



PROJECT

LIFE ENV/GR/000751 ZANTECOAST :

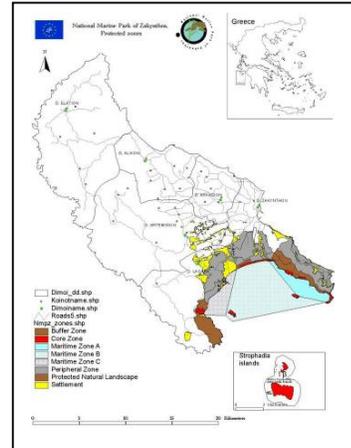
LAYMAN'S REPORT

LIFE ENV/GR/000751 ZANTECOAST: LAYMAN'S REPORT

Introduction

In the warm and sunny south of Europe along the 15,000 km of coastal area of Greece, where most of the tourist activity is located together with 80% of all other activities, you will come across some of the most important natural habitats of the country, as well as those of Europe for this matter.

Such an important biotope for the rare and threatened species of the sea turtle *Caretta caretta* is the bay of Laganas, which is in the island of Zakynthos in the Ionian Sea. The 3.5 Km of beach in total is considered to be the most important nesting area in Europe. The high quality of sea waters and sandy beaches in the last two decades attracted considerable tourist activity, upon which little control of its negative effects is exercised, resulting into serious threats for the biotopes.



For this reason in the winter of 1999 the National Marine Park of Zakynthos (NMPZ) was created by Presidential Decree aiming at the protection and the preservation of the *Caretta caretta* and other species such as the Mediterranean monk seal *Monachus monachus*, as well as several other important species of animals, birds, amphibians and flora, sand dunes etc.



Project scope and objectives

The programme LIFE ENV/000/751 “ICZM: Demonstration Actions in the National Marine Park of Zakynthos” came in aid of the Park by offering its support in the implementation of important activities dictated by the constitutional terms of the park as well as a large number of other operational objectives. It commenced on June 2001 and was completed on November 2004. The NMPZ (the beneficiary) had no partners in this project. The Ministry of Environment, Physical Planning and Public Works (YPEHODE), along with the Prefecture of Zakynthos (Nomarhia Zakynthou), and the Municipalities of Lagana & Zakynthos, were co-financiers. Technical, scientific and management support was provided by “ENVIPLAN - G. Tsekouras & Associates”.

The main objective of the project was the application of Integrated Coastal Zone Management (ICZM) and sustainable development utilizing local initiatives and ensuring that the general public and visitors to the park are best informed about its importance and need of protection.

Thus the project concentrated on five (5) main activities of which each one consisted of a large number of other activities.

Specifically one major activity / task supported by the programme was, firstly, the Management of the Park using methods and tools fitting to its peculiarities and at the same time aligned with “state of the art” techniques for the planning, monitoring and evaluation processes of which the management tasks consisted of.

Secondly, international cooperation and support for know-how and exchange of experiences with bodies, agencies and individuals who possess valuable knowledge in this field and which could be applied in the case of NMPZ. Such experiences cover a very broad spectrum of subjects ranging from anchoring techniques for the fixing of demarcation buoys, as in the case applied in Laganas Bay, to dealing with the public in several respects including accreditation systems and awards.

A third important objective concerns protection and preservation of the park. This task includes several activities which can be broadly divided into:

- a) soft actions such as wardening of the grounds and beaches and cooperation with the coast guard for patrolling the sea area. Another important soft action concerns the management study for Keri wetland and greater area.
- b) In the hard actions a number of constructions were made in order that sand dunes and steep banks should be controlled, bars for stopping movement into sensitive areas, the construction and erection of watch out huts playing also the role of information kiosks during day time (dual use in most cases), control of night lights on the coastal strip in order to prevent the disorientation of the newly hatched turtles so that they can find safely their way into the sea, as well as the positioning of special buoys for delineating the separate protection Sea Zones of the bay and surrounding areas.

A fourth and extremely important objective turned into operational tasks concerns matters of motivation of the public in general and specific sectors of the primary and tertiary sectors, such as farmers, fishermen, hoteliers, shop keepers, tour operators, guides etc. Through the project it was also sought the use of motivation for the development of effective public participation and the building of awareness of the special value of the particular area. Seeing the park as a resource from which they can all benefit, either for simple enjoyment and recreation to education and the development of new economic activities based on the services which they can offer, it is hoped that its broader social and economic importance can be perceived easier.

Finally, the fifth and very critical objective relates to the promotion of the work of the park and its importance as well as dissemination of achievements and know-how to other areas and agencies with similar characteristics and aims. Main concerns of the promotion campaign revolved around the value and importance of the loggerhead sea turtle and the rest of fauna and flora of the Park area.

Technology / methodology & techniques

The programme underlines the need for the development of a methodology that can take into account a broad mixture of actions, which themselves can be differentiated into soft actions and others with a physical output. These actions can be further sub-divided into “one-offs” and others that are repeated more than once during the project’s life span and beyond.

In order to achieve the objective of active public participation, a bottom-up approach was adopted for the implementation of actions dealing with monitoring and surveillance, accreditation and certification, as well as collaboration with local stakeholders. This approach contributed to the formulation of a common vision for the long term management of the natural and economic parameters of the implementation area.

Operationally, all work packages have been organised in three main set of actions: preparatory actions (legal procedures, data collection, design / studies, motivation), implementation actions and actions aiming at disseminating information.

It was imperative to establish monitoring and evaluation mechanisms for all the actions concerned, and that the output should be capable of quantification.

Recurrent actions

A **wardening system** was developed for the Park. The wardening plan comprises three different sections: a) wardening of nesting beaches, b) wardening of marine area and c) wardening of forest area. Preparation activities included for each section the details given for the exact location of wardening and infrastructure / equipment needed, the procedure to follow to employ guards, the efficiency of guards, the training of guards and the collaboration with local and national administrative services. Furthermore, specific guidelines about wardening activity are written and given to each warden when its contract is signed.



A special communication policy was developed for in order to attract the local population, as well as local entrepreneurs and visitors. The methodology adopted for the **collaboration and involvement of local stakeholders** in accordance to the National Marine Park objectives, is based on the international experience and scientific literature. The different phases comprise the collection of data, the draft of guidelines for good environmental practices, the discussion with local operators about the guidelines and the establishment of a collaboration protocol (endorsement / charter). The international experience plays a major role since potential mistakes in implementing this action can be avoided. As an example, the charter established with the turtle spotting operators is mainly based on the experience of French, Spanish and Canadian national parks.

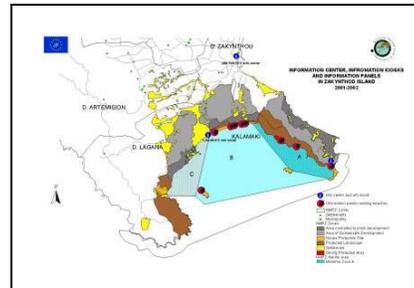


A **purpose built method for evaluation indicators** was devised for the assessment of the programme. It is obvious that the availability, validity and precision of the data and information are directly linked to the effectiveness of this tool which aims to the most objective presentation of progress, efficiency and effectiveness of the project. The type of indicators which were developed for the specific project and also the number of indicators used per action, procedures, etc. influenced greatly the possibilities for prompt identification of problems, hindrances, opportunities and

possibilities, which were inherent in the project. The members of the Agency, thus, had the opportunity to use these indicators at the planning stages but also at the stages of implementation, monitoring and review. For these reasons specific indicators were selected for the ex-ante, on-going and the ex-post evaluation of the project. The usefulness of the method developed should be taken advantage for the evaluation of similar projects, as well as for continuous assessment of the functioning of related organizations.

The **development of a “purpose built” GIS** enables the registration and monitoring of important constituent elements of the Park. The parameters monitored and registered on the System reflect physical and socioeconomic changes. The procedure included the following steps:

- a) compatibility and correction of base maps,
- b) data base design, selection of suitable indicator / indices analysis layers and input import,
- c) monitoring and production of thematic maps.



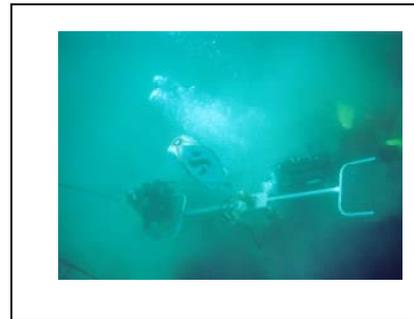
Non-recurrent actions

Delineation of the marine area

The Harmony anchorage system was used in the delineation of sea zones. There was need to protect the sea bed of Posidonia (considered to be the marine “tropical forests” of the Mediterranean). Know-how transfer gave the opportunity to NMPZ staff to find solutions adopted in other protected areas. The scientific literature and the different actions taken in the National Marine Park of Port-Cros (France) led the NMPZ to implement this technology.



In order to avoid the damages created by dead-weights on sea-grass meadows for the delineation of marine area, a special steel coil is drilled into the seabed, without cutting or crushing the dense network of seagrass’ roots and rhizomes. An anchor attachment ring, measuring less than 5 cm in diameter, is fastened to the head of the coil. In some cases (hard substrate), the substrate is perforated to an appropriate depth and a stainless steel rod is fixed within. The anchor attachment point consists of a reinforced ring bolted to the head of the rod.



The technology used for the positioning of the anchorage system consists of a hydraulic key that drills the steel coil into the seabed. Two divers are needed for fitting the equipment. The anchor line that is fixed to the head of the steel coil is kept permanently taut in open water in order to avoid damages of the rope on the Posidonia. At the surface, the line is attached to a marking (delineation) buoy. For each anchorage system, the geographical coordinates were taken using a GPS system and a small buoy fixed at the head of the coil in order to avoid possible loss due to external intervention. The geographical coordinates were written into the GIS –Arcview software and maps printed.

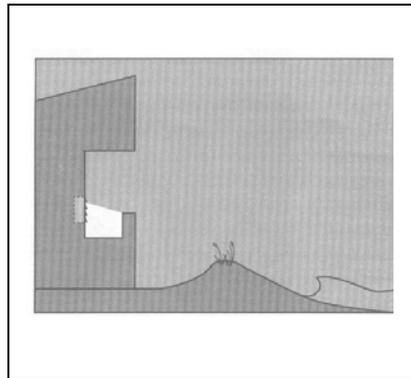


The delineation of the marine area of the NMPZ required also a permit that was issued by the Ministry of Maritime activities at the end of May 2002. The main technical characteristics of this permit include the kind of anchorage system used (Harmony for the sea-grass habitats, dead-weights for sand), the kind of buoys used (spherical yellow buoys in the A area and conical yellow buoys in B and C areas), the distance between the buoys (75 meters for area A, 150 meters for B and C areas) and the technical characteristics of anchor lines (rope or chain according to the kind of anchorage used).



Lighting guidelines

One of the main problems for the newly born sea turtles is to find their way to the sea. The artificial lights on buildings and on roads disorient them. In specific areas of the NMPZ, it is obligatory to use special artificial lights that don't disturb the sea turtles. In order to help the local operators to use only non-disturbing artificial lights, a special guide was elaborated, based on the Presidential Decree 906D and on recommendations made by the Ministry of Environment, Physical Planning & Planning Works and the Sea Turtle Protection Society (STPS).



Good Practice Code for turtle spotting boat owners: "Discrete observation of the Loggerhead sea turtle Caretta caretta"

This code contains specific guidelines for harmless observation of the Loggerhead turtle; namely, approach distance, continuous observation time allowed for anyone animal, boat speed during observation and maximum number of boats, daily periods for observation etc.

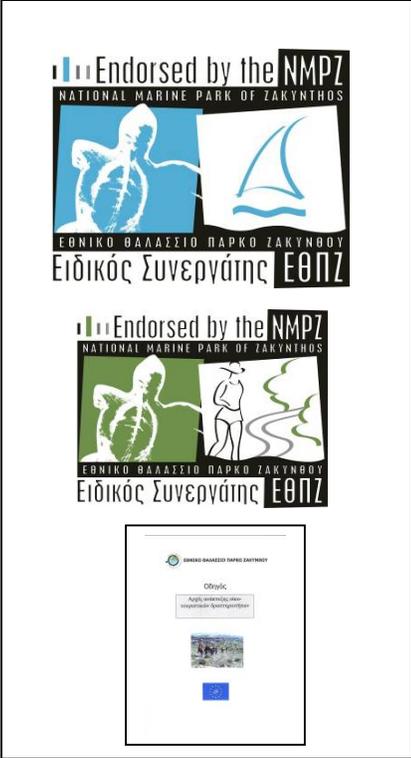


A specific logo has been designed, indicating "Endorsed by the NMPZ", corresponding to two types of contracts: a) "Co-operation framework between the NMPZ Management Agency and the Marine Excursions Boat Owners", which concerns two associations operating in the Lagana's bay. The main features of the contract are the obligation for the association to strictly implement the code of conduct "Discrete observation of the Loggerhead sea turtle Caretta caretta" with the prerequisite that each member of the association accepts all the articles and obligations of the code. In the case one member is not implementing the code of conduct he loses the right to belong to the association; b) individual contracts for each operator, member of the aforementioned associations, allowing the distribution to the public of different materials provided by the NMPZ Management Agency.



Code of conduct entitled “Principles for the Development of Eco-tourism Activities”

The elaboration of a code of conduct for Eco-tourism activities aimed to the harmonization of tourism strategy adopted by all operators involved and to sustain the bio-diversity and cultural authenticity of NMPZ area. Initially, emphasis was given to ecotourism interpretation and education, best practices, ecotourism benefiting local communities, customer satisfaction and responsible marketing. Beyond the general principles, specific codes of conduct were elaborated which concern sight seeing / general awareness activities, rambling activities and marine excursions. Three logos were designed and two distributed: “Eco-tourism sea tours in the area of the NMPZ”, “Hiking in the area of the NMPZ” and “Green-accommodations”.



Code of good environmental behaviour for tour operators

Includes issues concerning available accommodation (quality and environmental criteria), parallel / complementary services and activities offered to visitors (awareness, trips, participation in eco-activities), promotion and marketing (common image).

Code of Proper Agricultural Practice (CPAP) and Animal Rearing

The Code aims to inform, help and sensitise the agricultural producers in the National Marine Park of Zakynthos area and of Zakynthos in general, through substantiating the necessity of adhering to its content, in order to safeguard their agricultural income and at the same time protect the environment they work in. Guidance was provided by the Greek Ministry of Agriculture and the Department of Agricultural Development in the Prefecture of Zakynthos.



Training and awareness sessions were carried out, focused on two target groups: individual farmers and agricultural cooperatives.

Warden huts / information kiosks

The warden huts as well as the information kiosks are a part of the surveillance / information network that the NMPZ intends to create in the area. The technical characteristics and the design of the huts were elaborated in accordance with the technical guidelines from the Ministry of environment (YPEHODE) and the Greek Ornithological Society. The construction is all made of assembled pieces of wood and can be easily transported, by dismantling. It is painted with green water based paint. The main dimensions are 2.00 meters * 2.00 meters*2.3 meters and their weight is about 150 kg.



Information panels

The NMPZ, in order to inform visitors at the nesting beaches and at entrance points (airport, harbour), elaborated information boards. The frame of the board is all made of wood painted with green water based paint. The technical characteristics are in accordance with the technical guidelines edited by the Ministry of environment (YPEHODE). The information is printed on 5 different aluminium panels containing the logo of LIFE Environment and NMPZ, the name of the place, a general map of the park area with the different zones and an arrow pointing the place where the board is located, the presentation of non-allowed activities and the data of the NMPZ. Dimensions of the template are 3.00 m*1.60m.



Information center

In 2001 an information kiosk was functioning in Zakynthos' town. For the summer season 2002, the municipal Theatre of Zakynthos was rented and is currently functioning from 9.00 am to 2.00 pm and 5.00 pm to 10 pm daily. A permanent photographic exhibition and audio presentation facilities, including a video set showing documentaries and other visual material concerning the NMPZ are presented to the public.



Dissemination / promotion materials and "dressing up for the job"



Warden huts and wardens' uniforms

Warden uniforms and binoculars



Posters, wooden stands



Tv, video, wooden stands, panels



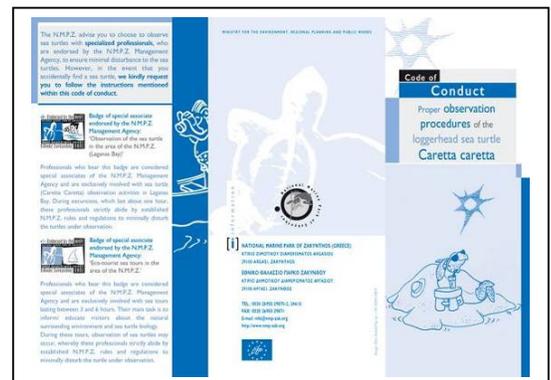
Modelling of the NMPZ' area



Information campaign



Tee-shirt and panels "Endorsed by the NMPZ"



Leaflet "Code of conduct"

Environmental impact - benefits

The backbone of the project, which is emphasising in the establishment of a long term coalition between local actors (Management Agency, NGO's, professionals, residents, politicians) support from all sides for long term development and protection. During the implementation period it was proved that the application (in a practical and exemplary manner) of the principles governing the creation of the NMPZ is feasible and will lead to the achievement of a balanced and sustainable development in economic, social and environmental activities/functions, by carrying out specific management projects and measures targeted at the preservation of the species and habitats of the area. More specifically, the project promoted the idea of integrated coastal zone management and sustainable development through local initiatives, amongst the people who are economically active in any sector of the area. It also ensured that local population and visitors to the area are correctly informed about the importance of local natural habitats.

It also put forwards a clear and simple framework for that type of economic activity which can peacefully coexist with the park.

The environmental benefits of the project concern mainly:

- more effective conservation of the *Caretta caretta* sea turtle and other fauna and flora (both marine and terrestrial),
- better implementation of protection measures within the park area,
- more environmental friendly activities by local operators.

As it regards the landward area:

- significant reduction was achieved to trespassing by visitors and local people who were either on leisure activities or their work pursuits,
- More effective control of building and other development activities
- Gradual alignment with instructions regarding night lighting by leisure and entertainment activities owners along the coast, thus reducing disturbance and especially disorientation of the newly born turtles heading for the sea
- significant reduction was achieved to trespassing by night time visitors and disturbance of the nests
- commencement of environmental friendly agriculture practices by adjacent farmers
- significant reduction of rubbish dumping on the terrestrial part of the park
- day time misbehaviour by swimmers and other visitors as well as the beach rental equipment people, has been reduced significantly involving the location of umbrellas and deck chairs in relation to the nesting spots
- a land use and activities management study for the Keri wetland, of which the approval and implementation will safeguard the welfare of biotopes and local ecosystem.

As it regards the marine area, the demarcation of the area by means of buoys has gradually aided the control of recreation and visitors boats, thus reducing the dangers to the turtles and the rest of the ecosystem considerably. The carefully chosen anchoring system for the buoys avoided the destruction of *Posidonia* fields.

Finally, the programme has created the initial momentum for dealing with the immediate and pressing needs of the area. This momentum, in combination with:

- the management and monitoring tools delivered by the project, e.g. the marine delineation network, the environmental information mechanisms supported by the GIS
- the overall benefits from the awareness and information activities

is expected to make a decisive contribution to the promotion of sustainable development in the Marine Park area.

Cost-benefit of the results

A large number of actions were of considerably low cost, with certain exceptions such as the anchoring system of the demarcation buoys. For the majority of the actions there are considerable benefits, mainly for the local community, the operators in the area and the visitors. These benefits are both of social and economic nature; it is expected that the momentum which has been created through the actions of this programme, would be substantial. For example, employment through wardening, guided tours, turtle spotting trips and other ecotourism activities etc. is already on the increase. As far as the NMPZ is concerned, direct economic benefits are negligible. However, in the indirect economic benefits one should presume to be the expected and already manifested decrease of damage done to park property and natural features, smaller cost for surveillance and patrols, since the gradual building of ecological conscience by the locals would lead to the various operators undertaking informally a number of surveillance duties and generally keeping a watchful eye on matters concerning the protection and preservation of the area. In addition specific economies were made in the sector of acquiring and diffusing know-how due to the fact that several paid invitations were made to the staff of the NMPZ in order that they can share newly acquired experiences with others. It is possible that in the years to come some revenue can be achieved by the sale of articles and materials and associated good will agreements for the park itself.

It must be stressed that relaxation or discontinuation, for any reason at all, of the main activities and concerns of the staff of the NMPZ and the Agency as a whole would lead undoubtedly to increased operational costs.

Aborted actions and difficulties

It must be stated that the NMPZ is the first park in Greece set up by legal procedures and operating with a Management Board and Staff. As expected, there were a number of difficulties experienced since there was no practical advice and methods which can be borrowed by other national parks operating in the country. The difficulties encountered can be broadly divided into three categories. The first involves financial matters and especially the lack of cash flow which inevitably led to the disillusionment of the Management Board and the eventual strike of the staff. The second category of problems concerns quasi legal matters: legal problems with land ownership, with the obligations of the local authorities and Coast Guard regarding enforcement but also the legal competence of the Park in enforcement and the application of incentives for the participation of third parties in matters concerning the park. A third category of difficulties stems from the fact that the low awareness of the public and entrepreneurs regarding the environment and the importance of the park itself hindered the progress and completion of some activities. Some of the activities which suffered as a result of the aforementioned difficulties was the completion of EMAS. Despite that, the first phases of explaining to the entrepreneurs the context of the EMAS and their initial collaboration with the team handling the activity led to the familiarisation of those involved with the programme itself but also with the benefits that can be achieved in the future.

Most difficulties were however surmounted through the implementation of constant participative process and the active involvement of local stakeholders. The Life project implementation contributed undoubtedly to improve the mid term and long term operation of the NMPZ.

Transferability of results

The programme's most interesting feature is that for the first time the task of protection and management was undertaken by an already established agency in which local stakeholders participated, including government agencies of administration and law and order. Given that a large number of activities (estimated to be 80%) take place along the coastline of Greece, upon which a large number of conflicting activities exist which make conservation and preservation work extremely difficult, this application renders the outcome of extreme importance to apply elsewhere.

Due to the fact that in Greece several formally registered habitats lack statutory approved management bodies, the transferability potential is both significant and extensive. Similarly, the development of such a strategy (ICZM), which also takes care of cases where there is high conflict between socio-economic interests and preservation of areas of high ecological value, covers urgent needs.

The management plan, as well as number of techniques used such as communication policy, good practice codes for the public and different categories of professionals, endorsement of cooperation agreements etc. can be applied to a large number of newly created Management Boards in the rest of Greece. Furthermore, the design and implementation of a purpose built method for evaluation indicators, supported by a tailor made Geographic Information System, can apply to a large number of similar habitats nationally and at EU level. Modifications to the special anchorage system (Harmony type) were also carried out and the knowledge of that process can be useful to others.

As far as EU interest is concerned, the project addresses the issues of the EU Communication on a European Strategy for Integrated Coastal Zone Management. More specifically, it seeks to address the underlying problems facing the coastal zone, namely: lack of information, insufficient participation by stakeholders and uncoordinated planning and management by different sectors and levels of administration. In accordance with the Communication, the project highlights particularly the need for everyone to work together to ensure the future vitality of the country's coasts. To this end, national government, local and prefectural administrations, NGOs, local residents, visitors, tour operators, fishermen and port authorities (also acting as coast guards) will all have a role to play to ensure that the coastal zone is well managed.

The project's approach to sustainable development is in line with the strategy adopted by the Fifth Action Programme, i.e. identifying the right balance among the three aspects of human activity (social structure, economic development and environmental conservation) in order to achieve a lasting and environmentally-aware development. It addresses all five implementation instruments used in the 5th Action Programme, while the focus is placed on the "promotion of land-use planning integrating the environment".

Useful information

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■ **Publications**

Guides / Codes (in greek)

Guide: Principles for the development of eco-tourism activities

Code of good practice and endorsement for "turtle-spotting" boat owners

Code of Good Practice for Agricultural Farming and stock raising activity in the NMPZ' area

Code of proper agricultural practice (C.P.A.P.) for the management of agricultural environment: the needs for implementation in the national marine park of zakynthos area (Abstract in English)

Reports (in English)

- Five progress reports Life Environment ZANTECOAST project (01/06/2001—31/01/2004)
- Final Report Life Environment ZANTECOAST project

Studies (in Greek)

- Paraskevopoulou A./ Papara M.: Study for the management of the coastal wetland of Keri and its greater area (2003)
- Euroconsultants S.A.: Planning, development and implementation of EMAS within the National Marine Park of Zakynthos (2004)

Publications

- 2002, “Implementing governance principles in a protected area: the case of the National Marine Park of Zakynthos (Greece)”, in “Governance: protected areas and institutions in the Mediterranean region, November 29-30th, Parque Natural del Garraf, Barcelona, Spain, 2002).
- 2002, “Sustainable tourism development in the National Marine Park of Zakynthos (Greece): developing new activities compatible with the aims of nature conservation”, in “The first Egyptian-International Conference on Protected Areas and Sustainable Development, Sharm El Sheik, Egypt, October 23-26th”
- 2002, “ How tour operators can benefit from an “eco-image” with classifications for Environmental Friendly Enterprises” in workshop “Tour Operators and the Zakynthos Marine Park: Funding the Park, Upgrading the Tourism Product, Zakynthos, Greece, May 26th- 28th, 2002”
- 2002, “Sustainable development in the area of the National Marine Park of Zakynthos: the needs to upgrade the tourism product”, in workshop “Tour Operators and the Zakynthos Marine Park: Funding the Park, Upgrading the Tourism Product, Zakynthos, Greece, May 26th- 28th, 2002”
- 2002, « Promotion d’une gestion intégrée des zones côtières et d’un développement touristique durable dans un espace protégé : le cas du Parc National Marin de Zakynthos (Grèce) » in « Proceedings of the Mediterranean Symposium on Marine and coastal Protected areas, Roses and l’Estartit, Spain, 6-10 March 2002”, Generalitat de Catalunya, Barcelona, pp 225-230

■ **Related Projects**

Ended:

- CSF “*Laganas Zante Marine Park – Biotope management (1994—2001)*”

On going:

- CSF “*Organisation of the protection and management of the National Marine Park of Zakynthos(2004—2008)*”

- INTERREG III, C, “*The network of Managers of Marine Protected Areas in the Mediterranean*” (2005—2008)

Accepted:

- INTERREG III, B, ARCHIMED, “*Archicharter, The European Charter for Sustainable Tourism in protected areas of Archimed regions integrated with EMAS, Agenda 21 and Ecolabel*”(2006—2008)

■ **Website (photo gallery)**

[Http://www.nmp-zak.org/life/LifeEnv/](http://www.nmp-zak.org/life/LifeEnv/)

■ Glossary

○ *Key-words*

- Integrated coastal zone management
- Sustainable development
- Local initiatives
- Code of conduct (good environmental practices)
- Awareness plan - active public (local population & visitors) participation
- Accreditation & certification of economic activities
- Volunteerism

○ *Abbreviations*

- ▶ NMPZ National Marine Park of Zakynthos
- ▶ YPEHODE Ministry of Environment, Physical Planning & Public Works
- ▶ ICZM Integrated Coastal Zone Management
- ▶ STPS Sea Turtle Protection Society
- ▶ WWF Ellas World Wild Fund Greece
- ▶ P.D. Presidential Decree
- ▶ L.A. Local Authorities
- ▶ G.I.S. Geographic Information System