	Pontoirakleias system	
24		EL100F040	Doiranis system	

Table 4-14: Surface water bodies

A/A	VULNERABLE ZONE NAME	WB CODE	WB Name	Category	RB
1	Thessaloniki Pella Hmathia Valley	EL1003L000000006A	Artzan Reservoir	Lake WB	Axios
2		EL1003L0F0000001N	Doirani Lake	Lake WB	
3		EL1003R000000001N	Mayrorrema	River WB	
4		EL1003R000000002N	Rema2	River WB	
5		EL1003R000000003N	Xiorrema	River WB	
6		EL1003R000400031A	Loydias P.	River WB	
7		EL1003R000400032A	Loydias P.	River WB	
8		EL1003R000400033N	Xiropotamos	River WB	
9	Thessaloniki Pella Hmathia Valley	EL1003R000400034N	Xiropotamos	River WB	
10		EL1003R000400035N	Petrorrema	River WB	
11		EL1003R0F0201004H	Axios P. (Bardaris)	River WB	
12		EL1003R0F0202014A	Bardarobasi R.	River WB	
13		EL1003R0F0202015N	Bardarobasi R.	River WB	
14		EL1003R0F0202116N	Bardarobasi R.	River WB	
15		EL1003R0F0203005N	Axios P. (Bardaris)	River WB	
16		EL1003R0F0203006N	Axios P. (Bardaris)	River WB	
17		EL1003R0F0204017A	Tafros	River WB	
18		EL1003R0F0204018A	Tafros	River WB	
19		EL1003R0F0204019N	Mpagialtzas R.	River WB	
20		EL1003R0F0204120A	Tafros	River WB	
21		EL1003R0F0204121N	Metallikon R.	River WB	
22		EL1003R0F0204222N	Psarorrema	River WB	
23		EL1003R0F0204223N	Psarorrema	River WB	
24		EL1003R0F0205007N	Axios P. (Bardaris)	River WB	
25		EL1003R0F0206024N	Gorgopis P.	River WB	
26		EL1003R0F0206025N	Gorgopis P.	River WB	
27		EL1003R0F0206026N	Gorgopis P.	River WB	
28		EL1003R0F0207008N	Axios P. (Bardaris)	River WB	
29		EL1003R0F0207009N	Axios P. (Bardaris)	River WB	
30		EL1003R0F0207010N	Axios P. (Bardaris)	River WB	
31		EL1003R0F0208027N	Kotza R.	River WB	

A/A	VULNERABLE ZONE NAME	WB CODE	WB Name	Category	RB
32		EL1003R0F0208028N	Megalo R.	River WB	
33		EL1003R0F0208029N	Megalo R.	River WB	
34		EL1003R0F0208130N	Lykorema	River WB	
35		EL1003R0F0209011N	Axios P. (Bardaris)	River WB	
36		EL1003R0F0209012N	Axios P. (Bardaris)	River WB	
37		EL1003R0F0209013N	Axios P. (Bardaris)	River WB	
38	Thessaloniki Pella Hmathia Valley	EL1003T0001N	Axios Delta System	Transitional	Gallikos
39		EL1004L000000005N	#Δ/Y	Lake WB	
40		EL1004R000201001N	Gallikos P.	River WB	
41		EL1004R000201002N	Gallikos P.	River WB	
42		EL1004R000201003N	Gallikos P.	River WB	
43		EL1004R000201004N	Gallikos P.	River WB	
44		EL1004R000202008N	Xiropotamos	River WB	
45		EL1004R000202009N	Xiropotamos	River WB	
46		EL1004R000202110N	Xiropotamos	River WB	
47		EL1004R000203005N	Gallikos P.	River WB	
48		EL1004R000204011N	Megalo P.	River WB	
49		EL1004R000204012N	Megalo P.	River WB	
50		EL1004R000204113N	Megalo P.	River WB	
51		EL1004R000205006N	Gallikos P.	River WB	
52		EL1004R000206014N	Gallikos P.	River WB	
53		EL1004R000206015N	Gallikos P.	River WB	
54		EL1004R000206116N	Gallikos P.	River WB	
55		EL1004R000207007N	Spanos P.	River WB	
56		EL1005L000000002H	Mavrouda Lake	Lake WB	Chalkidiki
57		EL1005L000000003N	Volvi Lake	Lake WB	
58		EL1005L000000004N	Koroneia Lake	Lake WB	
59		EL1005R000201001N	Richios P.	River WB	
60		EL1005R000201002N	Richios P.	River WB	
61		EL1005R000201003N	Richios P.	River WB	
62		EL1005R000202010N	Kerasias R.	River WB	
63		EL1005R000203004A	Derbeni R.	River WB	
64		EL1005R000203005A	Derbeni R.	River WB	
65		EL1005R000204011N	Aspropetra	River WB	
66		EL1005R000205006A	Derbeni R.	River WB	
67		EL1005R000206012N	Cholomontas	River WB	
68		EL1005R000206013N	Cholomontas	River WB	
69		EL1005R000206115N	Barbaras R.	River WB	

A/A	VULNERABLE ZONE NAME	WB CODE	WB Name	Category	RB
70		EL1005R000207007A	Derbeni R.	River WB	
71		EL1005R000208017N	Megalo	River WB	
72		EL1005R000209008N	Mpogdanoy	River WB	
73		EL1005R000209009N	Mpogdanoy	River WB	
74		EL1005R000210018N	Potamia	River WB	
75		EL1005R000212019N	Chora	River WB	
76		EL1005R000214020N	Arapitsa	River WB	
77		EL1005R001700029H	Anthemoys	River WB	
78		EL1005R001700030N	Anthemoys	River WB	
79	Thessaloniki Valley (part of WB)	EL1005R001900031N	Remal	River WB	
80	Thessaloniki Valley (part of WB)	EL1005R002701035N	Batonias	River WB	

#### 4.4.3.2 Designated sensitive areas under Directive 91/271/EEC

In central Macedonia (EL10), the following areas are designated as vulnerable under Directive 91/271/EEC:

- Vardarovasis River
- Lake Volvi
- Lake Koroneia
- Thessaloniki Gulf

Table 4-15: Sensitive Areas in Central Macedonia RBD (EL10)

No	SENSITIVE AREA CODE UWWTD	WB CODE	WB NAME	WB CATEGORY
1.	EL1003R0F0202116NUW, EL1003R0F0202015NUW, EL1003R0F0202014AUW	EL1003R0F0202116N, EL1003R0F0202015N, EL1003R0F0202014A	Vardarovasis	River WB
2.	EL1005L000000003NUW	EL1005L000000003N	Volvi lake	Lake WB
3.	EL1005L000000004NUW	EL1005L000000004N	Koroneia lake	
4.	EL1005C0011HUW	EL1005C0011H	Thessaloniki Gulf	Coastal WB

#### 4.4.4 Areas designated for the protection of Birds and Habitats

Protected areas of the Natura 2000 Network that are included in the Register of Protected Areas (see table below).



Table 4-16: Areas designated for the protection of birds and Habitats in Central Macedonia

NAT URA CODE	NAME	Area (ha)	Cat ego ry	Related WB		WB Category	RB code	RB Name
				WB code	WB name			
GR 1220 002*	AXIOS LOUDIAS DELTA	33676.35	SAC	EL1003T0001N	Axios Delta System	TRANSITIO NAL	EL1003	AXIOS
				EL1003R0F0201004H EL1003R0F0203005N EL1003R0F0203006N EL1003R0F0205007N EL1003R0F0207008N	Axios P. (Bardaris)	RIVER WB		
				EL1005C0011H	Thessaloniki Gulf	COASTAL	EL1005	CHALKIDIKI
GR 1220 010	AXIOS LOUDIAS DELTA ALIAKMONAS ALYKI KITROUS	29647.09	SPA	EL1003T0001N	Axios Delta System	TRANSITIO NAL	EL1003 EL1004	AXIOS ΓΑΛΛΙΚΟΥ
				EL1003R0F0201004H EL1003R0F0203005N EL1003R0F0203006N EL1003R0F0205007N EL1003R0F0207008N EL1003R0F0207009N EL1003R0F0207010N EL1003R0F0209011N EL1003R0F0209012N EL1003R0F0209013N	Axios P. (Bardaris)	RIVER WB		
				EL1004R000201001N EL1004R000201002N	Gallikos	RIVER WB	EL1004	ΓΑΛΛΙΚΟΥ
				EL1005C0011H	Thessaloniki Gulf	COASTAL		
GR 1220 005	AGGELOCHORI LAGGOIN	830.38	SAC SPA	EL1005T0002N	Aggelohori Laggon	TRANSITIO NAL	EL1005	CHALKIDIKI
				EL1005C0011H	Thessaloniki Gulf	COASTAL		
				EL1005C0010N	Inner Thermaikos Gulf	COASTAL		
GR 1220 001	VOLVI AND LAGADA LAKES	26947.81	SAC	EL1005L000000003N EL1005L000000004N	Koroneia Lake Volvi Lake	LAKE WB	EL1005	CHALKIDIKI
				EL1005R000203005A	Derbeni R.	RIVER WB		
				EL1005R000203004A	Derbeni R.	RIVER WB		
				EL1005R000207007A	Derbeni R.	RIVER WB		
				EL1005R000212019N	Chora	RIVER WB		
				EL1005R000202010N	Kerasias R.	RIVER WB		
				EL1005R000210018N	Potamia	RIVER WB		
				EL1005R000214020N	Arapitsa	RIVER WB		
				EL1005R000209008N	Mpogdanoy	RIVER WB		

NAT URA CODE	NAME	Area (ha)	Cat ego ry	Related WB		WB Category	RB code	RB Name
				WB code	WB name			
				EL1005R000206012N	Cholomontas	RIVER WB		
GR 1220 009	VOLVI AND LAGADA LAKES & STENA RENTINAS	161631.33	SPA	EL1005L000000003N	Koroneia Lake	LAKE WB	EL1005	CHALKIDIKI
				EL1005L000000004N	Volvi Lake	LAKE WB		
				EL1005R000203005A	Derbeni R.	RIVER WB		
				EL1005R000203004A	Derbeni R.	RIVER WB		
				EL1005R000207007A	Derbeni R.	RIVER WB		
				EL1005R000212019N	Chora	RIVER WB		
				EL1005R000202010N	Kerasias R.	RIVER WB		
				EL1005R000210018N	Potamia	RIVER WB		
				EL1005R000214020N	Arapitsa	RIVER WB		
				EL1005R000209008N	Mpogdanoy	RIVER WB		
				EL1005R000206014N	Koytsikarli R.	RIVER WB		
				EL1005R000208017N	Megalo	RIVER WB		
				EL1005R000201001N	Richios P.	RIVER WB		
				EL1005R000201002N				
				EL1005R000201003N				
				EL1005R000206216N	Cholomontas	RIVER WB		
				EL1005R000206012N				
				EL1005R000206115N	Varveras	RIVER WB		
EL1005L000000002H	Mavtouda	LAKE WB						
GR 1220 003	STENA RENTINAS	2905.16	SAC	EL1005R000201002N EL1005R000201001N	Richios P.	RIVER WB		
GR 1230 003	DOIRANI LAKE	2126.12	SPA	EL1003L0F0000001N	Doirani Lake	LAKE WB	EL1003	AXIOS
				EL1003R000000002N	Rema2	RIVER WB		
				EL1003R000000001N	Mayrorrema	RIVER WB		
GR 1230 002	YDROCHARES <i>DASOS</i> MOURION.	774.92	SAC	EL1003L0F0000001N	Doirani Lake	LAKE WB		
				EL1003R000000002N	Rema2	RIVER WB		
				EL1003R000000001N	Mayrorrema	RIVER WB		
GR 1230 005	PERIOCHI ELOUS ARTZAN	1717.78	SPA	EL1003L000000006A		ARTIFICIAL LAKE WB	EL1003	
					Artzan Reservoir			
GR 1230 001	LIMNI POKROLIMNI	1089.35	SAC	EL1004L000000005N	Pikrolimni	LAKE WB	EL1004	GALLIKOS

NAT URA CODE	NAME	Area (ha)	Cat ego ry	Related WB		WB Category	RB code	RB Name
				WB code	WB name			
GR 1230 004	LIMNI POKROLIMNI XYLOKERATEA	2012.31	SPA	EL1004L000000005N	Pikrolimni	LAKE WB	EL1004	GALLIKOS
GR 1270 004	LIMNOTHALASSA AG MAMAS	633.15	SAC SPA	EL1005T0003N	Agios Mamas Laggon	TRANSITIO NAL	EL1005	CHALKIDIKI
GR 1240 009	OROS <i>PAIKO</i> , <i>STENA</i> APSALOU KAI MOGLENITSAS	91735.74	SPA	EL1003R0F0208028N EL1003R0F0208029N EL1003R0F0208130N EL1003R000400035N EL1003R000400034N	Megalo r Megalo r Likorema Petrorema Xitopotamos	RIVER WB	EL1003	AXIOS
GR 1240 003	OROS <i>PAIKO</i> ,	35252	SAC	EL1003R000400035N EL1003R0F0206026N EL1003R0F0208029N	Petrorema Gorgopis Π. megalo	RIVER WB		
GR 1230 006	PERIOCHI ANTHOFYTOU	3309.58	SPA	EL1003R0F0204121N	Metalliko	RIVER WB		
GR 1270 001	<i>OROS</i> <i>CHOLOMONTAS</i>	15543.63	SAC	EL1005R003110053N EL1005R003111047N EL1005R002704040N	Chavrias Chavrias Batonias	RIVER WB	EL1005	CHALKIDIKI
GR 1270 014	<i>CHERSONISOS</i> SITHONIAS	23451.17	SPA	EL1005R000900025N EL1005R001300027N	Lakkos Milou	RIVER WB		
GR 1270 005	STRATONIKON – KORYFI <i>SKAMNI</i>	8128.17	SAC	EL1005R000300022N	Basdeki	RIVER WB		
GR 1270 012	TAXIARCHIS POLYGYROS	26413.93	SPA	EL1005R003104050N EL1005R003107045N EL1005R003108052N	Miliandinio Chavrias Chavrias	RIVER WB		
GR 1270 002	OROS ITAMOS SITHONIA	18031.62	SAC	EL1005R000900025N EL1005R001100026N EL1005R001300027N EL1005C0004N	Lakkos Smixi Milou Siggitikos gulf	RIVER WB COASTAL		
GR 1270 007	AKROTIRIO ELIA – AKTORIRIO KASTRO EKVOLI RAGOYLA	532.82	SAC	EL1005C0006N	Kasandrinos gulf	COASTAL	EL1005	CHALKIDIKI

NAT URA CODE	NAME	Area (ha)	Cat ego ry	Related WB		WB Category	RB code	RB Name
				WB code	WB name			
GR 1270 009	PLATANITSI SIKIA – AK RIGAS – AKR ADOLO	988.96	SAC	EL1005C0005N	Sithonia coast	COASTAL		
GR 1270 010	KROTIRIO PYRGOS – ORMOS KYPASAS – MALAMO	1150.97	SAC	EL1005C0009N	Outer Thermatikos gulf	COASTAL		
GR 1270 008	PALIOURI – AKROTIRI	286.11	SAC	EL1005C0006N	Kasandrinos gulf	COASTAL		

#### 4.4.5 Areas designated for the protection of aquatic species of economic importance

In the following table are presented the areas included in the Register of Protected Areas. It is noted that the environmental objectives for these areas are provided in the directive 2006/113/EC.

Table 4-17: Protected Aquatic Areas under Directive 2006/113/EK

No.	AREA	PROTECTED AREA CODE	WB CODE	WB NAME	CATEGORY
1	Protected fishing area in transitional waters	EL1003T0001NSH	EL1003T0001N	Axios Delta System	Transitional
2	Aquaculture development coastal areas of Thessaloniki – Imathia	EL1005C0010NSH	EL1005C0010N	Inner Thessaloniki Gulf	Coastal
		EL1005C0011HSH	EL1005C0011H	Thessaloniki Gulf	Coastal
3	Aquaculture development coastal areas of Chalkidiki	EL1005C0005NSH	EL1005C0005N	Sithonia Coast	Coastal

## 5 PRESSURES AND IMPACTS

The anthropogenic pressures in water bodies are the total of anthropogenic activities in water bodies that affect or can affect the water bodies or the area in which they are developed. These pressures have an important role because they could be the cause of the environmental objectives failure according to GD 03.

In the following paragraphs are presented the results of the analysis of the pressures and impacts carried out for the 1<sup>st</sup> update of the RBMP.

### 5.1 POINT SOURCES OF POLLUTION

It includes all point sources of pollution that produce criteria pollutants (BOD, N, P). The list of categories of these pressures includes:

- Wastewater Treatment Plants (WWTP).
- Extrusion of sewage networks into a natural recipient.
- Large hotels.
- Industrial units.
- Livestock facilities (farms).
- Aquaculture – fish farming.
- Leakage from landfill.

The significant point sources identified in the RBD EL10 are presented in the following table where there are also presented the loads of conventional pollutants which can be quantified and the chemical substances related to these activities.

Table 5-1: Estimated Loads from point sources in Axios RB (EL1003)

Activity	BOD <sub>5</sub> tn/yr	N tn/yr	P tn/yr	Related chemical substances
Wastewater Treatment Plants (WWTP).	147,5	92,2	18,4	-
Industrial units.	4420,64	1575,28	160,49	TSS, Fats Oils, sulphurous, phenols, Cr, Zn, CN, Fe, Ba, styrene, toluene, chloride organic compounds, trichloroethylene, PCBs, Cd, Pb, ketones, Glyoles
Livestock facilities	41,1	18,8	0,8	-
Aquaculture – fish farming	It refers mainly to shell farming that potentially affects the carrying capacity of the liquid medium. In the RB are identified in the transitional system of river Axios, where due to the method applied, non-significant impacts are expected.			

Table 5-2: Estimated Loads from point sources in Gallikos RB (EL1004)

Activity	BOD <sub>5</sub> tn/yr	N tn/yr	P tn/yr	Related chemical substances
Wastewater Treatment Plants (WWTP).	1 984,1	1 240,1	199,4	-
Industrial units.	2346,34	924,28	95,61	TSS, Fats Oils, SO <sub>4</sub> Cr, Cu, Ba, styrene, toluene, chloride organic compounds, trichloroethylene, Hg, Cd, Pb, phenols
Livestock facilities	18,7	8,6	0,5	-
Aquaculture – fish farming	No activities are identified			

Table 5-3: Loads from point sources in Chalkidiki RB (EL1005)

Activity	BOD <sub>5</sub> tn/yr	N tn/yr	P tn/yr	Relates chemical substances
Wastewater Treatment Plants (WWTP).	802,4	501,5	102,5	-
Industrial units.	2398,4	1006,54	93,57	TSS, Fats, Oils, As, Cr, PCBs, chlorinated HC, Hg, Cd, Pb, phenols, PAHs, toluene, xylene, glyols, formaldehyde, vinyl acetate, Freon, Methylchloride, Zn, CN, Cu, Co, Mercaptans aldehydes
Thermoelectric stations	1 Μονάδα παραγωγής με NATικό αέριο			Cr, Zn, As, Cu, HC, PCBs, Cd, Pb, Hg, Ni
Livestock facilities	60,1	33,4	1,5	-
Mining	-			(SO <sub>4</sub> <sup>2-</sup> ), Fe, Mn, Zn, Pb, Cd, Sb, As.
Aquaculture – fish farming	It refers mainly to seashell farming that potentially affect the carrying capacity of the waters. In the RB, they are mainly located in the coastal zone of the Gulfs of Thessaloniki and Inner Thermaikos. It is speculated that they are responsible for the grow of toxic algae due to the release of Silicics during the degradation of the pseudo-feces of mussels in the sediment accumulated at the bottom under the myaleries. This does not seem to apply in the case of long line installations.			

Table 5-4: Estimated Loads from point sources in Athos RB (EL1043)

Activity	BOD <sub>5</sub> tn/yr	N tn/yr	P tn/yr	Relates chemical substances
Wastewater Treatment Plants (WWTP).	16,1	10	2	-
Industrial units.	No activities are identified			
Thermoelectric stations	No activities are identified			
Livestock facilities	Not a significant pressure			
Mining	No activities are identified			
Aquaculture – fish farming	No activities are identified			

## 5.2 DIFFUSE SOURCES OF POLLUTION

It includes all diffuse sources of pollution that produce conventional pollutants (BOD, N, P). The list of categories of these pressures includes:

- Agriculture.
- Urban waste water that doesn't end up in WWTP.
- Livestock farming.
- Other diffuse sources (i.e. forests, pastures etc).

The annual loads of BOD, N and P, from the above diffuse sources are presented for each RB in the following tables.

*Table 5-5: Estimated loads (tn/yr) from diffuse sources in Axios RB (EL1003)*

Activity	BOD <sub>5</sub>	N	P
Agriculture	-	1.623,7	611,2
Urban waste water that doesn't end up in WWTP	1.238,37	353,83	73,72
Livestock farming	1145,12	383,23	44,5
Other diffuse sources (Urban areas/ roads)		57,33	7,37

*Table 5-6: Estimated loads (tn/yr) from diffuse sources in Gallikos RB (EL1004)*

Activity	BOD <sub>5</sub>	N	P
Agriculture		360,3	161,0
Urban waste water that doesn't end up in WWTP	673,64	192,48	40,09
Livestock farming	527,05	165,71	19,02
Other diffuse sources (Urban areas/ roads)		12,42	1,92

*Table 5-7: Estimated loads (tn/yr) from diffuse sources in Chalkidiki RB (EL1005)*

Activity	BOD <sub>5</sub>	N	P
Agriculture		796,4	551,2
Urban waste water that doesn't end up in WWTP	873,49	249,58	51,99
Livestock farming	1021,29	450,38	54,53
Other diffuse sources (Urban areas/ roads)		98,31	13,12

In Athos RB the abovementioned activities are not significant.

### 5.3 HYDROMORPHOLOGICAL PRESSURES

The hydromorphological pressures of SWBs in RBD are presented aggregated in the following table.

Table 5-8: Evaluation of the hydromorphological pressures in the WBs of Central Macedonia RBD

	Axios RB						Gallikos RB						Chalkidiki RB						Athos RB					
	Negligible	Tolerable	Medium	Strong	Significant	AWBs	Negligible	Tolerable	Medium	Strong	Significant	AWBs	Negligible	Tolerable	Medium	Strong	Significant	AWBs	Negligible	Tolerable	Medium	Strong	Significant	AWBs
River WBs																								
Number	15	10	4	1	-	6	6	2	4		-	-	39	5	2	3	1	3	-	-	-	-	-	-
Length km	95,9	107,7	64,4	29,3	-	105,1	67,6	16,6	36,2		-	-	356	80,2	5,8	37,5	25	16,9	-	-	-	-	-	-
% number	42%	28%	11%	3%	-	17%	50%	17%	33%		-	-	74%	9%	4%	6%	2%	6%	-	-	-	-	-	-
% length	24%	27%	16%	7%	-	26%	56%	14%	30%		-	-	68%	15%	1%	7%	5%	3%	-	-	-	-	-	-
Lake WBs *																								
Number	-	-	-	-	-	1	-	1	-	-	-	-	-	-	2	-	1	-	-	-	-	-	-	-
Area km <sup>2</sup>	-	-	-	-	-	1,4	-	4,27	-	-	-	-	-	-	120,26	-	1,13	-	-	-	-	-	-	-
% Number	-	-	-	-	-	100%	-	1%	-	-	-	-	-	-	67%		33%	-	-	-	-	-	-	-
% Area	-	-	-	-	-	100%	-	1%	-	-	-	-	-	-	42%		38%	-	-	-	-	-	-	-
Transitional WBs																								
Number	-	-	-	1	-	-	-	-	-	-	-	-	-	2	-		-	-	-	-	-	-	-	-
Area km <sup>2</sup>	-	-	-	67,4	-	-	-	-	-	-	-	-	-	2,72	-	-	-	-	-	-	-	-	-	-
% Number	-	-	-	100%	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-
% Area	-	-	-	100%	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-
Coastal WBs																								
Number	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	1	1	2	-	-	-	-	-
Area km <sup>2</sup>	-	-	-	-	-	-	-	-	-	-	-	-	3310,65	-	-	-	198,03	0,06	340,94	-	-	-	-	-
% Number	-	-	-	-	-	-	-	-	-	-	-	-	75%	-	-	-	13%	13%	-	-	-	-	-	-
% Area	-	-	-	-	-	-	-	-	-	-	-	-	94%	-	-	-	6%	0%	-	-	-	-	-	-



## 5.4 WATER ABSTRACTION

In this section are presented the total annual water abstractions from all the activities and uses

The activities and uses that are taken into account according the common methodology developed for this purpose are the following

- Drinking Water
- Irrigation
- Livestock Water
- Industrial Water
- Other uses

The aggregated results for the abstractions in the RBD are given in the following table.

Table 5-9: Total abstractions in the RBD for each category of significant pressure

Use/Activity	Pressure according the GD	RB Name	Total needs/abstractions	% Abstractions from SWBs	% Abstractions from GWBs
Irrigation	3.1 - Abstraction or flow diversion – Agriculture	Axios	697.700.965*	48%	52%
		Gallikos	49.764.851	36%	64%
		Chalkidiki	205.614.300	2%	98%
		<b>Total</b>	<b>953.080.116</b>	<b>37%</b>	<b>63%</b>
Livestock		Axios	2.584.690,74	48%	52%
		Gallikos	1.152.531,69	36%	64%
		Chalkidiki	3.491.048,30	2%	98%
		<b>Total</b>	<b>7.228.271</b>	<b>24%</b>	<b>76%</b>
Industry	3.3 - Abstraction or flow diversion – Industry	Axios	13.254.534	22%	78%
		Gallikos	12.321.341	45%	55%
		Chalkidiki	14.845.787	37%	63%
		<b>Total</b>	<b>40.421.661</b>	<b>35%</b>	<b>65%</b>
Drinking Water	3.2 - Abstraction or flow diversion – Public water supply	Axios	12.563.116	8%	92%
		Gallikos	9.797.886	44%	56%
		Chalkidiki	158.053.024**	58%	42%
		<b>Total:</b>	<b>180.414.026***</b>	<b>52%</b>	<b>48%</b>
<b>Total RBD EL10</b>			<b>1.181.144.074</b>	<b>39%</b>	<b>61%</b>

\* Abstractions for irrigation of Thessaloniki valley from RBD EL09 from Ag. Varvaras reservoir are included (500 millions. m<sup>3</sup>/yr).

\*\* Abstractions from from Ag. Varvaras reservoir in order to supply drinking water in wider area of Thessaloniki are included. The quantity abstracted according the latest available data from EYATH is about 40 million. m<sup>3</sup>/yr

\*\*\* Abstraction of about 1,9 million. m<sup>3</sup>/yr in Athos RB are not included

In the following tables are presented the abstractions from GWBs for each RB.

Table 5-10: Annual supply and abstractions from the GWB's in Axios RB (EL1003)

WB CODE	WB NAME	Annual Average Recharge (10 <sup>6</sup> m <sup>3</sup> )	Annual Average Abstracts (10 <sup>6</sup> m <sup>3</sup> )	Irrigation (10 <sup>6</sup> m <sup>3</sup> )	Drinking Water supply (10 <sup>6</sup> m <sup>3</sup> )	Industry (10 <sup>6</sup> m <sup>3</sup> )	Quantitative status
EL1000010	Loudia system	177,00	58,43	39,62	14,50	3,97	■ Good
EL1000020	Paikou system	95,00	33,21	0,32	29,20	3,39	■ Good
EL1000030	Axiou system	134,00	156,33	134,52	13,16	7,55	■ Bad
EL100F040	Doiranis system	8,00	14,88	13,67	0,96	0,16	■ Bad
EL1000160	Mavroneriou system	-	1,10	0,59	0,32	0,05	■ Good
EL100F230	Anatolikou Paikou system	-	5,01	3,40	1,35	0,09	■ Good
EL100F240	Evzonon system	4,00	2,45	2,43	0,00	0,00	■ Good
EL100F250	Pontoirakleias system	-	6,99	6,53	0,34	0,02	■ Good
EL100F260	Mitaka system	-	-	-	-	-	■ Good
EL1000270	Vafeioxoriou system	1,00	2,00	1,99	0,00	0,00	■ Good
EL100F280	Megalis sternas system	-	2,68	2,44	0,16	0,03	■ Good

Table 5-11: Annual supply and abstractions from the GWB's in Gallikos RB (EL1004)

WB CODE	WB NAME	Annual Average Recharge (10 <sup>6</sup> m <sup>3</sup> )	Annual Average Abstracts (10 <sup>6</sup> m <sup>3</sup> )	Irrigation (10 <sup>6</sup> m <sup>3</sup> )	Drinking Water supply (10 <sup>6</sup> m <sup>3</sup> )	Industry (10 <sup>6</sup> m <sup>3</sup> )	Quantitative status
EL1000050	Gallikou system	35,00	51,67	34,61	3,51	12,63	■ Bad
EL1000210	Mesaiou system	-	0,12	0,11	0,00	0,00	■ Good
EL1000220	Nteve Koran system	4,00	1,00	0,12	0,64	0,18	■ Good

Table 5-12: Annual supply and abstractions from the GWB's in Chalkidiki RB (EL1005)

WB CODE	WB NAME	Annual Average Recharge (10 <sup>6</sup> m <sup>3</sup> )	Annual Average Abstracts (10 <sup>6</sup> m <sup>3</sup> )	Irrigation (10 <sup>6</sup> m <sup>3</sup> )	Drinking Water supply (10 <sup>6</sup> m <sup>3</sup> )	Industry (10 <sup>6</sup> m <sup>3</sup> )	Quantitative status
EL1000061	Moudanion subsystem	81,20	121,32	115,70	4,56	0,85	■ Bad
EL1000062	Neas Triglias subsystem						■ Good
EL1000071	Koroneia subsystem	98,21	78,31 33,10 (discharge)	70,86	4,99	1,84	■ Bad
EL1000072	Volvi subsystem						■ Bad
EL1000081	Kato Anthemounta	33,60	37,02	25,32	9,71	1,77	■ Bad

WB CODE	WB NAME	Annual Average Recharge (10 <sup>6</sup> m <sup>3</sup> )	Annual Average Abstracts (10 <sup>6</sup> m <sup>3</sup> )	Irrigation (10 <sup>6</sup> m <sup>3</sup> )	Drinking Water supply (10 <sup>6</sup> m <sup>3</sup> )	Industry (10 <sup>6</sup> m <sup>3</sup> )	Quantitative status
	subsystem						
EL1000082	Galarinou-Galatistas subsystem						■ Good
EL1000083	Thermis-N.Risiou subsystem						■ Good
EL1000090	Kassandras system	48,00	33,97	28,36	5,52	0,03	■ Good
EL1000100	Ormylias system	7,25	11,39	11,29	0,10	0,00	■ Bad
EL1000120	Mavroudas system	10,4	8,10	7,97	0,04	0,00	■ Good
EL1000131	Asprolakka subsystem	4,60	0,90	0,80	0,10	0,00	■ Good
EL1000132	Kokkinolakka subsystem						■ Good
EL1000140	Olympiadas system	1,90	0,54	0,51	0,03	0,00	■ Good
EL1000150	KrouSION-Kerdyllion system	54,00	36,31	32,21	2,64	0,18	■ Good
EL1000180	Sithonias system	17,00	17,84	12,92	4,72	0,01	■ Good
EL1000191	Skourion-Mavres Petres subsystem	99,00	81,64	64,60	9,51	0,35	■ Good
EL1000192	Olympiadas subsystem						■ Good
EL1000193	Xolomonta-Oraiokastrou subsystem						■ Good
EL1000200	Neon Rodon system	0,63	0,30	0,00	0,30	0,00	■ Good
EL1000290	Amolianvs system	-	-	-	-	-	■ Good
EL1000300	Diaporou system	-	-	-	-	-	■ Good

Table 5-13: Annual supply and abstractions from the GWB's in Athos RB (EL1043)

WB CODE	WB NAME	Annual Average Recharge (10 <sup>6</sup> m <sup>3</sup> )	Annual Average Abstracts (10 <sup>6</sup> m <sup>3</sup> )	Irrigation (10 <sup>6</sup> m <sup>3</sup> )	Drinking Water supply (10 <sup>6</sup> m <sup>3</sup> )	Industry (10 <sup>6</sup> m <sup>3</sup> )	Quantitative status
EL1000170	Agiou Orous system	25,00	2,12	1,92	0,18	0,00	■ Good
EL1000110	Ierissou system	1,89	0,03	0,00	0,03	0,00	■ Good

## 5.5 OTHER PRESSURES

Other Pressures include:

- Artificial recharge of groundwater bodies

- Alteration in groundwater level and quantity due to underground holdings or the construction of large underground works.

### **Artificial recharge of groundwater bodies**

In Central Macedonia RBD (EL10) the following 3 projects for the artificial recharge of groundwaters have been implemented:

- In Sindos Area in the Gallikos river bed where the treatment discharges from the WWTP of EYATH are used.
- In Toumba Kilikis Prefecture from ETHIAGE in experimental phase. It is not operating due to lack of resources.
- In Thermi area of Thessaloniki. Recharge using the treatment discharges from the WWTP of Thermi Agglomeration.

### **Alteration in groundwater level and quantity due to underground holdings or the construction of large underground works**

In Central Macedonia RBD (EL10), alteration in groundwater level and quantity due to overabstraction is identified in the GWBs Axios (EL1000030), Doiranis (EL100F040), Vafeiochorio (EL1000270), Gallikos (EL1000050), Moydania (EL1000061), Koroneia (EL1000071), Volvi (EL1000072), Athemounta (EL1000081) and Ormilía (EL1000100).

Additionally GWBs Skouries (EL1000191) and Olympiada (EL1000192) are located in the mining area Skouries, Mavres Petres – Madem Iakkou and Olympiada respectively where alteration in groundwater level water is taking place for the operation of the mines.

## **5.6 AGGREGATED PRESSURE DATA**

In this section aggregated data for the significant pressures are presented. For each significant pressure quantitative indicators are given in order to describe the level of the pressure or the chemical substance that lead to failure of the good status. Additionally for each significant pressure the basic characteristics of the WBs involved (number of WBs, area or length) are also presented.

The pressures and the quantitative indicators used are according to the EU Guidance Document for reporting 2016.

Table 5-14: Aggregated data fro the significant pressures in Central Macedonia RBD EL10

WB Category	Significant pressure or chemical substance failing	WB Number	Length (in km) /Areakm <sup>2</sup>	%WB	% of Length / Area	Indicator of Pressure	Value	Remarks
River WBs	2.2 - Diffuse - Agricultural	33	376 km	32%	34%	Load of nitrogen	824 tn/yr	River WBs located in cultivated areas with Ecological Status below good are included. Indicator values are the total loads as they are estimated in the 1 <sup>st</sup> update
	2.6 - Diffuse - Discharges not connected to sewerage network	13	149 km	13%	14%	Load of BOD	~820 tn/έτος	River WBs with Ecological Status below good that are affected by loads of BOD, N και P from discharges not connetcted to sewage networks. Indicator values are the total loads as they are estimated in the 1 <sup>st</sup> update
	2.10 - Diffuse - Other (Livestock)	14	191 km	13%	17%	Load of BOD	~470 tn/yr	River WBs with Ecological Status below good that are affected by loads of BOD, N και P from of livestock. Indicator values are the total loads as they are estimated in the 1 <sup>st</sup> update
Lake WBs	2.2 - Diffuse - Agricultural	3	134 km <sup>2</sup>	50%	95%	Load of phosphorus	-76 tn/yr	Lakes WBs with Ecological Status below good and loads of phosphorus characteristic for meso or eutrophc systems (Doirani, Koroneia, Volvi). The total loads from agricultural activities are presented
River WBs	Abstractions- Obliquity (Include 3.1 - Abstraction or flow diversion – Agriculture)	14	202 km	13%	18%	Volume of water (million m3) to be reduced to achieve objectives	The total amount of the required environmental discharge required to achieve the GEP	Includes WB where damns are located like Gallikos (EL1004R000206015N, EL1004R000206014N, EL1004R000205006N), Rema 1 (EL1005R001900031N), Βαρδαρόβαση P.(EL1003R0F0202116N), Anthemousc (EL1005R001700029H), Loudias. (EL1003R000400032A), Megalo r. (EL1003R0F0208028N), Axios(Βαρδάρης) (EL1003R0F0203006N), Derveni (EL1005R000205006A, EL1005R000207007A), Xirolagkas (EL1005R002300033N), Chavrias (EL1005R003101042N), Chora (EL1005R000212019N).

WB Category	Significant pressure or chemical substance failing	WB Number	Length (in km) / Area km <sup>2</sup>	%WB	% of Length / Area	Indicator of Pressure	Value	Remarks
<b>GWBs</b>	Abstractions (Include 3.1 - Abstraction or flow diversion – Agriculture 3.2 - Abstraction or flow diversion – Public water supply 3.3 - Abstraction or flow diversion – Industry)	8		22%		Volume of water abstracted (million m <sup>3</sup> ) to be reduced to achieve objectives	~171 <sup>a</sup> million. m <sup>3</sup>	It concerns GWBs Axiou (EL1000030), Doiranis (EL100F040), Vafeiochoriou (EL1000270), Gallikou (EL1000050), Moudania (EL1000061), Koroneia (EL1000071), Volvi (EL1000072), Atnemounta (EL1000081) and Oemilia (EL1000100), based on data concerning level alterations in boreholes.
<b>River WBs</b>	4.1.1 - Physical alteration of channel/bed/riparian area/shore - Flood protection	8	131km	8%	12%	Length (km) of water bodies affected	131 km	It includes WBs and AWBs that are part of the Land reclamation projects developed in Thessaloniki Valley in 1930's and flood protection works
<b>Transitional WBs</b>	4.1.1 - Physical alteration of channel/bed/riparian area/shore - Flood protection	1	67,6 km <sup>2</sup>			Area (km <sup>2</sup> ) of water bodies affected	67,6 km <sup>2</sup>	It concerns the Axios river mouth which is affected by the diversion works during the period 1928 - 1934 and the embankments for flood protection that are also constructed. The WB is also affected by the drainage works of lake Giannitsa 1925 -1936 where the Canal Loudias have been constructed which later was renamed River Loudias.
<b>Lake WBs</b>	4.1.4 - Physical alteration of channel/bed/riparian area/shore – Other (Wetland reconstruction)	1	19,73 km			Area (km <sup>2</sup> ) of water bodies affected		It concerns Lake mavrouda which with lake Lantza were drained in 1960 and today there is a lake from by a rehabilitation project finished in 1999.
<b>River WBs</b>	4.2.4 - Dams, barriers and locks - Irrigation <sup>β</sup>	5	82,5 km	5%	7%	Length (km) of water bodies affected	82,5 km	It concerns water bodies where dams or weirs are located in order to supply irrigation water are classified with ecological status below good.

WB Category	Significant pressure or chemical substance failing	WB Number	Length (in km) / Area km <sup>2</sup>	%WB	% of Length / Area	Indicator of Pressure	Value	Remarks
River WBs	4.3.2 Hydrological alteration – Agriculture	5	82,5 km	5%	7%	Length (km) of water bodies affected	82,5 km	It concerns water bodies where dams or weirs are located in order to supply irrigation water are classified with ecological status below good

<sup>α</sup> It concerns GWBs with negative water balance





## 5.7 ASSESSMENT OF IMPACTS

### 5.7.1 Assessment of impacts on Surface Water Bodies

In assessing the impacts and the characterization of the water bodies on the basis of the possibility of achieving the environmental objectives of the Directive 2000/60/EC, the following are being taken into consideration:

- Pressure tension from all significant sources of pollution and abstractions: High (H), Medium (M), Low (L).
- The available data and results from the Monitoring Program.
- Expert judgement when no other data is available.

The risk assessment of the achievement of the objectives by water category in the RBD is presented below.

Table 5-15: Statistics of risk assessment failure to achieve objectives of SWB in Axios RB (EL1003) – Number of WBs

WB Category	Risk Assessment *								Total
	AR		PAR		PNR		NR		
	Number of WBs	% of number	Number of WBs	% of number	Number of WBs	% of number	Number of WBs	% of number	Number of WBs
River WBs	7	20%	6	17%	5	14%	17	49%	35
Lake WBs	1	50%	1	50%	-	-	-	-	2
Coasal WBs	1	100%	-	-	-	-	-	-	1
Transitional WBs	-	-	-	-	-	-	-	-	0
Total	9	24%	7	18%	5	13%	17	45%	38

\*Risk Assessment of the achievement of the objectives: At Risk (AR), Probably At Risk (PAR), Probably Not at Risk (PNR), Not at Risk (NR)

Table 5-16: Statistics of risk assessment failure to achieve objectives of SWB in Gallokos RB EL1004) - Number of WBs

WB Category	Risk Assessment *								Total
	AR		PAR		PNR		NR		
	Number of WBs	% of number	Number of WBs	% of number	Number of WBs	% of number	Number of WBs	% of number	Number of WBs
River WBs	7	44%	4	25%	3	19%	2	13%	16
Lake WBs	-	-	1	100%	-	-	-	-	1
Coasal WBs	-	-	-	-	-	-	-	-	0
Transitional	-	-	-	-	-	-	-	-	0

WB Category	Risk Assessment *								Total
	AR		PAR		PNR		NR		
	Number of WBs	% of number	Number of WBs	% of number	Number of WBs	% of number	Number of WBs	% of number	Number of WBs
WBs									
Total	7	41%	5	29%	3	18%	2	12%	17

\* Risk Assessment of the achievement of the objectives: At Risk (AR), Probably At Risk (PAR), Probably Not at Risk (PNR), Not at Risk (NR)

Table 5-17: Statistics of risk assessment failure to achieve objectives of SWB in Chalkidiki RB (EL1005) - Number of WBs

WB Category	Risk Assessment *								Total
	AR		PAR		PNR		NR		
	Number of WBs	% of number	Number of WBs	% of number	Number of WBs	% of number	Number of WBs	% of number	Number of WBs
River WBs	19	36%	7	13%	12	23%	15	28%	53
Lake WBs	2	67%	1	33%	-	-	-	-	3
Coasal WBs	-	-	2	100%	-	-	-	-	2
Transitional WBs	2	22%	1	11%	-	-	-	67%	9
Total	23	34%	11	16%	12	18%	21	31%	67

\* Risk Assessment of the achievement of the objectives: At Risk (AR), Probably At Risk (PAR), Probably Not at Risk (PNR), Not at Risk (NR)

Table 5-18:: Statistics of risk assessment failure to achieve objectives of SWB in Athos RB (EL1043) - Number of WBs

WB Category	Risk Assessment *								Total
	AR		PAR		PNR		NR		
	Number of WBs	% of number	Number of WBs	% of number	Number of WBs	% of number	Number of WBs	% of number	Number of WBs
River WBs	-	-	-	-	-	-	-	-	-
Lake WBs	-	-	-	-	-	-	-	-	-
Coasal WBs	1	50%	-	-	-	-	1	50%	2
Transitional WBs	-	-	-	-	-	-	-	-	-
Total	1	50%	-	-	-	-	1	50%	2

\* Risk Assessment of the achievement of the objectives: At Risk (AR), Probably At Risk (PAR), Probably Not at Risk (PNR), Not at Risk (NR)

## 5.7.2 Assessment of impacts on Groundwater Bodies

In Axios RB (EL1003), 11 GWBs are identified. Their status is given in the table below.

Table 5-19: Chemical status and Quantitative status of GWB in Axios RB (EL1003)

No	WB CODE	WB NAME	Quantitative status	Decline water levels tendency	Chemical status	Quality problems	Pollutants tendency
1	EL1000010	Loudia system	■ Good	-	■ Good	Agriculture Wastewater Industry Livestock- Aviculture	-
2	EL1000020	Paikou system	■ Good	-	■ Good	Livestock	-
3	EL1000030	Axiou system	■ Bad	Dropping Level	■ Bad	Agriculture, Industry, Livestock, Aviculture, Overpumping	-
4	EL100F040	Doiranis system	■ Bad	Dropping Level	■ Good	Agriculture Livestock Wastewater Overpumping	-
5	EL1000160	Mavroneriou system	■ Good	-	■ Good	Wastewater	-
6	EL100F230	Anatolikou Paikou system	■ Good	-	■ Good	Livestock Wastewater	-
7	EL100F240	Evzonon system	■ Good	-	■ Good	Livestock Wastewater	-
8	EL100F250	Pontoirakleias system	■ Good	-	■ Good	Agriculture	-
9	EL100F260	Mitaka system	■ Good	-	■ Good	NO	-
10	EL1000270	Vafeioxoriou system	■ Good	-	■ Good	Agriculture Quarry Livestock Overpumping	-
11	EL100F280	Megalis sternas system	■ Good	-	■ Good	Livestock Wastewater Agriculture	-

In Gallikos RB (EL1004), 3 GWBs are identified. Their status is given in the table below.

Table 5-20: Chemical status and Quantitative status of GWB in Gallikos RB (EL1004)

No	WB CODE	WB NAME	Quantitative status	Decline water levels tendency	Chemical status	Quality problems	Pollutants tendency
1	EL1000050	Gallikou system	■ Bad	Dropping Level	■ Good	Agriculture Industry SANITARY LANDFILL Livestock Aviculture Overpumping	-
2	EL1000210	Mesaïou	■ Good	-	■ Good	Livestock,	-

No	WB CODE	WB NAME	Quantitative status	Decline water levels tendency	Chemical status	Quality problems	Pollutants tendency
		system				Wastewater	
3	EL1000220	Nteve Koran system	■ Good	-	■ Good	Quarry, Agriculture, Wastewater, Livestock	-

In Chalkidiki RB (EL1005), 21 GWBs are identified. Their status is given in the table below.

Table 5-21: Chemical status and Quantitative status of GWB in Chalkidiki RB (EL1005)

No	WB CODE	WB NAME	Quantitative status	Decline water levels tendency	Chemical status	Quality problems	Pollutants tendency
	EL1000060	Moudanion system					
1	EL1000061	Moudanion subsystem	■ Bad	Dropping Level	■ Bad	Agriculture Livestock Artisanship Salinization Overpumping	-
2	EL1000062	Triglias subsystem	■ Good	-	■ Good	NO	-
	EL1000070	Mygdonias System					
3	EL1000071	Koroneias subsystem	■ Bad	Dropping Level	■ Good	Agriculture Livestock Artisanship Wastewater	-
4	EL1000072	Volvis subsystem	■ Bad	Dropping Level	■ Good	NO	-
	EL1000080	Anthemountas System					
5	EL1000081	Kato Anthemounta subsystem	■ Bad	Dropping Level	■ Bad	Agriculture Livestock Wastewater Salinization Overpumping	-
6	EL1000082	Galarinou-Galatistas subsystem	■ Good	-	■ Good	NO	-
7	EL1000083	Thermis-N.Risiou subsystem	■ Good	-	■ Good	NO	-
8	EL1000090	Kassandras system	■ Good	-	■ Good	Agriculture Livestock Wastewater Salinization	-
9	EL1000100	Ormylias system	■ Bad	Dropping Level	■ Bad	Agriculture Livestock Wastewater Salinization Overpumping	-
10	EL1000120	Mavroudas system	■ Good	-	■ Good	Agriculture Livestock Wastewater	-
	EL1000130	Asprolakka					

No	WB CODE	WB NAME	Quantitative status	Decline water levels tendency	Chemical status	Quality problems	Pollutants tendency
		System					
11	EL1000131	Asprolakka subsystem	■ Good	-	■ Good	Agriculture	-
12	EL1000132	Kokkinolakka subsystem	■ Good	-	■ Good	Mines	-
13	EL1000140	Olympiadas system	■ Good	-	■ Good	Agriculture, Mines, Wastewater	-
14	EL1000150	KrouSION-Kerdyllion system	■ Good	-	■ Good	Livestock Wastewater	-
15	EL1000180	Sithonias system	■ Good	-	■ Good	Agriculture Livestock Artisanship Salinization (locally)	-
	EL1000190	Xolomonta-Oraiokastrou system					
16	EL1000191	Skourion-Mavres Petres subsystem	■ Good	-	■ Bad	Mines	-
17	EL1000192	Olympiadas subsystem	■ Good	-	■ Good	Mines	-
18	EL1000193	Xolomonta-Oraiokastrou subsystem	■ Good	-	■ Good	NO	-
19	EL1000200	Neon Rodon system	■ Good	-	■ Good	Agriculture	-
20	EL1000290	Amolianvs system	■ Good	-	■ Good	Local Salinization	-
21	EL1000300	Diaporou system	■ Good	-	■ Good	Local Salinization	-

In Athos (EL1043), 2 GWBs are identified. Their status is given in the table below.

Table 5-22: Chemical status and Quantitative status of GWB in Athos RB (EL1005)  
(EL1043)

No	WB CODE	WB NAME	Quantitative status	Decline water levels tendency	Chemical status	Quality problems	Pollutants tendency
1	EL1000170	Agiou Orous system	■ Good	-	■ Good	Wastewater, Livestock	-
2	EL1000110	Ierissou system	■ Good	-	■ Good	Agriculture, Wastewater, Livestock	-

## **6 CLASSIFICATION OF WATER BODIES STATUS**

### **6.1 CLASSIFICATION OF SURFACE WATER BODIES STATUS**

#### **6.1.1 Evaluation of River Water Bodies Status**

The results of the evaluation of the River WBs status in the RBD are presented in the following table. Reservoirs (heavily modified river water bodies) are presented separately.

Additionally in a separate table the differences in the status compared to the 1<sup>st</sup> RBMP are presented.

Table 6-1: Classification of River WBs status in Central Macedonia RBD

WB Code	WB Name	Ecological Status or Potential	Chemical Status
EL1003R000400031A	Loydias P.	Moderate	Unknown
EL1003R0F0202014A	Bardarobasi R.	Poor	Unknown
EL1003R0F0202015N	Bardarobasi R.	Moderate	Good
EL1003R0F0203006N	Axios P. (Bardaris)	Good	Unknown
EL1003R0F0203005N	Axios P. (Bardaris)	Good	Failing to achieve good
EL1003R0F0204017A	Tafros	Moderate	Unknown
EL1003R0F0202116N	Bardarobasi R.	Good	Good
EL1003R0F0205007N	Axios P. (Bardaris)	Moderate	Unknown
EL1003R0F0204121N	Metallikon R.	Good	Unknown
EL1003R0F0204120A	Tafros	Moderate	Unknown
EL1003R000400035N	Petrorrema	Good	Good
EL1003R000400034N	Xiropotamos	Good	Good
EL1003R0F0206026N	Gorgopis P.	Good	Good
EL1003R0F0206024N	Gorgopis P.	Moderate	Good
EL1003R0F0204018A	Tafros	Moderate	Unknown
EL1003R0F0208027N	Kotza R.	Good	Unknown
EL1003R0F0208029N	Megalo R.	Good	Good
EL1003R0F0208028N	Megalo R.	Good	Unknown
EL1003R0F0207010N	Axios P. (Bardaris)	Good	Unknown
EL1003R0F0207009N	Axios P. (Bardaris)	Good	Unknown
EL1003R0F0207008N	Axios P. (Bardaris)	Moderate	Unknown
EL1003R0F0208130N	Lykorema	Good	Unknown
EL1003R0F0209013N	Axios P. (Bardaris)	Good	Unknown
EL1003R0F0209012N	Axios P. (Bardaris)	Good	Unknown
EL1003R0F0209011N	Axios P. (Bardaris)	Good	Unknown
EL1003R0F0204019N	Mpagialtzas R.	Good	Unknown
EL1003R0F0204223N	Psarorrema	Moderate	Unknown
EL1003R0F0204222N	Psarorrema	Poor	Unknown
EL1003R000000001N	Mayrorrema	Good	Good
EL1003R000000003N	Xiorrema	Moderate	Good
EL1003R000000002N	Rema2	Moderate	Good
EL1003R000400033N	Xiropotamos	Moderate	Unknown
EL1003R0F0206025N	Gorgopis P.	Good	Good
EL1003R0F0201004H	Axios P. (Bardaris)	Bad	Failing to achieve good
EL1003R000400032A	Loydias P.	Poor	Failing to achieve good
EL1004R000201003N	Gallikos P.	Poor	Failing to achieve good
EL1004R000201001N	Gallikos P.	Moderate	Failing to achieve good
EL1004R000202008N	Xiropotamos	Poor	Failing to achieve good
EL1004R000202110N	Xiropotamos	Good	Good
EL1004R000203005N	Gallikos P.	Moderate	Unknown
EL1004R000204011N	Megalo P.	Poor	Good
EL1004R000205006N	Gallikos P.	Moderate	Good
EL1004R000202009N	Xiropotamos	Good	Good
EL1004R000204113N	Megalo P.	Good	Good
EL1004R000204012N	Megalo P.	Good	Good
EL1004R000207007N	Spanos P.	Moderate	Good
EL1004R000206014N	Gallikos P.	Moderate	Good
EL1004R000206116N	Gallikos P.	Good	Good
EL1004R000206015N	Gallikos P.	Moderate	Good
EL1004R000201002N	Gallikos P.	Poor	Failing to achieve good
EL1004R000201004N	Gallikos P.	Moderate	Failing to achieve good
EL1005R001500028N	Zografitikos Lakkos	Moderate	Good

WB Code	WB Name	Ecological Status or Potential	Chmeical Status
EL1005R001300027N	Myloy	Moderate	Good
EL1005R001100026N	Smixi	Moderate	Good
EL1005R002701035N	Batonias	Moderate	Unknown
EL1005R003101042N	Chabrias	Moderate	Good
EL1005R002500034N	Salidika Mandia R.	Moderate	Unknown
EL1005R002900041N	Zamoyni	Poor	Unknown
EL1005R003103043N	Chabrias	Moderate	Good
EL1005R002300033N	Xirolagkas	Moderate	Unknown
EL1005R003105044N	Chabrias	Good	Good
EL1005R003102048N	Kaprinikia	Good	Good
EL1005R002100032N	Tsiggano	Moderate	Unknown
EL1005R003106051N	Xinoneri	Good	Good
EL1005R000700024N	Petrenio	Good	Good
EL1005R003107045N	Chabrias	Moderate	Good
EL1005R002702038N	Batonias	Moderate	Good
EL1005R001900031N	Rema1	Good	Unknown
EL1005R002703036N	Batonias	Good	Good
EL1005R003109046N	Chabrias	Good	Good
EL1005R002704040N	Batonias	Good	Good
EL1005R003108052N	Chabrias	Good	Good
EL1005R003104050N	Miliadino	Good	Good
EL1005R003110053N	Chabrias	Good	Good
EL1005R002705037N	Batonias	Good	Good
EL1005R000500023N	Asprolakkas	Good	Failing to achieve good
EL1005R003111047N	Chabrias	Good	Good
EL1005R000206014N	Koytsikarli R.	Good	Unknown
EL1005R000206216N	Cholomontas	Good	Unknown
EL1005R000208017N	Megalo	Good	Unknown
EL1005R000206013N	Cholomontas	Moderate	Unknown
EL1005R000206115N	Barbaras R.	Good	Unknown
EL1005R000300022N	Mpasdeki	Moderate	Failing to achieve good
EL1005R000206012N	Cholomontas	Good	Unknown
EL1005R000204011N	Aspropetra	Good	Unknown
EL1005R000100021N	Mayros Lakkos	Good	Failing to achieve good
EL1005R000201003N	Richios P.	Moderate	Unknown
EL1005R000201002N	Richios P.	Moderate	Unknown
EL1005R000201001N	Richios P.	Good	Unknown
EL1005R000212019N	Chora	Good	Unknown
EL1005R000203005A	Derbeni R.	Moderate	Unknown
EL1005R000203004A	Derbeni R.	Moderate	Unknown
EL1005R000207007A	Derbeni R.	Moderate	Unknown
EL1005R000202010N	Kerasias R.	Good	Unknown
EL1005R000210018N	Potamia	Good	Unknown
EL1005R000214020N	Arapitsa	Moderate	Unknown
EL1005R000209009N	Mpogdanoy	Moderate	Unknown
EL1005R001700029H	Anthemoy	Bad	Failing to achieve good
EL1005R001700030N	Anthemoy	Moderate	Unknown
EL1005R000900025N	K. Lakkos	Moderate	Good
EL1005R000209008N	Mpogdanoy	Poor	Failing to achieve good
EL1005R003104049N	Miliadino	Moderate	Good
EL1005R002704039N	Batonias	Good	Good
EL1005R000205006A	Derbeni R.	Moderate	Unknown



Table 6-2: Comparison of River WB classification status results of the Approved RBMP and the Approved RBMP - 1<sup>st</sup> Update of Central Macedonia RBD

WB Code	WB Name	Ecological Status or Potential		Chemical Status	
		1st RBMP	1st Revision	1st RBMP	1st Revision
EL1003R000400031A	Loydias P.	Unknown	Moderate	Unknown	Unknown
EL1003R0F0202014A	Bardarobasi R.	Unknown	Poor	Unknown	Good
EL1003R0F0202015N	Bardarobasi R.	Unknown	Moderate	Good	Good
EL1003R0F0203006N	Axios P. (Bardaris)	Poor	Good	Unknown	Good
EL1003R0F0203005N	Axios P. (Bardaris)	Poor	Good	Failing to achieve good	Good
EL1003R0F0204017A	Tafros	Unknown	Moderate	Unknown	Good
EL1003R0F0202116N	Bardarobasi R.	Unknown	Good	Good	Good
EL1003R0F0205007N	Axios P. (Bardaris)	Poor	Moderate	Unknown	Good
EL1003R0F0204121N	Metallikon R.	Unknown	Good	Unknown	Good
EL1003R0F0204120A	Tafros	Unknown	Moderate	Unknown	Good
EL1003R000400035N	Petrorrema	Good	Good	Good	Good
EL1003R000400034N	Xiropotamos	Good	Good	Good	Good
EL1003R0F0206026N	Gorgopis P.	Good	Good	Good	Good
EL1003R0F0206024N	Gorgopis P.	Good	Moderate	Good	Unknown
EL1003R0F0204018A	Tafros	Unknown	Moderate	Unknown	Good
EL1003R0F0208027N	Kotza R.	Moderate	Good	Unknown	Good
EL1003R0F0208029N	Megalo R.	Good	Good	Good	Good
EL1003R0F0208028N	Megalo R.	Moderate	Good	Unknown	Good
EL1003R0F0207010N	Axios P. (Bardaris)	Poor	Good	Unknown	Unknown
EL1003R0F0207009N	Axios P. (Bardaris)	Poor	Good	Unknown	Good
EL1003R0F0207008N	Axios P. (Bardaris)	Poor	Moderate	Unknown	Unknown
EL1003R0F0208130N	Lykorema	Unknown	Good	Unknown	Good
EL1003R0F0209013N	Axios P. (Bardaris)	Poor	Good	Unknown	Good
EL1003R0F0209012N	Axios P. (Bardaris)	Poor	Good	Unknown	Good
EL1003R0F0209011N	Axios P. (Bardaris)	Poor	Good	Unknown	Good
EL1003R0F0204019N	Mpagialtzas R.	Unknown	Good	Unknown	Good
EL1003R0F0204223N	Psarorrema	Poor	Moderate	Unknown	Good
EL1003R0F0204222N	Psarorrema	Unknown	Poor	Unknown	Unknown
EL1003R000000001N	Mayrorrema	Good	Good	Good	Good
EL1003R000000003N	Xirorrema	Good	Moderate	Good	Good
EL1003R000000002N	Rema2	Good	Moderate	Good	Good
EL1003R000400033N	Xiropotamos	Unknown	Moderate	Unknown	Good
EL1003R0F0206025N	Gorgopis P.	Good	Good	Good	Good
EL1003R0F0201004H	Axios P. (Bardaris)	Poor	Bad	Failing to achieve good	Failing to achieve good
EL1003R000400032A	Loydias P.	Poor	Poor	Failing to achieve good	Good
EL1004R000201003N	Gallikos P.	Poor	Poor	Failing to achieve good	Unknown
EL1004R000201001N	Gallikos P.	Poor	Moderate	Failing to achieve good	Good

WB Code	WB Name	Ecological Status or Potential		Chemical Status	
		1st RBMP	1st Revision	1st RBMP	1st Revision
EL1004R000202008N	Xiropotamos	Poor	Poor	Failing to achieve good	Good
EL1004R000202110N	Xiropotamos	Good	Good	Good	Good
EL1004R000203005N	Gallikos P.	Unknown	Moderate	Unknown	Unknown
EL1004R000204011N	Megalo P.	Good	Poor	Good	Good
EL1004R000205006N	Gallikos P.	Good	Moderate	Good	Good
EL1004R000202009N	Xiropotamos	Good	Good	Good	Good
EL1004R000204113N	Megalo P.	Good	Good	Good	Good
EL1004R000204012N	Megalo P.	Good	Good	Good	Good
EL1004R000207007N	Spanos P.	Good	Moderate	Good	Good
EL1004R000206014N	Gallikos P.	Good	Moderate	Good	Good
EL1004R000206116N	Gallikos P.	Good	Good	Good	Good
EL1004R000206015N	Gallikos P.	Good	Moderate	Good	Good
EL1004R000201002N	Gallikos P.	Poor	Poor	Failing to achieve good	Good
EL1004R000201004N	Gallikos P.	Poor	Moderate	Failing to achieve good	Good
EL1005R001500028N	Zografitikos Lakkos	Good	Moderate	Good	Good
EL1005R001300027N	Myloy	Good	Moderate	Good	Good
EL1005R001100026N	Smixi	Good	Moderate	Good	Good
EL1005R002701035N	Batonias	Unknown	Moderate	Unknown	Unknown
EL1005R003101042N	Chabrias	Good	Moderate	Good	Good
EL1005R002500034N	Salidika Mandia R.	Unknown	Moderate	Unknown	Good
EL1005R002900041N	Zamoyni	Unknown	Poor	Unknown	Good
EL1005R003103043N	Chabrias	Good	Moderate	Good	Good
EL1005R002300033N	Xirolagkas	Unknown	Moderate	Unknown	Unknown
EL1005R003105044N	Chabrias	Good	Good	Good	Good
EL1005R003102048N	Kaprinikia	Good	Good	Good	Good
EL1005R002100032N	Tsiggano	Unknown	Moderate	Unknown	Good
EL1005R003106051N	Xinoneri	Good	Good	Good	Good
EL1005R000700024N	Petrenio	Good	Good	Good	Good
EL1005R003107045N	Chabrias	Good	Moderate	Good	Good
EL1005R002702038N	Batonias	Unknown	Moderate	Good	Good
EL1005R001900031N	Rema1	Unknown	Good	Unknown	Good
EL1005R002703036N	Batonias	Unknown	Good	Good	Good
EL1005R003109046N	Chabrias	Good	Good	Good	Good
EL1005R002704040N	Batonias	Unknown	Good	Good	Good
EL1005R003108052N	Chabrias	Good	Good	Good	Good
EL1005R003104050N	Miliadino	Good	Good	Good	Good
EL1005R003110053N	Chabrias	Good	Good	Good	Good
EL1005R002705037N	Batonias	Unknown	Good	Good	Good
EL1005R000500023N	Asprolakkas	Good	Good	Failing to achieve good	Unknown
EL1005R003111047N	Chabrias	Good	Good	Good	Good
EL1005R000206014N	Koytsikarli R.	Unknown	Good	Unknown	Good
EL1005R000206216N	Cholomontas	Unknown	Good	Unknown	Good

WB Code	WB Name	Ecological Status or Potential		Chemical Status	
		1st RBMP	1st Revision	1st RBMP	1st Revision
EL1005R000208017N	Megalo	Poor	Good	Unknown	Good
EL1005R000206013N	Cholomontas	Unknown	Moderate	Unknown	Good
EL1005R000206115N	Barbaras R.	Unknown	Good	Unknown	Good
EL1005R000300022N	Mpasdeki	Moderate	Moderate	Failing to achieve good	Unknown
EL1005R000206012N	Cholomontas	Unknown	Good	Unknown	Good
EL1005R000204011N	Aspropetra	Unknown	Good	Unknown	Good
EL1005R000100021N	Mayros Lakkos	Moderate	Good	Failing to achieve good	Unknown
EL1005R000201003N	Richios P.	Moderate	Moderate	Unknown	Good
EL1005R000201002N	Richios P.	Poor	Moderate	Unknown	Good
EL1005R000201001N	Richios P.	Poor	Good	Unknown	Good
EL1005R000212019N	Chora	Unknown	Good	Unknown	Good
EL1005R000203005A	Derbeni R.	Unknown	Moderate	Unknown	Good
EL1005R000203004A	Derbeni R.	Unknown	Moderate	Unknown	Good
EL1005R000207007A	Derbeni R.	Unknown	Moderate	Unknown	Good
EL1005R000202010N	Kerasias R.	Unknown	Good	Unknown	Good
EL1005R000210018N	Potamia	Unknown	Good	Unknown	Good
EL1005R000214020N	Arapitsa	Unknown	Moderate	Unknown	Good
EL1005R000209009N	Mpogdanoy	Unknown	Moderate	Unknown	Unknown
EL1005R001700029H	Anthemoy	Poor	Bad	Failing to achieve good	Good
EL1005R001700030N	Anthemoy	Unknown	Moderate	Unknown	Good
EL1005R000900025N	K. Lakkos	Good	Moderate	Good	Good
EL1005R000209008N	Mpogdanoy	Unknown	Poor	Failing to achieve good	Good
EL1005R003104049N	Miliadino	Good	Moderate	Good	Good
EL1005R002704039N	Batonias	Unknown	Good	Good	Good
EL1005R000205006A	Derbeni R.	Unknown	Moderate	Unknown	Good

### 6.1.2 Evaluation of Lake Water Bodies Status

The results of the evaluation of the Lake WBs status in the RBD are presented in the following table.

Additionally in a separate table the differences in the status compared to the 1<sup>st</sup> RBMP are presented.

Table 6-3: Classification of the Lake WBs in Central Macedonia RBD

WB Code	WB Name	Ecological Status or Potential	Chemical Status
EL1003L000000006A	Artzan Reservoir	Unknown	Unknown
EL1003L0F0000001N	Doirani Lake	Moderate	Good
EL1004L000000005N	Pikrolimni Lake	Unknown	Good
EL1005L000000002H	Mavrouda Lake	Unknown	Unknown
EL1005L000000003N	Volvi Lake	Moderate	Good
EL1005L000000004N	Koroneia Lake	Bad	Good

Table 6-4: Comparison of River WB classification status results of the Approved RBMP and the 1<sup>st</sup> Revision of Central Macedonia RBD

WB Code	WB Name	Ecological Status or Potential		Chemical Status	
		1st RBMP	1st Revision	1st RBMP	1st Revision
EL1003L000000006A	Artzan Reservoir	Unknown	Unknown	Unknown	Unknown
EL1003L0F0000001N	Doirani Lake	Poor	Moderate	Unknown	Good
EL1004L000000005N	Pikrolimni Lake	Unknown	Unknown	Unknown	Good
EL1005L000000002H	Mavrouda Lake	Unknown	Unknown	Unknown	Unknown
EL1005L000000003N	Volvi Lake	Moderate	Moderate	Failing to achieve good	Good
EL1005L000000004N	Koroneia Lake	Bad	Bad	Failing to achieve good	Good

### 6.1.3 Evaluation of Transitional Water Bodies status

The results of the evaluation of the Transitional WBs status in the RBD are presented in the following table.

Table 6-5: Classification of the transitional WBs in Central Macedonia RBD

WB Code	WB Name	Ecological Status or Potential	Chemical Status
EL1003T0001N	Axios Delta System	Unknown	Good
EL1005T0002N	Aggelohori Laggon	Unknown	Unknown
EL1005T0003N	Agios Mamas Laggon	Unknown	Unknown

In the 1<sup>st</sup> RBMP WB Axios Delta System was classified with Poor Ecological status and Unknown Chemical Status. No differences have been identified to the rest of the Transitional Water Bodies.

### 6.1.4 Evaluation of Coastal Water Bodies status

The results of the evaluation of the Coastal WBs status in the RBD are presented in the following table.

Table 6-6: Classification of the Coastal WBs in Central Macedonia RBD

WB Code	WB Name	Ecological Status or Potential	Chemical Status
EL1005C0001N	Elefthera Cape	High	Good
EL1005C0007N	Kassandra Coast	High	Good
EL1005C0005N	Sithonia Coast	Good	Good
EL1005C0009N	Outer Thermaikos Gulf - Kallikratia	Moderate	Good
EL1005C0010N	Inner Thermaikos Gulf	Moderate	Good
EL1005C0008A	Potideas Canal	Good	Good
EL1005C0006N	Kassandrinós Gulf (Chalkidiki)	Good	Good
EL1005C0011H	Thessaloniki Gulf	Moderate	Good
EL1005C0004N	Siggitikos Gulf (Chalkidiki)	Good	Good
EL1043C0003N	Athos Coast	High	Good
EL1043C0002N	Ierissos Gulf (Chalkidiki)	Moderate	Good

In the following table the differences in the status compared to the 1<sup>st</sup> RBMP are presented.

Table 6-7: Comparison of Coastal WB classification status results of the Approved RBMP and the 1<sup>st</sup> Update of Central Macedonia

WB Code	WB Name	Ecological Status or Potential		Chemical Status	
		1st RBMP	1st Revision	1st RBMP	1st Revision
EL1005C0001N	Elefthera Cape	High	High	Unknown	Good
EL1005C0007N	Kassandra Coast	High	High	Unknown	Good
EL1005C0005N	Sithonia Coast	High	Good	Unknown	Good
EL1005C0009N	Outer Thermaikos Gulf - Kallikratia	Good	Moderate	Unknown	Good
EL1005C0010N	Inner Thermaikos Gulf	Moderate	Moderate	Unknown	Good
EL1005C0008A	Potideas Canal	Unknown	Good	Unknown	Good
EL1005C0006N	Kassandrinós Gulf (Chalkidiki)	High	Good	Unknown	Good
EL1005C0011H	Thessaloniki Gulf	Moderate	Moderate	Unknown	Good
EL1005C0004N	Siggitikos Gulf (Chalkidiki)	High	Good	Unknown	Good
EL1043C0003N	Athos Coast	High	High	Unknown	Good
EL1043C0002N	Ierissos Gulf (Chalkidiki)	High	Moderate	Unknown	Good

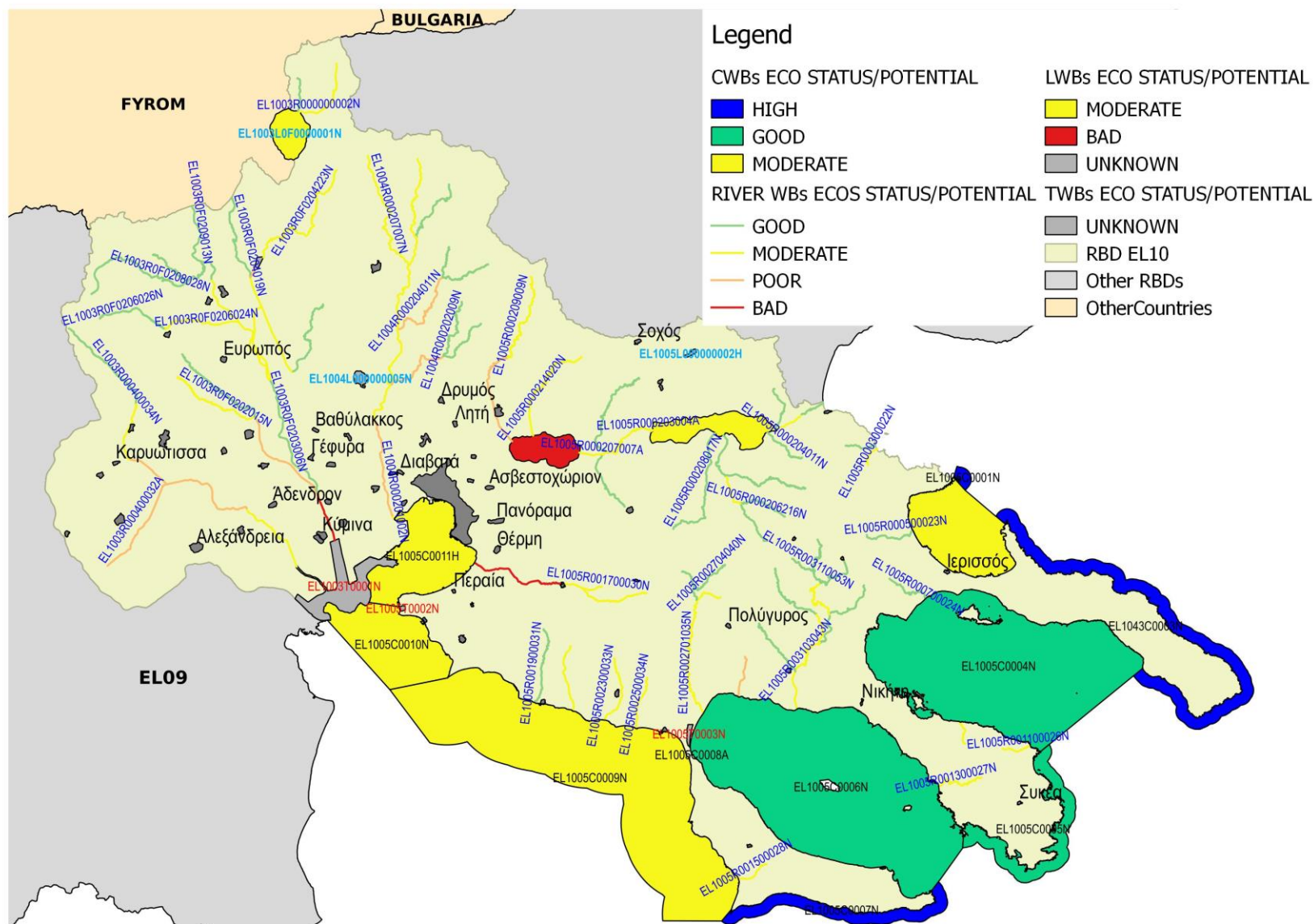


Figure 5: Ecological Status of the Surface Water Bodies in the WD of Central Macedonia (EL10)



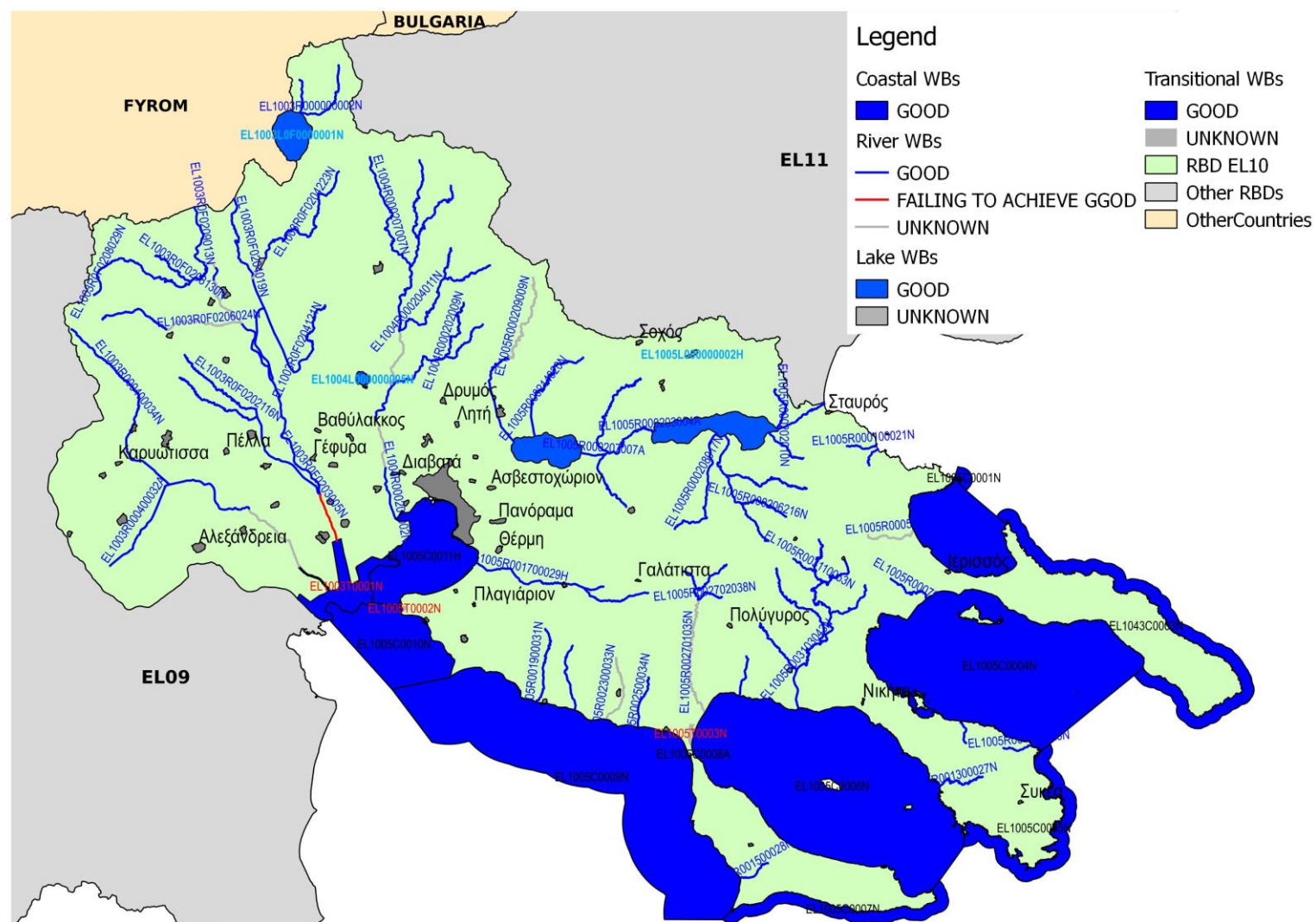


Figure 6: Chemical Status of the Surface Water Bodies in the WD of Central Macedonia (EL10)



## 6.2 CLASSIFICATION OF GROUNDWATER BODIES

In the following tables the quantitative and quality status of the GWBs in the RBD (EL10) are presented.

Table 6-8: Axios RB- Chemical and Quantitative status of GWBs

No	GWB Code	GWB Name	Quality (Chemical) Status	Quantitative Status	Increased values of chemical elements due to natural background	Increased values of chemical elements due to human effects	Main Pressures	Seawater Infiltration	Protected Areas	Comments
1	EL1000010	Loudia system	GOOD	GOOD	Fe, Mn, As, Cd, Al, E.C., Cl	NO <sub>3</sub> , NO <sub>2</sub> , NH <sub>4</sub> , Cr	Agriculture Wastewater Industry Livestock- Aviculture	YES Locally	NO	Al (Filtration from adjacent GWB), As (due to organic material)
2	EL1000020	Paikou system	GOOD	GOOD	As	No	Livestock	NO	YES	
3	EL1000030	Axiou system	BAD	BAD	Fe, As, Mn, Ni, Cd, Al, E.C., Cl	EC, Cl, NO <sub>3</sub> , NH <sub>4</sub> , NO <sub>2</sub> , As, Fe, Mn	Agriculture Livestock- Aviculture Industry Overpumping	YES Coastal Zone	NO	
4	EL100F040	Doiranis system	GOOD	BAD	F, Fe, Al	NO <sub>3</sub>	Agriculture Livestock Wastewater Overpumping	NO	NO	Al (Filtration from adjacent GWB)
5	EL1000160	Mavroneriou system	GOOD	GOOD	NO	-	Wastewater	NO	YES	
6	EL100F230	Anatolikou Paikou system	GOOD	GOOD	As	-	Livestock Wastewater	NO	NO	As (Due to scattered minertification and sulphites – Geothermal energy)
7	EL100F240	Evzonon system	GOOD	GOOD	NO	-	Livestock Wastewater	NO	NO	
8	EL100F250	Pontoirakleias system	GOOD	GOOD	NO	-	Agriculture	NO	NO	
9	EL100F260	Mitaka system	GOOD	GOOD	-	-	NO	NO	NO	
10	EL1000270	Vafeioxoriou system	GOOD	GOOD	NO	-	Agriculture Quarry Livestock Overpumping	NO	NO	
11	EL100F280	Megalis sternas system	GOOD	GOOD	NO	-	Livestock Wastewater Agriculture	NO	NO	

Table 6-9: Gallikos RB - Chemical and Quantitative status of GWBs

No	GWB Code	GWB Name	Quality (Chemical) Status	Quantitative Status	Increased values of chemical elements due to natural background	Increased values of chemical elements due to human effects	Main Pressures	Seawater Infiltration	Protected Areas	Comments
1	EL1000050	Gallikou system	GOOD	BAD	Mg, Fe, Mn, E.C., Cl	SO <sub>4</sub> , NO <sub>3</sub> , As	Agriculture Industry SANITARY LANDFILL Livestock Aviculture Overpumping	YES Τοπικά	NO	Mn (indigenous causes), Cl (Brackish Water)
2	EL1000210	Mesaίου system	GOOD	GOOD	NO	-	Livestock Wastewater	NO	NO	
3	EL1000220	Nteve Koran system	GOOD	GOOD	NO	-	Agriculture Livestock Wastewater Quarry	NO	YES	

Table 6-10: Chalkidiki RB - Chemical and Quantitative status of GWBs

No	GWB Code	GWB Name	Quality (Chemical) Status	Quantitative Status	Increased values of chemical elements due to natural background	Increased values of chemical elements due to human effects	Main Pressures	Seawater Infiltration	Protected Areas	Comments
1	EL1000061	Moydanion subsystem	BAD	BAD	Mn, Ni, B, As, Fe, F, Al	Cl, Pb, Ni, NO <sub>3</sub>	Agriculture Livestock Artisanship Salinization Overpumping	YES	NO	Al (indigenous pollution)
2	EL1000062	Triglias subsystem	GOOD	GOOD	NO	-	NO	NO	NO	
3	EL1000071	Koroneias subsystem	GOOD	BAD	SO <sub>4</sub> , Fe, Mn, F, B, E.C.	Fe, Mn, SO <sub>4</sub> , NO <sub>3</sub> , NO <sub>2</sub> , NH <sub>4</sub> , SO <sub>4</sub> , Ni, Pb, Al	Agriculture Livestock Artisanship	NO	NO	E.C.(due to geothermal fluids)

No	GWB Code	GWB Name	Quality (Chemical) Status	Quantitative Status	Increased values of chemical elements due to natural background	Increased values of chemical elements due to human effects	Main Pressures	Seawater Infiltration	Protected Areas	Comments
							Wastewater			
4	EL1000072	Volvis subsystem	GOOD	BAD	Fe, Mn, F, B, As, E.C.	Ph, NO <sub>3</sub> , NH <sub>4</sub> , Fe, Mn, Al, As	NO	NO	NO	E.C.( due to geothermal fluids)
5	EL1000081	Kato rou Anthemounta subsystem	BAD	BAD	Fe, Mn, B, Cr, As, Cl, E.C.	NO <sub>3</sub> , Cl	Agriculture Livestock Wastewater Salinization Overpumping	YES	NO	As (due to geothermal fluids)
6	EL1000082	Galarinou-Galatistas subsystem	GOOD	GOOD	-	NO	NO	NO	NO	
7	EL1000083	Thermis-N.Risiou subsystem	GOOD	GOOD	Fe, Mn, B, As, Cl, Nα, H <sub>2</sub> S	NO	NO	NO	NO	Geothermal fluids/Anthemund a fault
8	EL1000090	Kassandras system	GOOD	GOOD	NO	Cl, Fe, Mn	Agriculture Livestock Wastewater Salinization	YES	NO	
9	EL1000100	Ormylias system	BAD	BAD	NO	Cl, NO <sub>3</sub> , As	Agriculture Livestock Αστικά Wastewater Salinization Overpumping	YES	NO	
10	EL1000120	Mavroudas system	GOOD	GOOD	NO	NO	Agriculture Livestock Wastewater	NO	NO	
11	EL1000131	Asprolakka subsystem	GOOD	GOOD	Fe, Mn	-	Agriculture	NO	NO	
12	EL1000132	Kokkinolakka subsystem	BAD	GOOD	SO <sub>4</sub> , Heavy Metals	NO	Mines	NO	NO	Residues of old mining activity, toxic elements

No	GWB Code	GWB Name	Quality (Chemical) Status	Quantitative Status	Increased values of chemical elements due to natural background	Increased values of chemical elements due to human effects	Main Pressures	Seawater Infiltration	Protected Areas	Comments
13	EL1000140	Olympiadas system	GOOD	GOOD	Fe, Mn, Zn, B	-	Agriculture, Mines, Wastewater	-	NO	
14	EL1000200	Neon Rodon system	GOOD	GOOD	NO	-	Agriculture	NO	NO	
15	EL1000150	Krousion-Kerdyllion system	GOOD	GOOD	Mn, Fe	NO	Livestock Wastewater	NO	NO	
16	EL1000180	Sithonias system	GOOD	GOOD	NO	-	Agriculture Livestock Artisanship Salinization (Locally)	YES Στην παράκτια ζώνη	NO	
17	EL1000191	Skourion-Mavres Petres subsystem	BAD	GOOD	As, Pb	-	Mines	NO	NO	Pb (Indigenous origin)
18	EL1000192	Olympiadas subsystem	GOOD	GOOD	As, Pb	-	Mines	NO	NO	Pb (Indigenous origin)
19	EL1000193	Xolomonta-Oraiokastrou subsystem	GOOD	GOOD	NO	-	NO	NO	NO	
20	EL1000290	Amolianvs system	GOOD	GOOD	-	-	NO	-	NO	
21	EL1000300	Diaporou system	GOOD	GOOD	-	-	NO	-	NO	

Table 6-11: Athos RB - Chemical and Quantitative status of GWBs

No	GWB Code	GWB Name	Quality (Chemical) Status	Quantitative Status	Increased values of chemical elements due to natural background	Increased values of chemical elements due to human effects	Main Pressures	Seawater Infiltration	Protected Areas	Comments
1	EL1000170	Agiou Orous system	GOOD	GOOD	Mn, Fe	-	Livestock Wastewater	NO	NO	Fe due to indigenous pollution
2	EL1000110	Ierissou system	GOOD	GOOD	NO	-	Agriculture Livestock Wastewater	NO	NO	

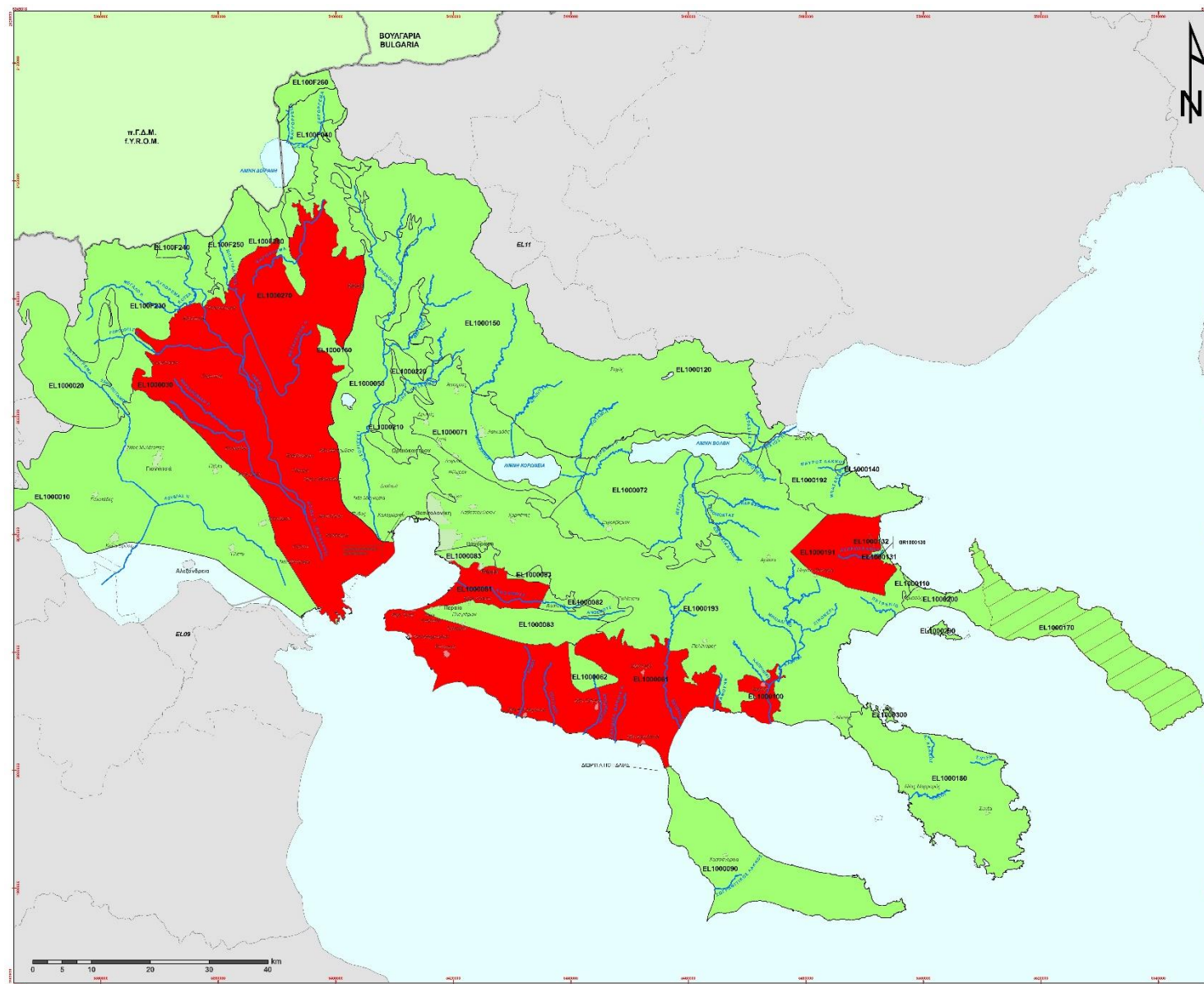


Figure 7: Chemical status of GWB of RBD Central Macedonia

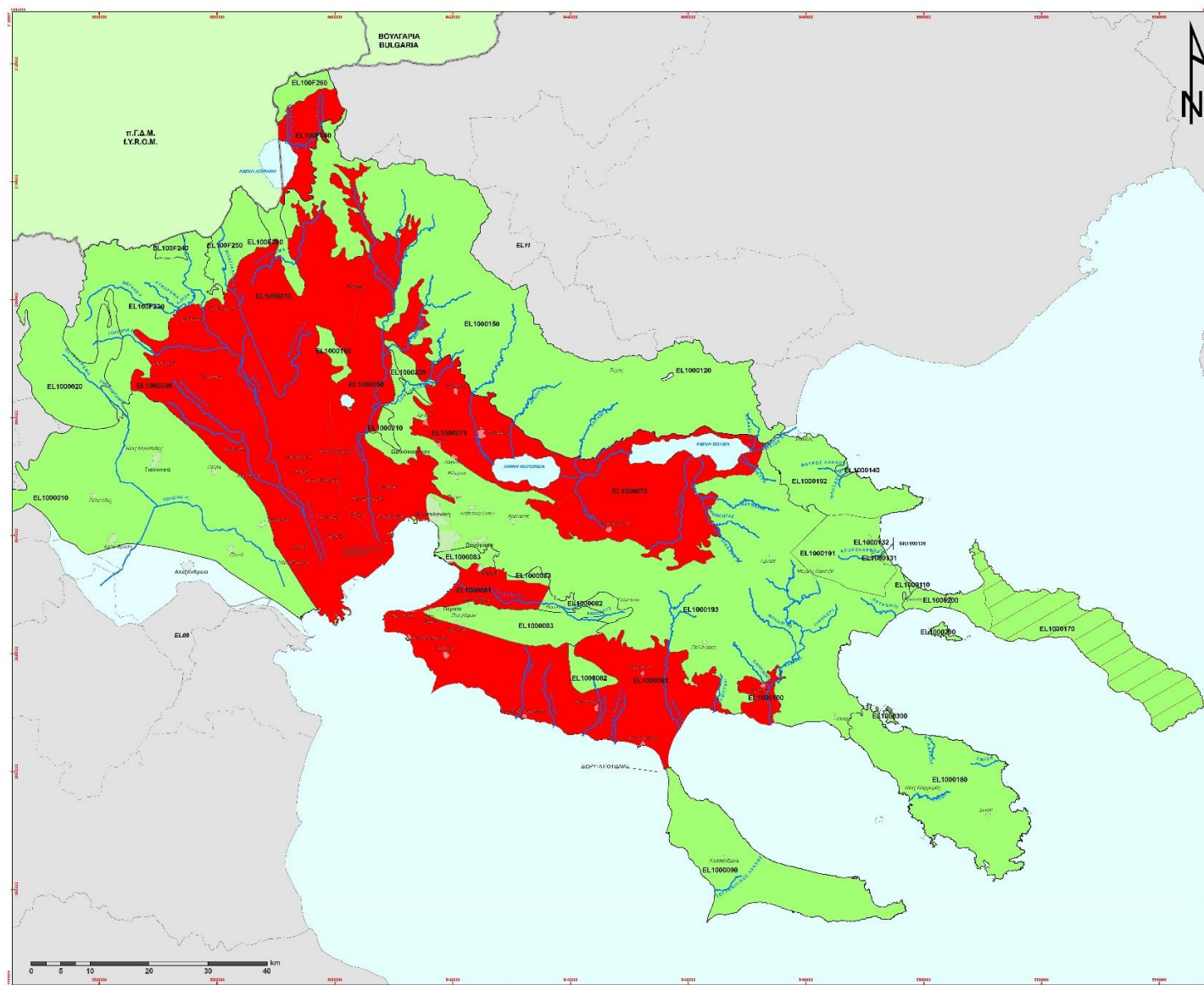


Figure 8: Quantitative status of GWB of RBD Central Macedonia



## 7 ECONOMIC ANALYSIS OF WATER USES

### 7.1 FINANCIAL COST OF WATER SERVICES IN RBD AND RECOVERY RATE

#### 7.1.1 Water services for drinking water supply and waste – water collection and treatment facilities

In RBD EL10 15 DEYA (Municipal Water and Sewerage Companies) are in operation and 4 Municipalities in Chalkidiki which are responsible for the Drinking Water supply/ and waste water collection and treatment.

In the following table the main providers in the RDB EL10 are presented.

Table 7-1: Water/Sewerage service providers in the RBs of RBD EL10

Provider	Axios RB (EL1003)	Gallikos RB (EL1004)	Chalkidiki RB (EL1005)	Athos RB (EL1043)
EYATH	X	X	X	-
DEYA Volvis	-	-	X	-
DEYA Delta	X	X	X	-
DEYA Thermaikos	-	-	X	-
DEYA Thermi	-	-	X	-
DEYA Lagada	-	-	X	-
DEYA Nea Propontida	-	-	X	-
ΔΕΔΥΑ Pylaia - Chortiatis	-	-	X	-
DEYA Chalkidona	X	X	-	-
DEYA Oraiokastros	-	X	X	-
DEYA Kilkis	X	X	-	-
DEYA Paioniaw	X	-	-	-
DEYA Alexandreas*	X	-	-	-
DEYA Pellas	X	-	-	-
DEYA Slydras*	X	-	-	-
Municipality Aristotelis	-	-	X	X
Kassandra	-	-	X	-
Sithonia	-	-	X	-
Polygyros	-	-	X	-

\* Part of the DEYA of Alexandria and Skydra belong to Aliakmonas RB of the EL09

The financial cost and the recovery rate are presented in the following table.

Table 7-2: Financial cost recovery of RB water supply in RBs of the RBD EL10

RB	Total financial cost (€)	Average financial unity cost (€/m <sup>3</sup> )	Total Revenue (€)	Average unit revenues (€/m <sup>3</sup> )	Recovery rate of total financial cost
Chalkidiki (EL1005)	98.644.087	1,014	85.507.741	0,879	86,7%
Gallikos (EL1004)	4.421.597	0,681	6.481.512	0,999	146,6%
Axios (EL1003)	8.665.970	1,031	8.720.660	1,038	100,6%

RB	Total financial cost (€)	Average financial unity cost (€/m <sup>3</sup> )	Total Revenue (€)	Average unit revenues (€/m <sup>3</sup> )	Recovery rate of total financial cost
Athos (EL1043)	1.340.653	0,986	1.283.360	0,944	95,7%
<b>Total RBD EL10</b>	<b>113.072.307</b>	<b>0,998</b>	<b>101.993.272</b>	<b>0,900</b>	<b>90,2%</b>

### 7.1.2 Water Provider for Agricultural use

The water providers for agricultural uses in RBD EL10 are given in the following table.

Table 7-3: Water providers for agricultural uses in RBs of RBD EL10

Provider	Axios RB (EL1003)	Gallikos RB (EL1004)	Chalkidiki RB (EL1005)	Athos RB (EL1043)
TOEV Zervochori	X	-	-	-
TOEV Kleidi	X	-	-	-
TOEV Prasinadaw / milovou	X	-	-	-
TOEV Nisseliou/ korifis	X	-	-	-
TOEV Chamili Sxoina	X	-	-	-
TOEV Nisiou A	X	-	-	-
TOEV Nisiou B	X	-	-	-
TOEV Vrisakiou / Loutrou	X	-	-	-
TOEV Alexandraia / Gidas	X	-	-	-
TOEV Xechasmenis	X	-	-	-
TOEV Skilitsiou Kavasila	X	-	-	-
TOEV Satavrou	X	-	-	-
TOEV Ag Athanasiou / Gefyra	X	-	-	-
TOEV Varchias	X	-	-	-
TOEV Kiminon – Makgaron	X	-	-	-
TOEV M. Monastiiou	X	-	-	-
TOEV Chalkidonasç	X	-	-	-
TOEV N;eas Magnisias	-	X	X	-
TOEV Chalastras – Kalochoriou	X	X	-	-
TOEV Koufalion	X	-	-	-
TOEV Askou	-	-	X	-
TOEV Mikris Volvis	-	-	X	-
TOEV Nimfopetras	-	-	X	-
TOEV Axioupolis	X	-	-	-
TOEV Πλαγίων	X	-	-	-
TOEV Gorgopis	X	-	-	-
TOEV Chamilo / Eidomenis	X	-	-	-
TOEV Goumenissas	X	-	-	-
TOEV Asprou	X	-	-	-
TOEV Pontoiraklaidas	X	-	-	-

Provider	Axios RB (EL1003)	Gallikos RB (EL1004)	Chalkidiki RB (EL1005)	Athos RB (EL1043)
TOEV Ajiochorioy	X	-	-	-
TOEV Mikroudasous	X	-	-	-
TOEV Artzan – Amatovou	X	-	-	-
TOEVK. Sourmenon	-	X	-	-
TOEV Amaranton	-	X	-	-
TOEV Giannitson	X	-	-	-
TOEV Gianniston (Tsekre)	X	-	-	-
TOEV Ag. Louka	X	-	-	-
TOEV Krias Vrisis	X	-	-	-
TOEV P Mylotopoy / aravissou	X	-	-	-
TOEV Ag Louka / Kariotissa	X	-	-	-
TOEV Balitsas / Kariotissa	X	-	-	-
TOEV Nichori	X	-	-	-
COEB Yhessalinik / Iagadas valley	X	-	-	-

\*TOEV = Local Organization of Land Reclamation, GOEV = General Organization of Land Reclamation

Additionally water for agricultural uses is provided by DEYA Thermis and Oraiokastorou and by the Municipalities of Polygyros, Neas Propontidas, Pellas, Alexandreia, and Aristoteli.

In the following table the recovery rate in the RBs of the RBD is presented.

Table 7-4: Financial cost recovery of water supply for agricultural used in RBs of the RDB EL10

RB	Total financial cost (€)	Average financial unit cost (€/m <sup>3</sup> )	Total Revenue (€)	Average unit revenues (€/m <sup>3</sup> )	Recovery rate of total financial cost
Axios (EL1003)	27.224.738,10	0,049	14.327.289,71	0,026	52,6%
Gallikos (EL1004)	658.603,82	0,037	431.929,84	0,024	65,6%
Chalkidiki (EL1005)	253.028,48	0,041	190.865,18	0,031	75,4%
Total RBD	28.136.370,40	0,048	14.950.084,73	0,026	53,1%

## 7.2 ENVIRONMENTAL COST AND RESSOURCE COST

### 7.2.1 Environmental Cost Estimation

The environmental cost at RBD level is about 1,72 million €, where 54,9% concerns the RB Chalkidiki (EL1005) and 42,8% the Axios RB (EL1003). The unit environmental cost at RBD level is estimated to be equal to 0,00037 €/m<sup>3</sup>.

Table 7-5: Environmental Cost in the RBs of the RDB EL10

RB	Total Environmental Cost (€)	Participation of the RB in the total cost	Annual Environmental Cost (€)	Unit Environmental Cost (€/m <sup>3</sup> )
Axios (EL1003)	320.432	30,1%	80.108	0,0002
Gallikos (EL1004)	92.508	8,7%	23.127	0,0003
Chalkidiki (EL1005)	652.060	61,2%	163.015	0,0007
Total	1.065.000	100,0%	266.250	0,0004

The distribution of environmental costs per water use is presented in the table below.

Table 7-6: Distribution of Environmental Cost per Water Uses in RBs of the RBD EL10

Environmental cost	Drinking Water	Agriculture	Livestock	Industry	Total
<b>AXIOS (EL1003)</b>					
Total costs for all years of measures implementation (€)	136.292	170.481	2.229	11.430	320.432
Annual cost per use (€)	34.073	42.620	557	2.857	80.108
Participation use (%) in total annual cost	42,53%	53,20%	0,70%	3,57%	100,00%
<b>Annual unit cost (€/m<sup>3</sup>)</b>	0,0002	0,0002	0,0002	0,0002	0,0002
<b>GALLIKOS (EL1004)</b>					
Total costs for all years of measures implementation (€)	12.410	63.032	1.460	15.606	92.508
Annual cost per use (€)	3.102	15.758	365	3.902	23.127
Participation use (%) in total annual cost	13,42%	68,14%	1,58%	16,87%	100,00%
<b>Annual unit cost (€/m<sup>3</sup>)</b>	0,0003	0,0003	0,0003	0,0003	0,0003
<b>CHALKIDIKI (EL1005)</b>					
Total costs for all years of measures implementation (€)	34.636	566.870	9.625	40.929	652.060
Annual cost per use (€)	8.659	141.718	2.406	10.232	163.015
Participation use (%) in total annual cost	5,31%	86,94%	1,48%	6,28%	100,00%
<b>Annual unit cost (€/m<sup>3</sup>)</b>	0,0007	0,0007	0,0007	0,0007	0,0007

## 7.2.2 Estimation of the resource cost

No resource cost is provided in WD of Central Macedonia

## **8 ENVIRONMENTAL OBJECTIVES - EXEMPTIONS**

### **8.1 ENVIRONMENTAL OBJECTIVES**

#### **8.1.1 Environmental objectives for SWBs**

The environmental objectives set for the 124 surface water bodies of the RBD by 2021 are presented in the following table:

- For 56 WBs, the objective is to maintain good ecological status/or potential.
- For 106 WBs, the objective is to maintain good chemical status.
- For 10 WBs, the objective is to achieve good ecological status/or potential.
- For 14 WBs, the objective is to improve ecological status/or potential.
- For 6 WBs, the objective is to determine ecological status/or potential .
- For 17 WBs, the objective is to determine chemical status.
- For 56 WBs the extension of the deadline under Article 4.4 is applied. The objective is to achieve good ecological status/or potential by 2027.
- For 17 WBs the extension of the deadline under Article 4.4 is applied. The objective is to achieve good chemical status by 2027.

Table 8-1: Environmental objectives of SWB by 2021

Environmental Objectives of SWB	River WBs	Lake WBs	Transitional WBs	Coastal WBs	Total number of WBs	% of SWBs
<b>Total number of WBs</b>	<b>104</b>	<b>6</b>	<b>3</b>	<b>11</b>	<b>124</b>	
No further deterioration occurs in good and high ecological status /potential	49	-	-	7	56	45%
No further deterioration occurs in good chemical status	90	4	1	11	106	85%
Achievement of good Ecological status/potential	7	-	-	3	10	8%
Achievement of good Chemical status	1	-	-	-	1	1%
Improvement of Ecological status/potential	13	1	-	-	14	11%
Determination of Ecological status/potential	-	3	3	-	6	5%
Determination of chemical status	13	2	2		17	14%
Deadline extension (Article 4.4) for Ecological status/potential	46	6	3	1*****	56	45%
Deadline extension (Article 4.4) for chemical status	13	2	2	-	17	14%
Deadline extension (Article4.5)	No WBs are included					
Deadline extension (Article4.6)	In the 1 <sup>st</sup> update the procedure for the application of Article 4.6 is described for periods of severe droughts					
Deadline extension (Article4.7)	2	-	-	-	2	2%

### 8.1.2 Environmental objectives for GWBs

The following table summarises the objectives set for the 37 GWBs in RBD of Central Macedonia.

- For 29 GWBs the objective is to maintain a good quantitative status.
- For 8 GWBs the objective is the achievement of good quantitative status after 2027 when feasible due to the natural conditions.
- For 31 GWBs the objective is to maintain a good chemical status.
- For 6 GWBs the objective is the achievement of a good chemical status after 2027 when feasible due to the natural conditions.

Table 8-2: Environmental objectives of GWB by 2021

Environmental Objectives	Number of GWBs
No further deterioration occurs in good quantitative status	29
No further deterioration occurs in good chemical status	31
Achievement of good quantitative status	0
Achievement of good chemical status	0
Deadline extension (Article 4.4)	9
Deadline extension (Article4.5)	0

Deadline extension (Article 4.6)	0
Deadline extension (Article 4.7)	2

## 8.2 EXTENSION OF THE DEADLINE FOR THE ACHIEVEMENT OF GOOD STATUS (ARTICLE 4.4)

All categories of exemption of article 4.4 of Directive 2000/60/EC, as set in the 1<sup>st</sup> Update of RBMP, are presented in the following table.

Table 8-3: Exemptions of water bodies until 2021

EXEMPTION			Number of
CATEGORY		SUBCATEGORY	
Ecological and Chemical Status of WBs	Article 4.4/ Deadline Extension	Solving the problem requires more time than is available	56
Ecological and Chemical Status of WBs	Article 4.4/ Deadline Extension	There is no information about the cause of the problem and therefore the solution can not be detected	23
Quantitative Status of GWB	Article 4.4/ Deadline Extension	Solving the problem requires more time than is available	9
Chemical Status of GWB	Article 4.4/ Deadline Extension	Solving the problem requires more time than is available	6

## 8.3 LESS STRICT OBJECTIVES (ARTICLE 4.5)

In the current Update of RBMP, no less strict objectives are set for any surface or groundwater body. This exclusion category will be reviewed in the next RBMP, taking under consideration the new monitoring data and after the evaluation of the technically feasible measures.

## 8.4 TEMPORARY DETERIORATION IN THE STATUS (ARTICLE 4.6)

For the application of article 4.6 in drought periods, the drought has to be characterised as severe. For this purpose SPI indicator based on the data provided in the 1<sup>st</sup> Drought Management Plan is calculated. The rainfall data for the calculation of the SPI which can be used for each RB are from the following stations: Axios RB : Nea Chalkidona, Gallikos RB: Metaxochori, Chalkidiki RB: Megali Panagia, Athos RB: Oraikastro.

The estimation of the SPI indicator has to be done for each hydrological year. In the case that SPI for 3 years is estimated around -1.5, which indicates extreme or/and severe drought then article 4.6 is applied.

## 8.5 NEW MODIFICATIONS (ARTICLE 4.7)

In the 1<sup>st</sup> update of the RBMP is set the procedure for the examination of the potential trigger of Article 4.7 for planned projects. For this purpose a specific methodology which is available in the website of SWW <http://wfdver.ypeka.gr/>, is applied.

In the 1<sup>st</sup> RBMP are identified water bodies in which article 4.7 is applied. For these projects that are under development during the 1<sup>st</sup> update the application of article 4.7 for these WB is still valid.

In RBD EL10 WBs examined are 2 River WBs [Chavrias (EL1005R003103043N) και Petrenia (EL1005R000700024N)], related to planned dams for drinking water supply and 2 GWBs [Skouries - Mavres Petres (EL1000191) και Olympiada (EL1000192)] related to alteration of water level due to mining operations.



## 9 PROGRAM OF MEASURES

The Program of Measures is part of RBMP and aims to achieve the “Environmental objectives”. Especially the implementation of the Program Measure should ensure:

- the prevention of deterioration, the improvement and the remediation of surface water bodies, the achievement of “Good” ecological and chemical status, and the mitigation of the pollution due to discharge and emission of hazardous substances.
- the protection, the improvement and the remediation of groundwater water bodies, the prevention of the pollution and deterioration of water status in order to achieve balance between abstraction and discharge.
- the conservation of Protected Areas.

The measures are divided into **Basic** and **Supplementary**.

The Basic Measures, according to par. 3 of Article 11 of the WFD are the minimum requirements that should be taken and include:

- Measures for the implementation of Community and national legislation on water protection (**Group I**).
- Other basic measures (**Group II**). These measures are according to the basic principles of community and national legislation on water management and are related to the horizontal implementation of actions per water bodies groups, in order to achieve or maintain good status.

The Supplementary Measures are established and implemented in addition to the Basic Measures, in order to achieve the objectives identified in accordance with Article 4 of WFD. Member States may implement further supplementary measures with a view to additional protection or improvement of the water status beyond these that are specified by the Directive.

### 9.1 PROGRAM OF BASIC AND SUPPLEMENTARY MEASURES

#### 9.1.1 Actions for implementing EU directives (Group I of basic measures)

In the following table the provisions for transposing the EU directives in the national law are presented.

DIRECTIVE	TRANSPPOSITION IN NATIONAL LAW
<b>Bathing Water Directive</b> (Directive 2006/7/EC)	<b>JMD 8600/416/E103/23.02.2009 (Government Gazette 356/B/2009)</b> on «quality and management of bathing water, in compliance with the provisions of Directive 2006/7/EC “concerning the management of bathing water quality and repealing Directive 76/160/EEC”», as amended and in force.
<b>Protection of Wild Birds</b> (Directive 2009/147/EC) <b>and Habitats</b> (Directive 92/43/EEC) <b>Natura 2000 Sites</b>	<b>JMD EP 37338/1807/E103/1.9.2010 (Government Gazette 1495/B/2010)</b> «Determination of measures and procedures for the conservation of wildlife and its habitats, in compliance with the provisions of Directive 79/409/EEC of the Council Directive of 2 April 1979 “on the conservation of wild birds”, as codified by the Directive 2009/147/EC» and its amendment <b>JMD EP 8353/276/E103/2012 (Government Gazette 415/B/2012)</b> . <b>JMD 33318/3028/11.12.1998 (Government Gazette 1289/B/1998)</b> “Determination of measures and procedures for the conservation of natural habitats as well as wild fauna and flora” and its amendment <b>JMD EP 14849/853/E103/2008 (Government Gazette 645/B/2008)</b> in compliance with the provisions of Directive

DIRECTIVE	TRANSPOSITION IN NATIONAL LAW
	<p>92/43/EEC “on the conservation of natural habitats and of wild fauna and flora”.</p> <p><b>Law 3937/2011 (Government Gazette 60/A/2011)</b> “Conservation of biodiversity and other provisions”.</p> <p><b>JMD 50743/2017 (Government Gazette 4432/N/2017)</b> “Revision of the national list of sites of the European Natura 2000 Ecological Network”.</p>
<p><b>Environmental Impact Assessment for Projects/Activities</b> (Directives 2011/92/EU, 2014/52/EU)</p>	<p><b>Law 1650/1986 (Government Gazette 160/A/1986)</b> “or the protection of the environment”.</p> <p><b>Law 3010/2002 (Government Gazette 91/A/2002)</b> “Harmonization of Law 1650/86 with Directives 97/11/EC and 96/61/EC, delimitation process and subject settings for waterfalls and other provisions”.</p> <p><b>Law 4014/2011 (Government Gazette 209/A/2011)</b> “Environmental Licensing of projects and activities, arbitrary arrangement in connection with the creation of an environmental balance and other provisions of the Ministry of the Environment”.</p>
<p><b>Water Intended for Human Consumption</b> (Directives 98/83/EC, 2015/1787/EU)</p>	<p><b>Law no. C1 (d)/G.P. oik. 67322/06.09.2017 (Government Gazette 3282/B/2017)</b> “Quality of water intended for human consumption in compliance with the provisions of Directive 98/83/EC of the Council of European Union, of 3 November 1998 as amended with Directive (EU) 2015/1787 (L260, 7.10.2015)”.</p>
<p><b>Industrial Emissions Directive IED (Pollution Prevention and Control)</b> (Directive 2010/75/EU)</p>	<p><b>MD 36060/1155/E.103/2013 (Government Gazette 1450/B/2013)</b> Establishment of a framework of rules, measures and procedures for integrated prevention and control of environmental pollution by industrial activities, in compliance with the provisions of Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 “on industrial emissions (integrated pollution prevention and control)”.</p>
<p><b>Protection against pollution caused by nitrates from agricultural sources</b> (Directive 91/676/EEC)</p>	<p><b>JMD 16190/1335/19.05.1997 (Government Gazette 519/B/1997)</b> “Measures and conditions for the protection of waters against pollution caused by nitrates from agricultural sources” to harmonize with Directive 91/676/EEC “concerning the protection of waters against pollution caused by nitrates from agricultural sources”.</p> <p><b>MD oik. 19652/1906/1999 (Government Gazette 1575/B/1999)</b> «Identification of waters subject to nitrate pollution of agricultural origin – List of vulnerable zones, in accordance with paragraphs 1 and 2 respectively of article 4 of 16190/1335/1997 JMD “Measures and conditions for the protection of waters against pollution caused by nitrates from agricultural sources” (B 519). Amendment of articles 3, 4, 5 and 8 of this Decision», as amended by <b>MD 20419/2522/2001 (Government Gazette 1212/B/2001)</b>, <b>MD 24838/1400/E103/2008 (Government Gazette 1132/B/2008)</b>, <b>MD 106253/2010 (Government Gazette 1843/B/2010)</b>, <b>MD 190126/2013 (Government Gazette 983/B/2013)</b>, <b>MD 147070/2014 (Government Gazette 3224/B/2014)</b> and in force.</p> <p><b>MD 1420/82031/2015 (Government Gazette 1709/B/2015)</b> “Code of Good Agricultural Practice for the Protection of Waters Against Nitrate Pollution from agricultural sources”, as amended by <b>MD 2001/118518/2015, (Government Gazette 2359/B/2015)</b> «Amendment of No 1420/82031 (Government Gazette 1709/B/2015) Decision of the Deputy Minister of Production Reconstruction, Environment and Energy “Code of Good Agricultural Practice for the Protection of Waters Against Nitrate Pollution from agricultural sources”».</p>

DIRECTIVE	TRANSPOSITION IN NATIONAL LAW
<b>Plant Protection Products</b> (Directive 2009/128/EC, Regulation (EC) No 1107/2009, Regulation (EU) No 652/2014)	<b>Law 4036/27.01.2012 (Government Gazette 8/A/2012)</b> “Marketing of pesticides, rational use of these and related provisions” as amended and in force.
<b>Major Accidents (Seveso) Directive</b> (Directive 2012/18/EU)	<b>JMD 172058/2016 (Government Gazette 354/B/2016)</b> «Establishing rules, measures and conditions to deal with major-accident hazards in plants due to the presence of dangerous substances in compliance with the provisions of Directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 “on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC”. Replacement of No 12044/613/2007 (Government Gazette 376/B/2007), as corrected (Government Gazette 2259/B/2007)».
<b>Sewage Sludge Directive</b> (Directive 86/278/EEC)	<b>JMD 80568/4225/05.07.1991 (Government Gazette 641/B/1991)</b> “Methods, conditions and restrictions for the use in agriculture of sewage sludge from domestic and urban effluent treatment” for harmonization with the provisions of Council Directive 86/278/EEC “on the protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture”.
<b>Urban Wastewater Treatment</b> (Directives 91/271/EEC, 98/15/EC)	<b>JMD 5673/400/05.03.1997 (Government Gazette 192/B/1997)</b> “Measures and conditions for urban wastewater treatment” and its amendments <b>MD 19661/1982/2.8.1999 (Government Gazette 1811/B/1999)</b> and <b>MD 48392/939/28.3.2002 (Government Gazette 405/B/2002)</b> .

The planned actions for the implementation of the community and national legislation on water protection are presented in the following table.

Table 9-1: Actions for the implementation of Community Directives

DIRECTIVE	PLANNED ACTIONS	IMPLEMENTING BODIES
<b>Bathing water Directive</b> (2006/7/EC)	Continue to monitor the quality of bathing water in accordance with Directive 2006/7/EC. Updating the Greek Bathing Water Profiles Registry.	Special Secretariat for Water, Directorate of Water of the Decentralized Administration
<b>Habitats Directive</b> (92/43/EEC) <b>Birds Directive</b> (2009/147/EC)	Setting /Approval Management Plans for protected areas of Natura 2000 network relating with management water issues  Monitoring/Assessment of the conservation status of habitats and species directly depending on water in Natura 2000 areas.	Ministry of Environment and Energy, Management Agencies of Protected Areas
<b>Drinking water</b> (Directives 98/83/EC, 2015/1787/EC)	Implementation of Water Safety Plans to ensure public health through the adoption and implementation of Good practice in the water supply distribution systems.	Ministry of Health
<b>Environmental Impact Assessment Directives</b> (2011/92/EC, 2014/52/EC)	<b>Amendment of the Ministerial Decision 170225/2014 – Specifications for the contents of environmental permitting studies for projects and activities of category A) so that for certain projects, which should be specified, the following evaluations should be made:</b> – Emissions of pollutants by category, – Estimation of pollution impacts in WB defined in the Management Plans and	Ministry of Environment and Energy

DIRECTIVE	PLANNED ACTIONS	IMPLEMENTING BODIES
	<ul style="list-style-type: none"> <li>Comparing these concentrations with the Environmental Quality Standards. Establishment of monitoring programs and notification of their results to the relevant Water Directorate.</li> </ul>	
Industrial Emissions Directive IED, (2010/75/EC)	<ul style="list-style-type: none"> <li>Keeping register of installations that are in line with the provisions of the Directive</li> </ul>	Decentralized administration
Nitrates Directive (91/676/EC)	<ul style="list-style-type: none"> <li>Setting up an Action Plan and taking of any additional Supplementary measure or reinforcement action, in accordance with article 5 of Joint Ministerial Decision 16190/1335/1997. The study on the drafting of Action Plans in all the vulnerable zones of the country has been entrusted by the Ministry of Rural Development and Food to the Agricultural University of Athens and is under preparation.</li> </ul>	Special Secretariat for Water/ Ministry of Rural Development and Food
	<ul style="list-style-type: none"> <li>Systematic monitoring of nitrate levels in WBs that are or may be subject to nitrate pollution.</li> </ul>	Special Secretariat for Water, Ministry of Rural Development and Food
Plant Protection Products (Directive 2009/128/EC, Regulation (EU) No. 1107/2009, Regulation (EU) No. 652/2014)	<ul style="list-style-type: none"> <li>Rational use of plant protection products</li> </ul>	Ministry of Rural Development and Food
Major Accidents (Seveso) Directive (2012/18/EC)	<ul style="list-style-type: none"> <li>Keeping registration and records of installations that are in line with the provisions of the Directive.</li> </ul>	Decentralized administration
Sewage sludge Directive (86/278/EEC)	<ul style="list-style-type: none"> <li>Setting up a Joint Ministerial Decision, on Measures, Conditions and Procedures for the Use of Sludge from Domestic and Urban Wastewater Treatment and Certain Wastewater, in compliance with the provisions of Directive 86/278 / EEC and in replacement of Joint Ministerial Decision 80568/4225 / 1991 and promotion of actions related to the safe disposal of treated sludge.</li> </ul>	Ministry of Environment and Energy
Urban Waste Water Treatment Directive (91/271/ EC, 98/15/EC)	<ul style="list-style-type: none"> <li>Completion of sewerage and waste water treatment projects of the settlements that concerns the provisions of the Directive (covering all agglomerations with a population greater than 2,000 p.e.).</li> </ul>	Region, MEWSS, Municipalities
	<ul style="list-style-type: none"> <li>Strengthening actions to control the effective operation of existing wastewater treatment and drainage projects.</li> </ul>	Region

### 9.1.2 Other Basic measures (Group II of Basic Measures)

Table 9-2: Basic measures of other categories

CODE & NAME OF MEASURE	CATEGORY	RELATION WITH THE 1 <sup>st</sup> RBMP	IMPLEMENTING BODIES
<b>M10B0201</b> Upgrading of the organizational function of <b>Organizations of Land Reclamation</b> for the compliance with the financial and other data in order to meet the requirements of the Joint Ministerial Decision 132275/19.05.2017 (Government Gazette 1751 B'/22.05.2017) of the National Water Committee, which deals with pricing and costing rules for water supply services.	Measures to implement the cost recovery principle (Art. 9)	NEW MEASURE	Organization of Land Reclamation (Local, General) / Region / Ministry of Environment & Energy (Special Secretariat for Water) /Ministry of Rural Development & Food

CODE & NAME OF MEASURE	CATEGORY	RELATION WITH THE 1 <sup>st</sup> RBMP	IMPLEMENTING BODIES
<b>M10B0202</b> Upgrade of the organizational function of <b>MEWSS</b> for the compliance with the financial and other data in order to meet the requirements of the Joint Ministerial Decision 132275/19.05.2017 (Government Gazette 1751 B'/22.05.2017) of the National Water Committee, which deals with pricing and costing rules for water supply services.	Measures to implement the cost recovery principle (Art. 9)	NEW MEASURE	MEWSS / Ministry of Environment & Energy (Special Secretariat for Water) / Ministry of Interior
<b>M10B0203</b> Upgrading of the organizational function of <b>the Local Government Organizations</b> for the compliance with the financial and other data in order to meet the requirements of the Joint Ministerial Decision 132275/19.05.2017 (Government Gazette 1751 B'/22.05.2017) of the National Water Committee, which deals with pricing and costing rules for water supply services.	Measures to implement the cost recovery principle (Art. 9)	NEW MEASURE	Local Government Organizations / Ministry of Environment & Energy (Special Secretariat for Water) / Ministry of Interior
<b>M10B0204</b> Training and expertise of all the stakeholders (Decentralized Administrations, Regions, MEWSS, LOLR, Local Government Organizations of the Joint Ministerial Decision 132275/19.05.2017 (Government Gazette 1751 B'/22.05.2017) of the National Water Committee, which deals with pricing and costing rules for water supply services.	Measures to implement the cost recovery principle (Art. 9)	NEW MEASURE	Ministry of Environment & Energy (Special Secretariat for Water)
<b>M10B0301</b> Preparation / Update of the Water Supply Masterplan.	Measures to promote an efficient and sustainable water use (Art. 4)	Modification / Specialization of the measure OM02-08	MEWSS / Municipals / Water suppliers / Decentralized Administration (Water Directorate)
<b>M10B0302</b> Actions for the reinforcement, rehabilitation, modernization of water supply networks and leakage control.	Measures to promote an efficient and sustainable water use (Art. 4)	Modification / Consolidation of the measures OM02-01, OM02-03 ΣM11-20 and ΣM 17-100	Municipalities / MEWSS / Drinking water providers / Region / Decentralized Administration (Water Directorate)
<b>M10B0303</b> Increase of the efficiency of water use in land reclamation infrastructures.	Measures to promote an efficient and sustainable water use (Art. 4)	Modification / Specialization of the measures OM02-04 and OM02-06	Ministry of Rural Development and Food, Regions
<b>M10B0304</b> Investments for water saving in agriculture.	Measures to promote an efficient and sustainable water use (Art. 4)	Modification / Specialization of the measures OM02-06	Individuals / Irrigation water providers / Ministry of Rural Development and Food / Regions
<b>M10B0305</b> Determination of maximum irrigation requirements for crops for private water abstractions.	Measures to promote an efficient and sustainable water use (Art. 4)	Modification / Specialization of the measure OM02-06 and OM04-03	Decentralized Administration (Water Directorate), Regional directorate of Rural Economy and Veterinary Medicine

CODE & NAME OF MEASURE	CATEGORY	RELATION WITH THE 1 <sup>st</sup> RBMP	IMPLEMENTING BODIES
<b>M10B0306</b> Strengthening loss reduction actions on collective irrigation networks.	Measures to promote an efficient and sustainable water use (Art. 4)	Modification / Specialization of the measure OM02-04	GOLR/LOLR/Collective Irrigation Networks, Region
<b>M10B0307</b> Preparation of manual of technical specifications for application of water reuse methods.	Measures to promote an efficient and sustainable water use (Art. 4)	Continuation of measure OM02-07	Ministry of Environment & Energy (Special Secretariat for Water)
<b>M10B0308</b> Update of the existing Strategic Plan to Address Water Scarcity and Drought	Measures to promote an efficient and sustainable water use (Art. 4)	NEW MEASURE	Decentralized Administration (Water Directorate), Ministry of Environment & Energy (Special Secretariat for Water)
<b>M10B0401</b> Definition and delination of zones and/or measures for the protection of water abstraction points, intended for human consumption from groundwater bodies.	Measures to meet the requirements of Article 7 (drinking water)	Modification / Specialization of the measures OM03-02 and OM03-03	Decentralized Administration (Water Directorate) and Drinking water providers (MEWSS, Municipalities etc.)
<b>M10B0402</b> Protection of GWBs included in the register of protected areas for human consumption and establishment of an institutional framework of protection.	Measures to meet the requirements of Article 7 (drinking water)	Modification of the measure OM03-04	Decentralized Administration (Water Directorate)
<b>M10B0403</b> Protection of surface water abstraction points for drinking water supply	Measures to meet the requirements of Article 7 (drinking water)	Continuing measure OM03-01	Municipalities / MEWSS / Water providers / Decentralized Administration (Water Directorate)
<b>M10B0404</b> Implementation of Water Safety Plans.	Measures to meet the requirements of Article 7 (drinking water)	Continuing measure OM03-05	MEWSS, Municipalities, Drinking water providers, Decentralized Administration (Water Directorate)
<b>M10B0501</b> Restrictions, terms and conditions for the construction of groundwater abstraction projects (drilling, wells, etc.) for new uses, as well as extension of existing water use permits to: (a) areas of GWBs with a Bad quantitative status, (b) the protection zone II of the abstraction projects serving the water supply networks that operated by Municipalities, Municipal links, MEWSS, Inter-MEWSS and drinking water companies, (γ) zones of collective irrigation networks, δ) coastal GWBs with extensive or local salinization problems, regardless of their origin.	Measures to control surface and groundwater abstractions	Modification / Specialization of the measure OM04-07 and ΣM-08-30	Decentralized Administration (Water Directorate)



CODE & NAME OF MEASURE	CATEGORY	RELATION WITH THE 1 <sup>st</sup> RBMP	IMPLEMENTING BODIES
<b>M10B0502</b> Annual electronic recording of measurements of surface and groundwater abstractions.	Measures to control surface and groundwater abstractions	Modification / Specialization of the measure OM04-06 and OM04-01	Ministry of Environment & Energy (Special Secretariat for Water), Decentralized Administration (Water Directorate), Regions
<b>M10B0601</b> Investigation of the conditions for application of artificial underground aquifer enrichment as a mean of quantitative enhancement and quality protection of GWBs, with a priority for GWBs with poor condition and treatment of sanitation	Measures to control the artificial recharge of groundwater aquifers	Continuing measure OM05-01	Region, Municipalities, Decentralized Administration (Water Directorate), Region
<b>M10B0602</b> Establishment of a National Register of Waste Disposal Sites (Joint Ministerial Decision 145116/2011 - Government Gazette 354B/08.03.2011).	Measures to control the artificial recharge of groundwater aquifers	Continuing measure OM05-02	Ministry of Environment & Energy (Special Secretariat for Water), Decentralized Administration (Water Directorate)
<b>M10B0701</b> Strengthening environmental inspections and controls.	Measures for point source pollution	NEW MEASURE	Region
<b>M10B0702</b> Modernization of national legislation on waste and industrial waste management.	Measures for point source pollution	Continuation of measure OM06-07	Ministry of Environment & Energy (Special Secretariat for Water), Ministry of health
<b>M10B0703</b> Program of exploratory monitoring of the quality of groundwater bodies and surface water bodies in the areas of existing Landfills.	Measures for point source pollution	NEW MEASURE	Landfill Operators, National Monitoring Network coordinated by the Water Directorate
<b>M10B0704</b> Conditions for the licensing of new/extension of existing aquaculture units.	Measures for point source pollution	Modification / Specialization of the measure OM06-05	Ministry of Environment & Energy, Decentralized Administration, Region
<b>M10B0705</b> Preparation of rules for cesspit protection.	Measures for point and diffuse source of pollution	NEW MEASURE	Decentralized Administration (Water Directorate)
<b>M10B0801</b> Biological agriculture.	Measures for diffuse source pollution	Modification / Specialization of the measure OM07-01	Ministry of Rural Development and Food (Directorate of Quality Systems, Organic Production and Geographical Indications)
<b>M10B0802</b> Modernization of the institutional framework for sludge management by municipal waste water treatment plants with emphasis on widening the scope and updating the quality characteristics of the applicable sludge.	Measures for diffuse source pollution	Continuing measure OM07-02	Ministry of Environment & Energy (Environmental Certification Directorate)

CODE & NAME OF MEASURE	CATEGORY	RELATION WITH THE 1 <sup>st</sup> RBMP	IMPLEMENTING BODIES
<b>M10B0803</b> Reduce diffuse pollution from agriculture in the vulnerable zones of the Directive 91/676/EEC.	Measures for diffuse source pollution	NEW MEASURE	Ministry of Environment & Energy (Special Secretariat for Water), Ministry of Rural Development and Food, Region
<b>M10B0902</b> Determination of minimum natural lakes level, determination of maximum range of reservoir level variation.	Measures to confront the negative effects on water status	Modification / Specialization of the measure OM08-02	Project principal, Region, Protected Areas Management Bodies, Decentralized Administration (Water Directorate)
<b>M10B0903</b> Development of national methodology and specifications for the determination of ecological provision of river water bodies.	Measures to confront the negative effects on water status	Continuation of measure OM04-02	Ministry of Environment & Energy (Special Secretariat for Water)
<b>M10B0904</b> Special Measures for the Achievement of Good Ecological Potential in Heavily Modified Water Bodies (HMWB).	Measures to confront the negative effects on water status	NEW MEASURE	Ministry of Environment & Energy (Special Secretariat for Water), Decentralized Administration (Water Directorate), Region
<b>M10B0905</b> Determination of selected areas for river sediment deposits removal to meet the needs of technical projects.	Measures to confront the negative effects on water status	Continuation of measure OM08-01	Municipalities, Region, Decentralized Administration (Water Directorate)
<b>M10B0906</b> Monitoring, recording και mitigation of coastal erosion	Measures to confront the negative effects on the surface water bodies status, especially effects due to hydromorphological alterations	NEW MEASURE	Ministry of Infrastructure and Transport/Prefecture/ Decentralized Administration (Water Directorate)
<b>M10B1101</b> Compilation of pollution sources register (emissions, discharges and leaks).	Measures for Priority Substances and other pollutants	Modification / Specialization of the measure OM06-04	Ministry of Environment & Energy (Special Secretariat for Water)
<b>M10B1102</b> Establishment / setting of emission limits for RBs for priority substances and other pollutants in the Joint Ministerial Decision 51354/2641/E103/2010 as in force, as well as for physicochemical (PSC) parameters in relation to the quality objectives set out in the Management Plans.	Measures for Priority Substances and other pollutants.	Modification / Specialization of the measure OM10-01	Decentralized Administration (Water Directorate), Ministry of Environment & Energy (Special Secretariat for Water)



### 9.1.3 Supplementary Measures

In RBD EL10 it was decided to propose additional measures for the following reasons:

(a) To maintain the “good” status of surface WBs or GWBs, as well as to increase knowledge and awareness on specific issues for the rational use of water by targeted users. In this case, the supplementary measures have a horizontal, general application and the affected water bodies are not identified.

(b) In the water bodies, which are estimated that despite the implementation of the basic measures program, they will not achieve the objective of “good” status by 2021, and in particular:

- in water systems which, according to measurements of the qualitative and quantitative parameters or the new methodological approach of their aggregation, are in a state of “Failing to achieve Good”,
- in water systems that are in “Unknown” or in “good” condition, but there is clear evidence, through the analysis of pressures, that they are at risk of not achieving their environmental objectives.

The measures of (b) case are taken into account for the calculation of environmental costs and/or resource costs, according to the provisions of Joint Ministerial Decision No 135275 of the National Water Committee (Government Gazette 1751/B/22-05-2017).

In the following table the supplementary measures for the RBD are presented.

Table 9-3: Supplementary Measures

CODE & NAME OF MEASURE	CATEGORY	RELATION WITH THE 1 <sup>st</sup> RBMP.	AFFECTED WB	IMPLEMENTATION COST (€)	IMPLEMENTING BODIES
<b>M10Σ0201</b> Development of the Monitoring System of the Measures Program of the RBMP of the River basic district and provision of support services for the implementation of the program of measures of the River basic district.	Administrative measures	New measure	All WBs	650.000€	Decentralized Administration (Water Directorate)
<b>M10Σ0202</b> Inspection and control of artesian drilling	Administrative measures	ΣM08-020	All SWBs	ADMINISTRATIVE MEASURE	Owner/ Decentralized Administration (Water Directorate)
<b>M10Σ0501</b> Inspections of the surface water bodies at the discharge point of the rain drain systems and other point sources of pollution	Emission control	New measure	All SWBs	200.000	Municipals / MEWSS / Region/ Decentralized Administration (Water Directorate), Ministry of Environment & Energy (Special Secretariat for Water)
<b>M10Σ0502</b> Implementation of investment in agriculture and livestock holdings, aiming on improving environmental performances.	Emission control	OM06-03	All WBs	600.000	Ministry of Rural Development and Food/ Region
<b>M10Σ0503</b> Sampling and Analysis, of the water quality in wider areas of Thessaloniki port of	Emission control	ΣM17-70	EL1005C0011 H	370.000	Thessaloniki Port Authority S.A./Prefecture
<b>M10Σ0504</b> Masterplan of the Gulf of Thessaloniki	Emission control	ΣM17-90	EL1005C0010 N, EL1005C0011 H	150.000	Decentralized Administration/ Prefecture
<b>M10Σ0505</b> Determination of terms of protection of the GWB system of Ormylia after the completion of the construction and operation of the Havria Dam	Emission control	ΣM08-10	EL1000100	ADMINISTRATIVE MEASURE	Decentralized Administration (Water Directorate)

CODE & NAME OF MEASURE	CATEGORY	RELATION WITH THE 1 <sup>st</sup> RBMP.	AFFECTED WB	IMPLEMENTATION COST (€)	IMPLEMENTING BODIES
<b>M10Σ0701</b> Set of measures from the approved Rehabilitation Plan of the National Park of Lakes Koroneia - Volvi and the Macedonian Tempi (Act 58481 / GG B 3159 / 27.11.2012) relevant to Directive 2000/60, that are likely to immediate implementation	<b>Restoration of wetland areas</b>	ΣΜ07-10	EL1005L00000 0004N, EL1000070	300.000*	Ministry of Agricultural Development and Food/ Decentralized Administration (Water Directorate)/Management body of Lakes Koronia-Volvi/ Prefecture/ Municipalities
<b>M10Σ0801</b> Designation and delineation of areas of GWBs exhibiting local salinization intrusion or with bad qualitative status due to salinization.	Abstractions Control	ΣΜ08-040	EL1000010 EL1000030 EL1000050 EL1000061 EL1000081 EL1000090 EL1000100 EL1000110 EL1000131 EL1000140 EL1000180 EL1000191 EL1000192 EL1000193 EL1000200 EL1000290 EL1000300	700.000	Decentralized Administration (Water Directorate) / Regions
<b>M10Σ1001</b> Studies on Reuse of treated wastewater in all existing tertiary treatment plants	Efficiency and reuse measures	ΣΜ16-10	Horizontal	40.000 (For every Wastewater Treatment Plan)	Κύριος έργου, Decentralized Administration (Water Directorate) Directorates of Rural Development
<b>M10Σ1501</b> Professional training of farmers for the protection of water bodies.	Educational Measures	ΣΜ15-40	All WBs	300.000	Special Management Service of the Rural Development Program of Ministry of Rural Development and Food, Region
<b>M10Σ1502</b> Educational actions to promote the rational	Educational measures	ΣΜ15-030	All WBs	150.000	Decentralized Administration (Water

CODE & NAME OF MEASURE	CATEGORY	RELATION WITH THE 1 <sup>st</sup> RBMP.	AFFECTED WB	IMPLEMENTATION COST (€)	IMPLEMENTING BODIES
management of water resources					Directorate), Region
<b>M10Σ1601</b> Pilot measures to apply precision agriculture to reduce water consumption.	Research, development & demonstration programmes	New measure	All WBs	500.000	Ministry of Rural Development and Food, Regions
<b>M10Σ1602</b> Consultancy services for agriculture exploitation management	Research, development & demonstration programmes	ΣΜ15-40	All WBs	800.000	Decentralized Administrations of the Ministry of Rural Development and Food
<b>M10Σ1603</b> Design and implementation of specific program exploratory monitoring with the aim of collecting data on the baseline identification of WB Downstream Dams as HMWB	Research, development & demonstration programmes	Νέο Μέτρο	HMWBs with no monitoring station	100.000	Ministry of Environment & Energy (Special Secretariat for Water), Decentralized Administration (Water Directorate)
<b>M10Σ1604</b> Special Hydrogeological – Hydrochemical Study for GWBs or part of them, that chemical elements with high values of natural background are presented (i.e. Fe, As, Mn, B, Mg, Cl etc.), in case the aforementioned parts of GWBs are related to water abstraction	Research, development & demonstration programmes	ΣΜ05-30	EL1000010 EL1000020 EL1000030 EL1000F40 EL1000050 EL1000060 EL1000070 EL1000081 EL1000083 EL1000130 EL1000140 EL1000150 EL1000170 EL1000190 EL100F230	1.500.000	Decentralized Administration (Water Directorate) / Prefecture/ Municipalities/ ΔΕΥΑ
<b>M10Σ1701</b> Special protection measures in GWBs areas where there are thermal waters.	<b>Other Measures</b>	ΣΜ05-040	EL1000030, EL1000070, EL1000080, EL1000150, EL1000160, EL1000190, EL100F230	Administrative	Decentralized Administration (Water Directorate)
<b>M10Σ1702</b> Special measures from the protection of GWBs with good quantitative status	<b>Other Measures</b>	New measure	Horizontal	Administrative	Decentralized Administration (Water Directorate)

*\* The cost of each measure related to the implementation of the actions of Directives 91/271/EEC and 91/276/EEC is essentially covered by the basic actions for implementation of these Directives described in the main measures in Chapter 9.1.1 and are not included in the cost given in this chapter.*

## 10 NEXT STEPS

### 10.1 DIFFICULTIES ENCOUNTERED IN THE PREPARATION OF THE 1<sup>ST</sup> UPDATE

During the process of drafting the 1<sup>st</sup> Update of the RBMP, the following issues and difficulties arose, regarding mainly the available data of the National Monitoring Network:

- The statutory National Monitoring Network, in some cases, presents particularities in the distribution of the monitoring stations for GWBs (i.e. thickening/thinning).
- Measurement deficiencies were observed in the data required for the chemical classification of the GWBs and no trend analysis was possible.
- Further investigation of the correlation between morphological modifications and classification results from the National Monitoring Network data in bodies identified as HMWB is required.
- The National Monitoring Network data in bodies identified as HMWB have in many cases resulted in a classification that is inconsistent with the theoretical underlying of the assessment (i.e. finding a systemic degradation of macroinvertebrates in conditions of good physicochemical status).
- There were no measurements of all biological quality elements in all National Monitoring Network stations in surface water bodies.
- Available measurements for priority substances were relatively limited.
- Fragmentation of technical and economic data obtained from the completed questionnaires by the water service providers.

### 10.2 NEXT STEPS – IMPLEMENTATION OF THE 1<sup>ST</sup> UPDATE OF THE RBMP

In order to achieve the objectives of the Management Plan, the Program of Basic and Supplementary Measures is required. For the optimal implementation of the Program, the Regional Working Group on the Implementation of the Programs of River Basin Management Plans, which was already established during the implementation of the 1<sup>st</sup> RBMP, is required to draw up an Action Plan. The main axes for structuring the Action Plan are as follows:

- Programs to monitor/investigate the quantitative and qualitative status of surface and groundwater bodies.
- Ensuring drinking water in sufficient quantity and satisfactory quality, according to the requirements of the relevant legislation.
- Water for agriculture.
- Protected Areas.
- Strengthening environmental inspections and controls.
- Other Measures under the proposed Program of Measures.

Further critical issues that determine the degree of implementation of the Program of Measures are as follows:

- Coordination of the bodies involved in the implementation of the Program and provision of channels of communication with other stakeholders.
- Assessing the results of the National Monitoring Network and adapting it where deemed appropriate.
- Transboundary cooperation at local and national level.

Finally, with a view to the effective implementation of the 1<sup>st</sup> Update of the RBMP, institutional interventions are also proposed concerning: (a) the jurisdiction of the Water Directorates so that they are not linked to the administrative boundaries of the Decentralized Administration but to the

boundaries of the Water Districts and (b) the administrative affiliation and supervision of the actions of the relevant Water Directorate per Water Residential Department by the Special Secretariat for Water/Ministry of Environment and Energy (enriching their responsibilities).





## 11 TRANSBOUNDARY COOPERATION

Axios River is mainly shared between Greece, FYROM, Bulgaria and Serbia. The total river basin area is 22.250 km<sup>2</sup>, of which 2.513 km<sup>2</sup> belong to Greece. Axios Catchment area is shown in the figure below.

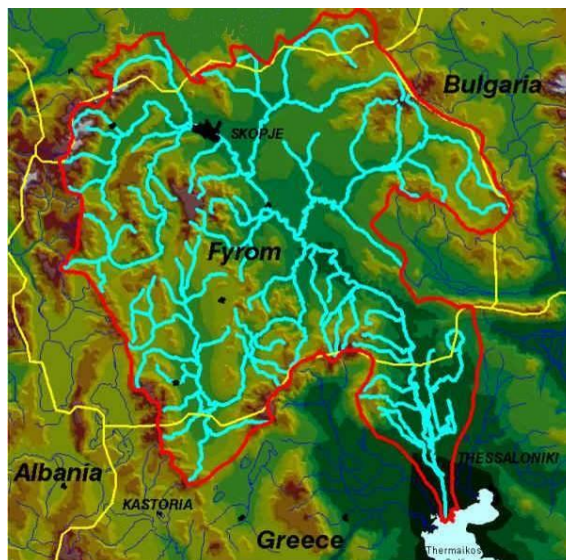


Figure 9: International river basin of Axios

Lake Doirani sub-basin is also part of Axios river basin. The lake surface is 39,9 km<sup>2</sup>, apx., of which 3/5 belong to FYROM and the rest 2/5 to Greece. The lake's hydrologic basin area is 276,3 km<sup>2</sup>, of which lay 84,5 km<sup>2</sup> within FYROM (31%) and 191,8 km<sup>2</sup> in Greece (69%).

In 1959 the first bilateral agreement concerning water issues has been signed between Greece and Yugoslavia. According to this agreement a permanent committee for Axios Doirani and Prespes has established. In 1995 an interim agreement between the Republic of Greece and the Former Yugoslav Republic of Macedonia has been signed. According to this agreement the bilateral agreement of 1959 is still valid.

The meetings of the committee that have been taken place until today are the following:

- On 7<sup>th</sup> June 2012 in Athens
- On 13<sup>th</sup> May 2013 in Thessaloniki
- On 26<sup>th</sup> June in Skopja
- On 28<sup>th</sup> December 2015 in Athens

## ABSTRACT STATISTICAL DATA FOR CENTRAL MACEDONIA (EL10)

In the following tables, the aggregated statistical data for the RBD of Central Macedonia (EL10) are presented.

Table 1: Classification of WB per RB in Central Macedonia (EL10)

WB	RB AXIOS (EL1003)	RB GALLIKOS (EL1004)	RB CHALKIDIKI (EL1005)	RB ATHOS (EL1043)	RBWD IN TOTAL
River WB	35	16	53	-	104
Lake WB	2	1	3	-	6
Transitional	1	-	2	-	3
Coastal	-	-	9	2	11
Total number of SWBs	38	17	67	2	124
GWBs	11	3	21	2	37
<b>Total number of WBs</b>	49	20	88	4	161
(HMWB/AWB	8	-	8	-	16
WBs related to protected areas	90	27	97	1	

Table 2: Categories of surface WB per RB in Central Macedonia (EL10)

SWB	RB AXIOS (EL1003)	RB GALLIKOS (EL1004)	RB CHALKIDIKI (EL1005)	RB ATHOS (EL1043)	RBWD IN TOTAL
<b>River WB</b>					
R-M1	13	5	24	-	42
R-M2	11	8	17	-	36
R-M3	1	2	4	-	7
R-M4	-	-	1	-	1
R-M5	-	1	7	-	8
R-L2	10	-	-	-	10
<b>Lake WB</b>					
GR-DNL	-	-	1	-	1
GR-SNL	1	-	-	-	1
GR-VSNL	-	-	1	-	1
GR-SP2	-	1	-	-	1
Not identified	1	-	1	-	2
<b>Transitional WB</b>					
TW 1	1	-	-	-	1
TW 2	-	-	2	-	2
<b>Coastal WB</b>					
IIE	-	-	9	2	11

Table 3: Evaluation of WB status per RB in Central Macedonia (EL10)

STATUS/POTENTIAL			Axios RB (EL1003)				Gallikos RB (EL1004)				Chalkidiki RB (EL1005)				Atho RB (EL1043)				Total			
			Number	% Number	Length (km)	% Length	Number	% Number	Length (km)	% Length	Number	% Number	Length (km)	% Length	Number	% Number	Length (km)	% Length	Number	% Number	Length (km)	% Length
<b>River WB</b>																						
Total River WBs	Ecological	High	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Good	19	44,2%	177,6	42,3%	5	31,3%	56,2	30,6%	26	49,0%	255,1	49,0%	-	-	-	-	50	48,1%	488,9	43,4%
		Moderate	12	38,4%	161,2	38,3%	7	43,8%	79,3	43,2%	24	45,3%	222,2	42,6%	-	-	-	-	43	41,3%	464,5	41,2%
		Poor	3	15,4%	62,0	14,7%	4	25,0%	48,0	26,2%	2	3,8%	25,8	4,9%	-	-	-	-	9	8,7%	135,7	12,0%
		Bad	1	2,0%	19,6	4,7%	-	-	-	-	1	1,9%	18,0	3,5%	-	-	-	-	2	1,9%	37,6	3,3%
		Unknown	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chemical	Good	29	82,9%	351,7	83,7%	14	87,5%	162,5	88,6%	47	88,7%	443,2	85,0%	-	-	-	-	90	86,5%	959,2	85,1%
		Failling to achieve good	1	2,9%	19,6	4,7%	-	-	-	-	-	-	-	-	-	-	-	-	1	1,0%	19,6	1,7%
		Unknown	5	14,3%	42,3	11,7%	2	12,5%	21,0	11,4%	6	11,3%	77,9	15,0%	-	-	-	-	13	12,5%	147,9	13,1%

STATUS/POTENTIAL			Axios RB (EL1003)				Gallikos RB (EL1004)				Chalkidiki RB (EL1005)				Atho RB (EL1043)				Total			
			Number	% Number	Area (km <sup>2</sup> )	% Area	Number	% Number	Area (km <sup>2</sup> )	% Area	Number	% Number	Area (km <sup>2</sup> )	% Area	Number	% Number	Area (km <sup>2</sup> )	% Area	Number	% Number	Area (km <sup>2</sup> )	% Area
<b>Lake WB</b>																						
Total Lake WBs	Ecological	High	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Good	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Moderate	1	0,5%	14,2	91,0%	-	-	-	-	1	33,3%	72,1	59,4%	-	-	-	-	2	33,3%	86,3	48,1%
		Poor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0,0%	0,0	0,0%
		Bad	-	-	-	-	-	-	-	-	1	33,3%	48,2	39,7%	-	-	-	-	1	16,7%	48,2	26,9%
		Unknown	1	0,5%	1,4	9,0%	1	100,0%	42,7	100,0%	1	33,3%	0,9	90,0%	-	-	-	-	3	50,0%	45,0	25,1%
	Chemical	Good	1	50,0%	14,2	91,0%	1	100,0%	42,7	100,0%	2	66,7%	120,3	99,1%	-	-	-	-	4	66,7%	177,2	98,6%
		Failling to achieve good	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0,0%	0,0	0,0%
		Unknown	1	50,0%	1,4	9,0%	-	-	-	-	1	33,3%	1,1	0,9%	-	-	-	-	2	33,3%	2,5	1,4%

STATUS/POTENTIAL			Axios RB (EL1003)				Gallikos RB (EL1004)				Chalkidiki RB (EL1005)				Atho RB (EL1043)				Total			
			Number	% Number	Area (km²)	% Area	Number	% Number	Area (km²)	% Area	Number	% Number	Area (km²)	% Area	Number	% Number	Area (km²)	% Area	Number	% Number	Area (km²)	% Area
Transitional WB																						
Total Transitional WBs	Ecological	High	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Good	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Moderate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Poor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Bad	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chemical	Unknown	1	100,0%	67,6	100,0%					2	100,0%	2,7	100,0%					3	100,0%	70,4	100,0%
		Good	1	100,0%	67,6	100,0%	-	-	-	-	-	-	-	-	-	-	-	-	1	33,3%	67,6	96,1%
		Failling to achieve good	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Unknown	-	-	-	-	-	-	-	-	2	100,0%	2,7	100,0%	-	-	-	-	2	66,7%	2,7	3,9%
Coastal WB																						
Total Coastal WBs	Ecological	High	-	-	-	-	-	-	-	-	2	22,2%	84,6	2,9%	1	50,0%	159,9	46,8%	3	27,3%	244,5	7,4%
		Good	-	-	-	-	-	-	-	-	4	44,5%	1703,4	57,7%					4	36,4%	1703,4	51,7%
		Moderate	-	-	-	-	-	-	-	-	3	33,3%	1165,5	49,0%	1	50,0%	181,6	53,2%	4	36,4%	1347,1	40,9%
		Poor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Bad	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chemical	Unknown	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Good	-	-	-	-	-	-	-	-	9	100,0%	2953,5	100,0%	2	100,0%	341,5	100,0%	11	100,0%	3295.1	100,0%
		Failling to achieve good	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Unknown	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

STATUS			Axios RB (EL1003)				Gallikos RB (EL1004)				Chalkidiki RB (EL1005)				Atho RB (EL1043)				Total			
			Number	% Number	Area (km <sup>2</sup> )	% Area	Number	% Number	Area (km <sup>2</sup> )	% Area	Number	% Number	Area (km <sup>2</sup> )	% Area	Number	% Number	Area (km <sup>2</sup> )	% Area	Number	% Number	Area (km <sup>2</sup> )	% Area
Groundwater WB																						
Total GWB	Qualitative	Good	10	90,9	1715,74	56,14	3	100	573,98	100	16	76.19	5263,9	84,91	2	100	368,84	100	31	83,78	7922,46	77,68
		Bad	1	9,09	1340,45	43,86	0	0	0	0	5	23.81	935,37	15,09	0	0	0	0	6	16,22	2275,82	22,32
	Quantitative	Good	9	81,81	1615,2	52,85	2	66,66	42,24	7,36	16	23.81	4443,07	71,67	2	100	368,84	100	29	78,39	6469,35	63,43
		Bad	2	18,18	1440,99	47,15	1	33,33	531,74	92,64	5	76.19	1756,2	28,33	0	0	0	0	8	21,62	3728,93	36,57





