RIVER BASIN MANAGEMENT PLAN - SUMMARY

Management Plan for the River Basins of Northern Peloponnese River Basin District

SPECIAL SECRETARIAT FOR WATER

APRIL 2013

MANAGEMENT PLANS OF NORTHERN PELOPONNESE RIVER BASIN DISTRICT (RBD 02)

IN LINE WITH THE SPECIFICATIONS OF DIRECTIVE 2000/60/EC, UNDER LAW 3199/2003 AND PRESIDENTIAL DECREE 51/2007

MANAGEMENT PLAN

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1. INTRODUCTION

Historically, the management of natural resources – especially of water resources - was mostly determined by all social activities and growth interventions rather than determining them. In modern societies the management of water resources has acquired particular significance since the sustainability of resources is no longer taken for granted but in some cases it is the main objective.. This fact, included in the general degradation of the environment and at the same time reinforced by the impending climate change, enlarges the scope and the content of the water resources management by rendering it a determining factor of development policies. The scope of the water resources management is not only limited to the rational and fair satisfaction of the users' needs but also determines to a great extent these needs and the manner and degree of their satisfaction. The main national institutional framework of harmonization with Directive 2000/60 is Law 3199/9-12-2003 (Government Gazette A' 280/09.12.2003) on the "protection and water management – harmonization with Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000" as amended and in force and Presidential Decree 51/2007 (GG A΄54/08.03.2007) "Determination of measures and procedures for the integrated water protection and management in compliance with the provisions of Directive 2000/60/EC" establishing a framework for the Community action in the field of water policy" of the European Parliament and of the Council of 23 October 2000, in pursuance of the provisions of Article 15(1), Law 3199/2003.

The compilation of the management plans in the RBD (River Basin District) of Northern Peloponnese was undertaken –under the terms of the relevant contract- by a team of collaborating design companies and design consultants consisting of the following:

- "HYDROEXIGIANTIKI LIMITED PARTNERSHIP" L.S. LAZARIDIS & PARTNERS LIMITED PARTNERSHIP
- LAZARIDIS & ASSOCIATES ATEM
- TEM (DESIGN CONSULTANCY) S.A.
- HPC-PASECO, SURVEYS AND STUDIES FOR THE PROTECTION, MANAGEMENT OF THE ENVIRONMENT & ENERGY SINGLE MEMBER LIMITED LIABILITY COMPANY
- LIONIS MICHALIS son of HARALAMBOS
- DRAKOPOULOU EFSTATHIA daughter of LEONIDAS
- VAKAKIS & PARTNERS RURAL DEVELOPMENT CONSULTANTS S.A.
- EFI KARATHANASI & PARTNERS "HORODINAMIKI PERIVALLON ANAPTIKSI LIMITED PARTNERSHIP"
- ALEXANDROS KOTZABOPOULOS son of GEORGE
- ANAGNOPOULOS NIKOLAOS son of VASILIOS
- TERRA NOVA ENVIRONMENTAL DESIGN CONSULTANCY LTD LIABILITY COMPANY

In accordance with article 5 of Law 4117/5-2-2013, the compiled Management Plan was approved by the National Water Committee following the recommendation of the Special Secretariat for Water of the Ministry of Environment, Energy and Climate Change and was published in the Government Gazette (GG 1004/B/24-04-2013).

2. Contents of the Management Plan

This document is a summary of the River Basin Management Plan (RBMP) of Northern Peloponnese (GR02) and the following detailed documentation texts are attached:

Annex A consists of the following Supporting Documents:

1. Determination and recording of the competent authorities and determination of their areas of responsibility (Deliverable 1, phase A)
2. Identification and typology of surface water bodies, initial and further characterization of groundwater bodies (Deliverable 5, phase A)
3. Type-specific reference conditions for the types of surface water bodies (Deliverable 6, phase A)
4. Final designation of heavily modified and artificial water bodies (Deliverable 7, phase A)
5. Assessment and classification of the qualitative (ecological and chemical) status of surface water bodies (Deliverable 9, phase A)
6. Assessment and classification of the qualitative (chemical) and quantitative status of groundwater bodies (Deliverable 10, phase A)
7. Updated monitoring programmes of the status of surface and groundwater bodies (Deliverable 1, phase B)

Annex B consists of the following Supporting Documents:

1. Analysis of the anthropogenic pressures and their impacts on surface and groundwater bodies (Deliverable 8, phase A)
2. Catalogue of scheduled and new projects/ activities/ modifications with the socio-economic benefits served (Deliverable 12, phase A)

Annex C consists of the following Supporting Document:

1. Registry of Protected Areas (Deliverable 2, phase A)

Annex D consists of the following Supporting Document:

1. Determination of environmental objectives, including “exemptions” from objectives achievement (Deliverable 11, phase A)

Annex E consists of the following Supporting Documents:

1. Draft programme of key and supplementary measures for the protection and recovery of water bodies (Deliverable 13, phase A)
2. Evaluation of the proposed measures including cost-effectiveness analysis and finalization of the programs of key and supplementary measures (Deliverable 2, phase B)

Annex F consists of the following Supporting Documents:

1. Economic analysis of the water uses and determination of the current cost recovery degree for the different water services (Deliverable 3, phase A)
2. Preliminary assessment of alternative proposals for flexible water tariff policy (Deliverable 4, phase A)

Annex G consists of the following Supporting Document:

1. Report with the evaluation of the consultation (Phase C)

Annex H consists of the following Supporting Documents:

1. Implementation report of Directive 2006/118/EC “on the protection of groundwater against pollution and detrioration” and JMD 39626/2208/E103/2009 (Deliverable 14, phase A)
2. Draught and Water Scarcity Management Plan based on preventive planning principles (Deliverable 4, phase B)
3. Strategic Environmental Impact Assessment (Deliverable 5, phase B)

Annex I includes the additional actions for the River Basin District (RBD) except for the Plan’s Program of Measures.

Annex J includes 36 maps.

3. CONSULTATION PROCESS

Water Framework Directive 2000/60/EC (WFD), article 14, provides for public participation during the process of preparing the River Basin Management Plans.

Specifically, the directive stipulates that Member States shall encourage the active involvement of all interested parties in the implementation of this Directive. Member States shall ensure that, for each river basin district, they publish and make available for comments to the public, including users:

- the timetable and work program for the plan preparation, including the consultation;
- a summary of the important issues identified in each Water Basin;
- the draft management plans.

The consultation process was organized in two phases:

Phase A, which lasted until 31 January 2012, included the uploading of the following documents on the web page http://wfd.ypeka.gr:

- Report on the consultation measures to be taken;
- Catalogue of water-related agencies;
- Overview of the significant water management issues and their accompanying documents;
- Questionnaire about the consultation procedure;
- Questionnaire about the overview of the significant water management issues.

Phase B which lasted until 21 November 2012, included the uploading of the following documents on the web page http://wfd.opengov.gr/:

- The draft Management Plan of Northern Peloponnese River Basin District, including the programme of measures;
- The strategic environmental impact assessment (SEIA);
- The Plan addressing drought & water scarcity;
- Catalogue of water-related agencies;
- Questionnaire about the program of measures of the Management Plan.

Apart from uploading the Management Plan's documents and filling in their questionnaires, the organization of one-day conferences for the River Basin District of Northern Peloponnese is also provided for. During phase A, a one-day conference was organized for the overview of significant management issues for the RBD of Northern Peloponnese (Patras, 03/02/2012). During phase B, 3 one-day conferences were organized for the RBD of Northern Peloponnese for the Preliminary Program of Key and Supplementary Measures. The one-day conferences were held on 3/7/2012 in Pirgos, on 4/7/2012 in Patras, and on 5/7/2012 in Corinth.

4 DESCRIPTION OF THE RIVER BASIN DISTRICT

4.1 Administrative and Natural Characteristics

The River Basin District of Northern Peloponnese (RBD 02) is one out of the fourteen river basin districts into which the Greek territory was divided pursuant to Law 1739/1987 (GG 201/A/20-11-1987). The boundaries of the River Basin District of Northern Peloponnese are set (as regards its terrestrial section) from the watershed starting from Katakolo cape, continuing to the mountains of Foloi, Labia, Erimanthos, Aroania, to the highland of Kalavrita, to the southern end of Feneos basin, to the mountains of Oligirtos, Lirkio and Onia and ends to the Trahili cape via the summits of Trapezonas and Politis in Corinthia. The river basin district also encompasses the islands of Kefalonia, Zakinthos and Ithaca. The area covered by the district is 7396.55 km^2. The Stream Basins of N. Peloponnese (GR27), of Piros - Vergas - Pinios (GR28) and of Kefalonia – Ithaca – Zakinthos (GR45) comprise the said River Basin District of Northern Peloponnese (RBD 02), pursuant to Decision no 706/2010 (GG 1383/B/2-9-10) of the National Water Committee.

4.2 Population Data

From an administrative perspective, the RBD includes in whole or in part, the Regional Units of Corinthia, Ahaia, Ilia, a small part of Argolida, Kefalonia, Ithaca and Zakinthos. The total actual population in the Stream Basin of N. Peloponnese (GR27), according to the census data of the Hellenic Statistical Authority (ELSTAT) as of year 2001, amounts to 384,252 inhabitants. The general trend of the population change for the area is estimated to an approximate 6.5% increase in the period 1991 – 2001. The total actual population in the Piros - Vergas - Pinios River Basin (GR28), according to the census data of the Hellenic Statistical Authority (ELSTAT) as of year 2001, amounts to 164,243 inhabitants. The general trend of the population change for the area is estimated to an approximate 15.2% increase in the period 1991 – 2001. The total actual population in the Kefalonia – Ithaca – Zakinthos Basin (GR45), according to the census data of the Hellenic Statistical Authority (ELSTAT) as of year 2001, amounts to 78,503 inhabitants. The general trend of the population change for the area is estimated to an approximate 20.8% increase in the period 1991 – 2001.

4.3 Water Uses

Throughout the entire River BAsin District the total annual needs in water for all activities and uses amount to ~501mil.m^3. In agriculture (irrigated lands), which is the key user of water, a percentage of ~83% (~416mil.m^3) of the total needs of water is consumed, in industry ~1.7% (~8.3mil.m^3), in irrigation ~13.9% (~69.7mil.m^3) and in stock farming ~1.3% (~6.5mil.m^3).

4.4 Land Uses

In the Stream Basin of N. Peloponnese, throughout a total area of 3,685km^2, the following main categories of land uses are distinguished: Forests and forested areas, 46%; Agricultural land, 33%; Pastures, 16%, and Urban and other uses, 5%. In Piros - Vergas – Pinios River

Basin, throughout a total area of 2,423km^2, the following main categories of land uses are distinguished: Forests and forested areas, 24%; Agricultural land, 57%; Pastures, 13%, and Urban and other uses, 6%. In Kefalonia – Ithaca – Zakinthos Basin, throughout a total area of 1,289km^2, the following main categories of land uses are distinguished: Forests and forested areas, 33%; Agricultural land, 33%; Pastures, 30%, and Urban and other uses, 4%.

5 COMPETENT AUTHORITIES

The information related to the corresponding competent authorities of the State Decentralized Administration and of the Region is provided below in the form of tables.

Table 5-1. Competent Authority of State Decentralized Administration for the Stream Basin of N. Peloponnese (GR27)

Official name	Decentralized Administration of Peloponnese, Western Greece and Ionian Sea/ General Directorate of Planning and Environmental Policy / Water Division of W. Greece
Acronym	-
Legislation establishing and determining competencies	• Law 3199/2003 (GG 280/A/9-12-03) • J.M.D. Οικ. 47630/2005 (GG 1688/B/1-12-05) • Law 3852/2010 (GG 87/A/7-6-10) • P.D. 139 (GG 232/A/27-12-10)
Legal regime	Permanent unit subject to a decentralized administration unit of the state
Postal address	35 Patras – Athens N.N.R., PC. 26442, Patras, Greece
Website	www.apd-depin.gov.gr
Point(s) of contact (telephone, e-mail)	2610 335669 pde_ydat@otenet.gr

Table 5-2. Competent Authority of Local Government for the Stream Basin of N. Peloponnese (GR27)

Official name	Region of W. Greece General Directorate of Growth Planning, Environment and Infrastructures/ Division of Environment and Planning
Acronym	-
Legislation establishing and determining competencies	• Law 3199/2003 (GG 280/A/9-12-03) • Law 3852/2010 (GG 87/A/7-6-10) • P.D. 131 (GG 224/A/27-12-10)
Legal regime	Permanent unit subject to a self-governed Public Law Body
Postal address	14 Aretha & Papadiamanti str., P.C. 26443, Patras, Greece
Website	www.pde.gov.gr
Point(s) of contact (telephone, e-mail)	2613 613268

Table 5-3. Competent Authorities of State Decentralized Administration for Pinios - Vergas - Piros Basin (GR28)

Official name	De-centralized Administration of Peloponnese, Western Greece and Ionian Sea/ General Directorate of Planning and Environmental Policy / Water Division of W. Greece
Acronym	-
Legislation establishing and determining competencies	• Law 3199/2003 (GG 280/A/9-12-03) • J.M.D. Οικ. 47630/2005 (GG 1688/B/1-12-05) • Law 3852/2010 (GG 87/A/7-6-10) • P.D. 139 (GG 232/A/27-12-10)
Legal regime	Permanent unit subject to a decentralized administration unit of the state
Postal address	35 Patras – Athens N.N.R., PC. 26442, Patras, Greece
Website	www.apd-depin.gov.gr
Point(s) of contact (telephone, e-mail)	2610 335669 pde_ydat@otenet.gr

Table 5-4. Competent Authorities of Local Administration for Pinios - Vergas - Piros Basin (GR28)

Official name	Region of W. Greece General Directorate of Growth Planning, Environment and Infrastructures/ Division of Environment and Planning
Acronym	-
Legislation establishing and determining competencies	• Law 3199/2003 (GG 280/A/9-12-03) • Law 3852/2010 (GG 87/A/7-6-10) • P.D. 131 (GG 224/A/27-12-10)
Legal regime	Permanent unit subject to a self-governed Public Law Body
Postal address	14 Aretha & Papadiamanti str., P.C. 26443, Patra,s Greece
Website	www.pde.gov.gr
Point(s) of contact (telephone, e-mail)	2613 613268

Table 5-5. Competent Authorities of State Decentralized Administration for Kefalonia – Ithaca – Zakinthos Basin (GR45)

Official name	Decentralized Administration of Peloponnese, Western Greece and Ionian Sea/ General Directorate of Planning and Environmental Policy / Water Division of Ionian
Acronym	-
Legislation establishing and determining competencies	• Law 3199/2003 (GG 280/A/9-12-03) • J.M.D. Οικ. 47630/2005 (GG 1688/B/1-12-05) • Law 3852/2010 (GG 87/A/7-6-10) • P.D. 139 (GG 232/A/27-12-10)
Legal regime	Permanent unit subject to a decentralized administration unit of the state
Postal address	Alikes, Potamos, PC 49100, Corfu, Greece
Website	www.apd-depin.gov.gr
Point(s) of contact (telephone, e-mail)	26613 61639 lagadami@1745.syzefxis.gov.gr

Table 5-6. Competent Authorities of Local Administration for Kefalonia – Ithaca – Zakinthos Basin (GR45)

Official name	Region of Ionian Islands/ General Directorate of Growth Planning, Environment and Infrastructures/ Division of Environment and Planning
Acronym	-
Legislation establishing and determining competencies	• Law 3199/2003 (GG 280/A/9-12-03) • Law 3852/2010 (GG 87/A/7-6-10) • P.D. 147 (GG 240/A/27-12-10)
Legal regime	Permanent unit subject to a self-governed Public Law Body
Postal address	Alikes, Potamos, PC 49100, Corfu, Greece
Website	www.pin.gov.gr
Point(s) of contact (telephone, e-mail)	26613 62270

6 IDENTIFICATION OF BODIES OF WATER

In RBD02, 97 bodies of surface water and 26 bodies of groundwater were identified in total. Out of the surface water bodies, 63 are rivers, 19 are coastal waters, 6 are lakes and 9 are transitional water bodies. One body of water has been characterized as Artificial Water Body (AWB) whilst 8 surface water bodies have been characterized as Heavily Modified Water Bodies (HMWB).

River Water Bodies (WB)

In the River Basin District of Northern Peloponnese (RBD 02) 63 rivers are identified of a total length 672.6km, whilst 6 types of river WBs (sL0,sH0,sL1, sH1,mL0,mL1) are found.

Lake WB

In the River Basin District of Northern Peloponnese (RBD 02) 6 lakes exist out of which 3 lakes are HMWBs and one lake is AWB.

Coastal WB

In the River Basin District of Northern Peloponnese (RBD 02) 19 in total coastal WBs are found out of which one body of a HMWB (Port of Patra) of type C1, of a total length of coasts of 886.5 km.

Transitional WB

In the River Basin District of Northern Peloponnese (RBD 02) 9 transitional WBS are found, covering an area of 1.95 km^2, of type TW1 (Lagoons) and TW2 (river estuary).

Groundwater Bodies

In the River Basin District of Northern Peloponnese (RBD 02) 26 groundwater bodies are identified covering an area of 7389.6 km^2. Out of these, an initial characterization has been carried out for 15 groundwater bodies and further characterization for 11 GBs. Out of the 26 GBs, 22 are directly related to surface waters or terrestrial ecosystems.

Table 6.1. Total number of Water Bodies per water category in the RBD of Northern Peloponnese

Type of WB	Number	Length/ area (km/ km^2)	Maximum length/ Max. area (km/ km^2)	Minimum length/ Min. area (km/ km^2)
Rivers	63	672.568	32.5	1.3
Lakes	6	28.95	19.90	0.50
Coastal	19	885.9	155.2	3.10
Transitional	9	19.73	7.00	0.16
Groundwater	26	7,389.5	827.6	14.00
Total	**123**			

6.1 ANALYSIS OF PRESSURES ON 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.

6.2 Point Pressures

Wastewater Treatment Plant (WWTP)

In the Stream Basin of N. Peloponnese (GR27) there are 4 Priority B agglomerations where WWTPs have been constructed and are currently in operation. The main urban centers served by the WWTPs in the Stream Basin of N. Peloponnese are the city of Corinth, Xilokastro, Egio and Kiato. In Basin 27 there are priority C agglomerations where no constructed WWTPs are in operation, even though they are included –pursuant to Directive 91/271- in the areas where the construction of a WWTP is required. The priority C agglomeratons of Rododafni, Loggos, Seliniatika, Siliveniotika and Diakopto are about to be connected with the WWTP of Egio whilst the settlements of Agios Vasilios and Rio are about to be connected with the existing WWTP of Patras located in the River Basin (GR28). In priority C agglomerations of Assos, Leheo, Vrahati, Zevgolatio, Nemea, Athikia and Kalavrita, a new WWTP should be constructed. The extension of Egio WWTP as well as the construction of the WWTPs of Kalavrita and Nemea have been included in financing programs.

In the Piros - Vergas - Pinios River Basin (GR28) there are 5 priority C agglomerations and 3 priority B agglomerations that are currently served or are going to be served by WWTPs. The main urban centers served by WWTPs in the River Basin (GR28) are the city of Patras and its neighboring coastal areas, Kato Ahaia and Amaliada. In the River Basin, the WWTP of Patras Industrial Zone also operates serving the particular zone and treating its industrial wastewater. The WWTP of Vardas is currently under construction and it will serve the Vardas settlement. The WWTPs of Gastouni – Vartholomio are inert serving Gastouni and Vartholomio settlements; the WWTP of Lehena serving Andravida and Tragano settlements is also inert. In the River Basin (GR28), there are no priority C agglomerations with constructed WWTPs.

In the Stream Basin of Kefalonia – Ithaca – Zakinthos (GR45) there are 3 priority C agglomerations and 2 priority B agglomerations currently served by WWTPs. The main urban centers served by WWTPs in the Basin (GR45) are: Lixouri, Sami, Skala and Poros on Kefalonia and the city of Zakinthos and Argasi on Zakinthos island.

In the Basin (GR45) there is the priority C agglomeration of Ithaca on the island of Ithaca, where no constructed WWTP operates even though it is included –pursuant to Directive 91/271- in the areas where the construction of a WWTP is required. The project of extension and upgrade of Argostoli WWTP has been included in a financing program.

Industrial plants

654 industrial plants in total are identified in the River Basin District. Out of these, 263 are located in the Stream Basin of N. Peloponnese (GR 27), 177 in Piros, Vergas, Pinios River Basin (GR 28) and the remaining 214 in Kefalonia, Ithaca, Zakinthos Basin (GR 45). In basin GR27, out of the 263 recorded industries, 93 of them have been characterized as significant. The key activities relate to food industry (33%), oil production (14%), and production of dairy and cheese products (estimated 10%). The majority of industrial activities in the area of Piros-Vergas-Pinios River Basin (GR28) are related to food production and, especially, oil production. Out of the 177 industries in total that have been recorded in the area under study, 85 have been characterized as significant. Most of them relate to food industry and, in particular, oil production (29% of plants). Furthermore, among the significant pressures are the pressures from many dairy and cheese production industries (10% of plants). The majority of industrial activities in the area of Kefalonia – Ithaca – Zakinthos Basin (GR45) are related to food production and, especially, oil production. Out of the 214 industries recorded in the area under study, 80 of them have been characterized as significant. Half of those relate to oil production. Furthermore, among the significant pressures are the pressures from many dairy and cheese production industries (25% of plants).

Livestock Farms

In the RBD, 39 livestock farms were identified. Out of these, 17 are found in the Stream Basin of N. Peloponnese (18 large) whilst 12 in the Stream Basin of Kefalonia - Ithaca – Zakinthos (one significant).

Losses from - Uncontrolled Waste Dumping Sites and Landfill Sites

In River Basin GR27 19, Uncontrolled Waste Dumping Sates operate constituting a significant factor of pressure whilst at the same time there is a significant number of sites to be rehabilitated (31 sites). Almost all sites to be rehabilitated are located in the Regional Unit of Sikiones. More specifically, in the River Basin areas (GR27) included in the Regional Unit of Corinthia, 16 Uncontrolled Waste Dumping Sates in operation were identified; in the Regional Unit of Ahaia only two Uncontrolled Waste Dumping Sates were identified; whilst in Argolida one site in operation. In said basin there are two Landfills, the Landfill of Patras and the Landfill of Kiato. In the Piros-Vergas-Pinios River Basin (GR28) there are 8 more Uncontrolled Waste Dumping Sates in operation, located in the Regional Unit of Ilia. In addition, the Landfill of W. Ahaia, Floka operates in the basin. In Basin GR45 there are two Uncontrolled Waste Dumping Sates in operation. The one is located in the Regional Unit of Kefalonia whilst the second one in the Regional Unit of Zakinthos. The Landfill of Kefalonia and the Landfill of Zakinthos also operate in the area.

Mines, quarries

Nine quarries were recorded in river basin GR27, 20 in river basin GR28, and 19 in river basin GR45 19.

Aquaculture – Fish farming

In the Stream Basin of N. Peloponnese there are fish farming facilities in the body of river water in Krathis river. In the Piros-Vergas-Pinios Basin fish farming facilities are found in the Lagoons of Kotichi, Kalogria, and Papa (Araxos) as well in the Gulf of Patra. Finally, in the Basin of Kefalonia – Ithaca – Zakinthos fish farming facilities are found in the coastal water bodies in the east coasts of Kefalonia – Ithaca, σin the west coast of Kefalonia and in the gulf of Argostoli.

Desalination facilities

In the Basin of Kefalonia – Ithaca – Zakinthos two desalination plants operate, one in the island of Ithaca and one in Fiskardo, Kefalonia.

Sand extraction

In the Stream Basin of N. Peloponnese (GR27), large quantities of sand have been extracted from time to time from the river beds of Vouraikos, Glafkos, Krathis, Meganitis, Finikas and Haradros as well as from other smaller streams not forming identified water bodies. In the basin of Piros-Vergas-Pinios River Basin (GR28) sand has been extracted from the river beds of Pinios, Piros and Parapiros as well as from the area adjacent to the artificial lake of Pinios.

6.3 Diffuse Pressures

Agricultural activities

As regards the cultivation lands (ESYE 2007) in the Stream Basin of N. Peloponnese, there are presently approximately 800,500 stremmas of cultivated land in total. In Piros-Vergas-Pinios River Basin there are presently approximately 1,172,000 stremmas of cultivated land in total; in the area of Basin of Kefalonia – Ithaca – Zakinthos there are presently approximately 263,500 stremmas of cultivated land in total.

Urban wastewater not collected in WWTPs

Urban wastewater that is diffused in groundwater and surface water bodies derives from population of any kind (of permanent or seasonal nature as well as tourists) that do not have access to WWTP. This category encompasses urban wastewater treated by WWTP and used for the irrigation of cultivation lands.

Free range Livestock

Free range farming refers to the raising of cattle, poultry, sheep and goats of free range. Free range farming, given the dispersion and constant movement of animals to pastures is treated as a diffuse source of pollution. For the identification of the number of animals, data

from the Bulletins of Annual Agricultural Statistical Research of Municipalities and Communities of ELSTAT as of year 2007 are used.

Natural pollution

Apart from anthropogenic pressures, diffuse pollution is also generated by atmospheric depositions and natural uses of land, i.e. forests and pastures. The pollutants from the diffuse natural pollution and other categories of diffuse pollution are diffused in the subsoil.

6.4 Total review of all pressures

From the individual pollution sources of the point, diffuse and other anthropogenic pressures analyzed in the previous paragraphs, the total final annual and summer quantities of pollutant loads of BOD, N and P that end up in the surface water bodies of the area under study are derived. The pollutants that end up in the groundwater bodies are traced by a network of monitoring stations of IGME (Greek Institute of Geology and Mineral Exploration) and their impact is assessed by measurement data.

In the Stream Basin of N. Peloponnese the total annual surface loads arising from the sum of the individual diffuse, point and other anthropogenic pressures are 4,105 tons/year BOD, 1,373 tons/year N και 177 tons/year P. For the summer period, the produced pollutant loads are 1,393 tons/year BOD, 455 tons/year N and 60 tons/year P respectively. In Piros-Vergas-Pinios River Basin the total annual surface loads arising from the sum of the individual diffuse pressures are 6,039 tons/year BOD, 2,092 tons/year N and 165 tons/year P. For the summer period, the produced pollutant loads are 2,030 tons/year BOD, 690 tons/year N και 55 tons/year P respectively. In the Kefalonia – Ithaca – Zakinthos Basin (GR45) the total annual surface loads arising from the sum of the individual diffuse, point and other anthropogenic pressures are 1,978 tons/year BOD, 887 tons/year N and 129 tons/year P. For the summer period, the produced pollutant loads are 674 tons/year BOD, 301 tons/year N and 45 tons/year P respectively.

6.5 Total water withdrawals

The most significant surface sources of withdrawn water for irrigation in said Basin come from the artificial lake of Asopos with 18 mil.m^3 of water. Surface water is also withdrawn from Glafkos and Vouraikos rivers with 3.8 mil.m^3 of water, and from Selinountas river with 3.6 mil.m^3 of water. The most significant surface water withdrawal for water supply purposes comes from river Glafkos with 10.8 mil.m^3 of water, and from Asopos artificial lake with 2.5 mil.m^3 of water. From Asopos artificial lake, apart from water withdrawal for water supply and irrigation purposes, upon completion of the project, water will be withdrawn for the artificial recharge of the groundwater body of Corinth – Kiato as well as for the preservation of the ecological flow of the river downstream the dam. The total annual withdrawal from the reservoir is equal to 96.53 mil.m^3 of water. The other needs are covered by the groundwater bodies by means of wells and springs and the water quantity amounts to 153.1 mil.m^3 annually.

The most significant surface sources of withdrawn water for irrigation in said Basin come from Pinios Artificial Lake with 120 mil.m^3 of water. Surface water is also withdrawn for irrigation from rivers Piros, with 2 mil.m^3 of water, and Pinios, with 0.8 mil.m^3 of water. The most significant surface water withdrawal for water supply purposes comes from Asterio artificial lake with 22 mil.m^3 of water, which is transferred to Patras into the Stream Basin of N. Peloponnese (GR27). Water is also withdrawn for water supply purposes from Pinios artificial lake with 6 mil.m^3 of water annually. The annual total quantity of water withdrawn from Pinios Artificial Lake for irrigation and water supply purposes amounts to 126 mil.m^3. The other needs are covered by the groundwater bodies by means of wells and springs and the water quantity amounts to 156.1 mil.m^3 annually.

In Kefalonia – Ithaca – Zakinthos Basin (GR45), water withdrawal pertains to the operation of desalination plants and to groundwater and the quantity of abstracted water amounts to 19.2 mil.m^3 annually.

8 STATUS OF WATER BODIES

8.1 Surface Water Bodies

The status of surface WBs has been assessed and classified pursuant to article 2 of Annex V of Directive 2000/60/EC, with the aim to achieve the good ecological and chemical status for all surface bodies and the good status of the groundwater until 2015.

In the RBD of Northern Peloponnese for approximately 40% of WBs the status is unknown. In particular, in the Stream Basin of N. Peloponnese the rate of surface WBs of an unknown status is much higher (67%) than the respective rate of Piros –Vergas – Pinios River Basin (30%) and Kefalonia – Ithaca – Zakinthos Basin (7%). 40% of river WBs are classified of a high or good status. The status of 6.3% of river WBs is assessed as moderate whilst only 3 Water Bodies are classified as having poor or bad status. Approximately half of the total river WBs are of an unknown status, mainly due to the poor existing monitoring network. In RBD 02 there are 6 lakes of an unknown qualitative status. As regards coastal WBs, 79% of them are classified as having high or good status, whilst the remaining 21% a moderate status. Out of the 9 transitional WBs identified in the RBD of Northern Peloponnese, two are of a moderate status, two of a poor or bad status and the other five WBs of an unknown status.

Table 8-1. Status of river water bodies in River Basin 27

No	Code	Name	AWB/ HMWB	Chemical Status	Ecological Status/ Potential
1	GR0227R000100001H	GLAFKOS R.	HMWB	Good	Unknown
2	GR0227R000100002N	GLAFKOS R.	-	Unknown	Unknown
3	GR0227R000100003N	GLAFKOS R.	-	Unknown	Good
4	GR0227R000300004N	HARADROS R.	-	Unknown	Unknown
5	GR0227R000500005N	FINIKAS R.	-	Good	Unknown
6	GR0227R000500006N	FINIKAS R.	-	Unknown	Good
7	GR0227R000700007N	MEGANITAS STREAM	-	Bad	Unknown
8	GR0227R000900008N	SELINOUS R.	-	Good	Good
9	GR0227R000900009N	SELINOUS R.	-	Unknown	Good
10	GR0227R000900010N	SELINOUS R.	-	Unknown	Good
11	GR0227R001300011N	VOURAIKOS R.	-	Unknown	Unknown
12	GR0227R001300012N	VOURAIKOS R.	-	Unknown	Good
13	GR0227R001300013N	VOURAIKOS R.	-	Unknown	Unknown
14	GR0227R001300014N	VOURAIKOS R.	-	Unknown	Unknown
15	GR0227R001300015N	VOURAIKOS R.	-	Unknown	Good
16	GR0227R001700016N	KRATHIS R.	-	Unknown	Good
17	GR0227R001700017N	KRATHIS R.	-	Unknown	Good
18	GR0227R001900018N	THOLOPOTAMO STREAM	-	Unknown	Unknown
19	GR0227R001900019N	KRIOS R.	-	Unknown	Unknown
20	GR0227R001900020N	KRIOS R.	-	Unknown	Unknown

No	Code	Name	AWB/ HMWB	Chemical Status	Ecological Status/ Potential
21	GR0227R002100021N	DERVENIO STREAM	-	Unknown	Unknown
22	GR0227R002100022N	SKOUREIKO STREAM	-	Unknown	Unknown
23	GR0227R002100023N	FONISSA STREAM	-	Unknown	Unknown
24	GR0227R002300024N	TRIKALITIKOS R. (SYTHAS)	-	Unknown	Unknown
25	GR0227R002300025N	TRIKALITIKOS R. (SYTHAS)	-	Unknown	Good
26	GR0227R002700026N	KYRILLOU STREAM	-	Unknown	Unknown
27	GR0227R002900027N	ASOPOS R.	-	Unknown	Unknown
28	GR0227R002900028N	ASOPOS R.	-	Unknown	Unknown
29	GR0227R002900029N	ASOPOS R.	-	Unknown	Unknown
30	GR0227R002900030N	ASOPOS R.	-	Bad	Unknown
31	GR0227R002900031N	ASOPOS R.	-	Unknown	Moderate
32	GR0227R003300032N	REZANI STREAM	-	Unknown	Unknown
33	GR0227R003700033H	POTAMIA STREAM (XIRIAS)	HMWB	Unknown	Unknown
34	GR0227R003700034H	POTAMIA STREAM (XIRIAS)	HMWB	Unknown	Unknown

Table 8-2. Status of river water bodies in River Basin 28

No	Code	Name	AWB/ HMWB	Chemical Status	Ecological Status/ Potential
1	GR0228R000100001N	IARDANOS STREAM	-	Unknown	Unknown
2	GR0228R000201002N	PINIOS R.	-	Bad	Moderate
3	GR0228R000201003N	PINIOS R.	-	Good	Moderate
4	GR0228R000201004H	PINIOS R.	HMWB	Unknown	Moderate
5	GR0228R000202005N	VELITSEIKO STREAM	-	Unknown	Good
6	GR0228R000203009N	PINIOS R.	-	Unknown	Good
7	GR0228R000203010N	PINIOS R.	-	Unknown	Good
8	GR0228R000204006N	LADON PINIEOS R.	-	Unknown	Good
9	GR0228R000204007N	LADON PINIEOS R.	-	Unknown	Good
10	GR0228R000204008N	LADON PINIEOS R.	-	Unknown	Good
11	GR0228R000205012N	PINIOS R.	-	Unknown	Good
12	GR0228R000205013N	PINIOS R.	-	Unknown	Good
13	GR0228R000206011N	VILISSOS R.	-	Unknown	Good
14	GR0228R000207015N	PINIOS R.	-	Unknown	Good
15	GR0228R000207016N	PINIOS R.	-	Good	Good
16	GR0228R000208014N	SKOUROPOTAMOS STREAM	-	Unknown	Good
17	GR0228R000401021N	PIROS R.	-	Good	Poor
18	GR0228R000402022N	SERDINI STREAM	-	Unknown	Unknown
19	GR0228R000403023N	PIROS R.	-	Unknown	Poor
20	GR0228R000404024N	PARAPIROS STREAM	-	Unknown	Poor
21	GR0228R000404025N	PARAPIROS STREAM	-	Unknown	Good
22	GR0228R000404026N	PARAPIROS STREAM	-	Unknown	Good
23	GR0228R000405027N	PIROS R.	-	Unknown	Unknown
24	GR0228R000405028N	PIROS R.	-	Unknown	Good
25	GR0228R000700017N	VERGAS STREAM	-	Unknown	Unknown

No	Code	Name	AWB/ HMWB	Chemical Status	Ecological Status/ Potential
26	GR0228R000900018N	MANNA STREAM	-	Unknown	Unknown
27	GR0228R000900019N	MANNA STREAM	-	Unknown	Unknown
28	GR0228R000900020N	MANNA STREAM	-	Unknown	Unknown

Table 8-3. Status of river water bodies in River Basin 45

No	Code	Name	AWB/ HMWB	Chemical Status	Ecological Status/ Potential
1	GR0245R000100001N	AGIA IRENE STR.	-	Unknown	Unknown

Table 8-4. Status of lake water bodies in River Basin 27

No	Code	Name	AWB/ HMWB	Chemical Status	Ecological Status/ Potential
1	GR0227L000000001H	Asopos Art. Lake	HMWB	Unknown	Unknown
2	GR0227L000000002N	STIMPHALIA LAKE	-	Unknown	Unknown
3	GR0227L000000003A	FENEOS ART. LAKE	AWB	Unknown	Unknown

Table 8-5. Status of lake water bodies in River Basin 28

No	Code	Name	AWB/ HMWB	Chemical Status	Ecological Status/ Potential
1	GR0228L000000001N	Lamia Lake	-	Unknown	Unknown
2	GR0228L000000002H	Asterio Artificial Lake	HMWB	Unknown	Unknown
3	GR0228L000000003H	Pinios Artificial Lake	HMWB	Unknown	Unknown

Table 8-6. Status of coastal water bodies in River Basin 27

No	Code	Name	AWB/ HMWB	Chemical Status	Ecological Status/ Potential
1	GR0227C0004H	PORT OF PATRA	HMWB	Unknown	Moderate
2	GR0227C0005N	CORINTHIAN GULF – COASTS OF PELOPONNESE	-	Unknown	Good
3	GR0227C0006N	BAY OF CORINTH	-	Unknown	Moderate

Table 8-7. Status of coastal water bodies in River Basin 28

No	Code	Name	AWB/ HMWB	Chemical Status	Ecological Status/ Potential
1	GR0228C0003N	Gulf of Patra	-	Unknown	Moderate
2	GR0228C0007N	Araxos Cape	-	Unknown	High

No	Code	Name	AWB/ HMWB	Chemical Status	Ecological Status/ Potential
3	GR0228C0008N	Gulf of Kyllini	-	Unknown	High
4	GR0228C0009N	Coast of Peloponnese opposite Zakinthos	-	Unknown	High

Table 8-8. Status of coastal water bodies in River Basin 45

No	Code	Name	AWB/ HMWB	Chemical Status	Ecological Status/ Potential
1	GR0245C0001N	W. COAST OF KEFALONIA	-	Unknown	High
2	GR0245C0002N	EAST. COAST OF KEFALONIA-ITHACA	-	Unknown	High
3	GR0245C0010N	MOUNTA CAPE	-	Unknown	High
4	GR0245C0011N	EAST. BAY OF LOURDATA	-	Unknown	High
5	GR0245C0012N	W. BAY OF LOURDATA	-	Unknown	High
6	GR0245C0013N	VARDIANOI ISLANDS	-	Unknown	High
7	GR0245C0014N	GULF OF ARGOSTOLI	-	Unknown	Moderate
8	GR0245C0015N	W. COAST OF ZAKINTHOS	-	Unknown	High
9	GR0245C0016N	EAST. COST OF ZAKINTHOS	-	Unknown	High
10	GR0245C0017N	LAGANAS GULF (ZAKINTHOS)	-	Unknown	Good
11	GR0245C0018N	MARATHIAS CAPE	-	Unknown	High
12	GR0245C0019N	STROFADES ISLANDS	-	Unknown	High

Table 8-9. Status of transitional water bodies in River Basin 27

No	Code	Name	AWB/ HMWB	Chemical Status	Ecological Status/ Potential
1	GR0227T0001N	ALIKI, EGIO	-	Unknown	Unknown
2	GR0227T0002N	ESTUARY OF SELINOUNTAS R.	-	Unknown	Unknown
3	GR0227T0003N	ESTUARY OF VOURAIKOS R.	-	Unknown	Unknown

Table 8-10. Status of transitional water bodies in River Basin 28

No	Code	Name	AWB/ HMWB	Chemical Status	Ecological Status/ Potential
1	GR0228T0001N	Papa Lagoon (Araxos)	-	Unknown	Poor
2	GR0228T0002N	Estuary of Piros	-	Unknown	Unknown
3	GR0228T0003N	Estuary of Pinios	-	Unknown	Unknown
4	GR0228T0004N	Kotichi Lagoon	-	Unknown	Poor
5	GR0228T0005N	Kalogria Lagoon	-	Unknown	Moderate

Table 8-11. Status of transitional water bodies in River Basin 45

No	Code	Name	AWB/ HMWB	Chemical Status	Ecological Status/ Potential
1	GR0245T0001N	KOUTAVOS LAGOON (KEFALONIA)	-	Unknown	Moderate

Table 8-12. Summarized status of surface water bodies (WB) in RBD 02

Type	Number of WBs	High/Good		Moderate		Poor /Bad		Unknown	
		Number	%	Number	%	Number	%	Number	%
Rivers	63	25	39.7%	4	6.3%	3	4.8%	31	49.2%
Lakes	6	0	0%	0	0%	0	0%	6	100.0%
Transitional	9	0	0%	2	22.2%	2	22.2%	5	55.6%
Coastal	19	15	78.9%	4	21.1%	0	0%	0	0%
Total	**97**	**40**	**41.2%**	**10**	**10.3%**	**5**	**5.2%**	**42**	**43.3%**

8.2 Heavily modified and artificial water bodies

The to-date human activity has altered the initial characteristics of some water bodies. These changes, regardless of the extent of the alteration they have caused and the reasons for which they ocurred, make these water bodies particular in a sense. Such bodies are addressed in a different manner by Directive 2000/60/EC and are called **Heavily Modified Water Bodies** (HMWB). Similarly, in some cases water bodies are artificially created in areas where in the past they did not exist. These bodies are called **Artificial Water Bodies** (AWB).

In all the cases of heavily modified and artificial water bodies that were examined, their conversion into natural water bodies was deemed impossible or disadvantageous in terms of cost. Therefore, out of the 97 in total surface water bodies that have been identified in the framework of this study for the River Basin District of Northern Peloponnese (RBD 02), 8 are finally characterized as heavily modified WBs and 1 as artificial water body.

Table 8-13. Summarized picture of the heavily modified and artificial water bodies in the River Basin District of Northern Peloponnese (RBD 02)

Type	Number of WBs	HMWBs (number, %)	AWBs (number, %)
Rivers	63	4 (6%)	-
Lakes	6	3 (50%)	1 (17%)
Coastal	19	1 (5%)	-
Transitional	9	-	-
Total	**97**	**8 (8%)**	**1 (1%)**

8.3 Groundwater Bodies (GB)

The following tables present the identified chemical and quantitative status of each groundwater body and the existing pollution trends or level drop due to over-abstraction.

These tables also cite the water bodies that present increased values of natural substratum, and the new increased values of the Highest Acceptable Values of the natural substratum.

Table 8-14. Table of quantitative – chemical status of groundwater bodies – Stream Basin of N. Peloponnese (GR27)

GB's Code	GB's Name	Quantitative status	Chemical Status	Trend of level drop	Trend of pollution increase	Local exceedances of trace elements	New increased Highest Acceptable Value due to increased values of the natural substratum
GR0200120	Body of Patra - Rio	Good	Good	No	-	-	
GR0200130	Body of Panahaikos	Good	Good	No	No		
GR0200140	Body of N. Ahaia	Good	Good	Yes	Local	-	
GR0200150	Body of Zarouhla	Good	Good	No	No		
GR0200160	Body of Valtos - Evrostina	Good	Good	No	No	Mn	
GR0200170	Body of North Corinthia	Good	Bad (Cl: 4 - 3953, SO4: 8 - 753, NO3: 2 - 158 mg/l)	Yes	-	Mn	
GR0200180	Body of Korfiotissa	Good	Good	No	No	-	
GR0200190	Body of Corinth-Kiato	Bad	Bad (Cl: 34 - 404, SO4: 61 - 316, NO3: 3 - 112 mg/l)	No	Local (Cl, SO4, NO3)	Mn	
GR0200200	Body of Arachneo	Good	Good	Yes	-	Mn	Cl=750 mg/l (in the eastern section)
GR0200210	Body of Nemea	Good	Good	Yes	Local (NO3)	-	
GR0200220	Body of Ziria	Good	Good	No	No	-	
GR0200230	Body of Feneos	Good	Good	No	No	-	
GR0200240	Body of Kalavrita	Good	Good	No	No	-	
GR0200250	Body of North Erimanthos	Good	Good	No	No	**Mn**	

Table 8-15. Table of quantitative – chemical status of groundwater bodies –Pinios - Vergas - Piros River Basin (GR28)

GB's Code	GB's Name	Quantitative status	Chemical Status	Trend of level drop	Trend of pollution increase	Local exceedances of trace elements	New increased Highest Acceptable Value due to increased values of the natural substratum
GR0200060	Body of Pinios	Good	Good	No	-	Fe, Mn	
GR0200070	Body of Kyllini	Good	Good	No	No	-	
GR0200080	Body of w. Ahaia	Good	Good	Yes	-	Mn	
GR0200090	Body of Larissos r.	Bad	Bad (Cl: 23 - 503, SO4: 3 - 693, NO3: 5 - 78 mg/l)	Yes	-	Fe, Mn	
GR0200100	Body of Movri	Good	Good	No	No	-	
GR0200110	Body of Piros r.	Good	Good	No	-	Mn	
GR0200260	Body of w. Erimanthos	Good	Good	No	No	-	

Table 8-16. Table of quantitative – chemical status of groundwater bodies –Kefalonia – Ithaca – Zakinthos Basin (GR45)

GB's Code	GB's Name	Quantitative status	Chemical Status	Trend of level drop	Trend of pollution increase	Local exceedances of trace elements	New increased Highest Acceptable Value due to increased values of the natural substratum
GR0200010	Body of Kefalonia	Good	Good	No	No	Fe	Cl=2800 mg/l, SO4=1100 mg/l
GR0200020	Body of Lixouri - Skala	Good	Good	Yes	-	Fe	
GR0200030	Body of Ithaca	Good	Good	No	No		Increased values of chlorides
GR0200040	Body of Vrahionas	Good	Good	No	No	Mn, Cu, Pb, Cd, Fe	Cl=2050 mg/l, SO4=270 mg/l
GR0200050	Body of Zakinthos	Good	Bad (Cl: 26 - 1692 mg/l)	Yes	-	Mn, Cu, Pb, Cd	SO4=1900 mg/l

8.4 Registry of Protected Areas

In accordance with Directive 2000/60/EC for the establishment of a framework of community action in the water policy sector, the member states shall ensure the establishment of a registry or registries 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.

The table below presents the number of Protected Areas classified per type.

Table 8-17. Number of areas per type of protected area, River Basin & RBD

Type of Protected Area	River Basin 27	River Basin 28	River Basin 45	TOTAL
Water bodies designated for water withdrawal	6	3	-	**9**
Economically significant aquatic species	-	3	3	**6**
Recreational waters	29	18	67	**114**
Sensitive areas	-	-	-	**-**
Easily-affected areas	-	1	-	**1**
Protected Natural Areas	8	7	9	**24**
Total	**43**	**32**	**79**	**154**

8.5 Monitoring Network

In accordance with the requirement of Article 8 of Directive 2000/60/EC, Article 8 of Law 3199/2003 (GG 280/A/9-12-03) and Article 11 of Presidential Decree 51/2007 (GG 54/A/8-3-07), the Joint Ministerial Decision, No οικ. 140384 (GG 2017/B/9-9-11), which established the National Monitoring Network of surface and groundwater bodies, was issued.

Surface Water Bodies

In the Stream Basin of Northern Peloponnese (GR27), the network consists of 21 monitoring sites in rivers; 15 for surveillance and 6 for operational monitoring. In Pinios – Piros – Vergas River Basin (GR28), the network consists of 15 monitoring sites in rivers; 10 for surveillance monitoring and 5 for operational monitoring. As regards lake Water Bodies in the Stream Basin of Northern Peloponnese (GR27), the network consists of one surveillance monitoring site in the artificial lake of Feneos and one operational monitoring site at Stimfalia lake. In Pinios – Piros - Vergas River Basin (GR28), the network consists of one surveillance monitoring site in Pinios Artificial Lake. As regards coastal WBs, in the Stream Basin of N. Peloponnese (GR27), the network consists of 5 monitoring sites, out of which 2 are for surveillance and 3 for operational monitoring. In Pinios – Piros - Vergas River Basin (GR28), the network consists of 2 monitoring sites; one for surveillance and one for operational monitoring. In the Stream Basin of Ithaca – Kefalonia - Zakinthos (GR45), the network consists of 2 monitoring sites; one for surveillance and one for operational monitoring. As regards transitional WBs, in Pinios – Piros - Vergas River Basin (GR28), the network consists of 3 monitoring sites. In the Stream Basin of Ithaca – Kefalonia - Zakinthos (GR45), the network consists of one site of operational monitoring.

In the framework of preparing the Management Plan, the update of the JMD network was proposed. In RBD 02 surveillance monitoring is proposed for 24% of the river WBs, whilst separately surveillance monitoring is proposed for River Basins 27, 28 & 45 at percentages of

32%, 11% & 100% respectively. 50% of lakes, 22% of transitional and 21% of coastal WBs of RBD02 are included in the surveillance monitoring program. In RBD 02 operational monitoring is proposed for 33% of the river WBs, whilst separately for River Basins 27, 28 & 45 operational monitoring is proposed for 32%, 36% & 0% respectively. Finally, exploratory monitoring relates to 1 coastal WB in River Basin 27, 3 river WBs in River Basin 28 and 1 transitional WB in River Basin 45.

Table 8-18. Total summarized information of the surface Water Bodies monitoring network

TOTAL NETWORK	River Basin 27		River Basin 28		River Basin 45		RBD 02	
	Number of WBs	% of WBs	Number of WBs	% of WBs	Number of WBs	% of WBs	Number of WBs	% of WBs
Rivers	22	65%	16	57%	1	100%	39	62%
Lakes	3	100%	3	100%	0	-	6	100%
Transitional	2	67%	5	100%	1	100%	8	89%
Coastal	3	100%	3	75%	2	17%	8	42%
Total	**30**	**70%**	**27**	**68%**	**4**	**29%**	**61**	**63%**

Groundwater Bodies

In the Stream Basin of N. Peloponnese (GR27), the network consists of 47 monitoring sites; 7 for surveillance and 40 for operational monitoring. In Pinios – Piros - Vergas River Basin (GR28), the network consists of 34 monitoring sites; 1 for surveillance and 33 for operational monitoring. In Ithaca – Kefalonia – Zakinthos Stream Basin (GR45), the network consists of 23 monitoring sites; 1 for surveillance and 22 for operational monitoring. In the framework of preparing the Management Plan, the update of the JMD network was proposed. Table 8-19 presents the total number of monitoring sites per River Basin and the percentage of surveillance and operational monitoring per River Basin.

Table 8-19. Summarized data of the surveillance monitoring network

GROUNDWATER BODIES	River Basin 27		River Basin 28		River Basin 45		RBD 02	
	Number of sites	% of sites	Number of sites	% of sites	Number of sites	% of sites	Number of sites	% of sites
Surveillance	17	27%	5	12.5%	1	3.7%	23	17.3%
Operational	49	73%	35	87.5%	26	96.3%	110	82.7%
TOTAL	**66**	**100%**	**40**	**100%**	**27**	**100%**	**133**	**100%**

9 ECONOMIC ANALYSIS OF WATER USES

The Directive separates the services from water uses by defining the water services as the total of the processes intervening between natural water resources and the uses. On the basis of this definition, water services are any acts which change the main characteristics of the naturally available water and the water disposed after each use. It is noted that on the basis of the Directive's definition, water uses encompass all water services as well as any activities having a significant impact on its status. This definition covers almost the entire spectrum of human activities, i.e. agriculture, households, industries, navigation, protection from floods, power generation.

The water services for which a cost estimate is made are:

- Supply of water / sewage Refined or clean potable water,
- Irrigation, Non-refined water

The cost recovery levels per provider of water services and per use (Supply of water and Irrigation) were estimated. On a first level, the financial cost recovery level is estimated and then the total cost encompassing the environmental cost and the natural resource cost.

Water Supply

At a River Basin District Level, the total revenues for the DEYAs (Municipal and Sewage Company) amount to € 33.4 m., without the special duty of 80%, and to €43.3 m. if included. For Municipalities the revenues from the supply of water were estimated at €13.3 m. The total revenues from the supply of water in the River Basin District 02 were estimated at €56.5 m. The average revenues per m^3 of water for the entire Water Supply were estimated at €0.9/m^3, whilst for the DEYA is €1.2/m^3 and for Municipalities €0.46/m^3.

The revenues for the DEYAs (Municipal Corporations for Water Supply and Sewage) in River Basin 27 amount to €25.7 m., without the special duty of 80%, and to €34.0 m. if included. To the contrary, in said Municipal Corporation for Water Supply and Sewage of RB 27, the revenues were estimated at €5.5 m. In other words, the total revenues from the supply of water in River Basin 27 were estimated at €39.5 m. The average revenues per m^3 of water for the entire Water Supply were estimated at €1.07/m^3, whilst for the DEYA €1.24/m^3 and for Municipalities €0.6/m^3.

The revenues for the DEYAs (Municipal and Sewage Company) in River Basin 28 amount to €2.4 m., without the special duty of 80%, and to €2.9 m. if included. To the contrary, in said Municipal Corporation for Water Supply and Sewage of RB 28, the revenues were estimated at €4.7 m. In other words, the total revenues from the supply of water in River Basin 28 were estimated at €7.6 m. The average revenues per m^3 of water for the entire Water Supply was estimated at €0.4/m^3, whilst for the DEYA €0.66/m^3 and for Municipalities €0.31/m^3.

The revenues for the DEYAs (Municipal Corporations for Water Supply and Sewage) in River Basin 45 amount to € 5.4 m., without the special duty of 80%, and to € 6.5 m. if included. To the contrary, in said Municipal Corporation for Water Supply and Sewage of RB 45, the

revenues were estimated at € 3.0 m. In other words, the total revenues from the supply of water in River Basin 45 were estimated at € 9.5 m. The average revenues per m^3 of water for the entire Water Supply were estimated at € 1.12 €/m^3, whilst for the DEYA 1.54 €/m^3 and for Municipalities 0.70 €/m^3.

For the River Basin District 02 with respect to the total water supply, the total financial cost recovery amounts to 66.3%, whilst the total cost recovery to 62.3%. The respective figures for the DEYA are 83.5% and 80.3%, whilst for the Municipalities are 39.6% and 35.9%.

Irrigation

In the entire RBD 02 the revenues from the Organized Irrigation are € 6.6 m. (i.e. the average revenues per m^3 are €0.05), out of which €2.00 m. correspond to River Basin 27 and €4.6 m. to River Basin 28.

The financial and total cost recovery in Organized Irrigation in RB 27 amounts to 39.5% whilst total cost recovery to 34.7%. From the detailed information no substantial differentiation is observed among the various providers, with the exception of some borderline values. The financial and total cost recovery in Organized Irrigation in River Basin 28 amounts to 52.8%. From the detailed information substantial differentiation is observed among the various providers. In River Basin 45 there is no organized irrigation.

10 ENVIRONMENTAL OBJECTIVES – EXEMPTIONS

10.1 Identification of exemptions

The determination of objectives pursuant to the Directive entails the usage of the different options cited in Article 4. Through the process of specifying the objectives, not only is the status of all surface and groundwater bodies identified but also the achievement timeline of the objective of the Directive. Exemptions form an integral part of the environmental objectives laid down in Article 4. The relevant terms and the procedures are described in paragraphs 4.3, 4.4, 4.5, 4.6 and 4.7 of Directive 2000/60/EC. Exemptions vary from small scale provisional exemptions to long-term deviations from the objective of "good status until 2015" and have the following forms:

- Deadline extension: extension of the deadline for achieving the good status until 2021 or 2027 the latest (2nd and 3rd revision of the Management Plans) or whenever the natural conditions allow after 2027 (article 4.4).
- Determination of less strict environmental objectives under certain conditions, i.e. if it has been proved that the water bodies have been influenced to such extent by human activity that the achievement of environmental objectives is impossible or disproportionally cost-consuming (paragraph 4.3 and 4.5).
- Temporary deterioration in status arising from natural causes or force majeure or extraordinary conditions that could not have been foreseen when all conditions precedent under Article 4 are applicable (paragraph 4.6).
- New modifications of the natural characteristics of a body of surface water or modifications of the level of groundwater as a result of a new sustainable human activity (including the modification from - high to good status) (paragraph 4.7).

Table 10-1. Surface Water Bodies to be exempted in RBD 02

No	RB	Code	WB	Type of WB*	Existing status	Year of achieving the good status/ type of exemption	Applied measures	Exemption Justification
1	**27**	GR0227C0004H	PORT OF PATRAS (HMWB)	C	Moderate	**2027** *(Article 4.5)*	---	The changes in the hydromorphological characteristics of the HMWB necessary for the achievement of good ecological status would have a significant negative impact on navigation. The environmental objectives set for the WB are less strict (moderate ecological potential).
2	**28**	GR0228R000201003N	PINIOS R.	R	Moderate	**2021** *(Article 4.4)*	ΟΣ_ΥΔ02_9, ΟΣ_ΥΔ02_10, 2.05	Significant pressures from diffuse pollution sources. Hydromorphological alterations (it belongs to the zone of Pinios River Basin that is vulnerable to nitrates of agricultural origin). A longer period is required for the ecological recovery of the surface WB. A longer period is required for the implementation of the required technical works.
3	**28**	GR0228R000201004H	PINIOS R. (HMWB)	R	Moderate	**2027** *(Article 4.4)*	ΟΣ_ΥΔ02_9, ΟΣ_ΥΔ02_10, 7.07	Significant pressures from diffuse pollution sources. Hydromorphological alterations (it belongs to the zone of Pinios Basin that is vulnerable to nitrates of agricultural origin). The changes in the hydromorphological characteristics of the HMWB necessary for the achievement of good ecological status would have a significant negative impact on activities for the purposes of which water is stored, i.e. water supply, hydroelectric

No	RB	Code	WB	Type of WB*	Existing status	Year of achieving the good status/ type of exemption	Applied measures	Exemption Justification
								power generation or irrigation.
4	**28**	GR0228R000404024N	PARAPIROS STREAM	R	Moderate	**2021** *(Article 4.4)*	ΟΣ_ΥΔ02_9, ΟΣ_ΥΔ02_10, 5.04	Significant pressures from diffuse and point pollution sources. Hydromorphological alterations from the construction of Asterion dam. A longer period is required for the ecological recovery of the surface WB. A longer period is required for the implementation of the required technical works.

**R: Rivers, C: Coastal WBs, T: Transitional WBs, L: Lakes*

Table 10-2. Groundwater Bodies to be exempted in the RBD 02

No	Basin	Code	WB	Existing status	Year of achieving the good status/ type of exception	Applied measures	Exemption Justification
1	**27**	GR0200170	Body of North Corinthia	Bad	After 2027 *(Article 4.4)*	8.03, 8.04, 13.01, ΟΣ_ΥΔ02_6, ΟΣ_ΥΔ02_3,ΟΣ_ΥΔ02_7	Diffuse and point sources of pollution, (Cl, SO4, NO3). A longer period is required for the ecological recovery of the surface WB. A longer period is required for implementation of the required technical works.

No	Basin	Code	WB	Existing status	Year of achieving the good status/ type of exception	Applied measures	Exemption Justification
2	**27**	GR0200190	Body of Corinth-Kiato	■Bad	After 2027 *(Article 4.4)*	ΟΣ_ΥΔ02_6, ΟΣ_ΥΔ02_3,ΟΣ_ΥΔ02_7, 2.04, 8.07, 9.02, 11.06, 13.03 14.01	Diffuse and point sources of pollution, Over-abstraction, salinization, (Cl, SO4, NO3). A longer period is required for the qualitative recovery of the groundwater WB. Improvement of the quantitative status is expected due to replacement of groundwater abstraction with surface water from Asopos dam.
3	**28**	GR0200090	Body of Larissos r.	■Bad	After 2027 *(Article 4.4)*	ΟΣ_ΥΔ02_6, ΟΣ_ΥΔ02_2, ΟΣ_ΥΔ02_7 8.07, 11.06, 11.09, 14.02	The groundwater body has been over-abstracted in the past decades. Due to the nature of the aquifer, rehabilitation takes a long time even in the cases where there is water to replace the abstraction. A longer period is required for the GB's recovery. Partial recovery of the body's quantitative status is expected due to replacement of the abstracted water with water from Pinios dam.
4	**45**	GR0200050	Body of Zakinthos	■Bad	After 2027 *(Article 4.4)*	8.03, ΟΣ_ΥΔ02_6, ΟΣ_ΥΔ02_3, ΟΣ_ΥΔ02_7	Over-abstraction, salinization, diffuse and point sources of pollution, (Cl). A longer period is required for the GB's recovery. A longer period is required for implementation of the required technical works.

Table 10-3 Number and % of River Water Bodies per type of exemption in RBD 02

Exemption	% percentage of WBs total surface that consists exemption	Justification	% percentage of WBs of each justification	Comments
Article 4.4	3.2%	Technical infeasibility	100%	

Table 10-4 Number and % of Coastal Water Bodies per type of exemption in RBD 02

Exemption	% percentage of WBs total surface that consists exemption	Justification	% percentage of WBs of each justification	Comments
Article 4.5	0.0004%	Technical infeasibility	100%	

Table 10-5 Number and % of Groundwater Bodies per type of exemption in RBD 02

Exemption	% percentage of WBs total surface that consists exemption	Justification	% percentage of WBs of each justification	Comments
Article 4.4	16.11%	Technical infeasibility	100%	

10.2 Scheduled and new projects – activities – modifications

The main scheduled new projects and their potential impact on the achievement of the environmental objectives of the Water Bodies are shown in the following tables per RB.

Table 10-6. Table of new projects and activities in the Stream Basin of N. Peloponnese

No	Project/ Activity	Summary description	Influenced WB
1	**Asopos Dam** in S. Corinthia	The reservoir to be created upon implementation of the project will have multiple uses. Asopos artificial lake will have an annual discharge of approximately 62 mil.m^3. The reservoir's volume is 29 mil.m^3 and its useful capacity around 26 mil.m^3. In line with the applicable Environmental terms (JMD 130473/29-7-2003), 2.5 mil.m^3 of water will be used for the water supply of the neighboring areas, 6 mil.m^3 for artificial recharge (January – March period), 18 mil.m^3 for irrigation purposes (April – October period), and 2.4 mil.m^3 for ecological	The river WB of Asopos with code **GR0227R002900028N** as well as the groundwater body of Kiato – Corinth **(GR0200190)**. The river WB has not been assessed/ classified as regards its status due to the lack of data. The groundwater body of North Corinthia is in bad chemical status.

No	Project/ Activity	Summary description	Influenced WB
		flow.	
2	**Networking of aqueducts of Mun. of Corinthia –** Phase A	The project concerns the construction of an external aqueduct to satisfy the needs of the Municipal Units of Soligia, Saronikos, and Tenea of the Municipality of Corinth facing water sufficiency and quality problems.	The groundwater body of Ziria **(GR0200220**), wherefrom Corinth is supplied (Stimfalia springs) with abstraction of 3mil.m^3 annually. For the water supply of the settlements of the Municipal Units of Soligia, Saronikos, and Tenea and enhancement of the water supply of the city of Corinth abstraction of 6 mil.m^3 per year from Stimfalia springs will be required.
3	**Extra-fluvial conservation reservoir in Xylokastro of Korinthia**	The off-stream reservoir will be constructed at the location "Katevasia" of the M.D. Riza and will partially cover the water supply needs of the 10 M.D. of the Municipality of Xylokastro, the population capacity of which is 45,850 inhabitants. Useful water capacity is around 2.54 million m^3. Supply of the reservoir is expected to take place from the discharge of Trikalitikos (Sythas), through an abstraction project and a gravity duct.	The river body of Trikalitikos (Sithas) with code **GR0227R002300024N** as well as the groundwater body of North Corinthia (**GR0200170**). The river WB has not been assessed/ classified as regards its status due to lack of data. The groundwater body of North Corinthia is in bad chemical status.

Table 10-7. Summarized table of important scheduled projects in Piros – Vergas – Pinios River Basin

No	Project/ Activity	Summary description	Influenced WB
1	Dam of Asterio	It is an embankment dam, of nominal height 75m from the support level, with crest length 760m and width 14m. The project is accompanied by appropriate overflow, abstraction and evacuation works for the waters of the reservoir. The dam constructed will receive the discharge of the catchment area of Parapiros, of around 104km^2, as well as the supplies discharged from Valmadoura dam through the adduction pipe. The dam under construction will form an artificial lake of 1.63km^2 at the bed of Parapiros river. Its volume will be around 44 million m^3 and the effective capacity around 40 million m^3. Estimated annual abstraction from Asterio dam, as per JMD no 86147/19-8-2002 for the Approval of Environmental Terms for the project: "Study for Water Supply of Patras from rivers Piros and Parapiros – Networks for remaining settlements of the Department of Achaia", as amended by JMD	The WB downstream the dam, with code **GR0228R000404024N.** The project is presently under construction and in line with the assessment that was made, it was ascertained that the surface WB is in poor status.

No	Project/ Activity	Summary description	Influenced WB
		no 103496/23-4-2008, arise to 22 million m^3 by 2020 and to 27 million m^3 by 2035. The ecological flow, as per environmental terms, is specified at 0.3m^3/sec downstream to the dam of Valmadoura and at 0.2m^3/sec. downstream to the dam of Asterio.	
2	Extension of Central Channel of Pinios to Municipalities of W. Ahaia	At the end of 2006 the Special Environment Agency (EYPE) issued a favorable opinion (JMD 102072/14-12-2006) as regards the extension of the existing North Central Channel to Municipal Units of Momvri, Larissos and Dymi of W. Ahaia for the irrigation of lands totaling 63000 stremmas within a 1.5 km zone at both sides of the channel through private pumping complexes. The project relates with (its construction will start upon) the completion of the project "Underground placement of natural flow networks (trench drains) of the Local Organization of Land Improvement of Gastouni, Amaliada, A' Pirgos, Pelopio and Epitalio", aiming at the non-increase of abstraction from the artificial lake of Pinios. Estimated abstraction from the artificial lake for the irrigation of the 63000 stremmas amounts to 28.5 million $m^{3.}$	Pinios Artificial Lake **GR0228L000000003H**
3	Water supply – refinery from artificial lake of Pinios at the Prefecture of Elia	Construction of refinery for the enhancement of water supply of various Municipal Units (Amaliada, Andravida, Vartholomio, Vouprasia, Gastouni, Kastro, Kyllini, Lehaina and Tragano). Already, the design and plan is complete for the construction of the refinery, credit has been ensured and the construction contract was signed in 2009. The said project will contribute to the increase of abstraction from the artificial lake by approximately 6 million m^3 annually, but abstraction from underground aquifers will be reduced.	Pinios Artificial Lake **GR0228L000000003H**

11 PROGRAM OF MEASURES

The Program of Measures forms a part of the River Basin Management Plan. It forms the "mechanism" of achievement of the environmental objectives set out in the Management Plan. Their division into basic and supplementary measures forms two levels of interventions: a) at a first level (basic measures) those actions stipulated by the Community legislation on environmental protection are organized, as well as the key actions laid down in Directive 2000/60/EC. The first level ensures the essential requirements for the protection of the water bodies by preventing their deterioration; b) at a second level (supplementary measures) the additional actions necessary for those water bodies whose environmental objections may not be achieved by 2015 are identified.

The program of Basic measures forms a tool for the protection of all water resources. In particular, the proposed measures are applicable to all water bodies and not only to those WBs under protection, pursuant to the WFD. In this manner, protection of the total water resources is ensured (e.g. small streams that do not meet the criteria of Directive 2000/60/EC for being characterized as WBs).

Apart from the main Community Directives the implementation of 38 other basic measures is proposed in RBD of Northern Peloponnese. In addition, in RBD 02 the implementation of 30 different supplementary measures in 32 different WBs is proposed. These measures are often implemented in more than one WBs. In this case they are in fact different measures since they pertain to a different WB with different characteristics and a differentiation in their implementation cost is often observed. Therefore, in RBD 02, 68 supplementary measures are proposed for implementation and are assessed.

With respect to the supplementary measures a cost – efficiency analysis has been carried out in line with the Directive's requirements. The implementation cost of the supplementary measures amounts to € 187.5 million.

Besides the Program of Measures, in the framework of preparing the Management Plans, some other actions are proposed that may be implemented in addition to supplementary measures. They pertain to various environmental actions that resulted from the consultation. They do not form the object of the management plan but they are recorded in order to facilitate the coordination of competent services and towards the direction of the general policy of environmental protection.

Table 11-1. Program of Basic Directive Measures

Code	DIRECTIVE
BM01	Bathing Waters (Directives 76/160/EEC, 2006/7/EC)
BM02	Protection of wild birds (Directive 79/409/EC) and Natura 2000 areas (Directives 92/43/EC -2009/147/EC)
BM03	Drinking Water (Directives 80/778/EC, 98/83/EC)
BM04	Environmental Impact of Projects / Activities (Directives 85/337/EC , 97/11/EC, 2003/35/EK, 2009/31/EC)
BM06	Prevention - Pollution Control (Directives 96/61/EC, 2008/1/EC, 2010/75/EU)
BM07	Protection from Nitrate (Directive 91/676/EC)
BM08	Pesticides (Instructions 91/414/EC, 1107/2009, 2009/128/EC)
BM09	Control of major-accident hazards involving dangerous substances - SEVESO (Instructions 96/82/EC, 2003/105/EC)
BM10	Sludge treatment plants (Directive 86/278/EC)
BM11	Urban Waste water Treatment (Directive 91/271/EC)
OM01	Directive on priority substances (2008/105/EC), as incorporated by GG 1909/8-12-2010
OM02	Directive to protect groundwater (2006/118/EC) as incorporated by JMD 39626/2208/E130/2009 (GG B' 2075) and the requirements of Article 14 of PD 51/2007
OM03	Directive 2006/11/EC on pollution caused by certain dangerous substances

Table 11-2. Program of others Basic Measures at RBD 02

Code	Name of Measure
OM04-1	Customization of pricing policy in a flexible and efficient way in order to serve as primary target the environmental sustainability and avoid water wastage.
OM05-1	Implementation of Water Safety Plans in Large Municipal Water and Sewage Companies (DEYA). RBD02 : DEYA PATRAS, DEYA KORINTHOS
OM05-2	Introduction of institutional framework and program of measures for water conservation in households.
OM05-3	Works for the rehabilitation / enhancement of existing water supply networks.
OM05-4	Actions to enhance the operation of water supply networks of large agglomerations of the RBD. Leakage control.
OM05-5	Reorganization / rationalization of the institutional framework for the operation of management authorities of collective irrigation systems.
OM05-6	Actions to enhance the operation of water supply networks of large agglomerations of the RBD. Leakage control.
OM06-1	Compilation / Update of the water supply Masterplans from Municipal Water and Sewage Companies (DEYA).
OM06-2	Protection of abstraction works for drinking water from surface water bodies.
OM06-3	Detailed delineation of protection zones for groundwater abstraction points (springs, wells) for drinking water abstractions > 1.000.000m3 per year.
OM06-4	Designation of protection zones of works for the abstraction of drinking water.
OM06-5	Prohibition of new works for the exploitation of groundwater bodies (wells, wells , etc) for new water uses and the expansion of existing water use permits : • In areas with GWB in bad quantitative status • Within areas of collective irrigation systems • Within the protection zones (I and II) of works for the abstraction of drinking water.
OM06-6	Protection of GWBs included in the register of protected areas as drinking water areas and instruction of institutional framework for their protection.
OM06-7	Investigation of conditions for implementing artificial recharge in groundwater bodies, as a mean of quantitative enhancement and qualitative protection of GWBs.
OM07-1	Installation of monitoring systems to record groundwater bodies abstractions.
OM07-2	Recording of surface water abstractions for water supply, irrigation and other uses by big consumers (abstractions over 10m^3/day).
OM07-3	Update of the Decision F16/6631/1989 which specifies the minimum and maximum limits of necessary quantities of irrigation water.
OM07-4	Creation of a homogenous registry of licensed abstractions through the process of licensing water uses.
OM07-5	Establishment of criteria to determine limits of total abstractions for each water body.
OM07-6	Review of the regulatory framework for licensing water uses and execution of water resources exploitation works.
OM08-1	Creation of a homogenous registry of disposal area for wastewater, either through irrigation or through artificial recharge (GG 354/B/08.03.2011).
OM08-2	Compilation of technical specifications manual for the implementation of different reuse methods.
OM09-1	Promotion of planning central treatment units of agricultural and animal wastes
OM09-2	Set up of a registry of pollution sources (emissions, discharges and leaks).
OM09-3	Defining terms and conditions for connection of industries to sewerage networks / reception of industrial wastes in WWTP.

Code	Name of Measure
OM09-4	Instruction / designation of limits for emissions at basin level for priority substances and other pollutants of KYA 51354/2641/E103/2010 as well as for physicochemist parameters in relation to quality objectives specified in river basin management plans.
OM09-5	Specification of criteria for licensing new / expansion of existing aquaculture units.
OM09-6	Specification of the process to control and designate zones for aquacultures in inland waters
OM09-7	Modernization of national legislation on the management of urban and industrial waste waters.
OM09-8	Development of a regulatory framework / guidelines for monitoring water quality in aquaculture units.
OM09-9	Instruction of an institutional framework for the licensing of tanks that transport sewage.
OM10-1	Stepwise, selective conversion of conventional to organic farming.
OM10-2	Modernization of the institutional framework for sludge management from waste water treatment plants with emphasis on expanding the scope of its applications and review the quality characteristics of the applied sludge.
OM10-3	Development of specialized tools for the rational use of fertilizers and water.
OM11-1	Training institutional framework determining the terms of protection of inland recreational waters Article 6 of Directive 2000/60/EC - Temporary setting for new projects in inland water bodies included as recreational waters in the Register of protected areas required under Article 6 of Directive 2000/60 / EC.
OM11-2	Determination of selected areas for taking materials for the needs of construction projects.
OM14-1	Design and implementation of centralized reporting and management system of pollution from accidents / natural causes.
OM14-2	Strengthening the synergy of the river basin management plans with the plans to cope with large scale technological accidents (SATAME) for facilities included in the IPPC and SEVESO Directives.

Table 11-3. Horizontal Supplementary Measures for Groundwater Bodies

Measure Category	Measure Code	Title	Description	Groundwater Body for implementation of the measure	Competent Authority
Pollutant emission control	**ΟΣ_ΥΔ02_1**	Protection rules for sinkholes	Establishment of protection zones around existing active and inactive sinkholes, in aim to control polluting pressures. Specific care must be taken for activities that lead at direct disposal of wastewater into sinkholes. The sinkholes drain closed basins and the measures for the protection and improvement of the quality of water drained may include: 1. Incentives to promote organic farming. 2. Motivation for promotion of tertiary wastewater treatment where applied. 3. Inspections to existing facilities in aim to enforce the compliance with the environmental terms. This measure addresses the pollution of karstic groundwater bodies which apart from the dissolution of pollutants have no other self-cleaning mechanism.	**Body of Kefalonia (GR0200010)** **Body of Ziria (GR0200220)** **Body of Feneos (GR0200230)** **Body of N. Erimanthos (GR0200250)**	MEECC (SSW) / MRDF / DECENTRALIZED ADMINISTRATION
Pollutant emission control	**ΟΣ_ΥΔ02_2**	Special protection measures in areas of GB where geothermal hot springs are found	The special protection measures for geothermal hot springs are adjusted and combined with the existing institutional framework for their protection. Firstly the prohibitions of zone II, for the protection of groundwater abstraction points for drinking water, are applied.	**Body of Kyllini (GR0200070)** **Body of W. Ahaia (GR0200080)** **Body of Larissos r. (GR0200090)** **Body of North Ahaia (GR0200140)** **Body of Patra – Rio (GR0200120)**	MEECC (SSW) / MINISTRY OF TOURISM

Measure Category	Measure Code	Title	Description	Groundwater Body for implementation of the measure	Competent Authority
Pollutant emission control	**ΟΣ_ΥΔ02_3**	Program of investigatory monitoring of the qualitative status in groundwater and surface bodies in the areas of the existing landfill	The investigation of the qualitative status of surface and groundwater in the perimeter of the landfill site. The program will be drawn up by the Directorate for Water of the Decentralized Administration and will be implemented either by the Region or landfill Operators.	**Body of Kefalonia (GR0200010)Body of Zakinthos (GR0200050)Body of Patra – Rio (GR0200120)Body of North Corinthia (GR0200170)Body of Movri (GR0200100)Body of North Ahaia (GR0200140)**	DECENTRALIZED ADMINISTRATION / REGION / HYTA OPERATORS
Abstraction control	**ΟΣ_ΥΔ02_4**	Installation of a functional valve in artesian wells	Installation of a functional valve or a pipe to balance pressure or any other suitable way to control the outflow of artesian wells, during periods of time that they are not used, several times pressurized water field discharge throughout the year creating problems of quantitative sufficiency during the irrigation and drinking water abstraction period.	**Body of Pinios (GR0200060) Body of W. Ahaia (GR0200080)**	REGION / DECENTRALIZED ADMINISTRATION

Measure Category	Measure Code	Title	Description	Groundwater Body for implementation of the measure	Competent Authority
Abstraction control	**ΟΣ_ΥΔ02_5**	Control of the qualitative status of licensed water-abstraction projects in water bodies with high values in the natural substratum (chlorides, sulfates)	Annual control of the qualitative status of groundwater in the GBs presenting increased values in the concentrations of some elements (e.g. chlorides, sulfates) attributed to the natural substratum. The annual control of the qualitative status of groundwater is made in order to ascertain the possible extension of the zone characterized by high concentrations due to natural substratum as well as the possible increase or decrease of concentrations of the element causing it. The Directorates for Water by means of assessing the information arising from the annual quality controls will be able to take the necessary measures depending on the potential deterioration or improvement of the status.	**Body of Kefalonia (GR0200010)** **Body of Ithaca (GR0200030)** **Body of Vrahionas (GR0200040)** **Body of Arachneo (GR0200200)**	REGION / DECENTRALIZED ADMINISTRATION

Measure Category	Measure Code	Title	Description	Groundwater Body for implementation of the measure	Competent Authority
Pollutant emission control	**ΟΣ_ΥΔ02_6**	Definition of principle restriction zones for drilling new wells for new water uses and extensions of existing uses in coastal groundwater bodies where phenomena of seawater intrusion are observed	In the coastal WB identified in a bad qualitative status due to salinization or presenting local salinization resulting from anthropogenic pressures (over-extraction) limitation measures are taken for the construction of new groundwater-abstraction works (wells, wells) as well as for the extension of the licenses of existing uses. Until the precise definition of principle restriction zones on the basis of the special hydrogeological studies that shall be drawn up, it is proposed to establish the following coastal zones where the drilling of new wells for new water uses is prohibited and where the licenses for existing uses will be extended: - For karstic systems: 300m, - For granules of free piezometric surface: 200m, - For granules sub-pressure: 100m, In special cases (eg for drinking water use, aquaculture and desalination facilities) permission for drilling a new borehole can be issued after submission of a hydrogeological report or study and the favorable opinion from the competent Water Directorate. The above mentioned restrictions refer to the exploited groundwater body, and not on the spatial location of the new project of water use. These restrictions are intended to limit the expansion of seawater intrusion in coastal groundwater bodies. In case of coastal karstic groundwater bodies with extensive natural salination, through regulatory decisions, the restriction zones may be extended further with the responsibility of the competent Water Directorates. The precise boundaries of the zones with restrictions for water abstraction projects will be defined by specific hydrogeological study. From the above mentioned restrictions, specific circumstances with priority abstraction for drinking water use and other special cases such as drilling for aquaculture, pumping water for desalination facilities etc, are excluded. In such cases, permission is accomplished after the submission of a documented hydrogeological study which will be examined and approved by the relevant Water Directorates. The specifications for the aforementioned hydrogeological studies will be determined by the competent authorities under the coordination of the Special Water Secretariat.	**Body of Larissos r. (GR0200090)Body of North Corinthia (GR0200170)Body of Corinth-Kiato (GR0200190)Body of Zakinthos (GR0200050)Body of Lixouri – Skala (GR0200020)Body of Kefalonia (GR0200010)Body of Ithaca (GR0200030)Body of Vrahionas (GR0200040)Body of Arachneo (GR0200200)Body of Pinios (GR0200060)Body of Kyllini (GR0200070)Body of W. Ahaia (GR0200080)Body of Piros r. (GR0200110)Body of Patra - Rio (GR0200120)Body of North Ahaia (GR0200140)**	MEECC (SSW) / DECENTRALIZED ADMINISTRATION

Measure Category	Measure Code	Title	Description	Groundwater Body for implementation of the measure	Competent Authority
Pollutant emission control	**ΟΣ_ΥΔ02_7**	Definition and delimitation of areas of groundwater bodies that have poor quality due to seawater intrusion or exhibit local seawater intrusion	For the coastal groundwater bodies that have poor quality status owed to seawater intrusion or exhibit local seawater intrusion, special hydrogeological surveys are to be drafted for the precise definition of restriction limits for the drilling of new boreholes and the extension of the seawater intrusion, so measures will be taken for the gradual restoration not only through prohibitions but also through reduction or even elimination of water abstractions for the existing water uses prioritizing the invention of new ways to meet the needs for irrigation. The specifications for the above mentioned hydrogeological surveys are to be determined from competent authorities under the coordination of the Special Secretariat of Water.	**Body of Larissos r. (GR0200090)** **Body of North Corinthia (GR0200170)** **Body of Corinth-Kiato (GR0200190)** **Body of Zakinthos (GR0200050)** **Body of Lixouri – Skala (GR0200020)** **Body of Kefalonia (GR0200010)** **Body of Ithaca (GR0200030)** **Body of Vrahionas (GR0200040)** **Body of Arachneo (GR0200200)** **Body of Pinios (GR0200060)** **Body of Kyllini (GR0200070)** **Body of W. Ahaia (GR0200080)** **Body of Piros r. (GR0200110)** **Body of Patras - Rio (GR0200120)** **Body of North Ahaia (GR0200140)**	DECENTRALIZED ADMINISTRATION (DIRECTORATE FOR WATER) / REGION

Table 11-4. Horizontal Supplementary Measures for Surface Water Bodies

Category of Measure	Code of Measure	Title	Description	Competent Authority
Educational measures	ΟΣ_ΥΔ02_8	Information and awareness of the public on water issues	Constant public information is proposed as well as placing emphasis on the rational management of resources and the constant information of water users and of the public on the current conditions of the water balance on the island of Lefkada and the necessity of measures that are each time set into force on said island.	MEECC (SSW) / MRDF / DECENTRALIZED ADMINISTRATION
Educational measures	ΟΣ_ΥΔ02_9	Organization of information meetings on new technologies, modern irrigation techniques, environmental protection issues, fertility of land, etc	The Regional Agricultural and Animal Health Services should organize two information meetings every inviting as speakers, agronomists, veterinarians, professors of agricultural sciences, biologists, technical staff from agricultural supplies and machinery trading companies, soil specialists, etc. This measure aims at raising the awareness of producers and encouraging them to adopt best practices that will facilitate them in their work, improving productivity and performance of agricultural exploitations, and underlining at the same time the need of protecting the environment and conserving the fertility of rural lands and the sustainable use of natural resources.	MRDF / REGION
Recreation and restoration of wetlands areas	ΟΣ_ΥΔ02_10	Preparation of a study at a river basin level for the impact of dams on the free movement of anadromous and catadromous fish fauna species and for the identification of the best treatment methods and practices	The study shall use the literature about fish fauna, the data resulting from the monitoring program to be applied until the end of the managing period, and it shall also include any data resulting from any possibly necessary supplementary sampling and site observations in order to define the list of the fish fauna species, their ecology and movements. It is considered a significant measure because it is directly associated with the Biological Quality Elements (BQE) of the fish fauna, which -pursuant to the WFD- are an assessment tool of the ecological status of river water bodies and do not currently participate in the classification of WBs, due to insufficient scientific and technical maturity. The measure aims at investigating the impact of the discontinuity of the river WB on the populations of anadromous and catadromous fish fauna species, the contribution to the development of an assessment indicator of the ecological status of the bodies of river waters having as BQE the fish fauna and the identification of general and special measures addressing any impact.	MEECC (SSW) / DAMS OPERATORS / REGION

Category of Measure	Code of Measure	Title	Description	Competent Authority
Economic or fiscal measures	ΟΣ_ΥΔ02_11	Reform accounting systems of water providers	Configuration and application of a uniform calculation method and recording the cost of water supply by water providers, to strengthen the credibility of its estimation. Based on the available data it is indicated that (a) The way of reporting and recording cost categories is highly nonuniform and (b) there is no systematic recording costs and revenue per service (water supply and sewage with / without WWTP). Finally, the environmental and resource costs should be aggregated, with suitable methodologies. Prerequisite for this is the computerization of water supply. The configuration and application of a uniform method of recording the cost of water concerns the providers of irrigation water, in the context of which the calculation of environmental costs and the costs of the resources with suitable methodologies is essential - even to the ones served by private pumping stations. Prerequisite for the application is the elementary computerization of the providers. An annual publication of the total cost of water supply and the degree of recovery to raise awareness of the public is recommended. The disclosure is to be made in a simplified manner and provide the opportunity to the users to compare the costs.	MEECC (SSW)

Table 11-5. Supplementary Measures
Table of assessment of supplementary measures in the Stream Basin of N. Peloponnese

Code	Water Body	Type of WB	Existing Status	Supplementary Measures – Competent Authority			Exemptions	Preparation Time	Efficacy of Measure	Investment Cost	Operation Cost	Total Cost	Social Impact	Financial impact	Environmental impact	Included projects	Comments
GR0227R000300004N	HARADROS R.	R	■Unknown	Administrative Measures	2.05	Prohibition of new sand-extraction or of extension licenses except in the cases of flood prevention by the Region's Civil Protection *Competent Authority: Region*	-	Short-term	Medium	**0 €**	**0 €**	**0 €**	Negligible	Large	Negligible		This is an administrative measure aiming at protecting the WB under examination. The WB is of unknown ecological status, whereas the pressure it suffers is of high intensity. Sand extraction causes severe hydromorphological changes in the river, affecting both biotic and abiotic parameters while disturbing the regime of sediments at the coastal body.
GR0227R000500005N	FINIKAS R.	R	■Unknown	Administrative Measures	2.05	Prohibition of new sand-extraction or of extension licenses except in the cases of flood prevention by the Region's Civil Protection *Competent Authority: Region*	-	Short-term	Medium	**0 €**	**0 €**	**0 €**	Negligible	Large	Negligible		This is an administrative measure aiming at protecting both the WB under examination, and the downstream bodies of water (coastal and transitional). The WB is of unknown ecological status, whereas the pressure it suffers is of high intensity. Sand extraction causes severe hydromorphological changes in the river, affecting both biotic and abiotic parameters while disturbing the regime of sediments at the coastal body.
GR0227R000500005N	FINIKAS R.	R	■Unknown	Demand management measures	9.02	Replacement of block and spray irrigation methods by drip irrigation method *Competent Authority: Land Improvement Local Organization of Finikas irrigation system*	-	Long-term	Large	**0 €**	**0 €**	**0 €**	Moderate	Large	Negligible		Such replacement may significantly reduce the current squandering of irrigation water. Quite approximately, it may be considered that 70% of land currently irrigated by block irrigation and 80% of spray irrigated land may be drip irrigated. The benefits from the replacement of block irrigation by drip irrigation, in terms of water quantity, correspond to 40%, whereas those from the replacement of spray by drip irrigation correspond to 30%. The cost of the measure to be borne by farmers may be set off with the pricing of irrigating water.
GR0227R000500005N	FINIKAS R.	R	■Unknown	Existing infrastructure rehabilitation works	13.03	Replacement of open collective networks with closed networks under pressure of irrigation project of Land Improvement Local Organization *Competent Authority: MRDF*	-	Long-term	Large	**3,348,000 €**	**0 €**	**3,348,000 €**	Negligible	Negligible	Negligible		The project is related to the underground placement of flow networks (trench drains) of the Land Improvement Local Organizations of Arravonitsa, Ziria, Kamares, and Erineos, used for the irrigation of 800, 970, 1,600, and 350 stremmas respectively, aiming at reducing losses.
GR0227R000900008N	SELINOUS R.	R	■ Good	Recreation and restoration of wetlands areas	7.03	Enhancement of monitoring facilities for biotic and abiotic parameters of river estuary, in view of identifying the ecological flow at the river estuary based on biotic and abiotic indicators of the transitional WB *Competent Authority: Region*	-	Medium-term	Medium	**30,000 €**	**0 €**	**30,000 €**	Negligible	Negligible	Negligible		The estuary of the river WB is a significant wetland ecosystem, the protection of which requires knowledge of all biotic and abiotic parameters enabling the comprehension of their function. The identification of ecological flow consists in defining minimum flow, which would ensure the smooth operation of the ecosystem as this is expressed by biotic and abiotic parameters.

Code	Water Body	Type of WB	Existing Status	Supplementary Measures – Competent Authority			Exemptions	Preparation Time	Efficacy of Measure	Investment Cost	Operation Cost	Total Cost	Social Impact	Financial impact	Environmental impact	Included projects	Comments
GR0227R000900008N	SELINOUS R.	R	■ Good	Demand management measures	9.02	Replacement of block and spray irrigation methods by drip irrigation method *Competent Authority: Irrigation Organization of Selinountas*	-	Long-term	Large	**0 €**	**0 €**	**0 €**	Moderate	Large	Negligible		Such replacement may significantly reduce the current squandering of irrigation water. Quite approximately, it may be considered that 70% of land currently irrigated by block irrigation and 80% of spray irrigated land may be drip irrigated. The benefits from the replacement of block irrigation by drip irrigation, in terms of water quantity, correspond to 40%, whereas those from the replacement of spray by drip irrigation correspond to 30%. The cost of the measure to be borne by farmers may be set off with the pricing of irrigating water.
GR0227R000900008N	SELINOUS R.	R	■ Good	Existing infrastructure rehabilitation works	13.03	Replacement of open collective networks with closed networks under pressure of the *Irrigation Organization of Selinountas Competent Authority: MRDF*	-	Long-term	Large	**7,020,000 €**	**0 €**	**7,020,000 €**	Negligible	Negligible	Negligible		The project is related to the underground placement of flow networks (trench drains) of the EDE of Selinountas, used for the irrigation of 7,800 stremmas respectively, aiming at reducing losses.
GR0227R001300013N	VOURAIKOS R.	R	■ Unknown	Pollutant emission controls	5.04	Inspections on the observance of disposal limits to the WB from adjacent processing and industrial plants (twice annually) *Competent Authority: Region*	-	Short-term	Large	**0 €**	**0 €**	**0 €**	Moderate	Moderate	Negligible		The status of the WB under examination is unknown whilst the pressures resulting from significant industrial and processing plants are of medium intensity. The Water Body belongs to the National Park of Helmos – Vouraikos (JMD 40390/01-10-2009 (GG Δ' 446/02-10-2009)). The most important pressure for the WB is the wastewater from Kalavrita, which is not discharged into a WWTP. Besides construction of a WWTP in Kalavrita (basic measure) stricter controls are proposed, as regards the disposal boundaries of the processing plants (cheese factories) operating adjacent to the WB.
GR0227R001700016N	KRATHIS R.	R	■ Good	Administrative Measures	2.05	Prohibition of new sand-extraction or of extension licenses except in the cases of flood prevention by the Region's Civil Protection *Competent Authority: Region*	-	Short-term	Medium	**0 €**	**0 €**	**0 €**	Negligible	Large	Negligible		This is an administrative measure aiming at protecting both the WB under examination, and the downstream bodies of water (coastal and transitional). The WB is of unknown ecological status, whereas the pressure it suffers is assessed to be of high intensity. Sand extraction makes severe hydromorphological alteration for the river, affecting both biotic and abiotic parameters while disturbing the regime of sediments at the coastal body.
GR0227R001700016N	KRATHIS R.	R	■ Good	Recreation and restoration of wetlands areas	7.03	Enhancement of monitoring infrastructure for biotic and abiotic parameters of river estuary, in view of identifying the ecological flow at the river estuary based on biotic and abiotic indicators of the transitional WB *Competent Authority: Region*	-	Medium-term	Medium	**30,000 €**	**0 €**	**30,000 €**	Negligible	Negligible	Negligible		The estuary of the river WB is a significant wetland ecosystem, the protection of which requires knowledge of all biotic and abiotic parameters enabling the comprehension of their function. The identification of ecological flow consists in defining the minimum flow, which would ensure the smooth operation of the ecosystem as this is expressed by biotic and abiotic parameters.

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GR0227R001700016N	KRATHIS R.	R	■ Good	Demand management measures	9.02	Replacement of block and spray irrigation methods by drip irrigation method *Competent Authority: Land Improvement Local Organization of irrigation system in Krathis*	-	Long-term	Large	**0 €**	**0 €**	**0 €**	Moderate	Large	Negligible		Such replacement may significantly reduce the current squandering of irrigation water. Quite approximately, it may be considered that 70% of land currently irrigated by block irrigation and 80% of spray irrigated land may be drip irrigated. The benefits from the replacement of block irrigation by drip irrigation, in terms of water quantity, correspond to 40%, whereas those from the replacement of spray by drip irrigation correspond to 30%. The cost of the measure to be borne by farmers may be set off with the pricing of irrigating water.
GR0227R001700016N	KRATHIS R.	R	■ Good	Existing infrastructure rehabilitation works	13.03	Replacement of open collective networks with closed networks under pressure of irrigation project of Land Improvement Local Organization *Competent Authority: MRDF*	-	Long-term	Large	**3,258,000 €**	**0 €**	**3,258,000 €**	Negligible	Negligible	Negligible		The project is related to the underground placement of flow networks (trench drains) of the Land Improvement Local Organizations of Akrata, Porovitsa, and Platanos used for the irrigation of 2,650, 620, and 350 stremmas respectively, aiming at reducing losses.
GR0227R001900019N	KRIOS R.	R	■ Unknown	Demand management measures	9.02	Replacement of block and spray irrigation methods by drip irrigation method *Competent Authority: Land Improvement Local Organization for irrigation system of Krios, Marmara, Egira*	-	Long-term	Large	**0 €**	**0 €**	**0 €**	Moderate	Large	Negligible		Such replacement may significantly reduce the current squandering of irrigation water. Quite approximately, it may be considered that 70% of land currently irrigated by block irrigation and 80% of spray irrigated land may be drip irrigated. The benefits from the replacement of block irrigation by drip irrigation, in terms of water quantity, correspond to 40%, whereas those from the replacement of spray by drip irrigation correspond to 30%. The cost of the measure to be borne by farmers may be set off with the pricing of irrigating water.
GR0227R001900019N	KRIOS R.	R	■ Unknown	Existing infrastructure rehabilitation works	13.03	Replacement of open collective networks with closed networks under pressure of irrigation project of Land Improvement Local Organization *Competent Authority: MRDF*	-	Long-term	Large	**3,258,000 €**	**0 €**	**3,258,000 €**	Negligible	Negligible	Negligible		The project is related to the underground installation of flow networks (trench drains) of the Land Improvement Local Organization of Krios, Marmara in Egira, used for the irrigation of 1,850 stremmas respectively, aiming at reducing losses. It is about a closed network along the river, around 4 km long from the water abstraction of Mylos in Valma X354916,919- Y4218084,335, up to the water abstraction of Kokkinos Vrahos X35858,176- Y4220268,475 and afterwards to the irrigating areas.
GR0227R002300024N	TRIKALITIKOS R. (SYTHAS)	R	■ Unknown	Demand management measures	9.02	Replacement of block and spray irrigation methods by drip irrigation method *Competent Authority: Land Improvement Local Organization for irrigation system of Riza, Velanidia, Xilokastro, Kariotika*	-	Long-term	Large	**0 €**	**0 €**	**0 €**	Moderate	Large	Negligible		Such replacement may significantly reduce the current squandering of irrigation water. Quite approximately, it may be considered that 70% of land currently irrigated by block irrigation and 80% of spray irrigated land may be drip irrigated. The benefits from the replacement of block irrigation by drip irrigation, in terms of water quantity, correspond to 40%, whereas those from the replacement of spray by drip irrigation correspond to 30%. The cost of the measure to be borne by farmers may be set off with the pricing of irrigating water.

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GR0227R002300024N	TRIKALITIKOS R. (SYTHAS)	R	Unknown	Existing infrastructure rehabilitation works	13.03	Replacement of open collective networks with closed networks under pressure of irrigation project of Land Improvement Local Organization *Competent Authority: MRDF*	-	Long-term	Large	**3,258,000 €**	**0 €**	**3,258,000 €**	Negligible	Negligible	Negligible		The project is related to the underground placement of flow networks (trench drains) of the Land Improvement Local Organization of the irrigation system of Riza, Velanidia-Xylokastro, Kariotika, used for the irrigation of 1,000, 1,690, and 720 stremmas respectively, aiming at reducing losses.
GR0227R002900031N	ASOPOS R.	R	Moderate	Structural construction works	11.03	Inspection of keeping the ecological flow downstream the water abstraction location of dam as per article 16(3e) of the Special Framework of Planning and Sustainable Development for Renewable Energy Sources (SFPSD-RES) *Competent Authority: Direct. for Water of Dec. Admin.*	-	Short-term	Medium	**0 €**	**0 €**	**0 €**	Negligible	Negligible	Negligible		The WB is of ecological status 2 whilst in Elafogkremi location a Small Hydropower Plant is operated by Hydroenergy S.A. It is proposed to check the environmental terms of the Plant, pursuant to article 16 of SFPSD-RES. The identification and preservation of the required ecological flow ensures the unhindered function of the ecosystem of the river and contributes to the upgrade of the WB's ecological status. In accordance with the SFPSD-RES (Special Framework of Planning and Sustainable Development for Renewable Energy Sources), the minimum required ecological water flow remaining at the natural bed of the water stream, directly downstream the water abstraction project of the Small Hydropower Plant, must be considered to be the largest of the rates given below, unless a requirement of its increase is substantiated and justified by the requirements of the downstream ecosystem (existence of important ecosystem): - 30% of average flow during summer months June-July-August or - 50% of average flow of September or - 30 lt/sec in any case.
GR0227R002900031N	ASOPOS R.	R	Moderate	Structural construction works	11.04	Investigation of construction of works providing protection from neighboring cultivations, in view of reducing quantities of nutrients ending in the examined WB through tunnel *Competent Authority: Region*	-	Medium-term	Large	**30,000 €**	**0 €**	**30,000 €**	Moderate	Moderate	Negligible		The examined WB is in moderate ecological status and the pressure it suffers is assessed to be of medium intensity. The water quantity of Vohaikos trench, along with the nutrients from nearby cultivations, ends in the examined WB through Souri tunnel. Protection works for Vohaikos trench are recommended to be constructed in view of reducing the quantity of nutrients.
GR0227R002900031N	ASOPOS R.	R	Moderate	Structural construction works	11.05	Measurement of flow at the exits of Souri and Prathi tunnels, and construction of distribution facility at the exit of Souri tunnel in view of controlling and ensuring the transfer of the necessary and expected water quantities (17%) to Skoteini Alea Basin *Competent Authority: Direct. for Water of Dec. Admin.*	-	Medium-term	Medium	**10,000 €**	**0 €**	**10,000 €**	Negligible	Negligible	Negligible		Based on existing rights of usage of the water of Stymfalia basin, which is transferred to Asopos basin through Vohaikos trench and Souri tunnel, it is foreseen that 17% of such water will irrigate Skoteini-Lafka basin. A distribution facility is recommended to be constructed in view of ensuring the specified quantity.

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GR0227L000000002N	STIMFALIA LAKE	L	Unknown	Recreation and restoration of wetlands areas	7.06	Identification of factors causing the reduction of the depth of the lake and fixing actions for the rehabilitation of the lake, such as removal of reeds, aggregates and solid waste in various locations along the riparian zone *Competent Authority: Region*	-	Medium-term	Medium	**10,000 €**	**10,000 €**	**20,000 €**	Negligible	Negligible	Negligible		A diachronic depth-reduction trend is observed at the lake, either due to pumping or sludge depositing, which affects both the ecosystem and its active storage capacity. It is suggested to examine the reasons for the reduction, in view of an eventual rehabilitation of its depth, if feasible and compatible with the smooth operation of the ecosystem The examined WB is in unknown ecological status and constitutes significant wetland. Anthropogenic pressure has led to the reduction of its extent and depth and to the increase in reed areas. It has been estimated that currently the area is covered by reed stands (Phragmites communis) by 55.06%, whereas in 1945 and 1960 such coverage amounted to 33.75%, and 38.44% respectively. It is suggested to rehabilitate the riverside zone through removal of solid waste, reeds and other obstacles.
GR0227L000000002N	STIMFALIA LAKE	L	Unknown	Other relevant measures	18.07	Installation of a modern system for measurement, observation of meteorological elements and hydrometric stations *Competent Authority: Region*	-	Medium-term	Medium	**25,000 €**	**0 €**	**25,000 €**	Negligible	Negligible	Negligible		For the establishment of the water balance of the lake, it is suggested to install a modern system for measurement, observation of meteorological elements and hydrometric stations. This will enable the accurate identification of inflow from torrents ending in the lake, of evapotranspiration and precipitation.
GR0227L000000001H	Asopos Art. Lake	L	----	Recreation and restoration of wetlands areas	7.01	Review of environmental terms of operation in view of achieving good ecological potential *Competent Authority: MRDF*	-	Long-term	Large	**0 €**	**0 €**	**0 €**	Negligible	Negligible	Negligible		Filling of the lake reservoir is not yet completed. It is suggested to review environmental conditions of operation, upon filling of the reservoir in view of achieving good ecological potential by 2021.
GR0227C0006N	BAY OF CORINTH	C	Moderate	Other relevant measures	18.21	Synergy with measures to be suggested for RBD of Attica and Eastern Central Greece *Competent Authority: Directorate for Water of Continental Greece, Directorate for Water of Peloponnese*	-	Short-term	Large	**0 €**	**0 €**	**0 €**	Negligible	Negligible	Negligible		Corinth Bay is of moderate status and is part of the Corinthian Gulf. Significant pressure to Corinthian Bay derives primarily from the RBD of Eastern Central Greece and secondarily from the RBD of North Peloponnese. It is suggested that measures proposed for the RBD of Eastern Central Greece in combination with the relevant basic measures for the RBD of North Peloponnese (Good Agricultural Practice Codes) constitute a single group of interventions for the rehabilitation of the WB.
GR0227C0006N	BAY F CORINTH	C	Moderate	Works of research, development & presentation (of best practices)	16.05	Enhancement of the infrastructures monitoring waters and behavior of streams *Competent Authority: Region*	-	Medium-term	Medium	**10,000 €**	**0 €**	**10,000 €**	Negligible	Negligible	Negligible		A study is proposed, the scope of which would be to monitor the flow of water in the wider area of the Corinthian Gulf as well as the behavior of streams. The aim is to understand the function of the streams and correlate the WB's status with the pressures in order to propose specific measures.

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GR0200170	Body of North Corinthia	GW	■ Bad	Abstraction control	8.03	Replacement of water supply abstraction with another GB of good status *Competent Authority: Region /Directorate for Water*	Exemption	Long-term	Large	**0 €**	**0 €**	**0 €**	Negligible	Negligible	Moderate		Abstractions are suggested to be increased by up to 10 million m3 annually from the karstic system of Ziria for the water supply of the Municipality of Corinthos, based on Kallikratis System, by observance of the Environmental Terms of the project "Water supply of Corinthos from the area of Stymfalia (external water supply network, section Galatas, Stimfalia and Stimfalia area) of the Prefecture of Corinthia".
GR0200170	Body of North Corinthia	GW	■ Bad	Abstraction control	8.04	Abolition of the water supply wells upon execution of the water supply project *Competent Authority: Region*	Exemption	Long-term	Large	**0 €**	**0 €**	**0 €**	Negligible	Negligible	Negligible		The WB is in bad quantitative status. It is proposed to abolish the water-supply wells after execution of the project "Networking of aqueducts of Mun. of Corinthia – Phase A"

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GR0200170	Body of North Corinthia	GW	■Bad	Existing infrastructure rehabilitation works	13.01	Water supply networks *Competent Authority: Region*	Exemption	Long-term	Large	**2,393,500 €**	**71,805 €**	**2,465,305 €**	Negligible	Negligible	Negligible	O.P. of Peloponnese, Ionian Islands & W. Greece – Priority Axis 08 – Priority Code 45	It is suggested to implement the project "Networking of aqueducts of the Municipality of Corinth – Phase A", aiming at the water supply of settlements of the Municipality based on Kallikratis System, extending over the examined GB and the Body of Arahneo. The project is related to construction works of water supply ducts interconnecting all residence units of the new Municipality of Corinth, based on Kallikratis System. It consists of the following three branches of total length of 53,700.00mm: 1st Branch: A. Ducts with diameter Φ63/10atm: 4000.00mm. (Hiliomodi – Koutala: 3300.00 and junction – Alamano: 700.00) B. Ducts with diameter Φ90/10atm: 1300.00mm. (junction – Agionori: 1300.00) C. Ducts with diameter Φ90/25atm: 11000.00mm. (junction Agionori - Stefani: 5000.00 and Klenia – junction Agionori: 6000.00) D. Ducts with diameter Φ125/25atm: 3200.00mm. (Hiliomodi - Klenia: 3200.00) E. Ducts with diameter Φ225/16atm: 6000.00mm. (junction Athikia – Hiliomodi: 6000.00) 2nd Branch: Ducts with diameter Φ90/25atm: 8600.00mm. (Athikia– Ag. Ioannis: 8600.00) 3rd Branch: A. Ducts with diameter Φ90/10atm: 3500.00mm. (Almyri - Katakali: 3500.00) B. Ducts with diameter Φ225/25atm: 13200.00mm. (Almyri - Reto: 5000.00 and Reto – Sofiko: 8200.00) C. Ducts with diameter Φ250/10atm: 2900.00mm. (Loutra - Almyri: 2900,00) Upon completion of the project, existing wells will be dispensed resulting in reducing the intensity of abstraction from the GB, which is of bad quantitative status. The completion cost of the project amounts to 4.8 million euro and is equally distributed between the examined WB and the GB of Arahneo.
GR0200170	Body of North Corinthia	GW	■Bad	Pollutant emission controls	ΟΣ_ΥΔ02_3	Program of exploratory monitoring of the qualitative status in the groundwater and surface bodies in the areas of the existing landfill. *Competent Authority: Decentralized Administration (Direct. for Water) /Region/Landfills Operators*	Exemption	Medium-term	Medium	**0 €**	**2,000 €**	**2,000 €**	Moderate	Negligible	Negligible		The investigation of the qualitative status of surface and groundwater in the perimeter of Kiato landfill site. The program will be drawn up by the Directorate for Water of the Decentralized Administration and will be implemented either by the Region or the Landfill Operators.

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GR0200170	Body of North Corinthia	GW	■Bad	Pollutant emission controls	ΟΣ_ΥΔ02_6	Definition of principle restriction zones for drilling new wells for new water uses and extensions of existing uses in coastal groundwater bodies where phenomena of seawater intrusion are observed *Competent Authority: MEECC (SWS) Decentralized Administration*	Exemption	Short-term	Medium	**0 €**	**0 €**	**0**	Moderate	Moderate	Negligible		In coastal GWBs that are in bad qualitative status due to seawater intrusion caused by human pressures (over-pumping) restrictive measures are taken for drilling new boreholes and wells for new water uses and the expansion of existing water abstractions. Until the precise delineation of the restriction zones as result of specific hydrogeological studies which should be compiled, drilling of new boreholes for new water uses and extensions of abstraction of groundwater for existing water uses is restricted in the following zones: For granular free piezometric surface systems: 200m, for granular under pressure piezometric surface systems: 100m. In special cases (eg for drinking water use, aquaculture and desalination facilities) permission for drilling a new borehole can be issued after submission of a hydrogeological report or study and the favorable opinion from the competent Water Directorate. The above mentioned restrictions refer to the exploited groundwater body, and not on the spatial location of the new project of water use. These restrictions are intended to limit the expansion of seawater intrusion in coastal groundwater bodies. In case of coastal karstic groundwater bodies with extensive natural salination, through regulatory decisions, the restriction zones may be extended further with the responsibility of the competent Water Directorates because. The precise boundaries of the zones with restrictions for water abstraction projects will be defined by specific hydrogeological study. From the above mentioned restrictions, specific circumstances with priority abstraction for drinking water use and other special cases such as drilling for aquaculture, pumping water for desalination facilities etc, are excluded. In such cases, permission is accomplished after the submission of a documented hydrogeological study which will be examined and approved by the relevant Water Directorates. The specifications for the aforementioned hydrogeological studies will be determined by the competent authorities under the coordination of the Special Water Secretariat.
GR0200170	Body of North Corinthia	GW	■Bad	Pollutant emission controls	ΟΣ_ΥΔ02_7	Definition and delimitation of areas of groundwater bodies that have poor quality due to seawater intrusion or exhibit local seawater intrusion *Competent Authority: Decentralized Administration (Direct. for Water) / Region*	Exemption	Medium-term	Medium	**30,000 €**	**0 €**	**30000**	Moderate	Moderate	Negligible		For the coastal groundwater bodies that have poor quality status owed to seawater intrusion or exhibit local seawater intrusion, special hydrogeological surveys are to be drafted for the precise definition of restriction limits for the drilling of new boreholes and the extension of the seawater intrusion, so measures will be taken for the gradual restoration not only through prohibitions but also through reduction or even elimination of water abstractions for the existing water uses prioritizing the invention of new ways to meet the needs for irrigation.

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GR0200190	Body of Corinth-Kiato	GW	■Bad	Administrative Measures	2.04	Abolition of irrigation wells of AOSAK (Irrigation Organization of Stymfalia Asopos of Corinthia) upon construction of Asopos dam *Competent Authority: Region*	Exemption	Long-term	Large	**0 €**	**0 €**	**0 €**	Negligible	Negligible	Negligible		The GB is in bad quantitative status due to excessive abstraction taking place mainly through wells. Asopos dam is under construction in the area, which will contribute to the upgrade of the status of the WB, both through artificial recharge and through dispensing of wells upon its completion.
GR0200190	Body of Corinth-Kiato	GW	■Bad	Abstraction control	8.07	Total groundwater abstraction should not exceed a specified quantity (such quantity may be subject to variation following co-assessment of all data of the monitoring network) *Competent Authority: Direct. for Water of Dec. Admin.*	Exemption	Medium-term	Large	**0 €**	**0 €**	**0 €**	Moderate	Moderate	Negligible		The GB under examination is in bad quantitative status. To avoid its further deterioration, it is suggested that total quantities of abstracted groundwater do not exceed 20 million m^3 per year (such quantity may be subject to variation following co-assessment of all data of the monitoring network).
GR0200190	Body of Corinth-Kiato	GW	■Bad	Demand management measures	9.02	Replacement of block and spray irrigation methods by drip irrigation method *Competent Authority: AOSAK*	Exemption	Long-term	Large	**0 €**	**0 €**	**0 €**	Moderate	Large	Negligible		Such replacement may significantly reduce the current squandering of irrigation water. Quite approximately, it may be considered that 70% of land currently irrigated by block irrigation and 80% of spray irrigated land may be drip irrigated. The benefits from the replacement of block irrigation by drip irrigation, in terms of water quantity, correspond to 40%, whereas those from the replacement of spray by drip irrigation correspond to 30%. The cost of the measure to be borne by farmers may be set off with the pricing of irrigating water.
GR0200190	Body of Corinth-Kiato	GW	■Bad	Structural construction works	11.06	Water supply of settlements *Competent Authority: Region*	Exemption	Medium-term	Large	**150,000 €**	**0 €**	**150,000 €**	Negligible	Negligible	Negligible		The GB is in bad quantitative status. It is suggested to achieve water supply of settlements of the coastal zone of the Municipality of Sikyona though utilization of Valtos springs and of Ziria karstic body, discharging through Stimfalia – Kefalari springs, with gradual dispensing of existing water supply wells of the coastal zone.
GR0200190	Body of Corinth-Kiato	GW	■Bad	Existing infrastructure rehabilitation works	13.03	Replacement of open collective networks with closed networks under pressure of irrigation project of Land Improvement Local Organization *Competent Authority: MRDF*	Exemption	Long-term	Large	**40,500,000 €**	**0 €**	**40,500,000 €**	Negligible	Negligible	Negligible		The Groundwater Body under examination is in bad quantitative and qualitative status. At the same time, water is abstracted from there for irrigation of the lands of the Irrigation Organization of Stymfalia, Asopos, Corinthia. It is proposed to replace the open collective networks with closed networks under pressure with the aim to reduce losses. The network irrigates 45,000 stremmas of cultivated land.

Code	Water Body	Type of WB	Existing Status	Supplementary Measures – Competent Authority			Exemptions	Preparation Time	Efficacy of Measure	Investment Cost	Operation Cost	Total Cost	Social Impact	Financial impact	Environmental impact	Included projects	Comments
GR0200190	Body of Corinth-Kiato	GW	■ Bad	Artificial recharge of aquifers	14.01	Artificial recharge of aquifers through transfer of water *Competent Authority: MRDF*	Exemption	Medium-term	Large	**38,500,000 €**	**1,155,000 €**	**39,655,000 €**	Negligible	Negligible	Negligible	ASOPOS DAM, RURAL DEVELOPMENT PROGRAM OF GREECE 2007- 2013	The examined WB is in bad state. Asopos dam is under construction in the area. It is an embankment dam, 70m high from natural ground, of effective water volume 18.9 million m3, with normal capacity level 200 m and lake area 1.43 km2. The dam includes front free-flow spillway with maximum overflow of 288 m3/sec, diversion works, evacuation and abstraction works as well as road works. The total water volume expected to be ensured amounts to 59 million m3, 55% of which is due to the lake of Asopos River and 45% to the run-off of the basin of Stymfalia Lake. The reservoir will engage annually: -17.95 million m3, for irrigation purposes (April to October) -6 million m3, for artificial recharge (January to March) -2.37 million m3, for ecological flow (April to October) -2-2.5 million m3, for various other uses (possibly for water supply, irrigation of nearby areas, etc) The purpose of the project is related to the irrigation of arable lands (Irrigation Organization of Stymfalia, Asopos, Corinthia) and the artificial recharge of the GB, in view of dealing with salinization and degradation due to existing pumping/ abstraction.
GR0200190	Body of Corinth-Kiato	GW	■ Bad	Pollutant emission controls	ΟΣ_ΥΔ02_6	Definition of principle restriction zones for drilling new wells for new water uses and extensions of existing uses in coastal groundwater bodies where phenomena of seawater intrusion are observed *Competent Authority: MEECC (SWS) Decentralized Administration*	Exemption	Short-term	Medium	**0 €**	**0 €**	**0 €**	Moderate	Moderate	Negligible		In coastal GWBs that are in bad qualitative status due to seawater intrusion caused by human pressures (over-pumping) restrictive measures are taken for drilling new boreholes and wells for new water uses and the expansion of existing water abstractions. Until the precise delineation of the restriction zones as result of specific hydrogeological studies which should be compiled, drilling of new boreholes for new water uses and extensions of abstraction of groundwater for existing water uses is restricted in the following zones: For granular free piezometric surface systems: 200m. In special cases (eg for drinking water use, aquaculture and desalination facilities) permission for drilling a new borehole can be issued after submission of a hydrogeological report or study and the favorable opinion from the competent Water Directorate. The above mentioned restrictions refer to the exploited groundwater body, and not on the spatial location of the new project of water use. These restrictions are intended to limit the expansion of seawater intrusion in coastal groundwater bodies. In case of coastal karstic groundwater bodies with extensive natural salination, through regulatory decisions, the restriction zones may be extended further with the responsibility of the competent Water Directorates because. The precise boundaries of the zones with restrictions for water abstraction projects will be defined by specific hydrogeological study. From the above mentioned restrictions, specific circumstances with priority abstraction for drinking water use and other special cases such as drilling for aquaculture, pumping water for desalination facilities etc, are excluded. In such cases, permission is accomplished after the submission of a documented hydrogeological study which will be examined and approved by the relevant Water Directorates. The specifications for the aforementioned hydrogeological studies will be determined by the competent authorities under the coordination of the Special Water Secretariat.

Code	Water Body	Type of WB	Existing Status	Supplementary Measures – Competent Authority			Exemptions	Preparation Time	Efficacy of Measure	Investment Cost	Operation Cost	Total Cost	Social Impact	Financial impact	Environmental impact	Included projects	Comments
GR0200190	Body of Corinth-Kiato	GW	Bad	Pollutant emission controls	ΟΣ_ΥΔ02_7	Definition and delimitation of areas of groundwater bodies that have poor quality due to seawater intrusion or exhibit local seawater intrusion *Competent Authority: Decentralized Administration (Direct. for Water) / Region*	Exemption	Medium-term	Medium	**30,000 €**	**0 €**	**30,000 €**	Moderate	Moderate	Negligible		For the coastal groundwater bodies that have poor quality status owed to seawater intrusion or exhibit local seawater intrusion, special hydrogeological surveys are to be drafted for the precise definition of restriction limits for the drilling of new boreholes and the extension of the seawater intrusion, so measures will be taken for the gradual restoration not only through prohibitions but also through reduction or even elimination of water abstractions for the existing water uses prioritizing the invention of new ways to meet the needs for irrigation.
GR0200140	Body of North Ahaia	GW	Good (Local trend*)	Abstraction control	8.03	Reduction or replacement of groundwater abstraction with abstraction from a surface WB or from another groundwater body or artificial body (conservation reservoir, dam) *Competent Authority: Region*	-	Medium-term	Medium	**30,000 €**	**0 €**	**30,000 €**	Negligible	Negligible	Moderate		The Groundwater Body under examination is in good status but its water level presents a downwards trend. It is proposed to investigate the possibility of replacing the abstraction of groundwater with surface water coming from artificial bodies, i.e. conservation reservoirs or dams. In this manner, deterioration of the GB's quantitative status will be prevented.
GR0200140	Body of North Ahaia	GW	Good (Local trend*)	Pollutant emission controls	ΟΣ_ΥΔ02_2	Special protection measures in areas of GB where thermal-mineral and medicinal waters are found. *Competent Authority: MEECC (SWS) / Ministry of Tourism*	-	Short-term	Medium	**30,000 €**	**0 €**	**30,000 €**	Moderate	Moderate	Moderate		The special protection measures of the thermal-mineral and medicinal waters (Selianitika area) are combined and adjusted with the existing and established protection framework. First of all, the prohibitions of the controlled protection zone II where groundwater is abstracted for supply purposes are applied. In special cases of smooth and traditional activities installation license may be granted following submission of a hydrogeological study and approval by the Directorate for Water.

Code	Water Body	Type of WB	Existing Status	Supplementary Measures – Competent Authority			Exemptions	Preparation Time	Efficacy of Measure	Investment Cost	Operation Cost	Total Cost	Social Impact	Financial impact	Environmental impact	Included projects	Comments
GR0200140	Body of North Ahaia	GW	■ Good (Local trend*)	Pollutant emission controls	ΟΣ_ΥΔ02_6	Definition of principle restriction zones for drilling new wells for new water uses and extensions of existing uses in coastal groundwater bodies where phenomena of seawater intrusion are observed *Competent Authority: Decentralized Administration / MEECC (SWS)*	-	Short-term	Medium	**0 €**	**0 €**	**0 €**	Moderate	Moderate	Negligible		In coastal GWBs that are in bad qualitative status due to seawater intrusion caused by human pressures (over-pumping) restrictive measures are taken for drilling new boreholes and wells for new water uses and the expansion of existing water abstractions. Until the precise delineation of the restriction zones as result of specific hydrogeological studies which should be compiled, drilling of new boreholes for new water uses and extensions of abstraction of groundwater for existing water uses is restricted in the following zones: For granular free piezometric surface systems: 200m. In special cases (eg for drinking water use, aquaculture and desalination facilities) permission for drilling a new borehole can be issued after submission of a hydrogeological report or study and the favorable opinion from the competent Water Directorate. The above mentioned restrictions refer to the exploited groundwater body, and not on the spatial location of the new project of water use. These restrictions are intended to limit the expansion of seawater intrusion in coastal groundwater bodies. In case of coastal karstic groundwater bodies with extensive natural salination, through regulatory decisions, the restriction zones may be extended further with the responsibility of the competent Water Directorates because. The precise boundaries of the zones with restrictions for water abstraction projects will be defined by specific hydrogeological study. From the above mentioned restrictions, specific circumstances with priority abstraction for drinking water use and other special cases such as drilling for aquaculture, pumping water for desalination facilities etc, are excluded. In such cases, permission is accomplished after the submission of a documented hydrogeological study which will be examined and approved by the relevant Water Directorates. The specifications for the aforementioned hydrogeological studies will be determined by the competent authorities under the coordination of the Special Water Secretariat.
GR0200140	Body of North Ahaia	GW	■ Good (Local trend*)	Pollutant emission controls	ΟΣ_ΥΔ02_7	Definition and delimitation of areas of groundwater bodies that have poor quality due to seawater intrusion or exhibit local seawater intrusion *Competent Authority: Decentralized Administration (Direct. for Water) / Region*	-	Medium-term	Medium	**30,000 €**	**0 €**	**30,000 €**	Moderate	Moderate	Negligible		For the coastal groundwater bodies that have poor quality status owed to seawater intrusion or exhibit local seawater intrusion, special hydrogeological surveys are to be drafted for the precise definition of restriction limits for the drilling of new boreholes and the extension of the seawater intrusion, so measures will be taken for the gradual restoration not only through prohibitions but also through reduction or even elimination of water abstractions for the existing water uses prioritizing the invention of new ways to meet the needs for irrigation.

Code	Water Body	Type of WB	Existing Status	Supplementary Measures – Competent Authority			Exemptions	Preparation Time	Efficacy of Measure	Investment Cost	Operation Cost	Total Cost	Social Impact	Financial impact	Environmental impact	Included projects	Comments
GR0200200	Body of Arachneo	GW	■ Good (Local trend*)	Abstraction control	8.03	Reduction or replacement of groundwater abstraction with abstraction from a surface WB or from another groundwater or artificial body (conservation reservoir, dam) *Competent Authority: Region / Directorate for Water of Decentralized Administration*	-	Medium-term	Medium	**30,000 €**	**0 €**	**30,000 €**	Negligible	Negligible	Moderate		The Groundwater Body is in good status but its water level presents a downwards trend. It is proposed to investigate the possibility of replacing the abstraction of groundwater with surface water coming from artificial bodies, i.e. conservation reservoirs or dams. In this manner, deterioration of the GB's quantitative status will be prevented.
GR0200200	Body of Arachneo	GW	■ Good (Local trend*)	Abstraction control	8.04	Abolition of the water supply wells upon execution of the water supply project *Competent Authority : Region*	-	Long-term	Large	**0 €**	**0 €**	**0 €**	Negligible	Negligible	Negligible		The WB is of a good status but it presents a downwards trend as regards its water level and an upwards trends with respect to pollution. It is proposed to abolish the water-supply wells after execution of the project "Networking of aqueducts of Mun. of Corinthia – Phase A".

Code	Water Body	Type of WB	Existing Status	Supplementary Measures – Competent Authority			Exemptions	Preparation Time	Efficacy of Measure	Investment Cost	Operation Cost	Total Cost	Social Impact	Financial impact	Environmental impact	Included projects	Comments
GR0200200	Body of Arachneo	GW	■ Good (Local trend*)	Existing infrastructure rehabilitation works	13.01	Water-supply networks *Competent Authority: Region*	-	Long-term	Large	**2,393,500 €**	**71,805 €**	**2,465,305 €**	Negligible	Negligible	Negligible	O.P. of Peloponnese, Ionian Islands & W. Greece – Priority Axis 08 – Priority Code 45	It is suggested to implement the project "Networking of aqueducts of the Municipality of Corinth – Phase A", aiming at the water supply of settlements of the Municipality based on Kallikratis System, extending over the examined GB and the Body of N. Corinthia. The project is related to the construction works of water supply ducts interconnecting all residence units of the new Municipality of Corinth, based on Kallikratis System. It consists of the following three branches of total length of 53,700.00mm: 1st Branch: A. Ducts with diameter Φ63/10atm: 4000.00mm. (Hiliomodi – Koutala: 3300.00 and junction – Alamano: 700.00) B. Ducts with diameter Φ90/10atm: 1300.00mm. (junction – Agionori: 1300.00) C. Ducts with diameter Φ90/25atm: 11000.00mm. (junction Agionori - Stefani: 5000.00 and Klenia – junction Agionori: 6000.00) D. Ducts with diameter Φ125/25atm: 3200.00mm. (Hiliomodi - Klenia: 3200.00) E. Ducts with diameter Φ225/16atm: 6000.00mm. (junction Athikia – Hiliomodi: 6000.00) 2nd Branch: Ducts with diameter Φ90/25atm: 8600.00mm. (Athikia– Ag. Ioannis: 8600.00) 3rd Branch: A. Ducts with diameter Φ90/10atm: 3500.00mm. (Almyri - Katakali: 3500.00) B. Ducts with diameter Φ225/25atm: 13200.00mm. (Almyri - Reto: 5000.00 and Reto – Sofiko: 8200.00) C. Ducts with diameter Φ250/10atm: 2900.00mm. (Loutra - Almyri: 2900,00) Upon completion of the project, existing wells will be dispensed resulting in reducing the intensity of abstraction from the GB, which is in good quantitative status but its level presents a dropping trend. The completion cost of the project amounts to 4.8 million euro and is equally distributed between the examined WB and the GB of North Corinthia.
GR0200200	Body of Arachneo	GW	■ Good (Local trend*)	Abstraction control	ΟΣ_ΥΔ02_5	Control of the qualitative status of licensed water-abstraction projects in water bodies with high values in natural substratum (chlorides, sulfates). *Competent Authority: Decentralized Administration /Region*	-	Short-term	Medium	**0 €**	**0 €**	**0 €**	Moderate	Moderate	Negligible		Annual control of the qualitative status of groundwater in the GBs presenting increased values in the concentrations of some elements (e.g. chlorides, sulfates) attributed to the natural substratum. The annual control of the qualitative status of groundwater is made in order to ascertain the possible extension of the zone characterized by high concentrations due to natural substratum as well as the possible increase or decrease of concentrations of the element causing it. The Directorates for Water by means of assessing the information arising from the annual quality controls will be able to take the necessary measures depending on the potential deterioration or improvement of the status.

Code	Water Body	Type of WB	Existing Status	Supplementary Measures – Competent Authority			Exemptions	Preparation Time	Efficacy of Measure	Investment Cost	Operation Cost	Total Cost	Social Impact	Financial impact	Environmental impact	Included projects	Comments
GR0200200	Body of Arachneo	GW	■ Good (Local trend*)	Pollutant emission controls	ΟΣ_ΥΔ02_6	Definition of principle restriction zones for drilling new wells for new water uses and extensions of existing uses in coastal groundwater bodies where phenomena of seawater intrusion are observed *Competent Authority: Decentralized Administration (Direct. for Water), MEECC (SWS)*	-	Short-term	Medium	**0 €**	**0 €**	**0 €**	Moderate	Moderate	Negligible		In coastal GWBs that are in bad qualitative status due to seawater intrusion caused by human pressures (over-pumping) restrictive measures are taken for drilling new boreholes and wells for new water uses and the expansion of existing water abstractions. Until the precise delineation of the restriction zones as result of specific hydrogeological studies which should be compiled, drilling of new boreholes for new water uses and extensions of abstraction of groundwater for existing water uses is restricted in the following zones: For granular free piezometric surface systems: 200m, for granular under pressure piezometric surface systems: 100m. In special cases (eg for drinking water use, aquaculture and desalination facilities) permission for drilling a new borehole can be issued after submission of a hydrogeological report or study and the favorable opinion from the competent Water Directorate. The above mentioned restrictions refer to the exploited groundwater body, and not on the spatial location of the new project of water use. These restrictions are intended to limit the expansion of seawater intrusion in coastal groundwater bodies. In case of coastal karstic groundwater bodies with extensive natural salination, through regulatory decisions, the restriction zones may be extended further with the responsibility of the competent Water Directorates because. The precise boundaries of the zones with restrictions for water abstraction projects will be defined by specific hydrogeological study. From the above mentioned restrictions, specific circumstances with priority abstraction for drinking water use and other special cases such as drilling for aquaculture, pumping water for desalination facilities etc, are excluded. In such cases, permission is accomplished after the submission of a documented hydrogeological study which will be examined and approved by the relevant Water Directorates. The specifications for the aforementioned hydrogeological studies will be determined by the competent authorities under the coordination of the Special Water Secretariat.
GR0200200	Body of Arachneo	GW	■ Good (Local trend*)	Pollutant emission controls	ΟΣ_ΥΔ02_7	Definition and delimitation of areas of groundwater bodies that have poor quality due to seawater intrusion or exhibit local seawater intrusion *Competent Authority: Decentralized Administration (Direct. for Water) / MEECC (SWS)*	-	Medium-term	Medium	**30,000 €**	**0 €**	**30,000 €**	Moderate	Moderate	Negligible		For the coastal groundwater bodies that have poor quality status owed to seawater intrusion or exhibit local seawater intrusion, special hydrogeological surveys are to be drafted for the precise definition of restriction limits for the drilling of new boreholes and the extension of the seawater intrusion, so measures will be taken for the gradual restoration not only through prohibitions but also through reduction or even elimination of water abstractions for the existing water uses prioritizing the invention of new ways to meet the needs for irrigation.

Table of assessment of supplementary measures in Piros- Vergas – Pinios River Basin

Code	Water Body	Type of WB	Existing Status	Supplementary Measures – Competent Authority			Exemptions	Preparation Time	Efficacy of Measure	Investment Cost	Operation Cost	Total Cost	Social Impact	Financial impact	Environmental impact	Included projects	Comments
GR0228R000201002N	PINIOS R.	R	Moderate	Pollutant emission controls	5.04	Inspections on the observance of disposal limits to the WB from adjacent processing plants (three times annually) *Competent Authority: Region*	-	Short-term	Large	**0 €**	**0 €**	**0 €**	Moderate	Moderate	Negligible		The status of the WB under examination is moderate whilst the pressures it suffers mostly from agricultural activities and processing plants are of high intensity. Stricter controls are proposed, as regards the disposal boundaries of the processing plants operating adjacent to the WB with the aim of upgrading the WB's status.
GR0228R000201003N	PINIOS R.	R	Moderate	Administrative Measures	2.05	Prohibition of sand-extraction *Competent Authority: Region*	Exemption	Short-term	Medium	**0 €**	**0 €**	**0 €**	Negligible	Large	Negligible		This is an administrative measure aiming at protecting the WB. The WB is of moderate ecological status, whereas the pressure it suffers is assessed to be of high intensity. Sand extraction causes severe hydromorphological changes in the river, affecting both biotic and abiotic parameters while disturbing the regime of sediments at the downstream body. The WB is situated within the zone that is vulnerable to pollution caused by nitrates of Pinios River Basin, for which there is an Action Plan.
GR0228R000201004H	PINIOS R.	R	Moderate	Recreation and restoration of wetlands areas	7.07	Identification of ecological supply from the WB of Limneo during summertime, taking into account abstractions from the lake, upon construction of relevant water supply works *Competent Authority: Region*	Exemption	Medium-term	Large	**10,000 €**	**0 €**	**10,000 €**	Negligible	Negligible	Negligible		The WB is heavily modified and presents moderate ecological potential, whereas the pressure received is of high intensity. The identification of the ecological flow from Pinios artificial lake during summer time is suggested, taking into account abstractions from the lake, upon construction of relevant works (water supply of Amaliada, underground placement of natural flow networks of Land Improvement Local Organizations of Gastouni, Amaliada, A' Pirgos, Pelopio, Epitalio, Extension of Central Pinios Channel to Municipalities of Western Ahaia).
GR0228R000204007N	LADON PINIEOS R.	R	Good	Administrative Measures	2.05	Prohibition of new sand-extraction or of extension licenses except in the cases of prevention of flood by the Region's Civil Protection *Competent Authority: Region*	-	Short-term	Medium	**0 €**	**0 €**	**0 €**	Negligible	Large	Negligible		This is an administrative measure aiming at protecting the WB and the downstream bodies (Pinios Artificial Lake). The WB is in good ecological status, whereas the pressure it suffers is assessed to be of high intensity. Sand extraction causes severe hydromorphological changes in the river, affecting both biotic and abiotic parameters while disturbing the regime of sediments at Pinios Art. Lake.
GR0228R000401021N	PIROS R.	R	Poor	Recreation and restoration of wetlands areas	7.03	Enhancement of monitoring facilities/ infrastructure for biotic and abiotic parameters of river estuary, in view of identifying the ecological supply at the river estuary based on biotic and abiotic indicators of the transitional WB *Competent Authority: Region*	-	Medium-term	Medium	**20,000 €**	**0 €**	**20,000 €**	Negligible	Negligible	Negligible		The estuary of the river WB is a significant wetland ecosystem, the protection of which requires knowledge of all biotic and abiotic parameters enabling the comprehension of their function. The WB is in poor ecological status whilst the pressures it suffers are of high intensity. The identification of ecological flow consists in defining the minimum flow, which would ensure the smooth function of the ecosystem as this is expressed by biotic and abiotic parameters. It is suggested to determine the ecological flow at the river estuary on the basis of the abiotic and biotic indicators of the transitional WB Piros Estuary in conjunction with the ecological flows –stipulated in the environmental terms- from the dams of Valmadoura and Asterio to the upstream WBs.

Code	Water Body	Type of WB	Existing Status	Supplementary Measures – Competent Authority			Exemptions	Preparation Time	Efficacy of Measure	Investment Cost	Operation Cost	Total Cost	Social Impact	Financial impact	Environmental impact	Included projects	Comments
GR0228R000404024N	PARAPIROS STR.	R	Moderate	Pollutant emission controls	5.04	Inspections on the observance of disposal limits to the WB from adjacent processing plants (three times annually) *Competent Authority: Region*	Exemption	Short-term	Large	**0 €**	**0 €**	**0 €**	Moderate	Moderate	Negligible		The status of the WB under examination is moderate whilst the pressures it suffers mostly from agricultural activities and processing plants are of high intensity. Stricter controls are proposed, as regards the disposal boundaries of the processing plants operating adjacent to the WB with the aim of upgrading the WB's status.
GR0228R000405027N	PIROS R.	R	Unknown	Demand management measures	9.02	Replacement of block and spray irrigation methods by drip irrigation method *Competent Authority: TOEV of irrigation system of Piros*	-	Long-term	Large	**0 €**	**0 €**	**0 €**	Moderate	Large	Negligible		Such replacement may significantly reduce the current squandering of irrigation water. Quite approximately, it may be considered that 70% of land currently irrigated by block irrigation and 80% of spray irrigated land may be drip irrigated. The benefits from the replacement of block irrigation by drip irrigation, in terms of water quantity, correspond to 40%, whereas those from the replacement of spray by drip irrigation correspond to 30%. The cost of the measure to be borne by farmers may be set off with the pricing of irrigating water.
GR0228R000405027N	PIROS R.	R	Unknown	Existing infrastructure rehabilitation works	13.03	Replacement of open collective networks with closed networks under pressure of irrigation project of Local Organization of Land Improvement (TOEB/ TOEV) *Competent Authority: MRDF*	-	Long-term	Large	**5,220,000 €**	**0 €**	**5,220,000 €**	Negligible	Negligible	Negligible		The project is related to the underground placement of flow networks (trench drains) of the Land Improvement Local Organizations of Isoma and Halandritsa, used for the irrigation of 4,200 and 1,600 stremmas respectively, aiming at reducing losses.
GR0228L000000003H	Pinios Artificial Lake	L	Unknown	Existing infrastructure rehabilitation works	13.03	Replacement of open collective networks with closed networks under pressure of irrigation project of Local Organization of Land Improvement (TOEB/ TOEV) *Competent Authority: MRDF*	-	Long-term	Large	**15,393,878 €**	**0 €**	**15,393,878 €**	Negligible	Negligible	Negligible	RURAL DEVELOPMENT PROGRAM OF GREECE 2007 - 2013, Axis 2	The WB under examination is a Heavily Modified WB of unknown ecological potential and the existing pressure is of high intensity. Water abstraction level is high. It is proposed to replace the networks with the aim to reduce losses. In particular, the projects to be constructed are as follows: - The project is related to the underground placement of flow networks (trench drains) of the Land Improvement Local Organizations of Gastouni, Amaliada, A Pirgos, Pelopio & Epitalio of the Prefecture of Ilia. The total project cost amounts to € 11.5 mi. and is distributed equally between the WB under examination and the WB of Alfios (downwards flow), belonging to the River Basin District. -Replacement of defective undergrounds ducts by ducts made of prestressed concrete and water cleaning systems of the Pumping stations A6-A16 of the Land Improvement Local Organization of Mirtouda in the Prefecture of Ilia (€ 9,643,878).
GR0228L000000002H	Asterio Art. Lake	L	----	Recreation and restoration of wetlands areas	7.01	Review of environmental terms of operation in view of achieving good ecological potential *Competent Authority: Ministry of Infrastructure, Transport & Networks*	-	Long-term	Large	**0**	**0 €**	**0 €**	Negligible	Negligible	Negligible		Filling of the lake reservoir is not yet completed. It is suggested to review environmental conditions of operation, upon filling of the reservoir in view of achieving good ecological potential by 2021.

Code	Water Body	Type of WB	Existing Status	Supplementary Measures – Competent Authority			Exemptions	Preparation Time	Efficacy of Measure	Investment Cost	Operation Cost	Total Cost	Social Impact	Financial impact	Environmental impact	Included projects	Comments
GR0228L000000001N	Lamia Lake	L	Unknown	Other relevant measures	18.11	Gradual replacement of maize and tomato cultures within high protection zones *Competent Authority: MRDF*	-	Medium-term	Medium	**0 €**	**0 €**	**0 €**	Large	Moderate	Negligible		Significant pressure to the lagoon comes primarily from the fertilization of cultivations in the surrounding area. It is suggested to encourage farmers to gradually replace cultivations that are detrimental to the lagoon, within the protection zone (tomato, maize) with equivalent organic cultivations.
GR0228T0001N	Papa Lagoon (Araxos)	T	Poor	Works of research, development & presentation (of best practices)	16.01	Enhancement of infrastructures monitoring the biotic and abiotic parameters of lagoons *Competent Authority: Managing Authority of National Park of Kotichi - Strofilia*	-	Medium-term	Medium	**75,000 €**	**0 €**	**75,000 €**	Negligible	Negligible	Negligible	O.P. ENVIRONMENT & SUSTAINABLE DEVELOPMENT	Two complete measurement stations operate in the lagoon measuring the physic-chemical parameters of the water quality. Since April 2010 said stations have not been in operation. It is proposed to upgrade and re-operate them in the framework of the sub-project ''Upgrade of the telemetric stations in the lagoons: of the co-funded approved act of the O.P. Environment & Sustainable Development "Protection and Preservation of the biodiversity of the National Park of Wetlands of Kotichi – Strofilia"
GR0228T0001N	Papa Lagoon (Araxos)	T	Poor	Works of research, development & presentation (of best practices)	16.02	Enhancement of infrastructures monitoring waters, inflow of fresh water as well as the movement and behavior of streams *Competent Authority: Managing Authority of National Park of Kotichi - Strofilia*	-	Short-term	Medium	**10,000 €**	**0 €**	**10,000 €**	Negligible	Negligible	Negligible		A study is recommended, the scope of which would be to monitor the flow of water to the lagoon and in particular the inflow of freshwater as well as the behavior of streams. The aim is to understand the function of the lagoon and to draft specific measures.
GR0228T0004N	Kotichi Lagoon	T	Poor	Structural construction works	11.15	Rational waste-water management by settlements with population peak <2000 PE (D priority settlements) *Competent Authority: Region*	-	Long-term	Large	**400,000 €**	**8,000 €**	**408,000 €**	Large	Negligible	Negligible		Application of guidelines of the SSW as regards proper wastewater management practice for settlements with <2000 PE with priority to those settlements discharging into sensitive receptors. The settlements of Agios Panteleimonas, Bratzaleika, Brinias, and Kragkareika do not have a wastewater management system. In the said settlements, however, only a small number of people live but they have a negative impact on the lagoon and the wider sea environment. It is proposed to install a WWTP for these four settlements.
GR0228T0004N	Kotichi Lagoon	T	Poor	Existing infrastructure rehabilitation works	13.04	Diversion of any cut-off drain and outfall thereof directly to the sea instead of lagoons *Competent Authority: Region*	-	Long-term	Large	**300,000 €**	**0 €**	**300,000 €**	Moderate	Negligible	Negligible		During the 60's a circumferential drain was constructed at the eastern side of Kotyhi and at the same time works were undertaken for the arrangement of torrents that now fall to Kotyhi through openings of the circumferential drain. Such works resulted in the concentration of significant quantities of sediment to the lagoon from confluent streams and drains, the inflow of significant quantities of low quality fresh water from the drainage of surrounding irrigation network. In June 2006 a Preliminary Environmental Impact Assessment for the Kotyhi Lagoon Protection Works was elaborated and in November of the same year a relevant Environmental Impact Assessment for Protection Works of the Southern Part of Kotyhi Lagoon was elaborated, which suggests the construction of outflow arrangement works so that they end in the sea. By Joint Ministerial Decision no 131303/25-07-2007 of the Minister of Environment, Planning and Public Works and the Minister of Rural Development and Alimentation, the Environmental Terms for the "Protection works for the southern part of Kotyhi lagoon" were approved.

Code	Water Body	Type of WB	Existing Status	Supplementary Measures – Competent Authority			Exemptions	Preparation Time	Efficacy of Measure	Investment Cost	Operation Cost	Total Cost	Social Impact	Financial impact	Environmental impact	Included projects	Comments
																	The project includes: a) Reconstruction of existing cut-off drain T22 b) Extension of T22 in order to join Gouvos stream and construction of weir at the starting point of T22 permitting flow only of high flows (of more than 12 m3/s) thereto, and by extension to the sea, whereas low flow will continue to the downstream part ending in the lagoon c) Works at Gouvos River downstream of its confluence point with T22. The project is not over yet and its completion is suggested.
GR0228T0004N	Kotichi Lagoon	T	Poor	Existing infrastructure rehabilitation works	13.06	Restriction of sediments deposited in lagoons with damping of all torrents ending there *Competent Authority: Region*	-	Long-term	Large	**75,000 €**	**0 €**	**75,000 €**	Negligible	Negligible	Moderate		River Vergas, following diversion of its bed during the 60's, ends in the lagoon, and thus the land strip separating the lagoon from the sea is no longer recharged with new material. With time the land strip has suffered corrosion and its width has diminished. The Management Body is about to launch a call for tenders regarding a study investigating the corrosion of the land strip and suggesting solutions, whereas it has also launched a call for tenders for the demarcation of the sea shore zone in order to enable the construction of works in the area. The diversion of the flow of Vergas to its old bed to the sea is suggested as set forth in the Preliminary Environmental Impact Assessment for Protection Works of Kotyhi Lagoon.
GR0228T0004N	Kotichi Lagoon	T	Poor	Works of research, development & presentation (of best practices)	16.01	Enhancement of infrastructures monitoring the biotic and abiotic parameters of lagoons *Competent Authority: Managing Authority of National Park of Kotichi - Strofilia*	-	Short-term	Medium	**75,000 €**	**0 €**	**75,000 €**	Negligible	Negligible	Negligible	O.P. ENVIRONMENT & SUSTAINABLE DEVELOPMENT	A study is recommended, the scope of which would be to monitor abiotic and biotic parameters of the lagoon along with utilization of previous monitoring programs implemented in the area. Two complete measurement stations operate in the lagoon measuring the physic-chemical parameters of the water quality. Since April 2010 said stations have not been in operation. It is proposed to upgrade and re-operate them in the framework of the sub-project ''Upgrade of the telemetric stations in the lagoons: of the co-funded approved act of the O.P. Environment & Sustainable Development "Protection and Preservation of the biodiversity of the National Park of Wetlands of Kotichi – Strofilia".
GR0228T0004N	Kotichi Lagoon	T	Poor	Works of research, development & presentation (of best practices)	16.02	Enhancement of infrastructures monitoring waters, inflow of fresh water as well as the movement and behavior of streams *Competent Authority: Managing Authority of National Park of Kotichi - Strofilia*	-	Medium-term	Medium	**10,000 €**	**0 €**	**10,000 €**	Negligible	Negligible	Negligible		A study is recommended, the scope of which would be to monitor the flow of water to the lagoon and in particular the inflow of freshwater as well as the behavior of streams. The aim is to understand the function of the lagoon and to draft specific measures.
GR0228T0004N	Kotichi Lagoon	T	Poor	Other relevant measures	18.11	Gradual replacement of detrimental cultivations within high protection zones *Competent Authority: MRDF*	-	Medium-term	Medium	**0 €**	**0 €**	**0 €**	Large	Moderate	Negligible		Significant pressure to the lagoon comes primarily from the fertilization of cultivations in the surrounding area. It is suggested to encourage farmers to gradually replace cultivations that are detrimental to the lagoon, within the protection zone (tomato, maize) with equivalent organic cultivations.

Code	Water Body	Type of WB	Existing Status	Supplementary Measures – Competent Authority			Exemptions	Preparation Time	Efficacy of Measure	Investment Cost	Operation Cost	Total Cost	Social Impact	Financial impact	Environmental impact	Included projects	Comments
GR0228T0005N	Kalogria Lagoon	T	Moderate	Works of research, development & presentation (of best practices)	16.01	Enhancement of infrastructures monitoring the biotic and abiotic parameters of lagoons *Competent Authority: Managing Authority of National Park of Kotichi - Strofilia*	-	Medium-term	Medium	**10,000 €**	**0 €**	**10,000 €**	Negligible	Negligible	Negligible		A study is recommended, the scope of which would be to monitor abiotic and biotic parameters of the lagoon along with utilization of previous monitoring programs implemented in the area.
GR0228T0005N	Kalogria Lagoon	T	Moderate	Works of research, development & presentation (of best practices)	16.02	Enhancement of infrastructures monitoring waters, inflow of fresh water as well as the movement and behavior of streams *Competent Authority: Managing Authority of National Park of Kotichi - Strofilia*	-	Medium-term	Medium	**10,000 €**	**0 €**	**10,000 €**	Negligible	Negligible	Negligible		A study is recommended, the scope of which would be to monitor the flow of water to the lagoon and in particular the inflow of freshwater as well as the behavior of streams. The aim is to understand the function of the lagoon and to draft specific measures.
GR0228T0005N	Kalogria Lagoon	T	Moderate	Other relevant measures	18.11	Gradual replacement of maize and tomato cultivations within high protection zones *Competent Authority: MRDF*	-	Medium-term	Medium	**0 €**	**0 €**	**0 €**	Large	Moderate	Negligible		Significant pressure to the lagoon comes primarily from the fertilization of cultivations in the surrounding area. It is suggested to encourage farmers to gradually replace cultivations that are detrimental to the lagoon, within the protection zone (tomato, maize) with equivalent organic cultivations.
GR0200090	Body of Larissos r.	GW	Bad	Abstraction control	8.07	Total groundwater abstraction should not exceed a specified quantity (such quantity may be subject to variation following co-assessment of all data of the monitoring network) *Competent Authority: Direct. for Water of Dec. Admin.*	Exemption	Medium-term	Large	**0 €**	**0 €**	**0 €**	Moderate	Moderate	Negligible		The GB under examination is in bad quantitative and chemical status, whilst pollution is observed from agricultural activity and salinization. For the protection of the WB and the upgrade of its status, total quantities of abstracted groundwater are suggested not to exceed 20 million m^3 per year (such quantity may be subject to variation following co-assessment of all data of the monitoring network).
GR0200090	Body of Larissos r.	GW	Bad	Structural construction works	11.06	Water supply of settlements *Competent Authority: Region*	Exemption	Medium-term	Large	**1,200,000 €**	**12,000 €**	**1,212,000 €**	Negligible	Negligible	Negligible		The WB is in bad qualitative and quantitative status, whereas salinization and pollution is observed from diffuse sources. The needs of the settlements of Municipal Units of Larissos, Movris, Dymi are exclusively served by utilizing the groundwater of the area with drilling to a larger extent and by abstraction to a smaller extent. A Central External Network is suggested to be constructed for the supply of water to said settlements, where the main source of water supply will be the reservoir of Pinios dam. The new project does not include any intervention or addition to existing internal networks, whereas the main parts of the project are: -Abstraction project from the artificial lake of Pinios -Suction & Discharge pumping stations -Discharging transfer pipe to refinery (12000m) -Water treatment refinery -Central transfer pipe (44200 m), at existing rural roads. Said project has been positively assessed by the Preliminary Environmental Impact

Code	Water Body	Type of WB	Existing Status	Supplementary Measures – Competent Authority			Exemptions	Preparation Time	Efficacy of Measure	Investment Cost	Operation Cost	Total Cost	Social Impact	Financial impact	Environmental impact	Included projects	Comments
																	Assessment
GR0200090	Body of Larissos r.	GW	Bad	Structural construction works	11.09	Irrigation of areas through extension of drain in view of replacing part of groundwater pumping *Competent Authority: Region*	Exemption	Long-term	Large	**15,470,000 €**	**0 €**	**15,470,000 €**	Large	Negligible	Moderate		The WB is in bad qualitative and quantitative status, whereas salinization and pollution is observed from diffuse sources. Currently irrigation is mainly served through private pumping complexes. The extension of the Central Pinios Channel is suggested for the irrigation of areas of the Municipal Units of Larissos, Momvri, Dymi and for the partial replacement of groundwater pumping with surface water abstraction from the artificial lake of Pinios. In particular, the project concerns further extension within the Regional Unit of Achaia of the existing North Main Channel (NMC) supplied from the artificial lake of Pinios, as well as the operation of the project channels as temporary irrigation networks for the irrigation of approximately 63000 stremmas along the channels within a 1.5 km-zone. Secondarily, the project may be used for the facilitation of industrial and manufacturing plants with disposal of around 5% of supply of the NMC. In the future, the project will form part of the permanent irrigation system, to be constructed in the framework of reparcelling for the irrigation of approximately 80000 stremmas. The environmental terms of the project have been approved.
GR0200090	Body of Larissos r.	GW	Bad	Artificial recharge of aquifers	14.02	Investigation of artificial recharge of underground aquifers *Competent Authority: Region*	Exemption	Medium-term	Large	**5,000,000 €**	**0 €**	**5,000,000 €**	Negligible	Negligible	Negligible		Elaboration of hydrogeological study on the artificial recharge of NW Achaia (MRDF – X. Stavropoulos, An. Velissariou, 1999)
GR0200090	Body of Larissos r.	GW	Bad	Pollutant emission controls	ΟΣ_ΥΔ02_2	Special protection measures in areas of GB where thermal-mineral and medicinal waters are found *Competent Authority: Decentralized Administration (Direct. for Water) / Region*	Exemption	Short-term	Medium	**30,000 €**	**0 €**	**30,000 €**	Moderate	Moderate	Moderate		The special protection measures of the thermal-mineral and medicinal waters (Lakopetra-Araksos area) are combined and adjusted with the existing and established protection framework. First of all, the prohibitions of the controlled protection zone II where groundwater is abstracted for supply purposes are applied. In special cases of smooth and traditional activities installation license may be granted following submission of a hydrogeological study and approval by the Directorate for Water.

Code	Water Body	Type of WB	Existing Status	Supplementary Measures – Competent Authority			Exemptions	Preparation Time	Efficacy of Measure	Investment Cost	Operation Cost	Total Cost	Social Impact	Financial impact	Environmental impact	Included projects	Comments
GR0200090	Body of Larissos r.	GW	■ Bad	Pollutant emission controls	ΟΣ_ΥΔ02_6	Definition of principle restriction zones for drilling new wells for new water uses and extensions of existing uses in coastal groundwater bodies where phenomena of seawater intrusion are observed *Competent Authority: Decentralized Administration / MEECC (SWS)*	Exemption	Short-term	Medium	**0 €**	**0 €**	**0 €**	Moderate	Moderate	Negligible		In coastal GWBs that are in bad qualitative status due to seawater intrusion caused by human pressures (over-pumping) restrictive measures are taken for drilling new boreholes and wells for new water uses and the expansion of existing water abstractions. Until the precise delineation of the restriction zones as result of specific hydrogeological studies which should be compiled, drilling of new boreholes for new water uses and extensions of abstraction of groundwater for existing water uses is restricted in the following zones: For granular free piezometric surface systems: 200m, for granular under pressure piezometric surface systems: 100m. In special cases (eg for drinking water use, aquaculture and desalination facilities) permission for drilling a new borehole can be issued after submission of a hydrogeological report or study and the favorable opinion from the competent Water Directorate. The above mentioned restrictions refer to the exploited groundwater body, and not on the spatial location of the new project of water use. These restrictions are intended to limit the expansion of seawater intrusion in coastal groundwater bodies. In case of coastal karstic groundwater bodies with extensive natural salination, through regulatory decisions, the restriction zones may be extended further with the responsibility of the competent Water Directorates because. The precise boundaries of the zones with restrictions for water abstraction projects will be defined by specific hydrogeological study. From the above mentioned restrictions, specific circumstances with priority abstraction for drinking water use and other special cases such as drilling for aquaculture, pumping water for desalination facilities etc, are excluded. In such cases, permission is accomplished after the submission of a documented hydrogeological study which will be examined and approved by the relevant Water Directorates. The specifications for the aforementioned hydrogeological studies will be determined by the competent authorities under the coordination of the Special Water Secretariat.
GR0200090	Body of Larissos r.	GW	■ Bad	Pollutant emission controls	ΟΣ_ΥΔ02_7	Definition and delimitation of areas of groundwater bodies that have poor quality due to seawater intrusion or exhibit local seawater intrusion *Competent Authority: Decentralized Administration / Region*	Exemption	Medium-term	Medium	**30,000 €**	**0 €**	**30,000 €**	Moderate	Moderate	Negligible		For the coastal groundwater bodies that have poor quality status owed to seawater intrusion or exhibit local seawater intrusion, special hydrogeological surveys are to be drafted for the precise definition of restriction limits for the drilling of new boreholes and the extension of the seawater intrusion, so measures will be taken for the gradual restoration not only through prohibitions but also through reduction or even elimination of water abstractions for the existing water uses prioritizing the invention of new ways to meet the needs for irrigation.

Code	Water Body	Type of WB	Existing Status	Supplementary Measures – Competent Authority			Exemptions	Preparation Time	Efficacy of Measure	Investment Cost	Operation Cost	Total Cost	Social Impact	Financial impact	Environmental impact	Included projects	Comments
GR0200060	Body of Pinios	GW	■ Good (Local trend*)	Structural construction works	11.06	Water supply of settlements *Competent Authority: Region*	-	Medium-term	Large	**11,694,500 €**	**350,835 €**	**12,045,335 €**	Negligible	Negligible	Negligible	O.P. ENVIRONMENT & SUSTAINABLE DEVELOPMENT	The GB is in good status, but pollutant levels tend to increase, resulting in bad quality of drinking water. The project concerns abstraction of 6,000,000 million m3 from the artificial lake of Pinios for the enhancement of water supply of M.UE. of Amaliada, Andravida, Vartholomio, Vouprasia, Gastouni, Kastro Kyllinis, Lehaina & Tragano. Upon completion of the project, abstraction will be reduced from Kakotario spring and from wells at the GB of Pinios.
GR0200060	Body of Pinios	GW	■ Good (Local trend*)	Pollutant emission controls	ΟΣ_ΥΔ02_6	Definition of principle restriction zones for drilling new wells for new water uses and extensions of existing uses in coastal groundwater bodies where phenomena of seawater intrusion are observed *Competent Authority: Decentralized Administration / MEECC*	-	Short-term	Medium	**0 €**	**0 €**	**0 €**	Moderate	Moderate	Negligible		In coastal GWBs that are in bad qualitative status due to seawater intrusion caused by human pressures (over-pumping) restrictive measures are taken for drilling new boreholes and wells for new water uses and the expansion of existing water abstractions. Until the precise delineation of the restriction zones as result of specific hydrogeological studies which should be compiled, drilling of new boreholes for new water uses and extensions of abstraction of groundwater for existing water uses is restricted in the following zones: For granular free piezometric surface systems: 200m, for granular under pressure piezometric surface systems: 100m. In special cases (eg for drinking water use, aquaculture and desalination facilities) permission for drilling a new borehole can be issued after submission of a hydrogeological report or study and the favorable opinion from the competent Water Directorate. The above mentioned restrictions refer to the exploited groundwater body, and not on the spatial location of the new project of water use. These restrictions are intended to limit the expansion of seawater intrusion in coastal groundwater bodies. In case of coastal karstic groundwater bodies with extensive natural salination, through regulatory decisions, the restriction zones may be extended further with the responsibility of the competent Water Directorates because. The precise boundaries of the zones with restrictions for water abstraction projects will be defined by specific hydrogeological study. From the above mentioned restrictions, specific circumstances with priority abstraction for drinking water use and other special cases such as drilling for aquaculture, pumping water for desalination facilities etc, are excluded. In such cases, permission is accomplished after the submission of a documented hydrogeological study which will be examined and approved by the relevant Water Directorates. The specifications for the aforementioned hydrogeological studies will be determined by the competent authorities under the coordination of the Special Water Secretariat.

Code	Water Body	Type of WB	Existing Status	Supplementary Measures – Competent Authority			Exemptions	Preparation Time	Efficacy of Measure	Investment Cost	Operation Cost	Total Cost	Social Impact	Financial impact	Environmental impact	Included projects	Comments
GR0200060	Body of Pinios	GW	■ Good (Local trend*)	Pollutant emission controls	ΟΣ_ΥΔ02_7	Definition and delimitation of areas of groundwater bodies that have poor quality due to seawater intrusion or exhibit local seawater intrusion *Competent Authority: Decentralized Administration (Direct. for Water) / Region*	-	Medium-term	Medium	**30,000 €**	**0 €**	**30,000 €**	Moderate	Moderate	Negligible		For the coastal groundwater bodies that have poor quality status owed to seawater intrusion or exhibit local seawater intrusion, special hydrogeological surveys are to be drafted for the precise definition of restriction limits for the drilling of new boreholes and the extension of the seawater intrusion, so measures will be taken for the gradual restoration not only through prohibitions but also through reduction or even elimination of water abstractions for the existing water uses prioritizing the invention of new ways to meet the needs for irrigation.

Table of assessment of supplementary measures in Kefalonia – Ithaca – Zakinthos River Basin

Code	Water Body	Type of WB	Existing Status	Supplementary Measures – Competent Authority			Exemptions	Preparation Time	Efficacy of Measure	Investment Cost	Operation Cost	Total Cost	Social Impact	Financial impact	Environmental impact	Included projects	Comments
GR0245T0001N - GR0245C0014N	KOUTAVOS LAGOON-GULF OF ARGOSTOLI	T	Moderate	Works of research, development & presentation (of best practices)	16.01	Enhancement of infrastructures monitoring the biotic and abiotic parameters of lagoons *Competent Authority: Region*	-	Medium-term	Medium	**10,000 €**	**0 €**	**10,000 €**	Negligible	Negligible	Negligible		A study is recommended, the scope of which would be to monitor abiotic and biotic parameters of the lagoon along with utilization of previous monitoring programs implemented in the area. The aim is to understand the function of the lagoon and to draft specific measures.
GR0245T0001N - GR0245C0014N	KOUTAVOS LAGOON-GULF OF ARGOSTOLI	T	Moderate	Works of research, development & presentation (of best practices)	16.02	Enhancement of infrastructures monitoring waters, inflow of fresh water as well as the movement and behavior of streams *Competent Authority: Region*	-	Medium-term	Medium	**10,000 €**	**0 €**	**10,000 €**	Negligible	Negligible	Negligible		A study is recommended, the scope of which would be to monitor the flow of water to the lagoon and in particular the inflow of freshwater as well as the behavior of streams. The aim is to understand the function of the lagoon and to draft specific measures.

Code	Water Body	Type of WB	Existing Status	Supplementary Measures – Competent Authority			Exemptions	Preparation Time	Efficacy of Measure	Investment Cost	Operation Cost	Total Cost	Social Impact	Financial impact	Environmental impact	Included projects	Comments
GR0245T0001N - GR0245C0014N	KOUTAVOS LAGOON-GULF OF ARGOSTOLI	T	Moderate	Pollutant emission controls	5.06	Examination of possible pollution sources relating to pesticides, increased concentrations of ammonium compounds and nitrates, in view of investigating causes of the pollution incident of the sea area of June *Competent Authority: Region*	-	Medium-term	Large	**10,000 €**	**0 €**	**10,000 €**	Negligible	Negligible	Negligible		Transitional WB is of status 2, whereas pressure suffered is of high intensity. A pollution incident was observed on June 23 2011, during which brown essence with white-yellow scum was seen on the surface. Based on sampling and analysis of samples conducted by the Environment Quality Control Group (KEPPE) it was established that: -the mass consisted of phytoplankton agglomerates and particularly of benthic sections, assessed as natural phenomenon during summer months -9 active pesticides were detected in various concentrations and excess has been observed at 2, one of which has been put out of operation -High values were measured at suspended and particulate matter -Pathogenic and non pathogenic microorganisms were detected in combination with high concentration of ammoniac ions suggesting untreated urban waste -No polycyclic aromatic hydrocarbons were detected It is suggested to examine possible sources of pollution related to pesticides, increased ammoniac and nitrous ions, soluble organic carbon and the development of pathogenic microorganisms, in view of their restriction and avoiding of new pollution incidents.
GR0200050	Body of Zakinthos	GW	Bad	Structural construction works	8.03	Reduction or replacement of groundwater abstraction with abstraction from a surface WB or technical project (conservation reservoir, dam), desalinization etc. *Competent Authority: Region / Directorate for Water of Decentralized Administration*	-	Medium-term	Medium	**50,000 €**	**0 €**	**50,000 €**	Moderate	Moderate	Moderate		The Groundwater Body is in bad qualitative status and its water level presents a downwards trend locally. It is proposed to investigate the possibility of replacing the abstraction of groundwater with surface water coming from artificial bodies, i.e. conservation reservoirs or dams. In this manner, deterioration of the GB's quantitative status will be prevented.
GR0200050	Body of Zakinthos	GW	Bad	Pollutant emission controls	ΟΣ_ΥΔ02_3	Program of investigatory monitoring of the qualitative status in the groundwater and surface bodies in the areas of the existing landfill. *Competent Authority: Decentralized Administration / Region / Landfill Operators*	Exemption	Medium-term	Medium	**0 €**	**2,000 €**	**2,000 €**	Moderate	Negligible	Negligible		The investigation of the qualitative status of surface and groundwater in the perimeter of Zakinthos landfill site. The program will be drawn up by the Directorate for Water of the Decentralized Administration and will be implemented either by the Region or the landfill Operators.

Code	Water Body	Type of WB	Existing Status	Supplementary Measures – Competent Authority			Exemptions	Preparation Time	Efficacy of Measure	Investment Cost	Operation Cost	Total Cost	Social Impact	Financial impact	Environmental impact	Included projects	Comments
GR0200050	Body of Zakinthos	GW	■Bad	Pollutant emission controls	ΟΣ_Υ∆02_6	Definition of principle restriction zones for drilling new wells for new water uses and extensions of existing uses in coastal groundwater bodies where phenomena of seawater intrusion are observed *Competent Authority: Decentralized Administration / MEECC (SWS)*	Exemption	Short-term	Medium	**0 €**	**0 €**	**0 €**	Moderate	Moderate	Negligible		In coastal GWBs that are in bad qualitative status due to seawater intrusion caused by human pressures (over-pumping) restrictive measures are taken for drilling new boreholes and wells for new water uses and the expansion of existing water abstractions. Until the precise delineation of the restriction zones as result of specific hydrogeological studies which should be compiled, drilling of new boreholes for new water uses and extensions of abstraction of groundwater for existing water uses is restricted in the following zones: For granular free piezometric surface systems: 200m, for granular under pressure piezometric surface systems: 100m. In special cases (eg for drinking water use, aquaculture and desalination facilities) permission for drilling a new borehole can be issued after submission of a hydrogeological report or study and the favorable opinion from the competent Water Directorate. The above mentioned restrictions refer to the exploited groundwater body, and not on the spatial location of the new project of water use. These restrictions are intended to limit the expansion of seawater intrusion in coastal groundwater bodies. In case of coastal karstic groundwater bodies with extensive natural salination, through regulatory decisions, the restriction zones may be extended further with the responsibility of the competent Water Directorates because. The precise boundaries of the zones with restrictions for water abstraction projects will be defined by specific hydrogeological study. From the above mentioned restrictions, specific circumstances with priority abstraction for drinking water use and other special cases such as drilling for aquaculture, pumping water for desalination facilities etc, are excluded. In such cases, permission is accomplished after the submission of a documented hydrogeological study which will be examined and approved by the relevant Water Directorates. The specifications for the aforementioned hydrogeological studies will be determined by the competent authorities under the coordination of the Special Water Secretariat.
GR0200050	Body of Zakinthos	GW	■Bad	Pollutant emission controls	ΟΣ_Υ∆02_7	Definition and delimitation of areas of groundwater bodies that have poor quality due to seawater intrusion or exhibit local seawater intrusion *Competent Authority: Decentralized Administration (Direct. for Water) / Region*	Exemption	Medium-term	Medium	**30,000 €**	**0 €**	**30,000 €**	Moderate	Moderate	Negligible		For the coastal groundwater bodies that have poor quality status owed to seawater intrusion or exhibit local seawater intrusion, special hydrogeological surveys are to be drafted for the precise definition of restriction limits for the drilling of new boreholes and the extension of the seawater intrusion, so measures will be taken for the gradual restoration not only through prohibitions but also through reduction or even elimination of water abstractions for the existing water uses prioritizing the invention of new ways to meet the needs for irrigation.

Code	Water Body	Type of WB	Existing Status	Supplementary Measures – Competent Authority			Exemptions	Preparation Time	Efficacy of Measure	Investment Cost	Operation Cost	Total Cost	Social Impact	Financial impact	Environmental impact	Included projects	Comments
GR0200020	Body of Lixouri - Skala	GW	■ Good. Local trend of pollution increase and water level drop	Works of research, development & presentation (of best practices)	ΟΣ_ΥΔ02_6	Definition of principle restriction zones for drilling new wells for new water uses and extensions of existing uses in coastal groundwater bodies where phenomena of seawater intrusion are observed *Competent Authority: Decentralized Administration / MEECC (SWS)*	-	Short-term	Medium	**0 €**	**0 €**	**0 €**	Moderate	Moderate	Negligible		In coastal GWBs that are in bad qualitative status due to seawater intrusion caused by human pressures (over-pumping) restrictive measures are taken for drilling new boreholes and wells for new water uses and the expansion of existing water abstractions. Until the precise delineation of the restriction zones as result of specific hydrogeological studies which should be compiled, drilling of new boreholes for new water uses and extensions of abstraction of groundwater for existing water uses is restricted in the following zones: For for granular free piezometric surface systems: 200m, for granular under pressure piezometric surface systems: 100m. In special cases (eg for drinking water use, aquaculture and desalination facilities) permission for drilling a new borehole can be issued after submission of a hydrogeological report or study and the favorable opinion from the competent Water Directorate. The above mentioned restrictions refer to the exploited groundwater body, and not on the spatial location of the new project of water use. These restrictions are intended to limit the expansion of seawater intrusion in coastal groundwater bodies. In case of coastal karstic groundwater bodies with extensive natural salination, through regulatory decisions, the restriction zones may be extended further with the responsibility of the competent Water Directorates because. The precise boundaries of the zones with restrictions for water abstraction projects will be defined by specific hydrogeological study. From the above mentioned restrictions, specific circumstances with priority abstraction for drinking water use and other special cases such as drilling for aquaculture, pumping water for desalination facilities etc, are excluded. In such cases, permission is accomplished after the submission of a documented hydrogeological study which will be examined and approved by the relevant Water Directorates. The specifications for the aforementioned hydrogeological studies will be determined by the competent authorities under the coordination of the Special Water Secretariat.
GR0200020	Body of Lixouri - Skala	GW	■ Good. Local trend of pollution increase and water level drop	Other relevant measures	ΟΣ_ΥΔ02_7	Definition and delimitation of areas of groundwater bodies that have poor quality due to seawater intrusion or exhibit local seawater intrusion *Competent Authority: Decentralized Administration (Direct. for Water) / Region*	-	Medium-term	Medium	**30,000 €**	**0 €**	**30,000 €**	Moderate	Moderate	Negligible		For the coastal groundwater bodies that have poor quality status owed to seawater intrusion or exhibit local seawater intrusion, special hydrogeological surveys are to be drafted for the precise definition of restriction limits for the drilling of new boreholes and the extension of the seawater intrusion, so measures will be taken for the gradual restoration not only through prohibitions but also through reduction or even elimination of water abstractions for the existing water uses prioritizing the invention of new ways to meet the needs for irrigation.

ANNEX A MAPS OF MANAGEMENT PLAN

RB	28

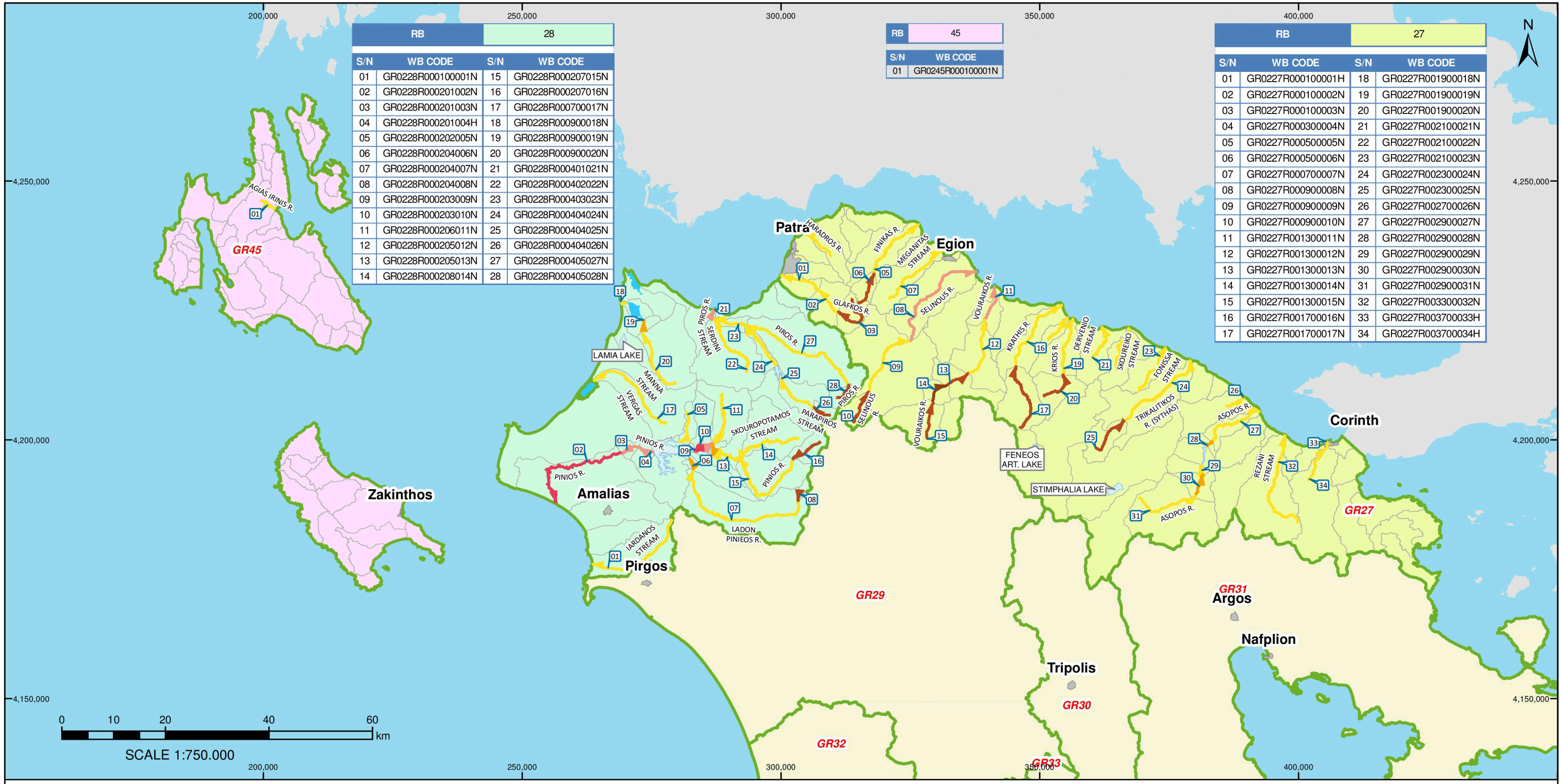
S/N	WB CODE	S/N	WB CODE
01	GR0228R000100001N	15	GR0228R000207015N
02	GR0228R000201002N	16	GR0228R000207016N
03	GR0228R000201003N	17	GR0228R000700017N
04	GR0228R000201004H	18	GR0228R000900018N
05	GR0228R000202005N	19	GR0228R000900019N
06	GR0228R000204006N	20	GR0228R000900020N
07	GR0228R000204007N	21	GR0228R000401021N
08	GR0228R000204008N	22	GR0228R000402022N
09	GR0228R000203009N	23	GR0228R000403023N
10	GR0228R000203010N	24	GR0228R000404024N
11	GR0228R000206011N	25	GR0228R000404025N
12	GR0228R000205012N	26	GR0228R000404026N
13	GR0228R000205013N	27	GR0228R000405027N
14	GR0228R000208014N	28	GR0228R000405028N

RB	45

S/N	WB CODE
01	GR0245R000100001N

RB	27

S/N	WB CODE	S/N	WB CODE
01	GR0227R000100001H	18	GR0227R001900018N
02	GR0227R000100002N	19	GR0227R001900019N
03	GR0227R000100003N	20	GR0227R001900020N
04	GR0227R000300004N	21	GR0227R002100021N
05	GR0227R000500005N	22	GR0227R002100022N
06	GR0227R000500006N	23	GR0227R002100023N
07	GR0227R000700007N	24	GR0227R002300024N
08	GR0227R000900008N	25	GR0227R002300025N
09	GR0227R000900009N	26	GR0227R002700026N
10	GR0227R000900010N	27	GR0227R002900027N
11	GR0227R001300011N	28	GR0227R002900028N
12	GR0227R001300012N	29	GR0227R002900029N
13	GR0227R001300013N	30	GR0227R002900030N
14	GR0227R001300014N	31	GR0227R002900031N
15	GR0227R001300015N	32	GR0227R003300032N
16	GR0227R001700016N	33	GR0227R003700033H
17	GR0227R001700017N	34	GR0227R003700034H



LEGEND

- RIVER BASINS
- RIVER SUBBASINS
- WATER BODIES SUBBASINS
- LAKE WB
- TRANSITIONAL WB

RIVER WB

ImL0 IsL0 SsH1
ImL1 IsL1 SsL0
IsH0 SmL0 SsL1
IsH1 SmL1

RIVER WATER BODIES TYPES

		Small Run off (<100hm³) s	Medium Run off (100~2000hm³) m	High Run off (>2000hm³) g
Mild slope (≤1.2‰) 0	Low altitude (≤700 m) «L»	sL0	mL0	gL0
	High altitude (>700m) «H»	sH0	mH0	gH0
High slope (>1.2‰) 1	Low altitude (≤700 m) «L»	sL1	mL1	gL1
	High altitude (>700 m) «H»	sH1	mH1	gH1

*A Latin letter which symbolizes the biogeographical region enters in front of the code type, N for North Greece, I for the Ionian, S for the Aegean and South Greece.

HELLENIC REPUBLIC

MINISTRY OF ENVIROMENT ENERGY & CLIMATE CHANGE

SPECIAL SECRETARIAT FOR WATER

RIVER BASIN DISTRICT MANAGMENT PLAN

NORTHERN PELOPONNESE (RBD02)

RIVER WATER BODIES

RBD:02	RB: 27 - 28 - 45	No.MAP: **4.2**

NOVEMBER 2012

LEGEND

- RIVER BASINS
- RIVER SUBBASINS
- WATER BODIES SUBBASINS
- RIVER WB
- TRANSITIONAL WB

LAKE WB

- L-M5/7W
- L-M8
- B
- Γ

RB	27	
LAKES WB		
S/N	**WB CODE**	**TYPE**
01	GR0227L000000001H	L-M8
02	GR0227L000000002N	B
03	GR0227L000000003A	L-M5/7W

RB	28	
LAKES WB		
S/N	**WB CODE**	**TYPE**
01	GR0228L000000001N	Γ
02	GR0228L000000002H	L-M8
03	GR0228L000000003H	L-M8

LAKE WATER BODIES TYPES

Type	Indicative characteristics
A	Low altitude, Large area, Medium depth, hot monomictic type at a semi dry area
B	Medium – high altitude, Large area, Medium depth, polymictic type at the wet area
Γ	Low altitude, Large area, Medium depth, Polymictic type at a semi dry area
Δ	Medium– high altitude, large area, Large depth, hot monomictic type at a wet area

Type	Lake Water Bodies characterization
Siliceous wet L-M5/7W	Reservoirs, deep, large, siliceous, at "wet" areas, Watersheds < 20.000km^2
Siliceous dry L-M5/7A	Reservoirs, deep, large, siliceous, at "dry" areas, watersheds < 20.000 km^2
Chalky L-M8	Reservoirs, deep, large, chalky, Watersheds < 20.000km^2

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MINISTRY OF ENVIROMENT ENERGY & CLIMATE CHANGE

SPECIAL SECRETARIAT FOR WATER

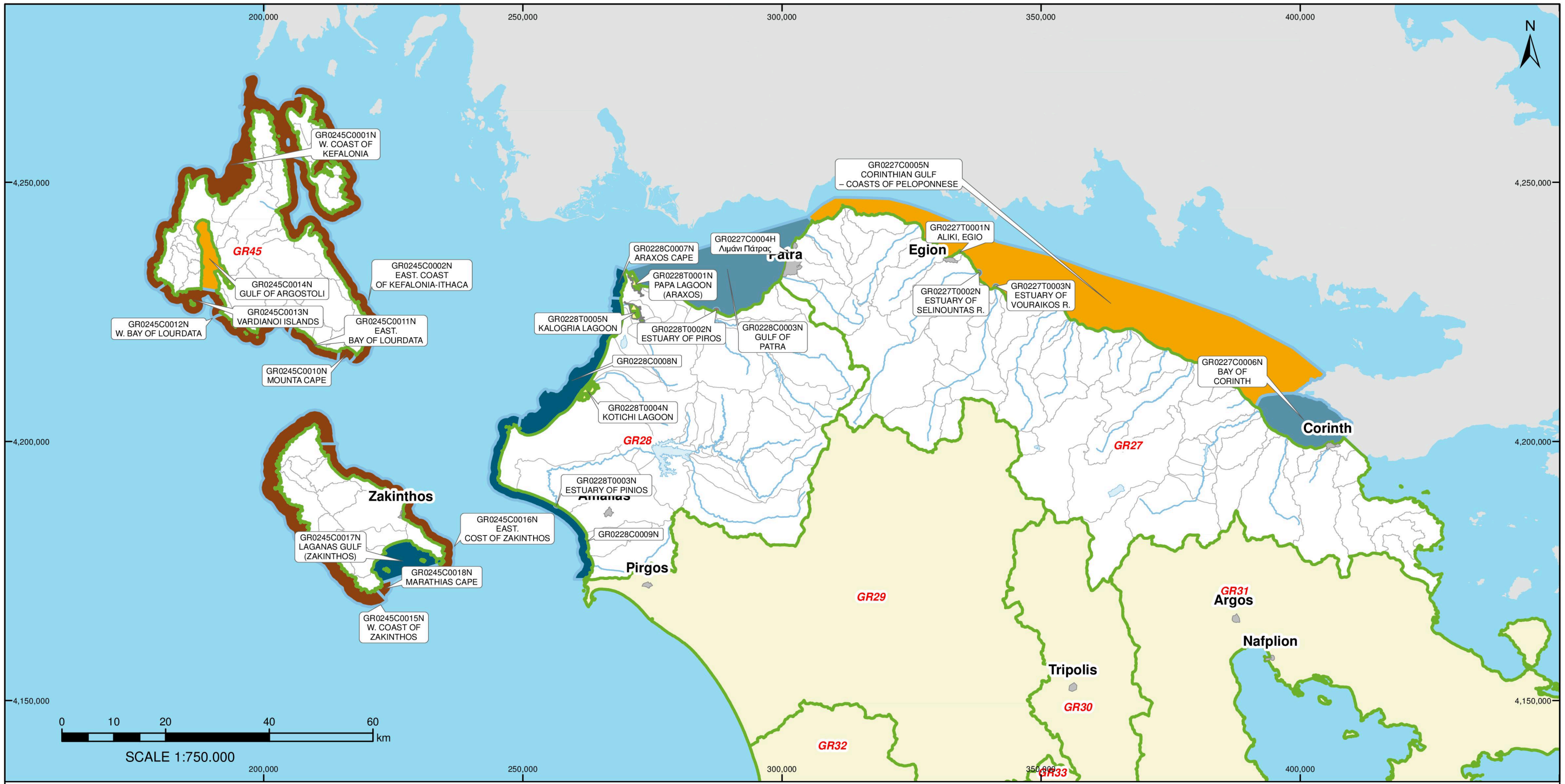
RIVER BASIN DISTRICT MANAGMENT PLAN

NORTHERN PELOPONNESE (RBD02)

LAKE WATER BODIES

RBD:02	RB: 27 - 28 - 45	No.MAP: **5.2**

NOVEMBER 2012



LEGEND

RIVER BASINS

RIVER SUBBASINS

WATER BODIES SUBBASINS

RIVER WB

LAKE WB

COASTAL WB

- Deep rocky coastal waters
- Rocky shallow coastal waters
- Deep sedimentary coastal waters
- Sedimentary shallow coastal waters
- Very protected bays

TRANSITIONAL WB

- Lagoon
- River Outfall

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MINISTRY OF ENVIROMENT ENERGY & CLIMATE CHANGE

SPECIAL SECRETARIAT FOR WATER

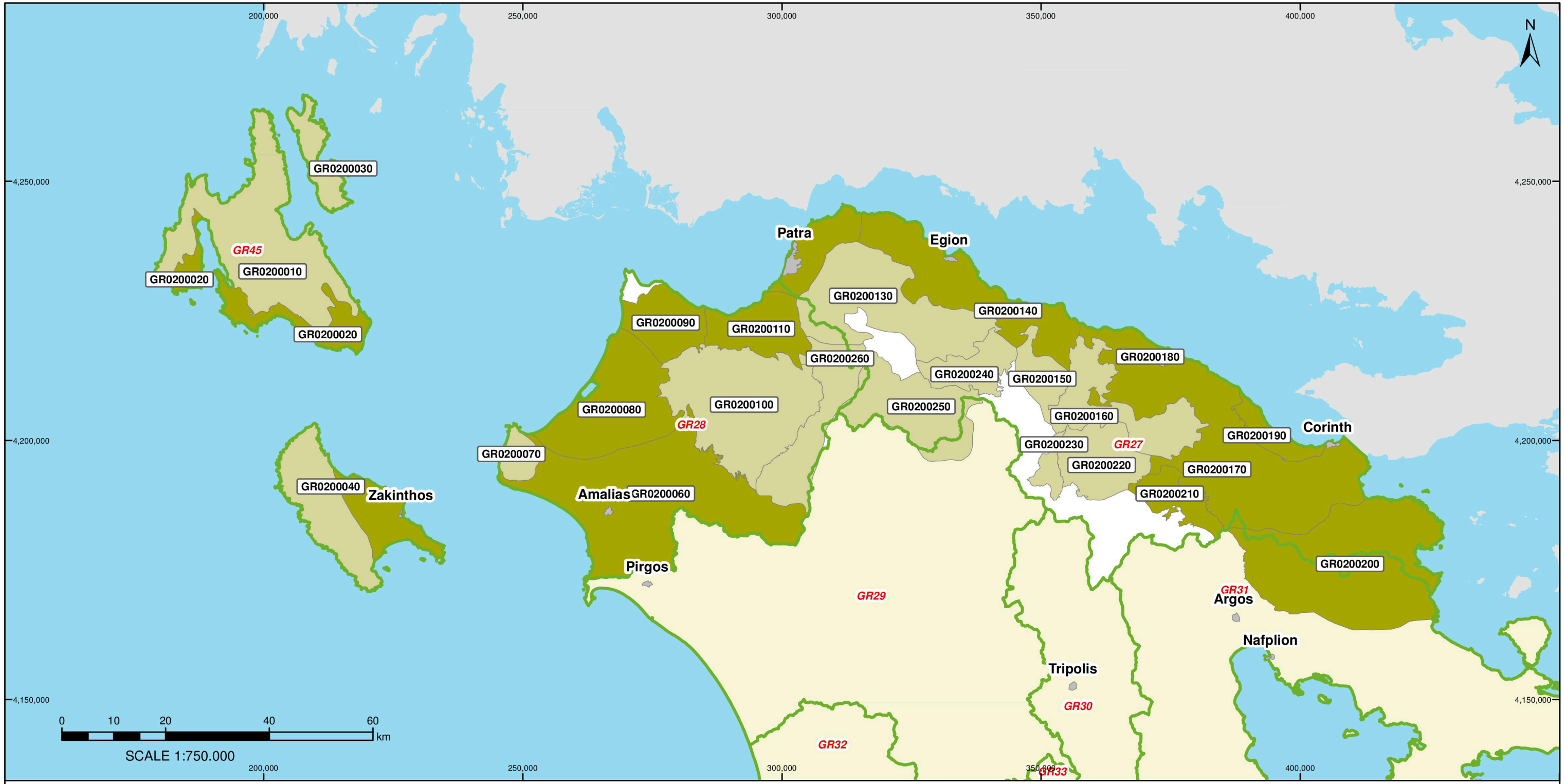
RIVER BASIN DISTRICT MANAGMENT PLAN

NORTHERN PELOPONNESE (RBD02)

COASTAL & TRANSITIONAL WATER BODIES

RBD:02	RB: 27 - 28 - 45	No.MAP: 6.2

NOVEMBER 2012



LEGEND

RIVER BASINS

GROUNDWATER BODIES

Initial characterisation

Further characterisation

RB	27
CODE	NAME
GR0200120	Patra - Rio Ground Water Body
GR0200130	Panahaikos Ground Water Body
GR0200140	North Ahaia Ground Water Body
GR0200150	Zarouhla Ground Water Body
GR0200160	Valtos - Evrostina Ground Water Body
GR0200170	North Corinthia Ground Water Body
GR0200180	Korfiotissa Ground Water Body
GR0200190	Corinth-Kiato Ground Water Body
GR0200200	Arachneo Ground Water Body
GR0200210	Nemea Ground Water Body
GR0200220	Ziria Ground Water Body
GR0200230	Feneos Ground Water Body
GR0200240	Kalavrita Ground Water Body
GR0200250	North Erimanthos Ground Water Body

RB	28
CODE	NAME
GR0200060	Pinios Ground Water Body
GR0200070	Kyllini Ground Water Body
GR0200080	West Ahaia Ground Water Body
GR0200090	Larissos river Ground Water Body
GR0200100	Movri Ground Water Body
GR0200110	Piros river Ground Water Body
GR0200260	West Erimanthos Ground Water Body

RB	45
CODE	NAME
GR0200010	Kefalonia Ground Water Body
GR0200020	Lixouri - Skala Ground Water Body
GR0200030	Ithaca Ground Water Body
GR0200040	Vrahionas Ground Water Body
GR0200050	Zakinthos Ground Water Body

HELLENIC REPUBLIC

MINISTRY OF ENVIROMENT ENERGY & CLIMATE CHANGE

SPECIAL SECRETARIAT FOR WATER

RIVER BASIN DISTRICT MANAGMENT PLAN

NORTHERN PELOPONNESE (RBD02)

GROUNDWATER BODIES

RBD:02	RB: 27 - 28 - 45	No.MAP: **7.2**

NOVEMBER 2012

LEGEND

- RIVER BASINS
- RIVER SUBBASINS
- WATER BODIES SUBBASINS
- TRANSITIONAL WB

RIVER WB
- HMWB
- AWB

LAKE WB
- HMWB
- AWB

COASTAL WB
- HMWB

RB	27

RIVERS HMWB / AWB	
S/N	CODE WB
01	GR0227R000100001H
33	GR0227R003700033H
34	GR0227R003700034H

RB	28

RIVERS HMWB / AWB	
S/N	CODE WB
04	GR0228R000201004H

RB	27

LAKES HMWB / AWB	
S/N	CODE WB
01	GR0227L000000001H
03	GR0227L000000003A

RB	28

LAKES HMWB / AWB	
S/N	CODE WB
02	GR0228L000000002H
03	GR0228L000000003H

RB	27

COASTAL HMWB / AWB	
S/N	CODE WB
04	GR0227C0004H

HELLENIC REPUBLIC

MINISTRY OF ENVIROMENT ENERGY & CLIMATE CHANGE

SPECIAL SECRETARIAT FOR WATER

RIVER BASIN DISTRICT MANAGMENT PLAN

NORTHERN PELOPONNESE (RBD02)

SURFACE AWB - HMWB

RBD:02	RB: 27 - 28 - 45	No.MAP: 8.2

NOVEMBER 2012

200,000
250,000
300,000
350,000
400,000
4,250,000
4,200,000
4,150,000
N
GR45
KOUTAVOS LAGOON (KEFALONIA)
AGIAS IRINIS R.
GR28
GR27
GR29
GR30
GR31
GR32
GR33
PAPA LAGOON (ARAXOS)
KALOGRIA LAGOON
LAMIA LAKE
KOTICHI LAGOON
MANNA STREAM
VERGAS STREAM
VELITSEIKO STREAM
VILISSOS R.
SERDINI STREAM
PIROS R.
PARAPIROS STREAM
SKOUROPOTAMOS STREAM
PINIOS R.
PINIOS ARTIFICIAL LAKE
ESTUARY OF PINIOS
IARDANOS STREAM
LADON PINIEOS R.
HARADROS R.
FINIKAS R.
MEGANITAS STREAM
ALIKI EGIO
GLAFKOS R.
SELINOUS R.
ESTUARY OF VOURAIKOS R.
VOURAIKOS R.
KRATHIS R.
KRIOS R.
DERVENIO STREAM
SKOUREIKO STREAM
FONISSA STREAM
TRIKALITIKOS R. (SYTHAS)
KYRILLOU STREAM
ASOPOS R.
FENEOS ART. LAKE
ASOPOS ART. LAKE
STIMPHALIA LAKE
REZANI STREAM
POTAMIA STREAM (KIRIAS)
0 10 20 40 60 km
SCALE 1:750.000

LEGEND

RIVER WB
- Rivers
- Rivers with water abstraction

LAKE WB
- Lakes
- Lakes with water abstraction

TRANSITIONAL WB
- Transitional
- Transitional with aquatic species of economic importance

COASTAL WB
- Coastal
- Coastal with aquatic species of economic importance
- Groundwaterbodies with water abstraction
- Areas polluted by nitrates

PROTECTED AREAS
- CORINE Habitats
- Sites of Community Importance (SCI)
- Special Protection Areas (SPA)
- SPASCI
- National Parks
- Landscapes of Outstanding Natural Beauty
- Bathing waters

HELLENIC REPUBLIC

MINISTRY OF ENVIROMENT ENERGY & CLIMATE CHANGE

SPECIAL SECRETARIAT FOR WATER

RIVER BASIN DISTRICT MANAGMENT PLAN

WESTERN PELOPONNESE (RBD01)

PROTECTED AREAS

RBD:02	RB: 27 - 28 - 45	No.MAP: 9.2

NOVEMBER 2012

LEGEND

- Water abstraction
- Sand pits
- Thermal power stations
- Small hydroelectric power plants
- Fisheries
- Discharge of treated wastewater
- Discharge of treated wastewater (Hotels)
- Treated waste water discharge in natural recipients
- Uncontrolled waste disposal sites
- Landfills
- Important industries
- Desalination plants
- Port facilities
- Clay pits
- Minerals
- River Basins
- River Subbasins
- Water Bodies Subbasins
- River WB
- Lake WB
- Transitional WB

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MINISTRY OF ENVIROMENT ENERGY & CLIMATE CHANGE

SPECIAL SECRETARIAT FOR WATER

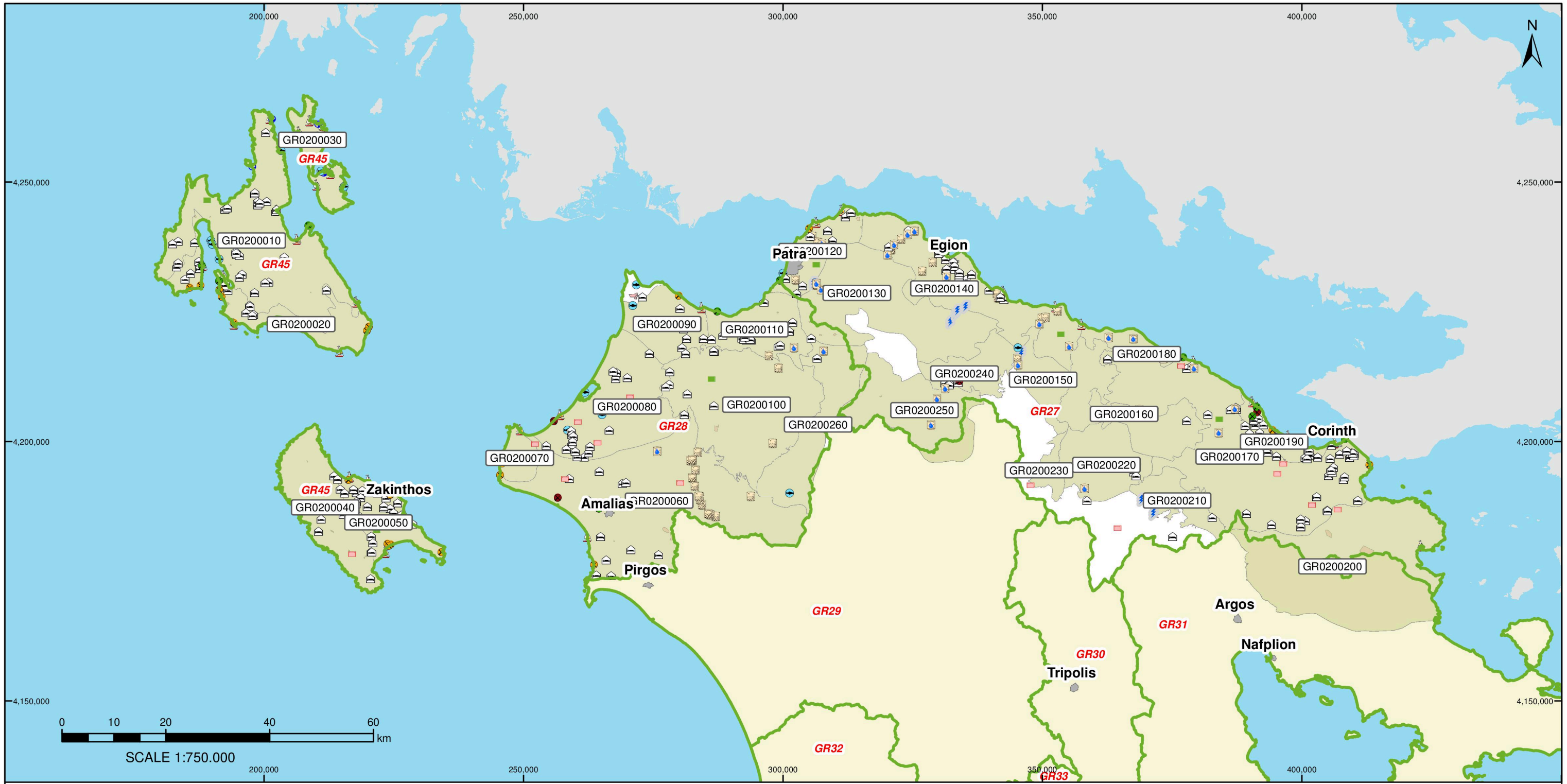
RIVER BASIN DISTRICT MANAGMENT PLAN

NORTHERN PELOPONNESE (RBD02)

POINT SOURCE PRESSURES AT SURFACE WB

RBD:02	RB: 27 - 28 - 45	No.MAP: **10.2**

NOVEMBER 2012



LEGEND

- Water abstraction
- Sand pits
- Thermal power stations
- Small hydroelectric power plants
- Fisheries
- Discharge of treated wastewater
- Discharge of treated wastewater (Hotels)
- Treated waste water discharge in natural recipients
- Uncontrolled waste disposal sites
- Landfills
- Important industries
- Desalination plants
- Port facilities
- Clay pits
- Minerals
- River Basins
- Groundwater Bodies

HELLENIC REPUBLIC

MINISTRY OF ENVIROMENT ENERGY & CLIMATE CHANGE

SPECIAL SECRETARIAT FOR WATER

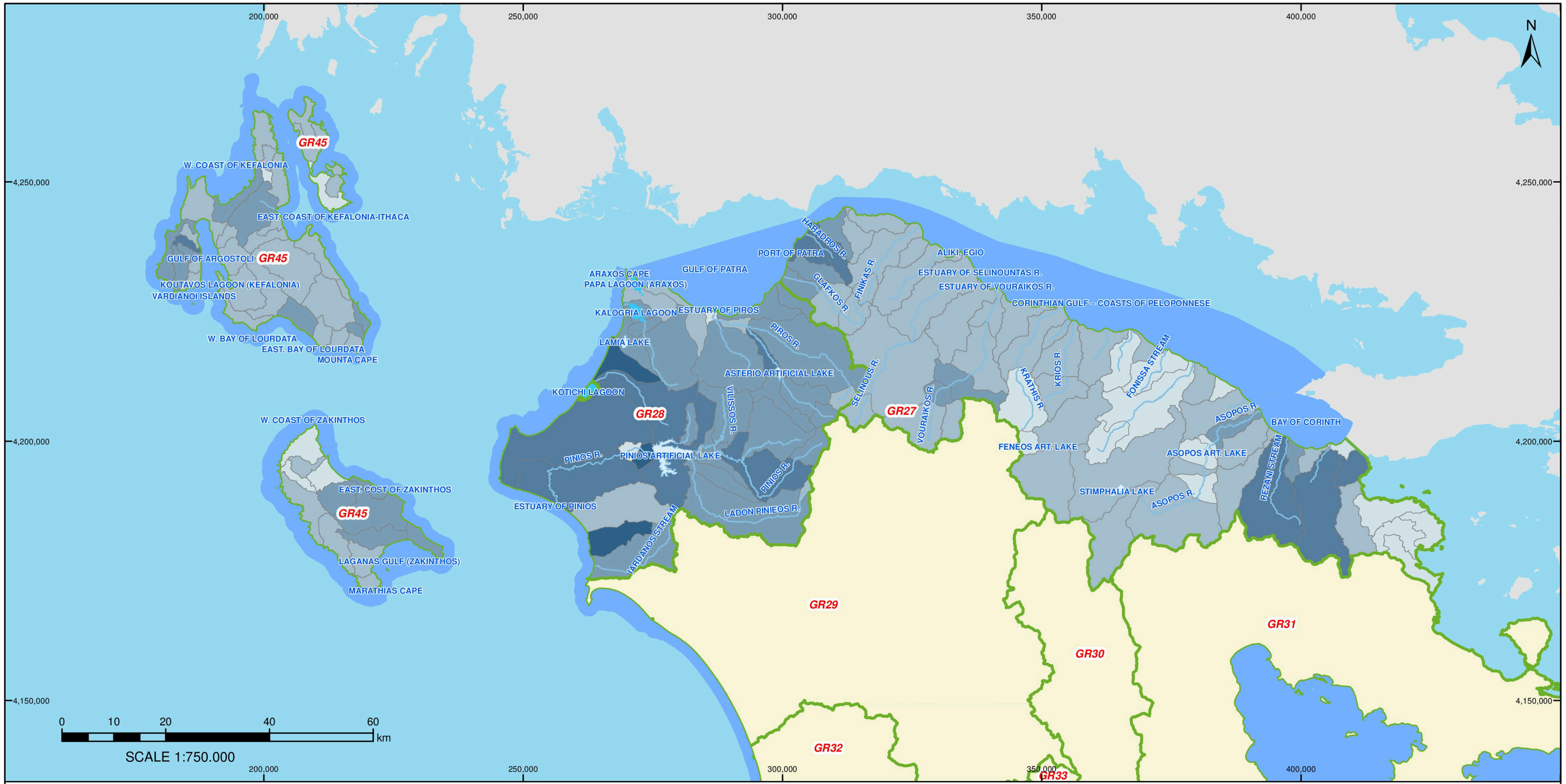
RIVER BASIN DISTRICT MANAGMENT PLAN

NORTHERN PELOPONNESE (RBD02)

POINT SOURCE PRESSURES AT GROUNDWATER BODIES

RBD:02	RB: 27 - 28 - 45	No.MAP: **11.2**

NOVEMBER 2012



LEGEND

- River Basins
- River WB
- Lake WB
- Transitional WB
- Coastal WB

Annual Intensity BOD (t/km2)

- 0.00 - 0.18
- 0.18 - 0.62
- 0.62 - 1.40
- 1.40 - 3.16
- 3.16 - 8.33

HELLENIC REPUBLIC

MINISTRY OF ENVIROMENT ENERGY & CLIMATE CHANGE

SPECIAL SECRETARIAT FOR WATER

RIVER BASIN DISTRICT MANAGMENT PLAN

NORTHERN PELOPONNESE (RBD02)

ANNUAL SURFACE BOD QUANTITY INTENSITY FROM POINT AND DIFFUSE SOURCES

RBD:02	RB: 27 - 28 - 45	No.MAP: **12.2**

NOVEMBER 2012

200,000 250,000 300,000 350,000 400,000

4,250,000 4,200,000 4,150,000

N

GR45
W. COAST OF KEFALONIA
EAST. COAST OF KEFALONIA-ITHACA
GULF OF ARGOSTOLI
KOUTAVOS LAGOON (KEFALONIA)
VARDIANOI ISLANDS
W. BAY OF LOURDATA
EAST. BAY OF LOURDATA
MOUNTA CAPE

W. COAST OF ZAKINTHOS
EAST. COST OF ZAKINTHOS
LAGANAS GULF (ZAKINTHOS)
MARATHIAS CAPE

HARADROS R.
PORT OF PATRA
ALIKI, EGIO
GULF OF PATRA
ARAXOS CAPE
PAPA LAGOON (ARAXOS)
GLAFKOS R.
FINIKAS R.
ESTUARY OF SELINOUNTAS R.
ESTUARY OF VOURAIKOS R.
CORINTHIAN GULF – COASTS OF PELOPONNESE
KALOGRIA LAGOON
ESTUARY OF PIROS
PIROS R.
LAMIA LAKE
ASTERIO ARTIFICIAL LAKE
KOTICHI LAGOON
VILISSOS R.
SELINOUS R.
VOURAIKOS R.
KRIOS R.
KRATHIS R.
FONISSA STREAM
ASOPOS R.
BAY OF CORINTH
GR28
GR27
PINIOS R.
PINIOS ARTIFICIAL LAKE
FENEOS ART. LAKE
ASOPOS ART. LAKE
REZANI STREAM
STIMPHALIA LAKE
ASOPOS R.
ESTUARY OF PINIOS
LADON PINIEOS R.
IARDANOS STREAM

GR29
GR31
GR30
GR32
GR33

0 10 20 40 60 km

SCALE 1:750.000

LEGEND

River Basins	Annual Intensity N (t/km2)
River WB	0.00 - 0.11
Lake WB	0.11 - 0.31
Transitional WB	0.31 - 0.57
Coastal WB	0.57 - 1.17
	1.17 - 2.76

HELLENIC REPUBLIC

MINISTRY OF ENVIROMENT ENERGY & CLIMATE CHANGE

SPECIAL SECRETARIAT FOR WATER

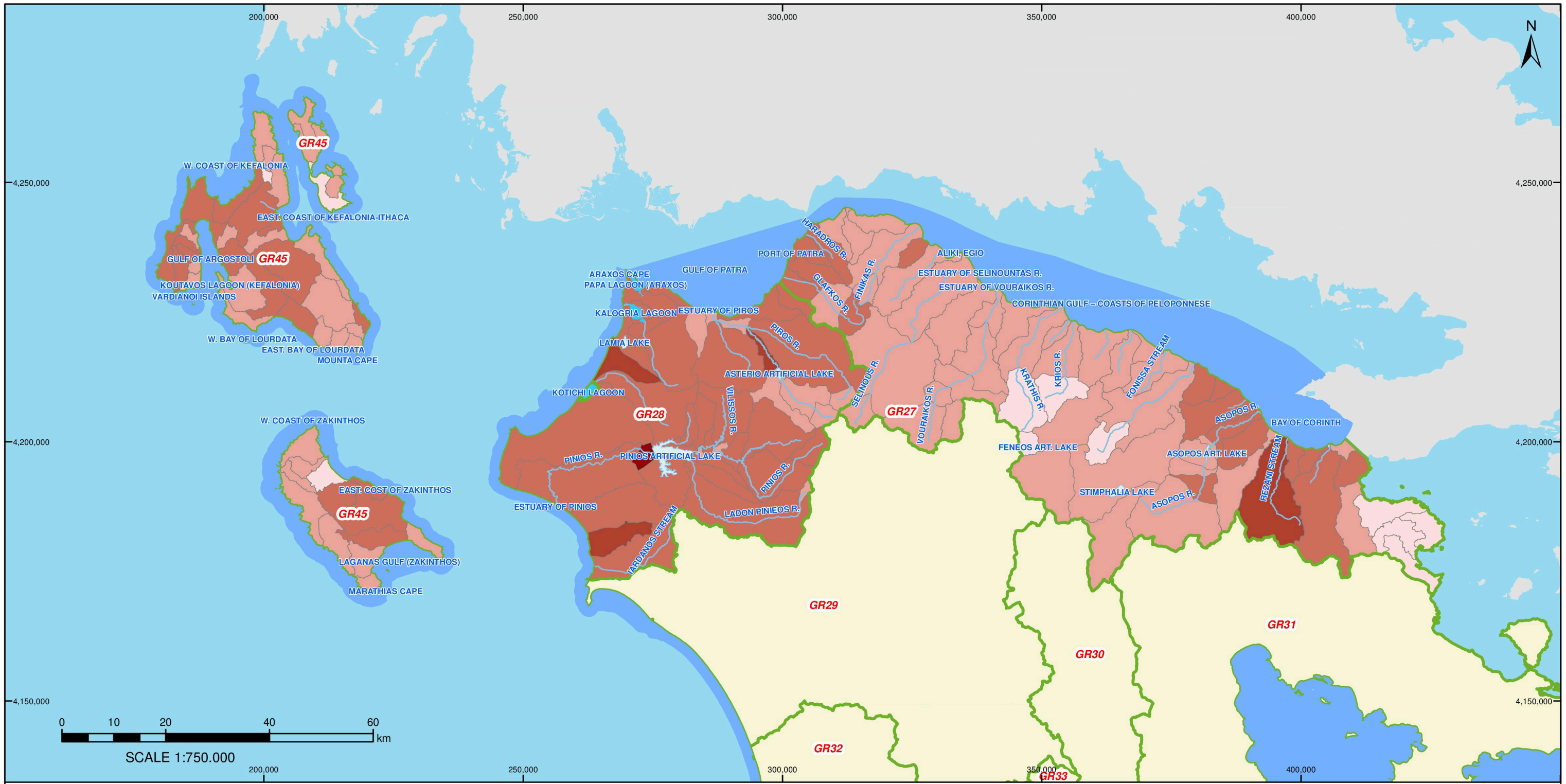
RIVER BASIN DISTRICT MANAGMENT PLAN

NORTHERN PELOPONNESE (RBD02)

ANNUAL SURFACE N QUANTITY INTENSITY FROM POINT AND DIFFUSE SOURCES

RBD:02	RB: 27 - 28 - 45	No.MAP: **13.2**

NOVEMBER 2012



LEGEND

River Basins	Annual Intensity P (t/km2)
River WB	0.0
Lake WB	0.00 - 0.01
Transitional WB	0.01 - 0.03
Coastal WB	0.03 - 0.06
	0.06 - 0.10

HELLENIC REPUBLIC

MINISTRY OF ENVIROMENT ENERGY & CLIMATE CHANGE

SPECIAL SECRETARIAT FOR WATER

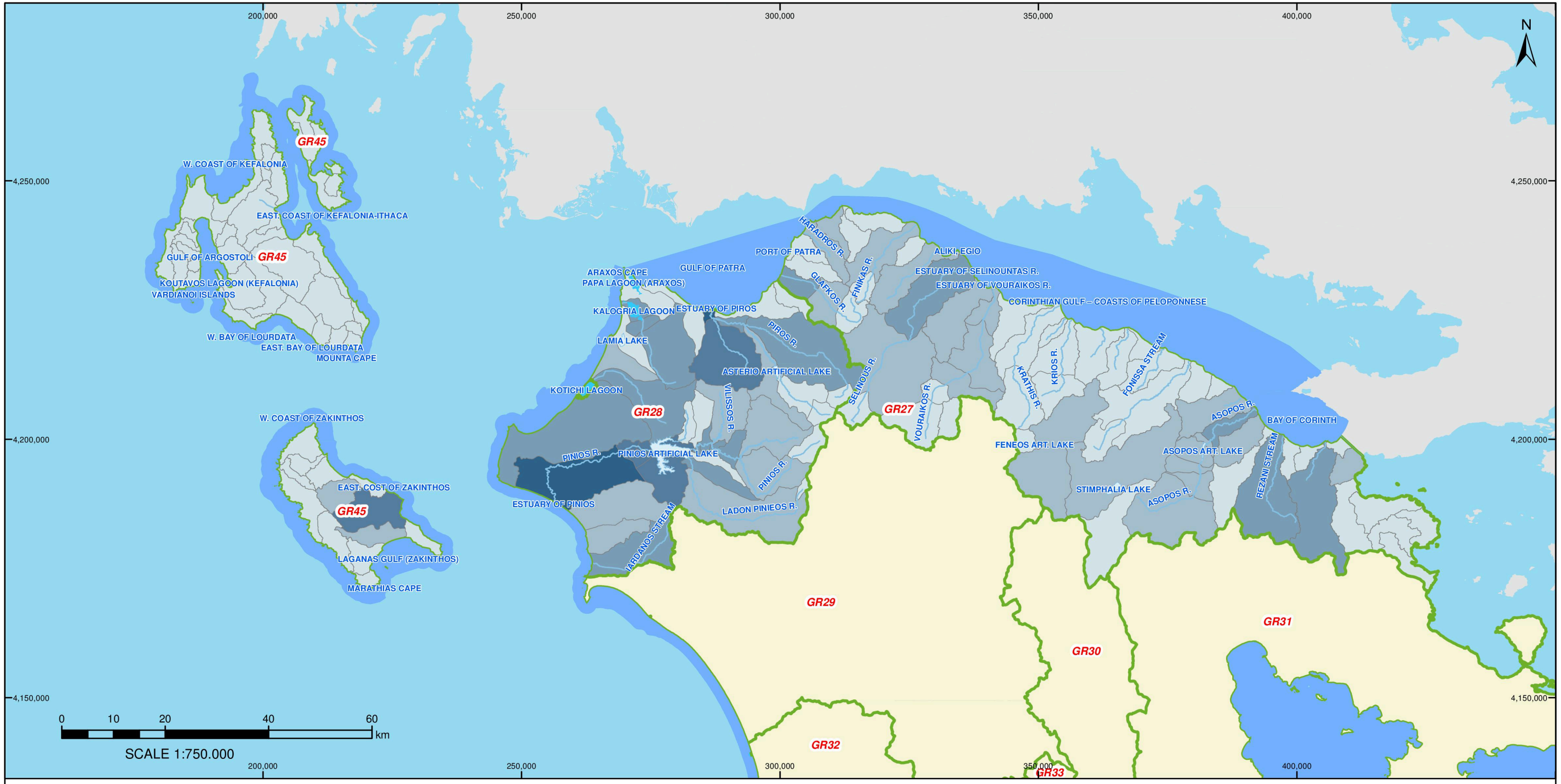
RIVER BASIN DISTRICT MANAGMENT PLAN

NORTHERN PELOPONNESE (RBD02)

ANNUAL SURFACE P QUANTITY INTENSITY FROM POINT AND DIFFUSE SOURCES

RBD:02	RB: 27 - 28 - 45	No.MAP: **14.2**

NOVEMBER 2012



LEGEND

- River Basins
- River WB
- Lake WB
- Transitional WB
- Coastal WB

Annual cumulative amount BOD (t)

- 0.00 - 73.8
- 73.80 - 237.63
- 237.63 - 597.86
- 597.86 - 1245.27
- 1245.27 - 4902.02

HELLENIC REPUBLIC

MINISTRY OF ENVIROMENT ENERGY & CLIMATE CHANGE

SPECIAL SECRETARIAT FOR WATER

RIVER BASIN DISTRICT MANAGMENT PLAN

NORTHERN PELOPONNESE (RBD02)

ANNUAL CUMULATIVE OF SURFACE BOD QUANTITY FROM POINT AND DIFFUSE SOURCES

RBD:02	RB: 27 - 28 - 45	No.MAP: **15.2**

NOVEMBER 2012

200,000 250,000 300,000 350,000 400,000

4,250,000 4,200,000 4,150,000

N

GR45
W. COAST OF KEFALONIA
EAST. COAST OF KEFALONIA-ITHACA
GULF OF ARGOSTOLI
KOUTAVOS LAGOON (KEFALONIA)
VARDIANOI ISLANDS
W. BAY OF LOURDATA
EAST. BAY OF LOURDATA
MOUNTA CAPE

W. COAST OF ZAKINTHOS
EAST. COST OF ZAKINTHOS
LAGANAS GULF (ZAKINTHOS)
MARATHIAS CAPE

ARAXOS CAPE
PAPA LAGOON (ARAXOS)
GULF OF PATRA
PORT OF PATRA
HARADROS R.
GLAFKOS R.
FINIKAS R.
ALIKI-EGIO
ESTUARY OF SELINOUNTAS R.
ESTUARY OF VOURAIKOS R.
CORINTHIAN GULF – COASTS OF PELOPONNESE
KALOGRIA LAGOON
ESTUARY OF PIROS
PIROS R.
LAMIA LAKE
ASTERIO ARTIFICIAL LAKE
KOTICHI LAGOON
VILISSOS R.
SELINOUS R.
VOURAIKOS R.
KRIOS R.
KRATHIS R.
FONISSA STREAM
ASOPOS R.
BAY OF CORINTH
GR28
GR27
PINIOS R.
PINIOS ARTIFICIAL LAKE
FENEOS ART. LAKE
ASOPOS ART. LAKE
REZANI STREAM
ESTUARY OF PINIOS
LADON PINIEOS R.
STIMPHALIA LAKE
ASOPOS R.
IARDANOS STREAM
GR29
GR31
GR30
GR32
GR33

0 10 20 40 60 km
SCALE 1:750.000

LEGEND

River Basins
River WB
Lake WB
Transitional WB
Coastal WB

Annual cumulative amount N (t)
0.00 - 27.42
27.42 - 97.04
97.04 - 199.80
199.80 - 390.95
390.95 - 927.86

HELLENIC REPUBLIC

MINISTRY OF ENVIROMENT ENERGY & CLIMATE CHANGE

SPECIAL SECRETARIAT FOR WATER

RIVER BASIN DISTRICT MANAGMENT PLAN

NORTHERN PELOPONNESE (RBD02)

ANNUAL CUMULATIVE OF SURFACE N QUANTITY FROM POINT AND DIFFUSE SOURCES

RBD:02	RB: 27 - 28 - 45	No.MAP: **16.2**

NOVEMBER 2012

200,000
250,000
300,000
350,000
400,000
4,250,000
4,200,000
4,150,000
N
GR45
W. COAST OF KEFALONIA
EAST. COAST OF KEFALONIA-ITHACA
GULF OF ARGOSTOLI
KOUTAVOS LAGOON (KEFALONIA)
VARDIANOI ISLANDS
W. BAY OF LOURDATA
EAST. BAY OF LOURDATA
MOUNTA CAPE
W. COAST OF ZAKINTHOS
EAST. COST OF ZAKINTHOS
LAGANAS GULF (ZAKINTHOS)
MARATHIAS CAPE
ARAXOS CAPE
PAPA LAGOON (ARAXOS)
GULF OF PATRA
PORT OF PATRA
HARADROS R.
GLAFKOS R.
FINIKAS R.
ALIKI-EGIO
ESTUARY OF SELINOUNTAS R.
ESTUARY OF VOURAIKOS R.
CORINTHIAN GULF – COASTS OF PELOPONNESE
KALOGRIA LAGOON
ESTUARY OF PIROS
PIROS R.
LAMIA LAKE
ASTERIO ARTIFICIAL LAKE
KOTICHI LAGOON
VILISSOS R.
SELINOUS R.
VOURAIKOS R.
KRIOS R.
KRATHIS R.
FONISSA STREAM
ASOPOS R.
BAY OF CORINTH
GR28
GR27
PINIOS R.
PINIOS ARTIFICIAL LAKE
FENEOS ART. LAKE
ASOPOS ART. LAKE
REZANI STREAM
ESTUARY OF PINIOS
LADON PINIEOS R.
STIMPHALIA LAKE
IARDANOS STREAM
GR29
GR31
GR30
GR32
GR33
0 10 20 40 60 km
SCALE 1:750.000

LEGEND

River Basins
River WB
Lake WB
Transitional WB
Coastal WB

Annual cumulative amount P (t)

0.00 - 1.74
1.74 - 6.49
6.49 - 14.60
14.60 - 28.39
28.39 - 65.28

HELLENIC REPUBLIC

MINISTRY OF ENVIROMENT ENERGY & CLIMATE CHANGE

SPECIAL SECRETARIAT FOR WATER

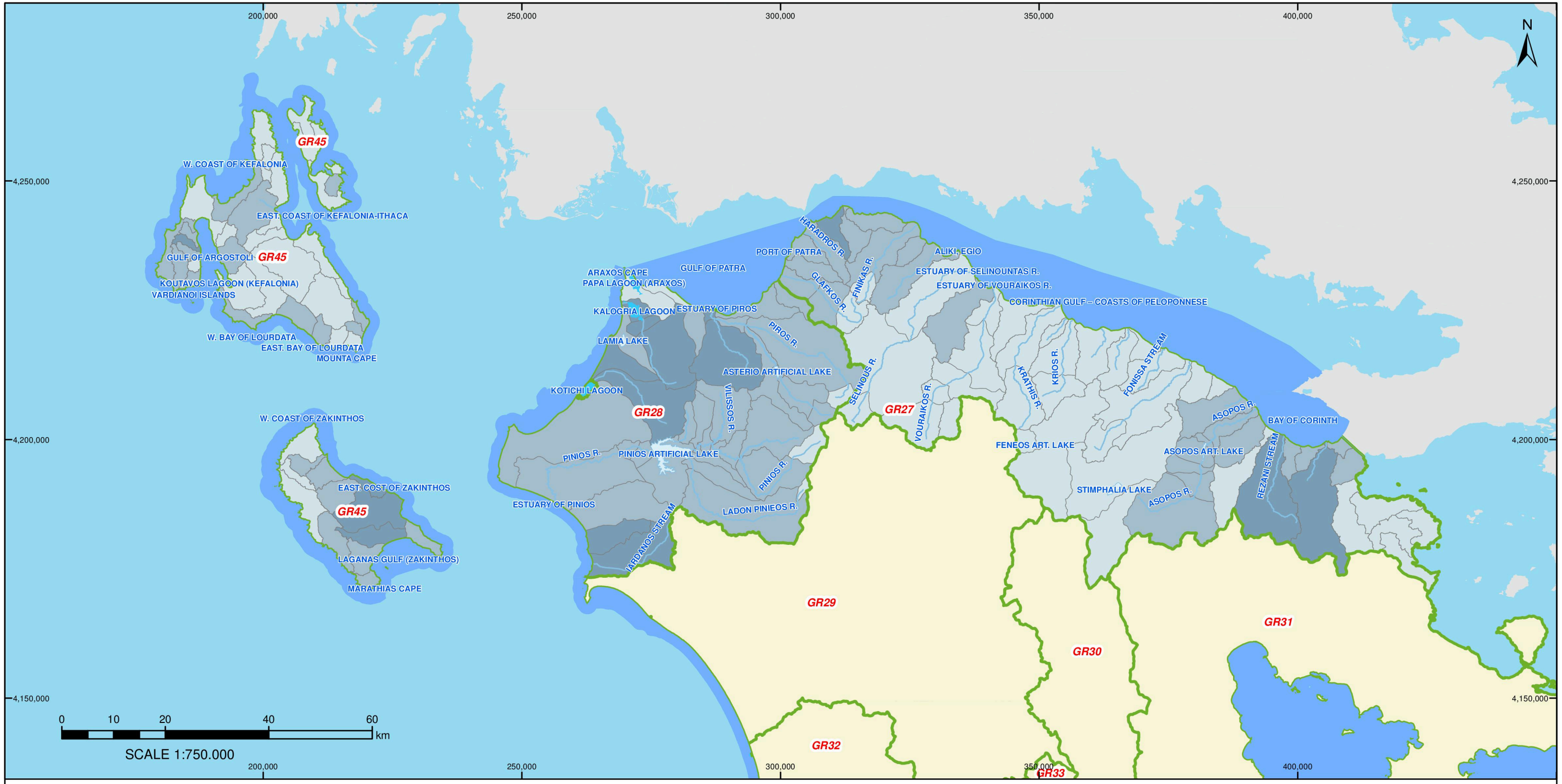
RIVER BASIN DISTRICT MANAGMENT PLAN

NORTHERN PELOPONNESE (RBD02)

ANNUAL CUMULATIVE OF SURFACE P QUANTITY FROM POINT AND DIFFUSE SOURCES

RBD:02	RB: 27 - 28 - 45	No.MAP: **17.2**

NOVEMBER 2012



LEGEND

- River Basins
- River WB
- Lake WB
- Transitional WB
- Coastal WB

Annual cumulative concentration BOD (mg/l)

- 0.00 - 1.92
- 1.92 - 7.41
- 7.41 - 23.00
- 23.00 - 75.66
- 75.66 - 147.38

HELLENIC REPUBLIC

MINISTRY OF ENVIROMENT ENERGY & CLIMATE CHANGE

SPECIAL SECRETARIAT FOR WATER

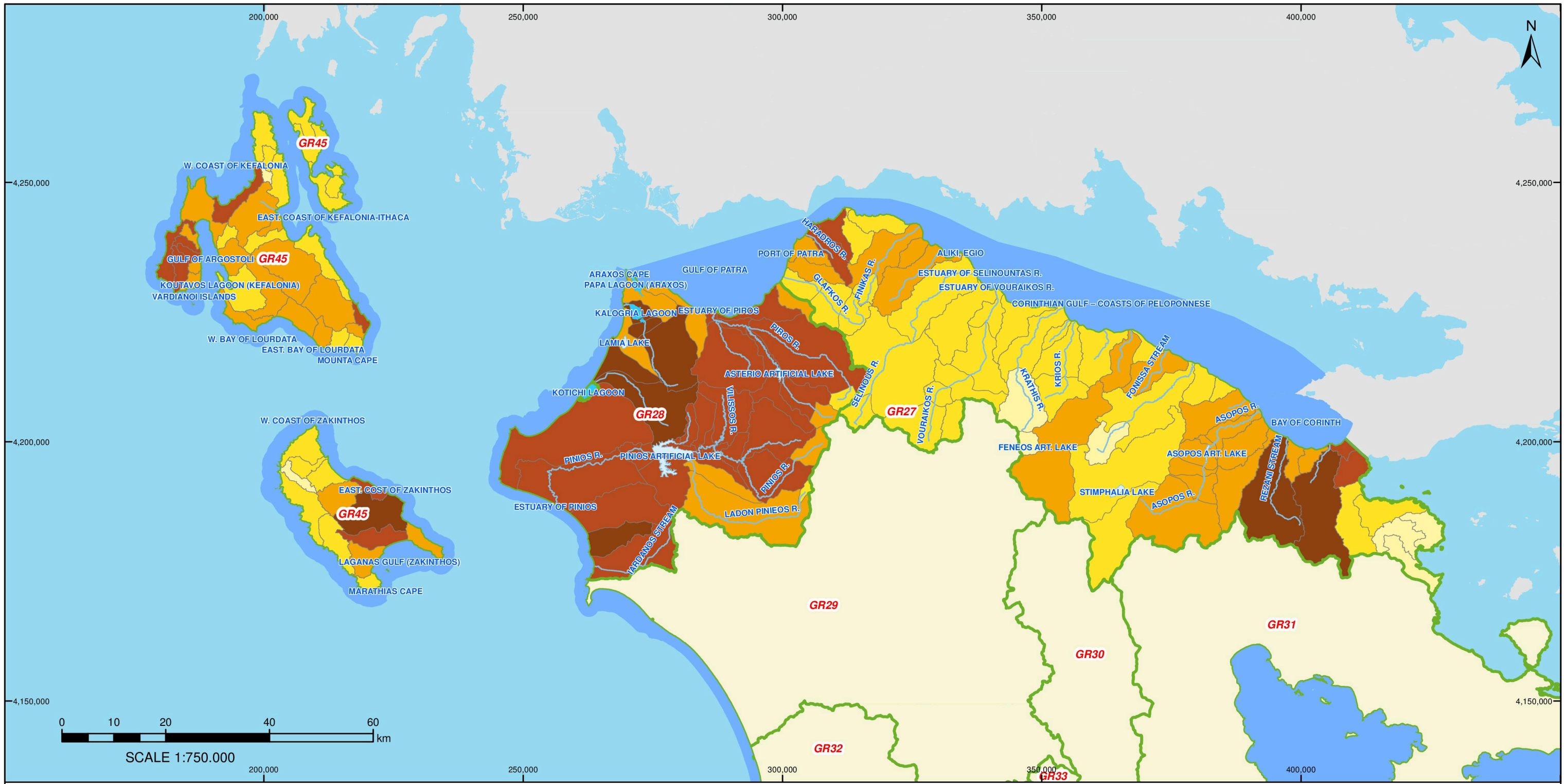
RIVER BASIN DISTRICT MANAGMENT PLAN

NORTHERN PELOPONNESE (RBD02)

ANNUAL CUMULATIVE OF SURFACE CONCENTRATION BOD QUANTITY FROM POINT AND DIFFUSE SOURCES

RBD:02	RB: 27 - 28 - 45	No.MAP: **18.2**

NOVEMBER 2012



LEGEND

River Basins	Annual cumulative concentration N (mg/l)
River WB	0.00 - 0.21
Lake WB	0.21 - 0.65
Transitional WB	0.65 - 1.27
Coastal WB	1.27 - 2.63
	2.63 - 5.52

HELLENIC REPUBLIC

MINISTRY OF ENVIROMENT ENERGY & CLIMATE CHANGE

SPECIAL SECRETARIAT FOR WATER

RIVER BASIN DISTRICT MANAGMENT PLAN

NORTHERN PELOPONNESE (RBD02)

ANNUAL CUMULATIVE OF SURFACE CONCENTRATION N QUANTITY FROM POINT AND DIFFUSE SOURCES

RBD:02	RB: 27 - 28 - 45	No.MAP: **19.2**

NOVEMBER 2012

200,000 250,000 300,000 350,000 400,000

4,250,000 4,200,000 4,150,000

N

GR45
W. COAST OF KEFALONIA
EAST. COAST OF KEFALONIA-ITHACA
GULF OF ARGOSTOLI
KOUTAVOS LAGOON (KEFALONIA)
VARDIANOI ISLANDS
W. BAY OF LOURDATA
EAST. BAY OF LOURDATA
MOUNTA CAPE

W. COAST OF ZAKINTHOS
EAST. COST OF ZAKINTHOS
LAGANAS GULF (ZAKINTHOS)
MARATHIAS CAPE

GR28
ARAXOS CAPE
PAPA LAGOON (ARAXOS)
KALOGRIA LAGOON
LAMIA LAKE
KOTICHI LAGOON
PINIOS R.
ESTUARY OF PINIOS
IARDANOS STREAM

GULF OF PATRA
ESTUARY OF PIROS
PIROS R.
ASTERIO ARTIFICIAL LAKE
VILISSOS R.
PINIOS ARTIFICIAL LAKE
PINIOS R.
LADON PINIEOS R.

PORT OF PATRA
HARADROS R.
GLAFKOS R.
FINIKAS R.
ALIKI-EGIO
ESTUARY OF SELINOUNTAS R.
ESTUARY OF VOURAIKOS R.
SELINOUS R.
VOURAIKOS R.

GR27
CORINTHIAN GULF – COASTS OF PELOPONNESE
KRATHIS R.
KRIOS R.
FONISSA STREAM
ASOPOS R.
BAY OF CORINTH
FENEOS ART. LAKE
ASOPOS ART. LAKE
REZANI STREAM
STIMPHALIA LAKE
ASOPOS R.

GR29
GR30
GR31
GR32
GR33

0 10 20 40 60 km
SCALE 1:750.000

LEGEND

- River Basins
- River WB
- Lake WB
- Transitional WB
- Coastal WB

Annual cumulative concentration P (mg/l)

- 0.00 - 0.02
- 0.02 - 0.10
- 0.10 - 0.27
- 0.27 - 0.69
- 0.69 - 1.37

HELLENIC REPUBLIC

MINISTRY OF ENVIROMENT ENERGY & CLIMATE CHANGE

SPECIAL SECRETARIAT FOR WATER

RIVER BASIN DISTRICT MANAGMENT PLAN

NORTHERN PELOPONNESE (RBD02)

ANNUAL CUMULATIVE OF SURFACE CONCENTRATION P QUANTITY FROM POINT AND DIFFUSE SOURCES

RBD:02	RB: 27 - 28 - 45	No.MAP: **20.2**

NOVEMBER 2012

LEGEND

- River Basins
- River Subbasins
- Water Bodies Subbasins
- Urban Areas

Coastal WB / Transitional WB / Lake WB			River WB		
Status	Resources (AWB/HMWB)		Status	Resources (AWB/HMWB)	
High			High		
Good	Good		Good	Good	
Moderate	Moderate		Moderate	Moderate	
Poor	Poor		Poor	Poor	
Bad	Bad		Bad	Bad	
Unknown	Unknown		Unknown	Unknown	

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MINISTRY OF ENVIROMENT ENERGY & CLIMATE CHANGE

SPECIAL SECRETARIAT FOR WATER

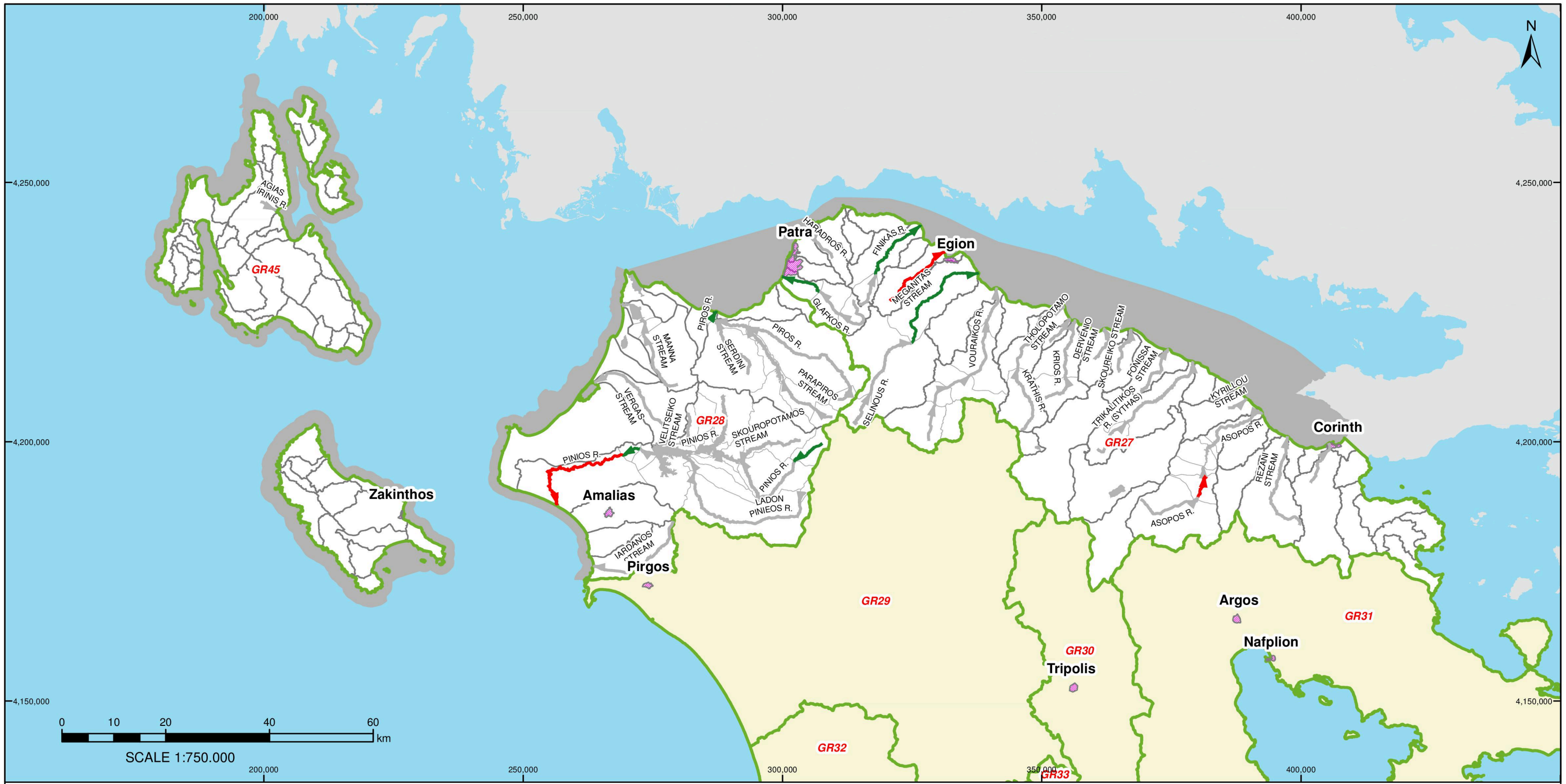
RIVER BASIN DISTRICT MANAGMENT PLAN

NORTHERN PELOPONNESE (RBD02)

ECOLOGICAL STATUS
SURFACE WB

RBD:02	RB: 27 - 28 - 45	No.MAP: **26.2**

NOVEMBER 2012



LEGEND

- River Basins
- River Subbasins
- Water Bodies Subbasins
- Urban Areas

Chemical Status
Lake WB / Transitional WB / Coastal WB

- Good
- Bad
- Unknown

Chemical Status
River WB

- Good
- Bad
- Unknown

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MINISTRY OF ENVIROMENT ENERGY & CLIMATE CHANGE

SPECIAL SECRETARIAT FOR WATER

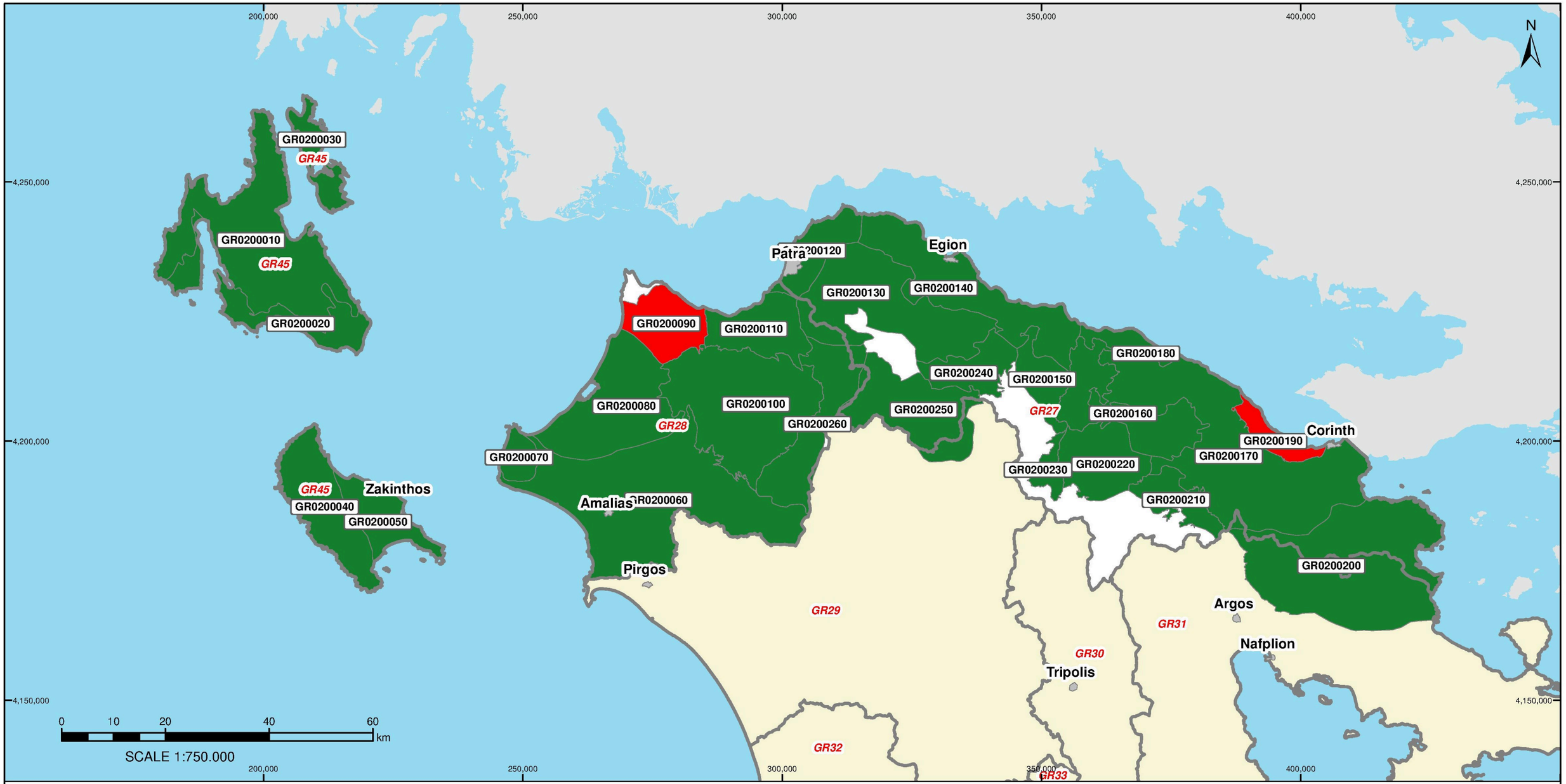
RIVER BASIN DISTRICT MANAGMENT PLAN

NORTHERN PELOPONNESE (RBD02)

CHEMICAL STATUS OF SURFACE WB

ΥΔ:02	ΛΑΠ: 27 - 28 - 45	No.MAP: **27.2**

NOVEMBER 2012



LEGEND

River Basins

Groundwater Bodies Quantative Status

Good

Bad

RB	27
CODE	NAME
GR0200120	Patra - Rio Ground Water Body
GR0200130	Panahaikos Ground Water Body
GR0200140	North Ahaia Ground Water Body
GR0200150	Zarouhla Ground Water Body
GR0200160	Valtos - Evrostina Ground Water Body
GR0200170	North Corinthia Ground Water Body
GR0200180	Korfiotissa Ground Water Body
GR0200190	Corinth-Kiato Ground Water Body
GR0200200	Arachneo Ground Water Body
GR0200210	Nemea Ground Water Body
GR0200220	Ziria Ground Water Body
GR0200230	Feneos Ground Water Body
GR0200240	Kalavrita Ground Water Body
GR0200250	North Erimanthos Ground Water Body

RB	28
CODE	NAME
GR0200060	Pinios Ground Water Body
GR0200070	Kyllini Ground Water Body
GR0200080	West Ahaia Ground Water Body
GR0200090	Larissos river Ground Water Body
GR0200100	Movri Ground Water Body
GR0200110	Piros river Ground Water Body
GR0200260	West Erimanthos Ground Water Body

RB	45
CODE	NAME
GR0200010	Kefalonia Ground Water Body
GR0200020	Lixouri - Skala Ground Water Body
GR0200030	Ithaca Ground Water Body
GR0200040	Vrahionas Ground Water Body
GR0200050	Zakinthos Ground Water Body

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MINISTRY OF ENVIROMENT ENERGY & CLIMATE CHANGE

SPECIAL SECRETARIAT FOR WATER

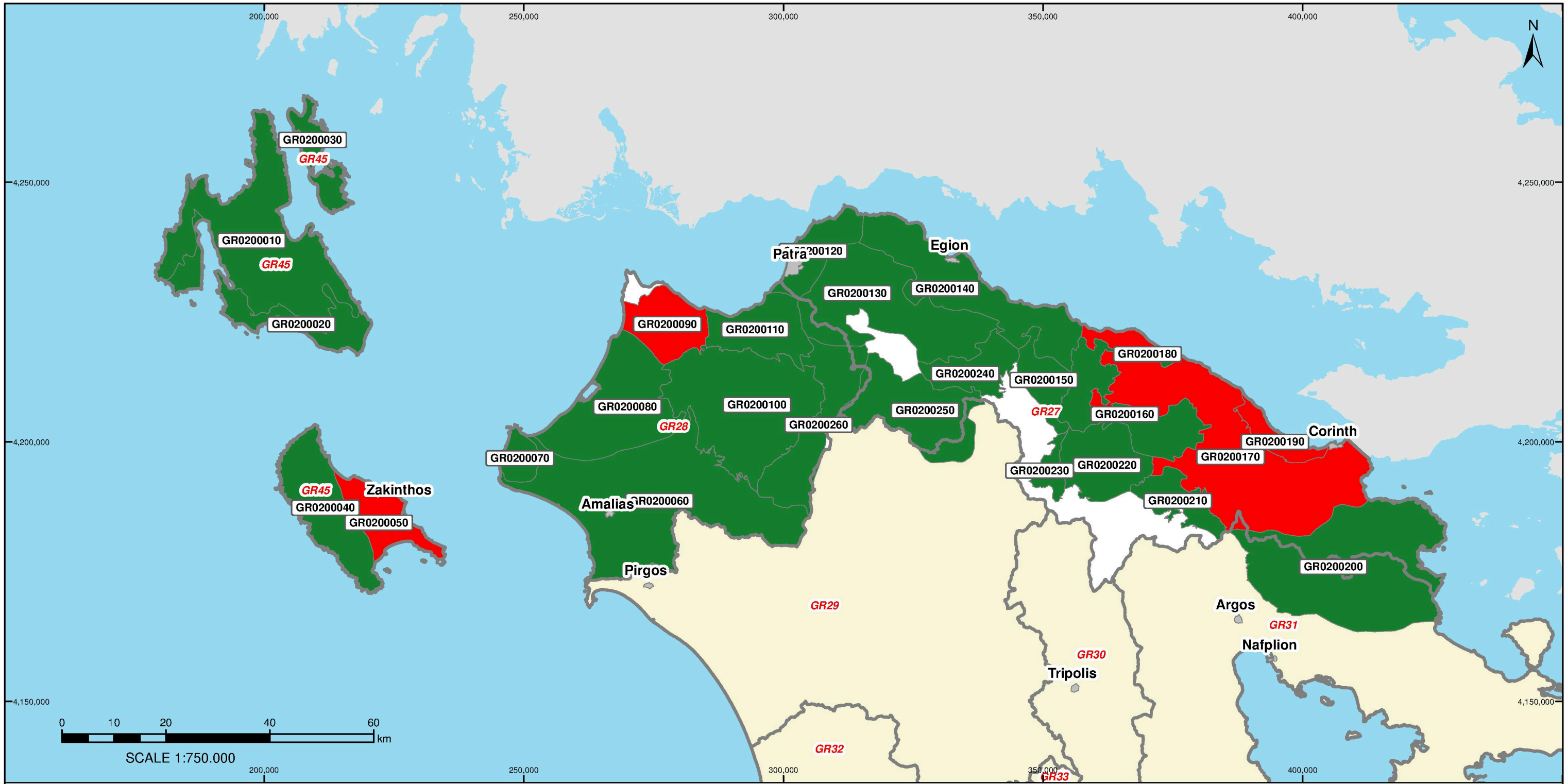
RIVER BASIN DISTRICT MANAGMENT PLAN

NORTHERN PELOPONNESE (RBD02)

QUANTATIVE STATUS OF GROUNDWATER BODIES

RBD:02	RB: 27 - 28 - 45	No.MAP: **28.2**

NOVEMBER 2012



LEGEND

River Basins

Groundwater Bodies Chemical Status

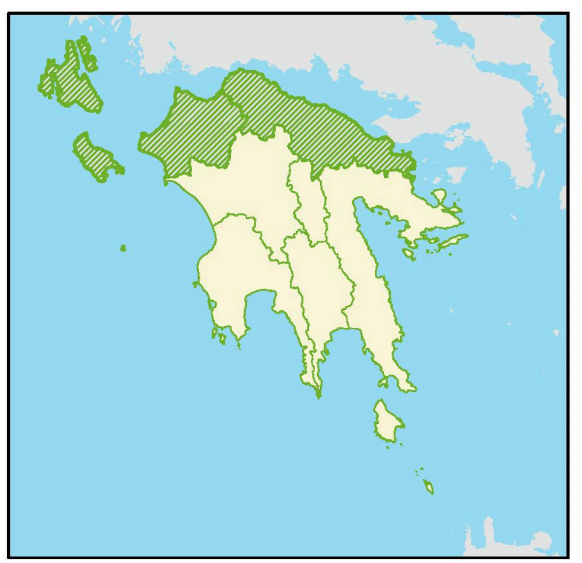
Good

Bad

RB	27
CODE	NAME
GR0200120	Patra - Rio Ground Water Body
GR0200130	Panahaikos Ground Water Body
GR0200140	North Ahaia Ground Water Body
GR0200150	Zarouhla Ground Water Body
GR0200160	Valtos - Evrostina Ground Water Body
GR0200170	North Corinthia Ground Water Body
GR0200180	Korfiotissa Ground Water Body
GR0200190	Corinth-Kiato Ground Water Body
GR0200200	Arachneo Ground Water Body
GR0200210	Nemea Ground Water Body
GR0200220	Ziria Ground Water Body
GR0200230	Feneos Ground Water Body
GR0200240	Kalavrita Ground Water Body
GR0200250	North Erimanthos Ground Water Body

RB	28
CODE	NAME
GR0200060	Pinios Ground Water Body
GR0200070	Kyllini Ground Water Body
GR0200080	West Ahaia Ground Water Body
GR0200090	Larissos river Ground Water Body
GR0200100	Movri Ground Water Body
GR0200110	Piros river Ground Water Body
GR0200260	West Erimanthos Ground Water Body

RB	45
CODE	NAME
GR0200010	Kefalonia Ground Water Body
GR0200020	Lixouri - Skala Ground Water Body
GR0200030	Ithaca Ground Water Body
GR0200040	Vrahionas Ground Water Body
GR0200050	Zakinthos Ground Water Body



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MINISTRY OF ENVIROMENT ENERGY & CLIMATE CHANGE

SPECIAL SECRETARIAT FOR WATER

RIVER BASIN DISTRICT MANAGMENT PLAN

NORTHERN PELOPONNESE (RBD02)

CHEMICAL STATUS OF GROUNDWATER BODIES

RBD:02	RB: 27 - 28 - 45	No.MAP: **29.2**

NOVEMBER 2012

200,000 250,000 300,000 350,000 400,000

4,250,000 4,200,000 4,150,000

N

PORT OF PATRA

GR45 GR28 GR27 GR29 GR31 GR30 GR32 GR33

GR0200090 GR0200050 GR0200190 GR0200170

AGIAS IRINIS R.
HARADROS R.
MEGANITAS STREAM
GLAFKOS R.
FINIKAS R.
PIROS R.
SERDINI STREAM
MANNA STREAM
VERGAS STREAM
VELITSEIKO STREAM
PARAPIROS STREAM
SKOUROPOTAMOS STREAM
PINIOS R.
LADON PINIEOS R.
IARDANOS STREAM
SELINOUS R.
VOURAIKOS R.
THOLOPOTAMO STREAM
KRIOS R.
KRATHIS R.
DERVENIO STREAM
SKOUREIKO STREAM
TRIKALITIKOS R. (SYTHAS)
FONISSA STREAM
KYRILLOU STREAM
ASOPOS R.
REZANI STREAM
POTAMIA (KRIAS) STREAM

0 10 20 40 60 km

SCALE 1:750.000

LEGEND

River Basins
River Subbasins

River WB
Year achieved objectives
until 2015
until 2021
after 2027

Lake WB / Coastal WB / Transitional WB
Year achieved objectives
until 2015
until 2021
after 2027

Underground WB
Year achieved objectives
until 2015
until 2021
after 2027

HELLENIC REPUBLIC

MINISTRY OF ENVIROMENT ENERGY & CLIMATE CHANGE

SPECIAL SECRETARIAT FOR WATER

RIVER BASIN DISTRICT MANAGMENT PLAN

NORTHERN PELOPONNESE (RBD02)

YEAR ACHIEVED OBJECTIVES - EXCLUSIONS

RBD:02	RB: 27 - 28 - 45	No.MAP: **31.2**

NOVEMBER 2012

RB	45

TRANSITIONAL WB		
S/N	WB CODE	MONITORING TYPE
20004N500	GR000200020004N500	Operational

RB	45

COASTAL WB		
S/N	WB CODE	MONITORING TYPE
10014N500	GR000200010014N500	Operational
10017N500	GR000200010017N500	Surveillance

RB	28

RIVER WB		
S/N	WB CODE	MONITORING TYPE
00010N500	GR000200040010010N500	Operational
00020N500	GR000200040010020N500	Operational
20010N500	GR000200040012001 0N500	Operational
20040N500	GR000200040012004 0N500	Operational
20050N500	GR000200040012005 0N500	Operational
10010N500	GR000200040001001 0N500	Surveillance
10020N500	GR000200040001002 0N500	Surveillance
10030N500	GR000200040001003 0N500	Surveillance
20010N500	GR000200040002001 0N500	Surveillance
40030N500	GR000200040004003 0N500	Surveillance
50010N500	GR000200040005001 0N500	Surveillance
00030H500	GR000200040010003 0H500	Surveillance
10010N500	GR000200040011001 0N500	Surveillance
20060N500	GR000200040012006 0N500	Surveillance
20110N500	GR000200040012011 0N500	Surveillance

RB	28

LAKES WB		
S/N	WB CODE	MONITORING TYPE
30030H500	GR000200030030H500	Surveillance

RB	28

TRANSITIONAL WB		
S/N	WB CODE	MONITORING TYPE
20001N500	GR000200020001N500	Operational
20002N500	GR000200020002N500	Operational
20003N500	GR000200020003N500	Operational

RB	28

COASTAL WB		
S/N	WB CODE	MONITORING TYPE
10004N200	GR000200010004N200	Operational
10004N400	GR000200010004N400	Operational
10004N600	GR000200010004N600	Operational
10001N500	GR000200010001N500	Surveillance

RB	27

LAKES WB		
S/N	WB CODE	MONITORING TYPE
30010N500	GR000200030010N500	Operational
30020H500	GR000200030020H500	Surveillance

RB	27

COASTAL WB		
S/N	WB CODE	MONITORING TYPE
10006N500	GR000200010006N500	Operational
10005N300	GR000200010005N300	Surveillance
10005N600	GR000200010005N600	Surveillance

RB	27

RIVER WB		
S/N	WB CODE	MONITORING TYPE
30010H500	GR000200040013001 0H500	Operational
30020H500	GR000200040013002 0H500	Operational
30030H500	GR000200040013003 0H500	Operational
30040H500	GR000200040013004 0H500	Operational
40010N500	GR000200040014001 0N500	Operational
10010H500	GR000200040021001 0H500	Operational
40030N500	GR000200040014003 0N500	Surveillance
50010N500	GR000200040015001 0N500	Surveillance
50020N500	GR000200040015002 0N500	Surveillance
50030N500	GR000200040015003 0N500	Surveillance
50040N500	GR000200040015004 0N500	Surveillance
60010N500	GR000200040016001 0N500	Surveillance
60020N500	GR000200040016002 0N500	Surveillance
60040N500	GR000200040016004 0N500	Surveillance
70010N500	GR000200040017001 0N500	Surveillance
80010N500	GR000200040018001 0N500	Surveillance
90010N500	GR000200040019001 0N500	Surveillance
90030N500	GR000200040019003 0N500	Surveillance
90040N500	GR000200040019004 0N500	Surveillance
00010N500	GR000200040020001 0N500	Surveillance
10020N500	GR000200040021002 0N500	Surveillance

LEGEND

- River Basins
- River Subbasins
- Water Bodies Subbasins
- River WB
- Lake_WB
- Coastal WB
- Transitional WB

Monitoring Stations

- Operational
- Serveillance

HELLENIC REPUBLIC

MINISTRY OF ENVIROMENT ENERGY & CLIMATE CHANGE

SPECIAL SECRETARIAT FOR WATER

RIVER BASIN DISTRICT MANAGMENT PLAN

NORTHERN PELOPONNESE (RBD02)

MONITORING NETWORK KYA 140384/2011

RBD:02	RB: 27 - 28 - 45	No.MAP: 33.2

NOVEMBER 2012

200,000
250,000
300,000
350,000
400,000
4,250,000
4,200,000
4,150,000
N
AGIAS IRINIS R.
GR45
Zakinthos
Patra
PARADROS R.
Egion
GLAFKOS R.
FINIKAS R.
MEGANITAS STREAM
PIROS R.
MANNA STREAM
VERGAS STREAM
SERDINI STREAM
PIROS R.
PARAPIROS STREAM
VELITSEIKO STREAM
VILISSOS R.
GR28
PINIOS R.
SKOUROPOTAMOS STREAM
PINIOS R.
Amalias
IARDANOS STREAM
LADON
PINIEOS R.
Pirgos
SELINOUS R.
VOURAIKOS R.
THOLOPOTAMO STREAM
KRIOS R.
KRATHIS R.
DERVENIO STREAM
SKOUREIKO STREAM
FONISSA STREAM
TRIKALITIKOS R. (SYTHAS)
KYRILLOU STREAM
ASOPOS R.
GR27
Corinth
REZANI STREAM
ASOPOS R.
GR29
Argos
GR31
Nafplion
GR30
Tripolis
GR32
GR33
0 10 20 40 60 km
SCALE 1:750.000

LEGEND

River Basins
River Subbasins
Water Bodies Subbasins
River WB
Lake_WB
Coastal WB
Transitional WB

Suggested Monitoring
Operational
Serveillance
Investigative

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MINISTRY OF ENVIROMENT ENERGY & CLIMATE CHANGE

SPECIAL SECRETARIAT FOR WATER

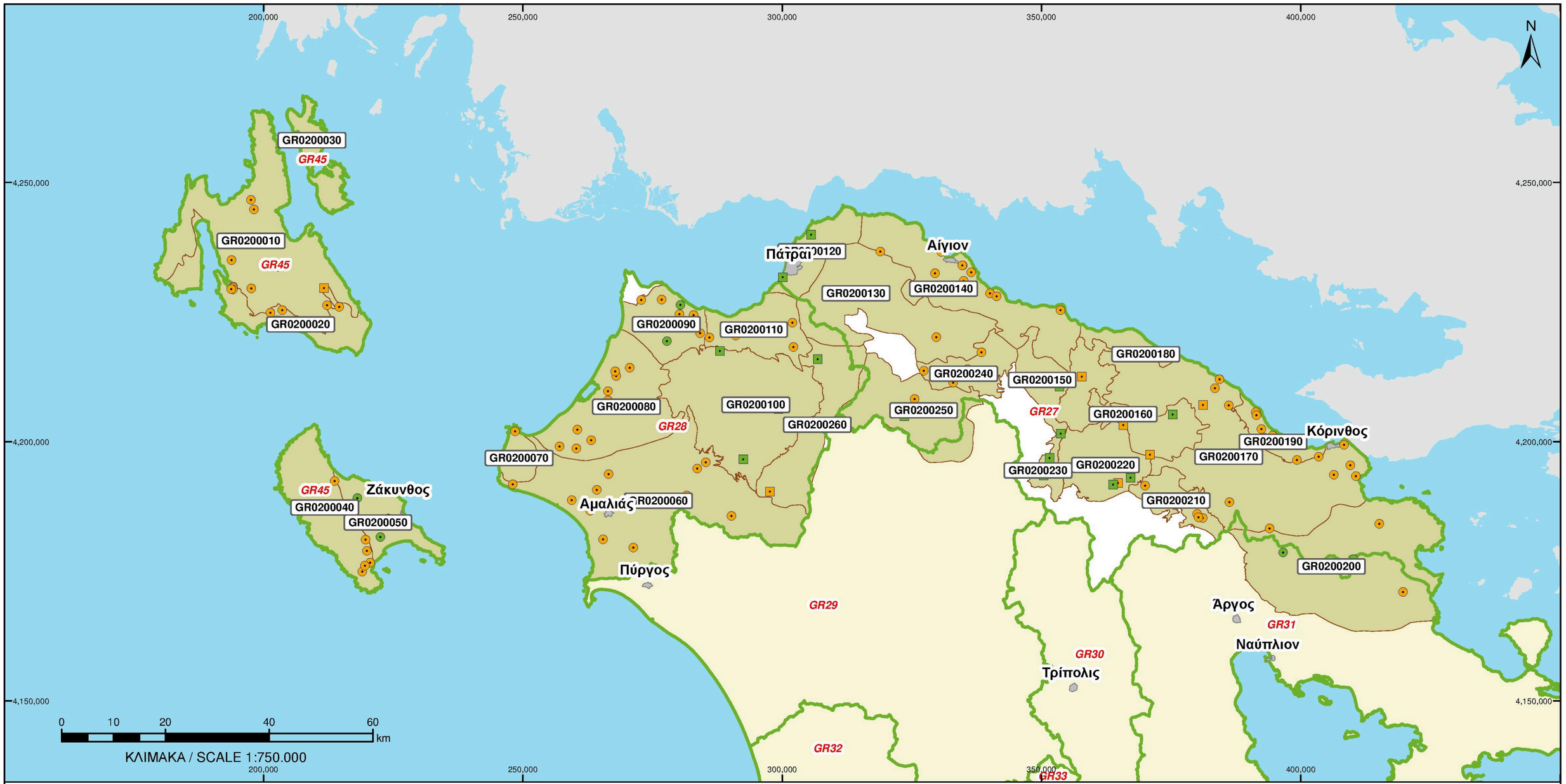
RIVER BASIN DISTRICT MANAGMENT PLAN

NORTHERN PELOPONNESE (RBD02)

RECOMMENDED MONITORING NETWORK
PROJECT MANAGEMENT

RBD:02	RB: 27 - 28 - 45	No.MAP: **34.2**

NOVEMBER 2012



LEGEND

- River Basins
- Groundwater Bodies

Suggested Monitoring

- Operational KYA
- Serveillance KYA
- Operational B' PHASE
- Serveillance B' PHASE

ΛΑΠ	27

ΚΩΔΙΚΟΣ	ΟΝΟΜΑΣΙΑ
GR0200120	Σύστημα Πάτρας-Ρίου
GR0200130	Σύστημα Παναχαϊκού
GR0200140	Σύστημα Βόρειας Αχαΐας
GR0200150	Σύστημα Ζαρούχλας
GR0200160	Σύστημα Βάλτου-Εβροστίνας
GR0200170	Σύστημα Βόρειας Κορινθίας
GR0200180	Σύστημα Κορφιώτισσας
GR0200190	Σύστημα Κορίνθου-Κιάτου
GR0200200	Σύστημα Αραχναίου
GR0200210	Σύστημα Νεμέας
GR0200220	Σύστημα Ζήρειας
GR0200230	Σύστημα Φενεού
GR0200240	Σύστημα Καλαβρύτων
GR0200250	Σύστημα Βόρειου Ερύμανθου

ΛΑΠ	28

ΚΩΔΙΚΟΣ	ΟΝΟΜΑΣΙΑ
GR0200060	Σύστημα Πηνειού
GR0200070	Σύστημα Κυλλήνης
GR0200080	Σύστημα Δυτικής Αχαΐας
GR0200090	Σύστημα π.Λαρισσού
GR0200100	Σύστημα Μόβρης
GR0200110	Σύστημα π.Πείρου
GR0200260	Σύστημα Δυτικού Ερύμανθου

ΛΑΠ	45

ΚΩΔΙΚΟΣ	ΟΝΟΜΑΣΙΑ
GR0200010	Σύστημα Κεφαλλονιάς
GR0200020	Σύστημα Ληξουρίου-Σκάλας
GR0200030	Σύστημα Ιθάκης
GR0200040	Σύστημα Βραχίωνα
GR0200050	Σύστημα Ζακύνθου

HELLENIC REPUBLIC

ΥΠΟΥΡΓΕΙΟ ΠΕΡΙΒΑΛΛΟΝΤΟΣ ΕΝΕΡΓΕΙΑΣ & ΚΛΙΜΑΤΙΚΗΣ ΑΛΛΑΓΗΣ

ΕΙΔΙΚΗ ΓΡΑΜΜΑΤΕΙΑ ΥΔΑΤΩΝ

RIVER BASIN DISTRICT MANAGMENT PLAN

NORTHERN PELOPONNESE (RBD02)

RECOMMENDED GROUNDWATER MONITORING NETWORK OF RIVER MANAGEMENT PLAN

RBD:02	RB: 27 - 28 - 45	No.MAP: **35.2**

NOVEMBER 2012

www.ypeka.gr

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