SPECIAL SECRETARIAT FOR WATER

MINISTRY OF ENVIRONMENT & ENERGY

1st Update of River Basin Management Plans

River Basin District of

Epirus (EL05)

Summary

European Union
European Regional Development Fund

Co-funded by Greece and the European Union

NSRF 2014-2020
programme for development

HELLENIC DEMOCRACY

MINISTRY OF ENVIRONMENT & ENERGY

SPECIAL SECRETARIAT FOR WATER

DEVELOPMENT OF 1st 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 M2 "RIVER BASIN DISTRICT OF WESTERN STEREA ELLADA (EL04), RIVER BASIN DISTRICT OF EPIRUS (EL05), RIVER BASIN DISTRICT OF THESSALIA (EL08)"

JOINT VENTURE: "1st UPDATE OF RIVER BASIN MANAGEMENT PLANS WESTERN STEREA ELLADA (EL04), EPIRUS (EL05), THESSALIA (EL08)"

- G. KARAVOKYRIS & PARTNERS CONSULTANT ENGINEERS S.A
- VASSILIS PERLEROS
- ENVECO S.A.
- EPEM S.A.
- OMIKRON S.A.
- EMVIS S.A.
- CONSTANTINOS OIKONOMOU

RIVER BASIN DISTRICT OF EPIRUS (EL 05)

Summary of 1st Update of River Basin Management Plans – English (Deliverable 22a Study M2)

Date of last revision: 03*/04/2018*

Government Gazette approving the 1st edition of RBMP: B 4681/29.12.2017

1st UPDATE OF RIVER BASIN MANAGEMENT PLANS

RIVER BASIN DISTRICT OF EPIRUS (EL05)

Summary

CONTENTS

INDEX OF TABLES

INDEX OF FIGURES

INDEX OF MAPS

Abbreviations

Abbreviation	Interpretation
AR	At Risk
AWB	Artificial Water Body/bodies
EQR	Ecological Quality Ratio
GD	Guidance Document
GIG	Geographical Intercalibration Group (
GOLR	General Organization of Land Reclamation
GWB	Groundwater Body/bodies
HMWB	Heavily Modified Water Body/ bodies
LOLR	Local Organization of Land Reclamation
MEWSS	Municipal Enterprise for Water Supply and Sewerage
NR	Not at Risk
NWMN	National Water Monitoring Network
PAR	Probably At Risk
PNR	Probably Not at Risk
RB	River Basin
RBD	River Basin District
RBMP	River Basin Management Plan
SCI	Site of Community Importance
SPA	Special Protection Area
SWB	Surface Water Body/bodies
WB	Water body/bodies
WFD	Water Framework Directive
WISE	Water Information System of Europe

1 INTRODUCTION – 1st UPDATE OF RIVER BASIN MANAGEMENT PLANS

1.1 INTRODUCTION

By decision 1005/2013 (Government Gazette 2292 B' 13-09-2013) of the National Water Committee the 1st River Basin Management Plan of the River Basin District examined was approved.

The 1st Update has major changes and improvements from the 1st Management Plan:

- It is based on the use of data from the National Water Monitoring Network (NWMN), for the 2012-2015 period
- It 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 a program of measures has being accomplished
- It 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 with the Directive 2008/56/EC and has achieved synergy of actions and of program of measures
- It 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
- It takes into account the results of actions that have been implemented so far in the context of increasing knowledge of water status and the pressures they receive, as well as the actions implemented to fill in the gaps identified in the 1st Management Plan
- It takes into account the new requirements arising from the EU Directive 2000/60/EC Guidance Documents.
- It takes 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
- It takes into account the new analytical methodologies for critical aspects of the implementation of Directive 2000/60 EC, as presented below.

All detailed methodologies are available on the relevant website of the Special Secretariat for Water http://wfdver.ypeka.gr.

The 1st Update is being carried out simultaneously for the 14 River Basin Districts of the country and homogeneity has been achieved in the individual methodologies but also in the proposed programs of measures (basic and supplementary).

1.2 CONSULTATION PROCESS

The consultation process on the 1st Update of River Basin Management Plans lasted from November 2015 to December 2017 and included the following:

• **1st Phase**: In November 2015, the content of the foreseen activities for the 1st Update of the RBMP was posted on the website of the Ministry of Environment and Energy timetable tender documents for the site of the RBMP (www.ypeka.gr) as well as the detailed timetable of the consultation process.

• **2nd Phase**: In June 2016, data on the important issues of water resources management in each RBD were posted on the same website, containing briefly the results of the National Water Monitoring Network for the RBD, the main pressures, the identification of the competent authorities and stakeholders involved in the consultation. Also, in December 2016, the basic common methodologies for the designation and classification of water bodies status, assessment of pressures and impacts including hydromorphological pressures, the definition of Highly Modified Water Bodies and the

identification of the exemptions of Article 4 of Directive 2000/60 / EC, were posted on the same website.

• **3rd Phase**: In June 2017 a draft of the 1st Update of RBMP was posted on a special website of the Special Secretariat (http://wfdver.ypeka.gr), as well as a questionnaire. This phase included the publication of the Strategic Environmental Impact Study.

The consultation was completed in December 2017.

2 DIFFERENTIATIONS IN COMPARISON WITH THE 1st RBMP

2.1 NEW ANALYTICAL METHODOLOGIES FOR CRITICAL ASPECTS OF THE IMPLEMENTATION OF DIRECTIVE 2000/60/EC

For the 1st Update of RBMP of the country, new analytical methodologies were developed for critical aspects of the implementation of Directive 2000/60/EC. All the analytical methodologies are available on the website of the Special Secretariat for Water http://wfdver.ypeka.gr/:

- 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 "exceptions" to the achievement of the environmental objectives of Directive 2000/60/EC:
    - Identification of the "exceptions" of paragraphs 4 to 6 of Article 4 of Directive 2000/60 / EC (4.4 - 4.6)
    - Identification of the "exceptions" of paragraph 7 of Article 4 of Directive 2000/60 / EC (4.7) on new modifications
- Assessment (designation classification) of surface water bodies status:
    - Assessment of the ecological and chemical status of river water bodies
    - Assessment of ecological and chemical status of lake water bodies
    - Assessment of the ecological and chemical status of coastal and transitional water bodies
- Assessment methodologies for individual BQEs for each surface water category that has been approved by the EU in the context of the intercalibration exercise at European level. 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 assessing the biological quality elements in coastal and transitional waters.

2.2 MAIN DIFFERENTIATIONS IN COMPARISON WITH THE 1st RBMP

Table 2-1. Main differentiations in comparison with the 1st RBMP

Content of 1st Update of RBMP/ Activity	**Differentiation in comparison with the 1st RBMP**
COMPETENT AUTHORITIES	The competent authorities are not differentiated in comparison with the 1st RBMP. In the Update, the inventory of the competent authorities and stakeholders involved in the Water Management, as it derives from the existing institutional framework, is rationalized and it is presented in accordance with the requirements of the new EU Guidance Document (GD Reporting 2016).
DESIGNATION OF SURFACE WATER BODIES - TYPOLOGY	In the Update, new typology was developed for river and lake WB. Furthermore, the reservoirs are reported as River Heavily Modified WB but their assessment is done with elements and tools designated for lakes, as lakes is the category of natural WB they resemble the most. In accordance with the above the number of WB is revised. It is noted that during the Update, the prefix of the WB codes were reformulated from GR to EL, in order to be compatible with the EE databases.
DESIGNATION OF GROUNDWATER BODIES	The number of GWB is revised based of the results of the NWMN or/and special studies completed from the publication of the 1st RBMP till today. It is noted that during the Update, the prefix of the WB codes were reformulated from GR to EL, in order to be compatible with the EE databases.
HEAVILY MODIFIED WATER BODIES (HMWB) AND ARTIFICIAL WATER BODIES (AWB)	The HMWB that were defined under the 1st RBMP are re-examined based on the new methodology and the data from the NWMN.
PROTECTED AREAS	The Registry of Protected Areas of the 1st RBMP is revised based on: The new Natura 2000 areas proposed by the Ministry of Environment and Energy according with the provisions of the Bird (2009/147/EC) and Habitat (92/43/EEC) Directives. The monitoring results from the Bathing Waters and the provisions of the Bathing Waters Directive (2006/7/EC) Other directives on water protection with more strict objectives as the Drinking Water Directive (80/778/EEC, as revised by the Directive 98/83/EC)), the Shellfish Directive (2006/113/EC), freshwater fish Directive (2006/44/EC), Nitrates Directive (91/676/EEC), Urban Waste Water Treatment Directive (91/271/EEC) etc New data that came up after the publication of the 1st RBMP and the relevant EE Guidance Documents. Furthermore it is noted that in the framework of the Update the CORINE protected areas and Landscapes of Special Natural Beauty were not included in the Registry of Protected Areas.
PRESSURES AND IMPACTS	The analysis of pressures and impacts in the Update is done according to the new national methodology and data produced after the approval of the 1st RBMP. The main differentiation is the new analytical method of assessment of hydromorphological pressures.
CLASSIFICATION OF THE STATUS OF SURFACE WATER BODIES	In the framework of the Update the classification of status of SWB in done according to the new national methodologies approved by the EU and based on the results of the NWMN. For the WB where no monitoring data is available, the classification of status was done by grouping based on their type and the analysis of pressures.
CLASSIFICATION OF THE STATUS OF GROUNDWATER BODIES	The classification of status of the GWB is not different from the 1st RBMP. The classification is based on the new data from the NWMN.

Content of 1st Update of RBMP/ Activity	**Differentiation in comparison with the 1st RBMP**
NATIONAL WATER MONITORING NETWORK	The Update takes in consideration the results of the NWMN of the status of the national WB with important number of sampling for the period 2112-2015 for BQE, Physicochemical and chemical indicators and hydromorphological quality elements. It also includes monitoring of the chemical and quantitative status of the GWB.
ECONOMIC ANALYSIS OF WATER USE	For the economical analysis of water uses, the provisions of the new Joint Ministerial Decision 135275/22.05.17 on water pricing are taken in consideration.
ENVIRONMENTAL OBJECTIVES – EXEMPTIONS	In the framework of the Update, the environmental objectives and exemptions are set according to the new national methodologies, developed according the EU guidance.
PROGRAMME OF MEASURES	The PoM of the 1st Update is differentiated from the 1st RBMP, following the new methodologies: Continuation/improvement of 1st RBMP measures New measures for the achievement of the environmental objectives set Correlation of measures with significant pressures Correlation of measures with Basic Measure Types and implementation indicators set by the EU Synergies of PoM with the National Strategy on Climate Change Adaptation.

3 EPIRUS RIVER BASIN DISTRICT

3.1 RIVER BASINS

Epirus River Basin District (EL05) is one of the fourteen water districts, which the country was divided by law 1739/1987 (Government Gazette 201/A/1987).

Epirus River Basin District covers an area of 10.026 km^2, of which 641 km^2 belong to Corfu. The hydrate of the RBD is set east of the Koprainis bay of the Amvrakikos Gulf, and continues in the mountains of Valtos, Athamaniko, the mountain range of Pindos, Voios and Grammos. Then the Greek-Albanian borders define the boundaries of the RBD.

Map 1. River Basins of River Basin District of Epirus (EL05)

River basins (RB) in the Epirus RBD, that are shown in the above map, are presented in more detail in the table below.

Table 3-1. River Basins of River Basin District of Epirus (EL05)

Code	River Basin	Area (km²)
EL0511	RB Aoos	2361
EL0512	RB Kalamas	2523
EL0513	RB Acherontas	1292
EL0514	RB Arachthos	2209
EL0534	RB Kerkyra-paxoi	631
EL0546	RB Louros	963

3.2 COMPETENT AUTHORITIES

Law 3199/2003 (Government Gazette A' 280) on the Protection and Management of Water Bodies harmonises the National Law with the provisions of the Directive 2000/60/EC and defines the competent authorities for the protection and management of Water Bodies.

Designated competent authorities at national level:

- The **National Water Committee**
- The **National Water Council**
- The **Special Secretariat for Water**

Table 3-2. National competent authority ID

Official Name	**Special Secretariat for Water**
Acronym	S.S.W.
Contact Information	
Address	Amaliados 17
Postal Code	11523
City	Athens
Country	Greece
Web-page	http://www.ypeka.gr/ http://wfdver.ypeka.gr/
Contact	tel: 210 6475102, 213 1515410-1 e-mail: info.egy@prv.ypeka.gr

Designated competent authorities at Decentralised Administration level:

- **Decentralised Administration Water Council**
- **Water Directorates of the Decentralised Administration**

Table 3-3. Decentralised Administration competent authority ID (Water Directorate of Epirus)

Official Name	**Decentralised Administration of Epirus - Western Makedonia / Water Directorate of Epirus**
Acronym	W.D.E
Contact Information	
Address	5 km National Road of Ioannina - Kozani
Postal Code	45000
City	Ioannina
Country	Greece
Web-page	http://www.apdhp-dm.gov.gr
Contact	Tel: 2651 0 90240 e-mail: mouliaav@apdhp-dm.gov.gr

Table 3-4. Decentralised Administration competent authority ID (Water Directorate of Ionion)

Official Name	**Decentralised Administration of Peloponnese, Western Greece and Ionian Islands /Water Directorate of ionion**
Acronym	W.D.I
Contact Information	
Address	Alikes Potamou
Postal Code	49100
City	Corfu
Country	Greece
Web-page	http://www.apd-depin.gov.gr
Contact	Tel: 2661 361639 e-mail: lagadas@1745.syzefxis.gov.gr

The following table gives a snapshot of the role played by each competent authority on every water management and protection thematic.

Table 3-5. Main competences for every water protection and management thematic

Competent Authority	**Role**												
	Pressure and impact analysis	**Economic analysis**	**Monitoring of surface water**	**Monitoring of groundwater**	**Assessment of status of surface water**	**Assessment of status of groundwater**	**Preparation of RBMP**	**Preparation of PoM**	**Implementation of measures**	**Public participation**	**Enforcement of regulations**	**Co-ordination of implementation**	**Reporting to the European Commission**
Special Secretariat for Water of the Hellenic Ministry of Environment & Energy	M	M	M	M	M	M	M	M	M	M	M	M	M
Water Directorate of the Decentralised Administration	O	O	-	-	-	-	O	O	M	M	M	M	-
Hellenic Ministry of Foreign Affairs	-	-	-	-	-	-	-	-	O	-	M	-	-
Hellenic Ministry of Rural Development and Food	-	-	-	-	-	-	-	-	M	-	O	-	-
Hellenic Ministry of Infrastructure and Transport	-	-	-	-	-	-	-	-	M	-	O	-	-
Hellenic Ministry of Economy and Development	-	-	-	-	-	-	-	-	M	-	O	-	-
Hellenic Ministry of Health	-	-	-	-	-	-	-	-	M	-	O	-	-
Hellenic Ministry of Shipping and Island Policy	-	-	-	-	-	-	-	-	M	-	O	-	-
Hellenic Ministry of Interior	-	-	-	-	-	-	-	-	M	-	O	-	-
Municipalities	-	-	-	-	-	-	-	-	M	O	-	-	-
Regions	-	-	-	-	-	-	-	-	M	O	O	-	-
M: Main role, O: Other role, -: No role													

4 DESIGNATION AND CLASSIFICATION OF WATER BODIES

4.1 SURFACE WATER BODIES (SWB)

According to the 1st Update of RBMP in the River Basin District of Epirus (EL05) are identified **106 surface water bodies,** that are presented to the following table by category.

Table 4-1. Number of surface water bodies of Epirus RBD (EL05) for each RB

Type of WB	RB						Total RBD
	Aoos (EL0511)	Kalamas (EL0512)	Acherontos (EL0513)	Arachthos (EL0514)	Kerkyras – Paxon (EL0534)	Louros (EL0546)	
River WB	22	19	6	26	3	6	82
Reservoirs	1	-	-	2	-	-	3
Lake WB	-	1	-	-	-	-	1
Transitional WB	-	1	1	1	3	1	7
Coastal WB	-	3	4	-	6	-	13
Total	**23**	**24**	**11**	**29**	**12**	**7**	**106**

All the surface water bodies are presented in the following tables.

Table 4-2. River WBs and the new typology, according to the European Decision 2013/480/EC and the MED GIG RB

No	WB NAME	WB CODE	HMWB/ AWB*	Length (km)	Immediate Catchment Area (km^2)	Upstream Catchment area (km^2)	Mean Annual Flow (hm^3)	WB Type
Aoos RB (EL0511)								
1	DRINOS P.	EL0511R0A0101022N	NAT	28	236,98	236,99	275,38	R-M4
2	AOOS P. 2	EL0511R0A0200013N	NAT	23,1	178,46	670,10	649,04	R-M2
3	AOOS P. 3	EL0511R0A0200016N	NAT	13	62,25	408,87	403,89	R-M2
4	AOOS P. 4	EL0511R0A0200018N	NAT	11,8	80,55	236,09	241,74	R-M2
5	AOOS P. 5	EL0511R0A0200020N	NAT	10,1	27,78	113,30	126,51	R-M2
6	AOOS P. 6	EL0511R0A0200021N	NAT	4	30,05	30,05	35,50	R-M1
7	AOOS P. 1	EL0511R0A0201001N	NAT	22,4	156,55	1.217,77	1150,28	R-M3
8	SARANTAPOROS P. 1	EL0511R0A0202002N	NAT	42,8	275,66	886,62	701,31	R-M2
9	SARANTAPOROS P. 2	EL0511R0A0202007N	NAT	3,4	29,87	346,23	273,87	R-M2
10	SARANTAPOROS P. 3	EL0511R0A0202008N	NAT	46,2	316,35	316,35	250,23	R-M2
11	SARANTAPOROS P. - PARAPOTAMOS AMARANTOU R.	EL0511R0A0202103N	NAT	7,1	39,28	39,23	31,03	R-M1
12	VOURKOPOTAMOS P.	EL0511R0A0202204N	NAT	7,7	102,13	102,13	80,78	R-M2

No	WB NAME	WB CODE	HMWB/ AWB*	Length (km)	Immediate Catchment Area (km^2)	Upstream Catchment area (km^2)	Mean Annual Flow (hm^3)	WB Type
13	VOURMPIANITIKO R.	EL0511R0A0202305N	NAT	10,5	103,98	103,89	82,18	R-M2
14	PISTILIAPI R.	EL0511R0A0202406N	NAT	9,1	54,68	54,68	43,25	R-M1
15	VOIDOMATIS P. 1	EL0511R0A0204009N	NAT	7,1	24,82	391,11	409,80	R-M2
16	VOIDOMATIS P. 2	EL0511R0A0204010N	NAT	8,1	67,84	366,28	383,78	R-M2
17	VOIDOMATIS P. 3	EL0511R0A0204011N	NAT	11,5	79,46	298,44	312,69	R-M2
18	VOIDOMATIS P. 4	EL0511R0A0204012N	NAT	21,9	218,96	218,97	229,43	R-M2
19	AOOS P. - PARAPOTAMOS RASENITIS 1	EL0511R0A0206014N	NAT	3,5	13,81	82,76	77,67	R-M1
20	AOOS P. - PARAPOTAMOS RASENITIS 2	EL0511R0A0206015N	NAT	4,4	68,94	68,94	64,70	R-M1
21	GIOTSAS R.	EL0511R0A0208017N	NAT	11,2	110,53	110,53	103,73	R-M2
22	AOOS P. - PARAPOTAMOS ARKOUDAS	EL0511R0A0210019N	NAT	7,7	43,18	42,24	39,64	R-M1
Kalamas RB (EL0512)								
23	THYAMIS P. KALAMAS 2	EL0512R000200024N	NAT	12,8	28,04	4.438,22	14,45	R-M3
24	THYAMIS P. KALAMAS 3	EL0512R000200027N	NAT	3,6	3,45	2192,14	1432,15	R-M3
25	THYAMIS P. KALAMAS 4	EL0512R000200029N	NAT	25,9	116,83	2.141,61	1397,28	R-M3
26	THYAMIS P. KALAMAS 5	EL0512R000200032N	NAT	15,8	99,27	1.860,99	1250,01	R-M3
27	THYAMIS P. KALAMAS 6	EL0512R000200033N	NAT	9,1	32,76	1.761,71	1185,07	R-M3
28	THYAMIS P. KALAMAS 7	EL0512R000200034N	NAT	21,9	192,6	1.728,95	1163,64	R-M3
29	THYAMIS P. KALAMAS 8	EL0512R000200040N	NAT	17	86,51	455,99	307,00	R-M4
30	THYAMIS P. KALAMAS 9	EL0512R000200041N	NAT	28,2	369,47	369,47	251,49	R-M4
31	THYAMIS P. KALAMAS 1	EL0512R000201023N	NAT	5	0,66	4.438,91	14,81	R-M3
32	TECHNITO TMIMA EKVOLIS KALAMA 2	EL0512R000202025A	AWB	3,1	25,64	2.218,03	1445,36	R-M3
33	TECHNITO TMIMA EKVOLIS KALAMA 1	EL0512R000202026A	AWB	2,9	0,25	0,25	1445,50	R-M1

No	WB NAME	WB CODE	HMWB/ AWB*	Length (km)	Immediate Catchment Area (km^2)	Upstream Catchment area (km^2)	Mean Annual Flow (hm^3)	WB Type
34	THYAMIS P. KALAMAS - PARAPOTAMOS ASPRO R.	EL0512R000204028N	NAT	7,7	49,78	47,08	33,09	R-M1
35	THYAMIS P. KALAMAS - PARAPOTAMOS KALPAKIOTIKOS 1	EL0512R000206030N	NAT	8	21,97	163,79	122,81	R-M2
36	THYAMIS P. KALAMAS - PARAPOTAMOS KALPAKIOTIKOS 2	EL0512R000206031N	NAT	12,9	141,81	141,81	106,33	R-M2
37	THYAMIS P. KALAMAS - PARAPOTAMOS LAGKAVITSA R.	EL0512R000208035N	NAT	20,4	155	155,02	101,41	R-M2
38	TYRIA P.	EL0512R000210036N	NAT	38,8	263,55	263,56	172,40	R-M2
39	SMOLITSAS P.	EL0512R000212037N	NAT	27	171,37	661,78	112,10	R-M4
40	KLIMATIAS R.	EL0512R000212138H	HMWB	6,2	34,41	34,41	344,73	R-M4
41	TAFROS LAPSISTA	EL0512R000212139A	AWB	19,3	202,82	202,82	322,21	R-M4
Acherontos RB (EL0513)								
42	ARETHOUA R.	EL0513R000101042N	NAT	14,9	119,48	119,49	53,39	R-M4
43	ACHERON P. (MAVROPOTAMOS) 2	EL0513R000200045N	NAT	18,1	61,6	652,53	362,11	R-M4
44	ACHERON P. (MAVROPOTAMOS) 3	EL0513R000200046N	NAT	12,8	111,23	332,15	316,02	R-M2
45	ACHERON P. (MAVROPOTAMOS) 4	EL0513R000200047N	NAT	29,9	221,35	221,35	210,08	R-M2
46	ACHERON P. (MAVROPOTAMOS) 1	EL0513R000201043N	NAT	6	52,07	704,61	636,00	R-M4
47	ACHERON P. (MAVROPOTAMOS) - PARAPOTAMOS KOKTOS (VOUVOS)	EL0513R000202044N	NAT	24,2	258,77	258,78	234,93	R-M4
Arachthos RB (EL0514)								
48	DIPOTAMON R.	EL0514R000100048N	NAT	20,3	124,97	194,81	149,92	R-M2
49	MANTANI R.	EL0514R000102049N	NAT	15,3	69,84	69,85	53,75	R-M1
50	ARACHTHOS P. 2	EL0514R000200051N	NAT	6	41,56	2.077,56	1509,51	R-M3

No	WB NAME	WB CODE	HMWB/ AWB*	Length (km)	Immediate Catchment Area (km^2)	Upstream Catchment area (km^2)	Mean Annual Flow (hm^3)	WB Type
51	ARACHTHOS P. 3	EL0514R000200054N	NAT	10,7	91,82	1.411,29	1064,56	R-M3
52	ARACHTHOS P. 4	EL0514R000200055N	NAT	9,2	141,59	1.319,46	968,85	R-M3
53	ARACHTHOS P. 5	EL0514R000200056N	NAT	9,6	62,23	1.177,87	833,12	R-M3
54	ARACHTHOS P. 6	EL0514R000200063N	NAT	11,6	53,43	893,89	507,01	R-M2
55	ARACHTHOS P. 7	EL0514R000200064N	NAT	2,8	34,98	618,71	457,25	R-M2
56	ARACHTHOS P. 8	EL0514R000200065N	NAT	8,3	39,91	583,72	430,37	R-M2
57	ZAGORITIKOS P.	EL0514R000200072N	NAT	23,6	87,56	132,50	101,83	R-M2
58	ARACHTHOS P. 1	EL0514R000201050N	NAT	17,8	45,13	2.122,70	1536,49	R-M3
59	RETSANORREMA	EL0514R000202052N	NAT	24,3	316,76	316,77	209,13	R-M2
60	ARACHTHOS P. 9	EL0514R000203068N	NAT	12,4	54,82	329,28	253,06	R-M2
61	SARANTAPOROS P.	EL0514R000204053N	NAT	15,1	124,05	124,06	81,90	R-M2
62	KALARRITIKOS P. 1	EL0514R000206057N	NAT	5,1	19,55	221,74	259,15	R-M2
63	KALARRITIKOS P. 2	EL0514R000206058N	NAT	5,3	40,95	202,19	236,30	R-M2
64	KALARRITIKOS P. 3	EL0514R000206060N	NAT	2,6	4,14	161,24	121,18	R-M2
65	KALARRITIKOS P. 4	EL0514R000206061N	NAT	3	27,73	99,54	116,33	R-M1
66	KALARRITIKOS P. 5	EL0514R000206062N	NAT	8,8	71,81	71,81	83,92	R-M1
67	KALARRITIKOS P. - PARAPOTAMOS MELISSOURGIOTIKOS	EL0514R000206159N	NAT	5,7	57,55	57,55	67,26	R-M1
68	METSOVITIKOS P.1	EL0514R000208066H	HMWB	13,4	93,48	214,53	146,63	R-M2
69	METSOVITIKOS P.2	EL0514R000208067N	NAT	20,3	121,04	121,05	82,74	R-M2
70	ARACHTHOS P. 10	EL0514R000210069N	NAT	15	62,56	141,94	109,09	R-M2
71	ARACHTHOS P. 11	EL0514R000210071N	NAT	6	59,73	59,73	45,91	R-M1
72	SOURIKA R.	EL0514R000210170N	NAT	5,1	19,64	19,64	15,10	R-M1
73	MEGAS LAKKOS R.	EL0514R000212073N	NAT	16,3	44,94	44,94	34,54	R-M1
Kerkyras – Paxon RB (EL0534)								
74	POTAMI	EL0534R000101074N	NAT	2,2	15,62	15,62	8,47	R-M1
75	MESANGIS R.	EL0534R000301075N	NAT	7,5	39,83	39,84	21,77	R-M4
76	FONISAS P.	EL0534R000501076N	NAT	6,9	65,93	65,94	71,61	R-M1
Louros RB (EL0546)								
77	LOUROS P. 2	EL0546R000200078N	NAT	17,4	40,5	470,57	487,32	R-M4
78	LOUROS P. 3	EL0546R000200080N	NAT	1,7	5,36	350,79	376,69	R-M4
79	LOUROS P. 4	EL0546R000200081N	NAT	17,4	123,13	345,42	370,92	R-M4

No	WB NAME	WB CODE	HMWB/ AWB*	Length (km)	Immediate Catchment Area (km²)	Upstream Catchment area (km²)	Mean Annual Flow (hm³)	WB Type
80	LOUROS P. 5	EL0546R000200082N	NAT	15,1	222,27	222,28	238,69	R-M4
81	LOUROS P. 1	EL0546R000201077N	NAT	18,7	331,61	802,69	771,27	R-M4
82	LOUROS P. - PARAPOTAMOS	EL0546R000202079N	NAT	13,3	79,28	79,28	73,96	R-M4
* ***NAT**: Natural WB, **HMWB**: Heavily Modified WB, **AWB**: Artificial WB*								

Table 4-3. Lake WBs according to the new methodology per RB

No	WB Name	WB Code	HMWB / AWB*	Surface (km²)	Perimeter (km)	WB Type
Kalamas RB (EL0512)						
1	LIMNI PAMVOTIDA	EL0512L000000004H	HMWB	19,24	25,65	GR-SNL
* ***NAT**: Natural WB, **HMWB**: Heavily Modified WB, **AWB**: Artificial WB*						

Table 4-4. Reservoirs WB according to the new methodology per RB

No	WB Name	WB Code	HMWB / AWB*	Surface (km²)	Perimeter (km)	Immediate Catchment Area (km²)	Upstream Catchment area (km²)	Mean Annual Flow (hm³)	WB Type
Aoos RB (EL0511)									
1	TECHNITI LIMNI PIGON AOOU	EL0511RLA0200001H	HMWB	8,21	39,85	55,46	85,51	100,43	L-M5/7
Arachthos RB (EL0514)									
2	TECHNITI LIMNI POURNARIOU	EL0514RL00200003H	HMWB	22,02	72,09	178,45	1.814,00	1.479,51	L-M5/7
3	TECHNITI LIMNI POURNARIOU II	EL0514RL00200002H	HMWB	0,69	6,9	5,45	1.718,00	1.482,77	GR-SR
***NAT**: Natural WB, **HMWB**: Heavily Modified WB, **AWB**: Artificial WB*									

Table 4-5. Transitional WB per RB

No	WB Name	WB Code	HMWB / AWB*	Surface (km²)	Perimeter (km)	WB Type
Kalamas RB (EL0512)						
1	EKVOLES KALAMA	EL0512T0001N	NAT	17,17	35,89	TW-2 (Estuaries)
Acherontos RB (EL0513)						

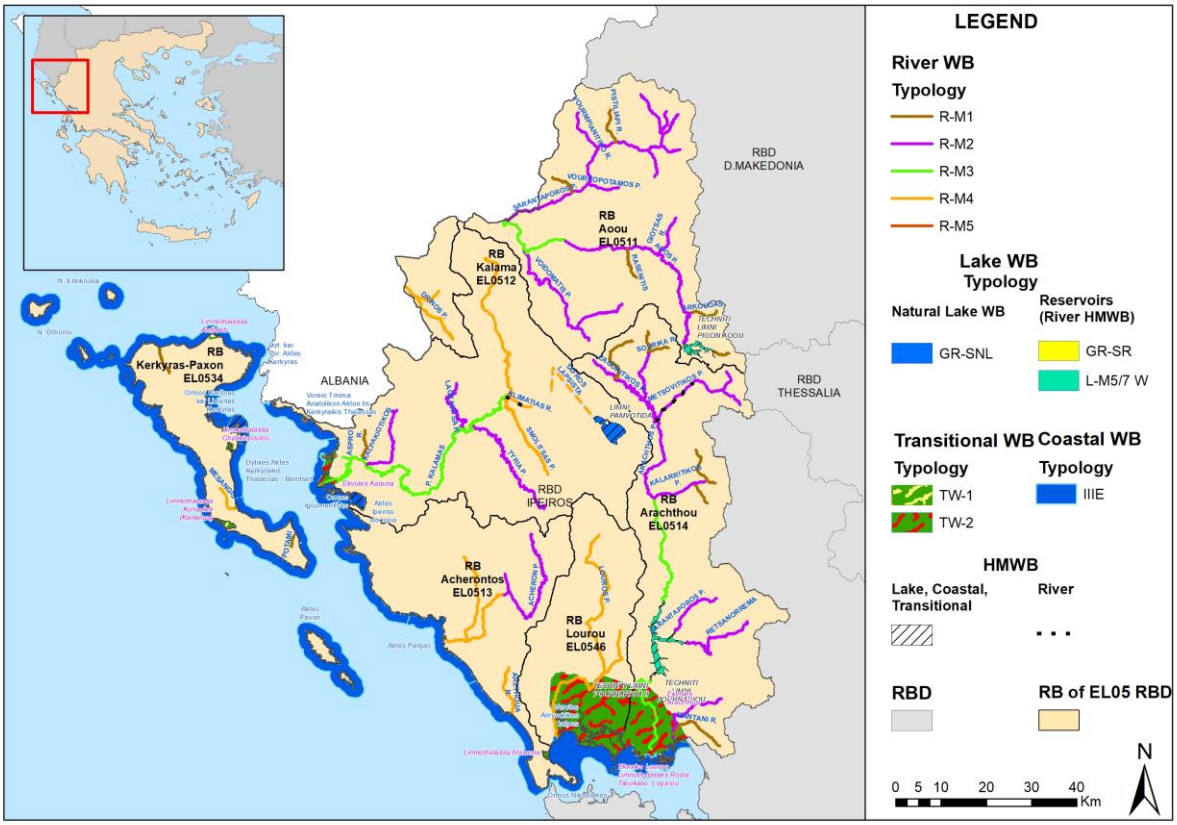
No	WB Name	WB Code	HMWB / AWB*	Surface (km^2)	Perimeter (km)	WB Type
2	LIMNOTHALASSA MAZOMA	EL0513T0004N	NAT	1,7	6,24	TW-1 (Polyhaline restricted)
Arachthos (EL0514)						
3	EKVOLES ARACHTHOU	EL0514T0002N	NAT	143,27	106,8	TW-2 (Estuaries)
Kerkyras – Paxon RB (EL0534)						
4	LIMNOTHALASSA KORISSION (KERKYRAS)	EL0534T0005N	NAT	4,16	13,35	TW-1 (Other)
5	LIMNOTHALASSA ANTINIOTI	EL0534T0006N	NAT	0,61	6,89	TW-1 (Other)
6	LIMNOTHALASSA CHALIKIOPOULOU	EL0534T0007N	NAT	2,23	11,42	TW-1 (Other)
Louros RB (EL0546)						
7	EKVOLES LOYROY - LIMNOTHALASSES RODIA, TSOYKALIO, LOGAROY	EL0546T0003N	NAT	241,59	97,1	TW-2 (Polyhaline restricted)
* ***NAT**: Natural WB, **HMWB**: Heavily Modified WB, **AWB**: Artificial WB*						

Table 4-6. Coastal WB per RB

No	WB Name	WB Code	HMWB / AWB*	Surface (km^2)	Perimeter (km)	WB Type
Kalamas RB (EL0512)						
1	ORMOS IGOYMENITSAS	EL0512C0003H	HMWB	8,75	14,24	IIIE
2	VOREIO TMIMA ANATOLIKON AKTON TIS KERKYRAIKIS THALASSAS	EL0512C0A01N	NAT	37,84	59,79	IIIE
3	NOTIO TMIMA ANATOLIKON AKTON TIS KERKYRAIKIS THALASSAS	EL0512C0A02N	NAT	50,23	94,07	IIIE
Acherontos RB (EL0513)						
4	AKTES IPEIROU STO IONIO	EL0513C0004N	NAT	89,12	134,79	IIIE
5	AKTES PARGAS	EL0513C0005N	NAT	50,19	83,91	IIIE
6	ORMOS NIKOPOLEOS	EL0513C0006N	NAT	65,23	85,03	IIIE

No	WB Name	WB Code	HMWB / AWB*	Surface (km^2)	Perimeter (km)	WB Type
7	VOREIOS AMVRAKIKOS KOLPOS	EL0513C0007N	NAT	153,54	193,5	IIIE
Kerkyras – Paxon RB (EL0534)						
8	AKTES PAXON	EL0534C0008N	NAT	88,83	124,22	IIIE
9	DYT. KAI VOR. AKTES KERKYRAS	EL0534C0009N	NAT	406,9	512,76	IIIE
10	DYTIKES AKTES KERKYRAIKIS THALASSAS - MPENITSES	EL0534C0010N	NAT	24,26	34,42	IIIE
11	ORMOS GARITSAS KAI LIMENAS KERKYRAS	EL0534C0011H	HMWB	20,2	31,64	IIIE
12	N. OTHONOI	EL0534C0012N	NAT	42,01	52,28	IIIE
13	N. EREIKOUSA	EL0534C0013N	NAT	25,83	30,04	IIIE
**** NAT:** Natural WB, **HMWB:** Heavily Modified WB, **AWB:** Artificial WB*						

Map 2. Classification of SWB of RBD of Epirus (EL05), according to the new typology of the 1st Update of RBMP



4.2 GROUNDWATER BODIES

Under the 1st Update of RBMP the initially delimited GWB were re-examined.

Table 4-7. The GWB of the RBD

NO	GWB Name	GWB Code	Surface (km²)
Aoos RB (EL0511)			
1	SYSTIMA TYMFIS	EL0500100	324.49
2	SYSTIMA YDROFORION SARANTAPOROU-AOOU	EL0500220	1368.91
3	SYSTIMA YDROFORION SMOLIKA-MAVROVOUNIOU	EL0500230	350.91
Kalamas RB (EL0512)			
4	SYSTIMA MESOU ROU KALAMA	EL0500080	76.80
5	SYSTIMA KLIMATIAS	EL0500110	302.27
6	SYSTIMA KASIDIARI	EL0500120	62.94
7	SYSTIMA MITSIKELIOY-VELLA	EL0500180	242.24
8	SYSTIMA YDROFORION P.KALAMA	EL0500200	873.38
9	SYSTIMA KOURENTON	EL0500210	40.32
10	SYSTIMA MOURGKANAS	EL050A060	70.10
11	SYSTIMA FILIATON-IGOYMENITSAS	EL050A070	450.85
12	SYSTIMA POGONIANIS	EL050A190	387.19
Acherontos RB (EL0513)			
13	SYSTIMA SOULIOU-PARAMYTHIAS	EL0500090	436.59
14	SYSTIMA KORONIS	EL0500130	214.96
15	SYSTIMA CHERSONISOU PREVEZAS	EL0500140	359.93
16	SYSTIMA PARGAS	EL0500170	218.47
17	SYSTIMA YDROFORION ANO ROU ACHERONTOS-REMATOS ARETHOUA	EL0500260	247.39
18	SYSTIMA EKVOLON ACHERONTA - P. KOKYTOU	EL0500270	166.11
Arachthos RB (EL0514)			
19	SYSTIMA YDROFORION P.ARACHTHOU	EL0500240	1622.20
Kerkyras – Paxon RB (EL0534)			
20	SYSTIMA ASVESTOLITHON N.KERKYRAS	EL0500010	152.50
21	SYSTIMA TRIADIKON LATYPOPAGON N. KERKYRAS	EL0500020	104.75
22	SYSTIMA KOKKODON YDROFORION N. KERKYRAS	EL0500030	330.355
23	SYSTIMA N.PAXON - ANTIPAXON	EL0500040	23.975
24	SYSTIMA N.OTHONON - EREIKOUSAS - MATHRAKIOU	EL0500050	17.00
Lourou RB (EL0546)			
25	SYSTIMA LOUROU	EL0500150	2884.35
26	SYSTIMA ARTAS	EL0500160	355.13
27	SYSTIMA ZALONGOU	EL0500250	24.61

Map 3. Position and delimitation of the GWB of Epirus (EL05)

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

Eight (8) HMWB and four (4) AWB, are identified from a total 106 SWB in Epirus RBD (EL05).

Table 4-8. Total number and surface of HMWB and AWB in the RBD

Type of WB	HMWB		AWB	
	Number of WB	Surface - length (%)	Number of WB	Surface - length (%)
Lake WB	1	100	0	-
Longitudinal River WB	2	1,8	3	2,3
River WB (Reservoirs)	3	100	0	0
Coastal WB	2	2,8	0	0

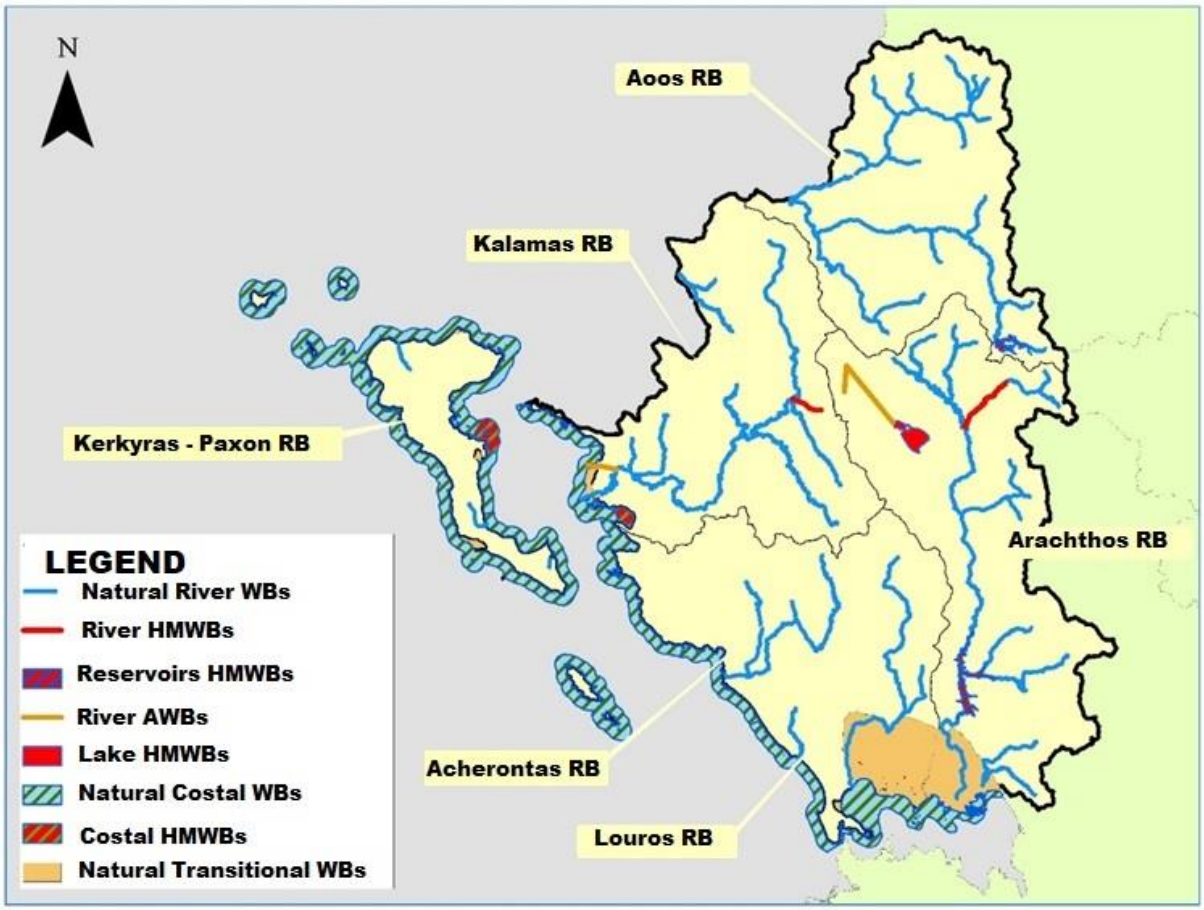
The following table presents the WB that were identified as HMWB and AWB per RB.

Table 4-9. HMWB of the RBD of Epirus EL05)

WB NAME	WB CODE	CATE GORY	AREA - LENGTH	«Determined water usage» according to the article 4(3)(a) of WFD	HMWB/ AWB
RB AOOS (EL0511)					

WB NAME	WB CODE	CATE GORY	AREA - LENGTH	«Determined water usage» according to the article 4(3)(a) of WFD	HMWB/ AWB
T. LIMNI PIGON AOOY	EL0511RLA0200080H	RL	8,21 km^2	Activities for the purposes of which water is stored: Power generation, irrigation	HMWB
RB KALAMAS (EL0512)					
METSOVITIKOS P.1	EL0514R000208066H	R	13,37 km	Activities for the purposes of which water is stored: Power generation	HMWB
LIMNI PAMVOTIDA	EL0512L000000004H	L	19,24 km^2	Flood protection	HMWB
KLIMATIAS R.	EL0512R000212138H	R	6,20 km	Flood protection	HMWB
ORMOS IGOYMENITSAS	EL0512C0003H	C	9,15 km^2	Navigation including port facilities	HMWB
RB ARACHTHOS (EL0514)					
T. LIMNI POYRNARIOY	EL0514RL00200003H	RL	22,02 km^2	Activities for the purposes of which water is stored: Power generation, irrigation	HMWB
T. LIMNI POYRNARIOY II	EL0514RL00200002H	RL	0,70 km^2		HMWB
RB KERKYRA - PAXOI (EL0534)					
ORMOS GARITSAS KAI LIMENAS KERKYRAS	EL0534C0011H	C	20,48 km^2	Navigation including port facilities	HMWB
RB KALAMAS (EL0512)					
TECHNITO TMIMA EKVOLIS KALAMA 2	EL0512R000202025A	R	3,07 km	Flood protection	AWB
TECHNITO TMIMA EKVOLIS KALAMA 1	EL0512R000202026A	R	2,63 km	Flood protection	AWB
TAFROS LAPSISTAS	EL0512R000212139A	R	19,26 km	Flood protection	AWB

Map 4. HMWB in the RBD of Epirus (EL05)



4.4 PROTECTED AREAS

In accordance with Directive 2000/60/EC, the member states shall ensure the establishment of a registry of all areas lying within each river basin district which have been designated as requiring special protection under specific Community legislation for the protection of their surface water and groundwater or for the conservation of habitats and species directly depending on water.

This registry is called Registry of Protected Areas (RPA) and according to the Appendix V of the Presidential Decree 51/2007, it includes the following type or areas:

- **Water bodies designated for Drinking Water Abstraction:**

Table 4-10. Areas of Abstraction of Drinking water

NO	WB Name	GWB Code	Area Code
Aoos RB (EL0511)			
1	Systima Tymfis	EL0500100	EL0500100A7
2	Systima ydroforion Smolika-Mavrovouniou	EL0500230	EL0500230A7
Kalamas RB (EL0512)			
3	Systima Mourgkanas	EL050A060	EL050A060A7
4	Systima Mesou Rou Kalama	EL0500080	EL0500080A7
5	Systima Kasidiari	EL0500120	EL0500120A7
6	Systima Mitsikeliou-Vella	EL0500180	EL0500180A7
7	Systima Pogonianis	EL050A190	EL050A190A7
8	Systima Kourenton	EL0500210	EL0500210A7
Louros RB (EL0546)			
9	Systima Lourou	EL0500150	EL0500150A7

- **Water Bodies designated as Recreational waters including areas designated as Bathing Waters:**
  According to the list of Bathing Water Profiles of Greece (SSW, 2015), in Epirus RBD, in 2015, 92 Bathing Water Sites have been designated in coastal WB.
  Furthermore, they exist not designated Recreational WB that are used for alternative tourism (like rafting and kayak). In total, in the RBD 10 protected inland waters are identified.

- **Urban Waste Water Treatment Directive Sensitive Areas and Nitrates Directive Nitrate Vulnerable Zones (NVZ):**
  In the RBD of EL05 is located the area of "Pediada Artas Prevezas" (EL0514NI02), it is noted that a small area of its, about 13km^2, falls within RBD EL04. Under the 1st Update of the RBMP, the necessity of designating new Nitrate Vulnerable Zones was examined and no such necessity exists.

Table 4-11. GWBs that falls within the Nitrate Vulnerable Zone of "Pediada Artas Prevezas"

WB Code	WB Name
EL0500090	Systima Souliou-Paramythias
EL0500140	Systima Chersonisou Prevezas
EL0500150	Systima Lourou
EL0500160	Systima Artas
EL0500240	Systima ydroforion p.Arachthou
EL0500250	Systima Zalongou

WB Code	WB Name
EL0500260	Systima ydroforion ano rou Acherontos-rematos Arethoua

According to the national legal framework (decision 19661/1982/1999 - Government Gazette 1811B'/29.09.1999), in the Epirus RBD (EL05), existing six (6) Urban Wastewater Treatment Directive Sensitive Areas, which are presented together with the WBs contained in these areas.

Table 4-12. Urban Wastewater Treatment Directive Sensitive Areas in the Epirus RBD (EL05)

NO	Urban Waste Water Treatment Directive Sensitive Areas	WB Code	WB Name
1	AMVRAKIKOS KOLPOS	EL0513C0007N	VOREIOS AMVRAKIKOS KOLPOS
2	METSOVITIKOS (Parapotamos Potamou Arachthou)	EL0514R000208067N	METSOVITIKOS P.2
		EL0514R000208066H	METSOVITIKOS P.1
3	POTAMOS ARACHTHOS	EL0514R000200056N	ARACHTHOS P. 5
		EL0514R000210071N	ARACHTHOS P. 11
		EL0514R000210069N	ARACHTHOS P. 10
		EL0514R000200065N	ARACHTHOS P. 8
		EL0514R000200054N	ARACHTHOS P. 3
		EL0514R000200063N	ARACHTHOS P. 6
		EL0514R000200055N	ARACHTHOS P. 4
		EL0514R000200064N	ARACHTHOS P. 7
		EL0514R000203068N	ARACHTHOS P. 9
		EL0514R000201050N	ARACHTHOS P. 2
		EL0514R000200051N	ARACHTHOS P. 2
4	POTAMOS LOUROS	EL0546R000200081N	LOUROS P. 4
		EL0546R000201077N	LOUROS P. 1
		EL0546R000200080N	LOUROS P. 3
		EL0546R000200078N	LOUROS P. 2
		EL0546R000200082N	LOUROS P. 5
5	TAFROS LAPSISTA*	EL0512R000212139A	TAFROS LAPSISTA
6	LIMNI PAMVOTIDA*	EL0512L000000004H	LIMNI PAMVOTIDA

** It is noted that Tafros Lapsista and Limni Pamviotida were proposed by the 1st RBMP as sensitive recipients of urban waste water. They are not included in the Urban Wastewater Treatment Directive (91/271 EEC, 98/15 EC) and it hasn't yet publish a Government Gazette for them.*

- **Areas designated for Birds and Habitats protection including the Natura 2000 protected sites :**
  The designation of natural protected areas is adaptable to the national specific conditions. The following map 5 depicts these areas.
- **Areas designated for the protection of economically significant aquatic species:**
  There are seven (7) aquatic farms in Epirus RBD (EL05): three (3) freshwater fish farms and four (4) coastal/transitional waters aquacultures.

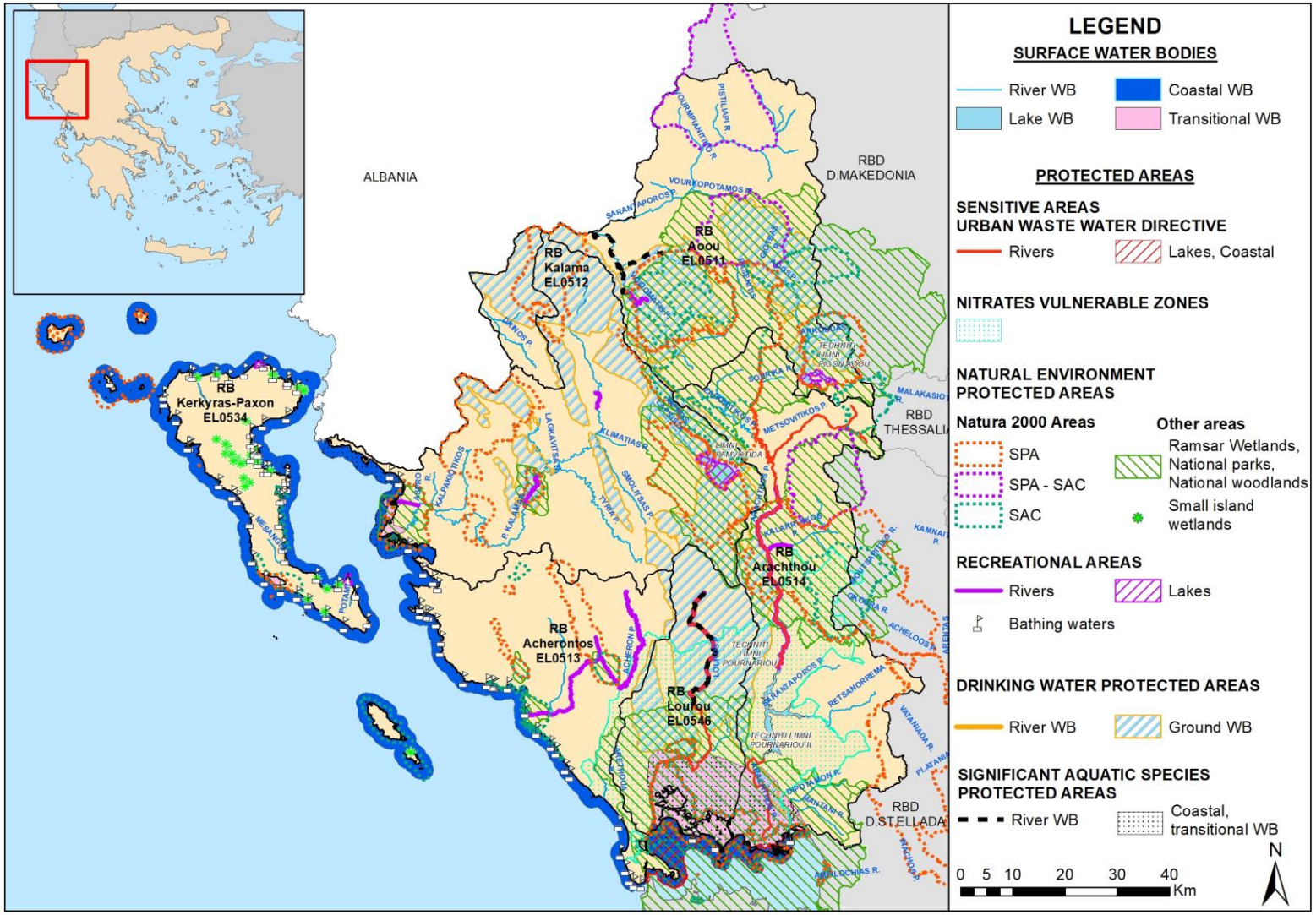
Table 4-13. Proposed protection areas according to Directive 2006/113/EC

No	Protected Area Code	WB Code	WB name	WB category
1	Ekvoles Arachthou	EL0514T0002N	EKVOLES ARACHTHOU	Transitional
2	Ekvoles Lourou - Limnothalasses Rodia, Tsoukalio, Logarou	EL0546T0003N	EKVOLES LOUROU - LIMNOTHALASSA LOGAROU	Transitional
3	Voreios Amvrakikos kolpos	EL0513C0007N	VOREIOS AMVRAKIKOS KOLPOS	Coastal
4	Anatolikes Aktes tis Kerkyraikis Thalassas	EL0512C0A02N	NOTIO TMIMA ANATOLIKON AKTON TIS KERKYRAIKIS THALASSAS	Coastal
		EL0512C0A01N	VOREIO TMIMA ANATOLIKON AKTON TIS KERKYRAIKIS THALASSAS	Coastal

Table 4-14. Proposed protection areas according to Directive 2006/44/EC

No	Protected Area Code	WB Code	WB name	WB category
1	Potamos Louros	LOUROS P. 4	EL0546R000200081N	River
		LOUROS P. 5	EL0546R000200082N	River
2	Potamos Aoos	AOOS P. 1	EL0511R0A0201001N	River
3	Potamos Voidomatis	VOIDOMATIS P. 1	EL0511R0A0204009N	River

Map 5. Protected areas of Epirus (EL05)



5 ANALYSIS OF PRESSURES IN WATER BODIES

Anthropogenic pressures on the bodies of water include all human activities that influence or may influence the water bodies of the area where they are developed. These pressures are characterized as significant as long as they form the cause for the WBs to be in danger of non-achieving their environmental objectives in accordance with EU Guideline No 03.

The following are data-results of the analysis of anthropogenic pressures that has been done, for the needs of the 1st Update of RBMP.

5.1 POINT SOURCES OF POLLUTION

Point sources of pollution include all sources of nutrients (BOD, N, P). The list of these pressures includes:

- Waste Water Treatment Plants (WWTP)
- Discharges not connected to WWTP
- Hotels
- Industrial sites
- Livestock Farming
- Aquaculture – Fish farming
- Waste disposal sites
- Runoff deriving from mining activities (mines)

From the above point sources of pollution derives the annual load of BOD, N and P produced.

It is noted that the pollutants produced by the livestock units are included in the diffuse pressures and are taken into account in the corresponding section.

Figure 5-1. Total annual loads of BOD, N and P that are produced in RB (EL0511), (EL0512), (EL0513), (EL0514), (EL0546), and (EL0534) from point sources of pollution

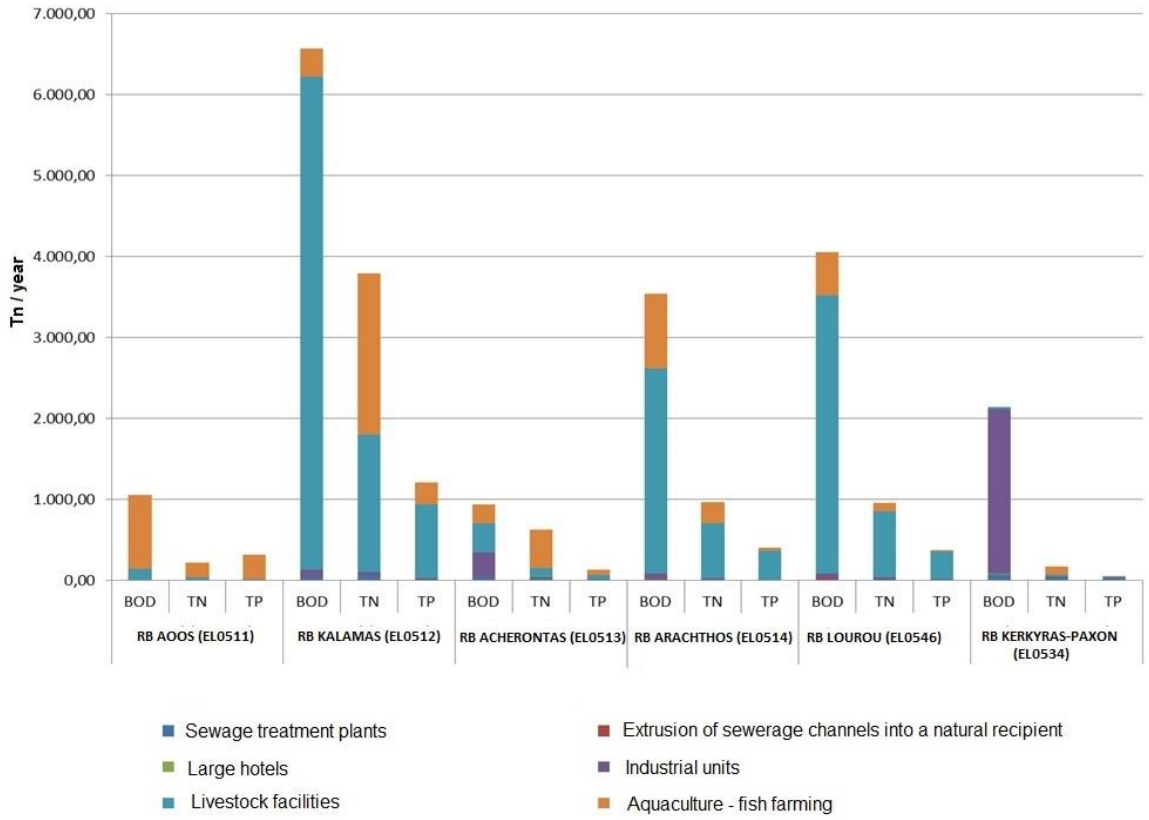


Table 5-1. Total annual load of BOD, N and P that are produced in Aoou RB (EL0511) from point sources

POINT SOURCES OF POLLUTION	BOD (t/y)	N (t/y)	P (t/y)
Waste Water Treatment Plants (WWTP)	0,00	0,00	0,00
Discharges not connected to WWTP	4,34	0,87	0,18
Hotels	0,00	0,00	0,00
Industrial Sites	3,61	2,56	0,56
Livestock units	138,99	33,31	14,53
Aquaculture – Fish farming	908,78	182,70	307,13
TOTAL	**1.055,72**	**219,44**	**322,40**

Table 5-2. Total annual load of BOD, N and P that are produced in Kalamas RB (EL0512) from point sources

POINT SOURCES OF POLLUTION	BOD (t/y)	N (t/y)	P (t/y)
Waste Water Treatment Plants (WWTP)	50,08	64,66	9,13
Discharges not connected to WWTP	0,00	0,00	0,00
Hotels	0,00	0,00	0,00
Industrial Sites	80,64	43,10	15,19
Livestock units	6.092,28	1.692,57	916,16
Aquaculture – Fish farming	342,16	1.988,47	272,90
TOTAL	**6.565,16**	**3.788,79**	**1.213,38**

Table 5-3. Total annual load of BOD, N and P that are produced in Acherontos RB (EL0513) from point sources

POINT SOURCES OF POLLUTION	BOD (t/y)	N (t/y)	P (t/y)
Waste Water Treatment Plants (WWTP)	44,69	51,05	21,29
Discharges not connected to WWTP	0,00	0,00	0,00

POINT SOURCES OF POLLUTION	BOD (t/y)	N (t/y)	P (t/y)
Hotels	4,88	1,95	0,48
Industrial Sites	300,02	1,71	0,26
Livestock units	361,94	94,85	47,10
Aquaculture – Fish farming	224,45	480,66	66,88
TOTAL	**935,98**	**630,23**	**136,00**

Table 5-4. Total annual load of BOD, N and P that are produced in Arachthos RB (EL0514) from point sources

POINT SOURCES OF POLLUTION	BOD (t/y)	N (t/y)	P (t/y)
Waste Water Treatment Plants (WWTP)	15,68	15,94	2,92
Discharges not connected to WWTP	8,07	1,61	0,34
Hotels	0,00	0,00	0,00
Industrial Sites	63,66	8,95	1,77
Livestock units	2.529,11	684,56	358,56
Aquaculture – Fish farming	922,91	258,26	41,09
TOTAL	**3.539,43**	**969,33**	**404,67**

Table 5-5. Total annual load of BOD, N and P that are produced in Lourou RB (EL0546) from point sources

POINT SOURCES OF POLLUTION	BOD (t/y)	N (t/y)	P (t/y)
Waste Water Treatment Plants (WWTP)	3,78	1,70	0,44
Discharges not connected to WWTP	25,43	5,09	1,06
Hotels	0,00	0,00	0,00
Industrial Sites	57,05	33,09	13,90
Livestock units	3.432,00	808,64	341,50
Aquaculture – Fish farming	538,34	108,23	18,19
TOTAL	**4.056,60**	**956,74**	**375,09**

Table 5-6. Total annual load of BOD, N and P that are produced in Kerkyras – Paxon RB (EL0534) from point sources

POINT SOURCES OF POLLUTION	BOD (t/y)	N (t/y)	P (t/y)
Waste Water Treatment Plants (WWTP)	76,47	57,37	38,32
Discharges not connected to WWTP	0,00	0,00	0,00
Hotels	9,27	5,84	2,11
Industrial Sites	2.028,32	6,00	1,52
Livestock units	29,40	5,40	1,10
Aquaculture – Fish farming	0,00	96,39	13,12
TOTAL	**2.143,47**	**171,00**	**56,17**

5.2 DIFFUSE SOURCES OF POLLUTION

Diffuse sources of pollution include all sources of nutrients (BOD, N, P). The list of these pressures includes:

- Agriculture
- Discharges not connected to sewerage network
- Farming
- Other diffuse sources

From the above diffuse sources of pollution derives the annual load of BOD, N and P produced.

Figure 5-2. Total annual loads of BOD, N and P that are produced in RB (EL0511), (EL0512), (EL0513), (EL0514), (EL0546) and (EL0534) from diffuse sources of pollution

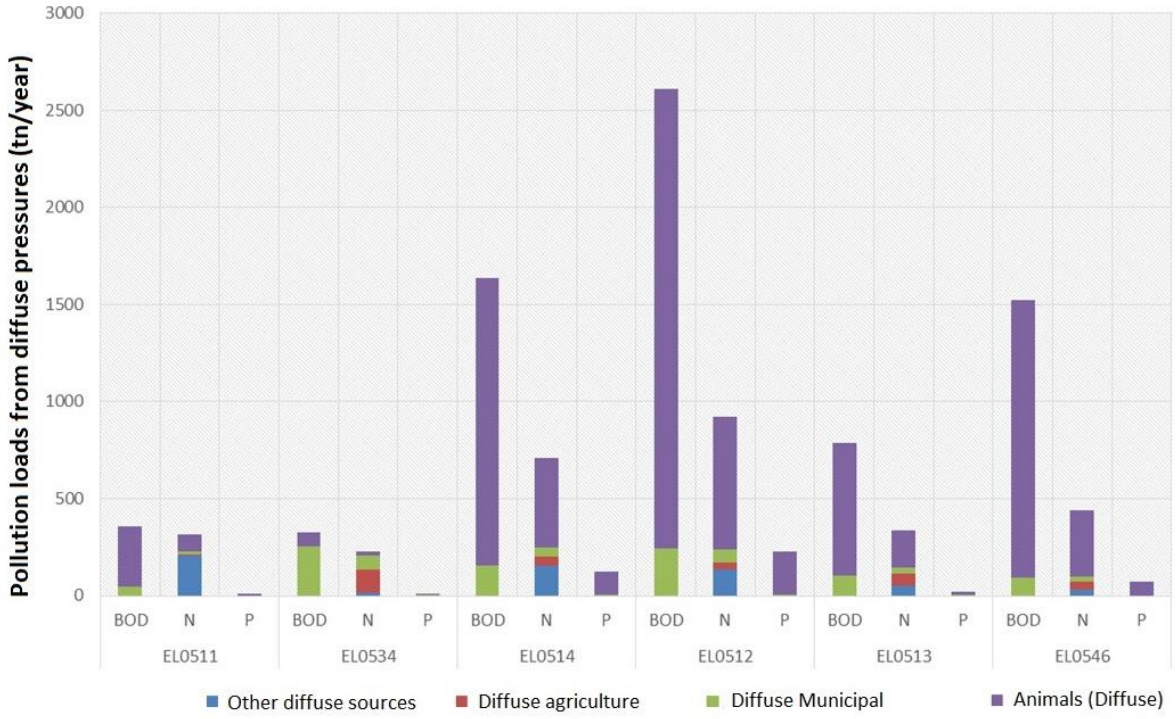


Table 5-7. Total annual load of BOD, N and P that are produced in Aoos RB (EL0511) from diffuse sources of pollution

LAND USE	BOD (t/y)	N (t/y)	P (t/y)
URBAN	48,35	13,81	0,33
AGRICULTURE	0,00	5,70	0,18
FARMING	309,27	88,24	8,65
OTHER SOURCES	0,00	209,15	1,67
TOTAL	**357,62**	**316,90**	**10,82**

Table 5-8. Total annual load of BOD, N and P that are produced in Kalamas RB (EL0512) from diffuse sources of pollution

LAND USE	BOD (t/y)	N (t/y)	P (t/y)
URBAN	244,63	69,89	2,17
AGRICULTURE	0,00	35,30	1,16
FARMING	2367,42	683,86	221,71
OTHER SOURCES	0,00	133,81	1,57
TOTAL	2612,04	922,86	226,62

Table 5-9. Total annual load of BOD, N and P that are produced in Acherontos RB (EL0513) from diffuse sources of pollution

LAND USE	BOD (t/y)	N (t/y)	P (t/y)
URBAN	105,86	30,25	0,82

LAND USE	BOD (t/y)	N (t/y)	P (t/y)
AGRICULTURE	0,00	61,00	1,32
FARMING	682,68	193,69	16,50
OTHER SOURCES	0,00	54,19	0,76
TOTAL	**788,55**	**339,12**	**19,40**

Table 5-10. Total annual load of BOD, N and P that are produced in Arachthos RB (EL0514) from diffuse sources of pollution

LAND USE	BOD (t/y)	N (t/y)	P (t/y)
URBAN	155,48	44,42	1,09
AGRICULTURE	0,00	49,70	1,22
FARMING	1483,76	461,00	121,74
OTHER SOURCES	0,00	154,14	1,04
TOTAL	**1639,24**	**709,27**	**125,09**

Table 5-11. Total annual load of BOD, N and P that are produced in Louros RB (EL0546) from diffuse sources of pollution

LAND USE	BOD (t/y)	N (t/y)	P (t/y)
URBAN	93,61	26,74	0,81
AGRICULTURE	0,00	42,76	1,32
FARMING	1428,31	338,33	68,44
OTHER SOURCES	0,00	30,85	0,49
TOTAL	**1521,92**	**438,68**	**71,06**

Table 5-12. Total annual load of BOD, N and P that are produced in Kerkyras - Paxon RB (EL0534) from diffuse sources of pollution

LAND USE	BOD (t/y)	N (t/y)	P (t/y)
URBAN	252,78	72,22	2,12
AGRICULTURE	0,00	117,87	2,58
FARMING	72,42	21,53	1,78
OTHER SOURCES	0,00	18,13	0,20
TOTAL	**325,20**	**229,75**	**6,69**

5.3 HYDROMORPHOLOGICAL PRESSURES

RB Aoos (EL0511)

Table 5-13. Hydro morphological alterations due to projects on SWB (HMWB-AWB) of RB Aoos (EL05011)

REGIONAL UNIT	PROJECT	USE OF PROJECT	WB CODE	AREA (km²) / LENGTH (km) HMWB-AWB	HMWB-AWB
IOANNINON	Artificial lake (Techniti Limni) Piges Aoou	Hydropower production (200 GWh/year), Irrigation of around areas, Recreation	EL0511RLA0200001H	8,21 km²	HMWB

RB Kalamas (EL0512)

Table 5-14. Hydro morphological alterations due to projects on SWB (HMWB-AWB) of RB Kalama (EL0512)

REGIONAL UNIT	PROJECT	USE OF PROJECT	WB CODE	AREA (km²) / LENGTH (km) HMWB-AWB	HMWB-AWB
IOANNINON	Adjustment of the water balance of the Pamviotida Lake	Flood protection of Ioannina city, Drinking water supply of Ioannina city , Irrigation of lake riparian areas	EL0512L000000004H	8,21 km²	HMWB
IOANNINON	Formation of Lapsistas moat	Flood protection	EL0512R000212139A	19,26 km	AWB
IOANNINON	Stream setting of Klimataria R.	Flood protection	EL0512R000212138H	6,20 km	HMWB
THESPROTIAS	Formation of the technical part of Kalapas P estuary	Flood protection	EL0512R000202025A, EL0512R000202026A	5,70 km	AWB
THESPROTIAS	Port of Igoumenitsa	Navigation, Port facilities,	EL0512C0003H	9,15 km²	HMWB

RB Arachthos (EL0513)

Table 5-15. Hydro morphological alterations due to projects on SWB (HMWB-AWB) of RB Arachthos (EL0513)

REGIONAL UNIT	PROJECT	USE OF PROJECT	WB CODE	AREA (km²) / LENGTH (km) HMWB-AWB	HMWB-AWB
ARTA	Artificial lake (Techniti Limni) Pournariou I and Pournariou II	Hydropower production (5490 GWh/year), Irrigation of around areas,	EL0514RL00200003H, EL0514RL00200002H	22,72 km²	HMWB
IOANNINON	Stream setting of Metsovitikos P.	Hydropower production	EL0514R000208066H	13,37 km	AWB

RB Kerkyra - Paxoi (EL0534)

Table 5-16. Hydro morphological alterations due to projects on SWB (HMWB-AWB) of RB Kerkyra - Paxoi (EL0534)

REGIONAL UNIT	PROJECT	USE OF PROJECT	WB CODE	AREA (km²) / LENGTH (km) HMWB-AWB	HMWB-AWB
KERKYRA	Port of Kerkyra	Navigation, Port facilities,	EL0534C0011H	20,48 km²	HMWB

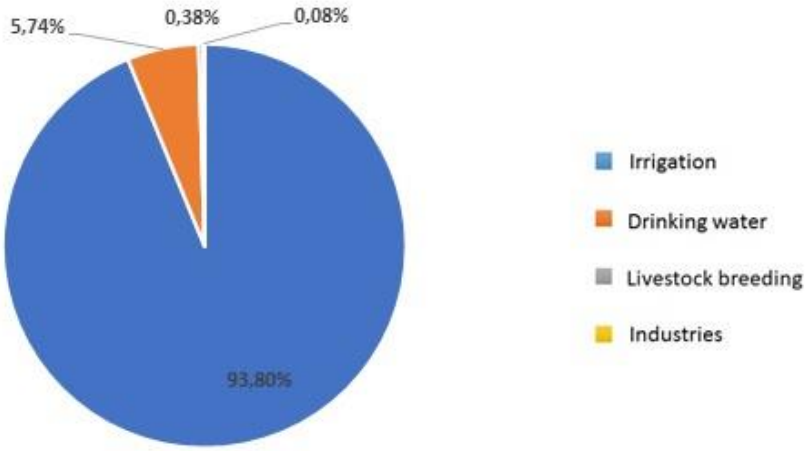
5.4 WATER ABSTRACTION

This paragraph includes information on the total annual water abstraction for all activities and uses:

- Public Water Supply
- Irrigation
- Farming
- Industry

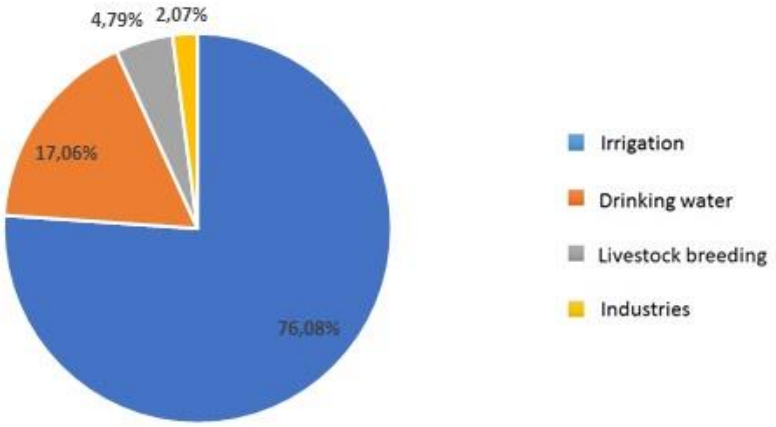
In Aoos River Basin total estimated abstractions are 26,1 hm³. The biggest amount of them is intended for irrigation (24,5 hm³), an important amount for drinking water (1,5 hm³), while estimated abstractions for livestock breeding and industry are virtually nil. The distribution of the various uses of the water abstractions that made at Aoos RB are presented in the graph below.

Figure 5-3. Total water abstraction in Aoos RB (EL0511).



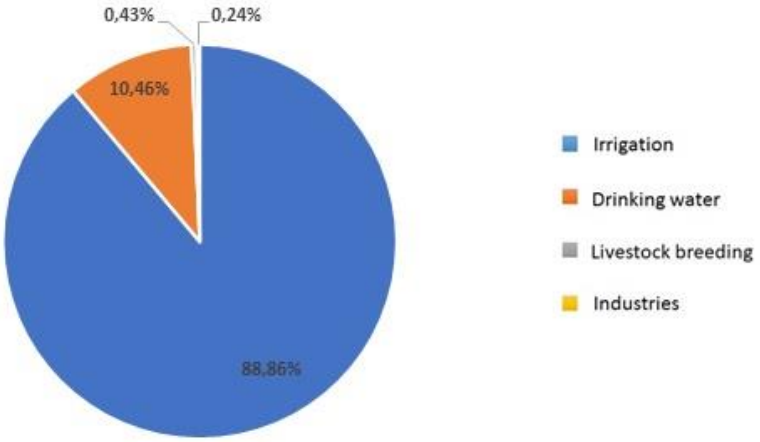
In the Kalamas River Basin, total estimated abstractions are 127,2 hm^3. Of these, most of them are earmarked for irrigation (96,8 hm^3), an important part for drinking water (21.7 hm^3), while considerably smaller are the estimated for livestock breeding (6,1 hm^3) and industry (2,6 hm^3) respectively. The distribution of the various abstractions carried out in RB of Kalamas is shown in the graph below.

Figure 5-4. Total water abstraction in Kalamas RB (EL0512)



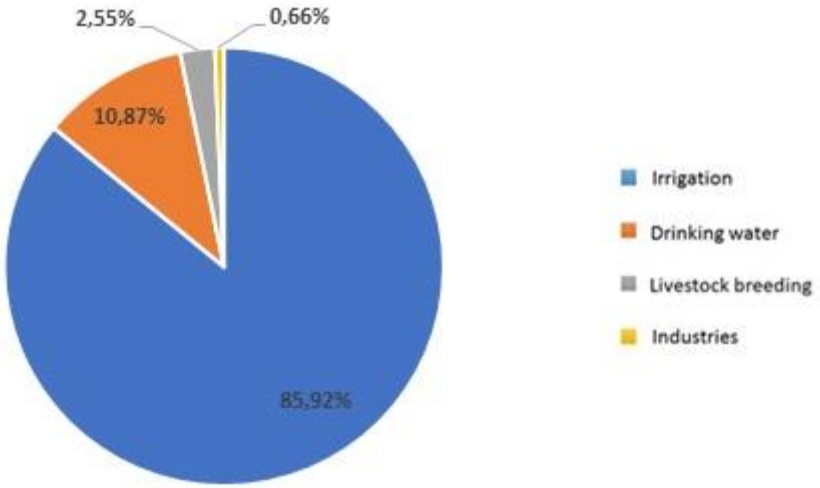
In the Acherontas River Basin, the total estimated abstractions are 69,8 hm3. Of these, most of them are for irrigation (62,0 hm3), an important part for drinking water (7,3 hm3), while smaller ones are in Acherontas RB as the well, the estimated abstractions for livestock breeding (0,3 hm3) and industry (0,2 hm3). The distribution of the various uses in the abstractions is shown in the graph below.

Figure 5-5. Total water abstraction in Acherondas RB (EL0513)



In the Arachthos River Basin, total estimated abstractions are 74,5 hm^3. Of these, most of them are for irrigation (64 hm^3), one part is for drinking water (8,1 hm^3), while the estimated for livestock breeding (1,9 hm^3) and industry are respectively smaller (0,5 hm^3) .The distribution of the various uses is shown in the graph below.

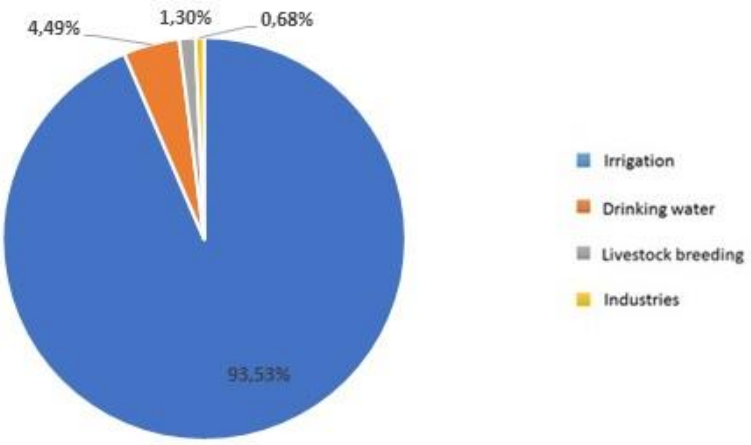
Figure 5-6. Total water abstraction in Arachthos RB (EL0514)



In Louros River Basin, the total estimated abstractions are 122,6 hm^3. Of these, most of them are earmarked for irrigation (114,7 hm^3), drinking water (5.5 hm^3), while the estimated yields for livestock

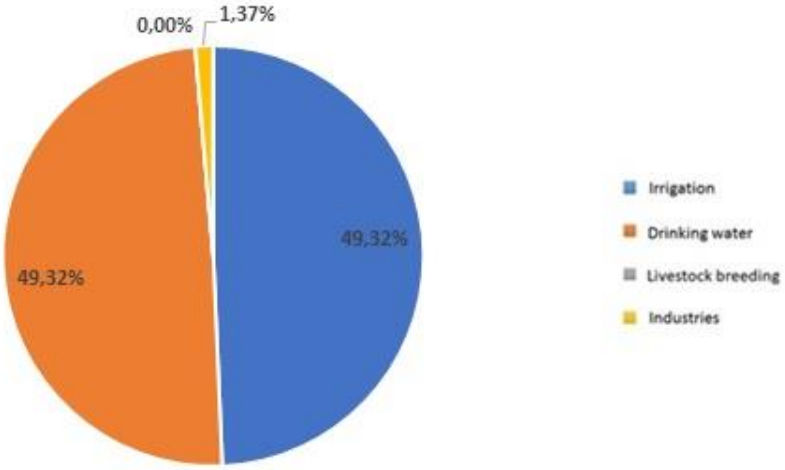
breeding (1,6 hm^3) an industry are significantly smaller (0,8 hm^3). The distribution of the various uses is shown in the graph below.

Figure 5-7. Total water abstraction in Louros RB (EL0546)



In the Kerkyra -Paxoi River Basin, total estimated abstractions are 27,8 hm^3. Of these, and unlikely the rest of RB, the water supply and irrigation needs have the same value (13,7 hm^3), while the estimated abstractions for industry (0,4 hm^3) and livestock breeding (zero) are clearly lower. The distribution of the various uses is shown in the graph below.

Figure 5-8. Total water abstraction in Kerkyra-Paxoi RB (EL0534)



5.5 OTHER PRESSURES

Other pressures include:

- Runoff from mining and quarries
- Desalination plants
- Ports – Marinas - Navigation
- Groundwater Artificial Recharge
- Groundwater Alteration of water level or volume because of underground activity

Runoff from mining and quarries

In the Epirus RBD, there are not any mining or quarries activities

Desalination plants

In the Epirus RBD, there are five (5) desalination plants located in Kerkyras – Paxon RB (EL0534).

Ports- Marinas-Navigation

In the Epirus RBD, there is 1 marina and 1 port in Kalamas RB (EL0512), 6 marinas and 1 port in Acherontos RB (EL0513) and 15 marinas in Keryras – Paxon RB (EL0534).

Groundwater artificial recharge

In the Epirus RBD, there is no artificial recharge project.

The following overexploited GWB, could benefit from artificial recharge projects: Chersonisos Prevezas (EL0500140).

Groundwater Alteration of water level or volume because of underground works

There are no changes in the goroundwater level and water quality due to underground works.

5.6 TOTAL NUTRIENT LOADS

Figure 5-9. Total nutrient surface loads (BOD, N and P) produced by point, diffuse and other pollution sources in RB (EL0511), (EL0512), (EL0513), (EL0514), (EL0546) and (EL0534)

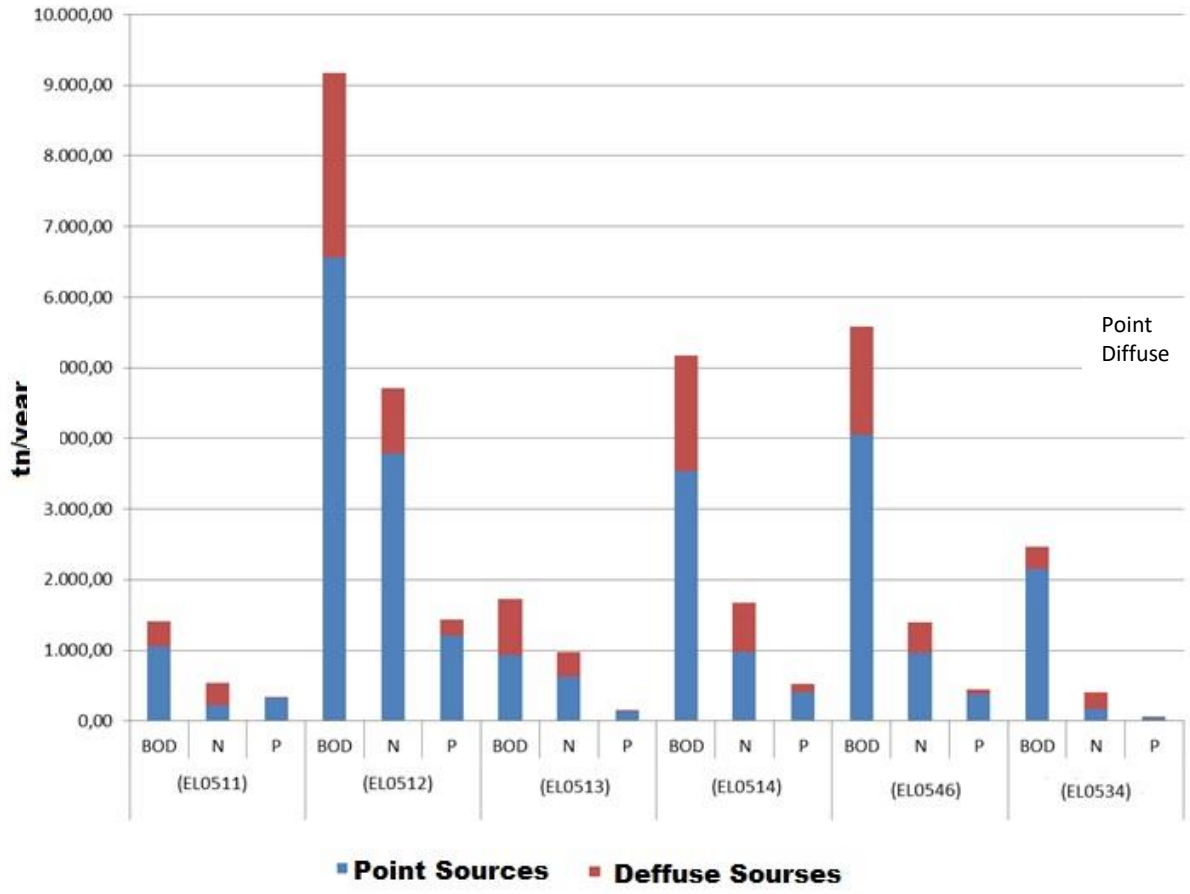


Table 5-17. Total annual nutrient surface loads (BOD, N and P) produced by all sources of pollution in Aoou RB (EL0511)

POLLUTION SOURCE	BOD (t/y)	N (t/y)	P (t/y)
POINT	357,62	316,90	10,82
DIFFUSE	1.055,72	219,44	322,40
TOTAL	**1.413,34**	**536,34**	**333,22**

Table 5-18. Total annual nutrient surface loads (BOD, N and P) produced by all sources of pollution in Kalamas RB (EL0512)

POLLUTION SOURCE	BOD (t/y)	N (t/y)	P (t/y)
POINT	2.612,04	922,86	226,62
DIFFUSE	6.565,16	3.788,79	1.213,38
TOTAL	**9.177,20**	**4.711,66**	**1.439,99**

Table 5-19. Total annual nutrient surface loads (BOD, N and P) produced by all sources of pollution Acherontos (EL0513)

POLLUTION SOURCE	BOD (t/y)	N (t/y)	P (t/y)
POINT	788,55	339,12	19,40
DIFFUSE	935,98	630,23	136,00
TOTAL	**1.724,53**	**969,35**	**155,40**

Table 5-20. Total annual nutrient surface loads (BOD, N and P) produced by all sources of pollution in Arachthou RB (EL0514)

POLLUTION SOURCE	BOD (t/y)	N (t/y)	P (t/y)
POINT	1.639,24	709,27	125,09
DIFFUSE	3.539,43	969,33	404,67
TOTAL	**5.178,68**	**1.678,59**	**529,76**

Table 5-21. Total annual nutrient surface loads (BOD, N and P) produced by all sources of pollution in Louros RB (EL0546)

POLLUTION SOURCE	BOD (t/y)	N (t/y)	P (t/y)
POINT	1521,92	438,68	71,06
DIFFUSE	4.056,60	956,74	375,09
TOTAL	**5.578,52**	**1.395,42**	**446,15**

Table 5-22. Total annual nutrient surface loads (BOD, N and P) produced by all sources of pollution in Kerkyras – Paxon RB (EL0535)

POLLUTION SOURCE	BOD (t/y)	N (t/y)	P (t/y)
POINT	325,20	229,75	6,69
DIFFUSE	2.143,47	171,00	56,17
TOTAL	**2.468,67**	**400,75**	**62,86**

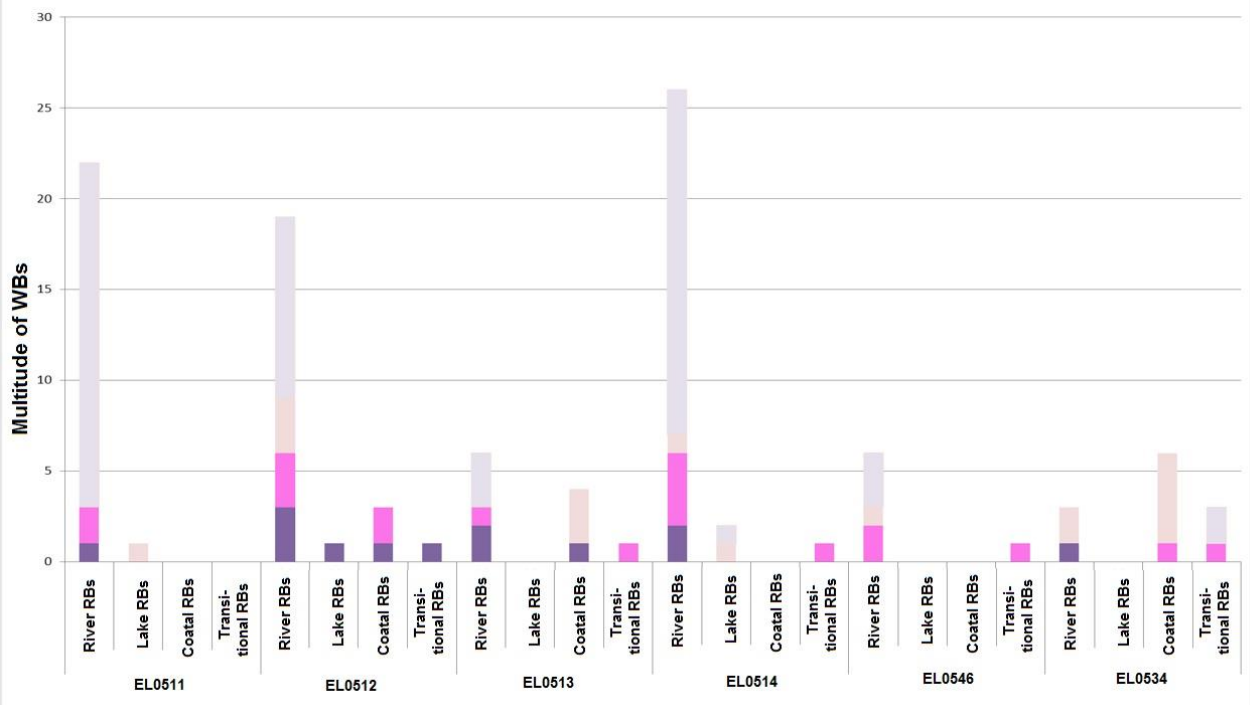
5.7 IMPACTS ASSESSMENT

5.7.1 Impacts assessment on SWB

Pressures Impact assessment and WB designation is based on the likelihood of failing to meet the WFD environmental objectives, taking in consideration the following information:

- The magnitude of pressure from emissions and abstractions : High (H), Middle (M), Low (L)
- Available data and Monitoring program results
- Expert judgement, when no data is available

Figure 5-10. Risk assessment failure to achieve objects of SWB in RB (EL0511), (EL012), (EL0513), (EL0514), (EL0546) and (EL0534)



Aoos RB (EL0511)

Table 5-23. Risk assessment of SWB failing to meet the WFD objectives in Aoos RB (EL0511) – Number of WB

	Risk Assessment Categories								
	NR – Not at Risk		PNR - Probably not at Risk		PAR –Probably At Risk		AR- At Risk		Total
WB Type	**Number of WB**	**Percentage of WB (%)**	**Number of WB**	**Percentage of WB (%)**	**Number of WB**	**Percentage of WB (%)**	**Number of WB**	**Percentage of WB (%)**	**Number of WB**
River WB	19	86,4%	0	0,0%	2	9,1%	1	4,5%	22
Lake WB	0		1	100,0%	0		0		1
Transitional WB	0		0		0		0		0
Coastal WB	0		0		0		0		0
Total	**19**	**82,6%**	**1**	**4,3%**	**2**	**8,7%**	**1**	**4,3%**	**23**

Kalamas RB (EL0512)

Table 5-24. Risk assessment of SWB failing to meet the WFD objectives in Kalamas RB (EL0512) – Number of WB

	Risk Assessment Categories								
	NR – Not at Risk		PNR - Probably not at Risk		PAR –Probably At Risk		AR- At Risk		Total
WB Type	**Number of WB**	**Percentage of WB (%)**	**Number of WB**	**Percentage of WB (%)**	**Number of WB**	**Percentage of WB (%)**	**Number of WB**	**Percentage of WB (%)**	**Number of WB**
River WB	10	52,6%	3	15,8%	3	15,8%	3	15,8%	19
Lake WB	0		0		0		1	100,0%	1
Transitional WB	0		0		2	66,7%	1	33,3%	3
Coastal WB	0		0		0		1	100,0%	1
Total	**10**	**41,7%**	**3**	**12,5%**	**5**	**20,8%**	**6**	**25,0%**	**24**

Acherontas RB (EL0513)

Table 5-25. Risk assessment of SWB failing to meet the WFD objectives in Acherontas RB (EL0513) – Number of WB

	Risk Assessment Categories								
	NR – Not at Risk		PNR - Probably not at Risk		PAR –Probably At Risk		AR- At Risk		Total
WB Type	**Number of WB**	**Percentage of WB (%)**	**Number of WB**	**Percentage of WB (%)**	**Number of WB**	**Percentage of WB (%)**	**Number of WB**	**Percentage of WB (%)**	**Number of WB**
River WB	3	50,0%	0	0,0%	1	16,7%	2	33,3%	6
Lake WB	0		0		0		0		0
Transitional WB	0		3	75,0%	0		1	25,0%	4
Coastal WB	0		0		1	100,0%	0		1
Total	**3**	**27,3%**	**3**	**27,3%**	**2**	**18,2%**	**3**	**27,3%**	**11**

Arachthos RB (EL0514)

Table 5-26. Risk assessment of SWB failing to meet the WFD objectives in Arachthos RB (EL0514) – Number of WB

	Risk Assessment Categories								
	NR – Not at Risk		PNR - Probably not at Risk		PAR –Probably At Risk		AR- At Risk		Total
WB Type	**Number of WB**	**Percentage of WB (%)**	**Number of WB**	**Percentage of WB (%)**	**Number of WB**	**Percentage of WB (%)**	**Number of WB**	**Percentage of WB (%)**	**Number of WB**
River WB	19	73,1%	1	3,8%	4	15,4%	2	7,7%	26
Lake WB	1	50,0%	1	50,0%	0		0		2
Transitional WB	0		0		0		0		0
Coastal WB	0		0		1	100,0%	0		1
Total	**20**	**69,0%**	**2**	**6,9%**	**5**	**17,2%**	**2**	**6,9%**	**29**

Louros RB (EL0546)

Table 5-27. Risk assessment of SWB failing to meet the WFD objectives in Louros RB (EL0546) - Number of WB

	Risk Assessment Categories								
	NR – Not at Risk		PNR - Probably not at Risk		PAR –Probably At Risk		AR- At Risk		Total
WB Type	**Number of WB**	**Percentage of WB (%)**	**Number of WB**	**Percentage of WB (%)**	**Number of WB**	**Percentage of WB (%)**	**Number of WB**	**Percentage of WB (%)**	**Number of WB**
River WB	3	50,0%	1	16,7%	2	33,3%	0		6
Lake WB	0		0		0		0		0
Transitional WB	0		0		0		0		0
Coastal WB	0		0		1	100,0%	0		1
Total	**3**	**42,9%**	**1**	**14,3%**	**3**	**42,9%**	**0**	**0,0%**	**7**

Kerkyras - Paxon RB (EL0534)

Table 5-28. Risk assessment of SWB failing to meet the WFD objectives in Kerkyras - Paxon RB (EL0534) - Number of WB

	Risk Assessment Categories								
	NR – Not at Risk		PNR - Probably not at Risk		PAR –Probably At Risk		AR- At Risk		Total
WB Type	**Number of WB**	**Percentage of WB (%)**	**Number of WB**	**Percentage of WB (%)**	**Number of WB**	**Percentage of WB (%)**	**Number of WB**	**Percentage of WB (%)**	**Number of WB**
River WB	0		2	66,7%	0		1	33,3%	3
Lake WB	0		0		0		0		0
Transitional WB	0		5	83,3%	1	16,7%	0		6
Coastal WB	2	66,7%	0		1	33,3%	0		3
Total	**2**	**16,7%**	**7**	**58,3%**	**2**	**16,7%**	**1**	**8,3%**	**12**

5.7.2 Impacts assessment on GWB

Table 5-29. Chemical status and Quantitative status of GWB in RBs (EL0511), (EL012), (EL0513), (EL0514), (EL0546) and (EL0534)

No	WB CODE	WB NAME	Quantitative status	Decline water levels tendency	Chemical status	Quality problems	Pollutants tendency
RB AOOS (EL0511)							
1	EL0500100	Systima Tymfis	Good	NO	Good	-	NO
2	EL0500220	Systima ydroforion Sarantaporou-aoou	Good	NO	Good	-	NO
3	EL0500230	Systima ydroforion Smolika-mavrovouniou	Good	NO	Good	-	NO
RB KALAMAS (EL0512)							
4	EL050A060	Systima Mournkanas	Good	NO	Good	NO	NO
5	EL050A070	Systima Filiaton-igoumenitsas	Good	NO	Good	Local Exceedances of Fe and Mn trace elements	Locally
6	EL0500080	Systima Mesou Rou Kalama	Good	NO	Good	NO	NO
7	EL0500110	Systima Klimatias	Good	NO	Good	Local Exceedances of Fe, Al and Mn trace elements	NO
8	EL0500120	Systima Kasidiari	Good	NO	Good	-	NO
9	EL0500180	Systima Mitsikeliou-vella	Good	NO	Good	Local Exceedances of Fe and Mn trace elements	NO
10	EL050A190	Systima Pogonianis	Good	NO	Good	Natural surcharge of SO_4.	NO
11	EL0500200	Systima ydroforion p. Kalama	Good	NO	Good		NO
12	EL0500210	Systima Kourenton	Good	NO	Good	NO	NO
RB ACHERONTAS (EL0513)							
13	EL0500090	Systima Souliou-paramythias	Good	NO	Good	Natural surcharge of SO_4.	NO
14	EL0500130	Systima Koronis	Good	NO	Good	-	NO

No	WB CODE	WB NAME	Quantitative status	Decline water levels tendency	Chemical status	Quality problems	Pollutants tendency
15	EL0500140	Systima Chersonisou Prevezas	Good	Locally	Bad	Extended pollution (NO_2, NH_4 due to agricultural activities and Cl due to sanitation Local Exceedances of Fe, Al and Mn trace elements	Locally
16	EL0500170	Systima Pargas	Good	NO	Good	Local presence due to agricultural activities	-
17	EL0500260	Systima ydroforion ano rou Acherontos-rematos Arethoua	Good	NO	Good	NO	NO
18	EL0500270	Systima Ekvolon Acheronta- p. Kokytou	Good	NO	Good	NO	-
RB ARACHTHOU (EL0514)							
19	EL0500240	Systima ydroforion p. Arachthou	Good	NO	Good	Local Exceedances of Fe and Mn trace elements	NO
RB LOUROS (EL0546)							
20	EL0500150	Systima Lourou	Good	NO	Good	Local Natural surcharge of Cl and SO_4 at the South-east side. Point surcharge (NO3, NH4) due agricultural activities. Local Exceedances of Fe, Al and Mn trace elements	Locally
21	EL0500160	Systima Artas	Good	NO	Good	Local Natural surcharge of Cl and SO_4 from sea infiltration NO_3 due to agricultural activities. Local Exceedances of Fe, Al and Mn trace elements	Locally
22	EL0500250	Systima Zalongou	Good	NO	Good	Local Exceedances of Fe and Al trace elements	NO
RB KERKYRA - PAXOI (EL0534)							
23	EL0500010	Systima asvestolithon N. Kerkyras	Good	NO	Good	Local presences of NO_3 due to agricultural activities. Local Exceedances of Fe and Mn trace elements	Locally
24	EL0500020	Systima Triadikon latypopagon N. Kerkyras	Good	NO	Good	Natural surcharge of SO_4 due to gypsum presence.	NO

No	WB CODE	WB NAME	Quantitative status	Decline water levels tendency	Chemical status	Quality problems	Pollutants tendency
25	EL0500030	Systima kokkodon ydroforion N. Kerkyras	Good	NO	Good	Local presences of NO_3 due to agricultural. Natural surcharge of SO_4 due to gypsum presence. Local Exceedances of Fe and Mn trace elements	Locally
26	EL0500040	Systima N. Paxon-antipaxon	Good	NO	Good	Increased Chlorite values	NO
27	EL0500050	Systima N. Othonon-ereikousas - mathrakiou	Good	NO	Good	Increased Chlorite and sulphate values	NO

6 STATUS OF WATER BODIES

6.1 SWB STATUS

Table 6-1. Status of River WBs and evolution from the 1st RBMP

WB Code	WB Name	Ecological Status or Potential		Chemical Status	
		1st RBMP	1st Update of RBMP	1st RBMP	1st Update of RBMP
RB AOOS (EL0511)					
EL0511R0A0200013N	LOYROS P.2	Good	Moderate	Good	Good
EL0511R0A0200021N	LOYROS P.3	Moderate	Good	Good	Good
EL0511R0A0202008N	LOYROS P.4	Good	Moderate	Good	Good
EL0511R0A0204009N	LOYROS P.5	Good	Good	Unknown	Good
EL0511R0A0204011N	LOYROS P.1	High	Good	Good	Good
EL0511R0A0210019N	LOYROS P. - PARAPOTAMOS	Good	Moderate	Good	Good
RB KALAMAS (EL0512)					
EL0512R000200024N	THYAMIS P. KALAMAS 2	Unknown	Poor	Unknown	Good
EL0512R000200027N	THYAMIS P. KALAMAS 3	Good	Moderate	Good	Good
EL0512R000200032N	THYAMIS P. KALAMAS 5	High	Good	Unknown	Good
EL0512R000200040N	THYAMIS P. KALAMAS 8	Good	Moderate	Unknown	Failing to achieve Good
EL0512R000200041N	THYAMIS P. KALAMAS 9	Good	Moderate	Good	Good
EL0512R000201023N	THYAMIS P. KALAMAS 1	Unknown	Good	Good	Good
EL0512R000202025A	TECHNITO TMIMA EKVOLIS KALAMA 2	Unknown	Good	Unknown	Unknown
EL0512R000206030N	THYAMIS P. KALAMAS - PARAPOTAMOS KALPAKIOTIKOS 1	Good	Good	Unknown	Good
EL0512R000212037N	SMOLITSAS P.	Good	Good	Unknown	Good
EL0512R000212138H	KLIMATIAS R.	Moderate	Moderate	Unknown	Good
RB ACHERONTAS (EL0513)					
EL0513R000101042N	ARETHOYA R.	Moderate	Moderate	Unknown	Good

WB Code	WB Name	Ecological Status or Potential		Chemical Status	
		1st RBMP	1st Update of RBMP	1st RBMP	1st Update of RBMP
EL0513R000200047N	ACHERON P.(MAYROPOTAMOS)4	Good	Good	Unknown	Good
EL0513R000201043N	ACHERON P.(MAYROPOTAMOS)1	Good	Moderate	Unknown	Good
EL0513R000202044N	ACHERON P.(MAYROPOTAMOS) - PARAPOTAMOS KOKTOS (VOYVOS)	Good	Moderate	Unknown	Good
RB ARACHTHOS (EL0514)					
EL0514R000100048N	DIPOTAMON R.	Good	Bad	Good	Good
EL0514R000102049N	MANTANI R.	Good	Good	Unknown	Good
EL0514R000201050N	ARACHTHOS P.1	Unknown	Moderate	Good	Good
EL0514R000203068N	ARACHTHOS P.9	Good	Moderate	Good	Good
EL0514R000208066H	METSOVITIKOS P.1	Unknown	Unknown	Unknown	Good
EL0514R000210071N	ARACHTHOS P.11	Good	Moderate	Good	Good
EL0514R000212073N	MEGAS LAKKOS R.	Good	Moderate	Good	Good
RB KERKYRA- PAXOi (EL0534)					
EL0534R000101074N	POTAMI	Good	Moderate	Unknown	Good
EL0534R000301075N	MESAGGIS R.	Good	Good	Unknown	Good
EL0534R000501076N	FONISAS P.	Good	Good	Unknown	Good
RB LOUROS (EL0546)					
EL0546R000200078N	LOYROS P.2	Good	Good	Unknown	Good
EL0546R000200080N	LOYROS P.3	Unknown	Good	Good	Good
EL0546R000200081N	LOYROS P.4	High	Moderate	Good	Failing to achieve Good
EL0546R000200082N	LOYROS P.5	Good	Good	Unknown	Good
EL0546R000201077N	LOYROS P.1	Moderate	Good	Good	Good

WB Code	WB Name	Ecological Status or Potential		Chemical Status	
		1st RBMP	1st Update of RBMP	1st RBMP	1st Update of RBMP
EL0546R000202079 N	LOYROS P. - PARAPOTAMOS	Good	Moderate	Unknown	Unknown

Table 6-2. Status of Lake and Reservoir WBs and evolution from the 1st RBMP

WB Code	WB Name	Ecological Status or Potential		Chemical Status	
		1st RBMP	1st Update of RBMP	1st RBMP	1st Update of RBMP
RB AOOS (EL0511)					
EL0511RLA0200001H	TECHNITI LIMNI PIGON AOOY	Unknown	Good	Good	Good
RB KALAMAS (EL0512)					
EL0512L000000004H	LIMNI PAMVOTIDA	Poor	Bad	Failing to achieve Good	Good
RB ARACHTHOS (EL0514)					
EL0514RL00200003H	TECHNITI LIMNI POYRNARIOY	Unknown	Good	Good	Good
EL0514RL00200002H	TECHNITI LIMNI POYRNARIOY II	Unknown	Good	Unknown	Good

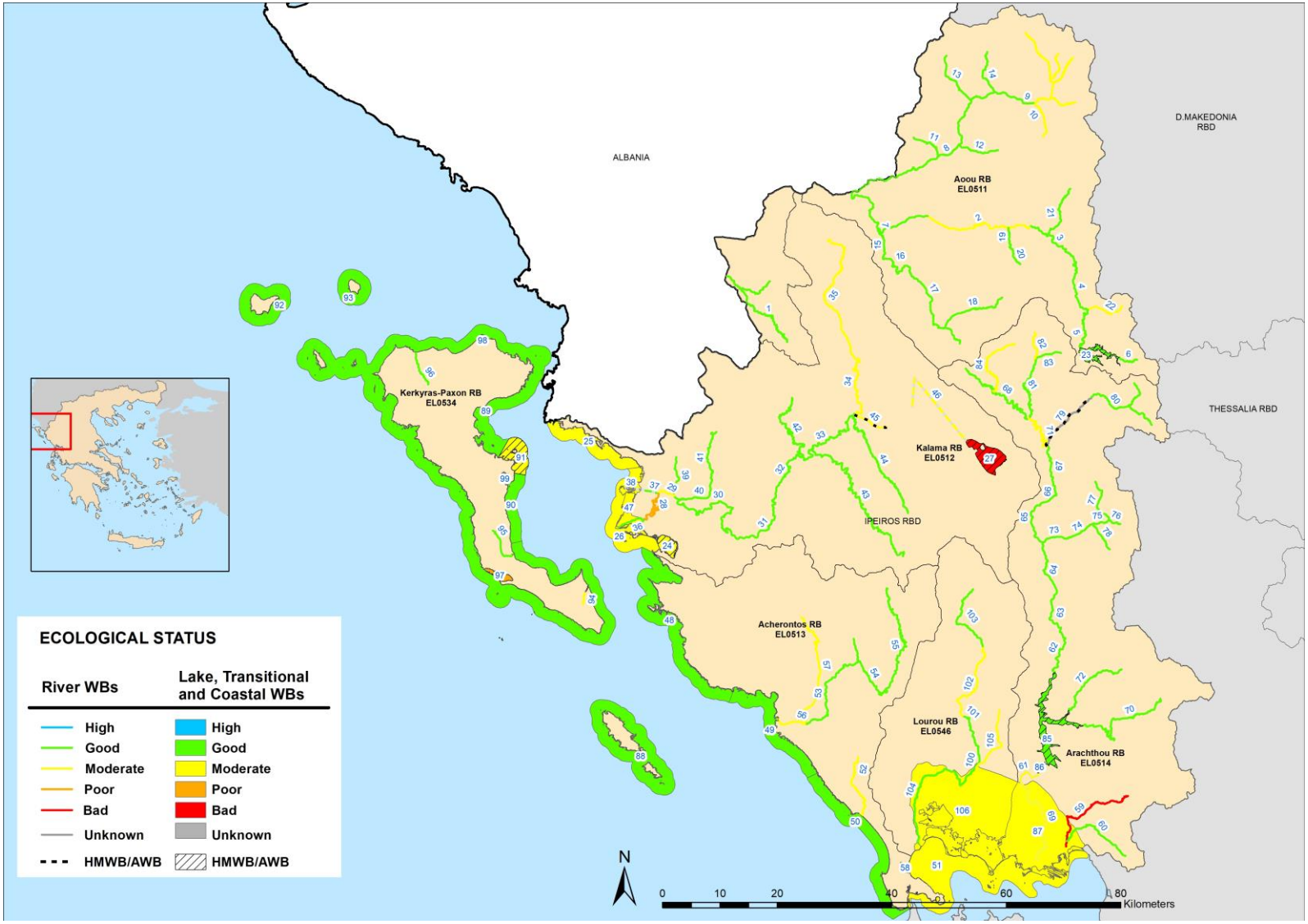
Table 6-3. Status of Transitional WB and evolution from the 1st RBMP

WB Code	WB Name	Ecological Status or Potential		Chemical Status	
		1st RBMP	1st Update of RBMP	1st RBMP	1st Update of RBMP
RB ARACHTHOS (EL0514)					
EL0514T0002N	EKVOLES ARACHTHOY	Moderate	Moderate	Unknown	Good
RB ACHERONTAS (EL0513)					
EL0513T0004N	LIMNOTHALASSA MAZOMA	Moderate	Moderate	Unknown	Good
RB LOUROS (EL0546)					
EL0546T0003N	EKVOLES LOYROY LIMNOTHALASSES RODIA, TSOYKALIO, LOGAROY	Moderate	Moderate	Unknown	Good
RB KALAMAS (EL0512)					
EL0512T0001N	EKVOLES KALAMA	Moderate	Moderate	Unknown	Good
RB KERKYRA- PAXOI (EL0534)					
EL0534T0005N	LIMNOTHALASSA KORISSION (KERKYRAS)	Good	Poor	Unknown	Good

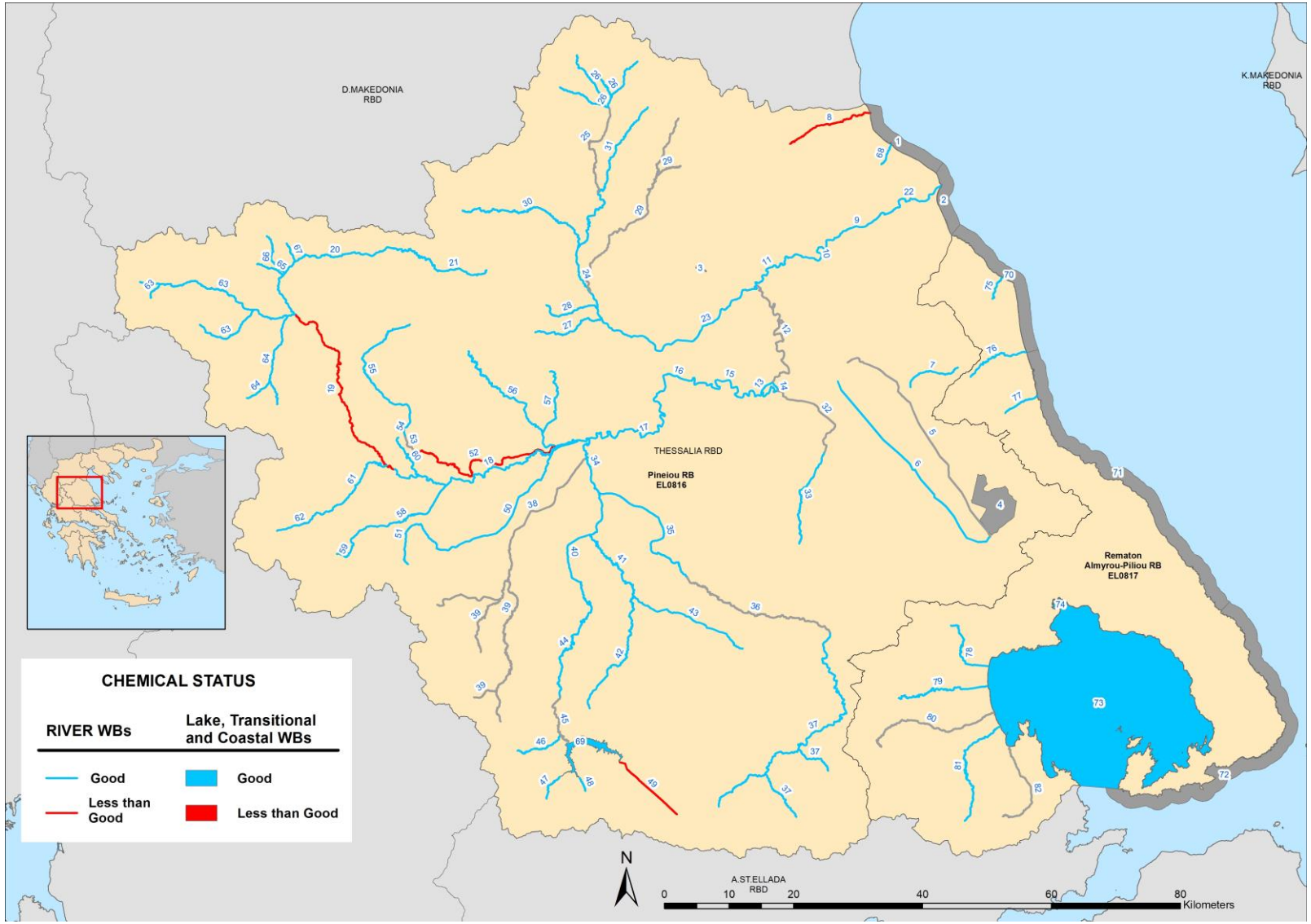
Table 6-4. Status of Coastal WB and evolution from the 1st RBMP

WB Code	WB Name	Ecological Status or Potential		Chemical Status	
		1st RBMP	1st Update of RBMP	1st RBMP	1st Update of RBMP
RB KALAMAS (EL0512)					
EL0512C0003H	ORMOS IGOYMENITSAS	Moderate	Moderate	Unknown	Good
EL0512C0A01N	VOREIO TMIMA ANATOLIKON AKTON TIS KERKYRAIKIS THALASSAS	Moderate	Moderate	Unknown	Good
EL0512C0A02N	NOTIO TMIMA ANATOLIKON AKTON TIS KERKYRAIKIS THALASSAS	Moderate	Moderate	Unknown	Good
RB ACHERONTAS (EL0513)					
EL0513C0004N	AKTES IPEIROY STO IONIO	High	Good	Unknown	Good
EL0513C0005N	AKTES PARGAS	High	Good	Unknown	Good
EL0513C0006N	ORMOS NIKOPOLEOS	High	Good	Unknown	Good
EL0513C0007N	VOREIOS AMVRAKIKOS KOLPOS	Moderate	Moderate	Unknown	Good
RB KERKYRA- PAXOI (EL0534)					
EL0534C0008N	AKTES PAXON	High	Good	Unknown	Good
EL0534C0009N	DYT. KAI VOR. AKTES KERKYRAS	High	Good	Unknown	Good
EL0534C0010N	DYTIKES AKTES KERKYRAIKIS THALASSAS - MPENITSES	Good	Good	Unknown	Good
EL0534C0011H	ORMOS GARITSAS KAI LIMENAS KERKYRAS	Good	Moderate	Unknown	Unknown
EL0534C0012N	N. OTHONOI	High	Good	Unknown	Good
EL0534C0013N	N. EREIKOYSA	High	Good	Unknown	Good

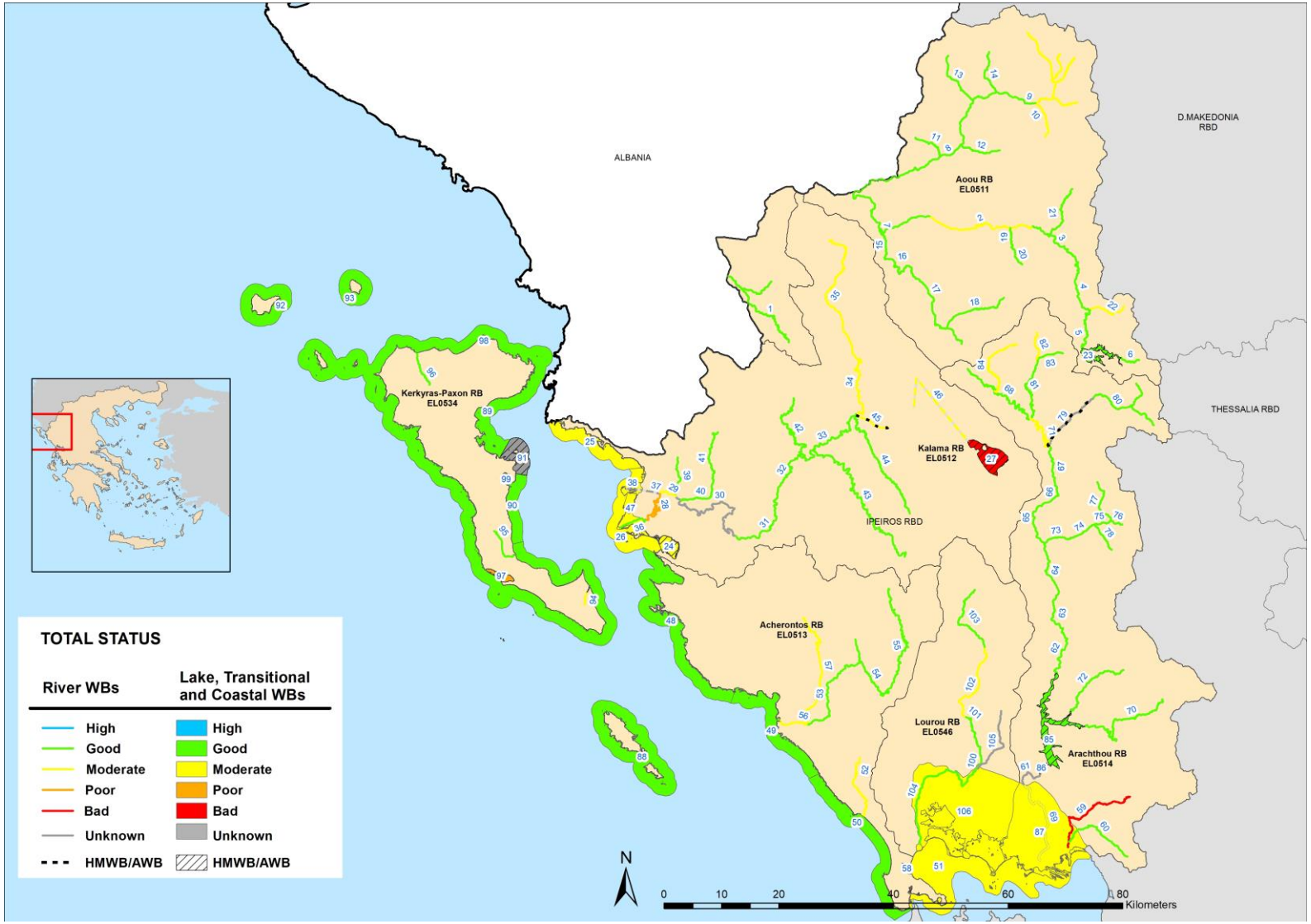
Map 6. Ecological status of SWB in RBD of Epirus (EL05)



Map 7. Chemical status of SWB in RBD of Epirus (EL05)



Map 8. Total status of SWB in RBD of Epirus (EL05)



Legend

Map Index	WB Code	WB Name	Map Index	WB Code	WB Name	Map Index	WB Code	WB Name
1	EL0511R0A0101022N	DRINOS P.	37	EL0512R000202025A	TECHNITO TMIMA EKVOLIS KALAMA 2	73	EL0514R000206057N	KALARRITIKOS P.1
2	EL0511R0A0200013N	AOOS P.2	38	EL0512R000202026A	TECHNITO TMIMA EKVOLIS KALAMA 1	74	EL0514R000206058N	KALARRITIKOS P.2
3	EL0511R0A0200016N	AOOS P.3	39	EL0512R000204028N	THYAMIS P. KALAMAS - PARAPOTAMOS ASPRO R.	75	EL0514R000206060N	KALARRITIKOS P.3
4	EL0511R0A0200018N	AOOS P.4	40	EL0512R000206030N	THYAMIS P. KALAMAS - PARAPOTAMOS KALPAKIOTIKOS 1	76	EL0514R000206061N	KALARRITIKOS P.4
5	EL0511R0A0200020N	AOOS P.5	41	EL0512R000206031N	THYAMIS P. KALAMAS - PARAPOTAMOS KALPAKIOTIKOS 2	77	EL0514R000206062N	KALARRITIKOS P.5
6	EL0511R0A0200021N	AOOS P.6	42	EL0512R000208035N	THYAMIS P. KALAMAS - PARAPOTAMOS LAGKAVITSA R.	78	EL0514R000206159N	KALARRITIKOS P. - PARAPOTAMOS MELISSOYRGIOTIKOS
7	EL0511R0A0201001N	AOOS P.1	43	EL0512R000210036N	TYRIA P.	79	EL0514R000208066H	METSOVITIKOS P.1
8	EL0511R0A0202002N	SARANTAPOROS P.1	44	EL0512R000212037N	SMOLITSAS P.	80	EL0514R000208067N	METSOVITIKOS P.2
9	EL0511R0A0202007N	SARANTAPOROS P.2	45	EL0512R000212138H	KLIMATIAS R.	81	EL0514R000210069N	ARACHTHOS P.10
10	EL0511R0A0202008N	SARANTAPOROS P.3	46	EL0512R000212139A	TAFROS LAPSISTA	82	EL0514R000210071N	ARACHTHOS P.11
11	EL0511R0A0202103N	SARANTAPOROS P. - PARAPOTAMOS AMARANTOY R.	47	EL0512T0001N	Ekvoles Kalama	83	EL0514R000210170N	SOYRIKA R.
12	EL0511R0A0202204N	VOYRKOPOTAMOS P.	48	EL0513C0004N	Aktes Ipeirou sto Ionio	84	EL0514R000212073N	MEGAS LAKKOS R.

Map Index	WB Code	WB Name	Map Index	WB Code	WB Name	Map Index	WB Code	WB Name
13	EL0511R0A0202305N	VOYRMPIANITIKO R.	49	EL0513C0005N	Aktes Pargas	85	EL0514RL00200003H	TECHNITI LIMNI POYRNARIOY
14	EL0511R0A0202406N	PISTILIAPI R.	50	EL0513C0006N	Ormos Nikopoleos	86	EL0514RL00200002H	TECHNITI LIMNI POYRNARIOY II
15	EL0511R0A0204009N	VOIDOMATIS P.1	51	EL0513C0007N	Voreios Amvrakikos kolpos	87	EL0514T0002N	Ekvoles Arachthou
16	EL0511R0A0204010N	VOIDOMATIS P.2	52	EL0513R000101042N	ARETHOYA R.	88	EL0534C0008N	Aktes Paxon
17	EL0511R0A0204011N	VOIDOMATIS P.3	53	EL0513R000200045N	ACHERON P.(MAYROPOTAMOS)2	89	EL0534C0009N	Dyt. kai Vor. Aktes Kerkyras
18	EL0511R0A0204012N	VOIDOMATIS P.4	54	EL0513R000200046N	ACHERON P.(MAYROPOTAMOS)3	90	EL0534C0010N	Dytikes Aktes Kerkyraikis Thalassas - Benitses
19	EL0511R0A0206014N	AOOS P. - PARAPOTAMOS RASENITIS 1	55	EL0513R000200047N	ACHERON P.(MAYROPOTAMOS)4	91	EL0534C0011H	Ormos Garitsas kai Limenas Kerkyras
20	EL0511R0A0206015N	AOOS P. - PARAPOTAMOS RASENITIS 2	56	EL0513R000201043N	ACHERON P.(MAYROPOTAMOS)1	92	EL0534C0012N	N. Othonoi
21	EL0511R0A0208017N	GIOTSAS R.	57	EL0513R000202044N	ACHERON P.(MAYROPOTAMOS) - PARAPOTAMOS KOKTOS (VOYVOS)	93	EL0534C0013N	N. Ereikousa
22	EL0511R0A0210019N	AOOS P. - PARAPOTAMOS ARKOYDAS	58	EL0513T0004N	Limnothalassa Mazoma	94	EL0534R000101074N	POTAMI
23	EL0511RLA0200001H	TECHNITI LIMNI PIGON AOOY	59	EL0514R000100048N	DIPOTAMON R.	95	EL0534R000301075N	MESAGGIS R.
24	EL0512C0003H	Ormos Igoumenitsas	60	EL0514R000102049N	MANTANI R.	96	EL0534R000501076N	FONISAS P.
25	EL0512C0A01N	Voreio Tmima Anatolikon Akton tis Kerkyraikis Thalassas	61	EL0514R000200051N	ARACHTHOS P.2	97	EL0534T0005N	Limnothalassa Korission (Kerkyras)

Map Index	WB Code	WB Name	Map Index	WB Code	WB Name	Map Index	WB Code	WB Name
26	EL0512C0A02N	Notio Tmima Anatolikon Akton tis Kerkyraikis Thalassas	62	EL0514R000200054N	ARACHTHOS P.3	98	EL0534T0006N	Limnothalassa Antinioti
27	EL0512L000000004H	LIMNI PAMVOTIDA	63	EL0514R000200055N	ARACHTHOS P.4	99	EL0534T0007N	Limnothalassa Chalikiopoulou
28	EL0512R000200024N	THYAMIS P. KALAMAS 2	64	EL0514R000200056N	ARACHTHOS P.5	100	EL0546R000200078N	LOYROS P.2
29	EL0512R000200027N	THYAMIS P. KALAMAS 3	65	EL0514R000200063N	ARACHTHOS P.6	101	EL0546R000200080N	LOYROS P.3
30	EL0512R000200029N	THYAMIS P. KALAMAS 4	66	EL0514R000200064N	ARACHTHOS P.7	102	EL0546R000200081N	LOYROS P.4
31	EL0512R000200032N	THYAMIS P. KALAMAS 5	67	EL0514R000200065N	ARACHTHOS P.8	103	EL0546R000200082N	LOYROS P.5
32	EL0512R000200033N	THYAMIS P. KALAMAS 6	68	EL0514R000200072N	ZAGORITIKOS P.	104	EL0546R000201077N	LOYROS P.1
33	EL0512R000200034N	THYAMIS P. KALAMAS 7	69	EL0514R000201050N	ARACHTHOS P.1	105	EL0546R000202079N	LOYROS P. - PARAPOTAMOS
34	EL0512R000200040N	THYAMIS P. KALAMAS 8	70	EL0514R000202052N	RETSANORREMA	106	EL0546T0003N	Ekvoles Lourou - Limnothalasses Rodia, Tsoukalio, Logarou
35	EL0512R000200041N	THYAMIS P. KALAMAS 9	71	EL0514R000203068N	ARACHTHOS P.9			
36	EL0512R000201023N	THYAMIS P. KALAMAS 1	72	EL0514R000204053N	SARANTAPOROS P.			

6.2 GWB STATUS

Table 6-5. Status of GWB and evolution from the 1st RBMP

WB Code	WB Name	1st RBMP		1st Update of RBMP	
		Chemical status	Quantitative status	Chemical status	Quantitative status
Aoos RB (EL 0511)					
EL0500100	Systima Tymfis	Good	Good	Good	Good
EL0500220	Systima ydroforion Sarantaporou-Aoou	Good	Good	Good	Good
EL0500230	Systima ydroforion Smolika-Mavrovouniou	Good	Good	Good	Good
Kalamas RB (EL0512					
EL050A060	Systima Mourgkanas	Good	Good	Good	Good
EL050A070	Systima Filiaton-Igoumenitsas	Good	Good	Good	Good
EL0500080	Systima Mesou Rou Kalama	Good	Good	Good	Good
EL0500110	Systima Klimatias	Good	Good	Good	Good
EL0500120	Systima Kasidiari	Good	Good	Good	Good
EL0500180	Systima Mitsikeliou-Vella	Good	Good	Good	Good
EL050A190	Systima Pogonianis	Good	Good	Good	Good
EL 0500200	Systima ydroforion p.Kalama	Good	Good	Good	Good
EL0500210	Systima Kourenton	Good	Good	Good	Good
Acherontas RB (EL0513)					
EL0500090	Systima Souliou-Paramythias	Good	Good	Good	Good
EL0500130	Systima Koronis	Good	Good	Good	Good
EL0500140	Systima Chersonisou Prevezas	Bad	Good	Bad	Good
EL0500170	Systima Pargas	Good	Good	Good	Good
EL0500260	Systima ydroforion ano rou Acherontos-rematos Arethoua	Good	Good	Good	Good
EL0500270	Systima Ekvolon Acherontos - p. Kokytou	Good	Good	Good	Good
Arachthos RB (EL0514)					
EL0500240	Systima ydroforion p.Arachthou	Good	Good	Good	Good
Kerkyras – Paxon RB (EL0534)					
EL0500010	Systima asvestolithon N.Kerkyras	Good	Good	Good	Good
EL0500020	Systima Triadikon latypopagon N. Kerkyras	Good	Good	Good	Good

WB Code	WB Name	1st RBMP		1st Update of RBMP	
		Chemical status	Quantitative status	Chemical status	Quantitative status
EL0500030	Systima kokkodon ydroforion N. Kerkyras	Good	Good	Good	Good
EL0500040	Systima N.Paxon - Antipaxon	Good	Good	Good	Good
EL0500050	Systima N.Othonon - Ereikousas - Mathrakiou	Good	Good	Good	Good
Louros RB (EL0546)					
EL0500150	Systima Lourou	Good	Good	Good	Good
EL0500160	Systima Artas	Good	Good	Good	Good
EL0500250	Systima Zalongou	Good	Good	Good	Good

Map 9. Chemical status of GWB in RBD of Epirus (EL05)

Map 10. Quantitative status of GWB in RBD of Epirus (EL05)

7 ECONOMIC ANALYSIS

7.1 WATER SERVICES FINANCIAL COST

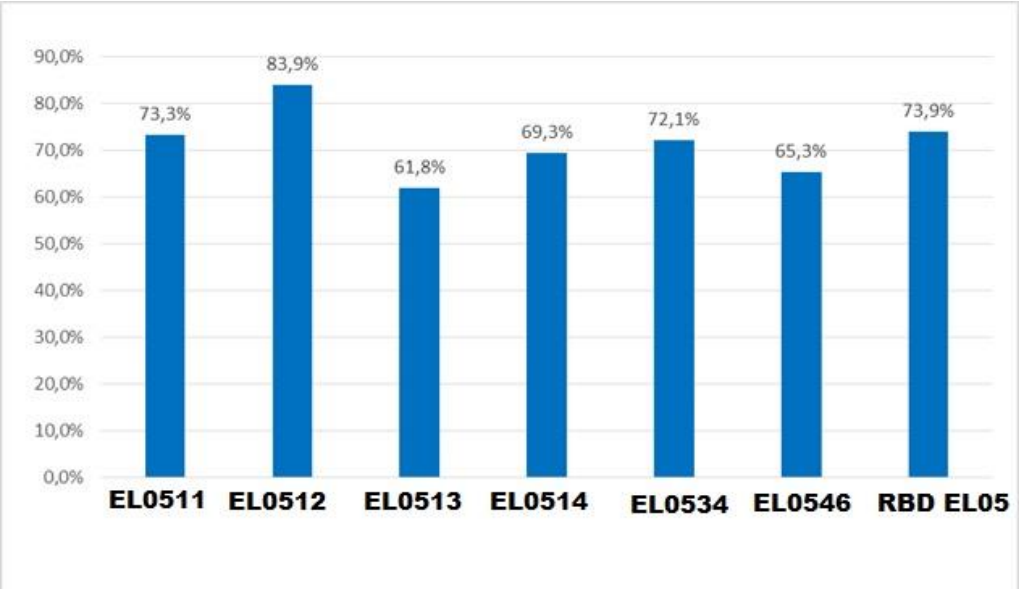
7.1.1 Drinking water supply, sewage collection and wastewater treatment

The total financial cost of drinking water supply, sewage collection and wastewater treatment in Epirus RBD (EL05) is 58,8 M €. Cost recovery is 73,9% (revenues 43,5 M € - 58,8 M € expenses).

Table 7-1. Financial Cost Recovery for Water Supply

RB	Total financial cost (€)	Average financial unity cost (€/m³)	Total Revenues (€)	Average unit revenues (€/m³)	Financial Cost Recovery
Aoos RB (EL0511)	1.705.868	1,5836	1.250.191	1,1606	73,3%
Kalamas RB (EL0512)	21.372.634	1,6391	17.929.514	1,3750	83,9%
Acherontas RB (EL0513)	8.465.760	1,4864	5.235.225	0,9192	61,8%
Arachthos RB (EL0514)	9.455.273	1,6458	6.555.926	1,1411	69,3%
Kerkyras – Paxon RB (EL0534)	13.109.222	2,2077	9.446.700	1,5909	72,1%
Louros RB (EL0546)	4.727.506	1,5429	3.088.880	1,0081	65,3%
Total RBD EL05	**58.836.263**	**1,7025**	**43.506.435**	**1,2589**	**73,9%**

Figure 7-1. Financial Cost Recovery for Water Supply



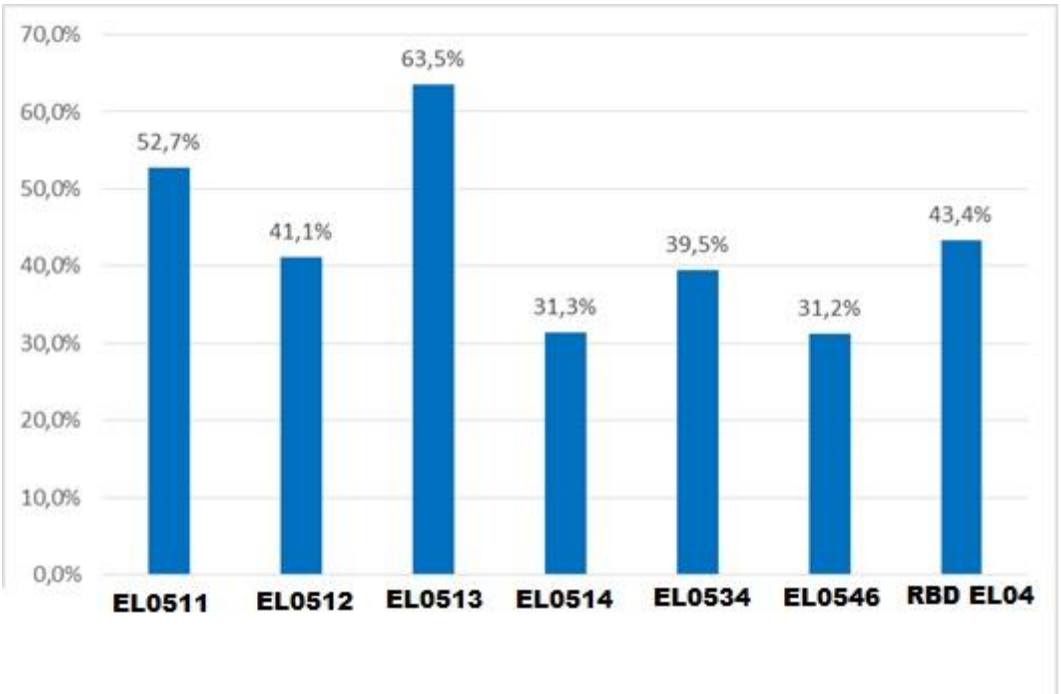
7.1.2 Irrigation

The total financial cost for Irrigation services in Epirus RBD (EL05) is 12 M €. Cost recovery is 43 % (revenues 5,2 M € - 12 M € expenses).

Table 7-2. Financial Cost Recovery for Irrigation services

RB	Total financial cost (€)	Average financial unity cost (€/m³)	Total Revenues (€)	Average unit revenues (€/m³)	Financial Cost Recovery
AOOS RB (EL0511)	473.058	0,0332	249.414	0,0175	52,7%
KALAMAS RB (EL0512)	3.219.850	0,04058	1.323.950	0,01669	41,1%
ACHERONTAS RB (EL0513)	3.180.290	0,06415	2.018.984	0,04073	63,5%
ARACHTHOS RB (EL0514)	1.091.364	0,0352	341.923	0,0110	31,3%
KERKYRA - PAXOI RB (EL0534)	27.709	0,0451	10.936	0,0178	39,5%
LOYROS RB (EL0546)	3.921.648	0,0426	1.222.922	0,0133	31,2%

Figure 7-2. Financial Cost Recovery for Irrigation services



7.2 ENVIRONMENTAL COST AND RESOURCE COST

7.2.1 Environmental Cost

The environmental cost at RDB level amounts to € 1,05 million for all years of implementation. 53.7% of the environmental cost is attributed to RB Acherontos (EL0513), 0,76% to RB Arachthos (EL0514), 5,52% to RB Louros (EL0546), 4.8% to RB Kerkyra-Paxoi (EL0534). Regarding Kalamas RB, because the environmental costs are related only to the Pamvotis subbasin and incorporating the relevant comments that emerged during the consultation phase, the environmental costs were calculated separately for the Pamvotism Sub-Basin. Thus, the remaining 35,22% of the environmental costs are

related to the Pamvotis sub-basin, while in the rest of Kalamas RB there are no environmental costs. The unit environmental cost at RBD level is estimated at € 0,0032 / m^3.

Table 7-3. Annual Environmental Cost

RB	Annual Environmental Cost (€)	Average Environmental Cost (€/m^3)
PAMVOTIS SUBBASIN	370.000	0,010
ACHERONTAS RB (EL0513)	564.000	0,008
ARACHTHOS RB (EL0514)	8.000	0,0001
KERKYRA-PAXOI RB (EL0534)	58.000	0,0005
LOYROS RB (EL0546)	50.000	0,0018
TOTAL RBD EL05	1.050.000	0,0032

The Table below shows the Environmental cost per water use per RB.

Table 7-4. Environmental Costs per Water Uses in the RBs of the Epirus RBD (EL05)

Environmental cost	Households	Agriculture	livestock breeding	Industry	Total
PAMVOTIS SUBBASIN					
Total cost for all years of PoM implementation (€) (2018-2021, 4 years)	134.407,16	180.827,74	45.011,19	9.753,91	370.000
Annual cost per service (€)	33.601,79	45.206,94	11.252,80	2.438,48	92.500
Percentage (%)	36,33%	48,87%	12,17%	2,64%	100%
Average Cost (€/m^3)	**0,00224**	**0,0031**	**0,0022**	**0,00224**	**0,0026**
ACHERONTAS RB (EL0513)					
Total cost for all years of PoM implementation (€) (2018-2021, 4 years)	49.594,38	511.019,94	2.230,74	1.154,94	564.000
Annual cost per service (€)	12.398,60	127.754,98	557,69	288,73	141.000
Percentage (%)	8,79%	90,61%	0,40%	0,20%	100%
Average Cost (€/m^3)	**0,0017**	**0,0021**	**0,0019**	**0,0017**	**0,002**
ARACHTHOS RB (EL0514)					
Total cost for all years of PoM implementation (€) (2018-2021, 4 years)	869,92	6.873,41	204,05	52,62	8.000
Annual cost per service (€)	217,48	1.718,35	51,01	13,16	2.000
Percentage (%)	10,87%	85,92%	2,55%	0,66%	100%
Average Cost (€/m^3)	**0,00003**	**0,00003**	**0,00003**	**0,00003**	**0,00003**
LOYROS RB (EL0546)					
Total cost for all years of PoM implementation (€) (2018-2021, 4 years)	358,80	57.482,67	104,38	54,15	58.000
Annual cost per service (€)	89,70	14.370,67	26,09	13,54	14.500
Percentage (%)	0,62%	99,11%	0,18%	0,09%	100%
Average Cost (€/m^3)	**0,00002**	**0,00013**	**0,00002**	**0,00002**	**0,00012**
KERKYRA-PAXOI RB (EL0534)					
Total cost for all years of PoM implementation (€) (2018-2021, 4 years)	24.658,03	24.658,03	-	683,95	50.000

Environmental cost	Households	Agriculture	livestock breeding	Industry	Total
Annual cost per service (€)	6.164,51	6.164,51	-	170,99	22.917
Percentage (%)	49,32%	49,32%	-	1,37%	100%
Average Cost (€/m³)	**0,0004**	**0,0004**	**-**	**0,0004**	**0,0004**

In the sub-basin of Pamvotida, 48,87% of the total environmental cost is in agriculture and 36,33% in the household use, 90,61% of the total environmental costs in RB Acherontas are in agriculture and 8,79% in household use, 85,92% of the total environmental costs in RB Arachthos concern agriculture and 10.87% household use, while in RB Louros 99,11% of the total environmental costs are in agriculture and 0.62% in households use. In Kerkyra-Paxoi RB, 49,32% of the environmental cost concerns household use and the remaining 49,32% in agriculture. It is noted that household use includes the supply of drinking water and waste.

7.2.2 Resource cost

There is no resource Cost in the RBD of Epirus.

8 ENVIRONMENTAL OBJECTIVES - EXEMPTIONS

The environmental objectives set for the 106 SWB of the RBD by 2021 are presented in the following table:

Table 8-1. SWB Environmental objectives by 2021

Environmental Objective	Number of SWB
Maintain good / high ecological status/potential	70
Maintain good chemical status	98
Achieve good ecological status	0
Achieve good chemical status	0
Determine the ecological status/potential	4
Determine the chemical status	7
Exemption Article 4.4 (Deadline extension)	32

The environmental objectives set for the 27 GWB of the RBD by 2021 are presented in the following table:

Table 8-2. GWB Environmental objectives by 2021

Environmental Objective	Number of GWB
Maintain good quantitative status	27
Maintain good chemical status	26
Achieve good quantitative status	0
Achieve good chemical status	0
Exemption Article 4.4 (Deadline extension)	1

9 PROGRAMME OF MEASURES

The Programme of Measures is part of the Management Plan and is the "mechanism" for achieving the environmental objectives set. Especially the implementation of the Programme 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 through the discharge and the emission of hazardous substances.
- the protection, the improvement and the remediation of groundwater water bodies, the prevention of their pollution and the deterioration of their water status in order to balance between abstraction and renewal.
- 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 Directive are the minimum requirements to be met and include:

• Measures for the implementation of EU and national legislation on water protection (**Group I**).

• Other Basic Key Measures (**Group II**). These basic measures are related to the basic principles of EU and national legislation on water management and relate to the horizontal implementation of actions in groups, usually, water bodies, with a view to achieving or maintaining good status in water.

The **Supplementary Measures** are the measures established and implemented in addition to the Basic Measures, in order to achieve the objectives set in accordance with Article 4 of Directive 2000/60 / EC. Member States may adopt further supplementary measures with a view to additional protection or improvement of the waters covered by the Directive.

9.1 PROGRESS OF IMPLEMENTATION OF THE 1ST RBMP PoM

The PoM of the 1st RBMP included 39 Basic Measures (13 Group I and 38 Group II).

Table 9-1. Number of Basic Measures of 1st RBMP per category of Actions

Actions concerning measures	Number of measures
Administrative acts	23
Constructions	2
Studies	5
Measures relating to administrative acts but requiring specific studies or surveys	8
Measures relating to Services / advisory actions	1
Total	**39**

Table 9-2. Progress of the implementation of the Basic Measures of the Program of Measures of the 1st RBMP

Category of Measures	Total number of measures	Number of measures already implemented	Number of measures in progress / under construction	Number of measures not started
Measures deemed appropriate for the purposes of Article 9 (cost recovery)	1		1	
Measures to promote an efficient and sustainable water use in order to avoid compromising the achievement of the objectives specified in Article 4	8		7	1
Measures to meet the requirements of Article 7 (drinking water)	5	2	3	

Category of Measures	Total number of measures	Number of measures already implemented	Number of measures in progress / under construction	Number of measures not started
Measures for the controls over the abstraction of surface water and groundwater	7	4	3	
Measures for the controls of artificial recharge of GWB	2		2	
Measures for point source discharges	9		7	2
Measures for diffuse sources liable to cause pollution	2		1	1
Measures for any other significant adverse impacts on the status of water	2		1	1
Special Measures for the priority substances and other substances	1			1
Measures for the prevention of accidental pollution incidents / extreme whether events	2			2
Total	**39**	**6**	**25**	**8**

In addition to the above basic measures, the program of measures of the 1st RBMP included 39 supplementary measures, of which 11 are horizontal supplementary, covering 9 categories of measures of Directive 2000/60/EC.

Table 9-3. Progress of the implementation of the Supplementary Measures of the Program of Measures of the 1st RBMP

Category of Measures	Total number of measures	Number of measures already implemented	Number of measures in progress / under construction	Number of measures not started
Legislative instruments /Administrative instruments	2	1	1	
Economic or fiscal measures	2			2
Negotiated environmental agreements	3		3	
Emission controls	5	3	2	
Research, development and demonstration projects	4			4
Abstraction controls	4		4	
Construction projects	6		2	4
Educational measures	2		2	
Recreation and restoration of wetlands areas	1			1
Infrastructure rehabilitation projects	4			4
Demand management measures	1		1	
Total	**39**	**14**	**16**	**9**

9.2 PRORGAMME OF BASIC AND SUPPLEMENTARY MEASURES

Measure Implementation Timeline

In relation to the referring to the Measure Implementation Timeline, these are distinguished as:

- Short-term, which can be immediately applied.
- Mid-term, for which a preparation period is required for their implementation. This period estimated up to 2 years.
- Long-term, for which the preparation and/or construction period of measures exceeds the period of 2 years.

With regards to the mid-term and long-term implementation measures, the competent bodies responsible for the implementation should include in their immediate schedule all these acts needed for the maturation of the actions of measures, with the scope of including them in funding programmes. For the implementation progress of the programme, Water Directorates and the SSW should inform the competent bodies involved to design a wholistic time schedule for the action implementation, within their administrative boundaries of competence.

Bodies for measure implementation

In relation to the bodies for the implementation of measures, the following clarifications are made:

- For every measure its implementation body is mentioned. All the bodies responsible for supervising the programme implementation are defined by law, and these are the SSW and the Water Directorates of the Decentralized Administrations.
- The SSW coordinates and supervises the implementation of measures which are executed by Ministries and/or bodies of the Central Government. The Water Directorate coordinates and supervises the implementation of measures that are executed by regional services and/or bodies.
- The selection of the implementation bodies was made based on their competence, as it came up from the current institutional framework and the public administration structure.
- Reference on the implementation bodies is made on the basis of the senior administrative level of each body. In cases where lower administrative levels are referred to (e.g. Directorate or Department), this reference should only be indicative. The implementation body is the only one responsible for the inner distribution of competences for the implementation of measures based on the services provided. Additionally, the body should define the means and human resources needed for the implementation of its obligations.
- It is clarified that for the measures and actions the competent Water Directorate of the Decentralized Administration is referred to as implementation body, in cases where it would be incapable of implementing any phase or stage or even the measure as a whole, for any reason, this could be implemented in coordinaton with the SSW or with other competent services of the Decentralized Administration and the Administrative Regions.
- Regarding the implementation of the current Measure Programme, the spatial competence of the Regions and Decentralized Administrations, excluding the Water Directorates, is taking place within their administrative boundaries.
- In cases where more that one body is referred to, the first one is the implementation body of the measure and the following are supplementary.
- The National Water Committee, according to the No.706/2010 Decision (GG 1383/B/2010 and GG 1572/B/2010 - correction of Annex II) and the approval of the various River Basin Management Plans, defines the competent Decentralized Administrations per River Basin for each River Basin District of the country.

- According to the No. 160817/20.12.2016 Decision of ΜΕΕ (ΑΔΑ: 7ΔΠΘ4653Π8-8ΓΡ), the members of the Regional Task Team for each RBD were defined, which is responsible for the coordination of the measure implementation in the RBD level.
- The measures could be also implemented by additional bodies, provided that this is predicted by the current institutional framework.

New projects and activities

It is clarified that in cases where during the current Programme of Basic and Supplementary Measures, prohibitions or restrictions or certain requirements for "new" projects or activities are predicted, these do not refer to projects or activities or extension/modifications which, during the time the 1st Revision of the RBMP was in force, are either in progress or under construction or they belong to more than one of the following cases:

1. An approval of environmental terms has been granted or a positive advise by the competent Water Directorate of the Decentralized Administration has been given, during the Environmental licensing process.
2. A permit application has been submitted, in relation to the execution of water utilization projects or to water usage, and has not been rejected from the request body.
3. They have not been included in funding programmes.
4. The execution permit of the projects or activities has been expired, but their execution has not been commenced and renewal is requested, while their technical characteristics have not been changed.
5. An administrative act for the project implementation has been occur, which provides the capability for the permit process of the project to advance.

In cases where projects fall into case 5 above, the Water Directorate could set additional specific terms/measures for the project or activity installation, with the scope of protecting the related WB's and according to the 1st Revision predictions.

In case of serious reservations and doubts by the Water Directorate of the Decentralized Administration with regards to the inclusion or not in a certain project/activity in one of the above cases, the SSW should be consulted.

It is clarified that the current projects mentioned in the RBMP are not related to the current ones or the current water usages mentioned in the JMD 146896/2014 (completed water abstraction works or usages before 27-10-2014).

9.2.1 Actions implementing EU Directives (Group I Basic Measures)

The planned actions for the implementation of EU Directives and National legislation for the protection of WB are presented in the following table.

Table 9-4. Actions for the implementation of EU Directives

DIRECTIVE	PLANNED ACTIONS	IMPLEMENTING BODIES
Bathing water Directive (2006/7/ EC)	• Continue to monitor the quality of bathing water in accordance with Directive 2006/7 / EC.	Special Secretariat for Water,

DIRECTIVE	PLANNED ACTIONS	IMPLEMENTING BODIES
	• Updating the Greek Bathing Water Profiles Registry	Directorate of Water of the Decentralized Administration
Habitats Directive (92/43/EEC) Birds Directive (2009/147/ EC)	• Setting /Approval Management Plans for protected areas of Natura 2000 network relating with water management issues	Ministry of Environment and Energy, Protected Areas Management Bodies
	• Monitoring/Assessment of the conservation status of habitats and species directly depending on water in Natura 2000 areas.	
Drinking water (Directives 98/83/ EC, 2015/1787/ EC)	• Monitoring of the implementation of the Directive	Ministry of Health
Environmental Impact Assessment Directives (2011/92/EC, 2014/52/EC)	Amendment of the Ministerial Decision 170225/2014 – (Specifications for the contents of environmental permitting dossiers for projects and activities of category A) so that for certain categories of projects, which should be first specified, to make the following mandatory: • Emissions of pollutants by category, • Calculation of pollution impacts in WB defined in the Management Plans and • Comparing these concentrations with the Environmental Quality Standards. • Establishment of a monitoring program and notification of results to the relevant Water Directorate.	Ministry of Environment and Energy
Industrial Emissions Directive IED, (2010/75/EC)	• Keeping registration and records of installations that are in line with the provisions of the Directive	Decentralized administration
Nitrates Directive (91/676/ EC)	• Implementation of New Action Plans. The drafting of New 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.	Ministry of Rural Development and Food
	• Systematic monitoring of nitrate levels in WBs that are or may be subject to nitrate pollution.	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)	• Rational use of plant protection products	Ministry of Rural Development and Food
Major Accidents (Seveso) Directive (2012/18/EC)	• Keeping registration and records of installations that are in line with the provisions of the Directive	Decentralized administration

DIRECTIVE	PLANNED ACTIONS	IMPLEMENTING BODIES
Sewage sludge Directive (86/278/EEC)	• 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.	Ministry of Environment and Energy
Urban Waste Water Treatment Directive (91/271/ EC, 98/15/ EC)	• 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.).	Region, MEWSS, Municipalities
	• Strengthening actions to control the effective operation of existing wastewater treatment and drainage projects.	Region

9.2.2 Basic Measures of other categories (Group II Basic Measures)

Table 9-5. Basic measures of other categories

CODE & NAME OF MEASURE	CATEGORY	CONECTION WITH THE 1st RBMP	IMPLEMENTING BODIES
M05B0201 Upgrading of the organizational function of organizations of land reclamation 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
M05B0202 Upgrade of the organizational function of MEWSS 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
M05B0203 Upgrading of the organizational function of the Local Government Organizations 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

CODE & NAME OF MEASURE	CATEGORY	CONECTION WITH THE 1st RBMP	IMPLEMENTING BODIES
M05B0204 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)
M05B0301 Preparation / Update of the Water Supply Masterplan	Measures to promote an efficient and sustainable water use (Art. 4)	Amendment / Specialization of measure WD05B080	MEWSS / Municipals /Water suppliers/ Decentralized Administration (Water Directorate)
M05B0302 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 / Specialization of the measure WD05B110	Municipals / MEWSS / Drinking water providers / Region / Decentralized Administration (Water Directorate)
M05B0303 Increase the efficiency of water use in land reclamation infrastructures	Measures to promote an efficient and sustainable water use (Art. 4)	Modification / Specialization of the measure WD05B060	Ministry of Rural Development and Food, Regions
M05B0304 Investments for saving water in agriculture	Measures to promote an efficient and sustainable water use (Art. 4)	Modification / Specialization of the measure WD05B060	Individuals / Irrigation water providers / Ministry of Rural Development and Food / Regions
M05B0305 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 WD05B160	Decentralized Administration (Water Directorate), Regional directorate of Rural Economy and Veterinary Medicine
M05B0306 Strengthening loss reduction actions on collective irrigation networks	Measures to promote an efficient and sustainable water use (Art. 4)	Modification / Specialization of the measure WD05B060	GOLR/LOLR/ Collective Irrigation Networks, Region
M05B0307 Preparation of manual of technical specifications for application of water reuse methods	Measures to promote an efficient and sustainable water use (Art. 4)	Specialization of the measure WD05B070	Ministry of Environment & Energy (Special Secretariat for Water)
M05B0308 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)
M05B0401 Definition and delimitation 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 measure WD05B090	Decentralized Administration (Water Directorate) and Drinking water providers (MEWSS, Municipals etc.)

CODE & NAME OF MEASURE	CATEGORY	CONECTION WITH THE 1st RBMP	IMPLEMENTING BODIES
M05B0402 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 / Specialization of the measure WD04B130	Decentralized Administration (Water Directorate)
M05B0403 Surface water projects for water supply protection	Measures to meet the requirements of Article 7 (drinking water)	Modification / Specialization of the measure WD05B115	Municipals / MEWSS / Water providers / Decentralized Administration (Water Directorate)
M05B0404 Implementation of Water Safety Plans	Measures to meet the requirements of Article 7 (drinking water)	Modification / Specialization of the measure WD05B020	MEWSS, Municipals, Drinking water providers, Decentralized Administration (Water Directorate)
M05B0501 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) area of GWBs with a Bad quantitative status (b) the protection zone II of the abstraction projects serving the water supply networks that operated by Municipals, Municipal links, MEWSS, Inter-MEWSS and drinking water companies , c) zones of collective irrigation networks d) coastal GWB with extensive or local sanitation problem, regardless of their origin	Measures to control surface and groundwater abstractions	Modification / Specialization of the measure WD05B200	Decentralized Administration (Water Directorate)
M05B0502 Annual electronic recording of measurements of surface and groundwater abstractions	Measures to control surface and groundwater abstractions	Modification / Specialization of the measure WD05B140 and WD05B150	Ministry of Environment & Energy (Special Secretariat for Water), Decentralized Administration (Water Directorate), Regions
M05B0601 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	Continuation of measure WD05B210	Region, Municipals, Decentralized Administration (Water Directorate), Region
M05B0602 Establishment of a National Register of Waste Disposal Sites (Joint Ministerial Decision 145116/2011 (Government Gazette 354B)	Measures to control the artificial recharge of groundwater aquifers	Continuation of measure WD05B350	Ministry of Environment & Energy (Special Secretariat for Water), Decentralized Administration (Water Directorate)
M05B0701 Strengthening environmental inspections and controls	Measures for point source pollution	NEW MEASURE	Region
M05B0702 Modernization of national legislation on waste and industrial waste management	Measures for point source pollution	Continuation of measure WD05B280	Ministry of Environment & Energy (Special Secretariat for Water), Ministry of health

CODE & NAME OF MEASURE	CATEGORY	CONECTION WITH THE 1st RBMP	IMPLEMENTING BODIES
M05B0703 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	Modification / Specialization of the measure WD05S090	Landfill Operators, National Monitoring Network coordinated by the Water Directorate
M05B0704 Conditions for the licensing of new / extension of existing aquaculture units	Measures for point source pollution	NEW MEASURE	Ministry of Environment & Energy, Decentralized Administration, Region
M05B0705 Preparation of rules for cesspit protection	Measures for point and diffuse source of pollution	Modification / Specialization of the measure WD05S070	Decentralized Administration (Water Directorate)
M05B0801 Bilogical agriculture	Measures for diffuse source pollution	Modification / Specialization of the measure WD05B310.	Ministry of Rural Development and Food (Directorate of Quality Systems, Organic Production and Geographical Indications)
M05B0802 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	Continuation of measure WD05B320	Ministry of Environment & Energy (Environmental Certification Directorate), Ministry of Rural Development and Food
M05B0803 Reduce diffuse pollution from agriculture in the vulnerable zones of the Directive 91/676/EEC	Measures for diffuse source pollution	NEW MEASURE	Ministry of Rural Development and Food, Region
M05B0901 Establishment of an institutional framework for the definition of the conditions for the protection of recreational inland waters in Article 6 of Directive 2000/60 / EK - Temporary regulation of new projects in inland water bodies which are included as recreational waters in the Register of Protected Areas under Article 6 of Directive 2000/60 / EC	Measures to confront the negative effects on water status	Continuation of measure WD05B330	Ministry of Environment & Energy (Special Secretariat for Water), Decentralized Administration (Water Directorate)
M05B0902 Determination of minimum natural lakes level, determination of maximum range of reservoir level variation	Measures to confront the negative effects on water status	NEW MEASURE	Project principal, Region, Protected Areas Management Bodies, Decentralized Administration (Water Directorate)
M05B0903 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	Modification / Specialization of the measure WD05B170	Ministry of Environment & Energy (Special Secretariat for Water)
M05B0904 Special Measures to Achieve Good Ecological dynamic in Heavily Modified Water Body/ 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
M05B0905 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 WD05B340	Region, Decentralized Administration (Water Directorate)

CODE & NAME OF MEASURE	CATEGORY	CONECTION WITH THE 1st RBMP	IMPLEMENTING BODIES
M05B0906 Monitoring, recording and rehabilitation of coastal erosion	Measures to confront the negative effects on water status	NEW MEASURE	Ministry of Infrastructure, Transport and Networks, Decentralized Administration (Water Directorate), Amvrakikos Management Body
M05B1101 Compilation of pollution sources register (emissions, discharges and leaks)	Measures for Priority Substances and other pollutants.	Modification / Specialization of the measure WD05B360	Ministry of Environment & Energy (Special Secretariat for Water), Amvrakikos Management Body
M05B1102 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 FSX parameters in relation to the quality objectives set out in the Management Plans	Measures for Priority Substances and other pollutants.	Continuation of measure WD05B240	Decentralized Administration (Water Directorate), Ministry of Environment & Energy (Special Secretariat for Water)

9.2.3 Supplementary measures

For achieving the goals of the RBMP, the implication of the basic measures is essential to be supported by supplementary measures.

Methodologically, supplementary measures were suggested:

a) For the conservation of the status of the SWB's and the GWB's, along with increasing the knowledge and awareness related to the rational water usage of targeted users. In this case, the supplementary measures are horizontally implied and the WB's to be impacted are not exclusively defined.

b) For WB's estimated that, despite the measure programme implication, won't reach their "good status" goal by 2021, and more specifically:

- For WB's that, according to measurements of their qualitative and quantitative parameters or to the new grouping methodological approach, have a "lower than good" status.
- For WB's that, while they have an unknown or good status, there are certain indications through the analysis of the pressures, that they are in danger of not achieving their environmental goals.

Measurements of (b) case are taken into consideration for the calculation of the environmental coast and/or the resource cost, according to the predictions of the JMD 135275 of the National Water Committee (GG 1751/B/22-05-2017).

The table that follows records the WB's of the RBD for which the adoption of specific supplementary measures is required.

Table 9-6. Supplementary measures

CODE & NAME OF MEASURE	CATEGORY	CONECTION WITH THE 1st RBMP.	AFFECTED WB	IMPLEMENTING BODIES	IMPLENTATION COST (€)
M05Σ0201 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 WB	Decentralized Administration (Water Directorate)	650.000
M05Σ0401 Initiatives on making an environmental agreement between the Management Authority of the protected areas of wetlands system of Amvrakikos and the agricultural sector in order to reduce the negative effects of farming on the wetland habitats.	Environmental agreements after negotiations	The measure is related to the WD05S030 measure of the first RBMP	EL0513C0007N (Voreios Amvrakikos kolpos), EL0514R000100048 N (DIPOTAMON R.), EL0514R000200051 N (ARACHTHOS P.2), EL0546R000200081 N (LOYROS P.4), EL0546R000202079 N (LOYROS P. - PARAPOTAMOS)	Amvrakikos Wetlands Management Body	20.000
M05Σ0402 Initiatives on making an environmental agreement between the Management Authority of the protected areas of wetlands system of Amvrakikos and the Authorities of fishermen and aquaculture in order to limit any possible negative effects of the extensive and intensive aquaculture on the status of the transitional and coastal water bodies and ecosystems.	Environmental agreements after negotiations	The measure is related to the WD05S040 measure of the first RBMP	EL0513C0007N (Voreios Amvrakikos kolpos)	Amvrakikos Wetlands Management Body	20.000
M05Σ0501 Inspections at the estuaries of rainwater pipelines and other point sources of pollution that result in surface water bodies	Emission control	New measure	All WB	Municipals / MEWSS / Region / Decentralized Administration (Water Directorate), Ministry of Environment & Energy (Special Secretariat for Water	2000 per sample
M05Σ0502 Implementation of investment in agriculture and livestock holdings, aiming on improving environmental performance.	Emission control	New measure	All WB	Ministry of Rural Development and Food / Regions	190.500

CODE & NAME OF MEASURE	CATEGORY	CONECTION WITH THE 1st RBMP.	AFFECTED WB	IMPLEMENTING BODIES	IMPLENTATION COST (€)
M05Σ0503 Inspections for compliance with the limits of disposal by industrial processing and livestock farms in a catchment area of the WBD at least twice a year	Emission control	New measure	EL0512L000000004 H (Limni Pamvotida), EL0512R000212139 A (Tafros Lapsista)	Region, Decentralized Administration (Water Directorate)	200.000
M05Σ0701 Projects for the improvement of the hydraulic connection between some parts of the wetland systems of Amvrakikos, which are facing problems of insufficient fresh or saltwater supply.	Recreation and restoration of wetlands	The measure is related to the WD05S110 measure of the first RBMP	EL0513C0007N (Voreios Amvrakikos kolpos)	Amvrakikos Wetlands Management Body	500.000
M05Σ0702 Assessment of a study for the examination of the possibility of the development of new wetland areas around of the Surface watersources of Pamvotida Lake.	Recreation and restoration of wetlands	The measure is related to the WD05S120 measure of the first RBMP	EL0512L000000004 H (LIMNI PAMVOTIDA)	Amvrakikos Wetlands Management Body	100.000
M05Σ0801 Systematic monitoring of quality state in Licensed abstractions wells in ground water bodies with high natural background level (chlorides)	Abstractions Control	The measure is related to the WD05S160 measure of the first RBMP	EL0500010 (Systima asvestolithon N, Kerkyras), EL0500040 (Systima N, Paxon-antipaxon), EL0500050 (Systima N, Othonon-ereikousas - mathrakiou), EL0500170 (Systima Pargas), EL050A070 (Systima Filiaton-igoumenitsas)	Region, Decentralized Administration (Water Directorate)	0
M05Σ0802 Installing operating valve in artesian wells	Abstractions Control	The measure is related to the WD05S150 measure of the first RBMP	All WB	Principal of the abstraction project, Decentralized Administration (Water Directorate), Region	0
M05Σ0803 Prohibiting the construction of new groundwater abstraction projects to the subsystem of GWB Mitsikeliou (EL0500181), with an exception on special cases	Abstractions Control	The measure is related to the WD05S130 measure of the first RBMP	EL0500181 (Yposystima Mitsikeliou tou Systimatos Mitsikeliou-vella)	Decentralized Administration	

CODE & NAME OF MEASURE	CATEGORY	CONECTION WITH THE 1st RBMP.	AFFECTED WB	IMPLEMENTING BODIES	IMPLENTATION COST (€)
M05Σ0804 Prohibiting the construction of new groundwater abstraction projects to the subsystem of EL0500141 Prevezas of the GWB Systima Chersonisou Prevezas EL0500140	Abstractions Control	New measure	EL0500140 (Systima Chersonisou Prevezas)	Decentralized Administration	
M05Σ0805 Reduction or replacement of groundwater with pumping's abstractions from a SWB or other GWB or technical project (Ponds, dams, desalination)	Abstractions Control	New measure	EL0500140 (Systima Chersonisou Prevezas)	Decentralized Administration (Water Directorate) / Regions / Municipals	50.000
M05Σ0806 Restrictions and conditions for the construction of new water abstraction projects in the limestone systems N. Kerkyras (EL0500010) & kokkodon ydroforion N. Kerkyras (EL0500030)	Abstractions Control	New measure	Systima asvestolithon N. Kerkyras (EL0500010) Systima kokkodon ydroforion N. Kerkyras (EL0500030)	Decentralized Administration (Water Directorate)	0
M05Σ1001 Preparation of reuse of wastewater treatment studies for all existing tertiary treatment waste water treatment plants	Efficiency and reuse measures	New measure	All WB	Project owner, Decentralized Administration (Water Directorate) / Regions / Municipals /MEWSS	40.000 (for each waste water treatment plant)
M05Σ1301 Restoration of the communication between Santiniko and piges Amphitheas with Pamvotis.	Projects of Infrastructure Rehabilitation	The measure is related to the WD05S340 measure of the first RBMP	EL0512L000000004 H (Limni Pamvotida)	Decentralized Administration	250.000
M05Σ1401 Enrichment of the groundwater of Preveza from Louros River	GWBs Artificial enrichment	New measure	Chersonisou Prevezas (EL0500140)	Water Directorates, Regions	150.000
M05Σ1402 Enrichment of the groundwater of Kanaliou-kastrosykias from Cheimaro Arethonas	GWBs Artificial enrichment	New measure	Chersonisou Prevezas (EL0500140)	Water Directorates, Regions	150.000
M05Σ1501 Professtional training of farmers for the protection of water bodies	Educational measures	New measure	All WB	Special Management Service of the Rural Development Program of Ministry of Rural Development and Food, Regions	97.155

CODE & NAME OF MEASURE	CATEGORY	CONECTION WITH THE 1st RBMP.	AFFECTED WB	IMPLEMENTING BODIES	IMPLENTATION COST (€)
M05Σ1502 Informing and raising public awareness of water issues	Educational measures	New measure	All WB	Ministry of Environment & Energy (Special Secretariat for Water), Regions, MEWSS/ Decentralized Administration (Water Directorate)	50.000
M05Σ1503 Strengthening environmental program actions in Primary Education	Educational measures	New measure	All WB	Ministry of Environment & Energy (Special Secretariat for Water) and Ministry of Education, Research and Religious Affairs, Decentralized Administration (Water Directorate)	50.000
M05Σ1601 Pilot measures to apply precision agriculture	Research, development & demonstration programmes	New measure	All WB	Ministry of Rural Development and Food, Region	167.640
M05Σ1602 Consultancy services for agriculture exploitation management	Research, development & demonstration programmes	New measure	All WB	Ministry of Rural Development and Food, Region	259.080
M05Σ1603 Design and implementation specific program exploratory monitoring with the aim of collecting data on the baseline identification of WB Downstream Dams as HMWB	Research, development & demonstration programmes	New measure	EL0511R0A0200021 N (AOOS P.6), EL0514R000200051 N (ARACHTHOS P.2)	Ministry of Environment & Energy	180.000
M05Σ1604 Implementation of Special Control Programme for active substances which are contained in agrochemicals and which have been banned.	Research, development & demonstration programmes	The measure is related to the WD05S310 measure of the first RBMP	EL0512L000000004 H (LIMNI PAMVOTIDA), EL0513C0007N (Voreios Amvrakikos kolpos), EL0546R000201077 N (LOYROS P.1)	Decentralized Administration	150.000
M05Σ1605 Assessment of the Eco-Carrying Capacity of Louros river regarding the potential of trout plants placement	Research, development & demonstration programmes	The measure is related to the WD05S300 measure of the first RBMP	EL0546R000200081 N (LOYROS P.4)	Region	50.000

CODE & NAME OF MEASURE	CATEGORY	CONECTION WITH THE 1st RBMP.	AFFECTED WB	IMPLEMENTING BODIES	IMPLENTATION COST (€)
M05Σ1606 Monitoring of the anxicity observed in the Amvrakikos Bay and the time evolution of this stratification	Research, development & demonstration programmes	New measure	EL0513C0007N (Voreios Amvrakikos kolpos)	Amvrakikos Wetlands Management Body	100.000
M05Σ1607 Assessment of the Eco-Carrying Capacity of the areas « Ekvoles Kalama" and "Lorida Sagiadas"	Research, development & demonstration programmes	New measure	WBs of RB Kalamas	Region, Acherontas – Kalamas Management Body	50.000
M05Σ1608 Monitoring of the SWB with Unknown ecological and chemical status and the SWB with Failing to achieve Good status	Research, development & demonstration programmes	New measure	EL0534T0007N (Limnothalassa Chalikiopoulou), EL0534T0006N Limnothalassa Antinioti), EL0534R000101074N (Potami)	Ministry of Environment & Energy (Special Secretariat for Water), Directorate of Forests	50.000

10 NEXT STEPS

The objective of the 1st Update of the River Basin Management Plan is to prevent further deterioration, to protect and improve the status of inland surface, transitional, coastal and groundwater, as well as directly dependent terrestrial ecosystems and wetlands. In order to achieve this goal, the implementation of the Programme of Basic and Supplementary Measures is necessary.

The PoM is designed in such a way that the priority of each intervention is clearly defined according to its cost, its effectiveness, the importance of the WB being implemented and the necessary time of preparation.

All elements of the PoM are important, but some planning and prioritization is needed in order to monitor the progress of implementation of the PoM and identify where corrective interventions are required when deviations from targets are identified.

With the responsibility of the Water Directorate of the Decentralized Administration an **Action Plan for the implementation of the 1st Update of the RBMP** of the RBD is being prepared.

To this end, the Regional Working Group for the Implementation of the PoM of the RBMP of the RBD of the Country, which was established during the implementation of the 1st RBMP, is required to prepare the above Action Plan .

11 EPIRUS (EL05) RBD STATISTICAL DATA

The following Tables present aggregated statistics for the Epirus (EL05)

Table 11-1. Categories of WB per RB of Epirus (EL05)

WB Categories	RB Aoos (EL0511)	RB Kalamas (EL0512)	RB Acherontos (EL0513)	RB Arachthos (EL0514)	RB Kerkyra-paxoi (EL0534)	RB Louros (EL0546)	Total RBD
River WB	22	19	6	26	3	6	82
Lake WB	1	1	0	2	0	0	4
Transitional WB	0	1	1	1	3	1	7
Coastal WB	0	3	4	0	6	0	13
TOTAL OF SWB	23	24	11	29	12	7	106
Groundwater WB	3	9	6	1	5	3	27
TOTAL WB	26	33	17	30	17	10	133
Heavily modified water bodies (HMWB) and artificial Water bodies (AWB)	1	6	0	3	1	0	11
WB Connection with protected areas	22	22	10	29	9	8	100

Table 11-2. Typology of SWB per RB of Epirus (EL05)

TYPOLOGY OF SWB	RB Aoos (EL0511)	RB Kalamas (EL0512)	RB Acherontos (EL0513)	RB Arachthos (EL0514)	RB Kerkyra-paxoi (EL0534)	RB Louros (EL0546)	Total RBD
River WB	**22**	**19**	**6**	**26**	**3**	**6**	**82**
Type R-M1	6	2	0	7	2	0	17
Type R-M2	14	4	2	14	0	0	34
Type R-M3	1	8	0	5	0	0	14
Type R-M4	1	5	4	0	1	6	17
Type R-M5	0	0	0	0	0	0	0
Reservoirs	**0**	**1**	**0**	**0**	**0**	**0**	**3**
Type L-M5/7	1	0	0	1	0	0	2
Type L-M8	0	0	0	0	0	0	0
Type GR-SR	0	0	0	1	0	0	1
Lake WB	**0**	**1**	**0**	**0**	**0**	**0**	**1**
Type GR-DNL	0	0	0	0	0	0	0
Type GR-SNL	0	1	0	0	0	0	1
Type GR-VSNL	0	0	0	0	0	0	0
Type GR-SP1	0	0	0	0	0	0	0
Transitional WB	0	0	0	0	0	0	0
Type TW 1	**0**	**1**	**1**	**1**	**3**	**1**	**7**
Type TW 2	0	0	1	0	3	0	4
Coastal WB	0	1	0	1	0	1	3
Type IIIE	**0**	**3**	**4**	**0**	**6**	**0**	**13**

Table 11-3. Assessment (classification) results of SWBs status per RB in RBD of Epirus (EL05)

STATUS/POTENTIAL			RB Aoos (EL0511)				RB Kalamas (EL0512)				RB Acherontos (EL0513)				RB Arachthos (EL0514)			
			Number	% of Number	Length (km)	% of Length	Number	% of Number	Length (km)	% of Length	Number	% of Number	Length (km)	% of Length	Number	% of Number	Length (km)	% of Length
RIVER WB																		
TOTAL	ECOLOGICAL	High																
		Good	19	86,36%	237,6	75,52%	12	63,16%	195,6	68,49%	3	50,00%	60,8	57,41%	19	73,08%	201,4	68,60%
		Moderate	3	13,64%	77	24,48%	5	26,32%	74,3	26,02%	3	50,00%	45,1	42,59%	5	19,23%	58,5	19,93%
		Poor					1	5,26%	12,8	4,48%								
		Bad													1	3,85%	20,3	6,91%
		Unknown					1	5,26%	2,9	1,02%					1	3,85%	13,4	4,56%
	CHEMICAL	Good	22	100,00%	314,6	100,00%	16	84,21%	239,6	83,89%	6	100,00%	105,9	100,00%	25	96,15%	287,6	97,96%
		Failing to achieve Good					1	5,26%	17	5,95%								
		Unknown					2	10,53%	29	10,15%					1	3,85%	6	2,04%

(Continuation of the Table)

STATUS/POTENTIAL			RB Kerkyra - Paxoi (EL0534)				RB Louros (EL0546)				Total RBD			
			Number	% of Number	Length (km)	% of Length	Number	% of Number	Length (km)	% of Length	Number	% of Number	Length (km)	% of Length
RIVER WB														
TOTAL	ECOLOGICAL	High												
		Good	2	66,67%	14,4	86,75%	4	66,67%	52,9	63,28%	59	71,95%	762,7	69,34%
		Moderate	1	33,33%	2,2	13,25%	2	33,33%	30,7	36,72%	19	23,17%	287,8	26,17%
		Poor									1	1,22%	12,8	1,16%
		Bad									1	1,22%	20,3	1,85%
		Unknown									2	2,44%	16,3	1,48%
	CHEMICAL	Good	3	100,00%	16,6	100,00%	4	71,43%	70,3	69,6%	76	92,68%	1017,6	92,48%
		Failing to achieve Good					1	14,29%	17,4	17,23	2	2,44%	34,4	3,13%
		Unknown					1	14,29%	13,3	13,17%	4	4,88%	48,3	4,39%

(Continuation of the Table)

STATUS/POTENTIAL			RB Aoos (EL0511)				RB Kalamas (EL0512)				RB Acherontos (EL0513)				RB Arachthos (EL0514)			
			Number	% of Number	Length (km)	% of Length	Number	% of Number	Length (km)	% of Length	Number	% of Number	Length (km)	% of Length	Number	% of Number	Length (km)	% of Length
RESERVOIRS																		
TOTAL	ECOLOGICAL	Good and higher	1	100,00%	8,21	100,00%									2	100,00%	22,71	100,00%
		Moderate																
		Poor																
		Bad																
		Unknown																
	CHEMICAL	Good	1	100,00%	8,21	100,00%									2	100,00%	22,71	100,00%
		Failing to achieve Good																
		Unknown																

(Continuation of the Table)

STATUS/POTENTIAL			RB Kerkyra - Paxoi (EL0534)				RB Louros (EL0546)				Total RBD			
			Number	% of Number	Length (km)	% of Length	Number	% of Number	Length (km)	% of Length	Number	% of Number	Length (km)	% of Length
RESERVOIRS														
TOTAL	ECOLOGICAL	Good and higher									3	100,00%	30,92	100,00%
		Moderate												
		Poor												
		Bad												
		Unknown												
	CHEMICAL	Good									3	100,00%	30,92	100,00%
		Failing to achieve Good												
		Unknown												

(Continuation of the Table)

STATUS/POTENTIAL			RB Aoos (EL0511)				RB Kalamas (EL0512)				RB Acherontos (EL0513)				RB Arachthos (EL0514)			
			Number	% of Number	Length (km)	% of Length	Number	% of Number	Length (km)	% of Length	Number	% of Number	Length (km)	% of Length	Number	% of Number	Length (km)	% of Length
LAKE WB																		
TOTAL	ECOLOGICAL	High																
		Good																
		Moderate																
		Poor																
		Bad					1	100,00%	19,24	100,00%								
		Unknown																
	CHEMICAL	Good					1	100,00%	19,24	100,00%								
		Failing to achieve Good																
		Unknown																

(Continuation of the Table)

STATUS/POTENTIAL			RB Kerkyra - Paxoi (EL0534)				RB Louros (EL0546)				Total RBD			
			Number	% of Number	Length (km)	% of Length	Number	% of Number	Length (km)	% of Length	Number	% of Number	Length (km)	% of Length
LAKE WB														
TOTAL	ECOLOGICAL	High												
		Good												
		Moderate												
		Poor												
		Bad									1	100,00%	19,24	100,00%
		Unknown												
	CHEMICAL	Good									1	100,00%	19,24	100,00%
		Failing to achieve Good												
		Unknown												

(Continuation of the Table)

STATUS/POTENTIAL			RB Aoos (EL0511)				RB Kalamas (EL0512)				RB Acherontos (EL0513)				RB Arachthos (EL0514)			
			Number	% of Number	Length (km)	% of Length	Number	% of Number	Length (km)	% of Length	Number	% of Number	Length (km)	% of Length	Number	% of Number	Length (km)	% of Length
TRANSITIONAL WB																		
TOTAL	ECOLOGICAL	High																
		Good																
		Moderate					1	100,00%	17,17	100,00%	1	100,00%	1,7	100,00%	1	100,00%	143,27	100,00%
		Poor																
		Bad																
		Unknown																
	CHEMICAL	Good					1	100,00%	17,17	100,00%	1	100,00%	1,7	100,00%	1	100,00%	143,27	100,00%
		Failing to achieve Good																
		Unknown																

(Continuation of the Table)

STATUS/POTENTIAL			RB Kerkyra - Paxoi (EL0534)				RB Louros (EL0546)				Total RBD			
			Number	% of Number	Length (km)	% of Length	Number	% of Number	Length (km)	% of Length	Number	% of Number	Length (km)	% of Length
TRANSITIONAL WB														
TOTAL	ECOLOGICAL	High												
		Good												
		Moderate					1	100,00%	241,59	100,00%	4	57,14%	403,73	98,30%
		Poor	1	33,33%	4,16	59,43%					1	14,29%	4,16	1,01%
		Bad												
		Unknown	2	66,67%	2,84	40,57%					2	28,57%	2,84	0,69%
	CHEMICAL	Good	1	33,33%	4,16	59,43%	1	100,00%	241,59	100,00%	5	71,43%	407,89	99,31%
		Failing to achieve Good	2	66,67%	2,84	40,57%					2	28,57%	2,84	0,69%
		Unknown												

(Continuation of the Table)

STATUS/POTENTIAL			RB Aoos (EL0511)				RB Kalamas (EL0512)				RB Acherontos (EL0513)				RB Arachthos (EL0514)			
			Number	% of Number	Length (km)	% of Length	Number	% of Number	Length (km)	% of Length	Number	% of Number	Length (km)	% of Length	Number	% of Number	Length (km)	% of Length
COASTAL WB																		
TOTAL	ECOLOGICAL	High																
		Good									3	75,00%	204,54	57,12%				
		Moderate					3	100,00%	96,82	100,00%	1	25,00%	153,54	42,88%				
		Poor																
		Bad																
		Unknown																
	CHEMICAL	Good					3	100,00%	96,82	100,00%	4	100,00%	358,08	100,00%				
		Failing to achieve Good																
		Unknown																

(Continuation of the Table)

STATUS/POTENTIAL			RB Kerkyra - Paxoi (EL0534)				RB Louros (EL0546)				Total RBD			
			Number	% of Number	Length (km)	% of Length	Number	% of Number	Length (km)	% of Length	Number	% of Number	Length (km)	% of Length
COASTAL WB														
TOTAL	ECOLOGICAL	High												
		Good	5	83,33%	587,83	96,68%					8	61,54%	792,37	74,55%
		Moderate	1	16,67%	20,2	3,32%					5	38,46%	270,56	25,45%
		Poor												
		Bad												
		Unknown												
	CHEMICAL	Good	5	83,33%	587,83	96,68%					12	92,31%	1042,73	98,10%
		Failing to achieve Good												
		Unknown	1	16,67%	20,2	3,32%					1	7,69%	20,2	1,90%

(Continuation of the Table)

STATUS/POTENTIAL			RB Aoos (EL0511)				RB Kalamas (EL0512)				RB Acherontos (EL0513)				RB Arachthos (EL0514)			
			Number	% of Number	Length (km)	% of Length	Number	% of Number	Length (km)	% of Length	Number	% of Number	Length (km)	% of Length	Number	% of Number	Length (km)	% of Length
GWBs																		
TOTAL	CHEMICAL	Good	3	100,00%	2044,31	100,00%	9	100,00%	2506,09	100,00%	5	83,33%	1283,52	78,10%	1	100,00%	1622,2	100,00%
		Bad									1	16,67%	359,93	21,90%				
		Unknown																
	QUANTITATIVE	Good	3	100,00%	2044,31	100,00%	9	100,00%	2506,09	100,00%	6	100,00%	1643,45	100,00%	1	100,00%	1622,2	100,00%
		Bad																
		Unknown																

(Continuation of the Table)

STATUS/POTENTIAL			RB Kerkyra - Paxoi (EL0534)				RB Louros (EL0546)				Total RBD			
			Number	% of Number	Length (km)	% of Length	Number	% of Number	Length (km)	% of Length	Number	% of Number	Length (km)	% of Length
GWBs														
TOTAL	CHEMICAL	Good	5	100,00%	628,58	100,00%	3	100,00%	3264,09	100,00%	26	96,30%	11348,79	96,93%
		Bad									1	3,70%	359,93	3,07%
		Unknown												
	QUANTITATIVE	Good	5	100,00%	628,58	100,00%	3	100,00%	3264,09	100,00%	27	100,00%	11708,72	100,00%
		Bad												
		Unknown												