

In the framework of the EUROSAI Working Group on Environmental Audit (WGEA) and in particular of a Co-operative Mediterranean Audit with the participation of the SAIs of Cyprus, Malta, Portugal, Slovenia, Croatia, Albania as well as Bosnia and Herzegovina, the Hellenic Court of Audit carried out a systemic audit on Marine Protected Areas. The findings of the 5-member audit team, consisted of the Judges Ioannis Vassilopoulos, Anna Papapanagiotou and Athanasia-Mirofora Sidiropoulou, as well as the auditors Vasilios Douvelis and Maria Tampaki, are set out in the Audit Report below.



HELLENIC REPUBLIC

HELLENIC COURT OF AUDIT

AUDIT REPORT

"Marine Protected Areas in Greece"

(Within the framework of the Co-operative Mediterranean Audit)

Audit Working Team

Athens, October 2018

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Chapter 1

Introduction

1.1. General Information

Greek coasts and seas present a huge biological, geophysical, aesthetic, cultural and economic value and, at the same time, constitute a natural resource and common heritage of Mediterranean, European and global scope.

Greek coastal and marine ecosystems are characterised by rich biodiversity as well as a wide variety of significant habitat types, such as wetland systems and marine meadows (e.g. *Posidonia oceanica* meadows), reefs, caves, rocky shores etc.

As part of the Mediterranean, Greek seas bear natural characteristics of a semi-enclosed sea and consequently, are more vulnerable to human pressure compared to the open sea. The total length of Greece's coastline, according to the Hydrographic Service of the Navy, extends to 20,815.77 km and is the largest of all among Mediterranean countries. More than half of the coastline length lies on the islands of the Aegean and the Ionian Sea, which amount to 3,000 (and exceed the number of 9,800 the islets included).

The total area of territorial waters (6 nautical miles from the natural coastline) is 114,678.18 km². Greece has not thus far signed any agreements with neighboring countries to demarcate the Exclusive Economic Zone (E.E.Z) and for this reason, no data were provided as far as the respective surface area¹ is concerned.

The general morphology of the Greek seas' bottom is characterized by intense fluctuations of its relief, reaching depths of more than 5000 m. Extremely large inclinations appear in many areas, with the steepest of them to be in the Ionian Sea, in the North Aegean Sea, around the island of Crete, in the Dodecanese, even in the Corinthian Gulf, all of them being areas with very intense seismic activity. Extensive shallow and flat areas are found in coastal areas of Macedonia, Thrace and the gulf of Patras, where many rivers flow.

¹ Source: Hydrographic Service of the Navy

Furthermore, the distribution and type of sediments, with the criterion of granulometry in Greek marine space varies greatly. In general, coastal areas mainly contain fine slime sediments, which tend to become thinner at greater depths. The finest alumina sediments are found in deep submarine basins. In some areas, the percentage of sand is higher than expected, due to the presence of biogenic and volcanic sediments².

1.2. Characterisation of Marine Protected Areas

The national list of areas inducted in Natura 2000 community network, included 419 areas (Law No 3937/2011, Government Gazette A' 60), which were extended by 27 in 2018 (Joint Ministerial Decision No 50743/11-12-2017 Government Gazette B' 4432), reaching the total number of 446. Of these approximately 156³ are Marine Protected Areas (MPA). The management of these areas has been entrusted to Managing Bodies of Protected Areas (Legal Persons governed by Private Law), which rose from 28 to 36 in 2018 (Law No 4519/2018, Government Gazette A' 25).

The main categories of Marine Protected Areas are three (3): (a) marine parks, (b) areas of seabed with Posidonia meadows and (c) artificial reefs.

In particular:

(a) Two National Marine Parks have been established; the National Marine Park of Zakynthos, with a total area of 135 Km² (89,2 km² of marine area, 14,2 km² of land) and the National Marine Park of Alonissos - Northern Sporades, with a total area of 2.220 km² (the largest marine protected area in Europe). An extensive reference to these parks will be made in Chapter 6 of the present report.

(b) The Posidonia seabed areas are characterised as priority habitats in accordance with article 1 of Directive No 92/43/EEC "on the conservation of natural habitats and of wild fauna and flora".

² Source: Hydrographic Service of Navy

³ See the attached excel spreadsheet, which has been supplemented according to the estimates by the Audit Team regarding their classification as Marine Protected Areas, given the fact that these data were not provided by the competent bodies.

For the protection of this type of habitat (Posidonia) a ban on trawl nets, dredges, purse seiners, boat seines, shore seines or similar nets is provided for by article 4, paragraph 1, subparagraph 1 of Council Regulation (EC) 1967/2006 of 21st of December 2006 "on management measures for the sustainable exploitation of fishery resources in the Mediterranean Sea..." as amended and in force. Moreover, according to Ministerial Decision No 167378/14-5-2007 (Government Gazette D'241, error correction D' 392), fishing was prohibited in Posidonia oceanica marine vegetation areas located within the Natura 2000⁴ Network. Finally, after mapping completion of seabeds with marine vegetation, mainly Posidonia in the Greek territory, Ministerial Decision No 2442/51879/28-4-2016 (Government Gazette D' 118) was issued, designating areas outside the NATURA 2000 Network, especially with Poseidonia vegetation, in which fishing with certain tools⁵ is prohibited.

(c) Artificial reefs (A.R.) are artificially constructed habitats, placed on the seabed in order to function as a natural system providing food, protection and breeding areas for fish and other marine organisms, and where management of fishery resources is conducted on the basis of specific regulations.

For the creation of each artificial reef, a long process of planning and maturing of the prerequisite studies is envisaged; it starts with the feasibility study of each project, is followed by construction and is completed with a three-year scientific monitoring of the A.R.

The objective of establishing an A.R. includes the upgrading and protection of marine ecosystems, the creation of a shelter for specific categories of marine organisms, the increase of fishable biomass as well as the development of alternative forms of tourism.

The scientific monitoring of the completed artificial reefs includes:

- Oceanographic study
- Fish-fauna study

⁴ Relevant maps that depict these areas are listed in Government Gazette 241/D/2007

⁵ Relative indicative maps, by region, according to the table of Ministerial Decision 2442/51879 / 28.4.2016, are available at: <http://www.alieia.minagric.gr/node/32>.

- Fish-plankton study
- Study of the colonisation of artificial elements
- Study of coastal fishing
- Visual sampling
- Organisation of a management plan for the immersion area of the artificial reef, in which the following are included : a proposal for the composition and responsibilities of the managing body; the determination of the number of vessels operating in the area of the artificial reef and permitted to fish in the area of application of the management plan, if provided for; a proposal on the fishing conditions in the management zone including fishing gear specifications and any local or temporal restrictions on fishing as well as a proposal on the control of activities in the same zone.

The artificial reef immersion areas are not formally characterised as marine protected areas according to Law No 1650/1986 (Government Gazette A' 160), as in force after its amendment by Law No 3739/2011(Government Gazette A' 60). Essentially however, as far as these areas are concerned, as mentioned above, a thorough hydrobiological study is carried out prior to immersion, followed by scientific observation, over a number of years, before the construction of the reef. Consequently, these areas to which a great degree of protection is provided for, contribute to the conservation of marine biodiversity, mainly by prohibiting fishing with any gear and means.

Artificial reefs have been developed in Greece over the last twenty years. Having the support of the Ministry of Rural Development and through the Operational Program for Fishery (O.P.Fish), five artificial reefs have been immersed so far, while one more is under construction. The contribution of the Greek Agricultural Organization "DIMITRA" - Institute of Fishery Research was significant regarding the planning and scientific monitoring of the existing reefs. In particular:

1. The first artificial reef was immersed in the area of Fanari, Rodopi and was the pilot study, on the basis of which the rest of the artificial reefs in Greece were constructed. In this area and aiming at the effective monitoring of the artificial reef, a fishing ban with every tool and means was introduced by virtue of the presidential

decree 31/2000 (Government Gazette A' 23), with effect until 31/12/2004. Permanent protection measures for this region are expected to be established by a newer presidential decree.

2. The sea areas of Kalymnos - Kos, Gulf of Ierissos, prefecture of Chalkidiki and the Ionian sea of Preveza prefecture, with a total area of 25.000 acres, in which artificial reefs have been immersed and where a total ban of fishing is in force, have already been designated as National Protected Areas for Fishery in accordance with articles 2(2) and 7 of Regulation (EC) 1967/2006 "on management measures for the sustainable exploitation of fishery resources in the Mediterranean Sea ...".

After the reefs were placed, a three-year scientific follow-up was carried out funded by the 2007-2013 Operational Fishery Programme.

3. Artificial reefs have also been immersed in Kitros of Pieria (under scientific supervision), with a protected area of 117 acres and in Litochoro of Pieria (under construction), with a protected area of 650 acres. In addition to the artificial reef constructions mentioned above, many feasibility studies have been carried out in several parts of Greece in order to assess the construction of facilities⁶.

1.3. Audit object - Methodology

The Hellenic Court of Audit participated in the cooperative-systemic audit performed by Supreme Audit Institutions of Mediterranean countries (Malta, Portugal, Cyprus, Slovenia, Croatia, Albania and Bosnia and Herzegovina) aiming, first, at the identification and assessment of measures taken by governments for the protection of marine biodiversity, through the characterisation and proper management of marine protected areas, and, secondly, at drawing joint conclusions and providing recommendations (M.P.As Cooperative Audit). For the conduct of the above audit in Greece, a team of five members was formed, comprising of judicial officers - Ioannis Vassilopoulos and Anna Papapanagiotou, Second-Rank Judges, as well as Athanasia Sidiropoulou, Rapporteur and court clerks-auditors Vasilios Douvelis (Administrative) and Maria Tabaki (Economist) (Decision 76785/1-12-2016 of the President of the Hellenic Court of Audit).

⁶ Information are provided at the e-mail address: <http://www.artificialreefs.gr/page6.html>

With regard to the methodology adopted in collecting data and drawing conclusions, the most basic tool was the joint questionnaire drawn up in co-operation with all Supreme Audit Institutions that participated in the audit and includes the following five main thematic units: a) national strategies, b) demarcation/designation of marine protected areas, c) setting up of management plans, d) implementation/application and e) monitoring and feedback of information concerning the audit.

This questionnaire was sent to all stakeholders (Ministries, Legal Persons Governed by Public Law, Legal Persons Governed by Private Law, Non-Governmental Organisations, Associations) by the Audit Team and the replies received were the main source of information for drawing up this report.

Chapter 2

Legal framework

2.1. General legislative framework

Article 24 of the Constitution defines environmental protection both as an obligation of the State and an everyone's right and points out that the State has the obligation of taking preventive or suppressive measures in the context of sustainability.

Law No 1650/1986 "Protection of the environment" (Government Gazette A' 160), as amended by Law No 3937/2011 "Conservation of biodiversity and other provisions" (Government Gazette A' 60), is the one which encompasses all environmental protection actions in Greece. Law No 2971/2001 "Coastline, beach and other provisions" is also important (Government Gazette A' 285). Concerning marine environment protection issues, the legislation includes Law No 743/1977, as codified by the Presidential Decree 55/1998 "Protection of the marine environment" (Government Gazette A' 58) and Law No 1269/1982 "Prevention of marine pollution by ships" (Government Gazette A' 89), which ratified the MARPOL 73/78 Convention, as it applies. Laws No 2252/1994 (Government Gazette A' 192), No 3100/2003 (Government Gazette A' 20) and Presidential Decree 11/2002 (Government Gazette A' 6) on issues of preparedness and cooperation for addressing sea pollution by oil, hazardous and noxious substances, including the National Emergency Plan, according to the above Presidential Decree and the implementation of Local Emergency Plans, are also in force.

By Joint Ministerial Decision No 33318/3028/1998 (Government Gazette B' 1298), the Greek legislation was harmonized with Directive 92/43/EEC (It should be noted that the above Joint Ministerial Decision was amended in the meantime by Joint Ministerial Decision No 14849/853/E103, Government Gazette B' 645/2008). The aim pursued by the above decision is a favorable conservation status for habitat types and species of community interest and the establishment of a Pan-European network of "Natura 2000" areas is provided for. This Directive is complementary to Directive 2009/147/EC (ex 79/409/EEC) on the conservation of wild birds, the

harmonization of which in national legislation was initially materialised by Joint Ministerial Decision No 414985/1985 "wild birdlife management measures" followed by Joint Ministerial Decision No 37338/1807/E103 (Government Gazette B' 1495/2010) "laying down measures and procedures for the conservation of wild birdlife and its ecosystems/habitats", in compliance with the provisions of Directive 79/409/EEC, "On conservation of wild birds", of the European Council of April 2nd 1979, as codified by Directive 2009/147/EC" as well as by the Joint Ministerial Decision No 8353/276/E103/17-2-2012 (Government Gazette B' 415) «Amending and supplementing the Joint Ministerial Decision No 37338/1807/2010..." in compliance with the provisions of the first subparagraph paragraph 1 Article 4 of Directive 79/409/EEC, as codified in Directive 2009/147/EC.

In addition, the provisions of the above Law No 1650/1986, article 15, chapter E' of Law No 2742/1999 "Spatial Planning and Sustainable Development and other provisions" (Government Gazette A' 207), as modified by article 7 of the forementioned Law No 3937/2011, as well as the abovementioned Law 4519/18 (A' 25) set the framework for the establishment and operation of protected area management bodies. The Law No 3044/2002 (Government Gazette A' 197) followed and, on the basis of Article 13, 25 Managing Authorities were established, which, in 2018, became 36 (Law No 4519/2018).

The implementation of these laws is complementary and supportive and in no way does it invalidate previous or even ensuing legislation on the protection of species (e.g. Presidential Decrees 80/1990 - Government Gazette A' 40 on the protection of the plant genetic material of the country, 67/1981 - Government Gazette A' 23 on the conservation of spontaneous wild flora and fauna, 434/1995 - Government Gazette A' 248 on the conservation and protection of domestic breeds of farm animals, Law No 1469/50 on places of special natural beauty", Law Decree No 996/1971- Government Gazette A' 192 on national parks, aesthetic forests and preserved monuments of nature, Law No 2637/98 - Government Gazette A' 200 on wildlife shelters).

In addition, the instruments that address biodiversity issues are the laws that ratified the following international Conventions: the Bern Convention of the 19th/9/1979 on the conservation of wildlife and the natural environment of Europe

(Law No 1335/1983 - Government Gazette A' 32), the Bonn Convention of the 23rd/6/1979 on the conservation of migratory species of wild fauna (Law No 2719/1999 - Government Gazette A' 106), the Barcelona Convention of 1976 on the protection of the Mediterranean Sea from pollution (Law No 855/1978 - Government Gazette A' 235) and its accompanying protocols (Law No 1634/1986- Government Gazette A' 104), repeatedly amended (see ratifying Laws No 3022/2002 - Government Gazette A' 144 and 3497/2006- Government Gazette A' 219) and the Ramsar Convention of the 2nd/2/1971 for the protection of wetlands of international interest (law decree 191/1974 - Government Gazette A' 350, as in force). Furthermore, biodiversity issues are covered by the United Nations Framework Convention on climate change, ratified by Law No 2205/1994 (Government Gazette A' 60), the United Nations Convention on combating desertification, ratified by Law No 2468/1997 (Government Gazette A' 32), the international Convention on international trade of wild fauna and flora endangered species (CITES), ratified by Law No 2055/1992 (Government Gazette A' 155) and the revised international Convention on plant protection, ratified by Law No 3495/2006(Government Gazette A' 215).

With regard to fisheries, the abovementioned Regulation (EC) No 1967/2006 on the sustainable exploitation of fishery resources in the Mediterranean Sea is a reference point. According to Greek legislation (Law No 3937/2011), fishing with trawls, dredges, shore seines or similar nets as well as with static nets over coralligenous habitats and maerl beds as well as the the installation and operation of fish farms in posidonia meadows is prohibited. In particular, regarding the marine environment protection, the following Directives have been issued: Directive 2008/56/EC, which forms the framework for marine strategy and has been incorporated into national legislation by Law No 3983/2011 "National Strategy for the Protection and Management of the Marine Environment - Harmonisation with Directive 2008/56/EC of the European Parliament and of the Council of June 17th, 2008 and other provisions" (Government Gazette A' 144), aiming at the achievement or conservation of a sound environmental status of the marine environment by 2020 at the later; Directive 2014/89/EU on establishing a framework for maritime spatial

planning, which has recently been incorporated into national law by Law No 4546/2018 (Government Gazette A' 101 and 102- correction of errors- / 12.6.2018).

Water protection is primarily regulated by the provisions of Law No 3199/2003 "protection and management of waters" (Government Gazette A' 280) - through which harmonisation of the national legislation with Directive 2000/60/EC took place - and its executive presidential decree 51/2007 "Determination of measures and procedures for integrated water protection and management in compliance with Directive 2000/60/EC" (Government Gazette A' 54). In our country, the national monitoring network for quality and quantity of waters (Joint Ministerial Decision No 140384/B'/2011) has been in operation since 2012.

Regarding wetlands, the abovementioned Law No 3937/2011 on biodiversity includes, in article 20, enabling provisions for the adoption of ministerial decisions and presidential decrees regulating more specific issues both for small wetlands (<80 acres) and for large ones. Small island natural wetlands are protected by presidential decree 12/2012 (Government Gazette 229) "Approval of a list of small island wetlands and setting conditions and restrictions for the protection and promotion of the small coastal wetlands included in it". Directive 76/160/EEC on "bathing water quality", gradually being replaced by the new Directive 2006/7/EC, which adopts new microbiological indicators, was in force until 2014. The new Directive has been incorporated into National Law with the Joint Ministerial Decision No 8600/416/E103 (Government Gazette B' 356/2009) and is closely related to the abovementioned Directive 2000/60/EC, since it is actually one of its subsidiary directives and relates to the monitoring of water quality in bathing areas as well as tackling the sources of pollution.

Directive 91/271/EEC on "urban waste water treatment", as amended by Directive 98/15/EC, has been incorporated into national law with the Joint Ministerial Decision No 5673/400/1997 (Government Gazette B' 192/1997) entitled "Measures and Conditions for the treatment of Urban Waste Water". A list of sensitive recipients was established in 1999 (Joint Ministerial Decision No 19661/1982/1999, Government Gazette B' 1811) and revised in 2002 (Joint Ministerial Decision No 48392/939/3-2-2002, Government Gazette B' 405). Lastly, Law No 2425/1996, which ratified the Convention of the United Nations

Organization on the Protection and Use of cross-border waters and international lakes, is valid.

2.2. Conflicting – Contradictory Provisions

A contradiction noted by the Audit Team in the institutional framework, refers to the fact that the spatial plans were thematic and in sections (separately for tourism, fisheries and aquaculture etc.), without taking into account conflicting land uses, resulting in confusion with respect to spatial planning. Furthermore, due to the lack of a general spatial plan, there are overlaps of legislative provisions, as the ones referring to the protection of the natural environment, tourism, fishing, aquaculture and marine antiquities⁷.

2.3. Competent Bodies

The materially competent body for coordinating and implementing all the actions required to preserve the biological diversity of the country is the Ministry of Environment and Energy. In particular, regarding the implementation of Law No 3983/2011 on marine strategy, the National Marine Environmental Strategy Committee is responsible mainly for setting out the policy for the management and protection of the marine environment, for ensuring, at a high political level, the necessary coordination of the relevant public bodies and the harmonization of their actions in accordance with the objectives of the law. The operational section on law enforcement is within the competence of the Special Secretariat for Waters.

In this connection, the Ministry of Rural Development and Fisheries is also responsible. At the same time, the Ministry of Maritime Affairs and Islands and the Coast Guard - Hellenic Coast Guard, which belongs to the Ministry's organizational structure, assist the Ministry of Environment and Energy in implementing actions for the conservation of biological diversity within the framework of their competences. Furthermore, the responsibilities of the Ministry of Foreign Affairs include, inter alia,

⁷ Source: Special Secretariat for Water of the Ministry of Environment and Energy

the provision for the conclusion, monitoring and implementation of international treaties and other international instruments. In addition, the following Ministries have responsibilities in areas related to biodiversity: Ministry of Internal Affairs- especially through its coordinating role in local government and decentralized administration, Ministry of Education and Religion, Culture and Sport, Ministry of Tourism, Development and Competitiveness, Ministry of Transport Infrastructure and Networks.

At a regional level, there are the Directorates-General for Spatial Planning and Environmental Policy and the Directorates-General for Forests and Rural Affairs of Decentralized Administrations, while the Directorates-General for Development Planning, Environment and Infrastructure are responsible for environmental issues at a Regional Government level.

As mentioned earlier, regarding the management of protected natural areas, Protected Areas Management Bodies have been established, as Legal Persons governed by Private Law, which operate in their areas of responsibility. For the protected areas' supervision, the Commission "Nature 2000" was established under Joint Ministerial Decision No 33318/3028 (B' 1289/1998).

Furthermore, research organisations and institutes, as well as non-governmental organisations, are engaged in issues of research or monitoring of biological diversity. However, for the time being, there is no current record of research projects, collections and databases held by these bodies.

Finally, it is worth mentioning that actions related to biodiversity are supported by businesses, as part of their corporate social responsibility (CSR) programmes⁸.

⁸ Government Gazette 2383/B'/2014 unit B.4

Chapter 3

National Strategies

The National Strategy for Marine Protected Areas follows European Directives 2008/56/EC and 2014/89/EU of the European Parliament and of the Council, which form the pillar of the Integrated Maritime Policy. In Greece, as presented earlier, European Directive 2008/56/EC has been incorporated with Law No 3983/2011 "National Strategy for the Protection and Management of the Marine Environment - Harmonization with Directive 2008/56/EC of the European Parliament and of the Council of 17th of June 2008 and other provisions", with a view to accomplishing or maintaining the sound environmental status of the marine environment by 2020 at the latest.

Similarly, as already mentioned, Directive No 2014/89 / EU on the establishment of a framework for Marine Spatial Planning has recently been incorporated into national legislation by Law No 4546/2018. In accordance with the timetable set for Member States by the Directive, the implementation of Marine Spatial Planning should be completed by March 2021. Marine, along with land-based spatial planning, form the integrated spatial conception. They ensure planning coherence, continuity and an integrated approach to space. The new Law aims at exactly this direction, integrating maritime spatial planning into the existing spatial planning system.

Additionally, the Special Frameworks are: (a) the Specific Framework for Spatial Planning and Sustainable Development for Aquaculture and the strategic Study of its environmental impact (B' 2505/2011) and (b) the Specific Framework for Spatial Planning and Sustainable Development for Tourism and the strategic Study of its Environmental Impact (B' 1138/2009).

Regarding the participation of stakeholders in the design and development of this strategy, an Advisory Committee of Marine Environmental Strategy Experts (article 19 paragraph 2 of Law No 3983/2011) has been established in the Special Secretariat for Water of the Ministry of Environment and Energy, to ensure

documentation, consensus and participation in the decision-making process of all public sector stakeholders, professional associations, local authorities, environmental organizations, the managing body of the Regional Convention for the Protection of the Mediterranean Sea (Barcelona Convention) and of scientific bodies⁹.

Also, for issues related to fishery, the Fisheries Council's advice is provided for during the process of adopting Presidential Decrees or Ministerial Decisions (paragraph 5, article 10 of Law Decree No 420/1970 "Fishing Code" - Government Gazette A' 27), while consultation with the industry usually precedes. In some cases, measures are also proposed by the professionals themselves and contradictory proposals, if any, are taken into account¹⁰.

In particular, concerning the Joint Ministerial Decisions in respect of the designation of the land as Marine Protected Areas, the existing legislation foresees the publication of the Plans so as to be put them to consultation and record the views of the public opinion. However, the Ministry of Environment and Energy did not provide additional information regarding (a) whether opinions are expressed and (b) whether and to what extent they are taken into account during the final formulation of the Joint Ministerial Decisions. In any case, it should be noted that the – compulsory - incorporation of the relevant Directive and the establishment of a basic legislative framework do not constitute in any case a national-strategy set out, as no additional measures are mentioned and sub-actions related to the implementation of a specific national strategy.

⁹ Source: Navy Hydrographic Service

¹⁰ Source: Ministry of Rural Development and Fisheries

Chapter 4

Risks - Threats

As regards the assessment of risks and threats related to important habitats and species or the overall environmental status of the country's marine waters, there has been a first recording / evaluation of these by the Ministry of Environment and Energy through the "Supervision" project, prepared by the same Ministry, through N.S.R.F. funds.

On a more specific level, within the programme "Monitoring and assessment of the conservation status of Habitat Species and Types in Greece" (2014-2016) of the then Ministry of Environment, Energy and Climate Change, registration of status, threats and pressures on marine habitat types and marine invertebrates of the Annexes of Directive 92/43/EEC, within Natura 2000 National Network and beyond the responsibility of management bodies, was made by a team of the Hellenic Centre for Marine Research (part of the project "STUDY 8: Supervision and assessment of the conservation status of marine Types of Habitats and Species of community interest in Greece").

For Habitat Types

According to this study of the Hellenic Center for Marine Research, the risks and threats identified by marine habitat type, are analyzed below:

A. Posidonia Meadows (Habitat Type 1120)

The conservation status of this habitat type was found to be favorable in terms of range of expanse, structures and functions, but insufficient in terms of extent and its conservation prospects.

Especially in terms of span, the rough nature of the original mapping does not allow accurate conclusions to be drawn on the degree of meadows' retreat, which is nevertheless considered to be certain and increasingly worsening at the pan-Mediterranean level. In addition, it is well known that the mapping process of

habitat 1120 has been limited to about 20% of the Greek coastline, a rather small percentage for such an EU priority-habitat type.

The most important pressures, as identified in the field, were uncontrolled berth, fish farming, pollution, aggregates' dumping, offshore projects, submarine piping and cable installation as well as fishing with towed gear. Of these, the pressures for destructive fishing (towed nets) and coastal pollution are predicted to be likely decreasing thanks to the gradual integration of environmental legislation. However, with regard to the subject of fish farming, areas of the Network, where cages still exist, were spotted, even over mapped Posidonia meadows. Uncontrolled berth is an extremely strong pressure especially in areas with a high concentration of sailing tourism and thus requires immediate mitigation.

In view of the above, the Hellenic Center for Marine Research sets the following main parameters in determining conservation objectives for Habitat Type 1120:

- Preserving or increasing the area of meadows within the Special Protection Areas (SPA) at a local level
- Increasing the area of meadows within the Special Protection Areas (SPA) at a national level, to $\geq 50\%$ of the Greek coastline
- Preserving/restoring meadows structures and functions at a favorable level (Preserving/restoring density and coverage, maintaining of minimum expanse limit, preserving vitality) as these are reflected through ecological indicators applied in the context of the present study and described in detail in Annex A of the present.
- Mitigating/Eliminating pressures and threats related to the degradation of meadows.

There is also a significant need for introducing targeted management measures which will prevent or eliminate these pressures at a local level (e.g. regular monitoring of a marked minimum expanse limit, banning of uncontrolled berth and/or permanent berths' placing in busy coves).

B. Coastal Lagoons (Habitat Type 1150)

The conservation status of this type of habitat has been deemed favorable in terms of its range of expanse and its extent, but insufficient (and deteriorating) in

terms of structures and operations as well as poor (and worsening) in terms of conservation prospects.

There are many and ever-increasing pressures and the most significant of them are pollution, overfishing, land use change and the general lack of sound management policy, which should take into account the importance of these habitats in preserving the vast range of ecosystem goods and services as well as the social benefit they offer (e.g. maintaining quality and balance of water resources, preserving food goods and biodiversity, mitigating the effects of climate change etc).

According to the Hellenic Center for Marine Research, the successful conservation and protection of lagoons is a particularly difficult task, as these ecosystems are subject to the pressures of both land and marine ecosystems. Moreover, given the complexity of these systems as well as their acute vulnerability under the ever-increasing pressure of climate change, the setting of realistic and feasible conservation objectives can only be achieved locally and following the implementation of monitoring projects/programmes by the relevant competent bodies (Managing Bodies, Decentralized Management, Regions, Municipalities, Research Centres etc).

In general, the use of the existing and widely applied Ecological Estimation Indicators is proposed, since these values reflect the prevalence of perennial and sluggish-growing vegetation elements against ephemeral and opportunistic species, responding to a variety of anthropogenic pressures mainly related to eutrophication and organic pollution.

C. Reefs (Habitat Type 1170)

The retention status of the reefs has been favorable in terms of range of expanse and extent, but poor and worsening in terms of structures, functions and conservation prospects.

It is perhaps the most rapidly evolving degradation found in marine biota in recent years, marked by the severe decline of photophilic forests of macroalgae under the grazing pressure of plant-eating species, sometimes indigenous (*Arbacia lixula* sea urchins and, to a lesser extent, *Paracentrotus lividus*) and sometimes alien (mainly fish *Siganus luridus* and *Siganus rivulatus*). This is a particularly complex and

difficult problem to solve, as it is related to overfishing and the general disruption of marine food grids.

More specifically, the absence of superior predators from coastal ecosystems (Scup-like in the case of the urchins, Grouper-like in the case of Siganidae) due to overfishing of these species, has allowed the uncontrolled growth of the populations of plant eating-species and the resulting overgrazing on the rocky shores, i.e. deforestation of the tree and/or bushes top-part of vegetation and partial to complete loss of their functional characteristics. The phenomenon is further worrying in connection with the increasing pressures of climate change, including the massive introduction of alien plant eating species (through the Suez Canal).

Other significant pressures on the shallows, identified during field work, were offshore projects, pollution and illegal (sometimes destructive) bivalve fishing. The most intense pressure though is on the deepest part of the habitat (30-150m), where the effects of the uncontrolled action of various fishing gear (nets, loglines, lines) are significant and diffuse.

More generally, the Hellenic Center for Marine Research proposes the use of the existing Ecological Estimation Indicators, as for example the EEI-c, to set a target of achieving (at least) Sound Ecological Status (EEI-c values > 0.48), since, as presented earlier, these values reflect the prevalence of perennial and sluggish-growing elements of vegetation, against ephemeral and opportunistic species, responding to a variety of anthropogenic pressures mainly related to eutrophication and organic pollution.

For Marine Invertebrates

Moreover, according to this study of the Hellenic Center for Marine Research, the risks and threats identified with regard to marine invertebrates,¹¹ are comprised of:

(a) Ignorance of the distribution and condition of their populations at both local and national level, meaning inability to assess.

(b) Established and continuing illegal fishing, handling and marketing of the strictly protected species *Lithophaga lithophaga* (petunia), *Pinna nobilis* (Pinna).

¹¹ *Lithophaga lithophaga*, *Pinna nobilis*, *Corallium rubrum*, *Scyllarides latus*, *Centrostephanus longispinus*

(c) Deficient management plans for the under exploitation species *Corallium rubrum* (red coral), *Scyllarides latus*. It should be noted that according to legal paradoxy, the first species has been defined by decision of the Minister of Agriculture No 249790/1998 (Government Gazette B' 420), as amended by No 281554/2001 decision (Government Gazette B' 413), as a specially managed (exploited) species and by presidential decree 67/1981 (Government Gazette A '23) as strictly protected by the abovementioned presidential decree 67/1981 on the protection of wild flora and fauna.

Finally, a description of problems and risks is also included in Ministerial Decision No 40332/26-08-2014 of the Ministry of Environment and Energy and (Government Gazette B' 2383): "Adoption of the National Biodiversity Strategy for the years 2014-2029 and the Five Year Plan Action Plan ". As such are considered to be the following:

- (a) the fact that in most coastal areas the seaside has not been designated,
- (b) habitat loss (deterioration/destruction) due to a variety of causes, such as offshore construction, infrastructure construction, fires/deforestation of seaside forests, fishing with the use of towed gear etc. In Greece, the coastal zone hosts 85% of the population, 80% of industrial activity, 90% of tourism, almost the whole of fisheries and fish farms, 35% of rural land (frequently of high productivity) and a significant amount of infrastructure such as ports, airports, roads, electricity networks, telecommunications etc.,
- (c) pollution, since problems mainly arise from the accumulation of nutrients originating from industry, urban web and maritime transport. They usually are of a local nature, although in some cases they may acquire a more general scope.
- (d) overexploitation of natural resources (mainly overfishing). It should be noted that Greek stocks are overfished at a level of 65%. In the Greek seas, the exploitation pattern varies according to the region, with the Corinthian Gulf, the Dodecanese and the Argosaronic receiving the highest fishing pressure of 55,
- (e) erosion, which affects the 28.6% of the coastal zone.

However, in view of the fragmentary nature of responses sent by the competent bodies, the Audit Team is not in a position to know whether there is a complete registration and an actual risk assessment.

Chapter 5

Management plans

5.1. Development of Management Plans

The Audit Team has been informed that management plans (by managing bodies and, in some cases, by third parties) have been drawn up for a set of land, which, however, have not been approved and thus, do not bear legal effect. The protection of Marine Protected Areas is ensured through the existing institutional framework (Laws, Joint Ministerial Decisions and presidential decrees).

These non-approved management plans do not include either measurable targets or specific measures and actions to address risks and threats to specific habitat sites (Posidonia meadows - Habitat Type 1120, Coastal Lagoons - Habitat Type 1150 and Reefs - Habitat Type 1170) in selected areas, since the roles and responsibilities have not been clearly defined while the measures included in the plans have not been selected after a relative cost-benefit analysis. More importantly, it is not clarified which bodies have drawn up the management plans and why these have not been approved. What is more, in conjunction with the Hellenic Centre for Marine Research's response to the same question, according to which: *"Within the framework of the aforementioned Supervision Program, third parties (research centers, companies that draw up studies, Non-Governmental Organizations etc.) have been assigned, but not binding on the Ministry of Environment and Energy"*, obvious questions arise, regarding the third parties which have been involved in drawing up these plans, the awarding procedures which have been followed for these studies and on what grounds, but also in terms of their financial weight, especially in view of the fact that they have not yet been approved and therefore according to the above, the Ministry of Environment and Energy is not obliged to approve them. Given the responses provided, this is especially true pending the establishment and operation, of: (a) the Advisory Committee on Marine Environmental Experts and (b) the National Marine Environmental Strategy

Committee, whose responsibilities and actions, however, do not arise or are inferred from the bodies' answers. In this respect, it should be noted that the Audit Team has been provided with no evidence whatsoever from which the work of the National Marine Environmental Strategy Committee or the Marine Environmental Expert Advisory Committee emerges, a deficiency, which, according to the Audit Team, should be the subject of an ad hoc audit.

Especially, with regard to the fisheries restrictions (U.N. objective 14) accompanying the management plans, no data were provided to the Audit Team by the competent Ministry of the Environment and Energy. However, according to data from the Ministry of Rural Development and Fisheries, based on the provisions of presidential decree 115/2007 (Gazette A' 146), fishing is prohibited with any gear and means in the sea areas of: 1. Kalymnos - Kos (Chochilaros cove), North shores of Kos island, 2. Gulf of Ierissos, Chalkidiki Prefecture (Kakoudi), 3. Ionian Sea, Preveza Prefecture (Fanari bay, Agios Ioannis bay). Additionally, fishing regulatory measures are implemented in the context of management plans for the two National Marine Parks and other Protected Areas, demarcated by the relevant regulatory framework of the Ministry of Environment and Energy. These measures contribute to the achievement of the specific protection objectives related to each of these areas.

Moreover, according to data that have been brought to the audit team 's attention by the Hellenic Center for Marine Research, it appears that, especially regarding reefs (habitat type 1170), a number of proposals have been submitted, but not implemented, such as: banning/special management of professional and amateur fishing at a percentage of >30% of the Greek coast line, mapping of coral areas across the country, fisheries management/banning destructive fishing practices, establishment, management and operation of "Wildlife Refuges" with special care to protect the superior predators (fish, birds, mammals)etc.

Regarding the revision and updating of the management plans and despite the relative provisions of the law for their obligatory updating every five years, the data provided to the Audit Team by the relevant bodies do not appear to have been updated.

5.2 Implementation – Application

From the data provided to the Audit Team, it appears that there is no timetable for the implementation of the management plans. This constitutes an inevitable consequence of the aforementioned lack of approval of the management plans. Essentially, protection of the Marine Protected Areas is ensured through the general institutional framework and basically at a local level under the responsibility of the managing bodies, while related funding has been provided within this general institutional protection framework of Marine Protected Areas. However, funding data were not provided to the Audit Team by the Ministry of Environment and Energy. Besides, the mere designation of a representative of the Ministry in the managing bodies does not constitute a coordination action between the bodies and the authorities involved in the management of the Marine Protected Areas.

Furthermore, with regard to the monitoring mechanisms, the Audit Team received detailed data only for the Marine Parks of Zakynthos and Alonissos, but not for the rest of the protected areas. Moreover, according to the Ministry of Shipping and Island Policy, patrols in Marine Protected Areas are part of the general planning of patrols of the relevant local Port Authority and there is no separate patrol policy for M.P.As. Particularly in the case of Marine Protected Areas, for which a Managing Body has been established (e.g. National Marine Park of Zakynthos, Alonnisos-North Sporades etc), the Managing Body itself carries out patrols in its area of competence, by its own floating means and cooperates with the local Coast Guard to prosecute violations if detected.

Detection of offenses, according to legislation, is followed by a process of enforcing appropriate sanctions on a case-by-case basis (administrative, criminal) by the competent police/port authorities. The sanctions imposed by the legislation in force have been adopted with a deterrent and prohibitive character.

Both the Hellenic Center for Marine Research, through the collection of scientific data on the status of marine waters and non-governmental organizations (such as ARCHELON, WWF Hellas, Medasset, MOM etc) via research or other programmes and actions, participate in the wider process of implementation of programmes and actions for the protection of Marine Protected Areas.

Finally, in relation to public awareness towards Marine Protected Areas, only the Hellenic Center for Marine Research and the two Marine Parks responded that they are implementing relevant actions.

5.3 Monitoring and feedback of information

In the absence of approved management plans, monitoring of the overall protection of Marine Protected Areas, on a theoretical level, is part of the wider institutional framework for their protection, as in force. According to this, the Ministry of the Environment and Energy together with the Managing Bodies have the responsibility for its implementation and monitoring. However, no specific data have been submitted to confirm the report, through summary reports, with regard to monitoring the execution of any type of programming and as a result there appear to be no instituted progress evaluation measures and an absence of monitoring obligations by the competent bodies and authorities. In fact, it is explicitly stated by the Ministry that there is no assessment of the relevant progress at regular intervals.

Particularly for the two Marine Parks, it appears that the evaluation of the progress achieved is performed by the Managing Bodies' Boards, through summary reports, while at a national level reporting falls under the scope of the Ministry of Environment and Energy.

Chapter 6

Specific study on the two marine parks of Zakynthos and Alonissos

6.a. Marine Park of Zakynthos

General Information

The National Marine Park of Zakynthos (N.M.P.Z.) was instituted with Presidential Decree (P.D.) 1.12-22.12.99 (Government Gazette D' 906), as amended with P. D. 29.10-27.11.2003 (Government Gazette D' 1272) and occupies a total land area of 15.4 km² and a marine area of 89.18 km², while its Peripheral Zone is 31.2 km². To be characterised as National Marine Park a Special Environmental Study was carried out at Laganas Bay (No 55319/2434/17.7.1997 Minister's Decision of the Environment, Planning, and Public Works) after public consultation, according to Law No 1650/1986.

Within the boundaries of the N.M.P.Z. lies one of the most important reproductive biotopes of the sea turtle *Caretta caretta* in the Mediterranean. Also included are important habitats of the *Monachus monachus* monk seal, migratory bird-fauna, endemic flora as well as habitats of European and Mediterranean interest, such as sand dunes, and aloof vegetation systems, as well as the underwater meadows of the *Posidonia oceanica* plant. Finally, included within the N.M.P.Z. are three Natura 2000 sites.

Legal framework and national strategies

The legislative framework governing the region is based primarily on P.D. 1.12-22.12.1999 (N.M.P.Z. designation), as amended and in force, on Law No 2742/1999 (article 15, Protected Areas Managing Bodies), as amended by Law No 4519/18, and Law No 3937/2011 (regarding biodiversity). However, in the current legislative framework governing the protection of marine areas, contradictory provisions are pinpointed, mainly with regard to Law No 2971/2001 concerning coastlines, whose

provisions are not always consistent with marine area protection. Same is the case with General Port Regulation 38, which deregulates the rental of high-speed vessels without a specific starting point (Issue of Marine Space Carrying Capacity).

Furthermore, besides the main protection afforded by the provisions of the aforementioned P. D. 1.12-22.12.1999 in force, the status of marine protection is also strengthened by certain regulations regarding Natura 2000 sites (e.g. classification of projects/interventions within marine areas such as port works according to Ministerial Decision No 1958/2012, Government Gazette B' 21, as amended and codified with the Environmental Licensing Directorate's decision No 37674/2016, Government Gazette B' 2471).

Risks and threats

Under the National Strategic Reference Framework (N.S.R.F.) funding of the Operational Programme "Environment - Sustainable Development" and of the Operational Programme "Environment", and in view of drafting the 'Third National Report (2007-2014) Implementing Directive 92/43/EEC in Greece', a number of supervisory studies were carried out assessing the risks and threats to major habitats and species.

For the areas with protection codes GR2210002, GR2210003, GR2210004 and GR2210001, the risks and threats identified are presented in detail in the corresponding S.D.F.s (Standardized Data Forms-Annex). According to the latest version of the S.D.F.s, the pressures/threats exerted are discontinuous urbanization, noise pollution, sea routes, other anthropogenic sources of nuisance, such as amateur fishing, spawning beaches compaction through walking, but also the use of motor vehicles and marine recreational facilities.

Moreover, it is noted that a very large number of professional and private vessels operating in the area cause further nuisance to the *Caretta caretta*, which makes it necessary to establish an integrated regulatory framework with legal force for the marine environment of the N.M.P.Z., based on the carrying capacity of Laganas Bay.

Management Plans

No management plan has been drawn up for the N.M.P.Z. However, management measures are applied on a yearly basis, based on the already mentioned Presidential Decree for the Establishment of the Managing Body (M.B.) of the N.M.P.Z., as above amended and in force, according to which there are certain protection zones, where specific activities are permitted while others are prohibited. The management measures as well as the safeguarding programme are adjusted and updated annually, depending on the results of the previous year's report, as well as on new possible issues that may arise.

The restrictions for fishing, the legislation applies to the N.M.P.Z., are listed below:

- It is prohibited to fish with any fishing gear from 01/05 to 31/10 of each year in the Marine Area of Absolute Protection in the Bay of Laganas, Zakynthos (Sea Area A) (Article 4, P.D 1.12-22.1999).
- It is prohibited to install and operate fish farms for aquaculture in the Marine Area of Absolute and Partial Protection in the Bay of Laganas, Zakynthos: The aquaculture of any form in the Marine Area of Laganas Bay is prohibited (P.D. 1-12-22.12.1999).
- Any form of aquaculture is prohibited in the Sea Region of Strofades (P.D. 1-12-22.12.1999).
- It is prohibited to fish with trawls - purse seines – shore trawl in the whole marine area of the N.M.P.Z. (Ia - Laganas Bay, Ib - Strofadia Islands).
- It is prohibited to fish above sea beds with marine vegetation, particularly *Posidonia oceanica* or other marine Phanerogams: Regulation of the European Council (Reg. EC) 1967/2006, Ministerial Decision (M.D.) No 167378/2007.
- Only professional fishing, other than underwater fishing and the use of towed gears and circular nets, in the Laganas Bay Area may be permitted (Article 4, P.D. 1.12-22.12.1999).

- The maximum allowable catch-sizes are strictly determined by the relevant provisions [REG (EC) 1967/2006, REG (EU) 1380/2013], 26 Jan./13 Febr. 1954 'On the prohibition of fishing and the sale of fish of certain dimensions'.

Enactment / Implementation

A programme of control activities – safeguarding, scientific monitoring and informing the public, adopted annually by the Board of Directors of the N.M.P.Z.'s Managing Body (M.B.), is applied to the observance of the management measures taken each year. The timetable for implementation is adapted to the species and natural habitats under protection (eg *Caretta caretta* sea turtle, *Monachus monachus* monk seal, *Posidonia oceanica* meadows ...), taking also into account the anthropogenic activities developed within the same site. Regarding the protection of the sea turtle, the timetable for implementing measures follows precisely the sea turtle's lifecycle (mating, nesting, egg hatching) so that protection and management are effective and tailored according to both the natural and the anthropogenic parameters affecting it (Adapted Management).

Financing

Financing of the M.B.'s measures for the N.M.P.Z., until 31/12/2015, was covered, by more than 90%, by the National Strategic Reference Framework (N.S.R.F.), through the Public Investments Programme (P.I.P.), and more specifically through the Operational Programme "Environment" (O.P.E.) and the Operational Programme "Environment and Sustainable Development" (O.P.E.S.D.). From 01/01/2016, financing of the M.B.s' actions has been included in the Green Fund (State Budget). In addition, the M.B. covers a minor part of its activity costs from E.U. funding programs and from its own resources (donations-grants and rental income of coastal sections for mild actions, which have ceased since 2014).

The M.B., in order to address unforeseen circumstances and, by extension, the unforeseen costs involved, mainly uses its own resources. However, given that the M.B.s own resources are relatively small (~ € 5,000), it is difficult to cover for the above-mentioned unpredictable expenses. In addition, some of these resources are

directed towards the payment of inelastic operating expenses (e.g. vehicle insurance, etc.), which, albeit covered by the Green Fund, they need to be paid in advance before they can be subsidized. That has caused considerable problems in dealing with unexpected events, as the M.B.'s cash flows are irregular and deficient.

Monitoring mechanisms

At the N.M.P.Z. there are monitoring mechanisms such as an activities-control programme of safeguarding, scientific monitoring and of informing the public, which provides general and specialised surveillance of marine and terrestrial area. In addition, the summary reports which are drafted regularly, as well as the bio-monitoring studies that are carried out, when there is a financial framework available, contribute to assessing the effectiveness of management actions.

Patrols

During the previous year's summer period, that is from 01/05 to 31/10/17, marine-area patrols were conducted, on a 16-hour basis, for a span of 3 days a week, and on an 8-hour basis for a span of 4 days a week. In addition, joint patrols were carried out in the presence of coast-guard authorities, including night patrols at sea. On average and on an annual basis, 3,700 hours of marine safeguarding (by boat), and 27,000 hours of land-area safeguarding (outposts on the beach) are conducted.

During the summer period, in the land area (spawning beaches), safeguarding is conducted on a 16-hour basis, all days of the week, including 1-day and 1-night shift. However, due to lack of security personnel, priority is given, as far as safeguarding is concerned, for those spawning beaches that are more under strain. During the winter season, safeguarding, in both sea and land, is essentially conducted on an 8-hour shift model, which may vary from 8 to 12 hours depending on the needs, the season, and the frequency of visits as well as on the Managing Body's experience thus far.

In the early years, i.e. until 2014, taking into account the fact that the N.M.P.Z.'s Managing Body had the ability of recruiting emergency seasonal security personnel (+ 23 seasonal guards in the period of 2010-2014), safeguarding was

conducted on a 24-hour basis during the summer season, in which period the N.M.P.Z. faces the greatest pressure due to tourism. After the culmination of financing by the N.S.R.F. (2015), it has become impossible to hire seasonal security personnel resulting in reduced safeguarding time.

Tackling offenses

In most cases and for violations which have no direct effect on the protection of species and habitats, an observation/recommendation is made by the environmental watchdog and, in case the offender fails to comply, the competent authority (coast-guard) is informed to proceed with all the necessary actions (criminal proceedings + administrative fines). In the case of serious infringements (trawling within the N.M.P.Z., snorkelling, boat speeding, construction within the sea area - coastal zone, etc.), the competent authorities are immediately alerted and intervene to impose sanctions provided for by law.

Environmental indicators

Evaluations of environmental indicators are conducted through bio-monitoring studies, which are carried out when there is a financial framework. At the same time, an effort is being made by way of participating in other European programmes, but also by own means (as the approved budget allows), for a more regular scientific evaluation of environmental indicators. The evaluation results demonstrate that there is a greater burden on regions that are subject to substantial tourist pressure, which shows that measures adopted to manage the tourist volume in specific areas should be taken in collaboration with other stakeholders.

Other means of sustainability monitoring

Marine-Park-sustainability is monitored taking into account additional parameters such as: the number of visitors, the infrastructure, the technical interventions, the mortality rate of marine mammals and reptiles, etc. These data are provided by other services such as the Airport of Zakynthos as well as the Port Authority of Zakynthos (e.g. the island's traffic, the number of vessels licensed, and

by extension the potential number of vessels in the marine area of the N.M.P.Z. etc.), as well as partnerships with entrepreneurs operating in the area of the N.M.P.Z. (Divers: issue with alien species, fishermen: issue with fish stocks, sightseeing vessels: issue with the observation of the sea turtle, etc.).

Coordination between bodies and authorities involved in the management of the Marine Park

The fact that the Board of Directors consists of representatives of bodies and authorities from all sectors concerned [NGO (ARCHELON, W.W.F), scientists (President of the Managing Body of the N.M.P.Z., Professor of Marine Biology at the University of the Aegean), local-community representatives (Municipality of Zakynthos, Region of Ionian Islands, Association of Hoteliers - Zakynthos Hostels, Association of Agricultural Cooperative of Zakynthos), representatives of Ministries (Ministry of Environment and Energy, Ministry of Maritime Affairs, Ministry of Agricultural Development)], contributes to the effective coordination of the N.M.P.Z.'s management.

However, overlaps or conflicts of roles have been identified in different stakeholders' competencies, with the striking example of seashore rentals which were previously (until 2014) conducted by the M.B. of the N.M.P.Z., whereas at present rentals are carried out by the Municipality, resulting in the absence of direct control over business activities at the nesting beaches of the N.M.P.Z.

Participation of Non-Governmental Organisations and of the scientific community in the implementation process

In addition to the representation of NGOs and the scientific community in the Managing Body's Board of Directors, they also participate in the implementation process, either through specific programmes and actions, like NGOs ARCHELON, WWF Hellas, Medasset, or through research programmes and studies conducted within the N.M.P.Z. by national and international Universities and Research Institutes, (like the University of the Aegean, the Technological Institute of the Ionian Islands, the Aristotle University of Thessaloniki, the National and Kapodistrian

University of Athens, the University of Nice, the Hellenic Centre for Marine Research - HCMR, the National Centre for Scientific Research of France - CNRS, etc.). To ensure the effectiveness of the cooperation and the long-term synergy of the actions, a Memorandum of Understanding, a co-operation agreement, is forged, which clearly defines the role and responsibilities of each, in the majority of cases, to avoid overlapping and conflicts in the relations and actions undertaken by each party.

The views of the above-mentioned bodies, on the effectiveness of procedures and implementation methods, are expressed either through specific reports as to the entire protected area or through specific studies. An example of that is the compilation of annual reports by the N.G.O. ARCHELON, where the main challenges encountered during the summer season are articulated with regard to the reproductive activity of the sea turtle. Indicatively, the 2016 report cites the necessity of a Management Plan, continuous operation of the N.M.P.Z., reinforcement of safeguarding with more personnel, so that there is 24-hour protection during the summer season, and generally more stringent legislation. In the case of a protected area's conservation-status assessment, Universities and Research Institutions formulate management proposals for the effective protection and management of the N.M.P.Z. in relation to the species or habitats studied, considering the obligations arising from the national and European legislation (e.g. Directive 92/43/EEC).

Achievement of objectives outlined in the plan

Bearing in mind staff shortages and underfunding conditions of the N.M.P.Z., the objectives of the activities-control programme - safeguarding, scientific monitoring and informing the public, are achieved to a satisfactory degree, given that the majority of violations observed are dealt with. Nevertheless, it is necessary to strengthen the programme with additional personnel during the summer period.

Actions to raise public awareness

Within the framework of the actions taken by the N.M.P.Z.'s Managing Body an annual programme of environmental education in schools has been established and

conducted, both within the Prefecture of Zakynthos and schools of other Prefectures all over the Greek territory, while visitors are being informed continuously at the nesting beaches of the sea turtle *Caretta Caretta* by environmental rangers. In addition, there is a Thematic Exhibition Centre for the *Caretta Caretta* sea turtle in the area of Dafni (Vassilikos), as well as an information centre on the beach of Gerakas, where visitors can be properly informed with the help of tourist guides, as well as with rich, informative, and audio-visual material. On an annual basis, it is estimated that 2,000 students from Zakynthos and the rest of Greece are informed by qualified personnel from the Faculty of Physics while at least 200,000 - 300,000 visitors are updated on the sea turtle as well as on marine-protection issues.

Monitoring and Feedback of Information

The N.M.P.Z.'s Managing Body does not have a management plan, pending its approval by the competent Department of the Ministry for the Environment. However, it has management measures which are voted by the Board of Directors and approved by the Ministry for the Environment, and in particular the Directorate for Biodiversity, Soil and Waste Treatment.

The evaluation of the progress achieved is conducted by the Board of Directors of the N.M.P.Z.'s Managing Body after the Body's annual summary report. Furthermore, at the end of each year, an evaluation of the safeguarding programme, as well as of the management measures, is carried out by the Board of Directors followed by an updating of management measures.

Effectiveness of measures

The measures, deriving from the legislative framework that governs the area of N.M.P.Z. and implemented by the Managing Body of the N.M.P.Z. provide, to a great extent, for the effective reduction of anthropogenic pressures exercised on the protected object. However, due to natural changes (climatic), technological advances and increased development needs, several problems cannot be addressed under the above-mentioned legislative framework. A typical example is the development of general national legislation which allows for certain activities (mainly touristic), that

often contradict the protection measures taken in the particular M.P.A. (e.g. an unregulated number of vessels moving within the sea area impacting directly on Marathonisi's spawning beach, during the summer season, with the result that the number of visitors on this beach exceeds the carrying capacity for the effective protection of the sea turtle nests).

Information Feedback

Regarding the N.M.P.Z.'s Managing Body, positive feedback on management's progress of the Protected Object stems mainly from the long-term cooperation developed with international organizations (eg U.N.E.P.-United Nations Environment Programme, RAC / S.P.A.-Regional Activity Centre for Specially Protected Areas, I.U.C.N.-International Union for Conservation of Nature, W.W.F.-World Wildlife Fund) through its participation in the Network of Mediterranean Marine Protected Areas (MedPAN). This Network, of which the N.M.P.Z.'s Managing Body has been the Vice President since 2012, possesses all the necessary tools (database, exchange programmes, collaborations with specialised scientists, provision of printed material for dealing with specific issues, governance issues at Mediterranean level, etc.) that contribute towards better adaptation and protection of endangered species, bearing in mind the fact that the conservation of the sea turtle concerns not only its breeding ground, but also its survival and feeding areas located in other Mediterranean countries. At the same time, the Managing Body of the N.M.P.Z. is in close collaboration with the European Commission in connection with Greece's conviction for not protecting effectively the Sea Turtle in Zakynthos (Case C-103/2000).

Conclusion

The problems in the implementation of the terms of the relevant legislative framework are traced in the existence of contradictory provisions, insufficient or arduous funding, overlaps or conflicts of roles within the stakeholders' competences, as well as in climate change, technological advances and increased growth needs. These cannot be addressed under the existing legislative framework, which does not suffice.

6.b. Marine Park of Alonissos

General information

The National Marine Park of Alonissos in Northern Sporades (N.M.P.A.N.S.) is the largest European marine park and the first in Greece and occupies a total area of 2.315,70 km². Efforts to protect the region began in the early 1970s and the first decision for the protection of the monk seal and its habitats was issued in 1986. Ministerial decisions followed with the same objective and, finally, in 1992, the area was proclaimed "National Marine Park", with the Presidential Decree of 16.5.1992 (Government Gazette 519), which was replaced by Joint Ministerial Decision No 23537/2003, (Government Gazette 621/D'). In accordance with Law No 1650/1986, for the adoption of the above legislative framework, two Distinct Environmental Studies were prepared in 1990 and 2002 approved respectively with decision No 31316/1399/3.7.1991 of the then Minister of Environment, Planning and Public Works and decision No 55015/112/11.1.2002 of the Ministry's Director General. The National Marine Park of Alonissos has been included in the Natura 2000 Community Network and constitutes a *Monachus monachus* conservation area.

Legal framework and national strategies

The legislative framework governing the area is based on the above-mentioned Joint Ministerial Decision No 23537/2003 "Designation of the land and sea area of Sporades as a National Marine Park", and on the above-mentioned Laws No 3937/2011 "Conservation of biodiversity and other provisions", and No 2742/1999 (Article 15), as amended by Law No 4519/2018.

The fact that there are international waters within the Body's area of responsibility also makes it necessary to clarify the current legal status in force, i.e. whether these waters are governed by international law or by special regulations in force for the Marine Park.

Furthermore, according to Ministerial Decision of the Ministry of Culture MfC/ARCH/A1/F43/ 2144/9816.7.1997 (Government Gazette B' 660), the entire area of the N.M.P.A.N.S. was declared an archaeological site. With Ministerial Decision of

the Ministry of Culture MfC/GDAPC/ARCH/A1/F43/60806/2748/23.6.2011, (Government Gazette B' 1741), the marine archaeological site was demarcated anew, and 14 areas were declassified. This has resulted in bureaucratic problems and delays in the managing and monitoring actions that the Agency must implement¹².

Dangers and threats

Monitoring of the Mediterranean seal *Monachus monachus* is an action of primary importance for the Body. Within the project's framework of monitoring the species and habitats of Directive 92/43/EEC, implemented under the Operational Programme for the Environment and Sustainable Development (N.S.R.F 2007-2013), self-employed monitoring of the monk seal was carried out, assisted though by specialized scientific advisers.

The main threats to the Mediterranean seal, as documented by long-term monitoring of the species, in Greece principally and abroad, are the following:

- Destruction, alteration and fragmentation of the species biotope
- Deliberate killing
- Accidental trapping in fishing gears and choking

To a lesser extent and at a local level, the *Monachus monachus* monk seal is also threatened by a decrease in available food, contamination as well as viral agents. In the case of the N.M.P.A.N.S. the protective measures institutionalised and implemented thus far, have largely contributed in eliminating these threats. No particular threats have been identified for the survival of the Mediterranean monk seal at the borders of the N.M.P.A.N.S.

For the designation of these areas as M.P.A.s, during the study-drafting process of the Management Plan in 2009, the consultation provided for by legislation took place and proposals by all the stakeholders were submitted. In addition, representatives of the Central Administration (Ministries, Local Authorities, local productive classes and NGOs active in the area) participate in the Managing Body's 10-member Board of Directors.

¹² For example, an underwater sampling requires approval from the Central Archaeological Council and the action should become a presenter of an archaeologist, which is almost impossible.

Management Plans

A management plan has been developed for the N.M.P.A.N.S., which was assigned to third parties (Environmental Consulting Companies) covering all areas. In the plan, which was completed in 2009, neither measurable objectives, nor specific measures or definition of responsibilities are included, but it does take in fishing restrictive measures. The management plans should be updated every five years, but this is not observed due to a lack of financial resources.

Materialisation / Enactment

Financing

Funding of the Managing Body during the period 2007-2015 was mainly covered by the Public Investment Programme (P.I.P). with the implementation of relevant actions in the Community-Support Framework (C.S.F) and the National Strategic Reference Framework (N.S.R.F). As of 1.1.2016 the Body's fixed and operational needs are funded exclusively by the Green Fund.

Monitoring mechanisms- Patrols

The actual operation of the Body began in 2007, when, for the first time, staff was recruited, and the safeguarding programme commenced. Prior to 2007, safeguarding was carried out by the competent port authorities. Within the framework of the 3rd C.S.F, the Body purchased an inflatable speedboat and a polyester vessel, which were used to safeguard and monitor the area on a regular basis, and in collaboration with the port authorities. In October 2014, following the enforcement of a court order, the Body's patrol vessels were seized and since then the park's safekeeping was conducted solely by the port authorities. In 2016, following the sponsorship of a private foundation, free use was made of an 8-meter polyester vessel with which safeguarding is carried out. The frequency of patrols depends on the weather conditions (a lot less patrols in winter), but also on the available funds for the supply of fuel. In the last two years (2016-2017), whence the Body is financed only by the Green Fund, the money for fuel supply and maintenance costs of the vessel has been greatly reduced, so fewer patrols are taking place.

Tackling offenses

When violations in the N.M.P.A.N.S. are recorded, rangers proceed with a complaint to the port authority of Alonissos, and then the infringement file is documented. The offenses are brought before the Body's Board of Directors and any proposal for the imposition of an administrative fine is then sent to the competent department of the Region of Thessaly where the fine, varying according to the gravity of the infringement, is imposed by the Regional Governor. It is indicatively mentioned that for violations related to the core of the Park, that is the zone of absolute protection, the fine imposed for illegal fishing amounts to 5,000 €. Additionally, a trial is set for the imposition of a criminal fine, according to the provisions of Law No 1650/1986.

The Body's employees do not hold the power to exercise ex-officio control, but they can report illegal activities like any other citizen. However, that way they are involved in lengthy court proceedings and are forced to appear regularly (6-7 times a year) as witnesses, a situation which creates a heavy financial burden, both to the Body and to themselves (travel costs from Alonissos to seats of the competent Courts (Volos, Larissa, Skopelos)).

Environmental indicators

The Managing Body prepares on an annual basis a monitoring programme for the Mediterranean seal, in which births are recorded within the Park's habitats. At the same time, it is possible to develop other programmes in cooperation with NGOs (e.g. dolphin tracking programme), or with other research foundations and universities.

Other means of monitoring sustainability

Occasionally, there is information coming in from professional fishermen, tourist boats that enter the M.P.A., and even from tourists or indigenous residents (e.g. if a marine mammal, turtle, etc. is found injured or dead).

Coordination between bodies and authorities involved in the management of the Marine Park

There is a fairly satisfactory coordination between the Managing Body of the M.P.A. and local authorities, in implementing and safeguarding the M.P.A.'s management (e.g. Coast Guard, Port Authority, Municipality etc.).

Participation of NGOs and the scientific community in the implementation process

There is permanent presence of MOM (Hellenic Society for the Study and Protection of the Monk Seal, which is represented in the Body's Board of Directors and in decision-making), whose significant experience proved to be invaluable at the start of the operation of the N.M.P.A.N.S.

In addition, the scientific community, for its part, with a variety of research conducted in the N.M.P.A.N.S., depending on the fields of interest, contributes valuable data towards the N.M.P.A.N.S.'s management and protection.

Regarding the effectiveness of implementation procedures and methods, many times in recent years, the phenomenon of questionnaire-completion not receiving a very warm welcome by respondents has been observed. What is more, doubts have been raised as to the degree respondents reply based on what they truly believe.

Achievement of objectives outlined in the plan

To safeguard and monitor such a large marine area, floating means and necessary personnel as well as financial resources (maintenance, fuel) are required continuously. Intermittent and discontinued funding, through European and national programmes, does not ensure uninterrupted operation of the programme, resulting in large gaps and deficiencies as well as failure to implement protection measures.

Actions to raise public awareness

The Managing Body has an Information Centre where visitors are informed by the Body's personnel using audio-visual (photos, videos) as well as printed (brochures, maps) material.

Monitoring and Information Feedback

The competent authority responsible for monitoring the implementation of the management plans is the Managing Body of the Park, whose Board of Directors assesses the progress achieved. Reporting is carried out by the relevant departments of the Ministry of Environment and Energy. Assessment is conducted annually.

As far as the monitoring of the obligations arising from the current regulatory framework is concerned, this is carried out by the Managing Body's staff, depending on the nature of the obligations, i.e. responsibility on issues related to the assessment of the environmental situation of various indicators lies with the scientific personnel, while security officers are responsible for safekeeping matters.

Updating of the management studies, which has to be conducted every five years, is not carried out due to a lack of resources.

Effectiveness of measures

The monk seal population in recent years shows a small but steady increase. What is more, a satisfactory birth rate is recorded in the Park every year. That is why the International Union for the Conservation of Nature (I.U.C.N) organisation has now ranked the monk seal to the 'Endangered' level from the 'Critically Endangered'.

Conclusions

The areas that need further improvement are, according to the Body's views, the following:

- Responsibilities and legal coverage of safeguarding personnel
- Staff shortages
- Organisational problems in the Board's operation
- Delays in funding payroll and operating costs
- Faster administration of justice so as to act preventively and dissuasively

With regard to the most important areas and opportunities for the protection of marine biodiversity, they, in the organisation's opinion, are summarized as follows:

- Control and prevention of unlawful actions by professional fishermen.

- Informing and assimilating environmental awareness by both residents and visitors to the island (tourists, company representatives, etc.)
- Raising awareness of school-aged children on issues related to the positive impacts of the marine ecosystem and biodiversity on their lives not only as individuals, but also as members of a wider community sharing the same resource, which should be treated with utter respect and the utmost care.

Chapter 7

Conclusions

At a national level, the responsibility for the design, implementation and monitoring of the protection of M.P.As lies primarily with the Ministry of Environment and Energy.

A main conclusion of the audit is that there are no approved management plans, albeit the Greek coastline is the largest in Europe and the protection of M.P.As is covered by the general institutional framework. At the same time, more particularly, at local level, it is the Managing Bodies that mainly bear the burden of managing and protecting the areas.

Additionally, there appears to be a multiple protection status for many M.P.As (e.g. Natura, Ramsar, the Barcelona Convention, individual Presidential Decrees or Joint Ministerial Decisions for each protected area). Therefore, while there is an institutional framework that could contribute to the protection of the M.P.As, its effective implementation requires additional efforts at many levels, mainly through the effective cooperation of the stakeholders (Ministries, Scientific Agencies, NGOs, Local Bodies). This is also demonstrated by the fact that, according to scientific studies¹³ prospects for the conservation habitats are considered to be inadequate or worsening.

Regarding the bodies' response to the audit questionnaire, it is noted that the replies, provided by services of the Ministry of Environment and Energy, ranged from being extremely incomplete to non-existent. That made the course of the audit particularly difficult while it clearly demonstrated the shortcomings and weaknesses of the M.P.As' protection-system as well as the urgent need to take more effective action in the future. In addition, it should be noted that, with the exception of only one, NGOs, from the ones active in the protected areas falling within the audit scope, sent no responses. Furthermore, in the field of fisheries, the responsible Ministry of Rural Development and Fisheries responded solely to the questions that

¹³ H.M.R.C.

fell within its competence. Finally, the Hellenic Centre for Marine Research gave specific details of its research, studies and proposals regarding the issue of M.P.As.

From the specific replies of the Marine Parks of Zakynthos and Alonissos, it is clear that the particular bodies have developed a vertically integrated management organization for the protection of their area, starting from planning and continuing with its implementation and monitoring, under adverse conditions, both financial and institutional (eg conflict of roles, etc.).

Athens, October 2018

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ANNEXES

Annex I: Table of M.P.As

Annex II: Government Gazette 4432 / B' / 2017 (Natura Maps)

**Annex III: Standardized Data Forms (SDFs) and Maps of
Marine Protected Area of Zakynthos**