



LIFE09 NAT/GR/000343

FINAL Technical Report

Covering the project activities from 01/10/2010 to 30/09/2015

Reporting Date

31/01/2016

LIFE+ PROJECT NAME or Acronym

“ACCOLAGOONS”

Project Data

Project location	Greece, Region of Central Macedonia
Project start date:	01/10/2010
Project end date:	30/09/2013 Extension date: 30/09/2015
Total Project duration (in months)	60 months (including Extension of 24 months)
Total budget	1.639.770,00€
Total eligible budget	1.256.309,53€
EU contribution:	942.232,15€
(%) of total costs	76,62%
(%) of eligible costs	75%

Beneficiary Data

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1.1. List of key-words and abbreviations

- Coordinating Beneficiary – **CB**
- Associated Beneficiary – **AB**
- Region of Central Macedonia – **RCM**
- Organization for the Master Plan and Environmental Protection of Thessaloniki – **ORTHE**
- Ministry of Reconstruction of Production, Environment & Energy – General Directorate of Spatial Planning – Directorate of Metropolitan, Urban and Suburban Planning – Department of Thessaloniki Metropolitan Area Planning- **YPAPEN**
- Balkan Environment Centre – **BEC**
- OMIKRON Ltd, Planning, study and management of environmental and technical works – **OMIKRON**
- OMIKRON S.A., Planning, study and management of environmental and technical works – **OMIKRON**

2. Executive Summary

The final report of project ACCOLAGOONS is aiming to describe the project objectives, key deliverables and outputs and to provide all necessary information regarding the implementation of the project, the respect of the work plan and the financial situation.

The project ACCOLAGOONS comprises a series of steps and actions for dealing with the relatively common threats (intense tourist activity, aquacultures, fisheries, intensive farming) and the degradation of Natura 2000 designated coastal sites in the lagoons of Epanomi and Aggelochori. The methodological approach implemented by the project will allow the development of optimum techniques and methods in order to deal with the following essential issues: the *Posidonia oceanica* beds degradation, the hydrological and ecological status deterioration of the lagoons, the management of intense recreation / tourist activities and the absence of stakeholder participation in actual management procedures.

The main objectives of the project are:

- to enhance the conservation status of the priority habitats at site 1: 1150* (Coastal lagoons), 1510* (Mediterranean salt steppes – *Limnietalia*) and at site 2: 1120* (*Posidonia* beds – *Posidonion oceanicae*), 1150* (Coastal lagoons) and of the priority species they host (e.g. *Numenius tenuirostris*, *Phalacrocorax pygmeus*).
- to restore the hydrological and ecological status of the Epanomi lagoon.
- to increase habitat heterogeneity by transforming the macro / micro-topography of the area, thus, creating new habitats that could support several flora and fauna species and enhancing system biodiversity and stability.

- to manage effectively visitor activities that so far, due to the lack of concrete management actions, had an overwhelming impact on the physical environment and its biota.
- to engage stakeholders in actual management by promoting actions and means that would inform them and “invite” them to participate in meetings and decision making.
- to raise environmental awareness of users (local community, farmers, tourists, other stakeholders) by constructing works of environmental interpretation, creating and distributing information material, engaging the public, especially young people (e.g. students), in activities aiming to the protection and conservation of the area of interest.

The project implements a total of 19 actions. The starting date of the project was 1/10/2010 and the total duration was 36 months. The project received a time extension two times, for a total time 24 more months, so the final duration is sixty (60) months.

The key deliverables that were produced in the duration of the implementation of the project are:

- Memorandum of Understanding, with the authorities in the test sites, in order to support the project and its results (Action A.1)
- Management plan of the priority habitat type *1120 “Posidonia beds” and of other marine habitat types of the project marine zone (Action A.2)
- Restoration plan of the Epanomi Lagoon functions and the technical specifications to implement restoration (Action A.3)
- Installation of three (3) telemetric stations for water quality monitoring and operation of a telemetry data center receiving, processing and sending all station measurements. Main results are gathered in a Report, including photographic documentation. (Action A.4).
- Management Plan of the breeding and resting habitats of priority / important bird species at both sites and the Technical specifications of the restoration works (Action A.5).
- Visitors management plan (including the technical specifications of interpretation works) (Action A.6).
- Strategic Environmental Impact Assessment (Study) (Action A.7).
- Supply and test installation of environmentally friendly moorings in coastal waters at both sites of the project, to prevent further deterioration of the seagrass abundance and distribution (Action C.1)
- Technical document on restoration of Epanomi Lagoon functions was implemented (Action C.2)
- Litter removal from the Epanomi Lagoon area (Action C.3)
- Technical document on Environmental interpretation (technical) works was implemented (Action C.4)
- Website of the project, a Conference targeting the local community, production of information material and dissemination of relevant to the project products (leaflets, guides, brochures, spot, poster/map) in the summer of 2013 and 2014 (Action D.1)

- E-participation platform, in order to give the opportunity to interested parties to state their opinion and ask anything they want about the project, the works and generally issues for the test sites. (Action D.2)
- Report on the results and infrastructure of the monitoring system for the marine habitat types was produced (Action E.2).
- Report on the results of monitoring of the water quality at sites 1 & 2 of the project area was produced (Action E.3).
- Report on the results of the Monitoring of bird and amphibian species and habitats at Aggelochori and Epanomi Lagoon was produced (Action E.4).
- Establishment of a Network Committee of 14 projects in 4 countries and a report concerning the results of this Networking (Action E.5).
- After Life Conservation Plan (Action E.6)

With a great collaboration of the partners of project ACCOLAGOONS, the achievements for the test sites were great. Especially:

- The lagoon and peri-lagoon habitats targeted by the project have been restored: the quality of the water at Aggelochori and Epanomi coast and of the lagoon has been improved as a result of the water quality monitoring procedure and the introduction of surveillance actions.
- The hydrological regime and functioning of the lagoon and peri-lagoon habitats are improved; Improvement of the food web support function of the lagoon and peri-lagoon systems to Class A; raise of the conservation status of targeted priority habitat (1150* Coastal lagoon) from status B to status A.
- The number of nesting / wintering birds and especially the abundance of the priority bird species have been increased and as a result the period with increased ornithological interest has been prolonged. Also, the creation of new or the restoration of existing habitats for the amphibians has led to the increase in their numbers.
- Various means of management the human / tourist activity has been evaluated according to their effectiveness for various types of habitats and a Visitor Management Plan has been compiled.
- As far as e-participation tool is concerned, a number of at least 20 stakeholders (competent authorities, policy makers, academic/scientific institutions) have been successfully participated and informed carefully on the aims, rationale and output of the project.
- In the framework of the public awareness campaign, a great amount of publicity, information and dissemination material has been produced and disseminated. Also, included are: the creation of program website, the organization of a public survey, and a one-day conferences.

Concluding, ACCOLAGOONS project managed to achieve most of its objectives, which are vital for the project area.

In the next chapters of the Final Report, all the problems faced and their solutions are stated

(Chapter 3), the management system and the project team and their contribution in the implementation of the project are presented (Chapter 4), a detailed description of all implemented actions is presented and a sort analysis of the long term benefits (Chapter 5), and the financial status of the projects and the financial management (Chapter 6). Also a really interesting Annex is attached with all project's results and deliverables. (Chapter 7).

3. Introduction

ACCOLAGOONS project's general goal was Restoration and protection of the lagoons of Aggelochori and Epanomi in the region of Thessaloniki, emphasized to species of bird and habitats of Community interest-high priority. Project managed to achieve most of its objectives, which are vital for the project area, (i) Limnothalassa Aggelochoriou (Aggelochorio Lagoon) – Site 1, with code GR1220005 and surface area of 377 ha and (ii) Limnothalassa Epanomis Kai Thalassia Paraktia Zoni (Epanomi Lagoon) – Site 2, with codes GR1220011 and GR1220012 surface area of 830 ha.

Habitat types targeted were all habitat types recorded at two sites emphasizing mostly on the marine habitats of Community interest-high priority: 1150* (site 1 & 2) and 1120* Posidonia beds – Posidonion oceanicae (site 2).

Both areas are characterized by the presence of important and endangered bird species and moreover by the presence of habitat types, including priority habitat types: e.g. Posidonia beds (1120*) and Lagoons (1150*).

Over the last decades, following increased coastal urbanisation and industrialisation, many coastal habitat types have disappeared or have been altered. Current main threats to the habitat are related to: water and sediment enrichment (eutrophication), the disruption of the sedimentation/erosion balance along the coast and direct destruction by human modifications of the coastline, degradation by boat trawling and anchoring, etc. The disappearance or even the degradation of the habitat types influence not only the characteristic plant species of the habitat, but all of the associated flora and fauna, having a direct or indirect relationship with this habitat (birds, fishes, amphibians, mammals, reptiles, invertebrates). In Site 1, human impacts/activities that consist conservation/biodiversity problems and threats for the species and habitat types directly targeted by the project include cultivation (as well as modification of cultivation practices), grazing, aquacultures, professional fishing (fixed location fishing), hunting, salt works, dispersed and other patterns of human habitation, discharges, communication networks (paths, tracks, cycling tracks, routes, autoroutes and port areas), leisure and tourism, water pollution, noise nuisance, etc. Human impacts/activities that consist conservation/biodiversity problems and threats for the species and habitat types directly targeted by the project in Site 2 include cultivation, use of pesticides, fertilisation, grazing, aquacultures, professional fishing (fixed location fishing), leisure fishing (bait digging), hunting, discontinuous urbanization, disposal of household

wastes and other discharges, communication networks (routes, auto routes), leisure and tourism (hippodrome, camping), trampling, overuse, drainage, etc.

Concerning avifauna, ACCOLAGOONS Project targeted on 16 priority bird species of Directive 2009/147/EC recorded at the areas (Phalacrocorax pygmaeus, Circus aeruginosus, Himantopus himantopus, Recurvirostra avocetta, Burhinus oedicephalus, Glareola pratincola, Charadrius alexandrinus, Larus melanocephalus, Larus (Chroicocephalus) genei, Sterna (Thalasseus) sandvicensis, Sterna hirundo, Sterna (sternula) albifrons, Caprimulgus europaeus, Melanocorypha calandra, Calandrella brachydactyla, Buteo rufinus). Through project's actions creation of baseline or updated data concerning these habitat types and priority bird species was accomplished.

All partners recognize the importance of the project for the good of the protected area and that makes them cooperate really closely and help each other whenever is needed. This well-structured management organization and collaboration, and the day to day monitoring of progress are considered as the cornerstones for the successful implementation of the project. The overall progress of the project was great and the bureaucratic delays and problems have been deal in the best way possible by the partners. Taking advantage of the time extension, all Actions will be implemented in the best way and all the benefits of the implementation of the project will be seen in the area and to the local community.

The most important problems that the project faced are:

Problem No 1. Administrative reformation. This problem could not have been predicted in the beginning of the project. Due to the administrative reformation (Kallikratis) that took place in Greece after 01/01/2011, Prefectural Authority of Thessaloniki was transformed into Region of Central Macedonia. The CB prepared a relevant modification request for the European Commission, in order to give the new data. This document was sent in July 2011. This reformation created delays mostly in the implementation of Actions that CB had to implement. The procedures for the call of tenders were changed and more Departments were involved for specific procedures. CB had to deal with new, more complex and bureaucratic procedures, more departments had to be informed for the Project and that caused a significant delay in CB's actions. But over the last two years of the project, important steps were made and all Actions successfully implemented.

Problem No 2. Communication Difficulties: In the beginning of the project there were some communication difficulties with the External Monitoring Team and between partners mainly due to the transitional phase of the CB from Prefectural Authority to Region of Central Macedonia. The problem was resolved after establishing the project committees and the assignment of a contact person (Ms Stila Kyriaki (Korina) from the Balkan Environment

Center). Also after the project visit that took place on the 23rd of April 2013, the CB named a new contact person, Mr Mavrofidis Alexandros, who was acting as the project manager of the project, together with Mr. Giantsis Apostolos. Ms Stila Korina also remained a contact person (mail of Mr Giantsis send on 24th of April 2013). The contact person is acting as a focal point of the project for: a)communication with partners and check of project implementation status b)drafting the monthly project reports, c)providing the Lead partner with the necessary updates of project progress and d)communicate with the External Monitoring Team.

Problem No 3. Theft of telemetric station. In 2013 a telemetric station located in the sea area of Epanomi - Thermaikos Gulf was stolen (destroyed by vandalism). RCM filed a criminal report against anyone responsible before the Thessaloniki Misdemeanours Prosecutor (criminal report attached). On April 16, 2015 a contract was signed for the restoration of the telemetric station and the expenses charged to Region of Central Macedonia.

The telemetric station was restored and RCM informed with a document Municipality of Thermaikos about the background of the case and the repairs that took place.

Problem No 4. Installation of environmentally friendly moorings. RCM made all necessary steps in order to sign the contract for the construction of the environmentally friendly moorings. On 30/08/2013 the contract was signed and on 24/02/2014 the materials were received(Photographs and a video are attached, Annex 7.2 Action C.1). The Decentralized Administration of Macedonia-Thrace on 13/02/2014 requested from RCM to provide an Environmental Impact Assessment in order to comply with the respective law, as it has happend. On 18/11/2014 the Decentralized Administration of Macedonia-Thrace issued its decision, approving the environmental terms of the project "environmentally friendly facility moorings" (ΑΔΑ: Β3ΛΘΟΡ1Υ-Ω34).

The Ministry of Finance/Regional Department of Public Property Macedonia-Thrace/Departement Β' Aigialos and Paralia requested (Ref. number 596/13-02-2015) from stakeholders (Hellenic Navy General Staff, Ministry of Shipping and Aegean, Central Port Authority, General Regional Directorate of Rural Economy and Veterinary Medicine, Ministry of Culture, Ministry of Tourism, Municipal Council Thermaikos) to express a written opinion whether they agree or not. All stakeholders that responded (for example documents with ref. Number 8221.Λ19/16/15/30-03-2015 of the Ministry of Economy, Infrastructure, Marine and Tourism-Port and building Infrastructure, 7162/08-04-2015 of the Ministry of Economy, Infrastructure, Marine and Tourism-Directorate of Spatial Planning and Infrastructure) expressed their positive opinion, but RCM had to wait for everyone of the stakeholders to reply until the expiration of three months.

On 01/07/2015 the Ministry of Finance/Directorate of Public Property and non-profit Property asked from the Hellenic Navy General Staff and from the Municipality of Thermaikos/City

Council to consent to a formulation and accelerate the procedures for the allocation of marine space in the implementation of the subproject C1 "installation of environmentally friendly moorings in the regions of Epanomis lagoon and Aggelochori lagoon" for project ACCOLAGOONS.

On 17/08/2015 R.C.M. provided clarifications (with document no. 352488 (1609)/17-08-2015) to the Municipality of Thermaikos and the Regional Directorate of Public Property Macedonia - Thrace, Dep. Aigialos and Beach about the operation and management of the project and the continuity obligations for the next three years 2015-2017. In particular RCM provided data for the installation, operation and maintenance of moorings. The types of vessels that could tie up and that it is provided by applicable law.

On 09/10/2015 (ref. number 5375) the Ministry of Finance/Departement B' Aigialos and Paralia informed RCM that despite the fact that the timeframe of three months has expired the only entity who has not sent its opinion is the Municipality of Thermaikos.

On 13/10/2015 (ref. number 442819 (1927)) RCM sent a document to Ministry of Finance/Departement B' Aigialos and Paralia informing them that action C1 has exceeded the statutory time limits for the stakeholders to express their opinion and requested to proceed with the procedure.

On 22/10/2015 (ref. number 8232) Ministry of Finance/Departement B' Aigialos and Paralia sent to RCM all copies of the opinions of stakeholders other than that of the Municipality of Thermaikos and requested all documents to be certified (Environmental Impact Study, final study of the project) as it has happened.

On 22/10/2015 (ref. number 24872) Municipality of Thermaikos sent a document to RCM proclaiming that the situation has changed (because of the reaction of some fishermen) and both previous positive decisions of Municipal Councils Epanomis and Aggelochori were withdrawn and and this time they have issued a negative opinion. With document number 473351 (20172/11-11-2015 RCM requested the decision of the Municipal Council.

With document 475736/8604/06-11-2015 the Departement of Technical Works of RCM submitted the final study reports for action C1 (in 4 copies).

Also RCM with its document (516044 (2259)/30-11-2015) requested from Ministry of Finance/Departement B' Aigialos and Paralia to enforce legislation emphasizing to the risks from not implementing this action.

Also with document 527365 (2304)/04-12-2015 and οικ. 536813 (2349)/09-12-2015 RCM promoted the issue to the Decentralized Administration of Macedonia-Thrace notifying the relevant correspondence, reversing the arguments of the Municipality emphasizing on detailed data. Nevertheless, RCM requested that the Decentralized Administration of Macedonia-Thrace should not accept the negative opinion of the Municipality of Thermaikos and allocate the area for the installation of moorings.

The Decentralized Administration of Macedonia-Thrace with its document 98585 96033/17-

12-2015 concluded that the decision of the Municipal Council of Thermaikos has an advisory character and lacks of enforceability.

Problem No 5. Abolishment of AB2 ORTHE. On 30th of September 2014 ORTHE was officially abolished by the Greek Government and as from 1st of October 2014, all responsibilities and personnel of ORTHE have been succeeded to the Ministry of Reconstruction of Production, Environment & Energy / General Directorate of Spatial Planning / Directorate of Metropolitan, Urban and Suburban Planning / Department of Thessaloniki Metropolitan Area Planning (YPAPEN).

YPAPEN is a Public Body strongly focused to plan and implement policies and projects relative to LIFE+. In order to complete the transfer of responsibilities from ORTHE to YPAPEN and regulate financial and other issues, a ministerial decree was needed. This ministerial decree in order to be issued, faced extensive delays because of the Administrative elections in January 2015 and several bureaucratic procedures.

4 Technical part

4.1 Technical progress, per task

The projects took twice a twelve month time extension. The final GANTT CHART of the ACTIONS is the following:

Action Number/name	2010		2011				2012				2013				2014				2015			
	September	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
A. Preparatory actions, elaboration of management plans and/or action plans :																						
A.1.		■						■					■									
A.2.		■	■	■	■	■																
A.3.		■	■	■	■	■																
A.4.		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
A.5.			■	■	■	■																
A.6.			■	■	■	■																
A.7.						■	■															
B. Purchase/lease of land and/or rights :																						
C. Concrete conservation actions :																						
C.1.								■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
C.2.							■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
C.3.																	■					
C.4.								■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
D. Public awareness and dissemination of results :																						
D.1.		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
D.2.		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
E. Overall project operation and monitoring:																						
E.1.		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
E.2.							■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

E.3.																					
E.4.																					
E.5.																					
E.6.																					

4.1.1 Action A.1: Sign of Memorandum of Understanding with land owners of the project area (site 1 & 2)

Foreseen start-date: 10/2010, Foreseen end-date: 12/2010

Actual start-date: 10/2010, Actual end-date: 06/2015

Beneficiary responsible for implementation of this action is RCM.

The Action A1 refers to a Memorandum of Understanding with land owners of the project area in order for them to be sufficiently informed on the actions of the project and the presumed results. However, due to the administrative reformation (Kallikratis) that took place in Greece after 1/1/2011, and the consequent changes in local administration boundaries and representatives, there was a delay in the signing of the MoU. To resolve the problem a revised version of the MoU was drafted by RCM, in order to be signed separately with each stakeholder. The Municipality of Thermaikos signed the MoU with the Lead Partner in January 2012 (Document Ref.No.2252/25-1-2012, Annex II, Action A.1). RCM tried to reach Tourist Estate Company, in the beginning of the project. The Tourist Estate Company responded positively and assigned a contact person to facilitate the project partners in their work. Structural changes have been made to Tourist Estate Company and now it is called Public Properties Company (<http://www.etasa.gr/>) and this causes a delay in the signature of the MoU. The new representative of the Public Properties Company was fully informed for the project. The last step was to inform also the Ministry of Finance, which is the Ministry that the Public Properties Company belongs to. The meeting with the Ministry was planned for the 20th of March 2013. Since no common date was found for a meeting, RCM send a new document to the Public Properties Company. Finally, two decisions of the Council of State that were notified to RCM (No 951 and No 1483, Annex II, Action A.1), declare that Public Properties Company (former Tourist Estate Company) is no longer a land owner of the Project's area and that the only land owner is the Municipality of Thermaikos. Finally RCM asked from Municipality of Thermaikos an official document that the Municipality is the only land owner. The document was send to RCM in 31st of July 2013. An updated MOU was signed on 17th of June 2015

4.1.2 Action A.2: Management plan of the priority habitat type *1120 "Posidonia beds (Posidonium oceanicae)" and of other marine habitat types of the project marine zone

Foreseen start-date: 01/10/2010, Foreseen end-date: 30/10/2011

Actual start-date: 01/10/2010, Actual end-date: 30/10/2011

The specifications of the deliverable of the Action were approved by the Scientific Committee of the Project on 17/06/2011.

Beneficiary responsible for implementation of this action is OMIKRON SA. From 01/10/2010 until 30/10/2011, they worked on the following:

- TA2-1: Collection of data about fishery and sea tourism - Description of the current status of the project areas (Worked by: Mantzavelas Antonios, Partozis Athanasios, Topaloudis Athanasios and external assistants)
- TA2-2: Inventory of the current status of “Posidonia beds” and other marine habitat types and evaluation of “Posidonia beds”
 - a) TA2-2a: Completion of Mapping of *Posidonia oceanica* beds and the other marine habitats (Worked by: External assistants)
 - b) TA2-2b: Completion of evaluation of the *P. oceanica* distribution, abundance and conservation status (Worked by: Mantzavelas Antonios and external assistants)
- TA2-3: Elaboration of the management / action plan of “Posidonia beds” and other marine habitat types including the compilation of the technical specifications of the works implemented by actions C.1 and E.2
 - c) TA2-3a: Establishment of specific objectives of the management plan (Worked by: Mantzavelas Antonios)
 - d) TA2-3b: Elaboration of the management plan and proposition of the adequate implementation measures including the compilation of the technical specifications of the works implemented by actions C.1 and E.2 (Worked by: Papadoudi Apostolia, Topaloudis Athanasios and external assistants)
- TA2-4: Design and population of the geodata base – Set up and production of thematic maps (Worked by: Partozis Athanasios and external assistant)
- Final compilation of the deliverable (Worked by: Mantzavelas Antonios, Papadoudi Apostolia and external assistants)

The action was completed on schedule (30/10/2011).

The deliverables were approved by the Scientific Committee at the second meeting, on 02/03/2012.

The management plan has been approved in order to be legally operated under the decision number 106/30-01-2014 of the National Water Committee (GGG 182/B/31-01-2014) as well as under the act number 145160/29-01-2014 of the Special Secretariat for Water of the Ministry of Environment, Energy and Climate Change, because is included and incorporated in the «River Basins Management Plan of the Department of Water of Central Macedonia», which has been prepared in accordance with the requirements of the Water Framework Directive 2000/60/EU. In the above Plan, the forementioned management plan is included as complementary works under the codes SM16-30. In addition, the management plan has also been submitted (of letter: οικ. 192872 (1032)/19-05-2014) to the DG Environment of the Ministry of Environment, Energy and Climate Change and in response we received the letter reference number 39121/1653/24-09-2015 of the Department of biodiversity and protected areas of the Directorate of Biodiversity, soil and Waste Management of the Ministry of Environment and Energy. The last document indicates that an action about the preparation of Special Environmental Study and Management Plan of the area has been approved and will

be implemented in the next programming period 2014-2020. Data, results and proposed measures included in the management plan of Action A.2 will be used and taken into account in the process of areas' institutionalization and management and the elaboration of the overall Management Plans as well.

In accordance with the Application, the text contains: (1) The Action plan which indicates the appropriate measures and works to be fulfilled, (2) The required Baseline data for the implementation of the conservation status and the management effectiveness monitoring and (3) The technical specifications for the implementation targeted actions (C.1 and E.2)

The action's main outputs were:

➤ The results of the evaluation of the Conservation Status of each habitat:

A. «Special Area of Conservation GR1220005 Limnothalassa Aggelochoriou» and wider marine area of the meadow distribution - *Conservation Status : C (Unfavourable)*

B. «Special Area of Conservation GR1220012 Limnothalassa Epanomis kai Thalassia Paraktia Zoni» and wider marine area of the meadow distribution:

Conservation Status in the subarea Epanomi North: C (Unfavourable)

Conservation Status in the subarea Epanomi South: A->B (Excellent-good)

Overall Conservation Status in the area: B (good)

➤ The main measures proposed by the Action plan, based on the results of both the mapping and the assessment of the conservation status of the meadows *Posidonia oceanica*, includes:

- Alteration/Expansion of the limits of the marine parts of the two SACs

- Promoting the institutionalization of a management system of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), and designation of zones and terms for the development of activities

- Installation of environmentally friendly moorings at the coastal area of the two study areas of the project

The relevant documents and the final deliverable are attached in Annex 7.2.2 Action A.2.

4.1.3 Action A.3: Restoration plan of the Epanomi Lagoon functions and the technical specifications to implement restoration

Foreseen start-date: 10/2010, Foreseen end-date: 11/2011

Actual start-date: 10/2010, Actual end-date: 12/2011

Beneficiary responsible for implementation of this action is the Balkan Environment Centre (BEC). The specifications of the deliverable of the Action were approved by the Scientific Committee of the Project on 17/06/2011 and the Action was successfully completed in December 2011.

The methodological framework for the development of the restoration plan was based on:

➤ RAMSAR restoration guidelines of COP8,

- Principles of integrated Coastal Zone Management
- Habitats Directive 92/43/EEC
- Water Framework Directive (2000/60/EC) and
- DPSIR framework of environmental analysis by European Environment Agency (EEA).

More specifically BEC worked on the following:

- Research of the recent bibliography and other relevant documentation concerning pressures and impacts assessment and the restoration of coastal wetlands and lagoons as well as the existing legislation concerning the area.
- Watershed assessment and pressure analysis of the system. Pressure analysis of the greater wetland area was performed following the guidance documents for the impact analysis of Water Framework Directive. For the assessment and evaluation of the wetland's state and its degradation's degree, a series of satellite images of the area from previous years and existing data from conducted surveys (study from Hellenic Ornithological Society) were used.
- Scientific field surveys conducted during 2010 (during October, November and December) and 2011 (from March to October). During the field surveys the following activities have been performed: (a) in situ measurements and water samples collection to be analyzed in the laboratory, (b) groundtruthing for the verification of satellite images and habitat update, (c) environmental characteristics of the watershed and pressures assessment.
- Topographic mapping of the area.
- Identification of Zones of Specific Functional Interest based on land cover/use, priority habitats, conservation status and hydrogeomorphological features and functional evaluation, and classification of functional performance into 4 classes, from Class D-Poor to Class A-Very good in order to assess the environmental status and the restoration priorities and aims.
- Determination of the wetland self-sustainable idio-type and development of alternative restoration scenarios.
- Functional evaluation of restoration alternatives comparing to ideotype and selection of the most appropriate and effective restoration solution.
- Identification of measures to restore functions, water chemistry and hydroperiods.
- Assessment of the environmental impacts of the proposed restoration works and measures, during the construction and the operational phase and proposed response measures of the environmental impacts.
- Technical description and specifications of the proposed restoration works for the implementation of the action C.2.

The deliverable was approved by the Scientific Committee at the second meeting, on 02/03/2012.

An update of the deliverable was conducted including the results of the repeat heavy metal

measurements in December 2011.

The relevant documents and the final deliverable are attached in Annex 7.2.3 Action A.3.

4.1.4 Action A.4: Development and use of digital infrastructures for collection, processing and diffusion of pollution data in the study area

Foreseen start-date: 10/2010, Foreseen end-date: 3/2011

Actual start-date: 10/2010, Actual end-date: 7/2015

Beneficiary responsible for implementation of this action is RCM. Concerning the replacement of the stolen telemetry station and in order to supply the mechanical equipment that was stolen from the existing network of the three (3) stations, the following actions were made:

The financial commitment for action A.4. was issued and Technical Specifications together with the document oik. 290637(1500)/23-07-2014 (*Annex 7.1.4 Action A4*) were submitted to the Economic Department of RCM in order to perform the actions needed for the tendering competition in order to replace the telemetric station that was stolen.

On November 18, 2014 the approval to invite tenders has been authorized by the Economic Committee of RCM. The call for tenders published on 2/12/2014 (<http://www.pkm.gov.gr/default.aspx?lang=el-GR&page=62&proclid=1304>) with deadline of submission on 15/12/2014. One offer was submitted, by the same company that delivered the telemetry stations in the first procurement of the Action A.4.

The Directorate of Economics of RCM as a first stage of the procedure has sent a rapporteur to the Finance Committee of RCM in order to examine the company's participation documents. The Finance Committee has approved them and the technical tender has been opened.

On February 24 the Procurement Department of RCM submitted to the Economic Committee of RCM the document concerning the "Approval of Minutes of 02.24.2015 technical evaluation of specific Technical Evaluation Committee and continuation of the competition with the opening and assessment of the financial offer".

On March 3rd, 2015 the Economic Committee approved the minutes of the technical evaluation and the competition continued with the opening of the financial offer.

The financial offer was opened and the minutes were drafted. Simultaneously the contractor was informed to submit within 20 days the tender award. The contractor complied within a short time and all of the documents were sent to the Economic Committee in order to appoint the final contractor.

On April 16th 2015 a procurement contract was signed (equipment) between RCM and SCIENTACT S.A.(attached the 16/04/2015contract).The telemetric station was installed to the Epanomi's port for safety reasons (attached the 02/9/2015 confirmation of receipt of the deliverables and the final acceptance Protocol of 07/09/2015 for action A4).

The starting date of the telemetric monitoring data was the 23th of July 2015.

The relevant documents and the final deliverable is attached in Annex 7.2.4 Action A.4.

4.1.5 Action A.5: Management Plan of the breeding and resting habitats of priority / important bird species at both sites

Foreseen start-date: 01/01/2011, Foreseen end-date: 30/11/2011

Actual start-date: 01/01/2011, Actual end-date: 30/11/2011

The specifications of the deliverable of the Action were approved by the Scientific Committee of the Project on 17/06/2011.

Beneficiary responsible for implementation of this action is OMIKRON SA. From 01/06/2011 until 30/11/2011, they worked on the following:

- ✓ TA5-1: Description of the current status of the project areas (Worked by: Mantzavelas Antonios, Partozis Athanasios, Mergou Foteini, Paraskevas Ioannis, Topaloudis Athanasios)
- ✓ TA5-2: Inventory and evaluation of current status of priority / important bird species and breeding and resting habitats (Worked by: Mantzavelas Antonios and external assistants)
- ✓ TA5-3: Elaboration of the management / action of the breeding and resting habitats of priority / important bird species, including the compilation of the technical specifications of the works implemented by actions C.4 and E.4
 - e) TA5-3a: Establishment of specific objectives for both the management / action and the monitoring plans (Worked by: Mantzavelas Antonios)
 - f) TA5-3b: Elaboration of the management / action plan of the breeding and resting habitats of priority / important bird species (Worked by: Mantzavelas Antonios, Mergou Foteini, Topaloudis Athanasios and external assistants)
 - g) TA5-3c: Compilation of the technical specifications of the works implemented by actions C.4 and E.4 (Worked by: Topaloudis Athanasios)
- TA5-4: Design and population of the geodata base – Set up and production of thematic maps (Worked by: Partozis Athanasios, Paraskevas Ioannis and external assistants)
- Final compilation of the deliverable (Worked by: Mantzavelas Antonios, Mergou Foteini, Partozis Athanasios, Topaloudis Athanasios and external assistants)

The action was completed on schedule (30/11/2011) and the deliverables (text, photos and maps) are attached.

The deliverables were approved by the Scientific Committee at the second meeting, on 02/03/2012.

The management plan has been approved in order to be legally operated under the decision number 106/30-01-2014 of the National Water Committee (GGG 182/B/31-01-2014) as well as under the act number 145160/29-01-2014 of the Special Secretariat for Water of the Ministry of Environment, Energy and Climate Change, because is included and incorporated in the «River Basins Management Plan of the Department of Water of Central Macedonia»,

which has been prepared in accordance with the requirements of the Water Framework Directive 2000/60/EU. In the above Plan, the forementioned management plan is included as complementary works under the codes SM16-30. In addition, the management plan has also been submitted (of letter: οικ. 192872 (1032)/19-05-2014) to the DG Environment of the Ministry of Environment, Energy and Climate Change and in response we received the letter reference number 39121/1653/24-09-2015 of the Department of biodiversity and protected areas of the Directorate of Biodiversity, soil and Waste Management of the Ministry of Environment and Energy. The last document indicates that an action about the preparation of Special Environmental Study and Management Plan of the area has been approved and will be implemented in the next programming period 2014-2020. Data, results and proposed measures included in the management plan of Action A.5 will be used and taken into account in the process of areas' institutionalization and management and the elaboration of the overall Management Plans as well. All the above documents are attached.

In accordance with the Application, the text contains: (1) A technical document that will guide the implementation of actions related the conservation status of priority bird species habitats in addition to their monitoring (Action E.4), (2) The Action Plan, aiming at the increase of the carrying capacity of the sites which in turn will contribute to the safeguarding of the conservation status of the fauna and especially the avifauna, (3) The technical specifications for the implementation of targeted actions (C.4 and E.4) and (4) Proposals for the sustainable exploitation of ecosystems (bird-watching, environmental education etc) for the creation of a prolonged period of alternative tourist activities in both areas (compatible action with Actions A.6, C.4).

The action's main outputs were:

- The results of the field works have shown:
 - Nine (9) different types of habitats for the bird species: beach, sand dunes, salt works, lagoon, flooded salt marshes, dry salt marshes, salt marsh with *Tamarix* spp., canals, reedbeds.
 - Sixteen (16) priority bird species that are included in Annex I of the Directive 2009/147/EC were recorded, 15 priority bird specie were found in the wetland of Epanomi and 12 species in the wetland of Aggelochori.
 - Ten (10) priority bird species were recorded to have nested in the wetlands of Epanomi and Aggelochori in 2011: Western Marsh Harrier, Black-winged Stilt, Pied Avocet, Stone-Curlew, Collared Pratincole, Kentish Plover, Little Tern, European Nightjar, Calandra Lark, Greater Short-toed Lark.
 - Major reasons of mortality for the bird species of the wetlands of Epanomi and Aggelochori are: flood events, predacity, and destruction of nests and chicks from livestock or from two/four-wheeled vehicles. On the other hand, the extent of flood events, water depth, salinity, habitat loss from human activities and the structure of vegetation have a direct impact on food availability for birds, on the reproduction success and on the

quality of bird coverage for safety.

➤ The main measures proposed by the Action plan, based on the current legislative and management framework of the study area, on the evaluation of the current condition and the results of the field works for the bird species and their nesting areas, as well as on the major threats that birds and their habitats are facing, includes:

- ✓ Promoting the institutionalization of a management system of these Natura 2000 areas, and designation of zones and terms of conducting activities
- ✓ Improvement of the habitats of bird species
- ✓ Regulation of uncontrolled vehicle driving

The relevant documents and the final deliverable are attached in Annex 7.2.5 Action A.5.

4.1.6 Action A.6: Visitors Management Plan

Foreseen start-date: 01/01/2011, Foreseen end-date: 31/12/2011

Actual start-date: 01/01/2011, Actual end-date: 31/12/2011

The specifications of the deliverable of the Action were approved by the Scientific Committee of the Project on 17/06/2011.

Beneficiary responsible for implementation of this action is OMIKRON SA. From 01/06/2011 until 31/12/2011, they worked on the following:

- TA6-1: Inventory, analysis, and evaluation of abiotic, biotic and anthropogenic characteristics of the sites (Worked by: Diamantopoulos Stergios, Mantzavelas Antonios, Malamis Anastasios, Papadoudi Apostolia, Partozis Athanasios, Mergou Foteini, Karystinakis Konstantinos, Pardalis Ioakeim, Topaloudis Athanasios, Paraskevas Ioannis)
- TA6-2: Estimation of the Carrying capacity regarding the visitors load (Worked by: Papadoudi Apostolia, Mergou Foteini)
- TA6-3: Elaboration of the visitors management plan, including the compilation of the technical specifications of the works implemented by action C.4
 - h) TA6-3a: Establishment of specific objectives for the management plan (Worked by: Diamantopoulos Stergios, Mergou Foteini)
 - i) TA6-3b: Elaboration of the management plan (Worked by: Diamantopoulos Stergios, Papadoudi Apostolia, Malamis Anastasios, Topaloudis Athanasios, Mergou Foteini, Karystinakis Konstantinos, Partozis Athanasios, Pardalis Ioakeim, Paraskevas Ioannis)
 - j) TA6-3c: Compilation of the technical specifications of the works implemented by action C.4 (Worked by: Topaloudis Athanasios)
- TA6-4: Development of the monitoring system for the protected areas
 - k) TA6-4a: Establishment of specific objectives for the monitoring plans (Worked by: Diamantopoulos Stergios, Mantzavelas Antonios, Malamis Anastasios, Karystinakis Konstantinos)

l) TA6-4b: Elaboration of the monitoring system (Worked by: Diamantopoulos Stergios, Mantzavelas Antonios, Malamis Anastasios, Pardalis Ioakeim, Karystinakis Konstantinos)

- TA6-5: Design and population of the geodata base – Set up and production of thematic maps (Worked by: Partozis Athanasios, Paraskevas Ioannis)

- Final compilation of the deliverable (Worked by: Diamantopoulos Stergios, Mantzavelas Antonios Malamis Anastasios, Papadoudi Apostolia, Karystinakis Konstantinos, Pardalis Ioakeim, Paraskevas Ioannis)

The action was completed on schedule (30/12/2011) and the deliverables (text, photos and maps) are attached in Annex 7.2.

The deliverables were approved by the Scientific Committee at the second meeting, on 02/03/2012.

The management plan has been approved in order to be legally operated under the decision number 106/30-01-2014 of the National Water Committee (GGG 182/B'/31-01-2014) as well as under the act number 145160/29-01-2014 of the Special Secretariat for Water of the Ministry of Environment, Energy and Climate Change, because is included and incorporated in the «River Basins Management Plan of the Department of Water of Central Macedonia», which has been prepared in accordance with the requirements of the Water Framework Directive 2000/60/EU. In the above Plan, the forementioned management plan is included as complementary works under the codes SM16-30. In addition, the management plan has also been submitted (of letter: οικ. 192872 (1032)/19-05-2014) to the DG Environment of the Ministry of Environment, Energy and Climate Change and in response we received the letter reference number 39121/1653/24-09-2015 of the Department of biodiversity and protected areas of the Directorate of Biodiversity, soil and Waste Management of the Ministry of Environment and Energy. The last document indicates that an action about the preparation of Special Environmental Study and Management Plan of the area has been approved and will be implemented in the next programming period 2014-2020. Data, results and proposed measures included in the management plan of Action A.6 will be used and taken into account in the process of areas' institutionalization and management and the elaboration of the overall Management Plans as well. All the above documents are attached.

In accordance with the Application, the text contains: (1) a document that will include visitors trafficking, estimated carrying capacity of both sites and the planning of all necessary interpretation interventions such as: entrances, trails, info kiosks, info centres, signposting and a Visitors Guide and / or a Guide of Good Practice, (2) specifications for the appropriate means for minimising the impact of the ecotouristic and recreational use of the sites and (3) the technical specifications for the implementation targeted action (C.4).

The action's main outputs were:

- The estimation of the carrying capacity

Estimation of the carrying capacity was done by applying a combination of methods (Physical Carrying Capacity, Real Carrying Capacity, Effective Carrying Capacity) taking into account

some specific features of the area (environmental and managerial variables). The results of this estimation are:

- Physical C.C. = 7467 individuals, available area for visitor use, required area for each visitor, period when area is open for visiting and average time of use per visit
 - Real C.C. = 1542 individuals, includes the Physical C.C. by subtracting the corrective factors, which result from taking into account the specific elements of the area, such as natural factors and nuisance factors of the natural environment (intense sunshine and high temperatures, intense winds, low temperature, rainfall, reproduction period, nuisance of the habitats)
 - Effective C.C. = 0 individuals (luck of existing infrastructure).
- The present Visitor Management Plan has determined the following:
- Groups – tourist targets of the area (such as: Visitors of «Massive Tourism», Students of primary and secondary education, Organized groups of visitors with interest in environmental issues, Students, Individual Visitors etc).
 - Sources of Income (Information Centre of Massive Tourism & Promotion of Ecotourism of Municipality of Thermaikos, Visitor Information Centre (Office) of Aggelochori Lagoon)
 - Routes (4 routes around the C/L of Aggelochori and Epanomi and 1 route getting from C/L of Aggelochori to C/L of Epanomi)
 - Environmental Interpretation (technical) and visitor management works (including several signs, 5 Viewing platforms, 2 ground wooden birdwatching observatories, several vehicle barriers etc).

The results and main outputs of Action A6 were presented in the international conference “Sustainable landscape planning and safe environment” organized by BENA (21-21 JUNE 2012 ISTAMBUL) with the presentation theme “Coastal Zone Management of Thermaikos Gulf (Thessaloniki / Greece): Applications to Protected Natura 2000 Sites”. The presentation and the conference program are attached.

The relevant documents and the final deliverable are attached in Annex 7.2.6 Action A.6.

4.1.7 Action A.7: Strategic Environmental Assessment

Foreseen start-date: 01/10/2011, Foreseen end-date: 31/03/2012

Actual start-date: 01/10/2011, Actual end-date: 31/03/2012

Beneficiary responsible for implementation of this action is OMIKRON SA. From 01/06/2011 until 31/03/2012, they worked on the following:

- ✓ TA7-1: Summary description of the current situation of the area (Worked by: Mergou Foteini)
- TA7-2: Goals and objectives of the SEA (Worked by: Mantzavelas Antonios)
- TA7-3: Description of the works and measures foreseen in actions A.3, A.5 and A.6 – Alternative cases (Worked by: Papadoudi Apostolia, Paraskevas Ioannis)

- TA7-4: Environmental Impact Assessment (Worked by: Diamantopoulos Stergios, Papadoudi Apostolia, Mantzavelas Antonios, Mergou Foteini)
- TA7-5: Production of the maps (Worked by: Paraskevas Ioannis)
- Final compilation of the deliverable (Worked by: Diamantopoulos Stergios, Papadoudi Apostolia, Mergou Foteini)

The action was completed on schedule (31/03/2012) and the deliverables were first presented at the Scientific Committee at the third meeting, on 18/12/2012. The Scientific Committee suggested as necessary the assessment of the environmental impacts deriving from Action A.2, despite the fact that it was not included at the Proposal.

The deliverables (text and maps) were complement and finally approved by the Scientific Committee at the fourth meeting, on 06/03/2013 and they are attached.

The study for SEA was submitted by the RCM for approval to the Ministry of Environment, Energy and Climate Change on June 2013. The study for SEA was notified to the Ministry of Environment and Energy, as it was not clear by the legislation the obligation or not for the elaboration a SEA in this case. The Specific Environmental Service of the Ministry, via its document No 168625/2013, pointed that this Project is excluded from the obligation to apply a Strategic Environmental Assessment.

In accordance with the Application, the text contains: 1) The Assessment of Environmental Impacts, 2) The connection between the Actions' goals and objectives with the National and European Environmental Thematic Strategies, Policies and Plans and 3) The stakeholders and the competent authorities consent and support to the proposed actions.

The action's main outputs by the assessment of the environmental impacts showed that in general, works deriving from Actions A.2, A.3, A.5 and A.6 of the Project are expected to have a significant positive effect on all the examined environmental factors (such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape). However, some impacts were identified in face of the construction of the proposed technical works from Actions A.2, A.3, A.5 and A.6.

In order to minimize these impacts, certain precaution and confrontation measures were proposed to be implemented, as well as the development of a monitoring system per thematic category.

Elaboration of the SEA contributed to the preparation of the Environmental Impact Assessment and Special Ecological Evaluation of actions C2, C3 and C4.

The relevant documents and the final deliverable are attached in Annex 7.2.7 Action A.7.

4.1.8 Action C1: Installation of environmentally friendly moorings in coastal waters at both sites of the project

Foreseen start-date: 4/2012, Foreseen end-date: 6/2012

Actual start-date: 4/2012, Actual end-date: 9/2015

Beneficiary responsible for implementing the Action is RCM.

The moorings were constructed and they were placed in the positions provided (attached photos and placement coordinates) (document of the contractor on 28/11/2013 – RCM ref. number 471677 (2709)/04-12-2013).

After the update from the Public Real Estate Agency (by phone) that it is required space allocation we requested installation permit (on 24/01/2014) from the Public Real Estate Agency (attached RCM document οικ. 37678 (236)/28-01-2014).

After RCMs' document, Public Real Estate Agency noted that according to law 2971/2001 FEK A' 285/19.12.2001 it is required to be issued a decision of environmental conditions. After submitting all relevant files at the Directorate of Environment and Spatial Planning of the Decentralized Administration of Macedonia – Thrace, the decision 9798/18-11-2014 was issued with the approval of all relevant agencies involved. Then RCM submitted an application-folder to Public Real Estate Agency for the allocation of the area. Subsequently Public Real Estate Agency requested the opinions of the entities involved (attached ref. number 234011/6256/25-07-2014 document of Directorate of Environment and Spatial Planning of RCM, ref. number 8216/118/14/28-07-2014 document of the Ministry of Shipping & Aegean and ref. number Φ. 542/501/201/189337/30-07-2014 document of the General Navy Headquarters) which were all positive (General Navy Headquarters, Ministry of Shipping & Aegean, Ministry of Shipping and the Aegean (Ε.Σ.Α.Λ.) and the Directorate of Environment and Spatial Planning of RCM) except the municipality Thermaikos. The arguments of the Municipality of Thermaikos is beyond its responsibilities and these responsibilities concerning the three aforementioned Services which have concluded positively (our relevant documents 536813 (2349)/09-12-2015, 527365 (2304)/04-12-2015, 352488 (1609)/17-08-2015 and ref. number 18433/31-07-2015 document of Municipality of Thermaikos).

After our last document we completed the procedure provided by law and we expect the signature of the Minister, after the recommendations of the Directorate of Public Property Macedonia - Thrace (former Public Real Estate Agency), for repositioning of the moorings.

(Following our telephone communication on 29th January 2016, the Directorate of Public Property Macedonia – Thrace, provided us with the document (10475/18-12-2015, which indicates their positive opinion) submitted to the Ministry of Finance (together with a Ministerial draft decision) for signing the decision for the allocation of the moorings).

The relevant documents and the final deliverable are attached in Annex 7.2.8 Action C.1.

4.1.9 Action C2: Restoration of Epanomi Lagoon functions

Foreseen start-date: 1/2012, Foreseen end-date: 03/2013

Actual start-date: 1/2012, Actual end-date: 09/2015

Beneficiary responsible for implementing the Action is RCM.

Restored habitats and constructed islets in the area of Epanomi are an important shelter for a significant number of birds breeding or wintering in the area. This has been found by the monitoring activities that took place in the area through action E4. In particular from monitoring activities carried out in the area covering up to 12 months after the completion of the construction works of action C2 it was recorded that the populations of protected birds naturally occurring in the region have increased significantly compared with the corresponding data recorded before and during the construction works (data of the Actions A5 and E4 – period 3rd to 9th 2014- of this Project).

GENERALLY: This study provided the performance of works in the area of the lagoon of Epanomi, in the framework of the recovery plan of the area. The works that took place aimed to restore the wetland system in the region, according to the approved proposals in Action A.3. These projects are designed to rectify certain wetland functions on the existing and desired state for performing these functions, as emerged from the functional evaluation system. In particular, it was planned the establishment of: buffer zone by planting, two ponds, three artificial islands in the lagoon, two seasonal flood areas, setting a sluice gate to control the incoming of water supply to the first pond, the construction of the supporting embankment of existing channels, purification existing channels and the opening of two new canals for operational communications in southern existing canal with the lagoon and a canal for communicating a pond with adjacent existing canal and the lagoon area.

Description of the project:

CANALS: Canals 1 and 2 are located in the north - northeast part of the area (high zone) and have a length of 900m and 510m respectively. The canal 3 with length 360m, located on the west side of the area, between the high region and the Gulf of Epanomi. Canal 4 is located 110m along the middle zone, between the canal 3 and the lagoon. Finally, canal 5 with 250m length located in the south of the area and, respectively, south of the lagoon.

PLANTING: Near canals 1 and 2, a belt of plantings with 10m was foreseen, with endemic species found in the protected area. Firstly plants were placed but due to severe salinity both of the soil and the water, dried up. Several analyzes carried out and a new planting position emerged, east of the original site, where the new planting conducted.

PONDS: The first pond constructed in the canal 4 with a surface area 2.463m², with a radius of about 28,00m and maximum depth 1,60m, while the second pond was constructed along the canal 2, with surface 2.123,70m², a radius of approximately 26,00m and maximum depth of 1,60m. Perimetrically of the second pond, an embankment was built with height of 1,5m, crest width 2,25m, inclined outer slope 1 : 2.5 and the inner slope of 1 : 1.5.

SEASONAL FLOODED AREAS: In the northern part of the lagoon, downstream canal 2 and between the two ponds two seasonal flood plain areas were constructed. The first surface of 745,28m² having digging depth of 0,75m and the second surface of 658,14m² having digging depth of 0,75m.

CHANNELS: Drilling work was implemented on three new channels with width of 3,00m, slope gradient 1 : 1.5 and digging depth of 1,00 m. The two channels out of three aimed at the operational communication of the southern existing canal 5 with the lagoon, with length 66,70m and 55,97m, respectively, and the third joining the second pond with channel 2 having length of 22,25m.

ARTIFICIAL ISLETS: Inside the lagoon, in the deeper parts of the wetland, three artificial islets were constructed. The first island was constructed to the side of the canal 5 with surface above the water level of 1.024,28m², while the other two which communicate with runway length and width 13,50m and 6,20m were constructed north and have a surface above the level water of 623,00m² and 212,75m² respectively.

For their construction within the lagoon, a construction of traffic corridors and transport materials required, with lengths for the first island of 72,80m and the remaining two of 58,90m. These corridors after construction of the islet, were removed up to a depth just to avoid damaging the bottom of the lagoon.

EMBANKMENTS: On canals 2 and 3, on the side to the lagoon the embankment was reconstructed with a total length of 870,00m, height 1,00m and width crowning 1,00m, with inclined slopes of 1 : 2.50.

In canal 4 that joins the lagoon with canal 3, with intermediate interference of pond 1 the embankment was reconstructed with a total length of 54,00m, height 1,00m and width crowning 1,00m, with inclined slope of 1 : 2.50.

On Channel 3, that connects the second pond with channel 2, an embankment was constructed with a total length of 22,25m, height 1,00m and width crowning of 1,00m, with inclined slope of 1 : 2.50.

In the second pond, an embankment was constructed perimetrically with embankment height of 1,50m, width crowning 2,25m, ext. slope embankments 1: 2.5 and internal slope embankments 1 : 1.5.

SLUICE: At the junction of canals 2, 3 and 4 a sluice was placed in a base of lithoplirota gabions.

CLEANING:

Purification of channels and the wider area of the lagoon was carried out, of debris and garbage.

Technical difficulties during the construction phase

The project is sited within an area that during most months of the year is flooded by water and soil material, which makes work vehicles unsuitable for movements at that times. Especially since the autumn of 2014 and spring of 2015 that continuous, long and heavy rains were observed, which resulted in complete flooding of the wider area with water, transforming the area into a swamp, prohibiting the use of construction machinery making the implementation of works impossible for several months. Any attempt to implement the

works in this period would be financially unprofitable for the project. However the main bulk of the works implemented by the end of September of the year 2014, according to schedule.

Works undertaken up to 19.09.2015

- a) Cleaning of canals
- b) Construction of embankments
- c) Construction of channels
- d) Construction of ponds
- e) Construction of flood plain areas
- f) Construction of artificial islands
- g) Planting 81% of the plants

Planting problems

Drying of plant installed occurred, which in the course of time and in relatively short time, expanded to the whole planting. For this reason, specific instructions were given to the contractor to stop the planned maintenance of works and take samples to carry out the relevant analyzes (soil and water quality of the channel).

According to the results, differentiated results presented in this period than those mentioned in Technical Study measurements that performed in previous time periods. It appears a strong salinity, both on soil and water, which makes the proposed plant species almost impossible to survive, as displayed in the accompanying results of measurements-values showing that it is larger of the carrying capacity of these plants on salinity.

Thus, despite the fact that initially and in the manner of the specified in the Technical Study measurement-values, the ecological requirements of the proposed plant species were within the prescribed resistance limits the planting season, during the planting season it was not applicable, so the Agency requested either to stop functions recovery effort trapping sediments and toxic substances, transformation and removal of nutrients and support food webs or to search and find a different planting area in the wider project area, suitable for the completion of the above objectives of rehabilitation projects.

The Balkan Environment Center, partner of ACCOLAGOONS program, responsible for scientific support on environmental issues, proposed that in order to complete the project to change the project implementation status of planting in an area where prices of salinity is below provisions of the proposed plant resistance limits and the initial aims of the project to be served. For this purpose they conducted soil sampling to identify the optimal location.

Based on the results of soil analysis, the optimal location identified for the implementation of plantings. It is noted that the original objectives of the project, which is the trapping of sediments and toxic substances, transformation and removal of nutrients that end up in the channels via surface runoff and from crops of the basin and support food webs will be fully served as the location, in accordance with the topography of the area, receives runoff from crops in the basin.

Moreover, because in a sampling point of the proposed area, planting rates salinity are on the resistance threshold of the two proposed plants (*Scirpus* sp. and *Juncus* sp.), planting proposed just for *Phragmites* sp., that displays a resistance threshold to salinity substantially higher than the measured values.

In consequence, when weather conditions allowed (depression of the waters in the region) we conducted the relocation of the proposed site.

Construction of sluice gate

Having completed all the above works, the construction of the sluice gate was remaining. However, due to sudden rainfall, the area was flooded with water and the ground was swampy, prohibiting the approach of machines in the area. These conditions lasted until the spring of 2015, when the breeding season of birds began, in which it is expressly forbidden to work in order to avoid annoyance of the birds.

Following the above the sluice gate was built in August 2015.

Proper functioning of the executed works

Our study area presents sparse and unformed hydrographic network of shallow channels. Inflows in the wetland are direct through atmospheric precipitation and indirect via surface runoff but also through drainage canals that were opened in the 1950s for drainage of wetland areas reasons in order to attribute them for crops. There is thus hydrographic network which enters within the protected area and therefore there is no transfer of debris that might be caught in the canals, ponds, seasonally flooded areas and channels and cause elevation of their level. Unlike if any debris occur, they will originate from the water movements within the region and the possible leaching of embankments which is considered normal.

Artificial islands, perhaps in the future will show some reduction in their volume because of the ripples of water in which they are located and subsoil on which are mounted (loose bottom). Moreover for reasons of environmental protection it was not allowed to stabilize the bottom materials outside the work area, but instead the islands should be mounted directly to it, forming a continuation of the ground.

4.1.10 Action C.3: Litter removal from the Epanomi Lagoon area

Foreseen start-date: 7/2011, Foreseen end-date: 3/2013

Actual start-date: 1/2012, Actual end-date: 9/2014

Beneficiary responsible for implementing the Action is RCM.

The RCM prepared the technical specifications of the Action and the call for tenders' documents. The call for tenders was released on 8/6/2012 (<http://www.pkm.gov.gr/default.aspx?lang=el-GR&page=160&proclid=432>) and on 27/6/2012 the evaluation of the offers was made. There was only one offer and was accepted by the committee. The work was assigned to the contractor on the 2/8/2012 on the condition that the necessary for the award of the contract documents would be brought by the contractor.

The contractor brought the necessary contract and finally the contract was signed in the 10th of November 2012.

A new contract was signed on 24th June 2014. The new contractor visited Epanomi Lagoon area and after the end of the breeding period (early August) started removing the litter.

Purification at the entrance of the area of the lagoon implemented with simultaneous removal of wastes which were highly concentrated at the area south of the camping of EOT.

The contract ended in the end of September (24-6-2014 to 30-9-2014). The final deliverable was approved by the relevant Committee.

The relevant documents and the final deliverable are attached in Annex 7.2.10 Action C.3.

4.1.11 Action C.4: Environmental interpretation (technical) works

Foreseen start-date: 4/2012, Foreseen end-date: 3/2013

Actual start-date: 4/2012, Actual end-date: 09/2015

Considering the expected results of this Action as described in the Application it should be noted:

❖ A well-studied network of access and interpretation facilities for local community, visitors and schools was designed and constructed in accordance with the Application.

This network led to the improvement of interpretation infrastructure by 100% (resulting the previous lack of interpretation facilities) as expected via the construction of: i) two information kiosks, ii) five viewing platforms, iii) several thematic signs for entrance, information, environmental interpretation and direction, iv) two ground bird observatories and v) a new, continuous route “running” all around each wetland

❖ Regarding the construction of car blocks at all roads (100%) crossing the wetland, it should be noted that there is no vehicle capable of traversing the core of the corresponding lagoons and in no way the work could be environmentally disturbed. The aim of controlling and preventing vehicles from driving over the dunes or through the salt marshes was achieved due to the barriers and the signs of information that were placed. However, some difficulties arose such as the creation of accessibility roads at the boundaries of the foreshores during summer months by visitors and the fact that both areas of project implementation (Epanomis lagoon and Aggelochori lagoon) are very extensive (830,38 hectares and 377,2 hectares respectively) and their total exclusion was very difficult. Port Authority prohibited the works on the beach and because a permission is required and should be requested from the Regional Directorate of Public Property. After investigation we found out that the new operator of the premises of seashore and the beach is the Hellenic Republic Asset Development Fund (ΤΑΙΠΕΔ) which immediately provided the approval in order to continue the project.

The relevant documents and the final deliverable are attached in Annex 7.2.11 Action C.4.

4.1.12 Action D.2: Establishment of stakeholders' e-Participation tool

Foreseen start-date: 10/2010, Foreseen end-date: 09/2013

Actual start-date: 10/2010, Actual end-date: 9/2015

Beneficiary responsible for implementation of this action is Balkan Environment Centre (BEC). The e-Platform was constructed and delivered to BEC in the beginning of 2012. Corrections were made (technical and content corrections) in the definition of the system's stages of interaction in the policy-making process and the identification of the functional requirements and e-Participation techniques, and data started to be uploaded on the forum of the platform (laws, legislation, articles and press releases etc). The e-platform was presented in the conference targeting the local community organized in December 2012 by ORTHE and all participants were invited to sign in the platform and express their opinion about the project area.

The address of the e-platform is <http://www.accolagoons.balcenv.gr/>, and there is also a link to the platform through the project's web-site.

The management of the system was made by the qualified personnel of BEC and it is operational and after the end of the project.

By integrating existing IT infrastructure and web facilities, the e-platform enables access of citizens, civil servants and other stakeholders to learn about the project and have access to project's web-site for more information, find the legislation in force or drafts of legislation, find supporting documentation (e.g. impact analysis, costs and benefits, etc.) and have the opportunity to ask for scientific information related to project's actions and whatever their concern is. Besides its content management functionalities, and allow online discourses on environmental policies themes relevant to the selected test areas. In order to have access to the discussions a simple registration is required, in order to prevent junk messages.

The registered members are 40 (Annex 7.2.16, Action D.2). The visitors of the e-platform are more than 11.000 (Online counter in the e-platform).

The Implementation of Action D.2 was in accordance with the time-schedule of the project.

4.1.13 Action E.2: Establishment of a monitoring system for the marine habitat types

Foreseen start-date: 1/2012, Foreseen end-date: 9/2013

Actual start-date: 1/2012, Actual end-date: 9/2015

Beneficiary responsible for the implementation of this action is Balkan Environment Centre (BEC).

The conservation of species, habitats, ecological and developmental processes, the safeguard of the sustainability of natural resources and the protection of the quality of a system are accomplished through the application of accepted methods of sustainable management of which an essential tool is monitoring. Monitoring is necessary for the

assessment of the conservation status of the structural and operational characteristics of the system, for the evaluation of the efficiency of the management measures implemented in an area, for the early diagnosis and prediction of problems, etc.

Under the frame of the ACCOLAGOONS project, Action E.2: Establishment of a monitoring system for the marine habitat types aimed at the enhancement of the conservation of the priority and the rest marine habitats at both sites. As identified under the implementation of Action A2, the following marine habitat types (included in the Annex I of the Directive 92/43/EC, or not) were identified in both sites:

1110	Sandbanks which are slightly covered by sea water all the time
*1120	* Posidonia beds (<i>Posidonia oceanica</i>)
*1150	* Lagoons
1170	Reefs
119A	Soft substrata without vegetation
119B	Soft substrata with vegetation

The establishment of a monitoring system is of a great importance for the conservation of the above mentioned marine habitat types. As defined by the bibliography, monitoring is the periodic (in regular or non-regular intervals) survey, which is conducted to test the degree of convergence with a standard or some baseline data or the degree of deviation from a predicted value. Examples of such standards or baseline data are the population of an animal species, the vegetation cover, the species lists or numbers of species, the structure of habitats, the classification of plants and the presence-absence of indicator species. Through monitoring, any change (or the absence of it) in time and in a specific site is being detected. However, most of the times it is hard to determine how large the change in the value of the indicator must be (in quantity or characteristics) so as for it to signal the need for a modification on the existing management practices or the implementation of new measures. This occurs mainly because of the numerous gaps that exist in our knowledge and understanding on the dynamics of any natural ecosystem. For the implementation of a monitoring program a necessary condition is the presence of baseline data since, and in accordance with the above definition, it is a survey process which is conducted to test the degree of convergence with a standard or some baseline data or the degree of deviation from a predicted value. In the case that such data do not exist, the first step of the implementation process is the collection of data on the subject to be monitored, followed by regular or non regular survey (Baseline Monitoring Program) and specification of the reference level (temporal definition). Concerning the pre-operational situation in both sites, as regards to the marine habitats, it should be mentioned that the only available data (either baseline data or updated data) were from the relevant project "Habitats identification and mapping", of the Ministry for the Environment, Physical Planning and Public Works.

The design and establishment of the monitoring system for the marine habitat types in the studied area took into consideration the results of Action A2 « Management plan of the priority habitat type *1120 “Posidonia beds (*Posidonium oceanicae*)” and of other marine habitat types of the project marine zone» and it was implemented at three scales:

✓ Monitoring at a macroscale, via mapping of habitat types, implemented every three years via the combination of remote sensing techniques (satellite images) and in situ verification (two maps produced for each site during ACCOLAGOONS: during 2011- Action A2 and 2014 – Action E2).

✓ Monitoring at a mesoscale, via observing *Posidonia oceanica*'s limits and via observing permanent surfaces: shallow limit is being monitored with SCUBA diving in combination with the obtained satellite images, whereas deep limit is being monitored via SCUBA diving and the establishment of a system with fixed marks. Monitoring of the fixed marks (balise) takes place every two years (implemented twice during ACCOLAGOONS - first record in 2012 during the establishment and second record during the summer of 2014). The permanent sampling surfaces are being monitored at least once a year: it took place four times during ACCOLAGOONS for the years 2012-2015.

✓ Monitoring at a microscale, via the combination of non destructive (in situ measurements) and destructive methods (samples collection): includes the detailed description of the phytocommunities (number of taxa, coverage of taxa, etc) on both hard and soft substrate (habitat types *1120, *1150, 1110, 1170 & 119B) as well as epiphytes, samples are being sorted under a stereoscope and taxa are identified with a microscope, it took place twice during ACCOLAGOONS (2012 and 2014, with additional sampling during 2013).

In details, from the onset of this Action (January of 2012) until the end of it (September of 2015), the following actions took place:

- Research and continuous review of literature and other relevant documentation concerning Mediterranean marine phytocommunities and monitoring methods
- Planning of the establishment of a monitoring system of *Posidonia oceanica* meadows' and other communities on both hard and soft substrate: meetings with the divers – scientists, field excursions based on maps produced during the Action A2 and on personal unpublished data, evaluation of personal experience of our external collaborators from the establishment of such monitoring systems in other Mediterranean areas.
- Preliminary survey of the selected proposed sites via SCUBA diving. During our preliminary survey we visited and swam around extended areas, looking for the meadows' limits. As a result of this procedure, we have chosen two sites for the establishment of a monitoring system of *Posidonia oceanica*'s limits in Epanomi. One meadow is located at the northern part of Epanomi area, close to the lagoon, whereas the other meadow is at the southern part of the area (during 2012).

- Permissions from the Port Authority for the establishment of the monitoring system and for all the *in situ* actions.
- Placement of the fixed marks (balise) in two meadows' sites (Boudouresque *et al.* 20061, Díaz-Almela & Duarte 2008). The establishment of the monitoring system as well as all of the previously mentioned *in situ* actions was realized as scheduled by divers – scientists with a rented boat and rented diving equipment. This was a time and energy consuming procedure which included: approaching and finding of the previously selected points of the meadows (via GPS use), throwing of the balises from the boat, removal of the balises underwater from the divers and the placement in their final position, taking pictures and videos as mentioned in the literature, etc.(during 2012)
- Collection of data concerning the structure of the marine habitat types. Two methods were realized: a) Non destructive methods (*in situ* data collection). Direct observations by SCUBA diving along the shoreline: quantitative measurements by the use of quadrats or photographic images or semi-quantitative abundance estimations by the use of reference scales. The above mentioned methodology was implemented mainly in phanerogams' meadows and in particular in *Posidonia oceanica* meadows, *Cymodocea nodosa* meadows, *Zostera noltii* meadows and in mosaic meadows. B) Destructive methods (collection of samples). In order to estimate the status' tendency as well as the structure changes of macroalgae phytocommunities on both sites, we collected samples via SCUBA diving, from sampling areas of 625 cm² regarding the typical hard substrate by means of a hammer and chisel. Additional sampling was randomly made in order to collect as many species as possible. Samples collected were preserved in appropriate conservative solutions were analyzed at the laboratory (during 2012 and 2014, with additional *in situ* observations during 2013).
- Establishment of a monitoring system via permanent surfaces (including cases where patches of *Posidonia oceanica* are present and not a meadow) at Aggelochori site. Monitoring was implemented by visiting the specific sampling surfaces at least once a year and recording *in situ* reduction or expansion of phytocommunities, presence or absence of characteristic species or/and sampling when needed (during 2012, 2013, 2014 and 2015).
- Mapping of the marine habitat types via the combination of remote sensing techniques and *in situ* data collection (during 2014-2015). In details, a map for each site was produced during 2015 in order to create a time series of data.

For the implementation of all of the above mentioned actions, the personnel of BEC worked together with external experts. For the collection of as many data as possible, the team leader of the action and other colleagues visited the sites for more than 30 times during those 4 years, trying to cover all seasons and as many sampling points they could. Almost all of the areas in both sites were investigated either by the coast or by using a boat. The satellite images of the sites were very for the estimation of habitats extent and the identification of mosaic meadows.

As for the general conclusions of Action E2:

✓ Monitoring at a macroscale: all of the habitat types identified and mapped during 2011 (Action A2) were also recorded during 2015. The *Posidonia oceanica* meadows constituted a very important (by means of extend) habitat type in Epanomi south site (strengthening the necessity for Natura 2000 site's extension). There was an increase in *Cymodocea nodosa* meadows and therefore an increase in habitat type 119B, which replaced 119A in a lot of points within Epanomi South region. The habitat type: * 1120 remained almost stable, with some new small patches of *Posidonia* being abundant throughout the sites.

✓ Monitoring at a mesoscale: as a general remark the limits of *Posidonia oceanica* meadows that we monitored with fixed marks remained almost stable between the years 2012 and 2014. In few points in Epanomi South the meadow expanded and in few points in Epanomi North the meadows shrunk. In Aggelochori, as monitored via the establishment of permanent surfaces, some patches shrunk and some new patches appeared. The main reason that we did not notice significant differences in Epanomi meadows is that the meadows are in a better conservation status than in Aggelochori and changes are taking place slowly due to the relative stability of the meadows. On the other hand, in Aggelochori we haven't noticed extended dense meadows but mainly pathes which are not so stable and they are more vulnerable to environmental pressures which are more significant in Aggelochori. Concerning the other habitat types, which were monitored via permanent surfaces we noticed that most of the phytocommunities presented seasonal changes as a result of changes in epiphytism and in the life cycle (falling of leaves, etc) of the plants.

✓ Monitoring at a microscale: The values of phonological parameters are normal for the meadow of Epanomi South site and not normal for the sites Aggelochori and Epanomi North (reduced foliar surface, intense foliar necrosis, increased grazing, major epiphytism, etc). The meadows of Aggelochori site are characterized by the intense development of epibiotic organisms on the leaves, which actually lead to an increased foliar necrosis, especially regarding the adult leaves. The region of Epanomi North is facing an increased grazing pressure, which is obvious from the missing leaves' apex or even from the marks on the sides of the leaves. The invasive green macroalgal taxa *Caulerpa racemosa* was abundant in Epanomi North site during 2012 and 2013, whereas it disappeared during 2014 and 2015. The phytocommunities of *Cystoseira* spp. species are characterized by a higher biodiversity which increases along the gradient of Thermaikos inner gulf to Chalikidiki. Populations of opportunistic nitrophilous chlorophyceae are abundant in Aggelochori site. The priority habitat type *1150 is characterized by the presence of marine angiosperm meadows such as *Zostera noltii* and *Ruppia cirrhosa*.

According to the results of E2 Action, the established monitoring system can play an important role in future Integrated Coastal Zone Management of both Natura sites as it can be used to understand the trend and the mechanisms affecting the extent and structure of the habitat types. During the implementation of E2 there were no particular issues instead of

the delay of the placement of the friendly moorings. Although this delay does not interfere with the fulfilment of E2 Action, we agree that under the frame of Action E2 it would be important to estimate the results of the management action of environmentally friendly mooring's installation. Nevertheless, the delay of the implementation of Action C1 did not give us the opportunity to do so. Despite those circumstances, the estimation of C1's results on *Posidonia oceanica* meadows will be implemented, during the new project that will be realized after ACOOLAGOONS. In details, RCM has released a tender and the offers are under evaluation.

The deliverable was approved by the 5th Scientific Committee of the project during September 2015 and it is attached with the Final Report, Annex 7.2.12

4.1.14 Action E.3: Monitoring of the water quality at sites 1 & 2 of the project area.

Foreseen start-date: 4/2011, Foreseen end-date: 8/2013

Actual start-date: 4/2011, Actual end-date: 9/2015

Beneficiary responsible for the implementation of this action is Balkan Environment Centre (BEC).

From 1/10/2010 until 30/09/2015, the following took place:

- ✓ Continuous research of the updated literature and other relevant documentation concerning monitoring of water quality
- ✓ Development of the Monitoring Program which include the parameters to be monitored, the methodology and frequency of monitoring as well as the sampling points
- ✓ Sampling and analysis of abiotic factors. The delay on the implementation of Action A4, which included the development of a network of telemetry stations aiming at convenient and valid collection and processing of environmental data concerning the water quality in the area of interest, affected action E3, but BEC overcame this problem via the regular sampling of physicochemical parameters. Until telemetry stations were installed and fully operational, at least monthly field surveys were conducted for all the involved parameters. The main physicochemical parameters that are measured are pH, temperature, salinity, specific conductivity, Dissolved Oxygen and turbidity (in situ, field measurements). Furthermore, samples were collected in order to have water analysis at the Laboratory (in vitro measurements). The main parameters that were measured, were nutrients ions (nitrate, phosphate, nitrite, silicate and ammonium ions), heavy metals (cadmium, lead, arsenic, nickel, iron and chromium), pesticides (over 100 pesticides) organic content (TOC) (*Annex 7.1.10 Action E.3, Pictures 1-3*) and biological indicators (chlorophyll a, phytoplankton analysis). Furthermore, microbiological parameters are measured. The main conclusions can be summarized as follow: the environmental situation differs depending on the monitored water bodies, as well as the period of monitoring (winter, spring, summer, autumn). During summer period decreases, as expected, the water level, which leads to an increase of pollutants. On the other hand, during winter period 2014- 2015, high levels of rainfall were

observed and as a result, the whole region of Epanomi wetland was covered with water, increasing significantly the volume of water at the *Epanomi lagoons*. This situation led to a reduction of all pollutants concentration. The concentration of pesticides are detected seldom at low levels. The organic content is high, especially at Epanomi lagoon. This fact is common in lagoons as well in wetlands, due to the presence of shallow waters. The concentration of pH, conductivity, turbidity and Dissolved Oxygen are at normal levels. The concentration of nutrients and microbiological parameters are depending severely to the monitoring period and the non-treated effluents that are poured to the monitoring site and area, indicated as point-pollution, whose origin cannot be determined.

The same situation prevails at Aggelochori area. During summer period decreases the water level, which leads to an increase of pollutants mainly to the two sampling points in the *Aggelochori laggons*. The concentration of pH, conductivity, turbidity and Dissolved Oxygen are at normal levels as well the concentration of nutrients and microbiological parameters. Despite the fluctuation in the concentration of nutrients, which are depending severely to the monitoring period and the non-treated effluents that are poured to the monitoring site and area, the most parameters remain to normal levels. The monitoring tasks of sampling and water analysis are done properly at seasonal basis, while the tasks of maintenance and calibration of telemetric stations are done at monthly basis, at least. The system training at the first phase of operation, made possible the calibration of the stations in order to be able, during the operational phase, to distinguish the type of disturbance and the reasons of pollution. From all the results was observed point and uncontrolled waste disposal in unstable timebase and for this reason, the trend to the measured parameters is difficult to be described. The changes of the measured parameters may be due, unless to the non- treated effluents, to the simultaneous implementation of the restoration project. The fact that there is no trend identified, is also confirmed from the telemetry system. The sent data from telemetric monitoring stations were continuous and with no significant change. All the water monitoring procedure as well the results of laboratory measurements are follow the National and EU legislative requirements, such as the Water Framework Directive (e.g. 2000/60/EC). Due to the short time monitoring period after the completion of restoration works, it is difficult the assessment of the environmental impact and as a result the determination of management decision of the area. It is necessary for the ecosystem to reach in balance so that to launch an objective assessment of results. For this reason should the project be strengthened by continued monitoring and all the data will be used to support management decisions concerning the protection and rehabilitation of the area.

The increase of human activities in the coastal area of Epanomi and Aggelochori directly reflected on water quality and indirectly to the conservation of habitats and species. Most problems arise from cultures, the use of fertilizers, grazing, aquaculture , the salt production activities , professional and recreational fishing, hunting , urban infrastructure, waste report

and wastewater , the transport network, the recreational and tourist infrastructure / activities , etc.

The existence of pollutants in the project area comes mainly from the untreated effluents of the surrounding area's seasonal cultures and from the point throwing waste. The main agricultures of the area are: Cotton, wheat, vegetables, grapes and anise. Also the uncontrolled waste dumping in the project area from different human activities, such as hunting or recreational activities, lead to the increase of pollution threat of the area.

To the prevention or alleviation of this pollution threat, the restoration works will contribute, which unfortunately were completed with the integration of the project, so it is difficult to measure for nonce their impact in the area. The Balkan Environment Center also supported the project's demonstration activities to decision makers and stakeholders based on hard data. This monitoring program constitutes a demonstrative action, and it is going to act as a tryout for the future establishment of an Observatory (with telemetric and not only measurements) in Thermaikos Gulf, which is a priority target of the Prefectural Authority of Thessaloniki. The provision of the telemetry is essential for the water quality monitoring and the surveillance actions in order to ensure conservations results. The applied technology constitutes an innovative approach of environmental monitoring while for first time in Greece, the telemetry network at the first phase of operation, collects, combines and analyzes background data, creating a level of report regarding the water quality under regular conditions. With spectrophotometer methods of water quality analysis, any deviation from the level of report mentioned is recorded and the incidents of pollution is detected in time giving an alarm signal. During LIFE+ project, in order the monitoring and survey of habitats and species to be more effective, the project team decided that Epanomi telemetry station must be reinstalled in a different site where there was a suspicion of pollutants presence.

In general lines all the obtained results will be used by the services of RCM for better monitoring of other areas too and for demonstrative actions of the local population and the productive classes so as to be informed for the impact of their economic activities.

✓ Concerning the telemetric monitoring stations, from the day that they have been installed, hourly measurements are collected from the four telemetric stations. The function of the stations is normal and they are calibrated monthly in order to achieve and collect reliable data. The stations measure physicochemical data (pH, temperature, salinity, specific conductivity, Dissolved Oxygen and turbidity, total dissolved solids, water depth), as well as biological indicators (chlorophyll a) and are fully autonomous. These data are collected in order to detect any environmental changes during the monitoring period and to reveal the true environmental conditions and functions of the monitoring ecosystems. The obtained data reveal the constant, stable, so far, situation, apart from some incidents that took place in the summer period, where the concentrations of dissolved oxygen were reduced. The telemetric monitoring data reveal any instantaneously, permanent or evanescent change that can take place during monitoring period. The classical monitoring programs collect intermittently data,

which are snapshots during monitoring period. By the use of telemetric monitoring stations any change that can take place at ecosystems is revealed, as well as the functions of the ecosystems, and the day of sampling can be modified properly. The function of telemetric stations demands at least monthly calibration and maintenance of the stations, for the telemetric unit of the station as well as the electrodes of the probes. Furthermore, due to some random unpredictable events, such as the reduction of water level and that the probes of the stations should be transferred and be repaired at the Laboratory of the BEC, with the assistance of the provider company. This caused intervals at the obtained data, but these were necessary actions to ensure the proper function of the stations and the reliability of the obtained data. These incidents are usual when telemetric stations are installed at the sea and at wetlands, due to the presence of many biological organisms.

Monitoring of hydromorphological factors.

The main hydromorphological factors related to the development of specific fauna and flora were monitored under the frame of Action E3. In details, exposure to hydrodynamism and substrate structure were estimated. The exposure to water movement influences greatly the composition of the substrate, the structure of benthic communities and the morphology of sessile organisms. In the present study the exposure to water movement was measured in 10 different sites in the sublittoral zone in both sites (5 in Epanomi and 5 in Aggelochori) during the summer of 2013. For each site the exposure to water movement was estimated by relating the exposure to water movement to the erosion of gypsum blocks placed in the same depth (-5 meters) in the different sites. The erosion value (g h^{-1}) is expressed as the weight loss of the gypsum blocks during a lunar day (24h 45min). The measurements were realized under calm conditions so as to minimize the erosion of the gypsum blocks based on the wave's action. The substrate structure was estimated via granulometry according to the scale of Wentworth. Granulometry did not show the dominance of fine structured sediments, which could lead to anaerobic conditions more easily, in the studied areas.

Monitoring of marine invertebrates. The presence of specific animal species in a marine area can provide important data regarding the status of the environment. In general, animals can be divided into two basic morphological groups based on their ability to move. The first group consists of the sedentary organisms, which live attached to substratum. These organisms (as they are not able to move and thus sustain all abiotic or/and biotic changes) play an important ecological role on the estimation of the environmental stress factors. In this first group, organism such as Porifera, Anthozoa, Bryozoa, Mollusca (Bivalvia), etc., can be found. The second group includes organisms which have the ability to move. These organisms exhibit the advantage to move when there is an important stress factor. The presence of these organisms in a region can provide significant information regarding the water quality. The survey of marine benthos requires the dissociation of hard (rocky) and soft (sandy) substrata. Fauna composition differs between the substrata and this is related to the seasonal cycle of soft substrata due to hydrodynamic forces.

The data collection was performed via the implementation of both destructive (samples' collection) and non-destructive methods (underwater snooping - in situ species determination and photographing of the selected sites). As mentioned, during sampling procedure we distinguish two basic parts: the hard substratum and the soft substratum. Soft substratum is the dominant type of substratum in both sites. Hard substratum is more abundant in Aggelochori than in Epanomi. On hard substratum we identified, among others, Associations of *Cystoseira* genus, which play an important ecological role for the associated fauna. Biodiversity was higher, for both invertebrates and fishes, in Epanomi and particularly at the southern part of the site (potamos). On soft substrata three Associations of marine phanerogams were identified: Association of *Cymodocea nodosa*, Association of *Cymodocea nodosa* and *Zostera noltii* and Association of *Posidonia oceanica*. *Posidonia oceanica* meadow's density was much higher in Epanomi, which is also reflected to the associated fauna. Monitoring of associated fauna in phanerogam meadows was accomplished in situ with no destructive methods via photography and videos. A Corer and an Ekman sampler were used for sampling on unvegetated soft substrata. Samples collected were preserved and a stereoscope was used for the sorting of the organisms.

The survey on hard substrata was realised by SCUBA diving and megafauna invertebrates that can be identified without the need of stereoscope as well as fish species were recorded in-situ.

According to the experimental protocol, we conducted a preliminary sampling during spring of 2011 and four sampling procedures took place in each site during 2012, 2013, 2014 and 2015. The high frequency of monitoring aimed in the record of as many taxa as possible.

On hard substratum we recorded photophilous biocommunities on the horizontal sides and sciaphilous biocommunities on the vertical sides. Moreover, samples, from sampling areas of 625 cm² (25 cm x 25 cm) were collected by means of a hammer and chisel. Samples collected were preserved in an appropriate solution for the identification of the species in the laboratory. A stereoscope is used for the sorting of the organisms in the laboratory.

The reflectance of water quality in species biodiversity is the most important aspect of Action E3. Thus, we wanted to use an index in order to estimate the ecological status of the two sites. Taking into consideration the Water Framework Directive and its implementation in the Mediterranean Sea, we used Bentix index (Simboura & Zenetos 2002) in order to monitor the water quality. According to our results of marine fauna, the water quality is better in Epanomi site than in Aggelochori. In addition, no important differentiation concerning composition and structure of benthic fauna was recorded during 2012-2015. At this point we must mention that organisms protected by various legal texts are present in the area (for example *Pinna nobilis*).

Data obtained *in-situ* by non destructive methods are valuable and in addition not time consuming. Thereafter monitoring of the area in the future should be undertaken by underwater video and photography.

Monitoring of marine benthic macroflora. Protection and management of coastal ecosystems presupposes the knowledge of distribution of marine benthic communities, as well as their structure. The base line data are of great importance for the monitoring of benthic populations in time (through the comparison of obtained field and laboratory data). The benthic marine macrophytes and their associations reflect environmental conditions and determine the coastal assemblages. Moreover, they are used as bio-indicators. The benefits resulting from monitoring the composition and structure of marine benthic macrophytic communities are subjective. The data collection was performed via the implementation of both destructive (samples' collection) and non-destructive methods (underwater measurements and identification of species when possible). Monitoring of phytobenthos during the current action included the qualitative and quantitative analysis of macrobenthic associations on hard and soft substratum, in order to estimate the site's ecological status. According to the experimental protocol, we conducted a preliminary sampling during spring of 2011 and four sampling procedures took place in each site at numerous points during 2012, 2013, 2014 and 2015. The high frequency of monitoring aimed in the record of as many taxa as possible.

Samples, from sampling areas of 625 cm² (25 cm x 25 cm), were collected by means of a hammer and chisel, regarding the hard substrate. As for the soft substrate the communities' analysis included collection of shoots for identification of the epiphytic macroalgae.

The main aim of Action E3 that differentiated the monitoring of macrophytes under its frame with the monitoring of macroalgae under the Action E2 is the analysis of the obtained data in order to calculate Ecological Status via the Ecological Evaluation Index (Orfanidis *et al.* 2001, 2003, Orfanidis *et al.* 2011). EEI is an index accepted in the EC for the implementation of the Water Framework Directive and in particular for the estimation of a water body's ecological status based on macrophytes, in transitional and coastal waters. For the application of this index, the identified macrophytes are distributed in ecological groups according to their morphology and life strategy. As resulted from Action E3 and in particular from the monitoring of marine macroflora, the water quality is better in Epanomi than in Aggelochori region.

The main issue regarding the implementation of the established time-schedule for Action E3 was the delay of the restoration works in Epanomi lagoon. One of the main objectives of this Action was to estimate the success of restoration activities regarding the water quality. As the restoration Actions are delayed and not implemented yet, the extension of the project was essential for the monitoring data acquisition during and maybe after the restoration activities. Due to this delay in concrete conservation actions, and the short time for monitoring that will be left in the project, partners of ACCOLAGOONS project decided that: i) a request for a new prolongation will be made to the European Commission for another nine (9) months until June 2015, and it was send to the European Commission by the 27th of June 2014, ii) RCM will assign the monitoring of the Project's effects on hydrological,

physicochemical and biological properties of the lagoon (Action E.3) and of the avifauna (Action E.4) as a whole new project, and it will be included for funding in the total budget of RCM, with duration of three years. So the impact of the restoration works on the water quality of the lagoon will be monitored until the end of the Project (New prolongation: 30/09/2015) by BEC and after that by the new contractor the RCM will assign.

However for all this period were carried out the monitoring of the water quality at the project areas and the Balkan Environment Center continued to implement monitoring in lagoons and marine area, through sampling and continuous monitoring from telemetry stations. There was no pause to the action's work and the monitoring was continuous. So monitoring of water quality at the project areas was being implemented on schedule according to the initial timetable and it even becomes more frequent, when it is decided in order to gain more environmental data, or overcome different unpredicted difficulties.

The environmental impact assessment, concerning the restoration works, needs a long time monitoring period. For this reason RCM will proceed to a new project of three years duration, in order to continue monitoring and evaluate the impact on hydrological, physicochemical and biological properties of the lagoon of restoration works. In this way will be a comprehensive look on monitoring and any quality changes in measured parameters will be correlated with real data rather than with random weather change's data (e.g. heavy rainfall over one year).

The integrated scientific interpretation of the success of the restoration works in Epanomi lagoon will be accomplished by the extension of the monitoring programme, which will take place by the Region of Central Macedonia, after the expiration of the project. For the completion of the extended monitoring programme, Balkan Environment Center will provide all the necessary data, methodology and know-how to the contractor which will undertake the extended monitoring programme, assuring the scientific interpretation of the results and the integrated evaluation of the restoration.

The deliverable was approved by the 5th Scientific Committee of the project during September 2015. and it is attached with the Final Report, Annex 7.2.13.

4.1.15 Action E4: Monitoring of bird and amphibian species and habitats at Aggelochori and Epanomi Lagoon

Foreseen start-date: 1/2012, Foreseen end-date: 8/2013

Actual start-date: 1/2012, Actual end-date: 9/2015

Beneficiary responsible for implementation of this action is RCM.

The call of tenders was released (<http://www.pkm.gov.gr/default.aspx?lang=el-GR&page=62&proclid=712>) (*Annex 7.1.11 Action E.4, Call for tenders Volume*). The contract was signed on the 28/2/2014 (*Annex 7.1.11 Action E.4, Contract E4*).

An amendment to the contract was signed in 10/07/2014 in order to transfer the implementation period of action E.4 until 30/09/2014 without the extension of the financial scope of the contract ((*Annex 7.1.11 Action E.4, Amendment to Contract E4*)).

The contractor has submitted his reports on the project results as follows:

- ✓ The 1st report on the activities of the contractor concerning the period from 28th of February 2014 until 28th of May 2014.
- ✓ The 2nd report on the activities of the contractor concerning the period from 29th of May 2014 until 27th of August 2014.
- ✓ The 3rd report on the activities of the contractor until 30th of September 2015 (*Annex 7.1.14 Action E.4, Reports*).

The contractor continued the implementation of the Monitoring Program of the project "Monitoring of species and habitat types of birds and amphibians in the lagoons Epanomis and Aggelohori" through both works in the field and laboratory analyses. Both field works and laboratory analyses have been implemented in accordance with the timetable for implementing the project.

On March 30th, 2015 (οικ. 148477 (675)) a document was submitted to the vice-regional governor of metropolitan section of Thessaloniki in order to introduce it to the Metropolitan Commission for approval under the subject "Monitoring program for biotic and abiotic parameters in Epanomi area and Aggelochori 2015-2017" with project code Ε.Π. 1112ΘΕΣ003ΙΑΠ14.

On April 3rd, 2015 the Metropolitan Commission approved the promotion of the tender procedures in order to launch the program of "Biotic and abiotic monitoring program parameters in the area of Epanomi and Aggelochori 2015-2017" (New monitoring Programm, Approval for funding and call for tenders, ΑΔΑ: 775ΘΦ7ΛΛ-ΞΓΑ).

On June 17th, 2015 (οικ. 276374 (1245)) we have send a document to the Directorate of Finance of the RCM in order to start the procedure for tender proclamation for the action "biotic monitoring program and abiotic parameters in the area of Epanomi and Aggelochori (2015-2017)".

The subfolder "Documents Entry-Technical Offer" of the lodged tender was unsealed (economic body "Research Committee of Aristotle University of Thessaloniki"), the participation documents have been assessed from the five-member committee, and the technical offer was opened by the Special Committee of Technical Assessment. The minutes for the participation documents were prepared and signed on 28.9.2015 and the minutes for the evaluation of the technical offer on 30.11.2015.

The document No. 411505 (13375)/3-12-2015 was submitted on 03.12.2015 to the Economic Commission for approving the first phase of an electronic, open tender for the appointment of a contractor and issue a decision. The participant was notified electronically and then the financial offer was opened and minutes were drafted and signed.

In the Annex please find attached all the relevant documents for the new Monitoring Program that is under assignment by RCM. The last stage of the procedure has been approved by the Economic Commission of RCM and the contract is expected to be signed at the beginning of February 2016.

We should also inform you that the scientific work group of action E4 made monitoring works at the areas until 30/9/2015 in order to monitor the effects of the operation of works of action C2 for a period of up to 12 months after their completion. The results of these monitoring works are included in the final report of action E4. Besides, it should be noted that the primary monitoring period is from April to September every year.

The relevant documents and the final deliverable are attached in Annex 7.2.14 Action E.4.

4.1.16 Action E5: Networking with other projects

Foreseen start-date: 10/2010, Foreseen end-date: 9/2013

Actual start-date: 10/2012, Actual end-date: 9/2015

Beneficiary responsible for the implementation of this action is Balkan Environment Centre (BEC).

BEC look for similar LIFE projects implemented in Greece and in Euro Mediterranean countries, made a list with the ones that was relevant and the list was presented in the 2nd meeting of the Scientific Committee and it was approved. A draft of the Protocol for the establishment of the Networking Committee was written. In the 4th meeting of the Scientific Committee the Protocol for the establishment of the Networking Committee, the final list of the LIFE projects that will be asked to participate in the Committee and the text of the mail that will be sent to the project Managers were approved.

After the approval of the scientific committee, the contact details of the relevant projects was checked once again and a mail was send to all project managers (end of March 2013, beginning of April 2013) so as to participate in the network committee. In the beginning of June the Networking Committee was ready. It consists of 13 projects (Per Country: 2 ES, 1 CY, 1GR, 9 IT).

The first e-meeting in the 30th of August 2013. 6 projects participated, presented and discussed about the problems and the opportunities.

A second meeting was organized for the 29th of September 2015 and the relevant invitation was send to the members, but no confirmation from any of the members was send.

Even though there was only one meeting of the Network committee, a lot of results was redeemed, and confirms the importance of the operation of such committees.

List of stakeholders of different countries: Two of the participant members send a list of Stakeholders (OROKLINI - Restoration and management of Oroklini Lake SPA (CY6000010) in Cyprus (LIFE10 NAT CY000716) and Re.S.C.We. - Restoration of Sentina coastal wetlands) and with the updated list of BEC a final list of Stakeholders were made. This list

can be used for future collaboration in new environmental projects, or in future environmental events, as participants or speakers.

Information Material Collected: Information material for 10 similar LIFE projects was collected by BEC, and was uploaded on the e-platform. So information about similar actions was gathered together and is available to people interested in the thematology similar to our project.

Newsletters: BEC produced two newsletters for the project generally, the first in the beginning of the project (January 2011) and the second in March 2012. These newsletters have to do with ACCOLAGOONS project in general. Also BEC produced a newsletter concerning the first meeting of the networking committee. The first newsletter of the project was send with the mail asking for similar projects to participate in the network committee. Also representative of ORTHE circulate some copies of the 1st ACCOLAGOONS's newsletter to interested parties in the International Symposium on Water and Wetlands in the Mediterranean, Agadir, Marocco (6-9 of February 2012). Both first and second newsletter of the project was distributed on the 13/12/2012, in the Conference that was organized by ORTHE, in Thessaloniki. Finally, the newsletter concerning the first meeting of the networking committee was send to the participants of the network committee, in order to forward it to their stakeholders or interested parties. It is also uploaded to the projects web-site and e-participation tool, as and the two project's newsletters are.

Opportunities to promote the project in other countries: In the 2nd of May 2013 the Mayor of Stintino, Italy, Mr Antonio Diana, invited representatives of BEC to participate in the conference "ENVIRONMENTAL MANAGEMENT OF A TOURIST DESTINATION: NATURAL AND CULTURAL ENVIRONMENT, WATER, ENERGY AND WASTE", an International Convention of Studies on the interaction between the Environment and Tourism in the Mediterranean area, held on 5-6-7-8 June 2013, with the purpose of confronting the environmental protection of the local area with a touristic use of the territory, in accordance with the international legislation (<http://www.emtd2013.com/>). Mr Diana is a member of the Networking Committee of ACCOLAGOONS project with the project "ST.eR.N.A.: STagni e Risorse Naturalistiche e Ambientali di Casaraccio". Two members of BEC's project team participated and presented the ACCOLAGOONS project, and its objectives, and the importance of Environmental Projects in protected Areas.

Opportunities to collaborate in difficulties faced in the implementation of the project: We received a mail from member Project "ANDROSSPA - Management of the SPA site of Andros Island to achieve a favorable conservation status for its priority species", asked to cooperate concerning the friendly moorings, in order to low the transportation cost from a company that they found in France. SO we had the opportunity to discuss about a common problem that the two projects were facing.

Even thought one meeting took place all the reasons for establishing the Networking Committee were achieved:

- Dissemination of information in order to promote the aims, objectives, results and outcomes of the project.
- Exchange of experience as a problem prevention and resolve mechanism based on the experience obtained by other projects.
- Dissemination of know how in order to promote alternative technical solutions.
- Exchange of ideas in order to optimize the implementation of actions and maximize the efficiency of the project.

Networking is really an important Action, so in future projects, probably at least one physical meeting will be needed, to optimize the collaboration.

The relevant documents and the final deliverable are attached in Annex 7.2.15 Action E.5.

4.2 Dissemination actions

4.2.1 Objectives

Information and user awareness in the project area on issues related to the ecological, socio-economic and cultural value of the area and the consequent need to protect and respect this important wetland ecosystem is one of the most important tools for the successful area protection and management. Through the proposed actions, users are expected to change attitudes, opinions and behaviors in the way they exercise their everyday activities thus contributing to the effective protection of the area.

The communication strategy was implemented in three phases:

Phase A. Create a distinct identity of the communication project. It involved production and dissemination of information material, informative events and construction of an information network.

Phase B. It aims to inform and sensitize the general public about the project. It involved promoting environmental awareness efforts, publicizing the project to the public through the media, informative and other events.

Phase C. It aims at a permanent recognition and acceptance of the usefulness of the project and ecological significance of the project area.

4.2.2 Dissemination: overview per activity

The Action concerning dissemination was Action D.1: Publicity, Information material and dissemination actions. (Actual start-date: 10/2012, Estimated end-date: 9/2015)

Following the project acceptance decision by ORTHE Executive Committee (No 5/4/14.10.2010), the creation of the website for the «ACCOLAGOONS» project was designed and constructed with an external contract signed by ORTHE and “Inventics S.A.”, an Internet service company, on Dec. 16, 2010.

In compliance with the projects time table, the website has operated on a trial basis since Jan. 10, 2011 (in full operation since Feb. 16, 2011) and since March 2011 for the English version. After addressing the identified discrepancies by modifying the (Table of) Part D

Table 5 form F3 (completion on 20.6.2011 and integration to Inception Report on 12.7.2011), the preparative actions for tendering procedure according to the Directive 2004/18/ E.C., the P.D. 60/2007 and the PD 118/2007 were made.

The preparation of the tender documents (Public Tender, Specifications, Technical Specifications, etc) was finalised after the respective approval on the document by the LIFE committee on 26.9.11.

Despite the fact that the tender volumes entitled «Implementation services of Publicity, Informative Materials and Disseminating Actions of the ACCOLAGOONS Project» had been completed on time, there was a delay in the required approval on the appointing procedure by the Executive Committee of ORTHE (since the service time of the Executive Committee members had expired at 17.7.2011 and the new ones were designated on 07.11.2011). Following the 5/1/13.01.2012 approval decision, the tender procedure started with a notice publicised in the Official Journal of the European Community on 20.01.2012, at the same time inviting suppliers to tender until 29.2.2012. After the evaluation of suppliers offers by an evaluation committee, the evaluation results were approved by the 5/9/14.6.2012 ORTHE Executive Committee decision and a contract with the CAT ADVERTISING S.A. was signed on 10.07.2012.

In the meantime, a representative of ORTHE attended the International Symposium on Water and Wetlands in the Mediterranean, Agadir, Morocco from 6 to 9 of February 2012. Bearing in mind delays in implementation of Publicity Action D1 that came about due to the change of administration and the impact of the related inability of the Executive Committee to function properly, ORTHE utilized this time period for gathering and evaluating information and experience from corresponding actions implemented by other agents. Participation in the symposium has indeed contributed to the above objective since the topics of the symposium were deemed particularly important, given their close relevance to the ACCOLAGOONS project. There was a particular interest related to the design of Action E.6 After LIFE Conservation Plan (budget cost zero). Additionally, both the venue's organizers as well as its participants are agents that we would be very interested to include in the developing cooperation and information exchange networks. ORTHE's presence at the congress also gave them the opportunity to circulate some copies of the 1st ACCOLAGOONS's newsletter to interested parties.

Following the signing of contract with CAT ADVERTISING, a specified Communication Strategy Action Plan was submitted accompanied by a timetable for the deliverables. The implementation of the Action Plan was mainly done by ORTHE until 30-9-2014 which was the time of its abolishment and incorporation of its responsibilities to the Ministry of Environment and Energy. After the abolishment of ORTHE, TMSTH, a Department of Ministry of Environment & Energy is the beneficiary responsible for implementation of this action. Unfortunately, due to bureaucratic delays the last parts of the above Action Plan were not implemented.

In all, the following types of communications actions A-material means (design and production of information and promotion material) and B-non material means have been produced and performed:

Material Means (A):

No of Deliverable	Item	Quantities
A1	Logo and Slogan	1 logo, 1 slogan
A2	Notebooks	2000
A3	Adhesive central message stickers	3000
A4	Folders	2000
A7	Leaflet of the Program	16000
A7	Leaflet of the Project Region	4000
A9	Photo Archive. An Underwater Photo Archive was created focusing on the current situation of Posidonia Oceanicae at the areas of the Project.	1
A.10	Memorabilia (T-Shirts, Hats, Bags, Cards)	1000 T-Shirts, 2000 hats and bags, 500 cards
A13	Eco-friendly beach ashtrays	1000

Non-material Means (B):

No of Deliverable	Means

B1	<p>Website update</p> <p>Since November 2013, all the actions and the information materials (print outs, images, press releases etc) made under D1 Action uploaded at www.accolagoons.gr in order to provide continuing information about the ACCOLAGOONS Project.</p> <p>Also two issues regarding the web site mentioned in letter with Ref. Ares(2014)2801119 - 27/08/2014 have been identified:</p> <p>1. Web site traffic statistics.</p> <p>The web site counter assigns +1 value when a new browser session starts. So, when you first visit the page the value = value + 1. If you refresh the page then you are in the same session, so the value = value. If you close the browser and re-open it then the value = value + 1.</p>
B2	<p>Public Survey</p> <p>A public research was implemented aimed to investigate the degree of knowledge of the inhabitants of the areas about the ACCOLAGOONS Project. Other important information was resulted, as well, useful in adapting the Communication Strategy.</p>
B3	<p>Conference</p> <p>On 10-10-2014, the Secondary Education Directorate of East Thessaloniki, the 2nd High School of Perea and the National Teachers Union of Central Macedonia for Environmental Education, organized a conference entitled "Epanomi - Aggelochori Lagoons; a proposal of cooperation on joint school actions".</p> <p>The aim of the conference was to inform about the ACCOLAGOONS project and the specific characteristics of Epanomi and Aggelochori lagoons as a case study on the implementation of environmental programs and activities.</p>

B4	<p>Information campaign</p> <p>November 2014</p> <p>Informative material for the project ACCOLAGOONS: Actions for the conservation of coastal habitats and significant avifauna species in NATURA 2000 network sites of Epanomi and Aggelochori Lagoons was distributed in the 7th Commercial Exhibition Meeting “Building Green Expo 2014” in Athens, From the 21st to 23rd of November 2014.</p> <p>Summer 2014</p> <p>We had a positive response to the Action by the visitors – swimmers of the area, who were particularly interested for the printed material (Environmental map - afisete -, leaflet for proper environmental behaviour), and for the beach- ashtray and they joyfully accepted the projects souvenirs (hats and t-shirts), which were distributed during the first weekend of the campaign 26 & 27/07/2014 in the Projects wider area (Potamos, Navagio, Fanari, Mitika cape and Aggelochori beaches).</p> <p>The purpose of this action is to inform the summer visitors (swimmers), and other users who are actively involved in the Area, regarding the importance and the necessity to protect this sensitive ecosystem.</p> <p>The Weekend of 02 & 03/08/2014, the public information campaign was completed.</p>
B6	<p>Participation in the Project Meetings</p> <p>ORTHE/TMSTH participates in all the meetings relating to the Project.</p>
B7	<p>Leaflet and memorabilia distribution.</p> <p>80% implemented.</p>

Material, photos etc. of action D.1 are posted here: <http://accolagoons.gr/news-tenders.aspx>

The following types of communications actions A-material means (design and production of information and promotion material) and B-non material means have not been produced and performed due to bureaucratic issues not resolved after the abolishment of ORTHE:

Material Means (A):

No of Deliverable	Item	Quantities
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A5	Identification guide of coastal habitats and important species	500
A6	Guide of good management practices in coastal protected areas species	300 pages
A7	Leaflet (Program results)	1000
A8	Banner / Map of the Project area	1
A11	Multimedia material	1
A12	Maquette design	1

Non-material Means (B):

No of Deliverable	Means
B2	Information campaign Summer 2015 information campaign did not implemented.
B5	Media coverage and publicity. Not implemented.

During the project communication and public awareness events and campaigns, the following material has been distributed:

No of Deliverable	Item	Quantities Produced	Quantities Delivered	Delivered to
A2	Notebooks	2000	1760	Guest of A informative meeting 2012 Opinion leaders (Media) NGO Project beneficiaries Relevant Bodies/ Organizations Epanomi - Aggelochori Lagoons; a proposal of cooperation on joint school actions. 7th Commercial Exhibition Meeting "Building Green Expo 2014
A3	Adhesive central message stickers	3000	2810	Area residents Summer 2013 area visitors (swimmers) Project beneficiaries (to visitors of beneficiaries offices) Relevant Bodies/ Organizations

				Epanomi - Aggelochori Lagoons; a proposal of cooperation on joint school actions. 7th Commercial Exhibition Meeting “Building Green Expo 2014
A4	Folders	2000	1690	Guests of A informative meeting 2012 Opinion leaders (Media) N.G.O. Project beneficiaries Relevant Bodies/ Organizations Epanomi - Aggelochori Lagoons; a proposal of cooperation on joint school actions. 7th Commercial Exhibition Meeting “Building Green Expo 2014
A7	Leaflet of the Program & of the Project Region	16000	15885	Guests of A informative meeting 2012 Opinion leaders (Media) N.G.O. Project beneficiaries (to visitors of beneficiaries offices) Relevant Bodies/ Organizations Area residents Summer 2013 & 2014 area visitors (swimmers) Epanomi - Aggelochori Lagoons; a proposal of cooperation on joint school actions. 7th Commercial Exhibition Meeting “Building Green Expo 2014
A8	Banner / Map of the Project area	4000	3725	Guests of A informative meeting 2012 Opinion leaders (Media) N.G.O. Project beneficiaries (to visitors of beneficiaries offices) Relevant Bodies/ Organizations Area residents Summer 2013 & 2014 area visitors (swimmers)

				Epanomi - Aggelochori Lagoons; a proposal of cooperation on joint school actions. 7th Commercial Exhibition Meeting “Building Green Expo 2014
A.10	Memorabilia (T-Shirts)	1000 T-Shirts	950	Guests of A informative meeting 2012 Opinion leaders (Media) N.G.O. Project beneficiaries (to visitors of beneficiaries offices) Relevant Bodies/ Organizations Area residents Summer 2013 & 2014 area visitors (swimmers) Epanomi - Aggelochori Lagoons; a proposal of cooperation on joint school actions. 7th Commercial Exhibition Meeting “Building Green Expo 2014
A.10	Memorabilia (Hats & Bags)	2000 hats and bags,	1975	Guests of A informative meeting 2012 Opinion leaders (Media) N.G.O. Project beneficiaries (to visitors of beneficiaries offices) Relevant Bodies/ Organizations Area residents Summer 2013 & 2014 area visitors (swimmers) Epanomi - Aggelochori Lagoons; a proposal of cooperation on joint school actions. 7th Commercial Exhibition Meeting “Building Green Expo 2014
A.10	Memorabilia (Cards)	500 cards	500	Guests of A informative meeting 2012 Opinion leaders (Media) N.G.O. Project beneficiaries (to visitors of beneficiaries offices)

				Relevant Bodies/ Organizations Area residents Summer 2013 & 2014 area visitors (swimmers) Epanomi - Aggelochori Lagoons; a proposal of cooperation on joint school actions. 7th Commercial Exhibition Meeting “Building Green Expo 2014
A13	Eco-friendly beach ashtrays	1000	810	Area residents Summer 2013 & 2014 area visitors (swimmers) Epanomi - Aggelochori Lagoons; a proposal of cooperation on joint school actions.

No of Deliverable	Event
B3	Epanomi - Aggelochori Lagoons; a proposal of cooperation on joint school actions.
B4	7th Commercial Exhibition Meeting “Building Green Expo 2014
B4	First part of Summer 2014 information campaign 26 & 27/07/2014 in the Projects wider area (Potamos, Navagio, Fanari, Mitika cape and Aggelochori beaches).
B4	Second part of Summer 2014 information campaign 02 & 03/08/2014.

Finally, both LIFE and Natura2000 logos were featured at the covers, pages and maps of the deliverables of all Actions.

The relevant documents are attached in Annex 7.3.2 Action D.1.

4.3 Evaluation of Project Implementation

4.3.1 Methodology

The experimental and methodological approach implemented by the project allowed the development of optimum techniques and methods in order to deal with the following essential issues: the *Posidonia* beds degradation, the hydrological and ecological status deterioration of the lagoons, the management of intense recreation / tourist activities and the absence of stakeholder participation in actual management procedures.

The methodology applied for the implementation of the project was based on the recent bibliographic sources which deal with the protection and sustainable management of natural resources. The monitoring methodology was selected in order to have no impact on the protected species and habitats (mainly non destructive methods such as mapping with the use of satellite images and echosounder, identification of organisms without sampling when possible - visual methods, record of macrofauna organisms including fish via SCUBA diving sampling, etc). The lagoon restoration methodology based on the function and service analysis comprises one of the proposed methodological tools for wetland restoration by the Ramsar Convention. Its implementation in the Epanomi lagoon area demonstrated the effectiveness of the technique and a best restoration practice. Recording and monitoring of the composition and abundance of priority/important bird species that reproduce and nest at both sites took place by making inventories after the identification and evaluation of the habitat types for nesting and reproduction. In addition the approach of the project's objectives was based on the European Directives, for example monitoring and characterization of the water quality was implemented as described in the Water Framework Directive as well as in the accompanying documents. Furthermore management of breeding and resting habitats of bird species focused on species protected and prioritized under the Birds Directive and habitats protected under the Habitats Directive.

4.3.2 Objectives' achievement

Task	Foreseen in the revised proposal	Achieved	Evaluation
Development of a management plan Establishment of a monitoring system Installation of <i>Posidonia oceanica</i> friendly moorings Monitoring of the water quality	Conservation of the marine habitat types	The management plan proposed an Alteration/Expansion of the limits of the marine parts of the two SACs The baseline data regarding the extend and the conservation status of the marine habitat types can be used for the estimation of management's effectiveness. The establishment of the monitoring system can reflect the pressures that the priority habitat type *1120 is facing whereas monitoring of the	The specific objective's management was successful. The only problem regarding the achievement of this objective was the delay in the installation of the friendly moorings (Action C1)

		water quality (we already have a time series via the implementation of the project can be important in predicting degradation of the marine habitats)	
Restoration plan of the Epanomi Lagoon functions Strategic Environmental Assessment and Restoration of Epanomi Lagoon functions	Restoration of Epanomi's lagoon functions	<p>The restoration plan of the Epanomi lagoon functions was developed by BEC and a tender was released by the RCM.</p> <p>The results from the Strategic Environmental Assessment showed that works deriving from the Project's actions are expected to have a significant positive effect on biodiversity, soil, water and local population as long as certain precaution and confrontation measures are taken into consideration</p> <p>The works for the restoration of Epanomi Lagoon functions were implemented</p>	The specific objective's management was successful. The only problem regarding the achievement of this objective was the delay in the conduction of the restoration works (Action C2) that left limited time for the estimation of the management's results. As a result of that RCM continues monitoring for three years (tender has already been released and the offers are being evaluated)
Development of digital infrastructures for collection, processing and diffusion of pollution data Litter removal from the Epanomi Lagoon area Monitoring of the water quality	Estimation of Pollution	<p>The telemetric stations were fully established in the area and are fully operational.</p> <p>The litters were removed from the Lagoon area as scheduled and monitoring of the water quality via sampling and in situ measurements took place during the whole duration of the project</p>	The specific objective's management was successful. Unfortunately the telemetric Station that was established in place "NAVAGIO-Epanomi" was stolen. As a result of that RCM conducted a new tender and replaced the station
Management Plan of the breeding and resting habitats of	Designation of sites, Management	All of the actions related to this objective were implemented successfully.	The specific objective's management was successful. The only

<p>priority bird species. Monitoring of bird and amphibian species and habitats at Aggelochori and Epanomi Lagoon</p>	<p>and monitoring of important bird species and the relevant breeding and resting habitats</p>		<p>problem regarding the achievement of this objective was the delay in the conduction of the restoration works (Action C2) that left limited time for the estimation of the management's results on the avifauna.</p> <p>As a result of that the RCM continues the monitoring for three years (the tender has already been released and the offers are being evaluated. Constructed islets in the area of Epanomi however were shelter for a significant number of birds breeding or wintering in the area.</p> <p>Monitoring works that took place by the scientific group of action E4 at the areas until 30/9/2015 (in order to monitor the effects of the action's C2 works operation for a period up to 12 months after their completion) showed that populations of protected birds that naturally occur in the areas have been increased in comparison with data for same period recorded before the construction works of C2 and C4 actions (action A5) and during these works (action E4 data for period</p>
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			3rd to 9th 2014).
Visitor management plan, Publicity, Information material and dissemination actions, Environmental interpretation technical works	Control of touristic/leisure activities and public ignorance	Visitor management plan and Strategic Environmental Assessment played a significant role on the success of this objective. In addition environmental interpretation constructions in combination with the rest publicity, information and dissemination actions helped towards this direction.	The specific objective's management was successful.
Establishment of stakeholders' e-Participation tool and Networking with other projects	Stakeholders' cooperation	The specific objective's management was successful.	

✓ There are specific actions of the project that the results are immediately obvious. Such actions are the dissemination actions, the control of touristic activities, the identification of pollution issues, etc. On the other hand there are actions whose results can be seen in the future. Most of these actions deal with the evaluation of specific management measures such as the installation of friendly moorings, the restoration of Epanomi's lagoon functions, the establishment of a monitoring system for the marine habitat types, etc.

Despite a structured approach communication strategy, information and awareness actions to the public of the project area have encountered problems in their implementation. On the other hand they also had significant positive results.

The abolition of ORTHE and its replacement by the Ministry of Environment caused significant delays in the implementation of communication activities so some of them did not materialize.

In addition, local residents, especially older people and also those who have private interests in the region (eg owners of nearby properties) were negative in information campaigns as the degree of their environmental awareness, like most Greeks, is low.

On the other hand, targeted communication actions in younger people (students) and area visitors performed extremely well, mainly reflecting the better level of education of young people and their increase awareness in environmental issues.

Particularly it should be noted that through the communication actions of the project, a support network of teachers and students created aiming to implement actions that will have

as its main objective the protection and promotion of wetlands of the area. The network organized events in the region throughout 2015 with great success.

More particularly, a tour of students and teachers was organized. Specialists of project ACCOLAGOONS gave them information on the flora, bird life and endangered species of the region. The tour was combined with bird watching activity under the supervision of ornithologist. Also students and teachers cleaned the beach area and the area around the lagoons at various occasions during 2015. The participation of teachers and students were very enthusiastic and encouraging and we strongly believe that such actions will continue in the years to follow. More can be found here (in Greek): <http://goo.gl/6L2zAv>.

4.4 Analysis of long-term benefits

4.4.1 Environmental benefits

Direct / quantitative environmental benefits: establishment of a monitoring system for the marine habitat types, update of the conservation status of habitats and species, identification of the main threats, litter removal from the coastal areas, public awareness, monitoring and early warning system of marine and lagoon pollution using new technologies, guidelines for good management practices

Long-term benefits and sustainability: enhancement of the conservation status of the priority habitats, restoration of the hydrological and ecological status of the Epanomi lagoon, effective management of the visitor activities, reduce of the impact on the physical environment and its biota, increase of the environmental awareness, early warning of water pollution, evaluation of the applied management measures. It should also be pointed that approach of the project's objectives was based on the European Directives. Monitoring and characterization of the water quality was implemented as described in the Water Framework Directive while management of breeding and resting habitats of bird species focused on species protected and prioritized under the Birds Directive and habitats protected under the Habitats Directive.

Best practise – Demonstration: The experimental and methodological approach implemented by the project allowed the development of optimum techniques and methods in order to deal with essential environmental issues.

The project comprises a series of steps and actions for dealing with: the relatively common threats (intense tourist activity, aquaculture, fisheries, intensive farming) and the degradation of Natura designated coastal sites, including natural habitats with common features (presence of lagoons, coastal habitats, beaches, nearby cultivations).

The logical framework of the management procedure that was implemented at both sites in combination with:

- a) the implementation of new technologies and monitoring systems for the water and marine habitat quality and early warning for pollution incidence,

- b) restoration actions of lagoon and habitat functions conservation actions of the avifauna habitats,
- c) creation of e-participation tool comprise demonstration actions that could be applied or introduced in the implementation procedure of similar actions in other coastal areas of the nation and the Mediterranean Sea.

Future activities: The following activities will be maintained in the future:

- Continuation of operation, collection and management of telemetry stations' data for the monitoring of water quality and the maintenance of these. The operational maintenance of the stations will be ensured through the collaboration of the RCM with the Balkan Environment Center that has the technical and scientific expertise
- Continuation of the monitoring (including habitat types, avifauna, water quality, etc) for three years. RCM has already released the relevant tender and the offers are being evaluated.